Public Document Pack

To: Councillor Yuill, Convener; Councillor Radley, Vice-Convener; and Councillors Ali, Blake, Henrickson, Hutchison, Massey, Nicoll and van Sweeden.

Town House,
ABERDEEN, 24 August 2024

NET ZERO, ENVIRONMENT AND TRANSPORT COMMITTEE

The Members of the **NET ZERO, ENVIRONMENT AND TRANSPORT COMMITTEE** are requested to meet in **Committee Room 2 - Town House on TUESDAY, 3 SEPTEMBER 2024 at 10.00 am. This is a hybrid meeting and Members may also attend remotely.**

The meeting will be webcast and a live stream can be viewed on the Council's website. https://aberdeen.public-i.tv/core/portal/home

ALAN THOMSON
INTERIM CHIEF OFFICER – GOVERNANCE

B U S I N E S S

NOTIFICATION OF URGENT BUSINESS

1.1. There are no items of urgent business at this time

DETERMINATION OF EXEMPT BUSINESS

2.1. Members are requested to determine that any exempt business be considered with the press and public excluded

DECLARATIONS OF INTEREST AND TRANSPARENCY STATEMENTS

3.1. Members are requested to intimate any declarations of interest

DEPUTATIONS

4.1. There are no requests for deputation at this time

MINUTE OF PREVIOUS MEETING

5.1. Minute of Previous Meeting of 11 June 2024 - for approval (Pages 5 - 16)

COMMITTEE PLANNER

6.1. Committee Business Planner (Pages 17 - 28)

NOTICES OF MOTION

7.1. There are no Notices of Motion at this time

REFERRALS FROM COUNCIL, COMMITTEES & SUB COMMITTEES

8.1. There are no referrals at this time

PERFORMANCE AND RISK

8.2. Net Zero, Environment and Transport Performance Report - CORS/24/228 (Pages 29 - 44)

NET ZERO & ENVIRONMENT

9.1. Air Quality Progress - CORS/24/209 (Pages 45 - 136)

9.2. Local Environmental Action Fund (LEAF) - CR&E/24/256 (Pages 137 - 150)

9.3. Property Level Flood Protection Scheme Uptake and Changes to the Property Level Protection Grant Scheme - CR&E/24/249 (Pages 151 - 156)

TRANSPORT

10.1. Westhill to Aberdeen City Centre Active Travel Improvements - CR&E/24/254 (Pages 157 - 562)

10.2. A947 Bucksburn Roundabout to Parkhill Junction Multi-modal Corridor Study Detailed Appraisal - CR&E/24/257 (Pages 563 - 1116)

10.3. Roads Winter Service Plan 2024-2025 - CR&E/24/250 (Pages 1117 - 1262)

10.4. Draft Aberdeen Local Transport Strategy Consultation - CR&E/24/258 (Pages 1263 - 1346)

NOT FOR PUBLICATION

TRANSPORT

11.1. Operation of a Future Aberdeen eBike Hire Scheme - CR&E/24/255 (Pages 1347 - 1356)

Integrated Impact Assessments related to reports on this agenda can be viewed here

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Should you require any further information about this agenda, please contact Steph Dunsmuir, sdunsmuir@aberdeencity.gov.uk

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NET ZERO, ENVIRONMENT AND TRANSPORT COMMITTEE

ABERDEEN, 11 June 2024. Minute of Meeting of the NET ZERO, ENVIRONMENT AND TRANSPORT COMMITTEE. Present:- Councillor Yuill, Convener; Councillor Radley, Vice-Convener; and Councillors Allard (as substitute for Councillor Hutchison from part of article 15 onwards), Ali, Blake, Henrickson, Hutchison (for articles 1 to part of article 15), Massey, Nicoll and van Sweeden.

Also present:- Councillor Bonsell for article 14 and Councillor Mrs Stewart for article 15.

The agenda and reports associated with this minute can be located here.

Please note that if any changes are made to this minute at the point of approval, these will be outlined in the subsequent minute and this document will not be retrospectively altered.

YOUTH CLIMATE CHANGE PRESIDENT

1. The Convener advised that in line with the Committee Terms of Reference, the Youth Climate Change President, Saanvi Kumar, had been due to attend the meeting to participate. He advised that due to preparation for her advanced Highers, she would be unable to participate, however had advised that she would view the meeting webcast. He added that the timing of future invitations could be looked at to avoid any clash with potential study for exams.

DETERMINATION OF EXEMPT BUSINESS

2. The Convener proposed that the Committee consider item 11.7 (Roads and Transport Related Capital Budget Programme 2024/25 – Exempt Appendices) with the press and public excluded from the meeting.

The Committee resolved:-
in terms of Section 50A(4) of the Local Government (Scotland) Act 1973, to exclude the press and public from the meeting during consideration of the above item so as to avoid disclosure of information of the classes described paragraph 8 of Schedule 7(A) to the Act.

DECLARATIONS OF INTEREST AND TRANSPARENCY STATEMENTS

3. The following statements of transparency were noted:-

- in relation to items 9.3 (Nature Awareness Campaign); 10.1 (Trees and Woodland) and 10.2 (Open Space Audit Report), Councillor Blake advised that her husband worked for NatureScot, however she did not consider that this connection

amounted to an interest which would prevent her from participating in the consideration of those items;

- in relation to items 11.2 (Citywide Implementation of 20mph Speed Limit), 11.4 (Various Small Scale Traffic Management – Stage 3), 11.5 (The Aberdeen City Council (City Centre, Aberdeen) (Traffic Management) (Experimental) Order 2023 – Statutory Public Consultation and 11.6/11.7 (Roads and Transport Related Budget Programme 2024-2025 and exempt appendices), the Convener advised that he was a member of Cycling UK and the AA, however he did not consider that these connections amounted to interest which would prevent him from participating in those items; and
- in relation to item 11.6/11.7 (Roads and Transport Related Budget Programme 2024-2025 and exempt appendices), Councillor Massey advised that he lived on one of the streets which was listed on the reserve list for resurfacing works, however he did not consider that this was an interest which needed to be declared and would prevent him from participating in the item.

MINUTE OF PREVIOUS MEETING OF 27 MARCH 2024 - FOR APPROVAL

4. The Committee had before it the minute of its previous meeting of 27 March 2024 for approval.

The Committee resolved:-
to approve the minute as a correct record.

COMMITTEE BUSINESS PLANNER

5. The Committee had before it the business planner, as prepared by the Interim Chief Officer – Governance.

The Committee resolved:-
(i) to note the verbal update provided on item 7 (Building Energy Efficiency) by the Chief Officer – Strategic Place Planning, that the building performance policy and standards were currently being updated in accordance with the national standards which had recently been produced, and that a report would be presented to a future meeting on progress and any changes which might be required;
(ii) also in relation to item 7, to note that the Chief Officer – Strategic Place Planning would circulate information to Members outwith the meeting on the timeline for the production of the Local Heat & Energy Efficiency Strategy;
(iii) to note that officers had advised there might be a delay to item 26 (Den Burn Restoration Project), depending on when the results of funding applications were received, as that would affect whether a meaningful update could be provided to Committee in November;

(iv) to agree to remove items 49 (Road Safety Plan 2023-2027), 54 (Wellington Road Multimodal Corridor), 59 (Carbon Budget Monitoring) and 64 (EV Infrastructure Joint Procurement Exercise) for the reasons outlined in the planner; and
(v) to otherwise note the business planner.

PERFORMANCE REPORT - CORS/24/165

6. The Committee had before it a report by the Executive Director of Corporate Services which presented the status of appropriate key performance measures relating to the services falling within its remit. The report included performance to the end of financial year 2023/24, and it was noted that it therefore reflected the organisational structure in place at the commencement of the 2023/24 reporting year.

The report recommended:-
that the Committee note the report and provide comments and observations on the performance information contained in the report Appendix A.

The Committee resolved:-
(i) in relation to page 36 of the report, and the performance indicator for Sickness Absence - Average Number of Days Lost – Environmental, to note the update provided at the meeting and that the Clerk would circulate the report going to the June Staff Governance Committee on the matter to Net Zero, Environment and Transport Committee members for information;
(ii) in relation to performance indicators on fleet asset emissions, to note the explanations given at the meeting as to why the target for emissions had a yellow status, despite the fact 94% of the fleet was low emission, and that officers would circulate information to Members outwith the meeting which identified where there had been peaks and troughs in the data and the reasons for this; and
(iii) to otherwise note the report.

PLACE BASED STRATEGY FRAMEWORK - CR&E/24/160

7. The Committee had before it a report by the Executive Director of City Regeneration and Environment which provided an update on the development of some of the Council's key place-based strategies.

The report recommended:-
that the Committee –
(a) note the current position on the preparation of plans and strategies set out in the report, and the indicative timelines provided; and
(b) instruct the Chief Officer – Strategic Place Planning to produce an annual Service Update to this Committee on the ongoing development of the plans and strategies set out in the report, noting that this would be in addition to the ongoing reports to Committee on each individual plan and strategy.

NET ZERO, ENVIRONMENT AND TRANSPORT COMMITTEE
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The Committee resolved:-
to approve the recommendations.

NATURE AWARENESS CAMPAIGN: PLANS FOR A CITYWIDE COLLABORATION - CR&E/24/164

8. With reference to article 12 of the minute of its meeting of 31 October 2023, the Committee had before it a report by the Executive Director of City Regeneration and Environment which provided an update on plans for a Citywide Nature Awareness Campaign.

The report recommended:-
that the Committee –
(a) approve the outline Plans for the Citywide Nature Awareness Campaign; and
(b) instruct the Chief Officer – Strategic Place Planning to continue working on the Campaign with citywide partners and provide a service update within 12 months of this report.

The Committee resolved:-
to approve the recommendations.

TREES AND WOODLAND- CR&E/24/166

9. The Committee had before it a report by the Executive Director of City Regeneration and Environment which provided an update on the ongoing Council work to Aberdeen's public trees and woodland following the storms of 2021, 2022 and 2023. The report also set out information on Environmental Services' sustainability projects and initiatives undertaken to protect and enhance Aberdeen's public trees and woodlands including the 1 Million Trees initiative and the work to deliver elements of the Tree & Woodland Strategic Implementation Plan. Finally, the report sought approval for Environmental Services to continue to explore funding options, including grants and sponsorship to help fund further tree planting programmes in Aberdeen.

The report recommended:-
that the Committee –
(a) note and welcome the information contained within this report; and
(b) instruct the Chief Officer – Operations, to continue to explore funding options, including grants and sponsorship to help fund further tree planting in Aberdeen.

The Committee resolved:-
(i) to note that if Members had any suggestions for green spaces in their Wards which could be considered for any future rewilding or planting, that they should contact the Environmental Manager;

(ii) in relation to the query from Councillor van Sweeden on how the Environmental Service dealt with safety and comfort on tree lined pathways where trees and leaves might fall in poor weather, to note that the Environmental Manager would consider this further and how this could be built in to the work his team was undertaking in such spaces in the city;
(iii) to note that the Environmental Manager would provide information to Members outwith the meeting on whether the planting of gorse would have impact on any other species;
(iv) to note that the Environmental Manager would present a report to a future Committee on tree planting in respect of the objective to plant one million trees between 2022 and 2032; and
(v) to approve the recommendations.

OPEN SPACE AUDIT REPORT - CR&E/24/162

10. The Committee had before it a report by the Executive Director of City Regeneration and Environment which sought approval for the draft Aberdeen Open Space Audit Reports 2024, under the requirements of The Planning (Scotland) Act 2019 which required planning authorities to carry out an audit of existing open space provision in their local authority area.

The report recommended:-
that the Committee -
(a) approve the content of the draft Aberdeen Open Space Audit 2024: Main and Public Survey Reports;
(b) instruct the Chief Officer – Strategic Place Planning to finalise the reports (including minor corrections, formatting and inclusion of remaining Ward and Theme information following the examples shown on pages 34 and 50 in the main report), circulate these finalised reports via a service update to Net Zero, Environment and Transport Committee Members and publish them on the Council's website;
(c) instruct the Chief Officer – Strategic Place Planning following consultation with the Chief Officer - Data Insights to publish the Open Space Audit geographic information system (GIS) mapping on the Council's website;
(d) instruct the Chief Officer – Strategic Place Planning to explore options for the development of an ArcGIS StoryMap version of the findings of the Aberdeen Open Space Audit reports; and
(e) instruct the Chief Officer – Strategic Place Planning to proactively promote the reports and findings with relevant stakeholders, including our communities.

The Committee resolved:-
(i) to note that officers would circulate information to Members outwith the meeting on the number of public toilets in Aberdeen and their location;

(ii) to note that Kingswells had been omitted from the tree equity index and canopy cover and that officers had contacted the company that had undertaken the data collection to ascertain why that was;
(iii) also in relation to the above, to note that officers would ascertain whether the inclusion of Kingswells would improve the figure of 8% in the Kingswells, Sheddocksley and Summerhill ward; and
(iv) to approve the recommendations.

ABERDEEN RAPID TRANSIT - RECOMMENDED NETWORK ROUTEING - CR&E/24/161

11. The Committee had before it a report by the Executive Director of City Regeneration and Environment which presented recommendations in relation to the desired routes for the proposed Aberdeen Rapid Transit (ART) network in order to enable further progression of the Strategic Business Case.

The report recommended:-
that the Committee –
(a) note the findings of the Aberdeen Rapid Transit (ART) Routeing Appraisal, as presented in Appendix 1;
(b) note the views of the North East Bus Alliance on the proposed ART routes, as highlighted at 3.19 of the report;
(c) agree the proposed ART routes as outlined at Figure 1 and 3.8-3.18 to be the desired network upon which to continue to develop the business case for ART;
(d) agree that the multi-modal corridor studies be concluded at the end of Scottish Transport Appraisal Guidance (STAG) Detailed Options Appraisal and that the bus priority infrastructure options that align with the agreed ART routes as identified at (iii) above, be incorporated within the overall ART Business Case development process, as illustrated at Figure 2, rather than continue as standalone projects;
(e) to agree that those actions identified in the Multi-Modal Corridor Studies that do not align with the proposed ART network be progressed through separate workstreams as appropriate;
(f) to instruct the Chief Officer – Strategic Place Planning to report back to this Committee on the ART Strategic Business Case by the end of the 2024/25 financial year, including further exploration of the costs and risks associated with both a Bus Service Improvement Partnership (BSIP) and Franchise approach, and prior to moving to Outline Business Case;
(g) to instruct the Chief Officer – Strategic Place Planning to engage with bus operators, through the North East Bus Alliance, on the options for delivery of ART along these desired routes through a partnership approach; and
(h) to instruct the Chief Officer – Strategic Place Planning to undertake further engagement, as appropriate, with the public and stakeholders on the development of ART to inform the Strategic Business Case, encompassing and superseding previously agreed actions for engagement on the individual corridors, and

therefore enabling future engagement to be better aligned and set within the context of the wider ART vision and programme.

The Committee resolved:-
to approve the recommendations.

CITYWIDE IMPLEMENTATION OF 20MPH SPEED LIMIT - CR&E/24/139

12. The Committee had before it a report by the Executive Director of City Regeneration and Environment which provided information on the outcome of a citywide assessment carried out by a consultant on behalf of Aberdeen City Council, in line with the Scottish Government's National Strategy for 20mph, and sought approval for the implementation of 20mph on roads that had been identified to meet the Scottish Government's criteria.

The report recommended:-
that the Committee –
(a) acknowledge the Scottish Government's National Strategy for 20 mph in urban areas; and
(b) instruct the Chief Officer - Operations to promote the Traffic Regulation Orders (TRO)/Temporary Traffic Regulation Orders (TTRO) necessary for the introduction and implementation of 20mph on the roads identified in Appendix 2 of the report. Any objections received would be reported back to this Committee for consideration, otherwise the TRO would be made and the measures implemented.

The Committee resolved:-
(i) to note that there was an error in section 3.8(a) of the report and the figure should read 100m, rather than 10m;
(ii) to note that officers had provided information to Transport Scotland on the expected cost of implementation, and would provide this information to Members outwith the meeting;
(iii) to note that the Convener and Vice Convener had undertaken to write to the Scottish Government, the Chief Constable, and the Crown Office Procurator Fiscal in relation to the Council's concerns about enforcement of the 20mph speed limit;
(iv) to acknowledge the Scottish Government's National Strategy for 20 mph in urban areas;
(v) to instruct the Chief Officer – Operations to promote the Traffic Regulation Orders (TRO) for 20mph of those streets located within residential areas identified in Appendix 2 and on conclusion of the TRO process, with or without objections, report back to this Committee for consideration prior to implementation;
(vi) to instruct the Chief Officer - Operations to report back to this Committee those streets, identified in Appendix 2, meeting the place criteria or linking sections of roads meeting the place criteria, which would encourage a more consistent

reduction in speed across a wider area, that could be made 20mph under Temporary Traffic Regulation Orders (TTRO), reporting the results of an informal public consultation process; and

(vii) to instruct the Chief Officer - Operations to bring back a report to this Committee, working with Police Scotland, in 24 months on the impact and enforcement on vehicle speeds on the roads where 20mph has been introduced.

IMPLEMENTATION OF PAVEMENT PARKING PROHIBITION - CR&E/24/140

13. The Committee had before it a report by the Executive Director of City Regeneration and Environment which sought approval for the implementation of pavement parking prohibition, double parking, and parking at dropped kerbs, in Aberdeen and permission to proceed with an exemption process for the identified streets listed in section 3.5 of the report.

The report recommended:-
that the Committee –

(a) acknowledge the Scottish Government's directive to local authorities regarding the pavement parking, double parking and parking at dropped kerbs prohibitions;

(b) authorise officers (whether City Wardens, officers in the Parking and Bus Lane Appeals Team or other officers) to undertake, arrange to be undertaken, authorise and instruct, all activity relating to parking enforcement (including but not limited to enforcement of pavement parking, double parking and parking at dropped kerbs) in terms of the Transport (Scotland) Act 2019 and the Parking Prohibitions (Enforcement and Accounts) (Scotland) Regulations 2023, excluding streets that are to be exempted from the pavement parking prohibition;

(c) instruct the Chief Officer - Operations to remove existing signs in relation to existing pavement parking bans; and

(d) instruct the Chief Officer - Operations to undertake the Traffic Regulation Order (TRO) process necessary for the exemption of the streets listed in section 3.5 of the report from the pavement parking prohibition and report back to this Committee any objections received. If no objections were received, the TRO should be made, and the exemptions implemented on site.

The Committee resolved:-

(i) to note that there was an error in the report at section 3.5 where the ward for Great Northern Road was listed incorrectly as Airyhall/Broomhill/Garthdee, however the map appended to the report did show the correct location;

(ii) to note that officers would ascertain whether Edinburgh City Council had required to increase the number of wardens to implement the enforcement of pavement parking, and if so, whether they had utilised the funding source for additional wardens, and would circulate this information to Members outwith the meeting; and

(iii) to approve the recommendations (a) to (d), with the addition of (e) to instruct the Chief Officer – Operations to report to this Committee no later than July 2025 on

the operation of the pavement parking prohibition and to make any necessary recommendations arising from that.

VARIOUS SMALL SCALE TRAFFIC MANAGEMENT - STAGE 3 - CR&E/24/168

14. The Committee had before it a report by the Executive Director of City Regeneration and Environment which set out objections and comments received as part of the statutory consultation process with respect to proposed Traffic Regulation Orders (TROs).

In terms of Standing Order 16.1, Councillor Bonsell attended the meeting and asked a number of questions of officers in respect of the report.

The report recommended:-
that the Committee –

(a) acknowledge the objections received as a result of the public advertisement of proposed Traffic Regulation Orders;
(b) in relation to “THE ABERDEEN CITY COUNCIL (A92 North Anderson Drive, Aberdeen) Prohibition of Right Turns) Order 202(X)" overrule the objection received and approve this order be made as originally advertised;
(c) in relation to “The ABERDEEN CITY COUNCIL (Cove Road- Extension of prohibition of waiting at any time restrictions Order 202(X)" overrule the objection received and approve this order be made as originally advertised;
(d) in relation to “THE ABERDEEN CITY COUNCIL (Abergeldie Road & Braemar place–proposed lengths of prohibition of waiting at any time.) (TRAFFIC MANAGEMENT) ORDER 202X” overrule the objection received and approve this order be made as originally advertised;
(e) in relation to “THE ABERDEEN CITY COUNCIL (Milltimber Brae proposed 40mph speed limit) (TRAFFIC MANAGEMENT) ORDER 202X” overrule the objection received and approve this order be made as originally advertised; and
(f) in relation to “THE ABERDEEN CITY COUNCIL (Hazeldene/Pinewood proposed 20mph speed limit) (TRAFFIC MANAGEMENT) ORDER 202X” overrule the objection received and approve this order be made as originally advertised.

The Committee resolved:-
to approve the recommendations.

THE ABERDEEN CITY COUNCIL (CITY CENTRE, ABERDEEN) (TRAFFIC MANAGEMENT) (EXPERIMENTAL) ORDER 2023 - STATUTORY PUBLIC CONSULTATION - CR&E/24/169

15. The Committee had before it a report by the Executive Director of City Regeneration and Environment which set out the objections and comments received

during the consultation process for “The Aberdeen City Council (City Centre, Aberdeen) (Traffic Management) (Experimental) Order 2023”.

The report recommended:-
that the Committee –

(a) note the benefits highlighted, to date, by the bus operators, and recognise the measures would support continuing improvements. Similarly, noting the measures supported active travel by way of walking or cycling. Collectively, the measures were a vital component of the City Centre Masterplan for establishing an attractive and vibrant city centre, with an environment that was conducive to encouraging footfall. Furthermore, choice remained in terms of access, with car parks and on-street parking capacity unaffected, and a network of appropriate distributor roads available, whether for access or through traffic;

(b) approve the making of “The Aberdeen City Council (City Centre, Aberdeen) (Traffic Management) Experimental Order 2023” as a permanent Order, albeit with continued monitoring in terms of the ongoing City Centre Masterplan; and

(c) instruct the Chief Officer - Operations to commence the procedure for the Order to be made permanent.

Members asked a number of questions of officers.

In accordance with Standing Order 16.1, Councillor Mrs Stewart addressed the meeting and spoke against the recommendations in the report.

The Convener, seconded by the Vice Convener, moved:-

That the Committee:-

(a) agree the recommendations subject to (b) and (c) below;

(b) in the context of the ongoing construction works on Union Street and around the New Market development, instruct the Chief Officer - Operations to introduce a Temporary Traffic Regulation Order (TTRO) to suspend the Bus Gates on Union Street (westbound only) / Market Street (southbound only), between its junctions with Adelphi and Hadden Street; this allowing all classes of vehicle to turn left from Union Street onto Market Street, thereafter restricting general traffic to a left only turn at the bottom of Market Street onto Trinity Quay (Virginia Street), this to aid continued access and servicing of the businesses on Market Street and Shiprow throughout the remaining period of construction;

(c) instruct the Chief Officer – Operations to report to this Committee in 18 months’ time on the operation and impact of this city centre traffic management regime and to make any recommendations for modifications he considers appropriate.

Councillor Ali, seconded by Councillor Blake, moved as an amendment:-

That the Committee:-

(a) notes that in 2016 the Labour led administration brought forward the City Centre Masterplan, which was agreed unanimously by all political parties;
(b) notes the Masterplan document speaks about pedestrian(s) and pedestrianisation 73 times within the document and mentions Bus Gates twice;
(c) agrees that the Masterplan document was designed with people in mind and that Bus Gates would be installed at key intersections on the periphery of the city centre to ensure buses are not impacted by congestion during weekday peak hours;
(d) agrees that decisions taken by the SNP administration risk turning Aberdeen Union Street into a ghost town;
(e) agrees businesses right across the city are angry and disappointed with the SNP Administration at Aberdeen City Council for killing footfall in our city by introducing bus gates without actually introducing pedestrianisation of the central part of Union Street;
(f) agrees that pedestrianisation of the central section of Union Street is the way forward for our city; and
(g) instructs the Chief Officer - Operations to report back on the rescinding of The Aberdeen City Council (City Centre, Aberdeen) (Traffic Management) Experimental Order 2023, including financial impact, and report back to Full Council.

On a division, there voted:- for the motion (6) – the Convener; the Vice Convener; and Councillors Allard, Henrickson, Nicoll and van Sweeden; for the amendment (3) – Councillors Ali, Blake and Massey.

The Committee resolved:-
(i) to note that officers would investigate whether data was available for Council-run car parks to show if there had been any drop in uptake of parking;
(ii) to note that officers would provide information to Members outwith the meeting in relation to footfall data from other cities, and the comparison with Aberdeen;
(iii) to note that officers would contact Police Scotland to ask if there had been an increase in anti-social behaviour in the city centre since last summer and the closure of Union Street to general traffic, and to further note that a report was due to the next meeting of Communities, Housing and Public Protection Committee on this issue; and
(iv) in relation to the query as to how many people were now travelling into the city centre on public transport, including the number of people going in and out of the bus station, to note that officers would contact Stagecoach and First Group to ask if more detailed data could be provided on this; and
(v) to adopt the motion.

In terms of Standing Order 34.1, Councillor Ali intimated that he would like this matter to be referred to full Council in order for a final decision to be taken. He was supported in this regard by Councillors Blake and Massey.

NET ZERO, ENVIRONMENT AND TRANSPORT COMMITTEE
11 June 2024

At this juncture, the Convener proposed that the Committee suspend Standing Order 40.2 (Length of Meetings) to enable the meeting to continue beyond six hours. The Committee agreed unanimously to suspend Standing Order 40.2.

ROADS AND TRANSPORT RELATED BUDGET PROGRAMME 2024 - 2025 (ANNUAL REPORT) - CR&E/24/167

16. The Committee had before it a report by the Executive Director of City Regeneration and Environment which set out the proposed Roads and Transportation programme for the approved 2024/2025 capital budgets, and sought approval for the schemes detailed in the report and associated appendices.

The report recommended:-
that the Committee –
(a) approve the schemes listed in the appendices as the detailed proposals for expenditure within each budget heading; and
(b) instruct the Chief Officer - Operations, following consultation with the Head of Commercial and Procurement Service, to undertake or instruct appropriate procedures in accordance with the Council's procurement regulations to procure the works referred to in the exempt appendices for the roads capital budget programme for the financial year 2024/25 and award contracts relating thereto.

The Committee resolved:-
(i) to note that officers would follow up on Councillor Nicoll's query in relation to works which had been due to happen in Midstocket and which were now on the reserve list in the report; and
(ii) to approve the recommendations.

In accordance with the decision taken under article 2, the following item was considered with the press and public excluded.

ROADS AND TRANSPORT RELATED BUDGET PROGRAMME 2024 - 2025 EXEMPT APPENDIX

17. The Committee had before it an exempt appendix relating to the Roads and Transport Related Budget Programme 2024-2025 report (Article 16 of this minute refers).

The Committee resolved:-
to note the information contained with the exempt appendices.

- **COUNCILLOR IAN YUILL, Convener**

	A	B	C	D	E	F	G	H	I	J
1	**NET ZERO, ENVIRONMENT AND TRANSPORT COMMITTEE BUSINESS PLANNER** The Business Planner details the reports which have been instructed as well as reports which the Functions expect to be submitting for the calendar year.									
2	**Report Title**	**Minute Reference/Committee Decision or Purpose of Report**	**Update**	**Report Author**	**Chief Officer**	**Director**	**Terms of Reference**	**Aberdeen Adapts and Net Zero Themes**	**Delayed or Recommended for removal or transfer, enter either D, R, or T**	**Explanation if delayed, removed or transferred**
3	**3 September 2024**									
4	Queens Cross to City Centre Cycle Route / Westhill to Aberdeen Active Travel Route OBC	Council 08/02/24 - recognising that segregated cycle facilities were now planned along the length of Union Street, to agree that proposals for a Queens Cross to City Centre cycle route be re-absorbed into the wider Westhill to Aberdeen Active Travel Route Outline Business Case (OBC), and instruct the Chief Officer - Strategic Place Planning to report the OBC to the Net Zero, Environment and Transport Committee later in 2024 NZET 27/03/24 - to note that funding from Nestrans has been established to progress active travel connections between Westhill and Aberdeen city centre, and instruct the Chief Officer – Strategic Place Planning to work with Aberdeenshire Council and Nestrans to progress with public and stakeholder engagement on a preferred option and report the preferred option or options relevant to Aberdeen City Council to this Committee in September 2024		Will Hekelaar	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
5	Local Environmental Action Fund (LEAF)	The purpose of this report is to provide an update on the Local Environmental Action Fund (LEAF) pilot, seek approval to continue this funding model on an ongoing basis, and to explore options to expand the fund further.		Guy Bergman	Strategic Place Planning	City Regeneration & Environment	1, 5 and 12	Natural Environment		
6	Local Transport Strategy 2023-2030	Net Zero, Environment & Transport 29/08/23 - following the consultation, instruct the Chief Officer - Strategic Place Planning, to report a final Aberdeen Local Transport Strategy (2023-2030) and its appendices and supporting documents back to this Committee in Spring 2024	Due to the number of responses and the complexity of issues to address, it was agreed that the report be presented to the September meeting to give additional time for proper analysis	Alan Simpson	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
7	Net Zero, Environment & Transport Performance Report	To present the performance report		Louise Fox	Data Insights	Corporate Services	7	N/A		
8	Property Level Protection Grant Scheme	Net Zero, Environment & Transport 07/03/23 - to instruct the Chief Officer – Operations and Protective Services to monitor take up of the grant and to report back to the Committee in September 2024		Claire Royce	Strategic Place Planning	City Regeneration & Environment	1	Building, Heat & Infrastructure		
9	Road Winter Service Plan	To present the Road Winter Maintenance programme every September.		Paul Davies	Operations	City Regeneration & Environment	8	Mobility		

	A	B	C	D	E	F	G	H	I	J
2	**Report Title**	**Minute Reference/Committee Decision or Purpose of Report**	**Update**	**Report Author**	**Chief Officer**	**Director**	**Terms of Reference**	**Aberdeen Adapts and Net Zero Themes**	**Delayed or Recommended for removal or transfer, enter either D, R, or T**	**Explanation if delayed, removed or transferred**
10	A947 Multi-Modal Transport Corridor Study	City Growth & Resources Committee 21/09/22 - subject to recommendation 2.2, instruct the Chief Officer – Strategic Place Planning to report the Detailed Appraisal and Outline Business Case and next steps to the Net Zero, Environment and Transport Committee when complete NZET 27/03/24 - to instruct the Chief Officer – Strategic Place Planning to proceed with public and stakeholder consultation on the options established through the Dyce to Bucksburn (A947) corridor study options appraisal, and to report the preferred option or options relevant to Aberdeen City Council back to this Committee once completed	Work will be complete this summer with a view to reporting in September 2024.	Tony Maric	Strategic Place Planning	City Regeneration & Environment	7 and 8	Mobility		
11	Air Quality Progress	To update committee members on the annual air quality monitoring results for 2023		Nick Glover	Strategic Place Planning	City Regeneration & Environment	1 and 6			
12	E-Bike Scheme	F&R 08/05/24 - to instruct the Chief Officer – Strategic Place Planning to explore options around how a future scheme might operate and report back findings to the Net Zero, Environment and Transport Committee in September		Donald Kinnear	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
13	Annual Report on the performance of Aberdeen City Council from the Scottish Roadworks Commissioner.	To update the Committee on the performance of Aberdeen City Council's Roads Maintenance and Roadworks Coordination sections following the publication of the annual performance report by the Scottish Roadworks Commissioner		Kevin Abercrombie	Operations	City Regeneration & Environment	7	N/A	D	Officers are awaiting a response from the Roadworks Commissioner and wish to take the response on board in the report to be presented to Committee, therefore the report will not be available for the September meeting
14	**12 November 2024**									

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15	Den Burn Restoration Project	NZET 20/06/23 - to instruct the Chief Officer – Strategic Place Planning to (a) continue to seek additional funding; (b) evolve the project scope in line with available funding; and (c) report back to Committee once the required funding has been secured	SEPA Offer and MoU are signed. NHS has a place on the Steering Group - as neighbouring landowner and to embed health / wellbeing in the project. Funding for Concept Design mostly in place and Tender being drafted. Private sector Investment Brochure complete. Solicitation for funding will start. As commercially sensitive, details will require to remain confidential until agreed. Intention to Report back to Committee after Concept Design stage and funding in place to seek approval for Detailed Design.	Sue Cumming	Strategic Place Planning	City Regeneration & Environment	1			
16	Future Operation of Controlled Parking Zones Y and YY (Garthdee and Kaimhill)	NZET 27/03/24 - to (i) instruct the Chief Officer - Operations to assess responses to the informal consultation and to report back to a future meeting of this Committee with the results and recommendations for the future of the CPZ; and (ii)to instruct the Chief Officer – Operations to engage with RGU on the basis of the undertaking given by the then Principal of RGU on 27 March 2015 that, before the end of the current arrangement, the University would engage with Council and community "to seek to agree on a framework for the period after the ten years that will be acceptable to all and will meet the needs of the Community".	Discusions are ongoing with RGU and Community Council. A number of options are being worked on and a report will be brought forward after summer 2024.	Vycki Ritson	Operations	City Regeneration & Environment	7	Mobility		
17	Review of Waste Strategy	NZET 27/03/24 - to instruct the Chief Officer - Operations to report the review of the waste strategy through this Committee starting in Autumn 2024		Martina Klubal / Mark Reilly	Operations	City Regeneration & Environment	1	TBC		
18	Active Travel Routes around Schools	Net Zero, Environment & Transport 31/10/23 - to instruct the Chief Officer - Strategic Place Planning, Chief Officer - Education and the Chief Officer - Operations and Protective Services to bring back a report on options for how to promote and improve active travel routes around schools	Report will now be presented to the November Committee - This work will be informed by the Active Travel Network Review currently being undertaken by Nestrans	David Dunne / Mark Reilly / Shona Milne	SPP / Operations / Education and Lifelong Learning	Various	8	Mobility		

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19	£1 Off-Street Parking Fees	Council Budget 06/03/24 - to instruct the Director of City Regeneration and Environment to implement £1 off-street parking fees after 5pm, and to run this for six months before reporting the impact on the city centre to the Net Zero, Environment and Transport Committee		Mark Reilly	Operations	City Regeneration & Environment	8	N/A		
20	Expansion of Home Composting of Garden Waste	Council Budget 06/03/24 - to instruct the Director of City Regeneration and Environment to report to the Net Zero, Environment and Transport Committee on how the Council could encourage and support the expansion of home composting of garden waste		Mark Reilly	Operations	City Regeneration & Environment	1	Natural Environment		
21	Nature Data: Outcomes of a Citywide Collaboration (Originally titled Biodiversity Data and Awareness - this report is the second of two reports, the first was reported in June 2024)	NZET 31/10/23 - to instruct the Chief Officer – Strategic Place Planning to develop and lead on two projects in partnership with other public bodies in the city to a) develop and monitor a suite of cross-organisation biodiversity and related data, i.e. land managed for nature, access to nature, engagement with nature, etc. to inform the Council and City's strategic direction and required on the ground actions and investments now and in the future; b) develop, implement and monitor a public and wider stakeholder awareness and engagement campaign on the value of nature to the City, its citizens and businesses, the risks to nature locally and the need for local action, what the Council & partners are doing and what others can also do in support of nature recovery across Aberdeen; and c) report back to this Committee within 12 months with the outcomes of these projects		Richard Brough / Sue Cumming	Strategic Place Planning	City Regeneration & Environment	1	Natural Environment		
22	Local Nature Conservation Site Review	To present the review		Gordon McLean	Strategic Place Planning	City Regeneration & Environment	1	Natural Environment		
23	North East Scotland Active Travel Network Review	NZET 31/10/23 - to instruct the Chief Officer – Strategic Place Planning to report further progress to this Committee at an appropriate time following the public consultation process, within the next 12 months		Donald Kinnear	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
24	Climate Change Report 2023-24	To approve and sign the annual Aberdeen City Council Climate Change Report, before submission of the report to the Scottish Government to meet statutory requirements. Council Budget 06/03/24 - to instruct the Chief Officer - Strategic Place Planning, following consultation with the Chief Officer - Capital, to develop methodologies for estimating and assessing carbon impacts; and to report on the processes in the annual Climate Change Report to the Net Zero, Environment and Transport Committee		Jenny Jindra	Strategic Place Planning	City Regeneration & Environment	2	Empowerment		

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25	Net Zero, Environment & Transport Performance Report	To present the performance report		Louise Fox	Data Insights	Corporate Services	7	N/A		
26	Macaulay Drive Aberdeen	Operational Delivery Committee 16/09/21 - to instruct the Chief Officer – Operations and Protective Services to consult with local members and the community council after 12 months of the operation of the Macaulay Drive redetermination; and, if issues are raised through the consultation process from a pedestrian safety perspective, that a report be brought back to this committee by that Chief Officer, identifying whether any further measures may be needed.	The report is expected 1 year post completion of construction. The construction was delayed and completed in November 2023 therefore the report will be brought to committee in November 2024.	Neale Burrows	Operations	City Regeneration & Environment	8	N/A		
27	Annual Committee Effectiveness Report	To present the annual committee effectiveness report		David Dunne	Strategic Place Planning	City Regeneration & Environment	General Delegation 8.5	N/A		
28	Biodiversity Duty Report 2024	To present the annual report		Lina-Elvira Back	Strategic Place Planning	City Regeneration & Environment	4	Natural Environment		
29	Infrastructure Improvements to support increased numbers of Electric Vehicles within the council fleet	City Growth & Resources Committee 11/05/21 - to instruct Chief Officer - Corporate Landlord in consultation with Chief Officer - Operations and Protective Services and Chief Officer - Strategic Place Planning to report to a future meeting of this committee with a programme of infrastructure improvements to support increased numbers of electric vehicles within the council fleet		Stephen Booth / Mark Reilly / David Dunne	Corporate Landlord / Operations / Strategic Place Planning	Families and Communities/City Regeneration and Environment	1	Mobility		
30	Strategic Car Parking Review	Net Zero, Environment & Transport 16/01/24 - to note that officers would report back to Committee once the outcome of the application for funding to NESTRANS was known; ii) to note the likely costs and timescales for undertaking an update to the Strategic Car Parking Review (SCPR); and (iii) to instruct the Chief Officer – Strategic Place Planning to proceed with updating the SCPR as soon as possible, as funding permits, and report the outcomes back to this Committee by the end of 2024		Will Hekelaar	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
31	Aberdeen Cross City Connections - Active Travel Scheme Development	Net Zero, Environment & Transport 07/03/23 - to report back to this Committee upon completion of the outline business case, and to provide an annual update on progress of detailed design and delivery thereafter.	Funding was not secured in 23/24 to progress the outline business case. Officers will continue to seek funding in 24/25.	Ken Neil	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
32	**2025**									
33	Road Safety Plan Annual Update towards 2030 casualty reduction targets	To provide the annual update	January (or nearest committee)	Vycki Ritson	Operations	City Regeneration & Environment	8	Mobility		

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34	Cluster Risk Register Reporting	To present Cluster Risk Register and Assurance Maps in accordance with committee terms of reference.	March	Mark Reilly	Operations	City Regeneration & Environment	9	N/A		
35	Net Zero Aberdeen & Aberdeen Adapts: Annual Report 2023/24	Council 28/02/22 - to instruct the Chief Officer - Strategic Place Planning to report back to the City Growth and Resources Committee on an annual basis on progress towards the objectives of both Net Zero Aberdeen Routemap and Aberdeen Adapts and to revise them at least every five years, and sooner as may be necessary	March	Emma Young / Sinclair Laing	Strategic Place Planning	City Regeneration & Environment	5	All		An annual report was presented in March 2024 and subsequent Annual Reports will be presented each March thereafter. Individual NZA / AA strategy revisions will take place across 2024/2025 and will be presented seperately and scheduled for NZET nearer the time (potentially Oct 2025)
36	Aberdeen Rapid Transit	NZET 11/06/24 - to instruct the Chief Officer - Strategic Place Planning to report back to Committee on the ART Strategic Business Case by the end of financial year 2024/2025, including further exploration of the costs and risks associated with both a Bus Service Improvement Partnership and Franchise approach, and prior to moving to Outline Business Case. Also to agree that the multi-modal corridor studies be concluded at the end of the STAG Options Appraisal and the bus priortiy infrastructure options that align with the agreed ART routes be incorporated within the overall ART business case development process rather than continue as standalone projects.		Kirsty Chalmers	Strategic Place Planning	City Regeneration & Environment	7 and 8	Mobility		
37	Trees and Woodland	Net Zero, Environment & Transport 09/05/23 - to instruct the Chief Officer – Operations and Protective Services to report annually to the Net Zero, Environment & Transport Committee on progress to the objectives of the Tree & Woodland Strategic Implementation Plan	June 2025	Steven Shaw	Operations	City Regeneration & Environment	1	Natural Environment		
38	Roads and Transport Related Budget Programme 2025 - 2026 (Annual Report)	This report is Business Critical to spend the allocated Capital Budget approved at the Council Budget meeting and brings together the proposed roads and transportation programme from the approved Capital Budgets for 2025/26		Neale Burrows	Operations	City Regeneration & Environment	7	N/A		
39	Low Emission Zone - Costs & Income	Net Zero, Environment & Transport 31/10/23 - to instruct the Chief Officer – Strategic Place Planning to submit a report to this Committee in Summer 2025 identifying the costs and income associated with operation of the LEZ during the 2024/25 financial year, including a proposed programme for the use of any surplus income.	Summer 2025 - It will be July 2025 before we know what full year 1 income is so reporting in summer 2025 is achievable	Will Hekelaar	Strategic Place Planning	City Regeneration & Environment	8	TBC		

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40	Staff Travel Policy and Council Travel Plan	Net Zero, Environment & Transport 28/03/24 - to instruct the Chief Officers – Strategic Place Planning and People and Citizen Services, following analysis of the connsultation and finalisation of the documents, to report both the updated Staff Travel Policy and Council Travel Plan back to this Committee and / or other relevant committees by Summer 2025 for approval.	Summer 2025	Anthony Burns	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
41	Implementation of Pavement Parking Prohibition	NZET 11/06/24 - to instruct the Chief Officer - Operations to report to this Committee no later than July 2025 on the operation of the pavement parking prohibition and make any necessary recommendations arising from that	July 2025	Tolu Olowoleru	Operations	City Regeneration & Environment	8	Mobility		
42	**DATE FOR REPORTING BACK TO BE CONFIRMED**									
43	Bus Lane Enforcement programme	To update Members of the progress on the Bus Lane Enforcement programme, and to seek approval to progress the 2024/25 programme as outlined within the report.		David Dunne	Strategic Place Planning	City Regeneration & Environment	7	Mobility		
44	Building Performance Criteria - Energy Efficiency	Council 28/2/22 - to instruct the Chief Officer - Corporate Landlord within the context of available funding, to update the Council's Building Performance criteria to ensure that it is compliant with Scottish Government's voluntary Net Zero Public Buildings Standards for all new build or significant refurbishment projects and to seek funding opportunities to upgrade existing building stock, including all required feasibility assessments to allow the building assets to meet Energy Efficiency Standard for Social Housing (EESH2), or to reduce carbon usage within the portfolio and create pathways to Net Zero, and report back to the City Growth and Resources Committee on progress before March 2023 NZET Committee 20/6/23 - to note that officers would provide an update on the next meeting on item 8 (Building Performance Criteria – Energy Efficiency) which would outline when the work was expected to be undertaken	To note the verbal update at the June 2024 meeting that the building performance policy and standards were currently being updated in accordance with the national standards which had recently been produced and that a report would be presented to a future meeting on progress and any changes which might be required	Stephen Booth / Mai Muhammad	Corporate Landlord	Families and Communities	1	Building, Heat & Infrastructure		

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45	Citywide implementation of 20mph speed limit	NZET 11/06/24 - (i) to instruct the Chief Officer - Operations to promote the Traffic Regulation Orders for 20mph of those streets located within residential areas identified in Appendix 2 of the report, and on conclusion of the TRO process, with or without objections, report back to this Committee for consideration prior to implementation; (ii) to instruct the Chief Officer - Operations to report to Committee those streets, identified in Appendix 2, meeting the place criteria or linking sections of roads meeting the place criteria which would encourage a more consistent reduction in speed across a wider areas that could be made 20mph under Temporary TROs, reporting the results of an informal public consultation process; and (iii) to instruct the Chief Officer - Operations to bring a report back, working with Police Scotland, in 24 months on the impact and enforcement on vehicle speeds on the roads where 20mph has been introduced		Tolu Olowoleru	Operations	City Regeneration & Environment	8	Mobility		
46	Transport Delivery Programme	City Growth & Resources Committee 05/12/19 - to instruct the Chief Officer – Strategic Place Planning and Chief Officer – Capital, to develop a prioritised delivery programme of transport interventions (to encompass larger-scale interventions recommended in the Sustainable Urban Mobility Plan (SUMP) and the City Centre Masterplan, as well as projects arising from the recent Roads Hierarchy review and the ongoing Low Emission Zone development process) to inform the Capital budget process and report this programme back to Committee in due course.	Regional Active Travel Network Review (prioritised programme of active travel projects) potentially supercedes this. Recommend holding this item until the Active Travel Network Review is completed and options are put forward to next year's capital plan and external funders.	Nicola Laird	Strategic Place Planning	City Regeneration & Environment	7	Mobility		
47	Annual Report - Northern Roads Collaboration Joint Committee	To update the Committee on the annual report of the Northern Roads Collaboration Joint Committee	The Northern Roads Colloboration Joint Committee is currently not meeting. A letter is being sent out to neighbouring authorities to establish if there is an appetite to reconvene or cease future committee meetings. Previously another authority chaired and provided support for the committee. This is no longer available. Officers are unable to commit to a reporting date until the appetite of the neighbouring authorities is established.	Neale Burrows	Operations	City Regeneration & Environment	7	Mobility		

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48	South College Street Phase 2 / Riverside Drive Active Travel Improvements	Net Zero, Environment & Transport 27/03/24 - to note the findings of the option testing for the Riverside Drive active travel improvements (as described in paragraph 3.12 of this report) and instruct the Chief Officer – Strategic Place Planning to seek external funding to allow for the continued development of wider active travel connectivity improvements adjacent to and across the River Dee at this location and report any findings to a future meeting of this Committee.	Dependant on sourcing external funding to be able to progress. Potential for funding to be in place for 2025/26, in which case likely reporting would be early 2026. Officers are unable to commit to a date for reporting back until such time as funding can be identifed.	Ken Neil	Strategic Place Planning	City Regeneration & Environment	7 and 8	Mobility		
49	A93 Peterculter to Aberdeen Multi-Modal Corridor Study	Net Zero, Environment & Transport 07/03/23 - subject to funding being obtained, to instruct the Chief Officer – Strategic Place Planning to report the Detailed Appraisal, Outline Business Case, and next steps to the Net Zero, Environment and Transport Committee by summer 2024. NZET 27/03/24 - to instruct the Chief Officer – Strategic Place Planning to proceed with public and stakeholder consultation on the options established through the Banchory to Aberdeen (A93) corridor study options appraisal, and to report the preferred option or options relevant to Aberdeen City Council back to this Committee once completed	The public consultation will take place after summer - expected reporting date to Committee is early 2025	Jane Obi	Strategic Place Planning	City Regeneration & Environment	8	Mobility		
50	Aberdeen Hydrogen Integration - Governance	City Growth & Resources Committee 03/2/22 - to instruct the Director of Resources and Director of Commissioning to continue discussions with Aberdeen Heat and Power regarding future opportunities for integrating hydrogen into District Heating and report the outcomes to a future meeting of this Committee	A date for reporting back cannot be confirmed until the ongoing feasibility study is completed	Barry Davidson / Andrew Collins	Commercial and Procurement	City Regeneration & Environment	1	Energy Supply		
51	ARI Parking	Net Zero, Environment & Transport 31/10/23 - (i) to instruct the Chief Officer – Operations and Protective Services to report to this Committee on any future impacts arising from the above recommendations or collaboration with NHS Grampian to improve accessibility to the site for patients, staff and visitors; and (ii) to instruct the Director of Commissioning to invite bus operators to a meeting including the Convener and Vice Convener of the Net Zero Environment and Transport Committee, and representatives from each political group, to discuss the impact the changes to the bus services has had on NHS Grampian staff and patients; and instruct the Director of Commissioning to report back to the next appropriate meeting of the Committee on the outcome of the meetings agreed and any potential further steps	There has been no further development on item i). There is currently a planning application in in relation to the Lady Helen car park and discussions are due to begin in relation to ART, therefore it is not possible at this time to confirm a date for reporting back	Mark Reilly / David Dunne	Operations / Strategic Place Planning	City Regeneration & Environment	8	Mobility		

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52	Locality Based Approach to Deliver Net Zero	At its meeting of 28 February 2022, the Council instructed the Chief Officer - Strategic Place Planning, in conjunction with relevant stakeholders, to explore options towards developing a locality-based approach to deliver net zero and adaptation, taking into account allied approaches and commitments, such as locality plans, local place plans, 20-minute neighbourhoods, etc., and to begin this process with a pilot reporting both back to Council in or before March 2023	Due to the restructure of the Climate and Environment team and delays in guidance on 20minute neighbourhoods and Local Place Plans associated with the National Planning Framework 4, this work has been delayed and will be reported to a future committee. With the reestablishment of the Net Zero Leadership Board officers are unable to report back until the board considers options for taking this forward.	David Dunne	Strategic Place Planning	City Regeneration & Environment				
53	A92 Haudagain Improvement – Detrunking Settlement	To present the details of the final settlement for the remaining sections of Trunk Road on Anderson Drive / Great Northern Road and Auchmill Road. Contractor working on the Haudagain Improvement for Transport Scotland failed to complete the scheme before 31/3/2022. Although the scheme opened 16/5/22, this means that the earliest the old Trunk Road will be detrunked is 31/3/2023. Officers expect that this report will not come back to committee until May 2023 at the earliest	Information is still awaited from Transport Scotland	Neale Burrows	Operations	City Regeneration & Environment	8	Mobility		
54										
55	**SERVICE UPDATES**									
56	Bus Partnership Fund Grants	CG&R 03/02/22 - to instruct the Chief Officer - Strategic Place Planning, given the long term nature of the project, to bring back update reports on a quarterly basis - agreed at NZET 10/01/23 that these be provided as service updates		Will Hekelaar	Strategic Place Planning					
57	Bus Patronage	NZET 09/05/23 - to note that officers would provide a service update in relation to any available data on bus patronage which could be shared (following from the Aberdeen Rapid Transit Options Appraisal report being considered)		Will Hekelaar	Strategic Place Planning					
58	Green Thread	NZET 16/01/24 - to note that the Environmental Manager had offered to discuss the Green Thread and work of the various groups in more detail with Members should they wish to contact him, and that a service update would also be circulated in due course		Steven Shaw	Operations					
59	Intelligent Transport System	NZET 16/01/24 - to note that officers would provide a service update on the Intelligent Transport System		Neale Burrows	Operations					

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60	EV Infrastructure Joint Procurement Exercise	NZET 20/06/23 - to note that officers would report back to a future Committee on the joint procurement exercise being undertaken in relation to EV infrastructure. As there are no actions for Committee to approve, it was agreed at NZET on 11/06/24 this this be presented as a service update		David Dunne	Strategic Place Planning	City Regeneration & Environment				
61	Place Based Strategy Framework	NZET 11/06/24 - to instruct the Chief Officer - Strategic Place Planning to produce an annual service update on the ongoing development of the plans and strategies set ou in the report, noting that this would be in addition to the ongoing reports to Committee on each individual plan and strategy	June 2025	David Dunne	Strategic Place Planning	City Regeneration & Environment				
62	Nature Awareness Campaign	NZET 11/06/24 - to instruct the Chief Officer - Strategic Place Planning to continue working on the campaign with citywide partners and provide a service update within 12 months of this report	By June 2025	Richard Brough / Gordon McLean	Strategic Place Planning	City Regeneration & Environment				
63	Open Space Audit	NZET 11/06/24 - to instruct the Chief Officer - Strategic Place Planning to finalise the reports and circulate via service update		Guy Bergman	Strategic Place Planning	City Regeneration & Environment				

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ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero, Environment and Transport
DATE	3 Sept 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	Net Zero, Environment and Transport Performance Report
REPORT NUMBER	CORS/24/228
EXECUTIVE DIRECTOR	Andy MacDonald
CHIEF OFFICER	Martin Murchie
REPORT AUTHOR	Louise Fox
TERMS OF REFERENCE	7

1. PURPOSE OF REPORT

1.1 To present Committee with the status of appropriate key performance measures relating to the services falling within its remit.

2. RECOMMENDATION

2.1 That the Committee note the report and provide comments and observations on the performance information contained in the report Appendix A.

3. CURRENT SITUATION

Report Purpose

3.1 This report is to provide members with key performance measures in relation to certain appropriate services as expressed within the 2024/25 Council Delivery Plan.

Report Structure and Content

3.2 Performance Management Framework Reporting against in-house delivery directly contributing to, or enabling delivery against, the city's Local Outcome Improvement Plan, (LOIP) has informed development of successive Council Delivery Plans, including the 2024/25 Council Delivery Plan agreed by Council on 6th March 2024.

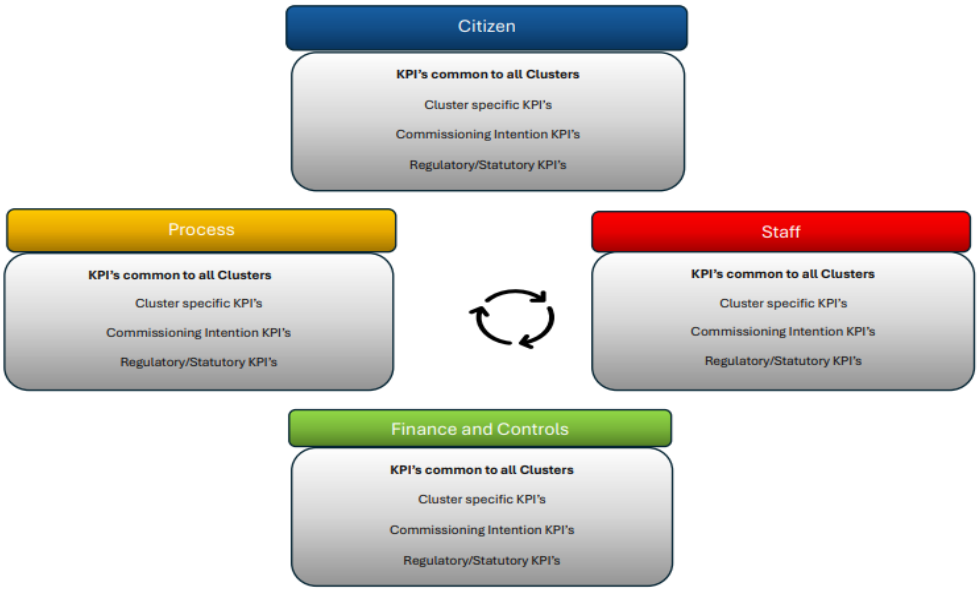
3.3 The Council's Performance Management Framework, supporting and enabling scrutiny against progress of the Council Delivery Plan and its key measures, establishes a robust performance management and reporting system which encompasses single and multi-service inputs, outputs and outcomes.

3.4 The refreshed Performance Management Framework for 2024/25 was approved at the meeting of Council on the 21st August 2024.

3.5 Service standards against each function/cluster, associated with Council delivery planning, offer continuous insight into the effectiveness, and accessibility of core service provision to the Council's stakeholders and city communities.

3.6 Where appropriate, data capture against these standards is now directly incorporated within the suite of metrics contained within Appendix A and will be reported against on either a monthly, quarterly or annual basis.

3.7 The Performance Management Framework provides for a consistent approach within which performance will be reported to Committees. This presents performance data and analysis within four core perspectives, as shown below, which provides for uniformity of performance reporting across Committees.



3.8 This report, as far as possible, details performance up to the end of June 2024 or Quarter 1 2024/25, as appropriate and where data is currently available. It also includes an update on performance against the annual maximum cap of carbon emissions (tCO2e) and progress towards meeting the annual carbon savings target (tCO2e).

3.9 Appendix A provides an overview of performance across certain relevant services, with reference to recent trends and performance against target.

3.10 Within the summary dashboard the following symbols are also used:

Performance Measures

Traffic Light Icon

On target or within 5% of target

 Within 5% - 20% of target and being monitored

 More than 20% below target and being actively pursued

 Data only – target not appropriate

Where narrative analysis of progress against service standards is provided and has been attributed with a RAG status by the relevant Service Manager, these are defined as follows:

RAG Status

- **GREEN** – Actions are on track with no delays/issues emerging
- **AMBER** – Actions are experiencing minor delays/issues emerging and are being closely monitored
- **RED** - Actions are experiencing significant delays/issues with improvement measures being put in place

4. FINANCIAL IMPLICATIONS

There are no direct financial implications arising out of this report.

5. LEGAL IMPLICATIONS

There are no direct legal implications arising out of this report.

6. ENVIRONMENTAL IMPLICATIONS

There are no direct environmental implications arising out of this report

7. RISK

The assessment of risk contained within the table below is considered to be consistent with the Council's Risk Appetite Statement.

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic	None	NA	NA	NA
Compliance	No significant legal risks.	Publication of service performance	L	Yes

		information in the public domain ensures that the Council is meeting its legal obligations in the context of Best value reporting.		
Operational	No significant operational risks.	Oversight by Elected Members of core employee health and safety/attendance data supports the Council's obligations as an employer	L	Yes
Financial	No significant financial risks.	Overview data on specific limited aspects of the cluster's financial performance is provided within this report	L	Yes
Reputational	No significant reputational risks.	Reporting of service performance to Members and in the public domain serves to enhance the Council's reputation for transparency and accountability.	L	Yes
Environment / Climate	None	NA	NA	NA

8. OUTCOMES

COUNCIL DELIVERY PLAN	
	Impact of Report
Aberdeen City Council Policy Statement	**None**
Aberdeen City Local Outcome Improvement Plan	
Prosperous Economy Stretch Outcomes	The Council aims to support improvement in the local economy to ensure a high quality of life for all people in Aberdeen. This report monitors indicators which reflect current economic activity within the City and actions taken by the Council to support such activity.
Prosperous People Stretch Outcomes	The Council is committed to improving the key life outcomes of all people in Aberdeen. This report monitors key indicators impacting on the lives of all

	citizens of Aberdeen. Thus, Committee will be enabled to assess the effectiveness of measures already implemented, as well as allowing an evaluation of future actions which may be required to ensure an improvement in such outcomes.
Prosperous Place Stretch Outcomes	The Council is committed to ensuring that Aberdeen is a welcoming place to invest, live and visit, operating to the highest environmental standards. This report provides essential information in relation to environmental issues allowing the Committee to measure the impact of any current action.
Regional and City Strategies	None

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	No Assessment is required for this report. I confirm this has been discussed and agreed with Martin Murchie, Chief Officer, Data Insights (HDRCA) on 6th Aug 2024
Data Protection Impact Assessment	Not required
Other	None

10. BACKGROUND PAPERS

Council Delivery Plan 2024/25 – COM/24/060
Local Outcome Improvement Plan 2016-2026 (April 2024 Refresh)
Performance Management Framework – CORS/24/232

11. APPENDICES

Appendix A – Performance Summary Dashboard

12. REPORT AUTHOR CONTACT DETAILS

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Net Zero, Environment and Transport Committee Performance Report Appendix A

Operations

Environmental Services

1. Citizen – Environmental Services

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Total No. complaints received (stage 1 and 2) - Environment	24		16		40		
% of complaints resolved within timescale (stage 1 and 2) - Environment	54.2%		81.3%		92.5%		75%
% of complaints with at least one point upheld (stage 1 and 2) - Environment	16.7%		12.5%		17.5%		
Total No. of lessons learnt identified (stage 1 and 2) - Environment	0		0		0		

***Lessons learnt referred to throughout this Appendix are lasting actions taken/changes made to resolve an issue and to prevent future re-occurrence for example amending an existing procedure or revising training processes. When a complaint has been upheld, action would be taken in the form of an apology or staff discussion/advice, but these actions are not classified as lessons learnt.**

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Number of Partners / Community Groups with links to national campaigns - Green Thread	184		159		217		

2. Processes - Environmental Services

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
*% Streets free from litter and refuse to a minimum Grade B (in line with Keep Scotland Beautiful LEAMS standards)	Data unavailable						80%
Open spaces satisfactorily maintained to a minimum of Grade B (in line with APSE national benchmarking LAMS standards)	100%		46%		75%		80%
Number of Complaints upheld by Inspector of Crematoria	0		0		0		0
% Outdoor play areas visited, inspected and maintained to national standards on a fortnightly basis	100%		100%		100%		100%
% Water safety equipment inspected within timescale	99.4%		96.1%		99.6%		100%

***Dataset unavailable until August 2024**

3. Staff - Environmental Services

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Accidents - Reportable - Employees (No in Quarter - Environment)	0		0		1		
Accidents - Non-Reportable - Employees (No in Quarter - Environment)	0		6		1		

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
*Sickness Absence - Average Number of Days Lost - Environmental	14.1		13.7		12.9		10
**Average number of working days lost due to sickness absence per FTE employee, monthly	1.63		1.61		1.56		

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Establishment actual FTE	295.88		293.92		290.68		

*** We are aware that the reported performance of the 12-month rolling average for working days lost due to sickness absence per FTE throughout this report, is not fully accurate due to current system constraints relating to the calculation of FTE and variable working patterns for some staff. In some cases, the actual absence rate is lower than the reported figure. This does not impact on attendance management for staff and their respective managers. Officers are currently working internally on data quality issues and with the vendor to resolve this anomaly.**

**** This indicator calculates the working days lost due to sickness per month per employee. This is calculated by dividing the total number of days lost due to sickness during the respective month by the average of all the FTE staff employed during the same month.**

4. Finance & Controls - Environmental Services

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Staff Costs - % Spend to Date (FYB)	7.6%		15.4%		23.7%		100%

Fleet and Transport

1. Citizen – Fleet and Transport

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/5		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Total No. complaints received (stage 1 and 2) - Fleet	0		0		1		
% of complaints resolved within timescale (stage 1 and 2) - Fleet	No complaints Q3/Q4				100%		75%
% of complaints with at least one point upheld (stage 1 and 2) - Fleet					0%		
Total No. of lessons learnt identified (stage 1 and 2) - Fleet					0		

2. Processes – Fleet and Transport

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
% HGV's achieving first time MOT pass	100%		93.9%		88.9%		95%
% Light Vehicles achieving first time MOT pass	93.8%		86.4%		95.6%		93%
% of Council fleet - alternative powered vehicles	14%		13.8%		14.8%		
% of Council fleet lower emission vehicles (YTD)	93.9%		93.9%		96.1%		100%

3. Staff – Fleet and Transport

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Accidents - Reportable - Employees (No in Quarter - Fleet)	0		0		0		
Accidents - Non-Reportable - Employees (No in Quarter - Fleet)	0		0		1		

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Sickness Absence - Average Number of Days Lost - Fleet	7.19		6.83		6.28		10
Average number of working days lost due to sickness absence per FTE employee, monthly	1.93		2.48		1.71		
Establishment actual FTE	36.83		35.38		36.83		

4. Finance & Controls – Fleet and Transport

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Staff Costs - % Spend to Date (FYB)	8.1%		15.9%		24.5%		100%

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
*Fleet Services - % of LGV/ Minibuses/ Small Vans Vehicles under 5 years old	72.5%		54.81%		76.42%		80%
*Fleet Services - % of large HGV vehicles under 7 years old	72.12%		65%		77.1%		80%

Roads and Infrastructure

1. Citizen - Roads

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Total No. complaints received - Roads	32		61		39		
% of complaints resolved within timescale - Roads	84.4%		68.9%		69.1%		75%
% of complaints with at least one point upheld (stage 1 and 2) - Roads	37.5%		26.2%		51.3%		
Total No. of lessons learnt identified (stage 1 and 2) - Roads	1		1		2		

2. Processes - Roads

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Percentage of all streetlight repairs completed within 7 days	91.72%		96.97%		97.03%		90%
Number of Street Light Repairs completed within 7 days	144		64		98		
Potholes Category 1 and 2 - % defects repaired within timescale	77.88%		97.23%		100%		95%
Potholes Category 1 and 2 - No of defects repaired within timescale	811		246		122		

3. Staff - Roads

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/2025 Target
	Value	Status	Value	Status	Value	Status	
Accidents - Reportable - Employees (No in Quarter - Roads)	0		0		0		
Accidents - Non-Reportable - Employees (No in Quarter - Roads)	1		3		0		

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Sickness Absence - Average Number of Days Lost - Roads	10.16		9.01		8.03		10
Average number of working days lost due to sickness absence per FTE employee, monthly	0.74		1.09		1.13		
Establishment actual FTE	156.62		155.62		152.99		

4. Finance & Controls - Roads

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Staff Costs - % Spend to Date (FYB)	7.3%		15%		24%		100%

Waste Services

1. Citizen - Waste

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Total No. complaints received - Roads	92		127		99		
% of complaints resolved within timescale - Roads	93.1%		95.7%		92.9%		75%
% of complaints with at least one point upheld (stage 1 and 2) - Roads	56.9%		75%		62.6%		
Total No. of lessons learnt identified (stage 1 and 2) - Roads	0		0		2		

2. Processes – Waste

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
*% Waste diverted from Landfill	87.7%%		87.7%		90.4%		85%
*Percentage of Household Waste Recycled/Composted	42.9%		42.1%		42.4%		50%

***% Waste diverted from Landfill/% Household Waste Recycled/Composted – These figures are intended and used for internal monitoring only and are based on a rolling 12-month period.**

Recycling and Diversion rate for rolling 12 months July 2023 – June 2024

Description	Tonnage (T)	Percentage	Target
Recycled	38328.2	42.4%	50%
EFW	43386.4	48.0%	
Total Waste diverted from landfill (= Recycled + EfW)	81714.6	90.4%	85%
Landfilled	8718.5	9.6%	
Total household waste	90433.1	100%	

3. Staff – Waste

Performance Indicator	Q3 2023/24		Q4 2023/24		Q1 2024/25		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Accidents - Reportable - Employees (No in Quarter - Waste)	0		1		0		
Accidents - Non-Reportable - Employees (No in Quarter - Waste)	12		14		8		

Performance Indicator	Apr 2024		May 2024		Jun 2024		2024/25 Target
	Value	Status	Value	Status	Value	Status	
Sickness Absence - Average Number of Days Lost - Waste	10.72		9.69		8.84		10
Average number of working days lost due to sickness absence per FTE employee, monthly	1.87		1.68		1.71		
Establishment actual FTE	185.99		188.38		188.23		

4. Finance & Controls – Waste

Performance Indicator	Apr 2024		May 2024		Jun 2024		2023/24 Target
	Value	Status	Value	Status	Value	Status	
Staff Costs - % Spend to Date (FYB)	7.3%		17.4%		26.5%		100%

Strategic Place Planning
Climate and Sustainability Policy

Carbon Budget

Performance Indicator					
We will remain within the annual maximum cap of carbon emissions (tCO2e)*					
Carbon Budget 2023/24	**Q1 Status**	**Q2 Status**	**Q3 Status**	**Q4 Status**	**Cap 24/25 tCO2e**
Maximum cap on total Council carbon emissions (tCO2e)* 2024-25					**24,113**
Emissions tCO2e - scope 1 & 2	**Q1 Status**	**Q2 Status**	**Q3 Status**	**Q4 Status**	*Indicative cap*
Council Buildings (energy - electricity, gas, oil, district heating)					*17,444*
Fleet assets (vehicle & plant)					*3,185*
Street lighting					*2,432*
Emissions tCO2e - scope 3	**Q1 Status**	**Q2 Status**	**Q3 Status**	**Q4 Status**	*Indicative cap*
Water					*62*
Within the maximum cap in emissions	*Within 10% exceedance of maximum cap*		*Over 10% exceedance of maximum cap*		

Carbon budget provisional updates are intended to be used for internal monitoring of progress towards net zero targets. Provisional data for Quarter 1 2024/25 indicates carbon emissions for:

- Council buildings (energy) are showing a reduction from the same period 2023/24.
- Street lighting are showing a reduction from the same period 2023/24.
- Fleet assets (vehicle and plant) are showing a slight reduction from the same period 2023/24.
- Water are showing a slight increase from 2023/24, but remain under the budget cap.

At this time total Council emissions tCO2e are reducing in line with the reduction trajectory, although the pace of change varies across emission sources. Meeting targets will require a sustained reduction in carbon emissions.

**tCO2e - tonnes of carbon dioxide equivalent*

Traffic Light Icons Used

	On target or within 5% of target
	Within 5% - 20% of target and being monitored
	More than 20% below target and being actively pursued
	Data only – target not appropriate

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ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero, Environment and Transport
DATE	3 September 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	Air Quality Progress
REPORT NUMBER	CORS/24/209
EXECUTIVE DIRECTOR	Andy MacDonald
CHIEF OFFICER	Vikki Cuthbert
REPORT AUTHOR	Nick Glover
TERMS OF REFERENCE	1,6

1. PURPOSE OF REPORT

1.1 To update committee members on the annual air quality monitoring results for 2023.

2. RECOMMENDATION

That the Committee:-

2.1 Note the findings of the 2024 Air Quality Progress Report (APR) for Aberdeen City Council.

3. CURRENT SITUATION

3.1 The Environment Act 1995, Part IV, as amended by the Environment Act 2021, places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved.

3.2 The Scottish Government has stipulated authorities must submit an annual progress report for approval by the Scottish Government and the Scottish Environmental Protection Agency (SEPA). The Scottish Government approved the appended Annual Progress Report 2024 for Aberdeen City, on 10 July 2024. The Annual Progress Report provides an overview of air quality in Aberdeen City during 2023.

3.3 Members will note that the Progress Report includes an intention to review the Anderson Drive and Wellington Road Air Quality Management Areas (AQMAs) with a view to revoking the AQMAs. This is due to improving air quality in these areas and continued compliance with national objective levels for NO_2 and PM_{10}. Officers will report back to the November meeting of this Committee with detailed recommendations on this area.

3.4 Members will also note the intention to review the City Centre AQMA in the same timeframe with a view to amending the AQMA to remove reference to the

PM_{10} objective due to continued compliance with the PM_{10} objectives. Again, Officers will report back to the November meeting of this Committee with recommendations in this area. While NO_2 concentrations have significantly reduced in recent years, Officers consider there remains a need to retain the City Centre AQMA in relation to the NO_2 annual mean objective.

4. FINANCIAL IMPLICATIONS

4.1 There are no direct financial implications arising from the recommendations of this report.

5. LEGAL IMPLICATIONS

5.1 There are no direct legal implications arising from the recommendations of this report.

6. ENVIRONMENTAL IMPLICATIONS

6.1 There are no direct environmental implications arising from the recommendations of this report.

7. RISK

7.1 The assessment of risk contained within the table below is considered to be consistent with the Council's Risk Appetite Statement.

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic Risk	No significant risks identified			Yes
Compliance	No significant risks identified			Yes
Operational	No significant risks identified			Yes
Financial	No significant risks identified			Yes
Reputational	No significant risks identified			Yes

Environment / Climate	No significant risks identified			Yes

8. OUTCOMES

Council Delivery Plan 2024	
	Impact of Report
Aberdeen City Council Policy Statement **Working in Partnership for Aberdeen**	This report provides an update on air quality monitoring across the city. There are no proposals in this report and therefore no impact on the Council Delivery Plan.
Regional and City Strategies	There are no proposals in this report.

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	New Integrated Impact Assessment has been completed
Data Protection Impact Assessment	Not required
Other	None

10. BACKGROUND PAPERS

10.1 None

11. APPENDICES

11.1 2024 Air Quality Annual Progress Report (APR) for Aberdeen City Council

12. REPORT AUTHOR CONTACT DETAILS

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Annual Progress Report (APR)

2024 Air Quality Annual Progress Report (APR) for Aberdeen City Council

In fulfilment of Part IV of the Environment Act 1995, as amended by the Environment Act 2021

Local Air Quality Management

June 2024

Information	**Aberdeen City Council**
Local Authority Officer	Nick Glover
Department	Protective Services
Address	Aberdeen City Council, Marischal College, Business Hub 15, Broad Street, Aberdeen AB10 1AB
Telephone	03000 200 292
E-mail	poll@aberdeencity.gov.uk
Report Reference Number	001
Date	June 2024

Executive Summary: Air Quality in Our Area

Air Quality in Aberdeen City

The Annual Progress Report has been undertaken to fulfil Aberdeen City Council's duty to annually review and assess air quality. The report provides the latest monitoring results and discusses the implications for air quality management in Aberdeen.

The main pollutants of concern in Aberdeen City are nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$), related to road traffic emissions.

There was no exceedance of the NO_2 annual mean objective of 40 µg/m^3 recorded at any monitoring location across the city in 2023. This is the first time this has occurred since monitoring records commenced.

Trends in NO_2 levels suggest that air quality continues to improve across the city.

There were no exceedances of the NO_2 one hour objective at any of the monitoring locations, nor were there any exceedances of the annual or 24-hour mean PM_{10} objectives. There were also no exceedances of the $PM_{2.5}$ annual mean objective.

The Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the AQMAs, due to improving air quality and continued compliance with the objective levels for NO_2 and PM_{10}.

The City Centre AQMA will be reviewed in 2024 with a view to amending the AQMA to remove the PM_{10} annual mean and 24 hour mean from the order, due to continued compliance with the objective levels.

The City Centre AQMA remains valid for the NO_2 annual mean objective. The recently established vehicle access restrictions have resulted in a significant improvement in air quality at city centre locations, and it is anticipated further improvement will be observed with the enforcement of the LEZ in 2024. Monitoring will continue to determine whether the objective continues to be met. The Air Quality Action Plan 2011 has been updated and is due to be published in 2024.

Actions to Improve Air Quality

This section provides a brief summary of core actions to target sources of pollution in Aberdeen City over the past year.

Low Emission Zone (LEZ):

- Procurement and installation of supporting infrastructure in preparation for enforcement starting in June 2024.

Policy and Strategy:

- Development of, and consultation upon, a revised draft Local Transport Strategy and supporting Air Quality Action Plan;
- Adoption of the Aberdeen Local Development Plan 2023, with supporting Planning Guidance on Transport and Accessibility, and Air Quality.
- Consultation on Aberdeen City Council's own Staff Travel Plan.

Active Travel:

- New segregated cycle facilities delivered as part of Phase 1 of the South College Street improvements;
- Pedestrianisation of Schoolhill/Upperkirkgate introduced;
- Continued delivery of cycle parking facilities, including the first phase of a roll-out of safe and secure parking in areas of high residential density;
- Continued progression of a programme of multimodal corridor studies, considering opportunities for improved active travel infrastructure on key transport corridors to and from the city centre;
- Commencement of a Regional Active Travel Network Review, to identify a prioritised programme of future walking, wheeling and cycling projects;
- Continued delivery of a travel behaviour change programme, including I Bike Schools and I Bike Communities.

Public Transport:

- Bus priority measures delivered on Market Street / Bridge Street / Guild Street;
- Continued progression of Aberdeen Rapid Transit (ART) Business Case;

- Continued progression of a programme of multimodal corridor studies considering opportunities for improved bus infrastructure on key transport corridors to and from the city centre.
- Installation of more sedum roof and solar powered bus shelters in the city.

Clean Vehicles:

- Continued expansion of the Car Club, with more electric and hydrogen vehicles added to the fleet for the public to use;
- Installation of more electric vehicle (EV) charge points in the city

Road Improvements:

- Completion of South College Street Improvements Phase 1.

Local Priorities and Challenges

This section provides a brief summary of the priorities and challenges for Aberdeen City Council in addressing air quality for the coming year.

Priorities:

- Full implementation of the LEZ, with enforcement commencing from June 2024;
- Commencement of Union Street Central streetscape works, including delivery of segregated cycle facilities;
- Completion and adoption of a revised Local Transport Strategy and Air Quality Action Plan;
- Completion of the Active Travel Network Review;
- Update the Strategic Car Parking Review;
- Publication of the second Walking and Cycling Index (WACI);
- Launch of second phase of residential cycle parking in high-density areas;
- Continued progression of ART and supporting corridor study Business Cases;
- Continued development of a revised Council Travel Plan and Staff Travel Policy;
- Continuing actions under the Council Climate Change Plan, including increasing access to car club vehicles for members of the public and Council staff;
- Growing and maintaining the network of publicly available EV charge points across the city;

- Continuing a behaviour change programme, centred around promoting and enabling active and sustainable travel.

Challenges:

The main challenges facing the Council are likely to be around public acceptability of traffic management and travel restraint measures.

The LEZ has been subject to severe scepticism and criticism and there is a need to keep the public and stakeholders ‘on side’ as we move towards enforcement. An intensive communication campaign is planned for 2024, with messages about the health benefits particularly prominent.

The recent bus priority measures in the city centre have also suffered a significant backlash from residents and the business community. With the Experimental Traffic Regulation Order (ETRO) expiring in 2024, the Council is likely to face a number of objections which will have to be navigated and addressed should the Council wish to make the measures permanent.

Similarly as ART and the supporting corridor studies move through the appraisal and business case process, maintaining political and public support may be challenging, given that reallocation of road space from the private car to public transport is likely to be required in some areas.

The resourcing of these projects also remains a challenge in the face of funding and resource constraints.

How to Get Involved

Further information on the Local Transport Strategy, City Centre Masterplan, Low Emission Zone, electric vehicle charge points and Car Club is available at the following websites:

Local Transport Strategy

City Centre Masterplan

Low Emission Zone

Car Club

Electric vehicle charging points | Aberdeen City Council

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1 Local Air Quality Management

This report provides an overview of air quality in Aberdeen City during 2023. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995), as amended by the Environment Act (2021), and the relevant Policy and Technical Guidance documents.

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives. This Annual Progress Report (APR) summarises the work being undertaken by Aberdeen City Council to improve air quality and any progress that has been made.

Table 1 – Summary of Air Quality Objectives in Scotland

Pollutant	Air Quality Objective Concentration	Air Quality Objective Measured as	Date to be Achieved by
Nitrogen dioxide (NO_2)	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
Nitrogen dioxide (NO_2)	40 µg/m^3	Annual mean	31.12.2005
Particulate Matter (PM_{10})	50 µg/m^3, not to be exceeded more than 7 times a year	24-hour mean	31.12.2010
Particulate Matter (PM_{10})	18 µg/m^3	Annual mean	31.12.2010
Particulate Matter ($PM_{2.5}$)	10 µg/m^3	Annual mean	31.12.2021
Sulphur dioxide (SO_2)	350 µg/m^3, not to be exceeded more than 24 times a year	1-hour mean	31.12.2004
Sulphur dioxide (SO_2)	125 µg/m^3, not to be exceeded more than 3 times a year	24-hour mean	31.12.2004
Sulphur dioxide (SO_2)	266 µg/m^3, not to be exceeded more than 35 times a year	15-minute mean	31.12.2005
Benzene	3.25 µg/m^3	Running annual mean	31.12.2010
1,3 Butadiene	2.25 µg/m^3	Running annual mean	31.12.2003
Carbon Monoxide	10.0 mg/m^3	Running 8-Hour mean	31.12.2003

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority must prepare publish and implement an Air Quality Action Plan (AQAP) within the shortest possible time and no later than 12 months of the date of AQMA Designation Order. The AQAP must set out measures the local authority intends to put in place in pursuit of the objectives within the shortest possible time. Measures should be provided with milestones and a final date for completion. The action plan itself should have a timescale for completion and for revocation of the AQMA. Where measures to reduce air pollution may require a longer timescale an action plan shall be reviewed and republished within five years of initial publication and then five-yearly thereafter.

A summary of AQMAs declared by Aberdeen City Council can be found in Table 2 . Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at AQMA webpage.

We propose to amend the City Centre AQMA and revoke Anderson Drive AQMA and Wellington Road AQMA (see monitoring section).

Table 2 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
City Centre	NO_2 annual mean PM_{10} annual mean & 24 hour mean.	Aberdeen	Declared 2001, extended in 2003. PM_{10} included in 2005 & 2011. Amended 2018. An area encompassing several properties Union St, King St, Market St, Holburn St and Victoria Road.	Air Quality Action Plan 2011
Anderson Drive	NO_2 annual mean PM_{10} annual mean	Aberdeen	Declared in 2008, amended 2011 and 2018. Pockets of exceedances at residential properties along Anderson Drive and Auchmill Road.	Air Quality Action Plan 2011
Wellington Road	NO_2 annual mean PM_{10} annual mean & 24 hour mean	Aberdeen	Declared 2008. Residential properties along Wellington Road (Queen Elizabeth II Bridge to Balnagask Rd)	Air Quality Action Plan 2011

2.2 Cleaner Air for Scotland 2

Cleaner Air for Scotland 2 – Towards a Better Place for Everyone (CAFS2) is Scotland's second air quality strategy. CAFS2 sets out how the Scottish Government and its partner organisations propose to further reduce air pollution to protect human health and fulfil Scotland's legal responsibilities over the period 2021 – 2026. CAFS2 was published in July 2021 and replaces Cleaner Air for Scotland – The Road to a Healthier Future (CAFS), which was published in 2015. CAFS2 aims to achieve the ambitious vision for Scotland "to have the best air quality in Europe". A series of actions across a range of policy areas are outlined, a summary of which is available on the Scottish Government's website.

Progress by Aberdeen City Council against relevant actions for which local authorities are the lead delivery bodies within this strategy is demonstrated below.

2.2.1 Placemaking – Plans and Policies

Local authorities with support from the Scottish Government will assess how effectively air quality is embedded in plans, policies, City Deals and other initiatives, and more generally in cross departmental working, identifying and addressing evidence, skills, awareness and operational gaps.

Aberdeen City Council has had a Council Travel Plan since 2001 which encourages and enables staff and visitors to make healthy and clean travel choices. The Council also has a staff travel policy which contains details of how staff should travel for work purposes and how this will be reimbursed/ funded. Both the Council Travel Plan and Staff Travel Policy are currently under review, with updated documents expected to be adopted during 2024/ 25. The Council undertakes a biennial staff travel survey to identify how staff usually travel to work. The most recent survey was undertaken in 2022 and the outcomes will help inform the revised Plan. The survey will be repeated in 2024.

The Council's Local Transport Strategy (LTS) 2016-2021 identifies "*improved air quality and the environment*" as a key outcome, with an objective "*to improve air quality across the city, so that the existing Air Quality Management Areas are revoked, and no further Air Quality Management Areas are declared"*. In line with the adoption of the new Regional Transport Strategy, NESTRANS 2040, in November 2021 and the Council Delivery Plan commitment to *Refresh the local transport strategy,* a review of the LTS commenced in 2021, with a draft Strategy (and accompanying Air Quality Action Plan) subject to public and stakeholder engagement from late 2023 to early 2024. It is anticipated that a revised LTS and AQAP will be adopted in 2024.

A City Centre and Beach Masterplan (CCBMP) was approved in 2022, encompassing a revised City Centre Masterplan (CCMP) and emerging Beach Development Framework (BDF), with a renewed emphasis on developing places for people, reducing the impacts of vehicular traffic in the city centre and the beach area, and improving active travel and bus connectivity between the city centre and beach. Various projects emerging from the CCBMP are now in progress, with city centre bus priority and traffic management measures introduced in 2023, and Union Street Central streetscape improvements (including segregated cycle lanes) due to commence in 2024.

The Aberdeen Local Development Plan was approved by Scottish Ministers in 2023. This contains a specific policy on Air Quality (WB2) – "*Development proposals which may have*

a detrimental impact on air quality will not be permitted unless measures to mitigate the impact of air pollutants are proposed and agreed with the Planning Authority. Planning applications for such proposals should be accompanied by an assessment of the likely impact of development on air quality and any mitigation measures proposed."

Aberdeen Planning Guidance on Air Quality sets out the likely circumstances in which applicants must submit an assessment of the potential impact of particular types of development on existing and future air quality, particularly in and around AQMAs and the LEZ. It also provides guidance on the process of air quality assessment and how mitigation measures will be assessed and implemented.

In addition to consultations on various transport projects, the inclusion of transport and environmental questions in the Aberdeen City Voice 2023 – a survey distributed to a panel of respondents and members of the public in the city – and a comprehensive travel survey, undertaken by Nestrans in 2023, have all assisted in providing useful data to monitor use and opinions towards the transport network and to inform future plans for it.

2.2.2 Transport – Low Emission Zones

Local authorities working with Transport Scotland and SEPA will look at opportunities to promote zero-carbon city centres within the existing LEZs structure.

Aberdeen's LEZ was formally declared on 30 May 2022, triggering the two-year grace period, meaning enforcement will commence from 1 June 2024. The LEZ has been developed in accordance with the National Low Emission Framework (NLEF) and National Modelling Framework (NMF).

During 2023, procurement of supporting infrastructure (signage, enforcement cameras, etc.) has taken place, and a policy agreed for the use of any net surplus income arising from LEZ enforcement.

2.2.3 Further Actions

Aberdeen City Council has taken forward a number of measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 3. More detail on these measures can be found in the Air Quality Action Plan. Key completed measures are:

Active Travel:

- New segregated cycle facilities delivered as part of Phase 1 of the South College Street improvements;
- Pedestrianisation of Schoolhill/Upperkirkgate introduced;
- Continued delivery of cycle parking facilities, including the first phase of a roll-out of safe and secure parking in areas of high residential density;
- Completion of an Outline Business Case for improvements to the A956/Beach Boulevard junction to make this more pedestrian and cycle-friendly and to improve active travel connections between the city centre and the beachfront;
- Continued delivery of a travel behaviour change programme, including I Bike Schools and I Bike Communities programmes, which look to improve cycling levels amongst school children and in surrounding communities.

Public Transport:

- Bus priority measures delivered on Market Street / Bridge Street / Guild Street;
- Installation of more sedum roof and solar powered bus shelters in the city.

Clean Vehicles:

- Continued expansion of the Car Club, with more electric and hydrogen vehicles added to the fleet for the public to use;
- Installation of more electric vehicle (EV) charge points in the city

Road Improvements:

Completion of South College Street Improvements Phase 1.

2.3 Implementation of Air Quality Action Plan(s) and/or measures to address air quality

In order to ensure that local authorities implement the measures within an action plan by the timescales stated within that plan, the Scottish Government expects authorities to submit updates on progress through the APR process. Aberdeen City Council has taken forward a number of measures within the action plan during the current reporting year of 2023 in pursuit of improving local air quality and meeting the air quality objectives within the shortest possible time. Details of all measures completed, in progress or planned are set out in Table 3. More detail on these measures can be found in the air quality Action Plan relating to each AQMA, the Local Transport Strategy for Aberdeen, and revised Aberdeen Local Development Plan. The main actions implemented in the last year to support improved air quality are:

Low Emission Zone:

- Procurement of supporting infrastructure (signage, enforcement cameras, etc.) ;
- Adoption of a policy for the use of any surplus income arising from LEZ enforcement.

Policy and Strategy:

- Development of, and consultation upon, a revised draft Local Transport Strategy and accompanying Air Quality Action Plan;
- Adoption of a revised Aberdeen Local Development Plan, with supporting Planning Guidance on Transport and Accessibility, and Air Quality;
- Consultation on Aberdeen City Council's own Staff Travel Plan.

Active Travel:

- New segregated cycle facilities delivered as part of Phase 1 of South College Street improvements;
- Continued delivery of cycle parking facilities throughout the city, including the first phase of a roll-out of safe and secure parking in areas of high residential density;
- Completion of Outline Business Case for improvements to the A956/Beach Boulevard junction to make this more pedestrian and cycle-friendly and to improve active travel connections between the city centre and the beachfront;

- Continued delivery of a travel behaviour change programme, including I Bike Schools and I Bike Communities programmes, which look to improve cycling levels amongst school children and in surrounding communities.

Public Transport:

- Bus priority measures delivered on Market Street / Bridge Street / Guild Street;
- Installation of more sedum roof and solar powered bus shelters in the city.

Clean Vehicles:

- Continued expansion of the Car Club, with more electric and hydrogen vehicles added to the fleet for the public to use;
- Installation of more electric vehicle (EV) charge points in the city

Road Improvements:

- Completion of South College Street Improvements Phase 1.

Progress on the following measures has been slower than expected:

- Council Travel Plan Update – work was paused as a new staff travel policy is being developed. Given the linkages between the two, they will be taken forward as a pair and are due to be updated in 2024;
- Car Parking Framework – originally programmed for 2020, work was paused as a result of the COVID-19 pandemic. Now that traffic and travel patterns are stabilising once again, work to update the Strategic Car Parking Review will take place in 2024, to reflect policy, ambition and socio-economic changes since 2020;
- Multimodal Corridor Studies – progression of these to Outline Business Case stage has been delayed until a preferred Aberdeen Rapid Transit (ART) route network is agreed. Progress should resume in 2024.

Aberdeen City Council expects the following measures to be completed over the course of the next reporting year:

- Full implementation and enforcement of the LEZ;
- Adoption of a revised Local Transport Strategy and Air Quality Action Plan;
- Adoption of a revised Council Travel Plan;
- Completion of a Regional Active Travel Network Review, resulting in a prioritised programme of walking, wheeling and cycling infrastructure projects;
- Publication of the second Walking and Cycling Index (WACI) whereby via data gathering and public and stakeholder input, a robust assessment is made of the local public's propensity for cycling and what more the local authority can do to enable this.
- Launch of second phase of residential cycle parking in high-density areas.

Table 3 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
1.1	Increase bus use	Alternatives to private vehicle use	Ongoing	In progress	Partially Funded (2023/24 Scottish Government Bus Partnership Fund – annual; 2024/25-2027/28 City Region Deal; Nestrans – annual/3-yearly)	2024/25 – completion of Aberdeen Rapid Transit and Corridor Study Outline Business Cases.	Work is ongoing to deliver measures arising from the North East Bus Alliance's Bus Action Plan. A new bus priority loop around Market Street, Guild Street and Bridge Street was implemented in 2023. Options for increasing bus priority on key corridors to and from the city centre is being looked at in detail via several transport corridor studies: Ellon to Garthdee; A947 Dyce to Bucksburn; A96 Inverurie to Aberdeen; A944/A9119 Westhill to Aberdeen; A93 Banchory to Aberdeen; A92 Bridge of Don to Bridge of Dee; A92/A90 Laurencekirk to Aberdeen. These corridors have been prioritised with agreement from the Bus Alliance. Regional partners are also developing a Business Case for Aberdeen Rapid Transit (ART), envisaged as a high quality and high frequency mass transit solution for the City Region. In parallel, options for a more formal Bus Services Improvement Partnership (BSIP) are being developed.	Recent bus priority measures have seen significant public and stakeholder opposition which is likely to intensify as more ambitious proposals come forward.
1.2	Improve Cycling & Walking Provision	Alternatives to private vehicle use	Ongoing	In progress	Partially Funded (ACC, Nestrans, Sustrans, Transport Scotland, Cycling Scotland – typically annual)	March 2024 – Publication of the second Walking and Cycling Index (WACI) for Aberdeen. 2024 – Completion of Regional Active Travel Network Review. 2024 – Completion of phase 2 of the residential cycle parking project.	Infrastructure improvements are ongoing, with the implementation of segregated cycle facilities as part of the South College Street improvement project recently completed. Various Core Paths continue to be upgraded and installed. An Outline Business Case for improvements to the A956/Beach Boulevard junction to make this more pedestrian and cycle-friendly and to improve active travel connections between the city centre and the beachfront has been completed. A Regional Active Travel Network review commenced in 2023, to identify future walking, wheeling and	Road space reallocation to active travel could see public and stakeholder opposition which is likely to intensify as more ambitious proposals come forward.

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
						2024 – Completion of Craigshaw Drive segregated cycle route. 2025 – Completion of Union Street Central streetscape improvements.	cycling infrastructure priorities, for development into a costed and prioritised improvement programme. A programme of multimodal corridor studies continues to progress, considering opportunities for improved active travel infrastructure on key corridors to and from the city centre. Phase 1 of a roll-out of safe and secure parking in areas of high residential density is now complete, funded via the Scottish Government's Air Quality Action Plan Grant.	
1.3	Travel Plans	Promoting travel alternatives	Ongoing	In progress	Partially funded (ACC, SG, Sustrans - typically annual)	The staff travel policy and Council Travel Plan are due to be reviewed in 2024.	In terms of the Council's own Travel Plan, budget continues to be allocated annually to support measures to encourage staff to travel to, from and during work more sustainably – provision of exclusive use zero emission pool cars, provision of pool bikes, membership of Liftshare and Act Travelwise. Guidance for new developments is contained in the revised Transport and Accessibility Planning Guidance published in 2023. With match-funding from the Scottish Government's Air Quality Action Plan Grant, the I Bike Schools and Communities programmes have continued, encouraging and enabling more active travel to schools and amounts community groups.	Efforts to reduce private car usage may be resisted by internal staff and members of the wider population.
1.4	Improve public awareness of air quality issues	Public information	Ongoing	In progress	Fully Funded (Transport Scotland, SG - typically annual)	1st June 2024 – LEZ enforcement commences	ACC's website continues to be updated to provide members of the public with key information on, for example, the LEZ. A programme of events and campaigns promoting air quality and sustainable travel continue to be delivered with the Getabout Partnership, including an event to mark Clean Air Day 2023, supported by AQAP grant funding.	As above – public acceptability of the LEZ remains a challenge.

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
1.5	Car Clubs / Carpool Schemes	Promoting low emission transport	Ongoing	In progress	Partially Funded (ACC, SG – typically annual)	N/A	Aberdeen continues to be served by 2 Car Club providers – Enterprise and Co-wheels, giving members of the public a choice of 2 car club suppliers. Enterprise are currently the Council's contracted car club supplier. In the Enterprise fleet, there are now 20 alternatively (electric or hydrogen) fuelled vehicles and several petrol hybrid vehicles. Corporate: 10 vehicles (6 x Hydrogen FCEV and 4 x BEV) available for the exclusive use by the Council. Two further BEVs are to join them in 2024, with further vehicles being investigated. These are all zero emission at tailpipe. Action for staff car club redesign stemming from Council Climate Change Plan Mobility Group which will see smarter use of car club by staff to reduce grey fleet use. This will be influenced by the changes to the Staff Travel Policy, which will be further developed in 2024. Budget allocated in the Council's Non-Housing Capital plan to support car club redesign. AQAP funding supported marketing of the Enterprise Car Club and subsidisation of Car Club vehicles in regeneration areas during 2023/24. The car club continues to form part of the Council's Planning Development Management Process where new developments can provide car club provision to residents and occupants as an alternative to car parking. This continues to form part of the Transport and Accessibility Guidance for the Aberdeen Local Development Plan (2023).	N/A
1.6	Rail Improve-ments	Alternatives to private vehicle use	Ongoing	In progress	Partly Funded (Nestrans, SG, City Region Deal – typically annual)	2024/25 – completion of Aberdeen to Laurencekirk Corridor Study Detailed Appraisal.	An appraisal of options for transport improvements between Laurencekirk and Aberdeen is underway, including options for additional rail stations. Campaign for North East Rail (CNER) has received funding from the Scottish Government's Just	New rail stations will be extremely costly and challenging to deliver.

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							Transition Fund to undertake a study into rail expansion from Aberdeen northwards to the Buchan area. As part of the Aberdeen City Region Deal, options for reducing rail journey times between Aberdeen and the Central Belt continue to be investigated.	
1.7	Rail Freight	Freight and delivery management	Ongoing	In progress	Partially Funded (Nestrans - annual)	N/A	A Rail Freight Terminals (Aberdeen South) study was completed in 2023, confirming the potential for future rail freight growth. The likelihood of an increase in services was identified, linked to the improved commercial viability for rail freight which would occur following completion of the Aberdeen to Central Belt railway infrastructure project. The outcomes of the work will be considered in the light of the progression of Aberdeen to Central Belt infrastructure upgrades, and the outcomes of parallel work considering future rail re-opening north of Aberdeen to Ellon, Peterhead and Fraserburgh.	Progression dependant on Transport Scotland's Aberdeen to Central Belt improvement project.
2.1	Green Vehicle procurement & Fuel/ Charging Infrastruc-ture	Promote low emission transport	Ongoing	In progress	Partially Funded (ACC, SG – typically annual)	N/A	The electric vehicle charging network has continued to expand, with more charging points located at various locations throughout the city. In addition, at least a further 37public EV charge points, each capable of recharging 2 vehicles at once, are due to be delivered in 2024/25 as part of Council contracts which have been awarded. ACC is working with Scottish Futures Trust, Transport Scotland, Highland, Moray and Aberdeenshire Councils as part of a joint procurement exercise, to procure a partner organisation to run and grow the charging networks across all 4 Councils over multiple years. The tendering exercise is due to be launched in early summer 2024. Future ratios and requirements for electrical vehicle charging have been brought in as part of building	N/A

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
							standards changes, to be introduced Scotland-wide in June 2023.	
2.2	Emissions Testing & Idling Enforcement	Public information	Ongoing	In progress	Not funded	N/A	Raise awareness of idling vehicles, air quality and health to promote a change in behaviour, at events such as clean air day.	N/A
2.3	Taxis	Vehicle fleet efficiency	Ongoing	In progress	Partially funded (Transport Scotland - annual)	1st June 2025 – full taxi compliance with the LEZ required.	Taxi and Private Hire Cars have been given an additional year's exemption from the LEZ to allow for additional time for compliance.	N/A
2.4	Low Emission Zone	Environmental Permits	Ongoing	In progress	Fully Funded (Transport Scotland – annual)	1st June 2024 – formal enforcement of the LEZ commences.	Work is underway to install LEZ infrastructure, including signage and enforcement cameras. Policy agreed for the use of any surplus income arising from LEZ enforcement, stating that this must be used for projects that bring further air quality improvements in the city centre.	Public acceptability of the LEZ remains a challenge.
3.1	Pedestrianisation	Transport planning and infrastructure	Ongoing	In progress	Partially Funded (ACC, UK Government Levelling Up Fund - typically annual)	2025 – Completion of Union Street Central streetscape improvements.	Pedestrianisation of Schoolhill/ Upperkirkgate now in place, with formal streetscape measures to follow. Union Street Central streetscape improvements to take place during 2024 and 2025.	Public acceptability of traffic management/restraint measures remains a challenge.
3.2	Road Building / Junction Alterations	Transport planning and infrastructure	Ongoing	In progress	Partially Funded (ACC, Transport Scotland, Nestrans - typically annual)	2024 – agree preferred option for South College Street Phase 2 improvements.	Phase 1 of South College Street Improvement project completed.	N/A
4.1	Intelligent Transport System (ITS)	Traffic management	Ongoing	In progress	Partially Funded (ACC, Transport Scotland, Nestrans - typically annual)	N/A	Ongoing improvements to and enhancements of the ITS network.	N/A

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
4.2	High Occupancy Vehicle (HOV) Lane	Traffic management	2023	Complete	Partially Funded (Nestrans, Transport Scotland –annual)	N/A	Work undertaken so far on corridor studies has not suggested that HOV lanes are appropriate. Attention is instead focussed on bus priority infrastructure.	Road space reallocation unpopular with the public and stakeholders.
4.3	Freight and Commercial Vehicle Access	Freight and delivery management	Ongoing	In progress	Not Funded	2025 – Completion of Union Street Central streetscape improvements.	City Centre streetscape improvements are considering measures to accommodate deliveries and servicing while not detracting from the focus on people and sustainable movement.	Challenges around accommodating competing demands within finite and busy urban space.
5.1	Produce Planning Guidance	Policy guidance and development control	Ongoing	In progress	Not Funded (not required)	Adoption of Planning Guidance on Air Quality on 03 November 2023. Construction Code of Practice: New National Building Standards legislation launched in June 2023.	Adoption of a new Aberdeen Local Development Plan, with supporting Planning Guidance on Transport and Accessibility, and Air Quality. Section 75 monetary contributions continue to be sought for sustainable transport improvements: core paths, car club, public transport infrastructure and pedestrian safety improvements such as pedestrian crossings, etc. Construction Code of Practice: New National Building Standards legislation for Scotland with standards for EV charging in new developments launched in June 2023.	N/A
5.2	Integration of AQAP with LTS and RTS	Policy guidance and development control	2024	In progress	Not Funded (not required)	January 2024 – completion of public engagement on draft LTS and AQAP. End of 2024 – target for adoption of revised LTS and AQAP.	Revised LTS and AQAP are being prepared together to support integration, with draft plans subject to public and stakeholder consultation in late 2023/early 2024.	Public acceptability of car restraint measures.
5.3	Integration of AQAP with Health and Transport Action Plan (HTAP)	Policy guidance and development control	2014	Complete	Not Funded (not required)	N/A	2014 HTAP update includes objective to ‘reduce air pollution, especially within Air Quality Management Areas’.	N/A

Measure No.	Measure	Category	Expected/ Actual Completion year	Measure Status	Funding Status	Key Milestones	Progress	Barriers to implementation
5.4	Road Hierarchy	Transport planning and infrastructure	2020.	Complete	Fully Funded (Nestrans – annual)	N/A	Formal programme of road reclassifications approved in 2020.	N/A
5.5	Car Parking Policies	Policy guidance and development control	2025/26	Planned	Partially Funded (Nestrans – annual)	2024 – update Strategic Car Parking Review as first step towards new Car Parking Framework.	New development parking standards included in revised Aberdeen Planning Guidance.	Any policies that restrict or increase the cost of car parking are not likely to be popular with the public.
5.6	National Lobbying	Transport planning and infrastructure	Ongoing	In progress	Partially Funded (Transport Scotland – annual)	N/A	In the lead-in to LEZ implementation, the Scottish Government has several grant schemes available to help residents and businesses change vehicle or mode to become LEZ compliant. Several bus and HGV replacement and/or retrofit schemes are being funded by Transport Scotland to support carbon reduction and LEZ development. Grants for home and workplace charging facilities are available through Home Energy Scotland.	N/A

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

This section sets out what monitoring has taken place and how local concentrations of the main air pollutants compare with the objectives.

Aberdeen City Council undertook automatic (continuous) monitoring at six sites during 2023. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at www.scottishairquality.scot

Maps showing the location of the monitoring sites are provided in Appendix E. Further details on how the monitors are calibrated and how the data has been adjusted are included in Appendix C.

The Union Street and Market Street continuous monitoring sites are on busy city centre roads and are representative of population exposure for NO_2, PM_{10} and $PM_{2.5}$. Union Street is the city's main shopping street with shops on the ground level and commercial premises and flats on the 1st, 2nd and 3rd floors. Almost all the city's bus routes pass along at least part of Union Street and the inside lane of both sides of the road are designated bus lanes. A bus gate was installed in June 2022 between the Bridge Street and Market Street junctions of Union Street allowing access to local buses, cycles and emergency vehicles only. In August 2023 three additional bus gates were introduced within the City Centre AQMA.

Market Street is adjacent to Aberdeen Harbour and has a high proportion of HGVs travelling between the north-east of Scotland, the Harbour and locations to the south of Aberdeen. The street is used by pedestrians travelling to the city centre from residential properties to the south of the river Dee, visiting the Union Square retail park and people working around the Harbour area. There are a small number of 1st, 2nd and 3rd floor flats. Emissions from Aberdeen Harbour also contribute to the pollution on Market Street.

The Anderson Drive site is 4m from the kerb and is not representative of population exposure as residential properties are set back 10-20m from the kerb. Similarly, the site at Wellington Road is around 3-4m closer to the kerb than residential properties in the area. The nearest properties are 10m from the King Street site, however the location is typical of flatted properties close to the kerb at other locations on King Street. Errol Park is representative of typical residential properties close to the city centre but not adjacent to a major road and provides urban background data.

The automatic monitoring sites at Union Street, Market Street, Wellington Road and Anderson Drive are located within AQMAs.

The King Street site is not located within an AQMA but is relatively close to the city centre in an area of high traffic flow.

3.1.2 Non-Automatic Monitoring Sites

Aberdeen City Council undertook non- automatic (passive) monitoring of NO_2 at 60 sites during 2023. Table A.2 in Appendix A shows the details of the sites.

Maps showing the location of the monitoring sites are provided in Appendix E. Figure 2 and at www.scottishairquality.scot/latest. Further details on Quality Assurance/Quality Control (QA/QC) and bias adjustment for the diffusion tubes are included in Appendix C.

Diffusion tubes on Market Street, Union Street, Bridge Street and the majority of those on Holburn Street and King Street within the city centre are at building façade and are representative of population exposure. Some of the tubes out with the city centre are at roadside locations with the façade of the nearest relevant property 5-20m back from the roadside.

3.1.3 Other Monitoring Activities

There were no other monitoring activities undertaken during 2023.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40 µg/m^3 at automatic monitoring sites.

Table A.4 in Appendix A compares the adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40 µg/m^3 at non automatic monitoring sites.

For diffusion tubes, the full 2023 dataset of monthly mean values is provided in Appendix B.

Table A.5 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year.

Monitored NO_2 levels at all automatic monitoring sites continue to be below the annual mean air quality objective of 40 µg/m^3. The trend in NO_2 levels over the last 5 years is shown in Appendix D. Figure 1. NO_2 levels have been decreasing since 2015, and levels at all automatic monitoring sites have been below the objective level since 2018. The graph in Appendix D. Figure 2, shows the annual average concentration at each automatic monitoring location since 2019.

Figure 3 in Appendix D provides the statistical significance of NO_2 trend levels declining over the last 5 years at each automatic monitoring site. The data has been de-seasonalised to remove the influence of seasonal cycles.

Automatic monitoring of NO_2 at Wellington Road required to be annualised due to poor data capture, caused by equipment breakdown. Details of the annualisation process are in Appendix C.

In relation to diffusion tubes, duplicate and triplicate tube monitoring locations were assessed for precision using the precision accuracy bias spreadsheet available on the SAQD website. Adjustments made, due to poor precision, are detailed in Table C.4, Appendix C.

There were seven diffusion tube monitoring locations removed in 2023.

Diffusion tubes D24, DT26, DT34, DT37, DT46, DT48 were removed due to the monitoring locations consistently measuring NO_2 levels well below the objective level.

The diffusion tube location DT48 was removed due to the fixing to which it was attached, no longer being suitable. DT106 replaces the location.

No other new diffusion tube locations were introduced in 2023.

Diffusion tube DT106 commenced monitoring in October 2023 and therefore has been annualised due to poor data capture. Details of the annualisation process are in Appendix C.

There was no measured exceedance of the annual mean air quality objective of 40 µg/m^3 at any of the diffusion tube locations in 2023. This is the first time this has occurred since monitoring records commenced. Generally, levels recorded in 2023 are marginally lower than the previous year.

In August 2023 three additional bus gates were introduced within the City Centre AQMA. The bus gates are located at:

- Union Street/Market Street between the junction with Hadden Street and the Adelphi and Bridge Street junction introduced in 2022.
- Bridge Street, and Guild Street 1 eastbound lane and Guild Street 2, both lanes introduced in August 2023.

A map of the locations is show in Appendix D, Figure 4.

The bus gates are operational 24 hours a day, 7 days a week. The aim of the new road layout created by the bus gates is to help reduce travel times for buses in the city centre and encourage more people to use sustainable or active travel.

Diffusion tube DT93 and DT102 on Bridge Street recorded exceedances of the NO_2 objective level in 2022 and levels are below the objective level in 2023. Diffusion tubes DT12 (40 Union St), DT82(7 Virgina St), and DT92 (52 Guild Street) recorded NO_2 levels very close to the objective level in 2022 have also reduced levels in 2023. The introduction of the additional bus gates may have contributed to the reduction in NO_2 levels at these monitoring locations.

The city centre low emission zone was introduced in May 2022 and from 1 June 2024 drivers will be fined for entering the LEZ with non-compliant vehicles. This is also likely to improve NO_2 levels within the City Centre AQMA.

No exceedance of the NO_2 air quality objective have been recorded at the Anderson Drive continuous air quality monitoring station during the 20 years of monitoring. Annual mean concentrations of NO_2, have progressively reduced over the last 6 years and are substantially below the air quality objectives. The 1-hour NO_2 concentration of 200ugm^{-3} (not to be exceeded more than 18 times per year) has not been exceeded on any occasion.

Additionally, no exceedances of the annual mean NO_2 objective at any of the diffusion tubes sites in the Anderson Drive AQMA, have been recorded since 2018. Concentrations of NO_2 have steadily reduced and were lower than 30ugm^{-3} in both 2022 and 2023 at all monitoring sites except for DT98 (5 Anderson Drive) where the concentration was 34ugm^{-3} in 2022 and 31.3ugm^{-3} in 2023.

Similarly, no exceedance of any of the NO_2 air quality objectives have been recorded at the Wellington Road continuous air quality monitoring station since 2016. Annual mean concentrations of NO_2 have progressively reduced over the last 6 years and have been substantially below the air quality objectives since 2020. The 1-hour NO_2 objective of 200ugm^{-3} (not to be exceeded more than 18 times per year) has not been exceeded on any occasion.

Trends in annual mean NO_2 concentrations at the diffusion tube locations within the Anderson Drive and Wellington Road AQMA are shown in Appendix D Figure 5, for Anderson Drive AQMA and Figure 6 for Wellington Road AQMA.

The Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the AQMAs, due to improving air quality and continued compliance with the objective level.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 18µg/m^3.

Corrected (correction factor of 0.909) and uncorrected results are reported, in accordance with the Equivalence study to investigate particulate matter monitoring in Scotland using the Fidas 200, published by Ricardo Energy & Environment for the Scottish Government in May 2023.

Table A.7There are 6 continuous monitoring sites measuring PM_{10} levels in Aberdeen City. Monitoring locations are shown in Appendix E: Figure 1.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years at each site with the air quality objective of 50µg/m^3, not to be exceeded more than seven times per year.

No exceedances of the annual mean or 24-hour mean objective were recorded at any of the continuous monitoring sites. Concentrations at measurement locations across the city are comparable to annual monitoring data since 2016. Roadside measurements are similar to urban background levels measured at Erroll Park.

The trend over the last 5 years is shown in Appendix D. Figure 7. The graph in Appendix D. Figure 8 shows the annual average PM_{10} annual levels measured at each automatic site since 2019.

The graph in Appendix D: Figure 9, plots the overall de-seasonalised trend at all sites from 2019.

The City Centre, Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the Anderson Drive and Wellington Road AQMAs and amendment of the City Centre AQMA for PM_{10} annual mean and 24-hour mean, due to improving air quality and continued compliance with the objective levels.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A compares the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years with the air quality objective of 10µg/m^3.

Corrected (correction factor of 1.06) and uncorrected results are reported, in accordance with the Equivalence study to investigate particulate matter monitoring in Scotland using the Fidas 200, published by Ricardo Energy & Environment for the Scottish Government in May 2023.

There are 6 continuous monitoring sites measuring $PM_{2.5}$ levels in Aberdeen City. No exceedances of the annual mean were recorded at any of the continuous monitoring sites. No exceedances of the objective have been recorded at any site since 2016.

3.2.4 Sulphur Dioxide (SO_2)

No monitoring of sulphur dioxide was carried out in 2022 as previous assessments did not predict a likelihood of exceedance of the objectives and there has been no significant change in local emissions.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

No monitoring of Carbon Monoxide, Lead and 1,3-Butadiene was carried out in 2022 as previous assessments did not predict a likelihood of exceedances of the objectives and there has been no significant change in local emissions.

4 New Local Developments

4.1 Road Traffic Sources

City Centre Vehicle Access Restrictions

Bus gates were introduced on the central section of Union Street, between Market Street and Bridge Street, in June 2022 allowing bus/taxi/cycle access only. Further vehicle access restrictions were introduced on Market Street (north of Guild Street), Guild Street (east of Wapping Street) and Bridge Street in August 2023 stopping general traffic from using these streets as through routes.

Pedestrianisation measures were also introduced at the same time on Schoolhill/Upperkirkgate area, further restricting general traffic. These bus priority measures have minimised the amount of general traffic in the parts of the city centre, with the aim of supporting a more reliable and efficient bus services and improved air quality in the restricted areas.

South College Street Improvements

Phase 1 of the South College Street project commenced in June 2022 and was completed in July 2023. The development provides additional road capacity to accommodate the re-routing of traffic arising from the implementation of the public realm and bus priority enhancements along Guild Street and Union Street. The corridor's improved capacity supports its position in the new roads hierarchy and enhances infrastructure for walking and cycling.

4.2 Other Transport Sources

Other transport sources include:

- Airports.
- Locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m.
- Locations with a large number of movements of diesel locomotives, and potential long-term relevant exposure within 30m.
- Ports for shipping.

There were no new transport sources in Aberdeen City in 2023.

4.3 Industrial Sources

Industrial Sources include:

- **Industrial installations**: new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations**: existing installations where emissions have increased substantially, or new relevant exposure has been introduced.
- **Industrial installations**: new or significantly changed installations with no previous air quality assessment. Major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

The Scottish Environmental Protection Agency (SEPA) are the licensing and enforcement authority for different types of industrial installation and have identified the following new sources:

Authorisation No	Authorisation Level	Authorisation Activity	Status Date	Site
PPC/B/5003902	PPC Part B	PPC(B) - Mining and Quarrying	18/04/2023	Westside of Carnie, Westhill, Aberdeen, AB32 6UJ
PPC/B/5003739	PPC Part B	PPC(B) - Mining and Quarrying	14/06/2023	Well Construction Fluids, M-I Pocra Quay, Footdee, Aberdeen, AB11 5DQ
PPC/B/5005007	PPC Part B	PPC(B) - Dry Cleaners	14/06/2023	Penguin's Laundry, 11 Fountainhall Road, Aberdeen, AB15 4DX
WML/L/5003980	WML	Waste - Other Waste Storage and Treatment Sites	22/02/2023	Phoenix Decom Base, Unit 1C Dyce Industrial Park, Wellheads Crescent, Dyce, AB21 7EZ
WML/L/5004027	WML	Waste - Other Waste Storage and Treatment Sites	01/03/2023	South Harbour, Port of Aberdeen, Greyhope Road, Balnagask, Aberdeen, AB12 3LT

4.4 Commercial and Domestic Sources

Commercial and domestic sources include:

- Biomass combustion plant – individual installations.
- Areas where the combined impact of several biomass combustion sources may be relevant.
- Areas where domestic solid fuel burning may be relevant.
- Combined Heat and Power (CHP) plant.

There were no new commercial and domestic sources in Aberdeen City in 2023.

4.5 New Developments with Fugitive or Uncontrolled Sources

New Source in 2023	Detail
Landfill sites	No new sources in 2023
Quarries	No new sources in 2023
Waste transfer stations etc.	No new sources in 2023
Unmade haulage roads on industrial sites	No new sources in 2023
Other potential sources of fugitive particulate matter emissions.	No new sources in 2023

5 Planning Applications

Industrial and Commercial Energy Transition Development on land around Aberdeen South Harbour	231371	The detailed planning application has not approved but has undergone local consultation. The application is for an energy Transition Zone including mixed developments comprising of approx. 55,000 sqm of land for business, general industrial, storage and distribution usage, along with associated provision of road infrastructure and active travel connections. Environmental Health requested the submission of an Air Quality Impact Assessment to assess the air quality impacts during the construction and operational phase of the proposal due to potential changes in road traffic movements associated with the cumulative developments and the Proposed Development itself. Emissions during the construction phase, including the site development, HGV movements, staff arrival/departure and vans delivering goods were predicted to have a negligible impact on air quality. Similarly, detailed dispersion modelling of the operational phase predicted the increase in traffic on the local network will have a negligible impact on air quality in the area.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

Data from all continuous automatic monitoring sites was below the NO_2 annual mean objective of 40 μg/m^3. NO_2 levels at all automatic monitoring sites have been below the objective level since 2018. Trends in NO_2 levels suggest that air quality continues to improve across the city.

There were no exceedances of the NO_2 objective level recorded at any of the diffusion tube monitoring locations either in or outside of AQMAs. This is the first time this has occurred since monitoring records commenced.

There were no exceedances of the NO_2 one hour mean objective at any of the automatic sites. Diffusion tube data also recorded no sites with an annual mean >60ugm^{-3}, suggesting exceedances of the 1-hour objective were very unlikely across the city.

The annual mean and 24-hour PM_{10} objectives were met at all monitoring locations and the concentrations at measurement locations across the city are comparable to annual monitoring data since 2016.

No exceedances of the $PM_{2.5}$ annual mean were recorded at the 6 continuous monitoring sites.

The Anderson Drive and Wellington Road AQMAs will be reviewed in 2024, with a view to revocation of the AQMAs, due to improving air quality and continued compliance with the objective levels.

The City Centre AQMA will be reviewed with a view to amending the AQMA to remove PM_{10} annual mean and 24 hour mean from the order, due to continued compliance with the objective levels.

The City Centre AQMA remains valid for the NO_2 annual mean objective. The recently established vehicle access restrictions have resulted in a significant improvement in air quality at city centre locations, and it is anticipated further improvement will be observed with the enforcement of the LEZ in 2024. Monitoring will continue to determine whether the objective continues to be met in future years and revocation of the AQMA can be considered.

6.2 Conclusions relating to New Local Developments

The city centre vehicle access restrictions implemented in 2022 and 2023 have significantly reduced traffic flow and improved air quality across the city centre. The reduction in NO_2 concentrations were most apparent at monitoring locations within and immediately adjacent to the restricted area. The South College Street Road infrastructure measures supported the vehicle access restrictions by providing additional road capacity to accommodate the re-routing of traffic. There were no other new developments likely to affect air quality.

6.3 Proposed Actions

1. Enforcement of the LEZ to commence in June 2024 following a two-year grace period.
2. Progress the equipment procurement process and other associated legal and infrastructure actions to support the implementation of the LEZ.
3. Continued implementation of the Actions within the Air Quality Action Plan 2011.
4. Publish the updated Air Quality Action Plan.
5. Review monitoring within AQMAs with a view to revoking Anderson Drive and Wellington Road AQMA and amending the City Centre AQMA.
6. Submit the next air quality Annual Progress Report.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
CM1	Union Street	Roadside	X393656	Y805967	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	YES City Centre	Fidas 200 Chemiluminescence	2	2	2.5
CM2	Market Street	Roadside	X394560	Y805677	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	YES City Centre	Fidas 200 Chemiluminescence	0	2	1.5
CM3	Anderson Drive	Roadside	X392506	Y804186	PM_{10}, NO_2 (NO, NO_x)	YES Anderson Drive	Fidas 200 Chemiluminescence	10	6	1.5
CM4	Wellington Road	Roadside	X394395	Y804779	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	YES Wellington Road	Fidas 200 Chemiluminescence	5	4	1.5
CM5	King Street	Roadside	X394333	Y808770	PM_{10}, $PM_{2.5}$ NO_2 (NO, NO_x)	NO	Fidas 200 Chemiluminescence	10	3	1.5
CM6	Erroll Park	Urban Background	X394365	Y807396	PM_{10}, $PM_{2.5}$, O_3, NO_2 (NO, NO_x)	NO	Fidas 200 Chemiluminescence	N/A	N/A	1.5

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on the façade of a residential property).

(2) N/A if not applicable.

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT4	38 Ellon Rd	Roadside	394652	809714	NO_2	NO	7	3	N	2.3
DT5	520 King St	Roadside	394236	808066	NO_2	NO	9	0.1	N	2.6
DT6	86 Victoria Rd Torry	Roadside	394764	805197	NO_2	NO	0	3	N	2.3
DT7	Wellington Rd/Kerloch Pl	Roadside	394411	804407	NO_2	YES Wellington Rd	0	3	N	2.4
DT8	107 Anderson Dr	Roadside	392337	804340	NO_2	YES Anderson Dr	14	3	N	2.3
DT9	39 Market St	Roadside	394264	806146	NO_2	YES City Centre	0	3	N	2.1
DT10	184 Market St	Roadside	394530	805708	NO_2	YES City Centre	0	3	N	2.6
DT11	105 King St	Roadside	394406	806637	NO_2	YES City Centre	0	3	N	2.2

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT12	40 Union St	Roadside	394285	806285	NO_2	YES City Centre	0	3	N	2.4
DT13	Music Hall, Union St	Roadside	393777	806030	NO_2	YES City Centre	0	6	N	2.6
DT14	Dyce Primary Gordon Ter	Urban background	389046	812794	NO_2	NO	N/A	N/A	N	2
DT16	1 Trinity Quay	Roadside	394336	806097	NO_2	YES City Centre	0	5	N	2.5
DT18	14 Holburn St	Roadside	393305	805734	NO_2	YES City Centre	0	3	N	2.6
DT19	468 Union St	Roadside	393386	805826	NO_2	YES City Centre	0	3	N	2.4
DT20	212 King St	Roadside	394400	806842	NO_2	NO	0	4	N	2.3
DT21	26 King St	Roadside	394449	806453	NO_2	YES City Centre	0	4	N	2.4

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT22	104 King St	Roadside	394425	806634	NO_2	YES City Centre	0	4	N	2.3
DT25	21 Holburn St	Roadside	393332	805748	NO_2	YES City Centre	0	3	N	2.4
DT29	469 Union St	Roadside	393400	805811	NO_2	YES City Centre	0	3	N	2.4
DT30	335 Union St	Roadside	393619	805919	NO_2	YES City Centre	0	5	N	2.5
DT33	16 East North St	Roadside	394505	806531	NO_2	YES City Centre	0	4	N	2.3
DT36	115 Menzies Rd/Wellington Rd	Roadside	394403	804799	NO2	YES Wellington Rd	14	4	N	2.4
DT39	819 Gt Northern Rd	Roadside	391293	809136	NO2	YES Anderson Dr	0	3	N	2.4
DT40	852 Fullerton Ct (facade)	Facade	391353	809158	NO2	YES Anderson Dr	0	7	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT41	852 Fullerton Ct (roadside)	Roadside	391352	809151	NO2	YES Anderson Dr	7	0.1	N	2.3
DT45	111 South Anderson Dr	Facade	392311	804349	NO2	YES Anderson Dr	0	13	N	1.9
DT47	Powis Terrace	Roadside	393368	807511	NO2	NO	5	0.1	N	2.5
DT49	142 Gt. Northern Road	Roadside	392969	808460	NO_2	NO	11	3	N	2.4
DT63	93 Berryden Road	Roadside	393034	807392	NO_2	NO	11	2	N	2.4
DT64	102 Picktillum Place	Urban Background	393025	807828	NO_2	NO	N/A	N/A	N	2.5
DT67	37 Inverurie Rd	Roadside	389756	809583	NO_2	NO	6	3	N	2.5
DT70	Kirkhill Place Tullos Primary	Urban Background	395476	804452	NO_2	NO	N/A	N/A	N	2.4

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT71	Tullos Hill	Urban Background	395431	803410	NO_2	NO	N/A	N/A	N	2.6
DT72	North Loirston Souter Head Road Cove Allotments	Urban Background	394988	801940	NO_2	NO	N/A	N/A	N	2.5
DT73	61 Skene Square	Facade	393458	806768	NO_2	NO	0	6	N	2.4
DT74	5 Caroline Place	Roadside	393350	806922	NO_2	NO	5	3	N	2.6
DT75	Pentland Close	Urban Background	395964	805132	NO_2	NO	N/A	N/A	N	2.6
DT77	27 Skene Square	Roadside	393524	806701	NO_2	NO	0	5	N	2.4
DT80	27 Rosemount Place	Roadside	393410	806674	NO_2	NO	0	4	N	2.6
DT81	131 Rosemount Place	Roadside	393044	806537	NO_2	NO	0	2	N	2.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT82	7 Virginia Street	Roadside	394466	806248	NO_2	YES City Centre	0	8	N	2.5
DT85	Tullos Place	Urban Background	395216	804724	NO_2	NO	N/A	N/A	N	2.4
DT88	31 St Clement St	Roadside	395118	806164	NO_2	NO	0	1	N	2.4
DT90	4 Westburn Road	Facade	393290	806942	NO_2	NO	N/A	3	N	2.5
DT91	155 Hutcheon Street	Facade	393367	806941	NO_2	NO	N/A	2	N	2.5
DT92	52 Guild Street	Facade	394184	806001	NO_2	YES City Centre	N/A	3	N	2.5
DT93	6 Bridge Street	Facade	393920	806049	NO_2	YES City Centre	N/A	3	N	2.5
DT94	8 Midstocket Road	Facade	392607	806502	NO_2	NO	N/A	2	N	2.4

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT95	283 Rosemount Place	Facade	392680	806500	NO_2	NO	N/A	3	N	2.5
DT96	64 Skene Street	Facade	393543	806315	NO_2	NO	N/A	3	N	2.4
DT97	73 Skene Street	Facade	393557	806309	NO_2	NO	N/A	3	N	2.4
DT98	5 Anderson Drive	Roadside	391973	804775	NO_2	YES Anderson Drive	3	2	N	2.4
DT99	36 Spring Gardens	Facade	394047	806909	NO_2	NO	N/A	3	N	2.5
DT100	537 North Anderson Drive	Roadside	391441	808897	NO_2	YES Anderson Drive	2	4	N	2.4
DT101	13 Manor Avenue	Roadside	391361	808923	NO_2	NO	10	5	N	2.7
DT102	19 Bridge Street	Facade	393971	805996	NO_2	YES City Centre	N/A	2	N	2.4

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
DT103	Northfield Swimming Pool	Urban Background	390796	808123	NO_2	NO	N/A	N/A	N	2.3
DT104	134 South College St	Roadside	394170	805189	NO_2	NO	3	2	N	2.4
DT105	69 Affleck St	Roadside	394096	805625	NO_2	NO	1	2	N	2.5
DT106	37 Union St	Facade	394303	806270	NO_2	YES City Centre	0	4	N	2.4
CL1	Union Street	Roadside	393656	805967	NO_2	YES City Centre	2	2	Y	2.5
CL2	Market Street	Roadside	394560	805677	NO_2	YES City Centre	0	2	Y	1.5
CL3	Anderson Drive	Roadside	392506	804186	NO_2	YES Anderson Dr	10	6	Y	1.5
CL4	Wellington Road	Roadside	394395	804779	NO_2	YES Wellington Rd	5	4	Y	1.5

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube co-located with a Continuous Analyser?	Tube Height (m)
CL5	King Street	Roadside	394333	808770	NO_2	NO	10	3	Y	1.5
CL6	Erroll Park	Urban Background	394365	807396	NO_2	NO	N/A	N/A	Y	3

Notes:

(1) 0m if the monitoring site is at a location of exposure (e.g. installed on/adjacent to the façade of a residential property).

(2) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	Roadside	Automatic		99.8	38	24	25	26.6	24.5
CM2	Roadside	Automatic		99.9	33	22	27	23.4	24.1
CM3	Roadside	Automatic		79.2	17	12	13	11.6	11.3
CM4	Roadside	Automatic		68.9	35	25	28	24.5	23.6
CM5	Roadside	Automatic		99.9	22	16	17	15.5	14.7
CM6	Urban Background	Automatic		99.2	N/A	N/A	21	16.5	14.7

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in bold.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.4 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
DT4	394652	809714	Roadside		92	27	19	20	19	17.5
DT5	394236	808066	Roadside		100	27	20	20	20	16.9
DT6	394764	805197	Roadside		100	30	21	21	20	19.0
DT7	394411	804407	Roadside		100	31	22	23	21	20.4
DT8	392337	804340	Roadside		100	39	31	32	29	23.4
DT9	394264	806146	Roadside		100	**44**	**42**	**42**	38	32.8
DT10	394530	805708	Roadside		100	**47**	33	37	35	34.0
DT11	394406	806637	Roadside		100	**45**	34	32	37	33.2
DT12	394285	806285	Roadside		92	**43**	26	32	36	31.0
DT13	393777	806030	Roadside		92	35	22	25	27	24.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT14	389046	812794	Urban background		100	8	6	7	6	6.0
DT16	394336	806097	Roadside		100	39	27	34	31	29.2
DT18	393305	805734	Roadside		92	39	25	26	26	26.3
DT19	393386	805826	Roadside		100	**43**	27	26	28	25.9
DT20	394400	806842	Roadside		100	27	21	21	21	18.8
DT21	394449	806453	Roadside		100	33	23	24	26	23.4
DT22	394425	806634	Roadside		100	34	24	25	26	24.1
DT25	393332	805748	Roadside		100	35	26	22	25	26.6
DT29	393400	805811	Roadside		100	**42**	28	29	31	29.3
DT30	393619	805919	Roadside		100	39	24	24	29	26.8
DT33	394505	806531	Roadside		100	35	29	28	30	27.3

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT36	394403	804799	Roadside		100	39	29	30	29	28.4
DT39	391293	809136	Roadside		100	37	27	25	24	20.7
DT40	391353	809158	Facade		100	26	19	19	18	15.3
DT41	391352	809151	Roadside		92	36	27	24	24	24.0
DT45	392311	804349	Facade		100	21	16	17	15	15.5
DT47	393368	807511	Roadside		100	**40**	30	29	32	29.6
DT49	392969	808460	Roadside		83	30	22	22	20	18.9
DT63	393034	807392	Roadside		92	23	16	17	17	14.9
DT64	393025	807828	Urban Background		100	14	11	12	11	10.3
DT67	389756	809583	Roadside		92	32	21	21	21	20.3
DT70	395476	804452	Urban Background		100	13	10	12	11	11.9

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT71	395431	803410	Urban Background		100	9	7	8	7	7.0
DT72	394988	801940	Urban Background		100	7	5	6	5	5.0
DT73	393458	806768	Facade		83	38	29	30	29	23.8
DT74	393350	806922	Roadside		100	34	23	27	26	23.2
DT75	395964	805132	Urban Background		100	15	12	15	13	14.2
DT77	393524	806701	Roadside		100	38	27	23	27	24.9
DT80	393410	806674	Roadside		100	23	14	19	15	15.9
DT81	393044	806537	Roadside		100	27	16	15	20	19.6
DT82	394466	806248	Roadside		100	**42**	32	34	36	34.3
DT85	395216	804724	Urban Background		100	13	11	13	10	10.7
DT88	395118	806164	Roadside		100	35	29	26	29	27.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2023 (%) [2]	2019	2020	2021	2022	2023
DT90	393290	806942	Facade		100	n/a	20	19	17	16.5
DT91	393367	806941	Facade		100	n/a	36	30	31	28.9
DT92	394184	806001	Facade		100	n/a	n/a	n/a	38	31.9
DT93	393920	806049	Facade		100	n/a	n/a	n/a	**48**	35.5
DT94	392607	806502	Facade		100	n/a	n/a	n/a	19	18.4
DT95	392680	806500	Facade		100	n/a	n/a	n/a	18	16.7
DT96	393543	806315	Facade		100	n/a	n/a	n/a	17	17.5
DT97	393557	806309	Facade		83	n/a	n/a	n/a	20	20.0
DT98	391973	804775	Roadside		100	n/a	n/a	n/a	34	31.5
DT99	394047	806909	Facade		100	n/a	n/a	n/a	17	16.4
DT100	391441	808897	Roadside		100	n/a	n/a	n/a	17	15.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
DT101	391361	808923	Roadside		100	n/a	n/a	n/a	18	15.1
DT102	393971	805996	Facade		100	n/a	n/a	n/a	**48**	36.5
DT103	390796	808123	Urban Background		100	n/a	n/a	n/a	10	7.5
DT104	394170	805189	Roadside		83	n/a	n/a	n/a	n/a	20.8
DT105	394096	805625	Roadside		100	n/a	n/a	n/a	n/a	22.9
DT106	394303	806270	Facade		25	n/a	n/a	n/a	n/a	25.0

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☒ **Diffusion tube data has been bias adjusted.**

☒ **Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in bold.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG(22) if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(3) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(4) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	Roadside	Automatic		99.8	0	0	0	0	0
CM2	Roadside	Automatic		99.9	0	0	0	0	0
CM3	Roadside	Automatic		79.2	0 (93)	0 (78)	0	0	0 (71.9)
CM4	Roadside	Automatic		68.9	0	0	0	0	0 (97.1)
CM5	Roadside	Automatic		99.9	0	0	0	0	0
CM6	Urban Background	Automatic		99.2	-	-	0 (82)	0	0

Notes:

Exceedances of the NO_2 1-hour mean objective (200 µg/m^3 not to be exceeded more than 18 times/year) are shown in bold.

If the period of valid data is less than 85%, the 99.8th percentile of 1-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.6 – Annual Mean PM_{10} Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022(3)	2023(3)
CM1	Roadside		99.8	12	10	11	13 (14.3)	12.9 (14.1)
CM2	Roadside		99.8	13	10	11	12.7 (14)	11.9 (13.1)
CM3	Roadside		98.4	13	9	9	10.1 (11.1)	9.4 (10.4)
CM4	Roadside		99.7	14	14	12	10.6 (11.6)	12 (13.1)
CM5	Roadside		99.9	14	11	12	13 (14.3)	12.1 (13.3)
CM6	Urban Background		95.7	-	-	9.5	11.3 (12.4)	10.2 (11.2)

Notes:

Exceedances of the PM_{10} annual mean objective of 18 µg/m^3 are shown in bold.

All means have been "annualised" as per LAQM.TG(22), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Corrected results as recommended by Ricardo for the Scottish Government report in brackets.

Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022	2023
CM1	Roadside		99.8	0 (32)	0 (21)	0 (23)	2	2
CM2	Roadside		99.8	4	0	0	4	1
CM3	Roadside		98.4	3	0	0	1	0
CM4	Roadside		99.7	4	0	0	0 (27)	0
CM5	Roadside		99.9	3 (45)	0	0 (31)	3	3
CM6	Urban Background		95.7	-	-	1 (21)	2	2

Notes:

Exceedances of the PM_{10} 24-hour mean objective (50 µg/m^3 not to be exceeded more than seven times/year) are shown in bold.

If the period of valid data is less than 85%, the 98.1st percentile of 24-hour means is provided in brackets.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results (µg/m^3)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2023 (%) (2)	2019	2020	2021	2022(3)	2023(3)
CM1	Roadside		99.8	8	5	6	7.1 (7.5)	6.6 (6.9)
CM2	Roadside		99.8	7	5	5	6.4 (6.8)	5.7 (6.0)
CM3	Roadside		98.4	-	-	5	5.6 (6.0)	5.1 (5.4)
CM4	Roadside		99.7	7	6	6	5.2 (5.5)	5.6 (6.0)
CM5	Roadside		99.9	7	6	6	6.5 (6.9)	5.8 (6.1)
CM6	Urban Background		95.7	-	-	5	6 (6.3)	5.2 (5.5)

Notes:

Exceedances of the $PM_{2.5}$ annual mean objective of 10 µg/m^3 are shown in bold.

All means have been "annualised" as per LAQM.TG(22), valid data capture for the full calendar year is less than 75%. See Appendix C for details.

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year.

(2) Data capture for the full calendar year (e.g. if monitoring was carried out for 6 months, the maximum data capture for the full calendar year is 50%).

(3) Corrected results as recommended by Ricardo for the Scottish Government report in brackets.

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO_2 2023 Monthly Diffusion Tube Results (µg/m^3)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT04	394652	809714	34	30	27	22	22	20	17		23	18	26	24	23.9	17.5	n/a	
DT05	394236	808066	31	27.5	30.5	24	20.5	16	16	17.5	22	17	30.5	25	23.1	16.9	n/a	
DT06	394764	805197	27	31.5	37.5	31	29	25.5	21	20.5	18	22.5	29.5	19	26.0	19.0	n/a	
DT07	394411	804407	28	31	36	32	34	35	24	23	22	20	29	22	28.0	20.4	n/a	
DT08	392337	804340	40	44	45	41	31	31	30	31	12	30	31	18	32.0	23.4	n/a	
DT09	394264	806146	45	42	44.5	48	51	52	38	39.5	34	47	47	50.5	44.9	32.8	n/a	
DT10	394530	805708	49.5	56	56	45.5	48.5	42	42	40.5	37.5	49.5	50.5	42	46.6	34.0	n/a	
DT11	394406	806637	51	54	50.5	48	46.5	41	39	41	46.5	36.5	46	46.5	45.5	33.2	n/a	
DT12	394285	806285	47		48	47	45	43	40	35	38	36	43	45	42.5	31.0	n/a	
DT13	393777	806030		39	39	33	32	32	30	28	27	40	41	34	34.1	24.9	n/a	
DT14	389046	812794	11	11	9	6	7	6	5	5	6	7	13	11	8.1	6.0	n/a	
DT16	394336	806097	30.5	38.5	38.5	38	48.5	43.5	33.5	42	33	41.5	41	51.5	40.0	29.2	n/a	
DT18	393305	805734		46.5	46.5	33	32	29.5	27	28.5	31	36.5	46.5	40	36.1	26.3	n/a	
DT19	393386	805826	42.5	40	39	33	34.5	32	28.5	28	27.5	35.5	42.5	42	35.4	25.9	n/a	
DT20	394400	806842	32	31	29.5	29	26.5	23	19	20	24	19.5	27.5	27.5	25.7	18.8	n/a	
DT21	394449	806453	31	36.5	34.5	36.5	37	34	26.5	27	31.5	23.5	30	36	32.0	23.4	n/a	
DT22	394425	806634	29	33.5	35	36.5	36	35	27.5	29.5	34	26	33.5	40	33.0	24.1	n/a	
DT25	393332	805748	33	35	40	39	37	39	32	33	31	38	39	41	36.4	26.6	n/a	
DT29	393400	805811	41	41	41	41	44	44	35	34	35	41	42	42	40.1	29.3	n/a	
DT30	393619	805919	40	42	39	37	38	38	32	29	30	37	40	38	36.7	26.8	n/a	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT33	394505	806531	38.5	42.5	40	39	42	39	32	32.5	39	30	34.5	40	37.4	27.3	n/a	
DT36	394403	804799	34.5	39.5	51	47	47	41.5	35.5	34.5	31	34.5	41	30.5	39.0	28.4	n/a	
DT39	391293	809136	30	34	33	28	28	27	26	26	28	22	29	29	28.3	20.7	n/a	
DT40	391353	809158	28	26	23	18	17	18	16	16	19	19	27	24	20.9	15.3	n/a	
DT41	391352	809151	40	38	32	24	25	25	25		58	26	37	32	32.9	24.0	n/a	
DT45	392311	804349	19	24	25	22	17	16	14	16	26	28	20	28	21.3	15.5	n/a	
DT47	393368	807511	45	45	44	42	43	39	31	34	38	35	45	46	40.6	29.6	n/a	
DT49	392969	808460		29	30	27	26	25		20	23	20	29	30	25.9	18.9	n/a	
DT63	393034	807392		22	23	21	21	19	16	16	17	18	24	27	20.4	14.9	n/a	
DT64	393025	807828	17	15.5	15	13.5	13	11.5	8	9	11	13	20	20.5	13.9	10.3	n/a	
DT67	389756	809583	31	29	36	30	28	26	20		23	23	32	28	27.8	20.3	n/a	
DT70	395476	804452	17.6	21.3	23.6	18	11	10.3	9.3	12.6	11	25.6	21	12	16.1	11.9	n/a	
DT71	395431	803410	11.3	14.6	17.3	12.6	8	6.3	3.6	7.3	7	7.3	12	7	9.5	7.0	n/a	
DT72	394988	801940	7.6	8	10.6	7.3	6	5	5	5	5	3.6	9.3	6.3	6.6	5.0	n/a	
DT73	393458	806768	34	36	37		36	29	28	27	26		35	38	32.6	23.8	n/a	
DT74	393350	806922	27	31	36	32	42	30	26	27	24	30	41	36	31.8	23.2	n/a	
DT75	395964	805132	28.6	22	23.6	18	15	10	14	16.3	11.6	19.6	28	23.6	19.2	14.2	n/a	
DT77	393524	806701	36	37	36	30	34	30	28	27	29	29	50	44	34.2	24.9	n/a	
DT80	393410	806674	20	17	19	18	20	19	18	18	15	20	48	29	21.8	15.9	n/a	
DT81	393044	806537	27	27	30	24	29	28	21	23	23	27	31	32	26.8	19.6	n/a	
DT82	394466	806248	46	51.5	50.5	51	54.5	46.5	42	36	47.5	36	43	59.5	47.0	34.3	n/a	
DT85	395216	804724	14.6	20	25	20.3	12.6	10	9	9.6	11.3	11.3	18.6	11.6	14.5	10.7	n/a	
DT88	395118	806164	50	47	37	34	36	31	32	28	40	34	30	46	37.1	27.1	n/a	
DT90	393290	806942	18	22	25	24	26	22	17	20	17	21	28	31	22.6	16.5	n/a	
DT91	393367	806941	44	46	42	37	35	40	35	35	38	33	44	46	39.6	28.9	n/a	

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT92	394184	806001	39	46	47	46	52	47	39		36	45	42	41	43.6	31.9	n/a	
DT93	393920	806049	60		52	61	49	42	37	34	45	49	51	55	48.6	35.5	n/a	
DT94	392607	806502	30	30	33	27	27	22	13	19	17	24	35	25	25.2	18.4	n/a	
DT95	392680	806500	20	28	25	22	24	22	16	18	19	23	30	27	22.8	16.7	n/a	
DT96	393543	806315	23	25	29	21	26	21	20	24	17	26	28	28	24.0	17.5	n/a	
DT97	393557	806309	22	26	27		30	26		30	22	30	30	31	27.4	20.0	n/a	
DT98	391973	804775	46	48	46	45	42	47	40	41	40	37	44	41	43.1	31.5	n/a	
DT99	394047	806909	23	24	27	26	24	21	16	18	19	18	27	27	22.5	16.4	n/a	
DT100	391441	808897	20	20	24	22	21	22	17	18	18	18	23	23	20.5	15.0	n/a	
DT101	391361	808923	26	22	27	22	20	19	14	16	16	16	30	20	20.7	15.1	n/a	
DT102	393971	805996	36	62	60	52	67	61	55	43	34	42	45	43	50.0	36.5	n/a	
DT103	390796	808123	9	10	12	12	10	9	6	7	8	10	14	14	10.1	7.5	n/a	
DT104	394170	805189	28	31	33	28			21	20	23	28	34	39	28.5	20.8	n/a	
DT105	394096	805625	28	30	35	30	29	29	28	27	27	43	41	29	31.3	22.9	n/a	
DT106	394303	806270										35.5	42	49	42.2	25.0	n/a	

☒ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

☒ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.**

☒ **Local bias adjustment factor used.**

☐ **National bias adjustment factor used.**

☒ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **Aberdeen City Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in **bold**.

NO_2 annual means exceeding 60µg/m^3, indicating a potential exceedance of the NO_2 1-hour mean objective are shown in **bold and underlined**.

See Appendix C for details on bias adjustment and annualisation.

Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC

New or Changed Sources Identified Within Aberdeen City Council During 2023

Aberdeen City Council has not identified any new sources relating to air quality within the reporting year of 2023.

Additional Air Quality Works Undertaken by Aberdeen City Council During 2023

Aberdeen City Council has not completed any additional works within the reporting year of 2023.

QA/QC of Diffusion Tube Monitoring

Diffusion tube monitoring is carried out in accordance with the procedures contained in the guidance 'Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users' and LAQM.TG-August- 22-v1.0.

All tubes, other than those co-located at the continuous analysers are attached to lampposts/downpipes at a height of approximately 2 meters above ground level and exposed for 4 to 5 weeks in line with the Defra calendar of exposure periods.

Co-located tubes are in triplicate close to the analyser air intake. All exposure times are recorded. Unexposed field samples are submitted to the laboratory with each batch of exposed tubes.

Diffusion tubes are provided by Gradko International and analysed by Aberdeen City Council's Scientific Services Laboratory. The preparation technique is 20% tri-ethanolamine in water.

Aberdeen Scientific Services Laboratory is UKAS accredited for the analysis of diffusion tubes.

UKAS completed their annual assessment of the laboratory in January 2024 to ensure laboratory guidance is being implemented. No problems were identified.

The laboratory participates in the Laboratory of the Government Chemist (LGC) AIR PT scheme. During 2023 the Laboratory participated in all available rounds and all results submitted were satisfactory (z-score < ±2).

The laboratory also participates in the nitrogen dioxide "inter comparison" exercise, managed by the National Physical Laboratory. During 2023, the Laboratory participated in all available rounds. The annual summary (produced by AEA Energy & Environment) has not yet been released for 2023, however the previous report indicated that all results were classified as "Good" throughout 2022.

Triplicate and duplicate tube monitoring locations were assessed for precision and accuracy. Table C.5 details action taken for duplicate/triplicate tube results with poor precision. The action taken with duplicate/triplicate tubes with poor precision did not cause the annual mean to go above or below the annual mean objective level of 40 µg/m^3.

Diffusion Tube Annualisation

Annualisation of data was carried out in accordance with LAQM (TG22), where data capture was less than 75% but greater than 25% for the following diffusion tube locations in 2023:

- Diffusion tube DT106

Two urban background continuous monitoring sites that form part of the national monitoring network have been used to carry out annualisation of the diffusion tube site:

- Aberdeen Erroll Park
- Dundee Mains Loan

Mains Loan is within a 55-mile radius of the monitoring locations in Aberdeen. There are no other background monitoring sites available. Valid data capture for Erroll Park and Mains Loan is above 85% in 2023.

The DEFRA Diffusion Tube Data Processing Tool v3.0 was used to calculate the annualisation factor. Results are summarised in Table C..

Diffusion Tube Bias Adjustment Factors

Aberdeen City Council have applied a local bias adjustment factor of 0.73 (roadside) and 0.74 (background) to the 2023 monitoring data. A summary of bias adjustment factors used by Aberdeen City Council over the past five years is presented in Table C.1.

Aberdeen City Council operates a co-location study at all automatic monitoring sites across the city. All results are submitted to the national bias adjustment factors (NBAFS). The national diffusion tube bias adjustment factor spreadsheet version 03/24 advises to use 0.73 for Aberdeen City. Although the Aberdeen Scientific Services Laboratory undertakes the analysis of diffusion tubes from neighbouring authorities, Aberdeen City Council is the only authority with continuous monitoring stations that can be used to calculate bias adjustment factors.

Accordingly, a locally derived bias factor based on the co-located tubes at all the Aberdeen continuous monitoring stations was used to adjust diffusion tube measurements at the other locations across the city. This process was considered appropriate due to the lack of other co-located studies using the laboratory for tube analysis, the remote location of Aberdeen from other conurbations and the good QA/QC performance of the laboratory.

Triplicate diffusion tubes are located adjacent to continuous monitor air analyser inlets. Tubes are exposed in 4-week periods throughout the year. Diffusion tubes are provided by Gradko International and analysed by Aberdeen City Council's Public Analyst. The preparation technique is 20% tri-ethanolamine in water. All automatic monitoring sites have been used in the study.

In accordance with LAQM (TG22) the local bias factor adjustment tool, downloaded from the DEFRA Local Air Quality Management website (Diffusion Tube Data Processing Tool v3.0), is used to calculate bias adjustment factors and the precision and accuracy of the triplicate co-located tubes. Table C.3 summarises the bias adjustment factors. Only data with good precision has been used (coefficient of variation smaller than 20%).

Erroll Park is an urban background site while the other sites are roadside.

LAQM (TG22) advises the value of a local co-location study (and the subsequent bias adjustment) will be improved if the concentrations being measured are similar to those in the wider survey. Therefore, separate bias adjustment has been derived for roadside and background.

In accordance with LAQM (TG22), Bias B values of all roadside continuous monitoring locations were averaged for the roadside locations and the inverse derived to obtain a bias adjustment factor of **0.73**. Table C.4 summarises the calculation.

A separate adjustment factor is derived for background sites using the Bias A, from Erroll Park, of **0.74**.

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor Roadside	Adjustment Factor Urban Background
2023	Local	-	0.73	0.74
2022	Local	-	0.75	0.73
2021	Local	-	0.76	0.80
2020	Local	-	0.79	0.71
2019	Local	-	0.80	0.79

NO_2 Fall-off with Distance from the Road

Distance correction should be considered at any monitoring site where the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure (taking the limitations of the calculator into account).

No diffusion tube NO_2 monitoring locations within Aberdeen City Council required distance correction during 2023.

QA/QC of Automatic Monitoring

All equipment is subject to the QA/QC procedures recommended in LAQM (TG22). Equipment is serviced at 6 monthly intervals. The service contract includes call outs to site for repairs and the routine replacement of consumables. Local Site Operator duties are carried out by Aberdeen City Council Protective Services Officers.

The Errol Park, Union Street and Wellington Road sites are part of the UK's Automatic Urban Network. All sites are part of the Scottish Government data reporting process and subject to independent audit by Ricardo AEA (RAEA) at 6 monthly intervals. Data validation and ratification is also performed by RAEA.

The analysers perform daily automatic calibrations which are used to assess the routine performance of the analysers and any long-term response drift. Manual calibrations are performed by trained Council officers every two weeks (4 weeks in 2024 due to national shortage of calibration gas) using a calibration mixture traceable to national standards. These calibrations act as a check on the operation of the analysers and enable determination of the instrument response factors used to calculate the concentration of NO_2.

Data is checked daily (Monday-Friday). Should a problem be identified either by Council officers or by RAEA the site is visited immediately and, if necessary, a further manual calibration is performed. Data considered suspect is deleted. Records are kept of instrument breakdowns, services and audits and any local activities or meteorological conditions that may influence readings.

Live and historical data is available at scottishairquality.scot

Historical data is also available at aberdeencity.gov.uk

PM_{10} and $PM_{2.5}$ Monitoring Adjustment

FIDAS PM_{10} is corrected by dividing by 0.909.

FIDAS $PM_{2.5}$ is corrected by multiplying by 1.06.

For completeness, as recommended from the report compiled by Ricardo Energy & Environment for the Scottish Government, both the corrected and uncorrected results, as reported on the SAQD website, are reported.

Automatic Monitoring Annualisation

Annualisation is required for any automatic monitoring site with data capture less than 75% but greater than 25%.

Annualisation of data was carried out in accordance with LAQM TG22 where there was insufficient data capture for Wellington Road NO_2.

Erroll Park and Dundee Mains Loan were the urban background continuous monitoring sites – that also form part of the national monitoring network – used to carry out annualisation.

Mains Loan is within a 55-mile radius of the monitoring locations in Aberdeen. There are no other background monitoring sites available. Valid data capture for and Mains Loan is above 85% in 2023.

The annualisation factor derived from Erroll Park and Mains Loan for NO_2 data in 2023 were used to annualise the Aberdeen automatic sites data capture less than 75% but greater than 25%.

An annualisation summary is provided in Table C.2.

NO_2 Fall-off with Distance from the Road

Distance correction should be considered at any automatic monitoring site where the annual mean concentration is greater than 36µg/m^3 and the monitoring site is not located at a point of relevant exposure.

No automatic NO_2 monitoring locations within Aberdeen City required distance correction during 2023. All roadside automatic monitoring sites not at point of exposure identified in Table A.3 recorded annual mean concentrations below 36µg/m^3 and therefore do require distance correction.

Erroll Park is an urban background site.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Erroll Park	Annualisation Factor Mains Loan	Annualisation Factor Site 3 Name	Annualisation Factor Site 4 Name	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
CM4	0.906	0.844	-	-	0.875	27	23.6	
DT106	0.8916	0.7370	-	-	0.8143	42.2	34.3	

Table C.3 – Local Bias Adjustment Calculations

	Local Bias Adjustment Union St (CM1) Roadside	Local Bias Adjustment Market St (CM2) Roadside	Local Bias Adjustment Anderson Dr (CM3) Roadside	Local Bias Adjustment Wellington Rd (CM4) Roadside	Local Bias Adjustment King St (CM5) Roadside	Local Bias Adjustment Erroll Park (CM6) Urban Background
Periods used to calculate bias	13	13	9	9	13	12
Bias Factor A	0.74 (0.69–0.8)	0.68 (0.65-0.71)	0.74 (0.69-0.79)	0.75 (0.71-0.79)	0.73 (0.65-0.84)	0.74 (0.72-0.77)
Bias Factor B	35% (24%-46%)	48% (41%-54%)	36% (27%-44%)	33% (26%-40%)	36% (19%-54%)	35% (30%-39%)
Diffusion Tube Mean (µg/m^3)	34	36	16	36	20	21
Mean CV (Precision)	2%	2%	1%	3%	3%	2%
Automatic Mean (µg/m^3)	25.0	24.0	12.0	27.0	15.0	15.0
Data Capture	100%	100%	97%	97%	98%	99%
Adjusted Tube Mean (µg/m^3)	25 (23–27)	24 (23-25)	12 (11-12)	27 (25-28)	15 (13-17)	15 (15-16)

Notes: A combined local bias adjustment factor of 0.73 has been used to bias adjust the 2023 roadside diffusion tube results. Calculation in Table C.4.

A single local bias adjustment factor of 0.74 has been used to bias adjust the 2023 urban background diffusion tube results.

Table C.4 - Combined Local Bias Adjustment Factor Calculation (Roadside)

Automatic roadside monitoring site	Bias B (%)
Anderson Drive	36
King Street	36
Market Street	48
Union Street	35
Wellington Road	33
Mean Bias B	37.6
Factor + 1	1.376
Inverse	**0.73**

Table C.5 - Adjustment of Duplicate/Triplicate Tubes

Diffusion Tube Measurements									Data Quality Check	Action
Tube ID	**Monitoring Period 2023**	**Tube 1 µgm-3**	**Tube 2 µgm-3**	**Tube 3 µgm-3**	**Triplicate Average**	**Standard Deviation**	**CV**	**95% CI mean**	**Diffusion Tubes Precision Check**	**Tube Adjustment**
DT05	September	22.0	9.0	-	15.5	9.19	59.3	82.59	Poor Precision	Tube 2 excluded as outlier
DT33	April	39.0	5.0	-	22.0	24.04	109.3	216.01	Poor Precision	Tube 2 excluded as outlier
DT33	May	87.0	42.0	-	64.5	31.82	49.3	285.89	Poor Precision	Tube 1 excluded as outlier
DT92	February	5.0	-	-	-	-	-	-	Extreme low	Excluded from study
DT93	August	5.0	-	-	-	-	-	-	Extreme Low	Excluded from study

Appendix D: Supporting Information Charts

Figure D.1: Trend in NO_2 Annual Mean Concentration (µg/m^3) Continuous Monitoring Sites 2019-2023

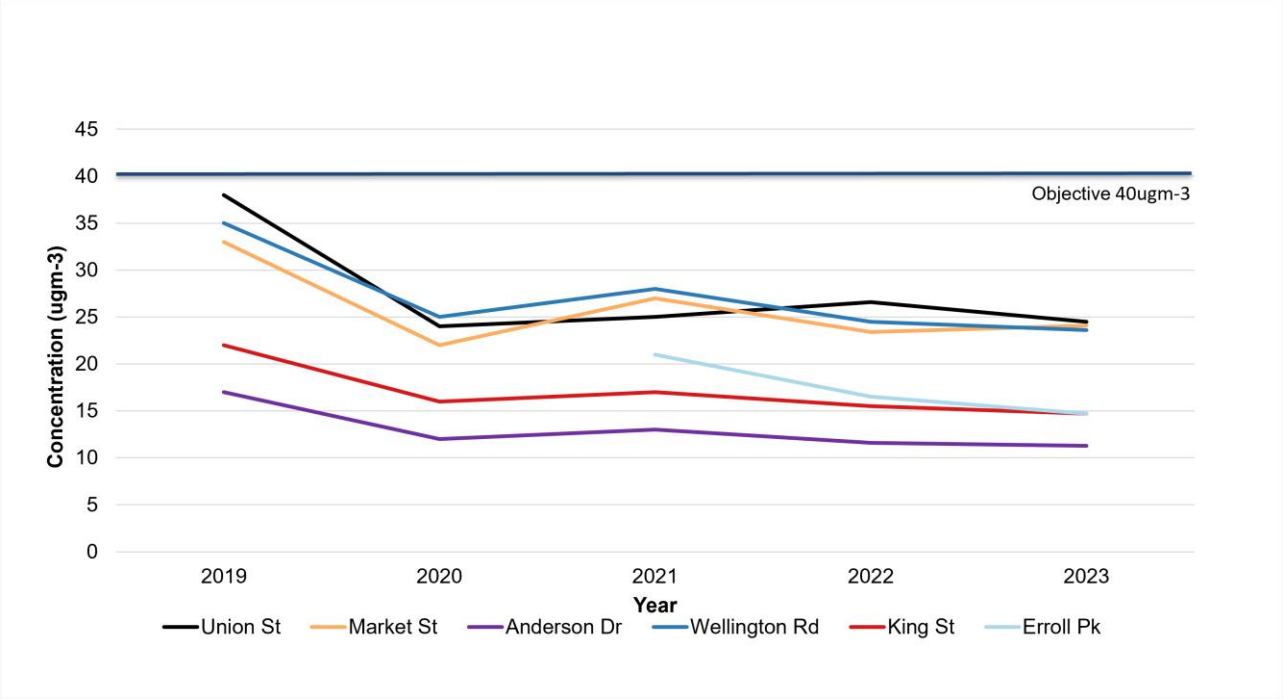


Figure D.2: Trend in NO_2 Annual Mean Concentration (µg/m^3) Continuous Monitoring Sites 2019-2023

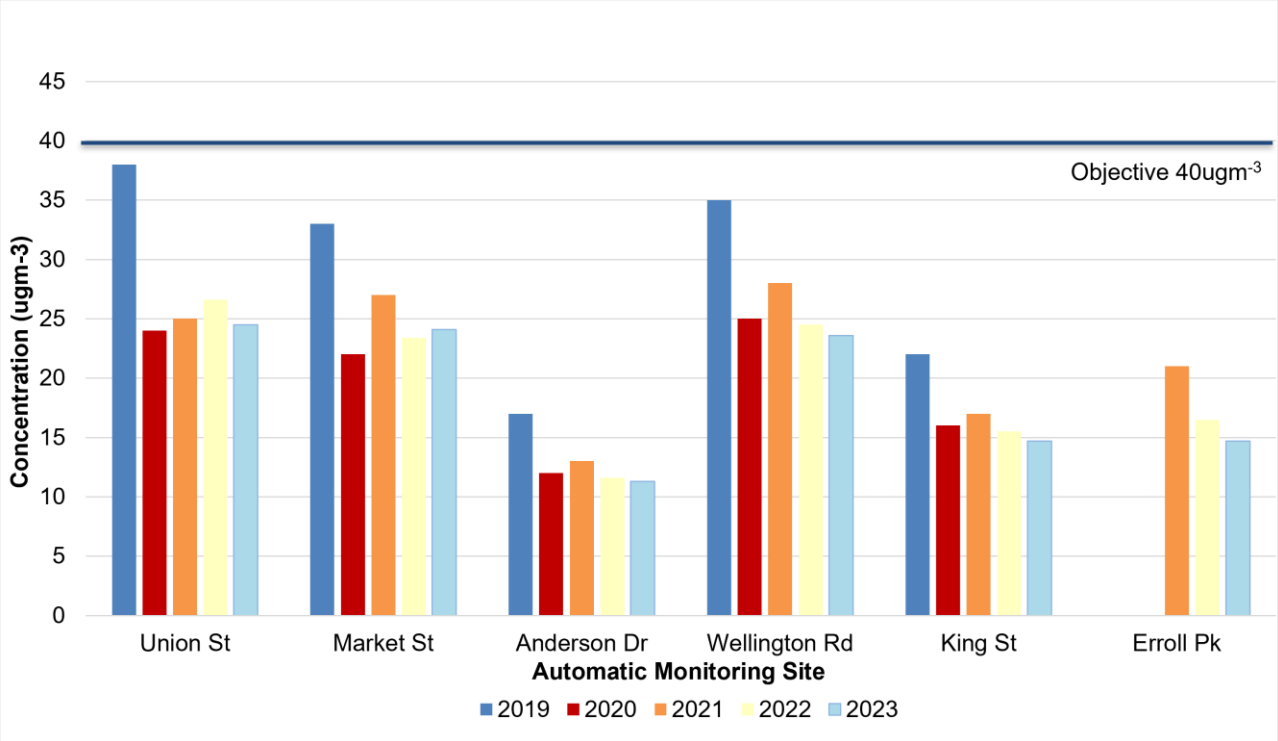
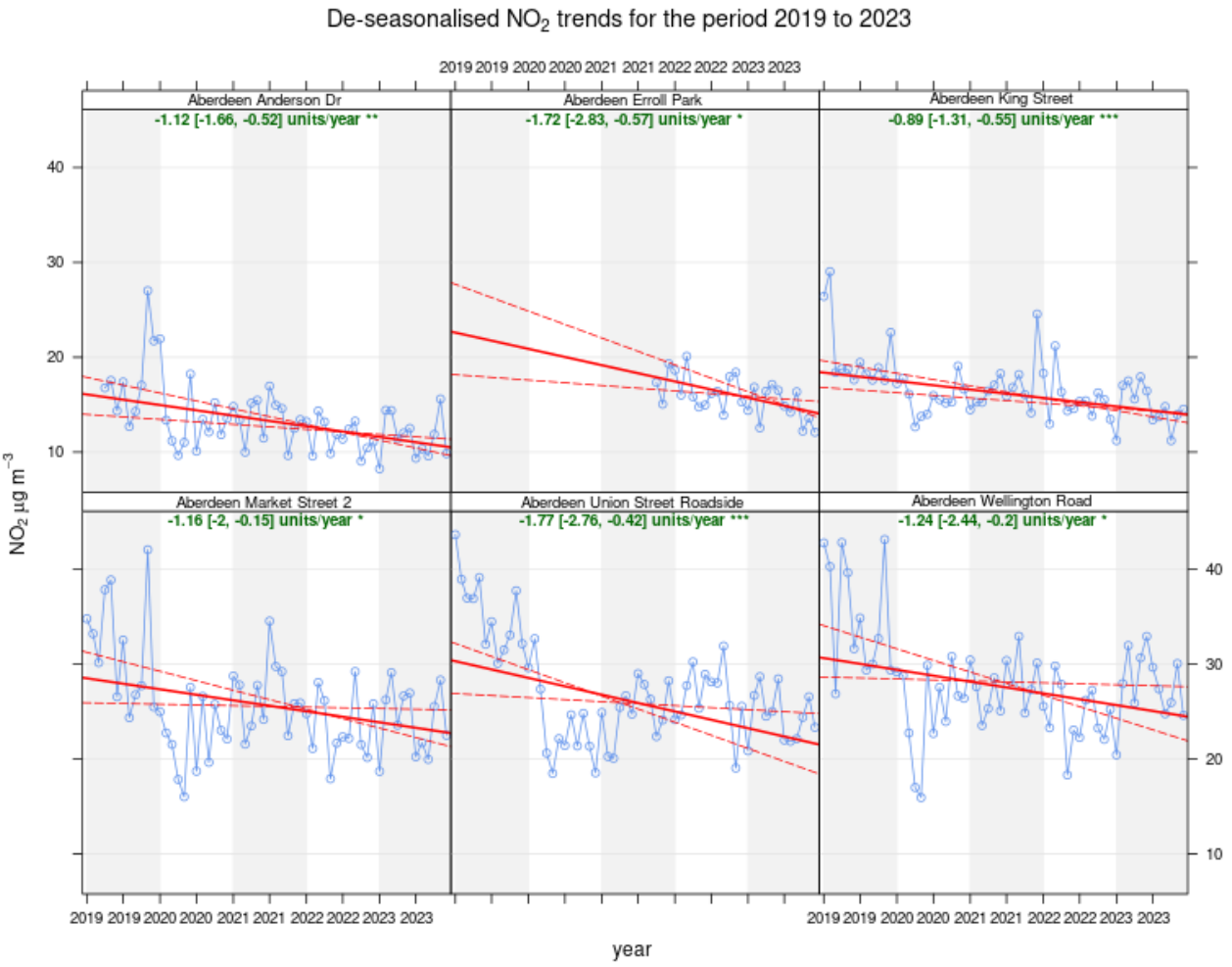


Figure D.3: De-seasonalised NO_2 trends at each Continuous Monitoring Site 2019-2023



Source: (Ricardo Energy & Environment)

Figure D.4: Bus Gate Locations City Centre AQMA

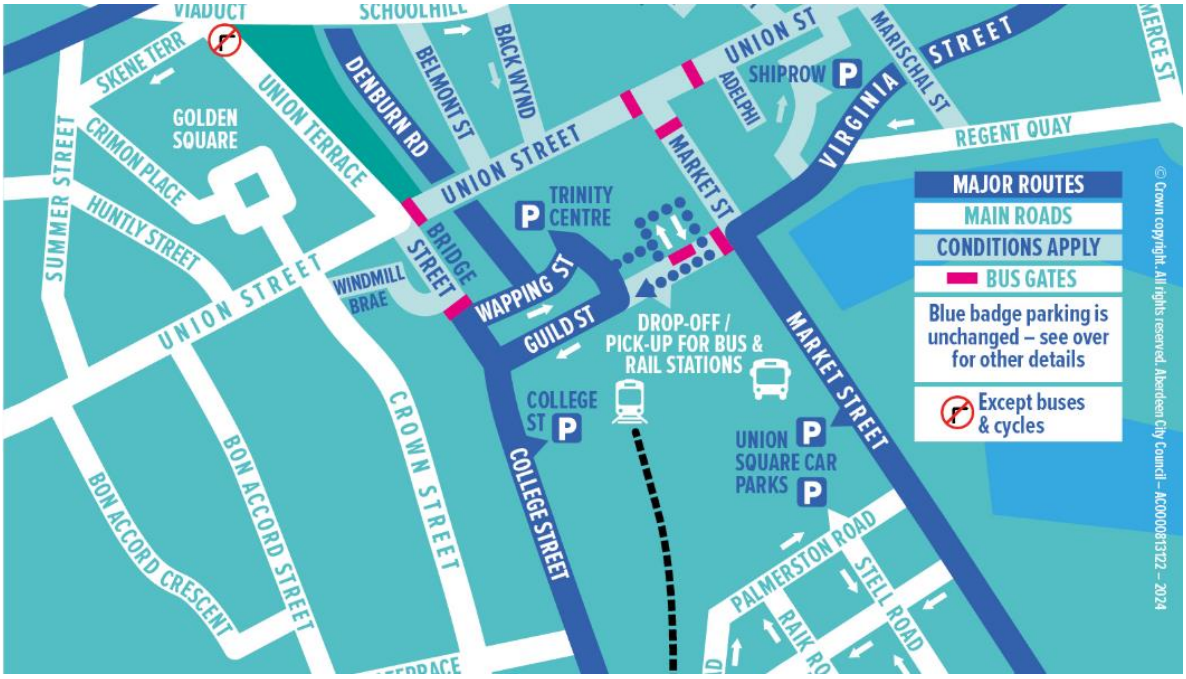


Figure D.5: Annual mean NO_2 concentration Anderson Drive diffusion tubes (ugm^{-3})

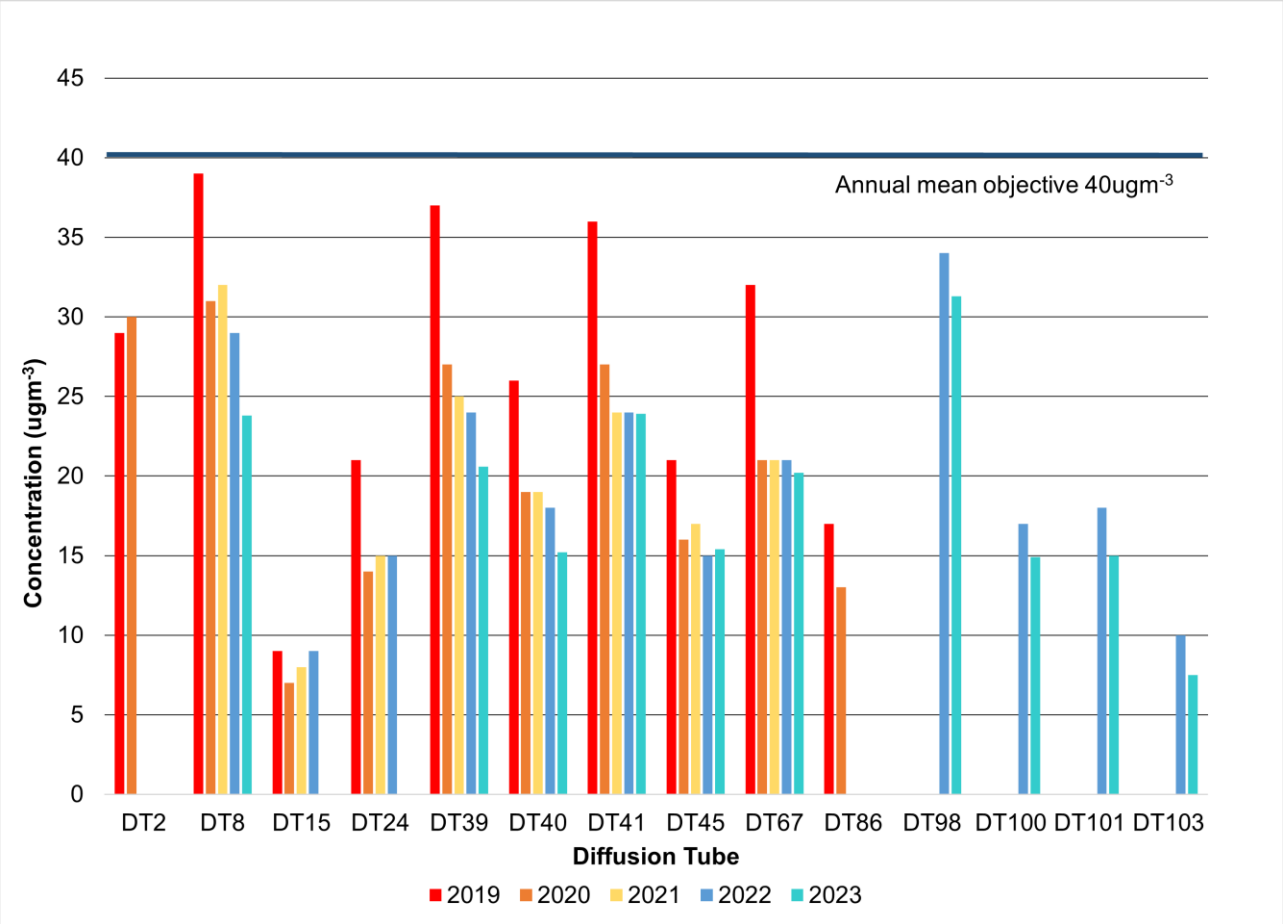


Figure D.6: Annual mean NO_2 concentration Wellington Road AQMA diffusion tubes

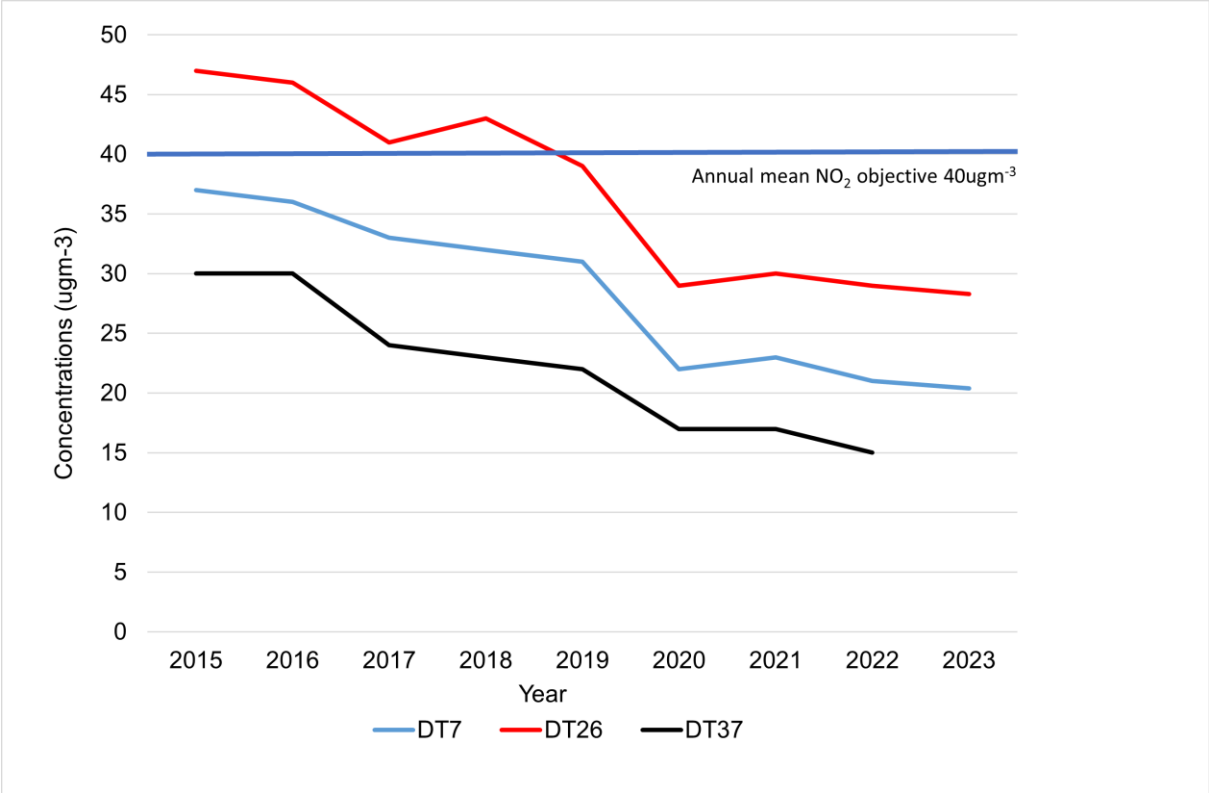


Figure D.7: Trend in PM_{10} Annual Mean Concentration (µg/m^3) at each Continuous Monitoring Sites 2019-2023

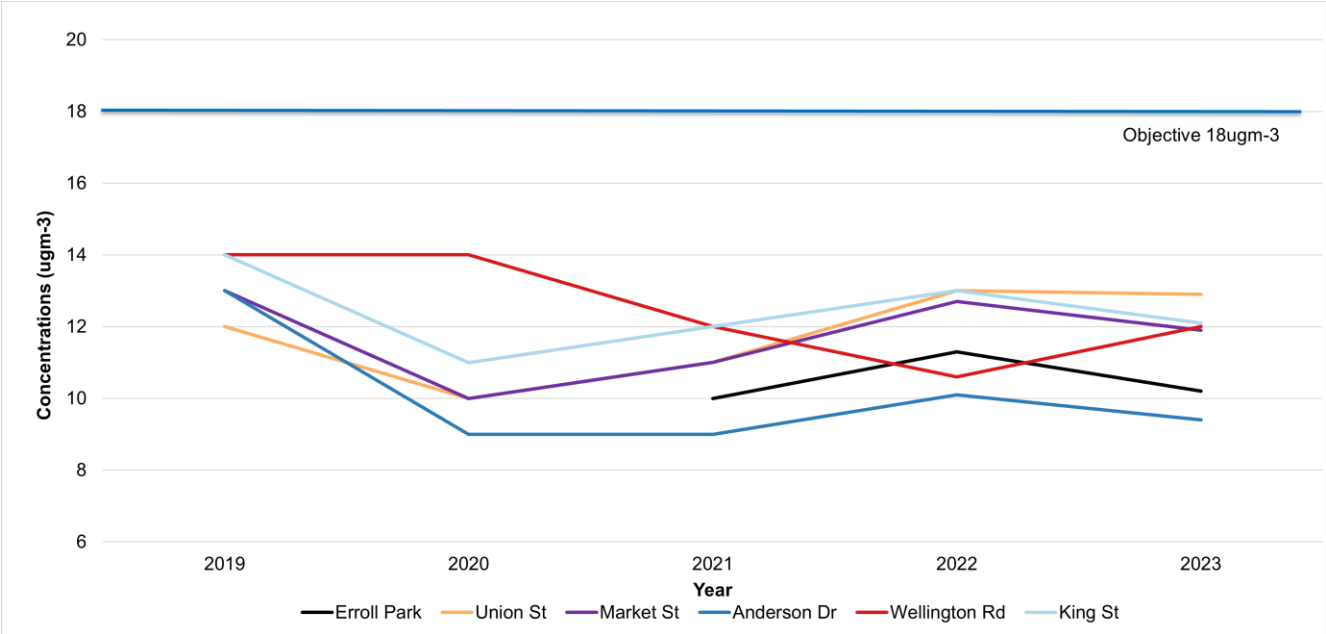


Figure D.8: Trend in PM_{10} Annual Mean Concentration ($\mu g/m^3$) at each Continuous Monitoring Site 2019-2023

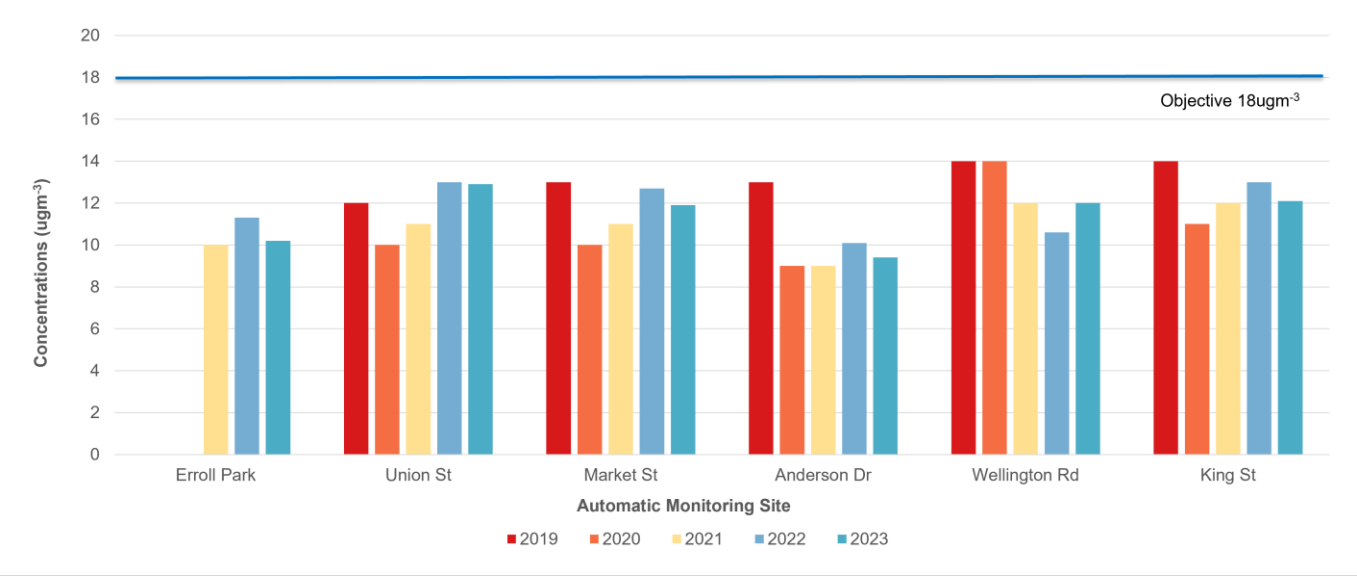
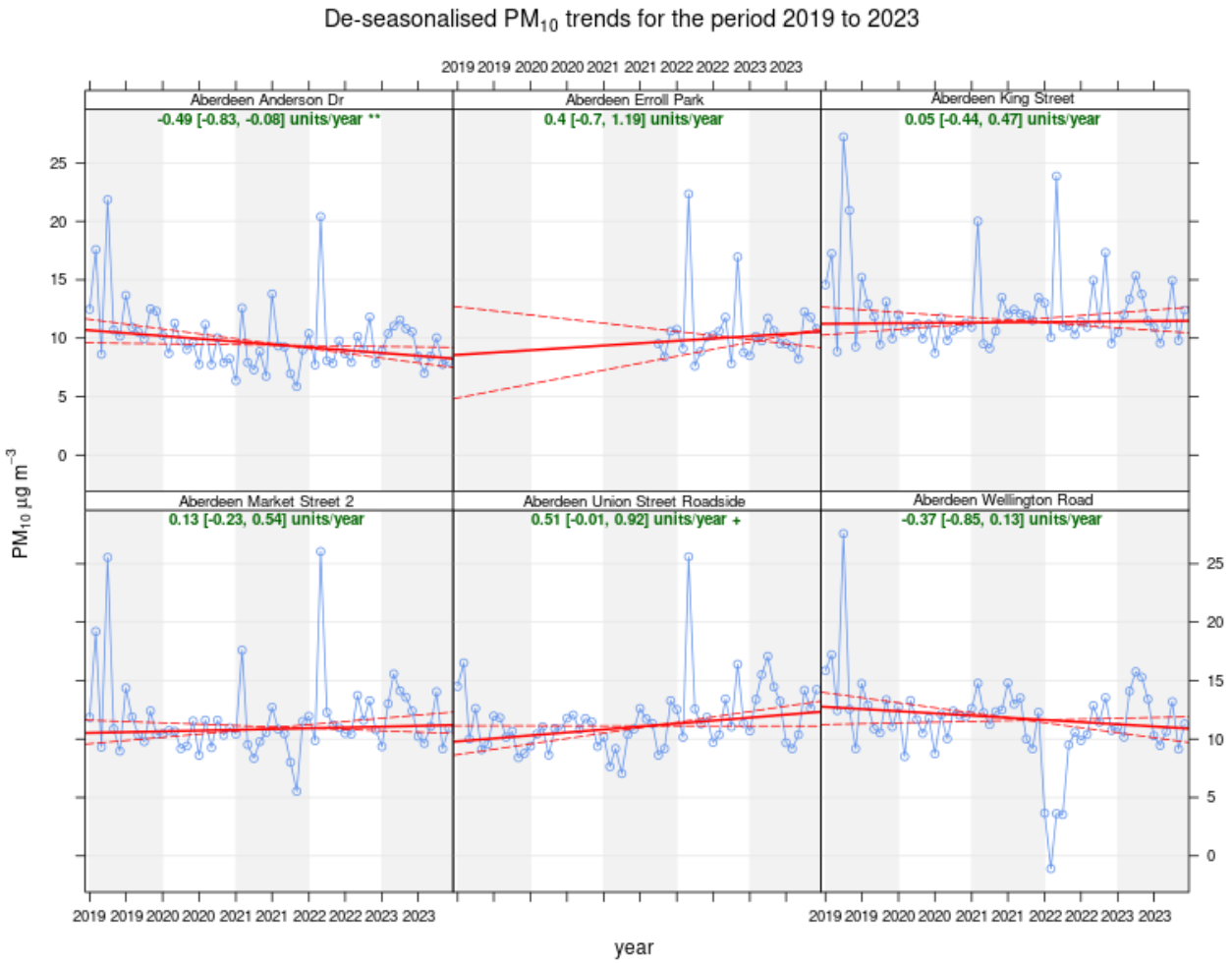


Figure D.9: De-seasonalised PM_{10} trends at each Continuous Monitoring Site 2019-2023



Source: (Ricardo Energy & Environment)

Appendix E: Monitoring Locations

Figure E.1: Aberdeen City AQMAs and Automatic Monitoring Locations

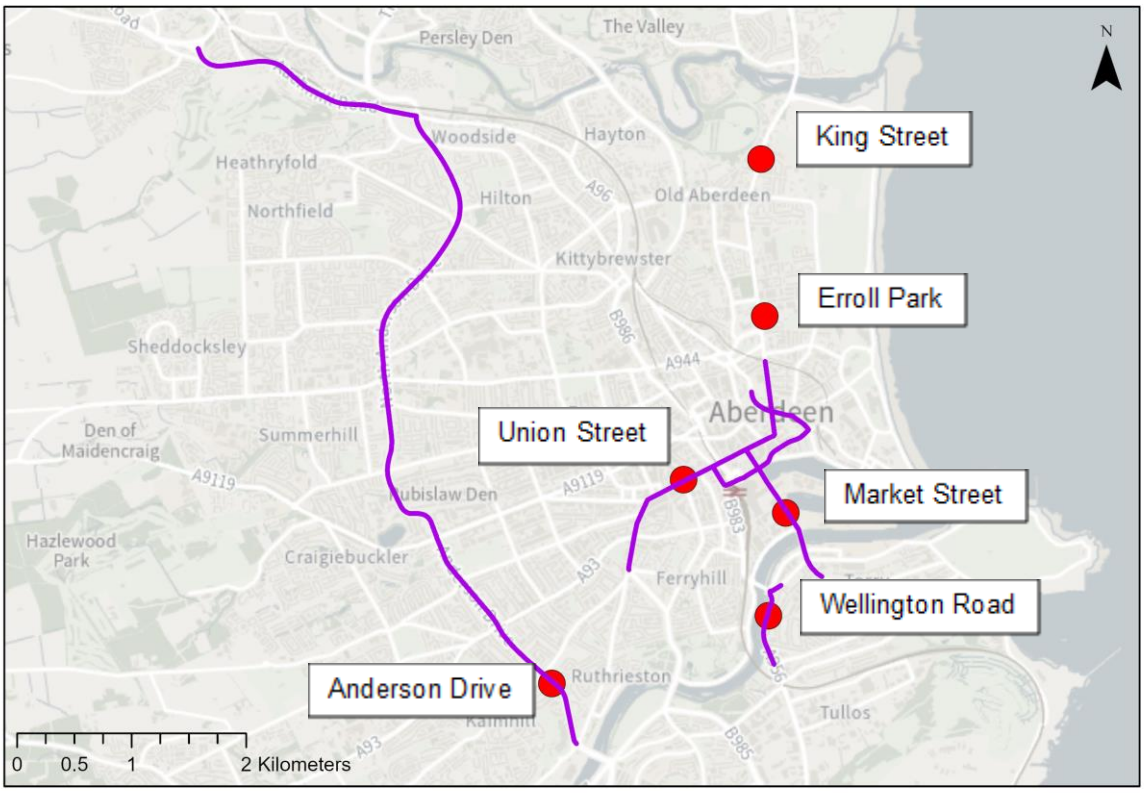


Figure E.2: Aberdeen City-wide diffusion tube locations, separated into Plates 1-7

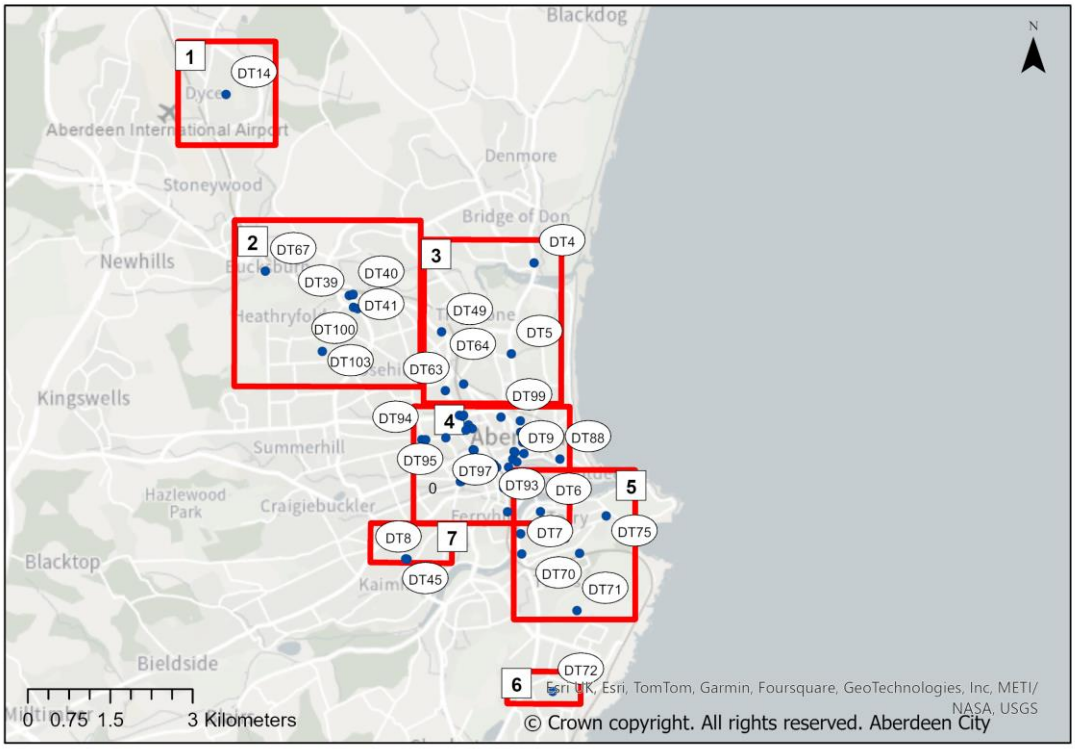


Figure E.3: Plate 1 – Diffusion tube locations, Dyce

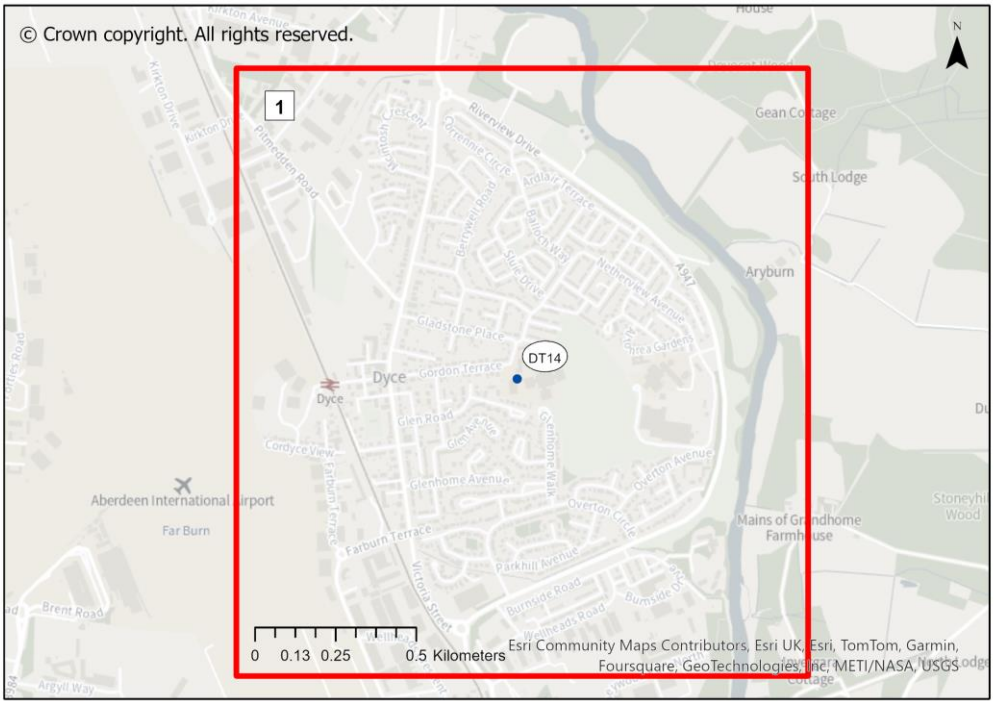


Figure E.4: Plate 2 – Diffusion tube locations, Bucksburn

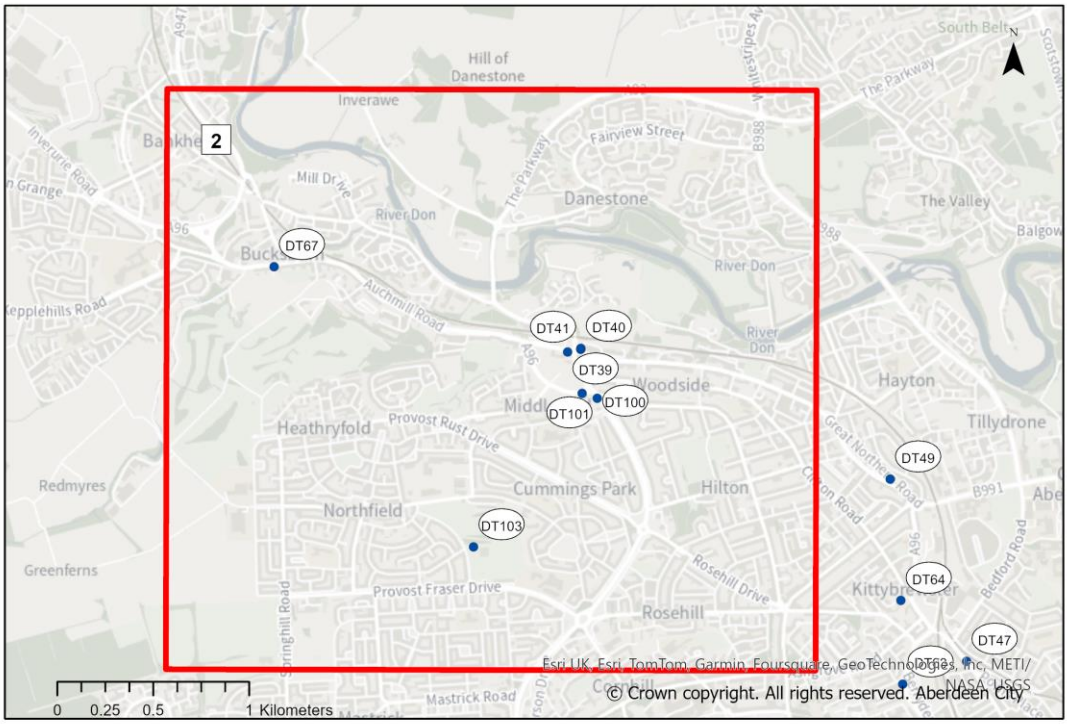


Figure E.5: Plate 3 – Diffusion tube locations, Seaton/Kittybrewster



Figure E.6: Plate 4 – Diffusion tube locations, City Centre

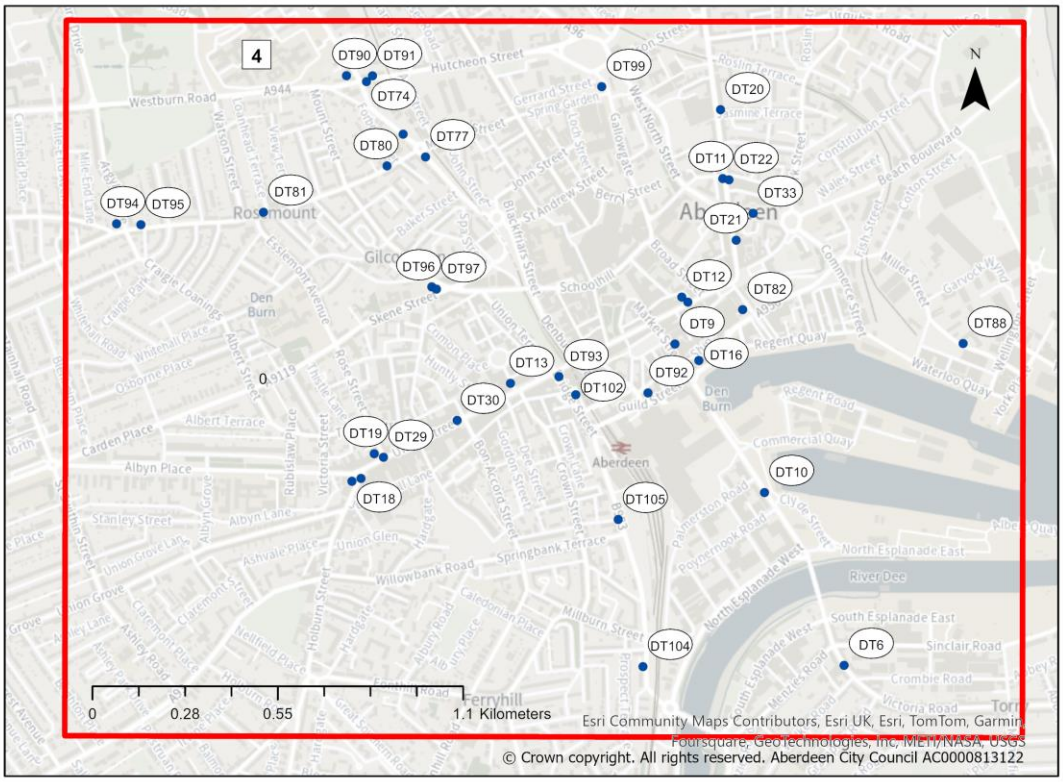


Figure E.7: Plate 5 – Diffusion tube locations, Torry

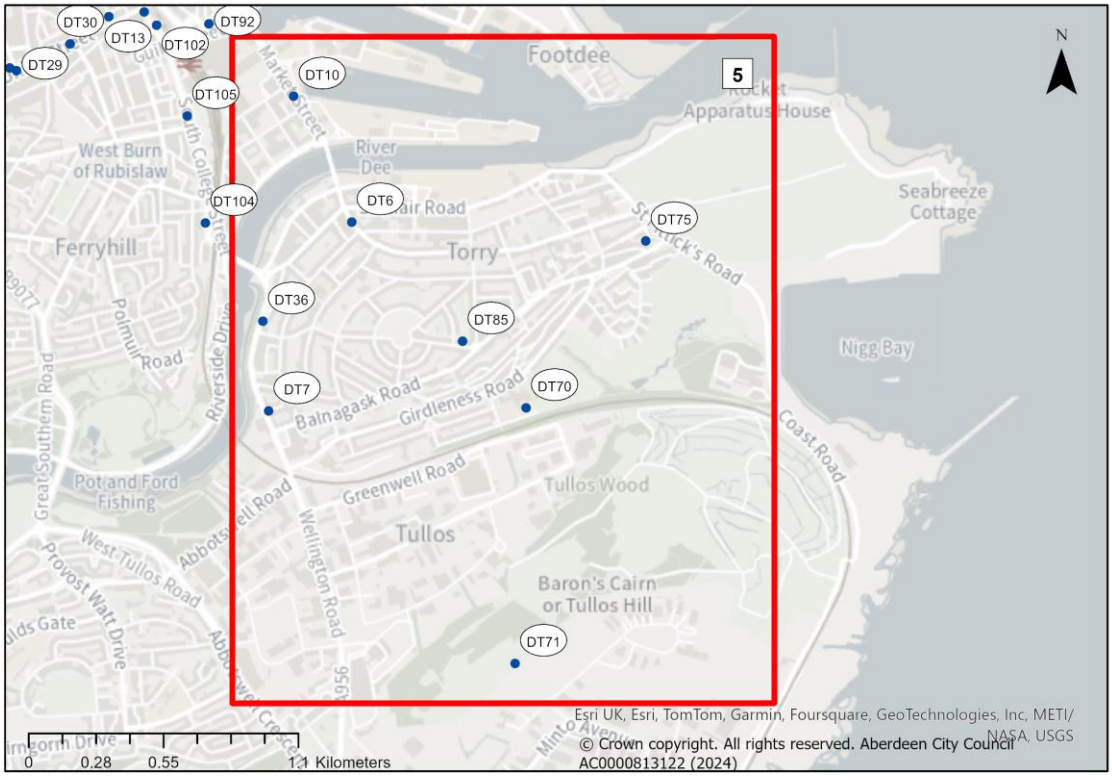


Figure E.8: Plate 6 – Diffusion tube locations, Cove

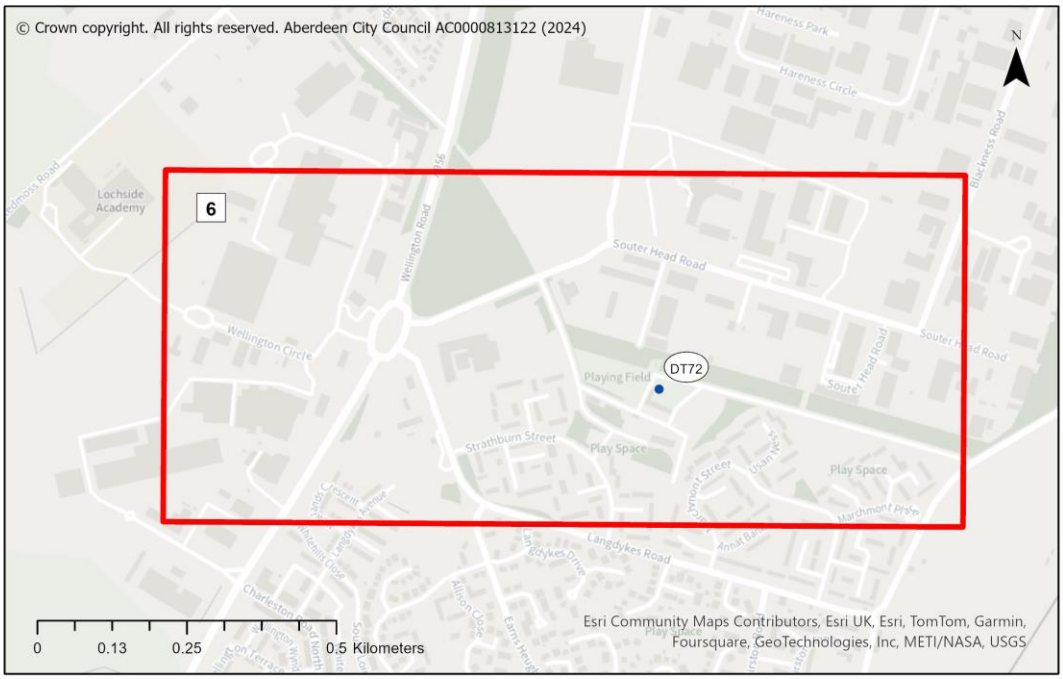
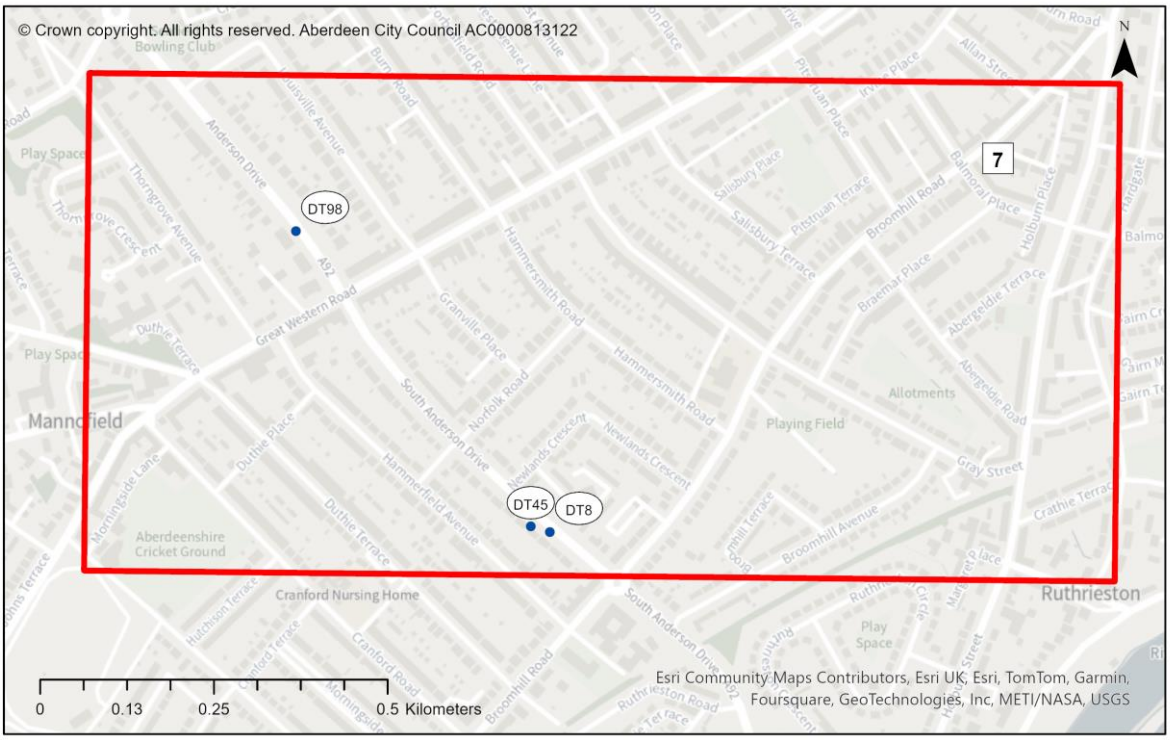


Figure E.9: Plate 7 – Diffusion tube locations, Anderson Drive



Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the LA intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
APR	Air quality Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
DT	Diffusion Tube
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
LEZ	Low Emission Zone
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
PM_{10}	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
$PM_{2.5}$	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SEPA	Scottish Environmental Protection Agency
SO_2	Sulphur Dioxide

References

1. Environment Act 1995
2. The Air Quality (Scotland) Regulations 2000
3. The Air Quality (Scotland) (Amendment) Regulations 2001
4. Local Air Quality Management Technical Guidance LAQM (TG22), DEFRA, August 2022
5. Local Air Quality Management Policy Guidance, (PG) (S) (23), The Scottish Government, March 2023
6. Aberdeen City Council Action Plan, March 2011
7. 2023 Air Quality Annual Progress Report (APR) for Aberdeen City Council, June 2023
8. Equivalence study to investigate Particulate Matter monitoring in Scotland using the Fidas 200 report for Scottish Government, Ricardo, May 2023

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ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero, Environment and Transport Committee
DATE	3 September 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	Local Environmental Action Fund (LEAF)
REPORT NUMBER	CR&E/24/256
EXECUTIVE DIRECTOR	Gale Beattie
CHIEF OFFICER	David Dunne
REPORT AUTHOR	Guy Bergman
TERMS OF REFERENCE	1,5,12

1. PURPOSE OF REPORT

1.1 The purpose of this report is to provide an update on the Local Environmental Action Fund ('the Fund') Pilot and to note the intention to continue this funding model on an annual basis. Further information on the Fund can be found here: https://www.nescan.org/leaf-funding-1.

2. RECOMMENDATIONS

That Committee:

2.1 Note that the Council's Climate and Environment Policy Service have an existing £44,000 annual budget for supporting community environmental improvements, historically directed to communities through a partnership with the now defunct Aberdeen Greenspace Trust. To maximise the benefits of this funding in empowering communities to act on the city's climate and nature commitments, different funding models have been explored by the Service.

2.2 Note the Local Environmental Action Fund Pilot summary (Section 3.15) which provides a summary of the project applications received for the recent Pilot with the registered charity NESCAN Hub Limited (North East Scotland Climate Action Network).

2.3 Approve £44,000 being allocated towards this funding model with NESCAN Hub Limited for 2024/25, which will be met through the existing budgets, and note that an additional one-off £14,000 underspend carried over from 2023/24 will give a £58,000 allocation in 2024/25.

2.4 Delegate authority to the Chief Officer – Strategic Place Planning to continue this funding model and agreement with NESCAN Hub Limited on a yearly basis, subject to the annual budget process, in consultation with the Chief Officer of Commercial and Procurement Services on the terms and conditions of the grant.

2.5 Instruct the Chief Officer – Strategic Place Planning to explore options to expand the size and impact of the Fund, e.g. through integrating the Fund with aspects of the Housing Revenue Account and / or other funds, as appropriate. Any such expansion will follow all due internal governance processes; and

2.6 Instruct the Chief Officer – Strategic Place Planning to include updates on the Fund and impacts thereof within the Council's existing Annual Climate and Nature Reports, presented to this Committee each autumn.

3. CURRENT SITUATION

Background information

3.1 The Council's Climate and Environment Policy Service have a £44,000 annual budget for supporting community environmental improvements. To maximise the benefits of this funding, different funding models have been explored by the Service.

3.2 In 2021/22 the Service worked with the Fairer Aberdeen Team to deliver citywide environmental projects[1], successfully supporting several projects in the city. The process was repeated in 2022/23 focusing on a single locality, however there were not enough applications through this model and the funding went unutilised.

3.3 This prompted identification of alternative funding models for 2023/24 through an Options Appraisal (Appendix 1). The Appraisal recommended that a community environmental improvement fund delivered through an external partnership with NESCAN Hub Limited[2] (NESCAN Hub) a registered charity was the option that would best deliver on the funding objectives.

3.4 The Fund was piloted under delegated powers and ended on 5th August 2024 (Section 3.15).

Business need

3.5 Aberdeen City Council is committed to responding to the global climate-nature emergency. In March 2023 the Council added its voice to the growing number of local authorities around the world by declaring a climate and nature emergency.[3] The Council is also signatory to the Glasgow Food and Climate Declaration and the United Nations Race To Zero Campaign[4].

3.6 The Council cannot deliver on its obligations and ambitions acting alone. There is a need to empower communities to act on climate change and nature

[1] https://www.aberdeencity.gov.uk/news/community-projects-across-city-awarded-funding
[2] https://www.nescan.org/ a company limited by guarantee, and a charity registered in Scotland
[3] https://committees.aberdeencity.gov.uk/ieListDocuments.aspx?CId=122&MId=8658&Ver=4
[4] https://www.aberdeencity.gov.uk/services/environment/climate-change#:~:text=In%20October%202021%2C%20Aberdeen%20City,commit%20to%20inclusive%20climate%20action.

recovery to ensure delivery of the above commitments alongside the Council Climate Change Plan 2021 - 2025[5], Aberdeen Adapts[6], the Net Zero Aberdeen Routemap, Empowerment Strategy[7] and Natural Environment Strategy[8] as well as help to deliver place based outcomes in the Local Outcome Improvement Plan 2016-2026[9].

3.7 The Empowerment Strategy recognises that empowerment is crucial to achieving Routemap goals through the engagement, participation and capacity building of organisations and citizens.

3.8 The Fund will support the delivery of the Partnership's Agreement 'Working in Partnership for Aberdeen' to build a Greener and more Sustainable City: - "*Work with communities to ... develop a Community Environmental Improvement Fund, for communities to access, to implement their own small-scale local environmental improvements*."

Funding Model

3.9 Several funding models were explored to deliver the identified goals, objectives and business needs. The full Options Appraisal is outlined in Appendix 1.

3.10 Option 1 an external partnership with NESCAN Hub scored highest against the funding objectives and was therefore the recommended option and likely to deliver on all the objectives.

3.11 NESCAN Hub is the North East's primary resource on climate action. It provides a knowledge base and joined-up approach to action on climate and nature. NESCAN Hub has over 60 member organisations. Partnering to manage and deliver the Fund, they provide the capacity to best advise applicants to maximise the benefits of each project.

3.12 A Pilot Grant Agreement between NESCAN Hub and Aberdeen City Council sets out the terms and conditions for implementing the Fund and Reporting and Monitoring requirements. NESCAN HUB as the grantee will disburse individual grants to the final recipients for individual projects. This includes a Monitoring Report at the end of each financial year setting out how NESCAN has met the Fund purposes. The Grant Agreement will be reviewed as necessary.

3.13 The Climate and Environment Policy Service will monitor the Fund to ensure maximum impact, value for money and provide updates to this Committee within the Council's existing Annual Climate and Nature Reports.

[5] https://www.aberdeencity.gov.uk/sites/default/files/2021-10/_Council Climate Change Plan 2021-25 Towards a Net Zero and Climate Resilient Council.pdf.pdf

[6] https://www.aberdeencity.gov.uk/net-zero-aberdeen/aberdeen-adapts

[7] https://www.aberdeencity.gov.uk/sites/default/files/2022-11/Empowerment Strategy.pdf

[8] https://www.aberdeencity.gov.uk/sites/default/files/2022-11/Natural Environment Strategy.pdf

[9] https://communityplanningaberdeen.org.uk/wp-content/uploads/2024/04/LOIP_16-26-April-2024.pdf

3.14 Further options to expand the size and impact of the Fund, e.g. through integrating with aspects of the Housing Revenue Account and / or other funds, as appropriate, will be explored. Any such expansion will follow all due internal governance processes.

Local Environmental Action Fund Pilot

3.15 Summary

The Local Environmental Action Fund Pilot closed on the 5th of August 2024 with £27,000 allocated to NESCAN Hub for community projects for the Pilot.

£3,000 was allocated to NESCAN Hub to facilitate the Fund and the associated community development and support mechanisms.

A total of 18 project applications were received with a total value of £41,489.

Demand for the Pilot Fund was high and the combined value of the applications received exceeded the available allocation by £14,489.

NESCAN Hub are currently processing project applications, however, due to the number of applications received exceeding the available allocation it will not be possible for all projects to be funded.

NESCAN Hub will provide ongoing support to applicants and help community groups develop their projects and maximise the benefits projects can deliver to meet the fund outcomes.

A summary of the project applications is outlined below:

Project Type	Organisation Type	Funding requested	Ward
Intergenerational gardening project (1) promoting biodiversity - working with local primary school	Community Council	£1,010	Airyhall / Broomhill / Garthdee
Intergenerational gardening project (2) food growing - partnership with local primary school	Allotment Association	£1,115	Airyhall / Broomhill / Garthdee
Environmental & biodiversity enhancement & food growing - equipment to support community garden / food growing volunteers	Ethnic Minority Support Group	£3,000	Citywide - Aberdeen
Working with children and young people - match funding for partnership schools project encouraging outdoor activities	Children and Young People Group	£3,000	Citywide - Aberdeen
Climate change & sustainability - documenting and sharing sustainability practices and skills	Ethnic Minority Group	£3,000	Citywide - Aberdeen

Biodiversity enhancement - citizen science invertebrate monitoring	Conservation Group	£1,200	Dyce / Bucksburn / Danestone
Environmental & biodiversity enhancement - creation of new community garden	Community Garden Group	£3,000	George St / Harbour
Climate change - built environment / building retrofit & energy efficiency training	Ethnic Minority Group	£3,000	George St / Harbour
Environmental & biodiversity enhancement & food growing - creation of new community garden and habitat enhancements	Working with Young People	£2,750	Kingswells / Sheddocksley / Summerhill
Environmental & biodiversity enhancement & food growing - creation of new community garden	Community Centre / project	£872	Kingswells / Sheddocksley / Summerhill
Environmental & biodiversity enhancement - creation of new community space and making use of vacant space	Resident / Community Association	£2,500	Midstocket / Rosemount
Environmental enhancement - enhancing existing community garden	Community Centre / project	£600	Northfield / Mastrick North
Environmental enhancement - information / interpretation panels to help public identify and better understand and engage with wildlife	Resident / Community Association	£3,000	Tillydrone / Seaton / Old Aberdeen
Environmental enhancement - improving access and disabled access	Friends of Park Group	£2,112	Tillydrone / Seaton / Old Aberdeen
Environmental & biodiversity enhancement - enhancing community garden to support nature & mental health	Community Garden Group	£3,000	Tillydrone / Seaton / Old Aberdeen
Environmental & biodiversity enhancement - creation of new community garden	Community Garden Group	£2,330	Tillydrone / Seaton / Old Aberdeen
Climate change - Festival raising awareness, increase understanding, connection and engagement with the natural world and climate change issues	Community Garden Group	£3,000	Tillydrone / Seaton / Old Aberdeen
Environmental & biodiversity enhancement - creation of new community garden	Community Garden Group	£3,000	Torry / Ferryhill

4. FINANCIAL IMPLICATIONS

4.1 £44,000 of funding for community environmental projects will be directed to this funding model. This will be met through existing Climate and Environment Policy Service budgets for this purpose. If not approved, then these funds will continue to be allocated for those purposes through other mechanisms.

4.2 £40,000 will be allocated to community projects and 10% / £4,000 will be allocated to NESCAN Hub to facilitate the Fund and the associated community development and support mechanisms.

4.3 An additional one-off £14,000 underspend to be carried over from 2023/24 will give a £58,000 allocation in 2024/25.

5. LEGAL IMPLICATIONS

5.1 The Fund will help towards meeting our statutory biodiversity and climate duties.

Under the Nature Conservation (Scotland) Act 2004[10], all public bodies in Scotland have a duty to further the conservation of biodiversity when carrying out their responsibilities.

Fulfilling our Biodiversity Duty[11] can help address wider outcomes such as helping Scotland halt biodiversity loss, address the climate emergency, and contributing to a green recovery and a net zero future.

The Climate Change (Scotland) Act 2009[12] ("the 2009 Act") places specific climate change duties on public bodies. This includes reducing green house gas emissions, putting in place measures to adapt to a changing climate and to work in a sustainable way. A public body must, in exercising its functions, act in the way best calculated to contribute to the delivery of the targets set in or under Part 1 of the 2009 Act, act in the way best calculated to help deliver any programme laid before the Scottish Parliament under section 53 of the 2009 Act and in a way that it considers is most sustainable.

The Fund will help support the Community Empowerment (Scotland) Act 2015)[13] which aims to empower communities to act in their local areas.

The 'Following the Public Pound' requirements will be met in full during the allocation of grants to external bodies, including agreeing appropriate terms and conditions which will attach to the grant funding, and consideration of subsidy control rules.

[10] https://www.legislation.gov.uk/asp/2004/6/contents
[11] https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy-and-cop15/biodiversity-duty
[12] https://www.legislation.gov.uk/asp/2009/12/contents
[13] https://www.legislation.gov.uk/asp/2015/6/contents

6. ENVIRONMENTAL IMPLICATIONS

Climate action, biodiversity, open space & trees

6.1 The purpose of the Fund is to empower communities to take positive action in the places and on things that matter to them, with a focus on climate change and nature recovery. The Fund will enable communities to support the delivery of Aberdeen Adapts, the Net Zero Aberdeen Routemap, underlying Aberdeen Empowerment Strategy and Natural Environment Strategy, as well as help to deliver the Local Outcome Improvement Plan 2016-2026.

7. RISK

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic Risk	Not empowering communities with the resources to deliver improvements would limit opportunities for people to contribute towards the Council's Climate Change Plan, Net Zero Aberdeen Routemap and Aberdeen Adapts.	A community environmental action fund is delivered.	L	**Yes**
Compliance	Failing to deliver a community environmental action fund would not contribute towards meeting the Council's statutory biodiversity and climate duties.	A community environmental action fund is delivered.	L	**Yes**
Operational	No significant risks identified		L	**Yes**
Financial	No significant risks identified		L	**Yes**
Reputational	Failing to deliver a community environmental action fund could lead to a reputational risk where climate and nature duties are not fully met because communities	A community environmental action fund is delivered.	L	**Yes**

	are not empowered to act to take action on climate change and nature recovery.			
Environment / Climate	Failing to deliver a community environmental action fund would limit community action on climate change and nature recovery.	A community environmental action fund is delivered.	L	**Yes**

8. OUTCOMES

COUNCIL DELIVERY PLAN 2023-2024	
	Impact of Report
Aberdeen City Council Policy Statement **Working in Partnership for Aberdeen**	The proposals within this report support the delivery of the following aspects of the policy statement: • Work with communities to ... develop a Community Environmental Improvement Fund, for communities to access, to implement their own small-scale local environmental improvements. • Work with partners to deliver a just transition to net zero and plan to make Aberdeen a net-zero city.
Local Outcome Improvement Plan	
Prosperous Economy Stretch Outcomes	The Fund supports the Prosperous Economy section of the LOIP. Improving natural, green and open spaces has multiple economic benefits: • Improving the image of a place • Attracting businesses and inward investors by creating attractive settings • Blue and green infrastructure delivers multiple functions including climate mitigation, flood prevention, and water management
Prosperous People Stretch Outcomes	The Fund supports the Prosperous People section of the LOIP. Natural, green and open spaces provide opportunities for sport and recreation, helps to promote active and healthy lifestyles, and can improve mental health. There are multiple benefits to improving these spaces: • Encouraging exercise and physical activity by providing quality green spaces for walking, cycling, sports and play • Improving mental well-being by providing access to nature and attractive green spaces and breathing spaces

	• Providing better opportunities for active travel and physical activity • Providing opportunities for growing food locally and healthy eating
Prosperous Place Stretch Outcomes	The Fund supports the Prosperous Place stretch outcomes of the LOIP: 13. Addressing climate change by reducing Aberdeen's carbon emissions by at least 61% by 2026 and adapting to the impacts of our changing climate. 14. Increase sustainable travel: 38% of people walking and 5% of people cycling and wheeling as main mode of travel and a 5% reduction in car miles by 2026. 15. 26% of Aberdeen's area will be protected and/or managed for nature and 60% of people report they feel that spaces and buildings are well cared for by 2026. Environmental projects help communities address or respond to climate change, including nature-based solutions. Improving natural, green and open spaces has multiple health and well-being, economic, and environmental protection benefits. They improve health and wellbeing while also giving us opportunities to connect with nature and people, tackle the global climate-nature crisis, promote nature recovery, and make positive environmental changes.
Regional and City Strategies	The Fund supports objectives in a range of regional and city strategies including: Regional Economic Strategy, Aberdeen Adapts, the Net Zero Aberdeen Routemap, underlying Aberdeen Empowerment Strategy and Natural Environment Strategy, as well as helping to deliver the outcomes in the Local Outcome Improvement Plan 2016-2026.

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	New Integrated Impact Assessment has been completed. The impacts are generally perceived as neutral or positive. The Fund's projects have the potential to have positive impacts on some individuals with protected characteristics and could also have positive socio-economic impacts and positive impacts on Children and Young People's Rights.
Data Protection Impact Assessment	Not required.
Other	N/A

10. BACKGROUND PAPERS

10.1 N/A

11. APPENDICES

11.1 Appendix 1 – Funding Model Options Appraisal

12. REPORT AUTHOR CONTACT DETAILS

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Aberdeen Community Environmental Improvement Fund

Background

The Climate and Environment Policy Service have an annual budget for delivering Environmental improvements for the benefit of the wider community by funding environmental projects or providing match funding, e.g. through the Scottish Landfill Communities Fund (SLCF). To maximise the benefits of the fund in recent years we developed different funding models due to uptake of SLCF funding historically being low despite promoting the fund widely.

In 2021/22 we worked with the Fairer Aberdeen Team to deliver citywide environmental projects to engage people with nature and tackle climate change through Participatory Budgeting successfully supporting a number of projects in the city.

We repeated the process in 2022/23 focusing on a single locality, however, for various reasons there were not enough applications for the environmental fund and it went entirely unutilised. This has prompted a fresh look for alternative funding models for 2023/24.

Business need

Aberdeen City Council is committed to responding to the global climate-nature crisis. In March 2023 the Council added its voice to the growing number of local authorities around the world by declaring a climate and nature emergency. The Council is also signatory to the Glasgow Food and Climate Declaration, and the United Nations Race To Zero Campaign.

The Aberdeen Climate and Nature Pledge is a further commitment by the organisations and people of the City of Aberdeen to act within their own organisations and lives to contribute towards the Net Zero Aberdeen Route map and Aberdeen Adapts climate adaptation framework. The Council Climate Change Plan 2021 - 2025 also sets out the Council's ambitions and projects for net zero and interim targets for reduced carbon emissions.

There is a need to empower communities to take action on climate change and nature recovery and make positive environmental changes in Aberdeen to directly support the delivery of Aberdeen Adapts, the Net Zero Aberdeen Routemap, underlying Net Zero Aberdeen Empowerment Strategy and Natural Environment Strategy as well as help to deliver place based outcomes in the Local Outcome Improvement Plan 2016-2026.

The Net Zero Aberdeen Empowerment Strategy recognises that empowerment is crucial to achieving Routemap goals through the engagement, participation and capacity building of organisations and citizens on climate change to achieve a just transition and net zero future.

These plans and outcomes can't be delivered without significant action from communities, organisations and individuals and an Aberdeen Environmental Improvement fund can empower people and promote public action on climate change, nature recovery and make positive environmental changes in Aberdeen.

The fund would also support the delivery of the administration's agreement 'Working in Partnership for Aberdeen to build a Greener and more Sustainable City: - Work with communities to review the management of council-managed open spaces to create more sustainable and safer green areas and open spaces and **develop a Community Environmental Improvement Fund, for communities to access, to implement their own small-scale local environmental improvements.**

Funding Options

There are various funding models that have been explored and considered to best deliver and support these goals and objectives:

1) **External Partnership delivery** of grant fund by North East Scotland Climate Action Network (NESCAN HUB)
2) Partnership with **Fairer Aberdeen Participatory Budgeting Programme**
3) **ACC Grant fund** delivered by Climate and Environment Policy Service
4) Partnership with **ACC Housing (HRA) Environmental Improvement Fund**
5) Do nothing = keep match funding for **Scottish Landfill Communities Fund**
6) Remove fund = **Budget Saving**

Options Appraisal against Objectives						
Objectives	**Options: Scoring Against Objectives**					
	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**	**Option 6**
a) Empowers communities to tackle climate change and biodiversity loss	3	2	1	1	1	-1
b) Supports delivery of city climate and nature strategies and plans	3	3	3	2	1	-1
c) Supports delivery of Working in Partnership for Aberdeen	3	2	3	1	0	-1
d) Supports delivery of Local Outcome Improvement Plan Place outcomes	2	2	2	2	2	-1
e) Provides value for money & prudent use of resources	2	2	0	2	0	0
Total	**13**	**11**	**9**	**8**	**4**	**-4**
Ranking	**1**	**2**	**3**	**4**	**5**	**6**

Scoring:

3 Fully Delivers
2 Mostly Delivers
1 Delivers to a Limited Extent
0 Does not Deliver
-1 Will have a Negative Impact on Objective

Options Appraisal

The various options and funding models have been assessed and scored using the Corporate Project Management Toolkit Options Appraisal table against the fund objectives.

Options Ranking	Option Summary
1) **External Partnership delivery** of grant fund by NESCAN HUB	This option would likely deliver on all the objectives. NESCAN is the North East of Scotland's primary resource on climate action provide a wide-ranging knowledge base on these issues as well as a joined-up approach to action on climate and nature. The project fund would be delivered through a small management fee.
2) Partnership with **Fairer Aberdeen Participatory Budgeting** Programme	This option would meet some of the objectives. The Fairer Aberdeen Team are however committed to supporting single localities in 2024/25 through a Participatory Budgeting programme. The intention is for this fund to be citywide to have the maximum impact. Previously a locality based approach did not generate enough applications to utilise the fund.
3) **ACC Grant fund** delivered by Climate and Environment Policy Service	Broad expertise and knowledge in Service on climate change and nature recovery but lack of resource within team to deliver and administer a grant fund in house. If delivered in house then there would be a significant drain and resource impacts on other workstreams, e.g. ensuring statutory compliance on climate and nature.
4) Partnership with **ACC Housing (HRA) Environmental Improvement Fund**	HRA Environmental Improvement Fund is ring fenced for Council Social Housing amenity land only, so would benefit these and nearby communities but could potentially have less impact than a broader citywide fund. The HRA already has a budget for this type of work, albeit it's unclear how well these are directed at empowering communities to act.
5) Do nothing = keep match funding for **Scottish Landfill Communities Fund**	SLCF funding would likely not meet all the objectives. The funds uptake and accessibility have historically been low despite wide promotion and the external application processes not being intuitive.
6) Remove fund = **Budget Saving**	This option would not meet any of the objectives. Removing the fund would not help to support necessary public action on climate change and nature recovery or make positive environmental changes in Aberdeen.

Recommendation/s

Year 1 – Implement Option 1, report & review
Year 2 – Potentially limited expansion via targeted implementation Option 4, report & review
Year 3 – Further expansion, report & review

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ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero, Environment and Transport Committee
DATE	3 September 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	Report of the Property Level Flood Protection Scheme Uptake and Changes to the Property Level Protection Grant Scheme to increase percentage to be claimed
REPORT NUMBER	CR&E/24/249
DIRECTOR	Gale Beattie
CHIEF OFFICER	Mark Reilly
REPORT AUTHOR	Claire Royce
TERMS OF REFERENCE	7

1. PURPOSE OF REPORT

1.1 The purpose of this report is to report the uptake of the Property Level Protection Scheme and seek Committee approval to expand the current grant support in relation to increasing the percentage of costs and maximum amounts to be claimed. The scheme will reduce the impact on properties vulnerable to internal flooding.

2. RECOMMENDATIONS

That the Committee: -

2.1 Notes as of 12/08/2024 the uptake of the grant since 01/03/2023 is as follows.

	Enquires	Survey Grants applied for	Survey Grant Paid	Installation Grant Applied	Installation Grant Paid
Commercial	4	2	2	2	2
Amount Paid			£300		£5,000
Residential	7	4	3	2	2
Amount Paid			£450		£2,858

2.2 Approves that the existing Property Level Protection Grant Scheme be changed to allow an increase in the percentage to be claimed back for the installation of Flood Protection schemes to property, from 50% to 75% with effect from the date of the Committee decision.

2.3 Notes that costs will be covered from the remaining amount of the original £500,000 budget, recorded in the General Fund Capital Programme and standing at £451,000.

2.4 Authorises the Chief Officer – Operations Services to make grants of

i) 75% of the cost of installing Property Level Protection up to a maximum of £7500 per commercial property over 200m^2 ground floor area; and
ii) 75% of the cost of installing Property Level Protection up to a maximum of £3750 per commercial property less than 200m^2 ground floor area
iii) 75% of the cost of installing Property Level Protection up to a maximum of £3750 per domestic property

to eligible property owners on receipt of proof of expenditure.

2.5 Instructs the Chief Officer – Operations Services to monitor take up of the grant and to report back to the Committee in the form of a service update in Spring 2026 ahead of the Council Budget meeting.

3. CURRENT SITUATION

3.1 Aberdeen City Council currently offers a Property Level Protection Grant Scheme to help owners protect their property from flooding. Domestic properties that meet the criteria can receive a grant for a Flood Protection survey of £150 and a grant up to 50% of the installation cost up to a maximum of £2,500. Commercial Properties that meet the criteria can receive a grant for a Flood Protection survey of £150 and a grant up to 50% of the cost of installing Property Level Protection up to a maximum of £5000 per property over 200m^2 ground floor area; and 50% of the cost of installing Property Level Protection up to a maximum of £2500 per property less than 200m^2 ground floor area. The approved budget from 2016/17 to 2020/21 was £500,000.

3.2 Over the previous years the uptake of the grant has been very slow and less than 20% of the budget has been spent.

3.3 Given the significant remaining budget and the low uptake, it is thought that increasing the percentage to be claimed back may encourage applications while costs have increased due to price rises.

3.4 All properties must meet at least one of the following criteria to be eligible for the grants; 1) The property has been internally flooded previously and actual damage has been sustained 2) The property is located on an area in risk of flooding shown on the SEPA flooding maps. 3) The property is located on an area in risk of flooding shown on the Integrated Catchment Model.

3.5 The installation grant will be paid out retrospectively based on proof of expenditure.

3.6 The grants will be a first come first served basis up to the budget allocated.

4. FINANCIAL IMPLICATIONS

4.1 While there will be financial implications arising from the recommendations of this report due to increasing the percentage of total cost to be claimed, the cost will be covered from the remaining amount of the original £500,000 budget. The remaining budget is recorded in the General Fund Capital Programme and stands at £451,000.

5. LEGAL IMPLICATIONS

5.1 Appropriate grant documentation will be entered into.

6. ENVIRONMENTAL IMPLICATIONS

6.1 The installation of Property Level Protection to residential and commercial properties will increase resilience and support climate change adaptation.

6.2 The installation of Property Level Protection to residential and commercial properties will reduce internal flood risk to these properties.

7. RISK

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic Risk	N/A			**N/A**
Compliance	Properties are awarded grants when they do not meet the criteria.	The application process is set out on the website and all applications are approved by a senior officer.	Low	Yes
Operational	N/A	Installation and Maintenance of the PLP will be the property owner's responsibility	Low	N/A
Financial	No additional budget will be required	Remaining budget of approximately £451,000 will be used	Low	Yes
Reputational	No significant risk. The expansion		Low	Yes

	of the PLP in relation to increasing the percentage to be claimed will have positive reputation to ACC.			
Environment / Climate	No significant Risk. The installation of Property Level Protection to properties will have positive impact (increases resilience, climate change adaptation and reduce flood risk)		Low	Yes

8. OUTCOMES

Aberdeen City Local Outcome Improvement Plan 2016-26	
Prosperous Place Stretch Outcomes	The proposal within the report supports the delivery of LOIP Stretch Outcome 13 - Addressing climate change by reducing Aberdeen's carbon emissions by at least 61% by 2026 and adapting to the impacts of our changing climate. The proposal seeks the approval of expanding the existing PLP Grant Scheme in relation to increasing the percentage to be claimed of vulnerable to flooding properties to increase resilience and support climate change adaptation, however it does not impact on carbon emissions.
Regional and City Strategies	

1) ABERDEEN ADAPTS – Aberdeen's Climate Adaptation Framework *2)* North East Flood Risk Management Strategy	The proposals within this report support ABERDEEN ADAPTS-Aberdeen's Climate Adaptation Framework and North East Flood Risk Management Strategy by recommending an increase in percentage to be claimed for properties to apply for current PLP Grant Scheme which will help to reduce flood risk and increase resilience.

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	Completed and submitted to the Equalities, Diversity and Inclusion team. The proposal will have only positive impacts.
Data Protection Impact Assessment	Not required
Other	N/A

10. BACKGROUND PAPERS

10.1 Communities, Housing and Infrastructure Committee 08.11.2017 CHI.17.251 Revision Property Level Flood Protection Grant Scheme.pdf (aberdeencity.gov.uk)

10.2 Flood Risk Management Plan 20 North East Local Plan District 2022-2028 Flood risk management plans 2021 (sepa.org.uk) & Local Flood Risk Management Plans located in the following link: Flood Risk Management Plans | Aberdeen City Council

10.3 Net Zero, Environment and Transport Committee 07.03.2023 RES 23 058 - NZETC - Property Level Protection Report.pdf (aberdeencity.gov.uk)

11. APPENDICES

None

12. REPORT AUTHOR CONTACT DETAILS

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ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero, Environment and Transport
DATE	3 September 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	Westhill to Aberdeen City Centre Active Travel Improvements
REPORT NUMBER	CR&E/24/254
DIRECTOR	Gale Beattie
CHIEF OFFICER	David Dunne
REPORT AUTHOR	Will Hekelaar
TERMS OF REFERENCE	7,8

1. PURPOSE OF REPORT

1.1 To update Members on a preferred package of active travel improvements arising from the Multi-Modal Transport Corridor Study for the Westhill to Aberdeen City Centre corridor (elements within the Aberdeen City boundary only), and seek approval for next steps.

2. RECOMMENDATIONS

That the Committee:-

2.1 Notes the outcomes of the Detailed Appraisal (Appendix 2) undertaken for the Westhill to Aberdeen City Centre Multi-Modal Transport Corridor Study;

2.2 Agree that those measures, described in paragraph 3.11 of this report, relevant to the Aberdeen City area, form a preferred package of active travel improvements on the Westhill to Aberdeen City Centre corridor; and

2.3 Instruct the Chief Officer – Strategic Place Planning to report an Outline Business Case for the elements of the preferred package within the city boundary to the Finance and Resources Committee at the earlier opportunity.

3. CURRENT SITUATION

3.1 Aberdeen City Council (ACC), in partnership with Aberdeenshire Council and Nestrans, commissioned transport consultants Stantec to carry out a Scottish Transport Appraisal Guidance (STAG) based appraisal of options for transport improvements between Westhill and Aberdeen, primarily along the A944 (Lang Stracht) and A9119 (Queens Road/Carden Place) corridors. A map of the corridor is shown in Appendix 1.

3.2 Preliminary Appraisal outcomes were reported to the City Growth and Resources Committee in October 2020. This Preliminary Appraisal noted a requirement for improved active travel facilities along the route, and identified

a long list of options that were recommended to be taken forward to Detailed Appraisal and Outline Business Case (OBC). Members of the City Growth and Resources Committee agreed the findings of the study and instructed the Chief Officer – Strategic Place Planning to develop an OBC for the recommended package identified by the Preliminary Appraisal.

3.3 Recognising that the active travel options under consideration could provide a direct and attractive cycle route into the city centre, and thus support the movement principles of the Aberdeen City Centre Masterplan (CCMP), in December 2022, Council instructed *the Chief Officer - Strategic Place Planning to report back the Outline Business Case for the A9119 cycle route (Carden Place (including Queens Cross Roundabout), Skene Street and Rosemount Viaduct) by December 2023, in order to provide an active travel link from the West End into the heart of the City Centre*. This instruction was subsequently revised by Council in February 2024. Recognising that segregated cycle facilities were now planned along the length of Union Street, Council agreed that *proposals for a Queens Cross to City Centre cycle route be re-absorbed into the wider Westhill to Aberdeen Active Travel Route Outline Business Case (OBC), and instruct the Chief Officer - Strategic Place Planning to report the OBC to the Net Zero, Environment and Transport Committee later in 2024*.

3.4 Again working with Aberdeenshire Council and Nestrans, Detailed Appraisal was completed in 2022 (Appendix 2). This involved developing the options generated at Preliminary Appraisal into four end-to-end corridor-wide options, subjecting these to qualitative appraisal against the project objectives and STAG criteria (Environment; Climate Change; Health, Safety and Wellbeing; Economy; Equality and Accessibility), and undertaking public and stakeholder engagement on the options, including engagement with local schools along the corridor. These options were:

- Option A – Prioritise active travel on the A944 and A9119;
- Option B – Prioritise public transport on the A944 and A9119, with cycle routes parallel to the A944 and A9119;
- Option C - Prioritise active travel on the A944 and public transport on the A9119, with a parallel A9119 cycle route; and
- Option D - Prioritise active travel on the A9119 and public transport on the A944, with a parallel A944 cycle route.

3.5 Upon completion of Detailed Appraisal, officers proceeded to further assess Option B (Appendix 3, Figure 1). This was on the basis that this option minimised any potential conflicts with Aberdeen Rapid Transit (ART) proposals, given that it remained to be determined at that time whether an ART route from the west would approach the city centre via the A944 or A9119. Given the spatial constraints, particularly on the A9119, it was felt that accommodating cycle provision on nearby parallel routes would enable the maximum bus priority on both corridors to be accommodated, thus supporting future delivery of ART on either corridor. As significant concerns were raised during previous consultation by stakeholders and members of the public regarding proposed cycle routes parallel to the A944, the next stage of assessment considered only routes parallel to the A9119.

3.6 Targeted stakeholder consultation took place in autumn 2023 on designs for the Option B active travel proposals. Feedback was clear from local cycling groups that their preference was for cycle routes to follow main road corridors and they would not support routes being accommodated on parallel streets. It was suggested that such routes would be poorly used compared to main roads, with issues of directness, visibility, safety and maintenance cited.

3.7 In June 2024, the outcomes of the ART routeing appraisal were reported to the Net Zero, Environment and Transport Committee. At that meeting Members agreed a desired network upon which to continue to develop the business case for ART, with the proposed route from the west following the A944 Lang Stracht. This decision enabled officers to re-consider opportunities to develop a cycle route on the A9119 Queens Road/Carden Place, in the knowledge that this would likely not conflict with ART proposals going forward.

3.8 Work therefore progressed to develop Outline Designs for the following links and variants:

- Section 1: Main Route - Westhill to A944/A9119 junction;
- Section 2:
    - Main Route Option - A944/A9119 junction to the City Centre via A9119 Queen's Road and Carden Place;
    - Alternative Parallel Route A - A944/A9119 junction to City Centre via King's Gate, Rubislaw Den North and Carden Place, with two variants:
        - Variant 1: Formal cycle facilities on Moray Place and Rubislaw Den North;
        - Variant 2: Quiet route measures on Moray Place and Rubislaw Den North; and
    - Alternative Parallel Route B - A944/A9119 junction to City Centre via King's Gate, Rubislaw Den South and Carden Place, with two variants:
        - Variant 1: Formal cycle facilities on Rubislaw Den South;
        - Variant 2: Quiet route measures on Rubislaw Den South.

Figures 2-5 in Appendix 3 provide a high-level overview of proposals for each of the above sections and variants, and identifies some of the risks and issues noted at this early Outline Design stage that will require more detailed assessment and consideration in subsequent stages of design.

3.9 A Cycling Level of Service (CLoS) Assessment (Appendix 4) was undertaken to understand the quality of cycle provision that could be achieved on each section and variant, and the extent to which designs align with Cycling by Design, Transport Scotland's best practice cycle design guidance. Based on the core design principles of Safety, Directness, Coherence, Comfort and Attractiveness, each link and variant was awarded a score. The CLoS Assessment concluded that, for all of the options and variants, the proposed improvements increase the score for each section substantially, such that a High Level of Service can be achieved on each section. The main route option along the A9119 offers the best level of service for cycling of all the options and variants, with a CLoS score of 84% across the entire route, from a baseline of

24%. The CLoS and accompanying Risk Register further highlight risks associated with each link and variant, and proposed mitigation measures, as well as opportunities for how designs could be further enhanced. These risks and opportunities will continue to be monitored and, where necessary, mitigated and addressed, should the project proceed through further design stages.

3.10 Public and stakeholder consultation on the designs and option variants took place during July and August 2024, with more than 1,000 responses submitted via the online questionnaire or email. This number of respondents is higher than would normally be expected for this type of consultation and, as was also the case with the consultation on the Draft Local Transport Strategy (reported elsewhere on this Agenda), it is officers' view that a large proportion of respondents took the opportunity afforded by the consultation to make specific comments on detailed traffic management proposals associated with the City Centre Masterplan, and not necessarily the proposals for the Westhill to Aberdeen corridor. Of those respondents who felt that there was a need to improve walking, wheeling and cycling connectivity between Westhill and Aberdeen, more than double the proportion favoured the main route option over the parallel route options. A number of individual comments were received on the design details presented, which will be taken into consideration should the work proceed to the next stage of design. The Consultation Report is provided in Appendix 5.

3.11 The CLoS Assessment and the outcomes of the consultation have therefore helped identify the preferred option variant for Section 2 – the main route option. The preferred package of measures identified by ACC officers and project partners therefore comprises:

- Section 1 - Westhill to A944/A9119 junction:
  - A 2-way segregated cycle track along the A944 between Westhill and the A944/A9119 junction, with some sections of shared pedestrian and cycle route where full segregation is more challenging to deliver;
  - Quiet route measures on Old Lang Stracht and path improvements between Old Lang Stracht and the A944;
  - Improved pedestrian and cycle crossing facilities;
  - Footway widening and resurfacing, where appropriate.

- Section 2 - A944/A9119 junction to the City Centre:
  - A 2-way segregated cycle track along the A9119 between the A944/A9119 junction and the Queen's Road / King's Gate / Hazlehead Avenue junction, with small sections of shared pedestrian and cycle route and on-road quiet route measures where full segregation is more challenging to deliver;
  - 1-way with-flow segregated cycle lanes along the A9119 between the Queen's Road / King's Gate / Hazlehead Avenue junction and the Skene Street / Rosemount Viaduct junction, with some sections of shared pedestrian and cycle route where full segregation is more challenging to deliver;

- 1-way with-flow segregated cycle lanes along Rosemount Viaduct between the Skene Street / Rosemount Viaduct junction and Schoolhill;
- Improved pedestrian and cycle crossing facilities;
- Footway widening and resurfacing, where appropriate.

Detailed plans of the above are included as Appendix B of the CLoS Assessment (which itself forms Appendix 4).

Opportunities for further active travel improvements on the A944 alongside ART will be considered as part of ART Infrastructure development.

3.12 In terms of next steps, Members of this Committee are asked to note the outcomes of the Detailed Appraisal exercise, and agree that the package of measures described in paragraph 3.11 comprise a preferred package to go forward to Outline Business Case. This Outline Business Case would then be reported to the Council's Finance & Resources Committee for consideration in line with the currently approved Committee Terms of Reference.

4. FINANCIAL IMPLICATIONS

4.1 Funding has been provided by Nestrans to undertake the outline design work, consultation and to develop the Outline Business Case (OBC) during 2023/24 and 2024/25. Costs associated with implementing the preferred option will be quantified as part of the OBC. There is currently no identified budget to proceed beyond OBC stage, therefore any progress beyond that stage would be dependent on the sourcing of continued external funding.

5. LEGAL IMPLICATIONS

5.1 None at this stage - there may be legal implications arising from delivery of the recommended improvements, and these will be identified and quantified at OBC and subsequent design stages.

6. ENVIRONMENTAL IMPLICATIONS

6.1 The proposals aim to encourage and enable more walking, wheeling and cycling between the west of the city and the city centre and to / from a number of local communities and destinations in between. Should this encourage more people to use active travel in preference to the private car, this will have benefits in terms of carbon emissions and air quality, supporting the Council's Net Zero and air quality obligations. Transport is also a key social determinant of health that can have significant impacts on both physical and mental health, and the overall wellbeing of people and communities.

6.2 It should be noted that Environmental considerations are part of the STAG criteria which has influenced the recommendations of this report in terms of the preferred option to be taken forward. Any subsequent design stages will consider whether an Environmental Impact Assessment is required to inform any environmental implications of the project.

7. RISK

7.1 The assessment of risk contained within the table below is considered to be consistent with the Council's Risk Appetite Statement.

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic Risk	The Council has a number of objectives relating to transport, health and the environment that the delivery of the recommended improvements could contribute to. Failure to deliver the proposals could therefore put the Council's ability to fully achieve such objectives at risk.	Progress recommended package to Outline Business Case (OBC).	L	Yes
Compliance	The project may require land acquisition.	Assess and quantify requirements in subsequent design stages.	M	Yes
Operational	There may be operational risks associated with the maintenance of new infrastructure.	Assess and mitigate risk in subsequent design stages.	M	Yes
Financial	There is currently no funding allocated to the project beyond OBC.	Identify and seek to take advantage of external funding sources before progressing beyond OBC.	M	Yes
Reputational	Failing to progress identified improvements risks undermining the Council's commitment to sustainable travel and net zero carbon.	Progress recommended package to OBC.	M	Yes

Environment / Climate	There are environmental risks associated with not providing safe and attractive alternatives to private car use, in terms of achieving net zero carbon and air quality obligations.	Progress recommended package to OBC.	M	Yes

8. OUTCOMES

COUNCIL DELIVERY PLAN 2023-2024	
	Impact of Report
Aberdeen City Council Policy Statement **Working in Partnership for Aberdeen**	The proposals within this report support the delivery of the following aspects of the policy statement: • *We seek to invest in our road and pavement network, ensuring active and green travel is at the forefront of any new projects and a review of existing transport infrastructure is progressed taking account of the need to expand the city cycle network*; • *Reviewing our cycle and active transport network, and work with Aberdeen Cycle Forum to deliver our shared vision of making Aberdeen a cyclist friendly city and provide covered secure cycle storage in suitable locations across Aberdeen*; and • *Improving cycle and active transport infrastructure, including by seeking to integrate safe, physically segregated cycle lanes in new road building projects and taking steps to ensure any proposal for resurfacing or other long-term investments consider options to improve cycle and active transport infrastructure*.
Aberdeen City Local Outcome Improvement Plan 2016-26	
Prosperous People Stretch Outcomes	The proposals within this report support the delivery of LOIP Stretch Outcome 11 – *Healthy life expectancy is five years longer by 2026*, in that the proposed improvements should encourage more walking, wheeling and cycling. Increasing physical activity is linked with increasing life expectancy.
Prosperous Place Stretch Outcomes	The proposals support the delivery of LOIP Stretch Outcomes 13 - *Addressing climate change by reducing Aberdeen's carbon emissions by at least 61% by 2026 and adapting to the impacts of our*

	changing climate, and 14 - *Increase sustainable travel: 38% of people walking and 5% of people cycling as main mode of travel by 2026*, in that they should encourage a shift from motorised to active and sustainable forms of transport with associated emissions reduction.
Regional and City Strategies	The proposals support delivery of the Nestrans Regional Transport Strategy, specifically the aim of *Increasing the number of people travelling actively for health and the environment*, and the following key priority: *Safe and segregated active travel connections within and connecting to Aberdeen City Centre from the main commuter towns, in line with and to complement the objectives of the Aberdeen City Centre Masterplan. Wherever possible routes should be segregated and road space reallocation should also be considered to allow cyclists, pedestrians and wheelers (especially those less confident and able) sufficient space*. Westhill to Aberdeen City Centre is specifically mentioned as a priority corridor. The proposals support the emerging Local Transport Strategy, with its focus on prioritising clean and healthy transport. Proposals also support the Net Zero Mobility Strategy Strategic Aim, *We will reduce travel demand, play a key role in enabling a transition to low / zero emission vehicles and facilitate more walking, wheeling and use of public transport to reduce emissions while increasing the safety of road users*, and Strategic Objective, *Extend and improve active travel networks for healthy, safer, and sustainable choices*.

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	New Integrated Impact Assessment has been completed.
Data Protection Impact Assessment	Not required.
Other	The appraisal process had considered the impacts of the preferred option on the Environment; Climate Change; Accessibility and Social Inclusion; Economy; Health and Wellbeing; Deliverability; and Public Acceptability.

10. BACKGROUND PAPERS

CPM/20/174 Aberdeen to Westhill Transport Corridor Study
RES/22/290 City Centre Update
RES/24/039 City Centre Streetscape Update
CR&E/24/161 Aberdeen Rapid Transit – Recommended Network Routeing

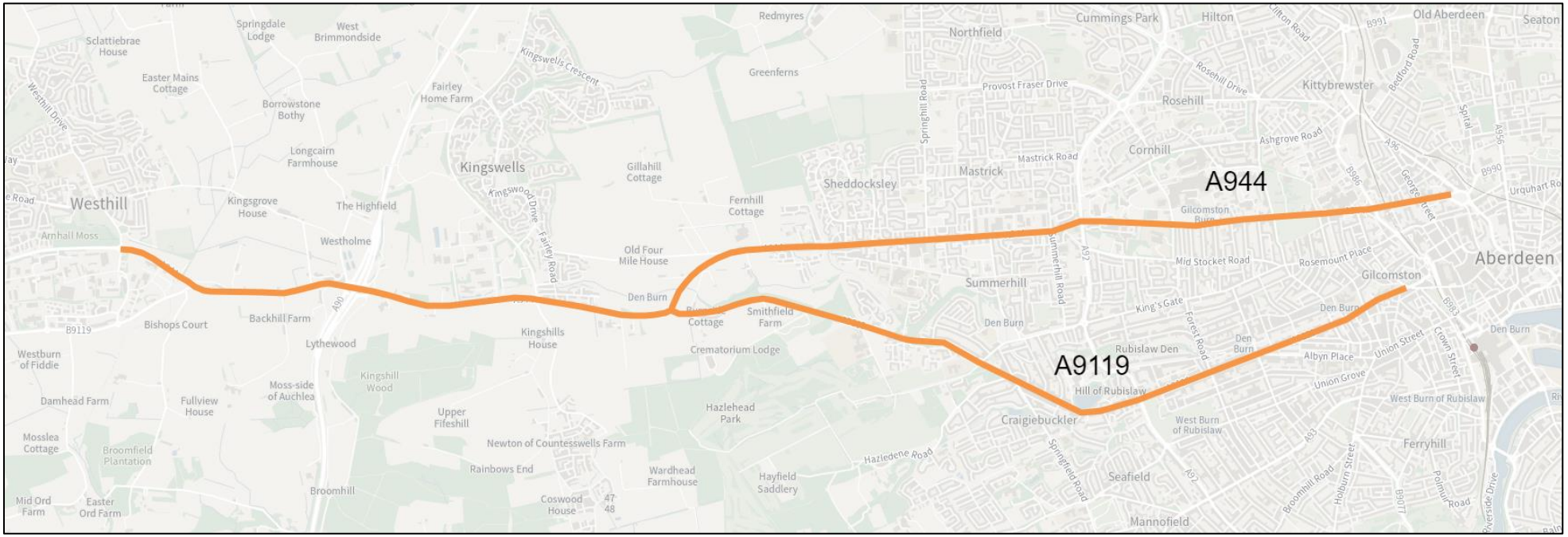
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Appendix 2 - Detailed Appraisal Report
Appendix 3 - Route Plans
Appendix 4 – Cycling Level of Service (CLoS) Assessment
Appendix 5 – Consultation Report

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Appendix 1 – Study Area Map



A944-A9119 Multi-modal Corridor Study

STAG-Based Detailed Appraisal

On behalf of

Project Ref: 330610549 | Rev: A | Date: July 2022

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For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved

This report has been prepared by Stantec UK Limited ('Stantec') on behalf of its client to whom this report is addressed ('Client') in connection with the project described in this report and takes into account the Client's particular instructions and requirements. This report was prepared in accordance with the professional services appointment under which Stantec was appointed by its Client. This report is not intended for and should not be relied on by any third party (i.e. parties other than the Client). Stantec accepts no duty or responsibility (including in negligence) to any party other than the Client and disclaims all liability of any nature whatsoever to any such party in respect of this report.

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Executive Summary

Stantec was appointed in July 2021 by Aberdeen City Council to undertake a Scottish Transport Appraisal Guidance (STAG) based Detailed Options Appraisal of the A944 and A9119 corridors between Westhill and Aberdeen City Centre. This study builds on the findings of the Case for Change (Stantec, July 2020) and Preliminary Options Appraisal (Stantec, October 2020) STAG stages, which identified the need and options for delivering transformational change to sustainable transport provision on the western approaches to the city.

The publication of the Scottish Government's updated ***Climate Change Plan*** in 2020 set out revised climate change related targets including: reducing car kilometres by 20% and phasing out the need for petrol and diesel vehicles by 2030; and supporting transformational active travel projects. Furthermore, the ***Reducing Car Use for a Healthier, Fairer and Greener Scotland*** (2022) publication outlines the route map to achieving the 20% reduction in car kilometres by 2030 and describes the key sustainable travel behaviours which make up the framework, including investing in the public transport network.

Scotland's **National Transport Strategy 2** (NTS2), published in 2020 presents the '*Sustainable Travel Hierarchy*' and '*Sustainable Investment Hierarchy'*, which together guide decision making by promoting walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private cars.

This strong underpinning policy context offers strengthened opportunities for successfully developing and implementing sustainable transport schemes and from the outset, the study aim has been to provide **transformational and more sustainable travel options** which can encourage modal shift towards walking, cycling and public transport.

This study, along with the similar multi-modal corridor studies for Aberdeen's other main arterial routes, is also feeding into the development of Aberdeen Rapid Transit (ART), where the ambition is to develop a **high quality, high frequency mass transit network across the city on key corridors and linking key destinations, anchored by P&R facilities** on each corridor. ART has national recognition within Transport Scotland's draft ***Strategic Transport Projects Review 2*** (STPR2) and in the Scottish Government's Draft **National Planning Framework 4** (NPF4). The work undertaken as part of this A944 / A9119 Multi-modal study has recognised throughout, the need to develop options which could facilitate the successful delivery of ART on the corridor.

Case for Change and Preliminary Options Appraisal

The initial stage of this study, the development of the Case for Change, considered the problems, opportunities, issues, and constraints for the study.

Recent changes across the policy landscape, most notably around climate change, present decision makers with a clear rationale and justification to implement the changes and behavioural change catalysts required in the transport system. As noted above, the publication of the Scottish Government's updated *Climate Change Plan* (2020), the *Reducing car use for a healthier, fairer and greener Scotland* (2022) publication, Transport Scotland's draft STPR2 and Scotland's NTS2 all provide clear opportunity for developing and implementing transformational sustainable transport schemes.

The completion of the Aberdeen Western Peripheral Route (AWPR) has enabled traffic to route around Aberdeen city. This has provided the opportunity to reassess the roads hierarchy within the city, prioritise sustainable transport infrastructure and facilities on routes into the centre and bring forward the City Centre Masterplan schemes. Furthermore, the **Transport (Scotland) Act 2019** provides local authorities with the powers to implement a workplace parking license scheme and Low Emission Zone (LEZ). Such complementary 'demand management' measures are likely to encourage the use of more sustainable modes and support the success of sustainable transport schemes.

The underutilised Park & Ride site at Kingswells offers a ready-made opportunity, if the appropriate level of services, competitiveness and journey quality could be achieved (as envisaged under the ART scheme). Bus operators are investing in new vehicles and fuelling infrastructure, utilising both electric and hydrogen-based technologies. Such vehicles offer environmental benefits and will help to improve perceptions of bus travel, and there is the opportunity to capitalise on these investments through complementary bus priority infrastructure.

A set of Transport Planning Objectives (TPOs) were developed, and multi-modal transport options developed which sought to improve sustainable transport connections between Westhill and Aberdeen City. The options were subsequently sifted to a small set for appraisal. These options were then packaged into four delivery packages (low, medium, high and gold), increasing in their ambition.

At the Preliminary Options Appraisal stage, the option packages were appraised, against the TPOs, the STAG appraisal criteria (Environment, Economy, Safety, Accessibility & Social Inclusion, and Integration, as they were at that time (now revised)), and against Implementability criteria (Feasibility, Affordability and Public Acceptability). Options were then rejected or selected for further development and more in-depth appraisal at the Detailed Options Appraisal stage.

Detailed Options Appraisal

Further Option Development

The development of active travel and public transport options has been based on developing **transformational schemes** that can deliver the TPOs for the study, and by doing so, address the issues identified along the corridor related to walking, cycling and bus use.

To develop truly transformational schemes and meet the ambitions of the study, and also recognising the needs of ART, an **end-to-end corridor-based approach** to further option development has been adopted, building on the schemes identified earlier in the study. The options have been developed by considering full corridor length schemes between Westhill and Aberdeen, and with each scheme incorporating various bus and active travel elements as previously developed within the four packages.

Key to this study is to develop options which align with national, regional and local policies, strategies and plans and work within Transport Scotland's Sustainable Travel Hierarchy, considering the needs of walking, cycling and wheeling modes first, before public transport and finally travel by private vehicle.

The corridors are constrained, especially close to Aberdeen city centre. This means that providing both dedicated cycle and bus priority provision along the full length of both corridors is challenging given the width of the existing roads and the buildings and park land along the routes. As such, the approach to option development has considered a range of different options which prioritise cycling and bus provision along the corridors, recognising that compromise is required between the two modes.

Note that under all options, in order to provide the cycle and bus priority infrastructure, there is a need to reallocate road space away from the private vehicle.

Four integrated bus and active travel option packages have been considered:

- **Option 1: Prioritise cycling on A944 and A9119**. Reflecting the Sustainable Travel Hierarchy, this option prioritises cycling infrastructure on A944 and A9119 (and thereafter provide the greatest additional bus priority infrastructure possible)

- **Option 2: Prioritise buses on A944 and A9119** (and thereafter provide the greatest additional cycle infrastructure possible). In this instance, ‘off corridor’ parallel cycle route provision has been considered to ensure both modes are sufficiently provided for.

- **Option 3: Prioritise cycling on A944 and buses on A9119**. In this instance, the 'off corridor' parallel cycle route provision for the A9119 as provided under Option 2 is considered.

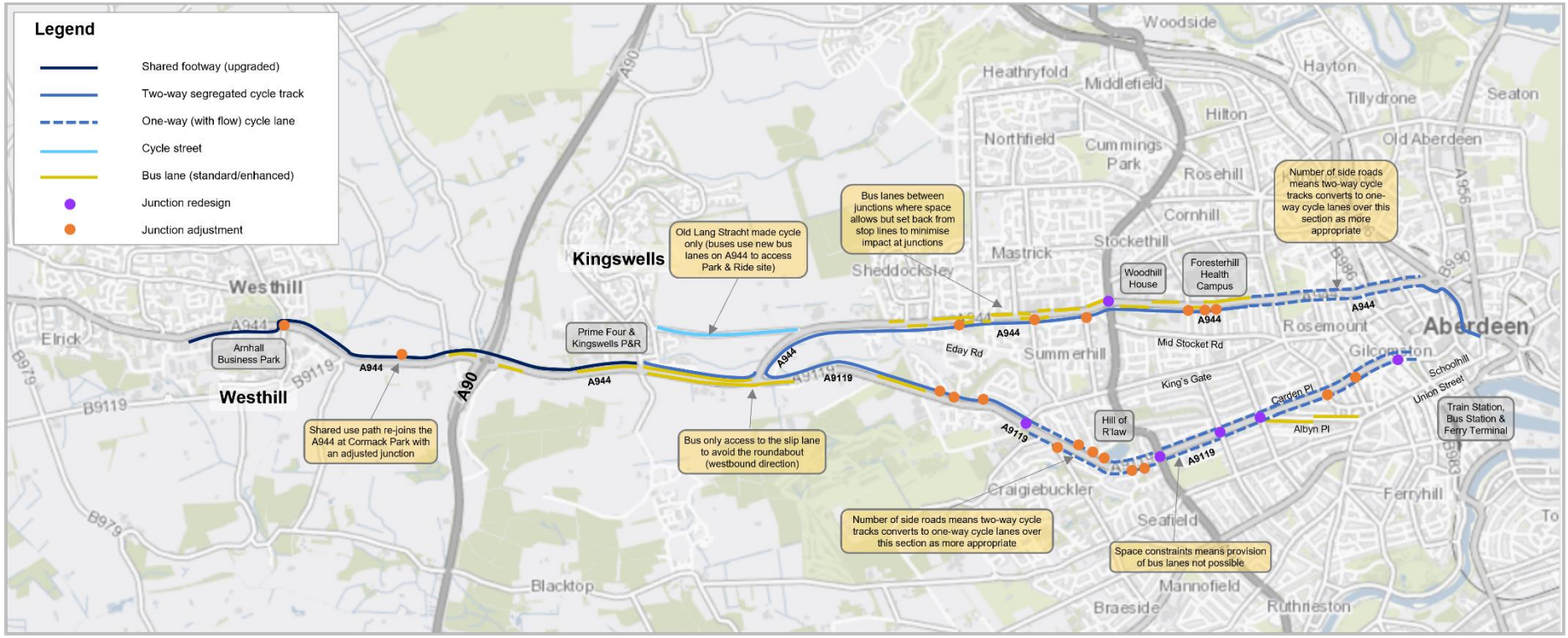
- **Option 4: Prioritise cycling on A9119 and buses on A944**. In this instance, the 'off corridor' parallel cycle route provision for the A944 as provided under Option 2 is considered. Under all options, improvements to walking and wheeling infrastructure is included.

The options are show in schematic form below. Greater detail around the options can be found in Section 4 and the supplementary *A944-A9119 Multi-modal Study Concept Design Report*. This includes greater detail around the option development process including the development of the parallel cycle routes noted for Options 2, 3 and 4.

Under Options 2 and 4, the routeing of the bus priority measures from the A944 to enable access to Aberdeen city centre has been considered, and three variants developed, A, B and C (as shown in the diagrams below).

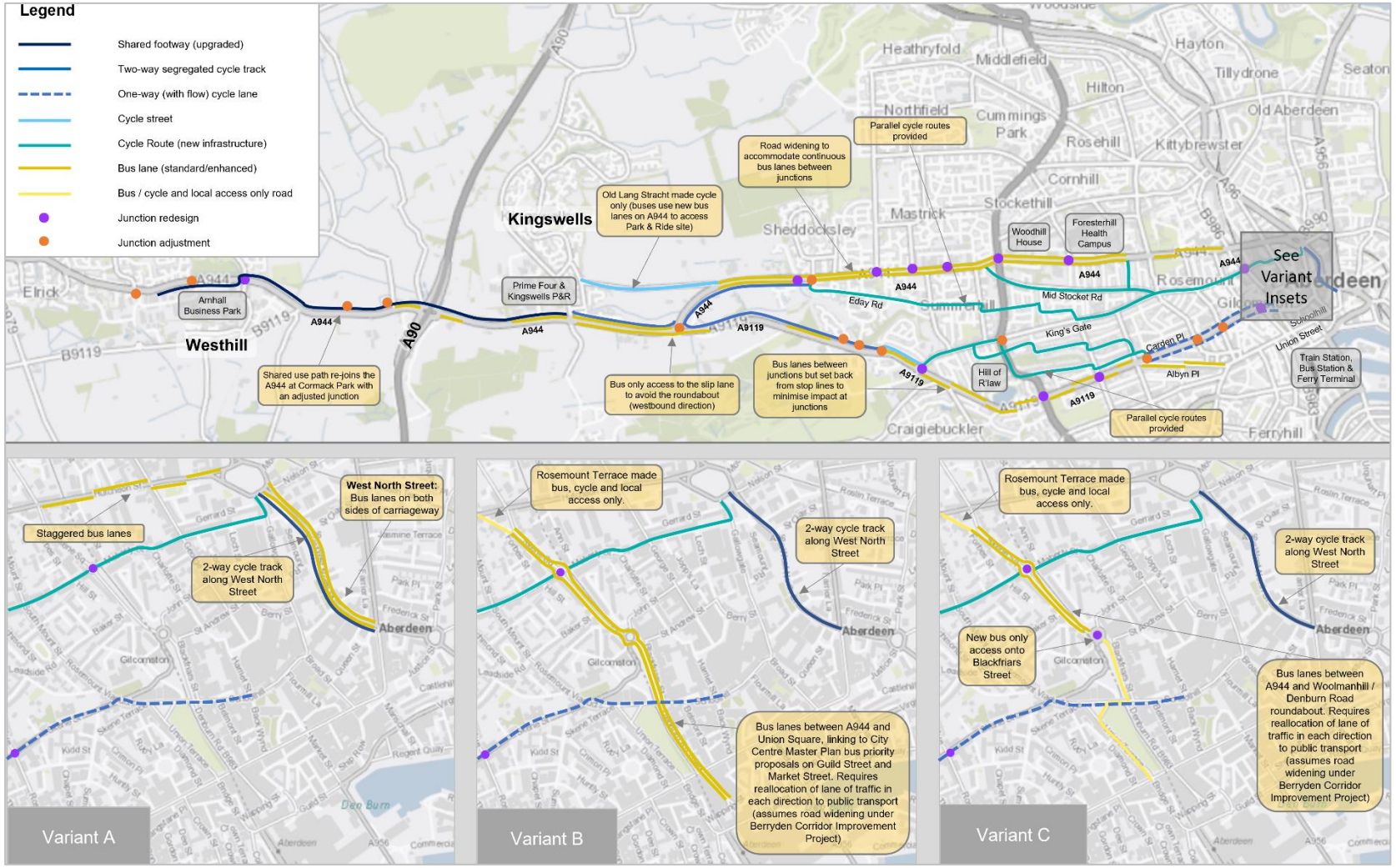
Variants B and C utilise the committed Berryden Corridor Improvement Project (BCIP) being progressed by Aberdeen City Council. This scheme will deliver a new / upgraded dual carriageway linking Skene Square to the A96 at Kittybrewster Roundabout and represents a substantial change to the road network. Reflecting the policy environment, it was assumed that the BCIP (and the additional road capacity it creates) should be considered as an opportunity for the study. Variants B and C which utilise the BCIP, assume the reallocation of road space in the Berryden corridor to enable bus priority from the A944 into the city centre.

Option 1: Prioritise cycling on A944 and A9119



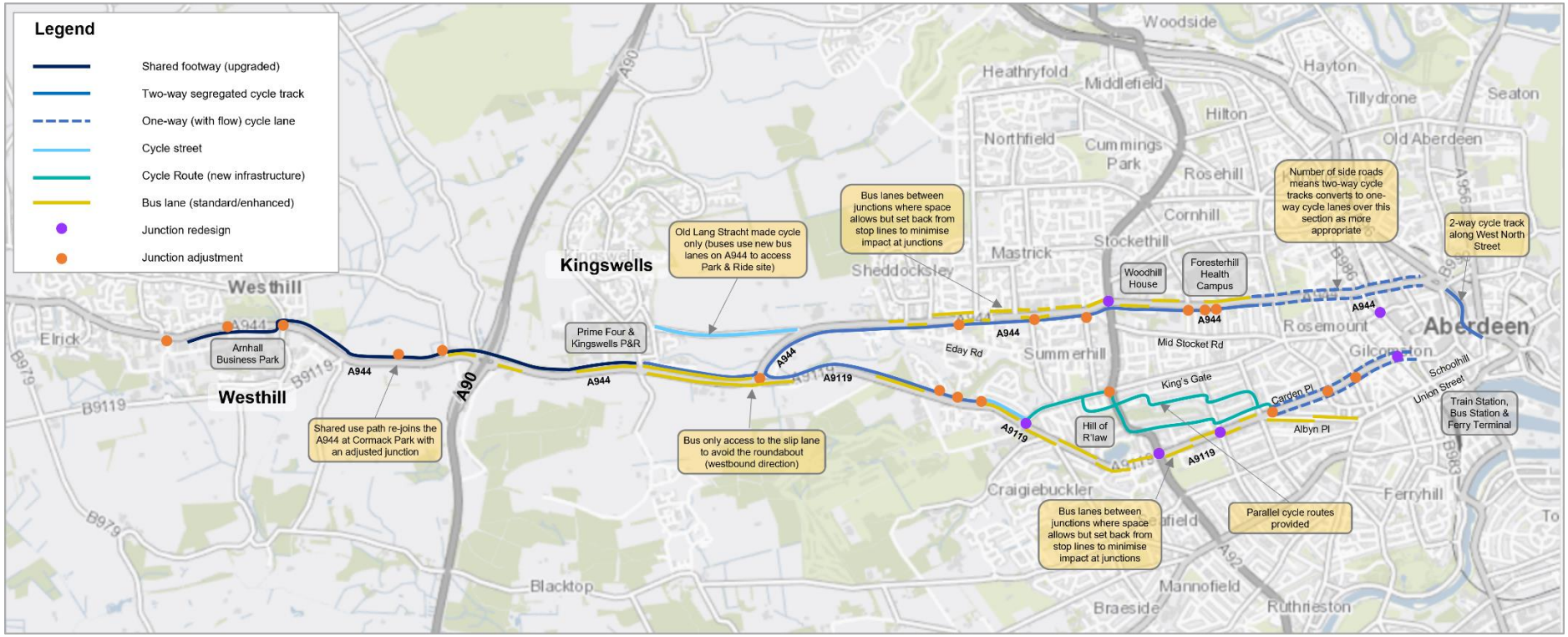
Option 1– Strategic Plan Overview

Option 2: Prioritise bus on A944 and A9119



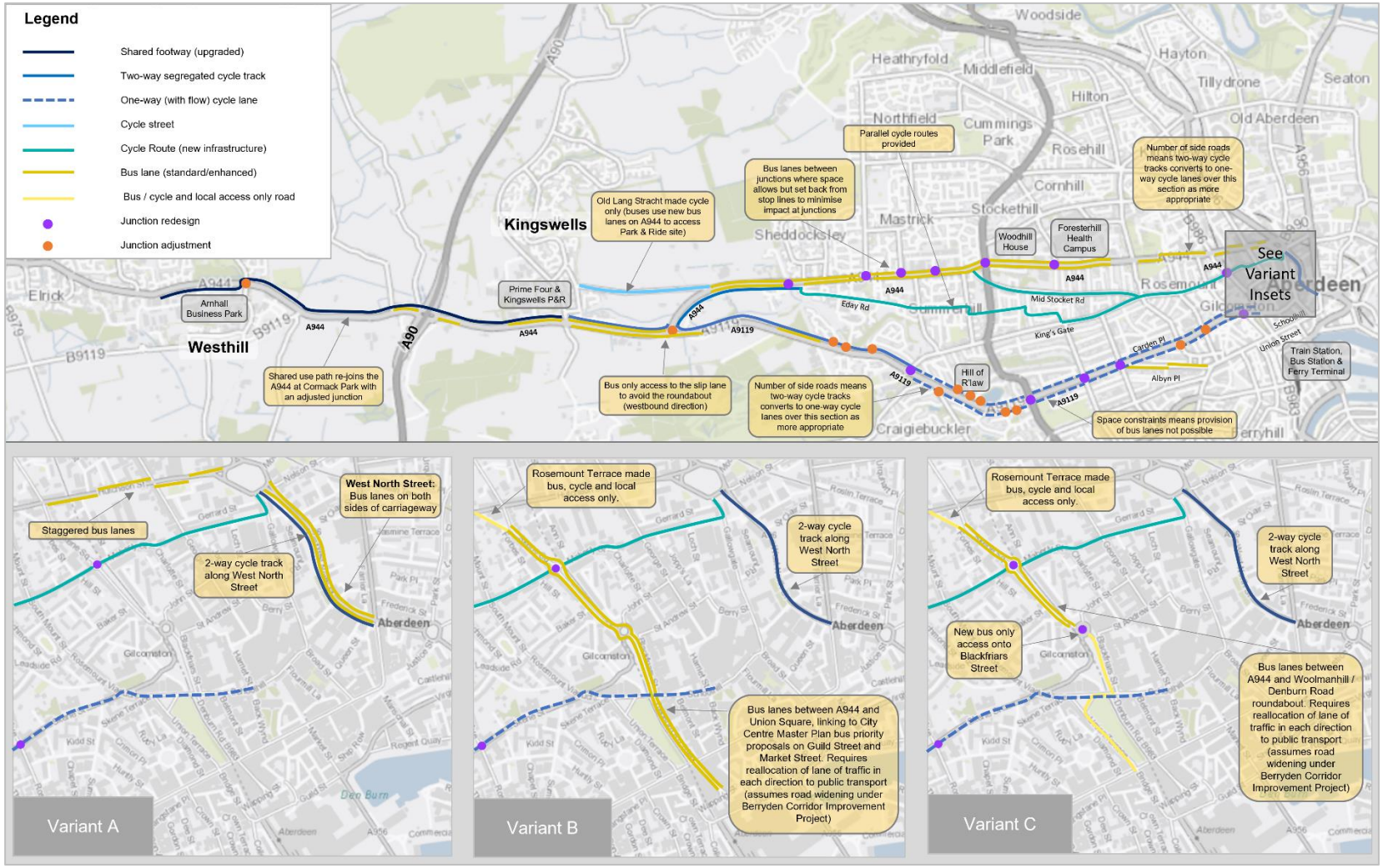
Option 2 – Strategic Plan Overview

Option 3: Prioritise cycling on A944 and bus on A9119



Option 3 – Strategic Plan Overview

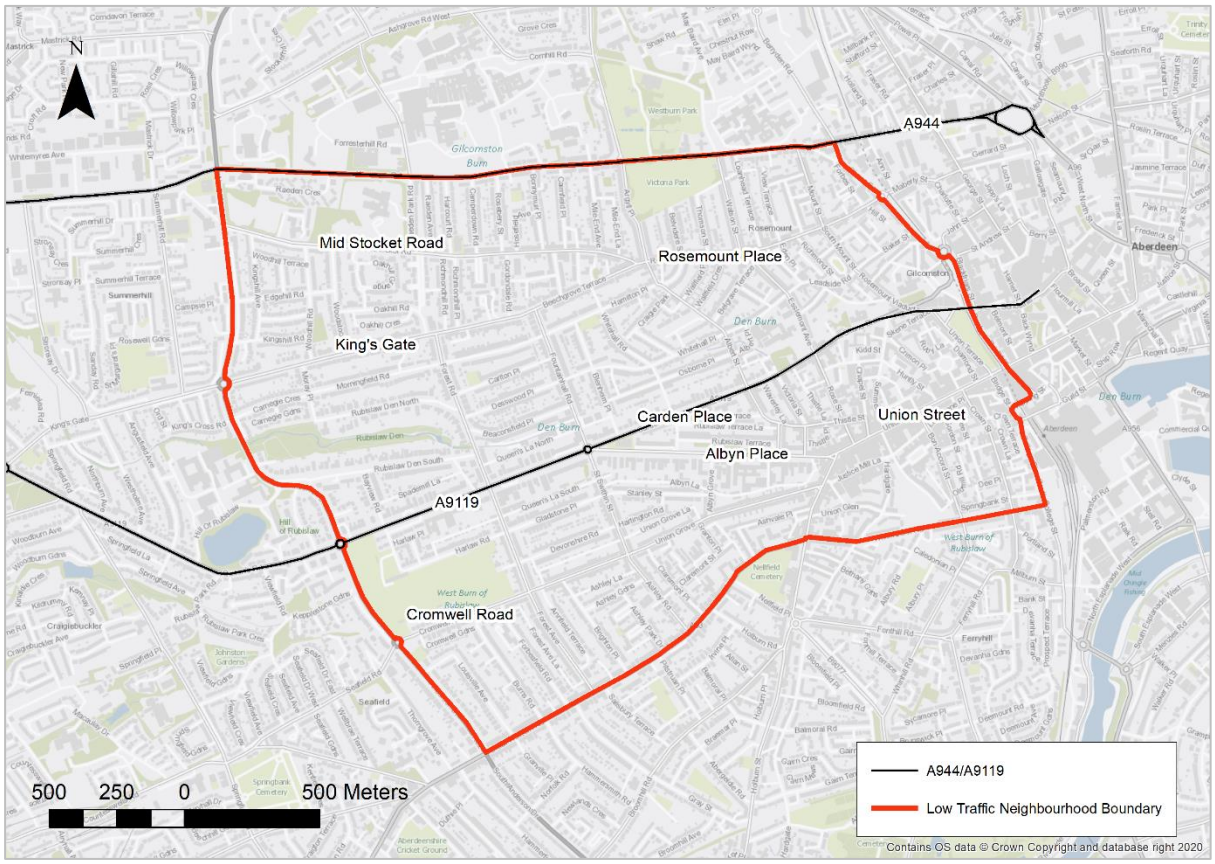
Option 4: Prioritise cycling on A9119 and bus on A944



Option 4 – Strategic Plan Overview

Low Traffic Neighbourhood

All the options presented above require the reallocation of road space away from private vehicles to accommodate greater priority for more sustainable modes. This may cause unwanted vehicle routeing away from the main roads onto less suitable more residential streets. To reduce the potential impacts of this, part of the option development process has included the development of a Low Traffic Neighbourhood, which would encompass the streets between the A944 and A9119, and south of the A9119 as shown in the figure below.



Potential Low Traffic Neighbourhood Area

Low Traffic Neighbourhoods are places where motor traffic in residential streets is greatly reduced. This is done by minimising the amount of traffic that comes from vehicles using the streets within the neighbourhoods to get to another destination (this is often referred to as 'through-traffic' or 'rat-running'). Private motorised vehicles still have easy access to all homes and businesses without driving directly through the neighbourhood. This opens up networks of streets so people can safely travel through the area on foot, bicycle, by wheeling or by bus. Emergency vehicles can also be prioritised to reach their destinations quicker.

Measures to facilitate the Low Traffic Neighbourhood could include:

- Possible road closures with access restricted to bus and cycle only, or cycle only
- Re-routeing bus services to enable streets to provide safe on-road cycle routes

Options Appraisal

In line with STAG, the Detailed Options Appraisal has appraised each option against: Environment, Climate Change, Health, Safety and Wellbeing, Economy, Transport, Equality and Accessibility, Cost to Government and Risk and Uncertainty. In addition, an appraisal of the feasibility, affordability and acceptability of the options is also made. Note that since the Preliminary Options Appraisal was undertaken the STAG criteria has been revised.

The tables below summarise the main advantages and disadvantages in relation to the options.

Appraisal Summary – Key Advantages and Disadvantages – Options

Option		Advantages	Disadvantages
All Options		• Provide more sustainable travel options to support carbon reduction targets • Align with local, regional and national transport policy • Provide much improved pedestrian environment with pavement widening, segregation between pedestrians and cyclists, footway decluttering, improved crossing facilities and improved signage. This was welcomed by members of the public as noted in the public survey • Provide a step change in cycling provision between Westhill, Kingswells and Aberdeen city centre • Provides safe segregated cycling routes across significant sections of the corridor(s) likely to encourage new cyclists • Likely to reduce traffic accidents through modal shift from the car and the provision of segregated cycle routes	• Likely to generate congestion (at least in the short term but this may help encourage modal shift to more sustainable modes) and potential unwanted re-routeing • Requires significant investment in infrastructure • Impacts on on-street parking • Requires bus service route adjustments (as discussed against the relevant option)
1	Prioritise cycling on A944 and A9119	• Step change improvement in cycle provision, offering continuous segregated provision along both corridors and direct active travel access to key employment and healthcare facilities located along the corridors • Best reflects the Sustainable Travel Hierarchy by catering for active travel first and then addressing provision for other modes along both corridors • Mode switch from car (and bus) to active travel would reduce traffic related carbon and other harmful emissions • Greater number of trips made by active travel modes would have a positive impact on health and well-being • Most preferred option by members of the public, with two-thirds of respondents who were supportive of the options citing Option 1 as their preferred option. This may in part be influenced by the strong opposition to the other options due to the parallel route proposals • Based on the responses to the public survey, expected to generate the greatest modal shift towards sustainable travel	• Gradients between the Foresterhill Health Campus and the A92 (Anderson Drive) may deter use (as is highlighted in the Strava Metro analysis) • Does not provide continuous bus priority along either corridor alongside the cycle proposals due to lack of space, particularly on the A9119 where space is more challenging east of Anderson Drive • Likely to provide the lowest bus journey time benefits of all options and therefore likely to generate only minor modal shift to the bus • Would not support the implementation of ART on either of the corridors •
2	Prioritise buses on A944 and A9119	• Provides continuous fully segregated bus priority infrastructure on the A944 and maximises bus priority infrastructure (given the more constrained environment) on the A9119 • Would provide more consistent bus journey times across the day • Provides the greatest bus journey time benefits across both corridors	• Likely to generate the most significant rerouting by general traffic given the road space reallocation which may negatively impact on secondary and local routes with increased noise and reduced air quality • Challenging to provide continuous fully segregated bus priority on the A9119 due to space constraints, reducing the extent of journey time reductions that could be achieved

Option		Advantages	Disadvantages
2	Prioritise buses on A944 and A9119	• Would offer a more competitive bus journey time when compared with travel by car along both corridors, supporting modal shift to more sustainable travel modes: • For services between Kingswells P&R and Aberdeen bus station (Services 4, 5 and 6 routeing via the A9119) - up to a 10 minute journey time saving • More limited journey time savings on Services 11, 14 and 23 which utilise only parts of the A944 • Potential journey time savings of around 5 minutes on the A944 with new services operating over the full length of the corridor between Kingswells P&R and the city centre (note that journey times from Kingswells P&R to the city centre would be shorter via the A944 than the A9119) • Would encourage use of the Kingswells P&R • Would enable ART vision to be realised through highly segregated public transport provision on the A944 corridor • Based on the responses to the public survey, expected to generate the greatest modal shift towards travel by bus • While parallel cycle routes would be required, the quieter cycle routes along more residential streets may be preferred by users (as opposed to cycling on the corridors themselves) and be perceived as safer encouraging use • The parallel cycle routes provide a good level of segregated provision • Variants B and C provide quick bus access from the A944 to Union Street (and to Union Square for interchange to the railway and bus stations under Variant B)	• Segregated cycle routes along both corridors cannot be provided alongside bus priority requiring parallel cycle routes which would not route directly past key destinations such as the Foresterhill Health Campus or Woodhill House (although access to these destinations could be made on a number of suitable 'connector' roads) • Difficult to access the A9119 parallel cycle routes from south of the corridor and fewer suitable 'connector' cycle links from the parallel routes to the A9119 corridor itself • Variants B and C would impact on the Berryden Corridor Improvement Scheme objectives due to the changes proposed to the Skene Square junction with Rosemount Place / Maberly Street and the reallocation of a lane of traffic on Skene Square and Woolmanhill (Variants B and C) and on Denburn Road (Variant B) • Very strong opposition to the A944 parallel route proposals, particularly from both members of the public and local businesses with regards to the route along Rosemount Place and the subsequent need to reduce on-street parking and re-route the number 3 bus service from both Rosemount Place and Mid Stocket Road. The current bus operator also noted the number of elderly passengers who would be affected in terms of losing their direct bus access to the shops along Rosemount Place and overall were opposed to the suggested re-routeing of the service • Second least preferred option by members of the public, with the disagreement with this option focussed on the A944 parallel route proposals • Design constraints make the A9119 parallel routes challenging to implement and access to the routes from the residential areas south of the A9119 would be difficult To accommodate A944 parallel cycle routes: • Car parking would need to be removed from Eday Road, Stronsay Place, Summerhill Terrace, Edgehill Road, Woodstock Road, Oakhill Road, King's Gate, Beechgrove Terrace and Mid Stocket Road onto side roads, which may make it more difficult for local residents to directly access their homes, especially for those with mobility issues, with young children etc. • Requires diversion of bus service 3 from Rosemount Place which may require some users to walk further to access the service, and there is very strong public opposition to this, and the bus operator has also noted concern

Option		Advantages	Disadvantages
			• Requires parking bays and loading provision changes along Rosemount Place which may impact on local businesses and there is very strong public opposition to this • Requires diversion of bus services 3, 14, 16 and 23 from Mid Stocket Road which may require some users to walk further to access the service. Again, and there is very strong public opposition to this To accommodate A9119 parallel cycle routes: • Requires road closures on King's Cross Terrace, King's Cross Road and partial closure of the A92 access to Carnegie Crescent which would impact on residents • Requires reallocation of parking from Carnegie Crescent, Forrest Road and Fountainhall Road into adjacent streets which may make it more difficult for local residents to directly access their homes, especially for those with mobility issues, with young children etc.
3	Prioritise cycling on A944 and buses on A9119	• Step change improvement in cycle provision along the A944, offering continuous segregated provision along the corridor • Prioritising one corridor for public transport and the other for active travel provides a clear distinction between the corridor purposes and better use of the available space • Providing space for segregated cycling infrastructure along the main corridor sends a clear message about the priority and importance of active travel within the travel hierarchy and the city, and is likely to encourage use by raising the awareness of infrastructure and through seeing users on the route • Would provide direct and high quality cycle access to the Foresterhill Health Campus and the Aberdeenshire Council offices at Woodhill House • Would provide more consistent bus journey times across the day for bus travel on the A9119 • As with Option 2, would offer a more competitive bus journey time when compared with the car along the A9119, supporting modal shift to more sustainable travel modes with up to a 10 minute journey time saving for services between Kingswells P&R and Aberdeen bus station (Services 4, 5 and 6) • While A9119 parallel cycle routes would be required the quieter cycle routes along more residential streets may be preferred by users (as opposed to cycling on the corridors themselves) and be perceived as safer encouraging use	• Gradients between the Foresterhill Health Campus and the A92 (Anderson Drive) may deter use of the cycle infrastructure (as is highlighted in the Strava Metro analysis) • Design constraints make the A9119 parallel routes challenging to implement and access to the routes from the residential areas south of the A9119 would be difficult • Second most preferred option by members of the public when overall ranking of options considered, although was only the first choice for 8% To accommodate A9119 parallel cycle routes: • Requires road closures on King's Cross Terrace, King's Cross Road and partial closure of the A92 access to Carnegie Crescent which would impact on residents • Requires dispersal of parking from Carnegie Crescent, Forrest Road and Fountainhall Road into adjacent streets which may make it more difficult for residents to directly access their homes, especially for those with mobility issues, with young children etc.

Option		Advantages	Disadvantages
4	Prioritise cycling on A9119 and buses on A944	• Step change improvement in cycle provision, offering continuous segregated provision along the A9119. Responses to the public survey suggested that providing cycle infrastructure on the main corridors is significantly preferred over the parallel routes and also that cycling along the A9119 is preferred over the A944 • Prioritising one corridor for public transport and the other for active travel provides a clear distinction between the corridor purposes and better use of the available space • Providing clear space for segregated cycling infrastructure along the main corridor sends a clear message about the priority and importance of active travel within the travel hierarchy and the city and is likely to encourage use by raising the awareness of infrastructure and through seeing users on the route • The A9119 is a more residential route and can offer a more pleasant cycling experience for the user • Cycling infrastructure on the A9119 corridor itself can be more easily accessed by those south of the corridor • While A944 parallel cycle routes would be required, the quieter cycle routes along more residential streets may be preferred by users (as opposed to cycling on the corridors themselves) and be perceived as safer encouraging use • Would provide improved public transport access to the Foresterhill Health Campus and the Aberdeenshire Council offices at Woodhill House • Would provide more consistent bus journey times across the day for bus travel on the A944 • As with Option 2, could offer a more competitive bus journey time when compared with travel by car along the A944, supporting modal shift to more sustainable travel modes with up to a 5 minute journey time saving for services between Kingswells P&R and Aberdeen city centre (if new ART services were operating) • Would enable ART vision to be realised through highly segregated public transport provision	• Variants B and C would impact on the Berryden Corridor Improvement Scheme objectives, in particular due to the changes proposed to the Skene Square junction with Rosemount Place / Maberly Street and the reallocation of a lane of traffic on Skene Square and Woolmanhill (Variants B and C) and on Denburn Road (Variant B) • Very strong opposition to the A944 parallel route proposals, particularly from both members of the public and local businesses with regards to the route along Rosemount Place and the subsequent need to reduce on-street parking and re-route the number 3 bus service from both Rosemount Place and Mid Stocket Road. The current bus operator also noted the number of elderly passengers who would be affected in terms of losing their direct bus access to the shops along Rosemount Place and overall were opposed to the suggested re-routeing of the service. • Least preferred option by members of the public when overall ranking of options considered, although was only the first choice for 11%. Disagreement with this option focussed on the A944 parallel route proposals To accommodate A944 parallel cycle routes: • Car parking would need to be removed from Eday Road, Stronsay Place, Summerhill Terrace, Edgehill Road, Woodstock Road, Oakhill Road, King's Gate, Beechgrove Terrace and Mid Stocket Road onto side roads, which may make it more difficult for local residents to directly access their homes, especially for those with mobility issues, with young children etc. • Requires diversion of bus service 3 from Rosemount Place which may require some users to walk further to access the service, and there is very strong public opposition to this, and the bus operator has also noted concern • Requires parking bays and loading provision changes along Rosemount Place which may impact on local businesses and there is very strong public opposition to this • Requires diversion of bus services 3, 14, 16 and 23 from Mid Stocket Road which may require some users to walk further to access the service. Again, and there is very strong public opposition to this

Conclusions and Next Steps

In terms of the options:

- **Option 1: Prioritise cycling on both the A944 and A9119** - while providing much improved segregated cycling infrastructure along both corridors, this does not provide a significant step change in public transport provision, and this lack of more transformational bus priority measures along either corridor is likely to prohibit / undermine the implementation of ART between Westhill and the city centre. For that reason, it is not recommended that this option progress.

- **Option 2: Prioritise buses on both the A944 and A9119** - would provide significant benefits to bus users and is likely to attract new users. The proposals would also facilitate ART. While the proposed A944 parallel cycling routes are not directly along the A944, there are many suitable short linking 'connector' roads from the route to the A944 offering access to the main trip generators and attractors (e.g., Foresterhill Health Campus) and the routes offer quieter, less trafficked routes through residential areas and may be preferred by cyclists. It is however noted that to implement the parallel routes, there are a number of challenges including (i) the loss of on-street parking, (ii) bus service diversions, and (iii) parking bays and loading provision changes along Rosemount Place. As seen through the public survey, there is strong opposition from some to such changes, and should the A944 parallel routes progress, early design feasibility and engagement work (with both the local community, businesses and the bus operator) should be undertaken. This should include work to enable an understanding of the likely economic impacts of the proposed measures on local businesses. While recognising that the proposed A9119 parallel cycle routes offer a high level of segregation from general traffic and routes through quieter residential streets, there are a number of design constraints which make the routes challenging to implement - and access to the routes from the residential areas south of the A9119 would be difficult. For that reason, **the A9119 parallel routes are not recommended for further development** (in favour of cycling infrastructure on the A9119 itself, as per Option 4 (see below)). If the option was to progress without the A9119 parallel routes this option would not then provide any improved environment for cyclists either on or close to the A9119 corridor.

- **Option 3: Prioritise cycling on A944 and buses on A9119** - would provide significant benefits to bus users on the A9119 and is likely to attract new users. However, the constrained nature of the A9119 corridor means continuous bus priority cannot be provided which will limit the benefits that could be realised through ART. In addition, the constrained nature of the route may preclude certain elements of ART (e.g., new stop infrastructure to enable faster boarding and alighting times). For this reason, this option is **not recommended** for further consideration. In addition, the option was the first choice for only 8% of those who were supportive of an option (this was the lowest of all options).

- **Option 4: Prioritise cycling on A9119 and buses on A944** - would, as noted above for Option 2, enable ART to be facilitated on the A944 corridor where there is space for continuous bus lanes and the supporting stop infrastructure and there are numerous trip generators of both local and regional significance (such as Foresterhill Health Campus). Gradient issues heading westbound on the A944 are clearly unfavourable with cyclists, and cycle conditions on the A9119 appear preferable (as seen through the Strava data analysis). In addition, prioritising one corridor for public transport and the other for active travel provides a clear distinction between the corridor purposes, and better use of the available space with the A9119 corridor, which is a more residential route offering a more pleasant cycling experience for the user. The cycling infrastructure could also be more easily accessed by those south of the corridor (than the proposed parallel routes required if 'on corridor' infrastructure were not provided). As noted for Option 2 above, the outcomes of the public survey highlighted the opposition to the proposed A944 parallel cycling routes and therefore, early design feasibility and engagement work should be undertaken.

Given the above and particularly the ability to facilitate the implementation of ART, and the clear distinction between the corridor purposes the option would provide, **it is recommended that Option 4 be progressed**. However, given the opposition expressed within the study to the A944 parallel route proposals from Rosemount and Midstocket residents and local business, **early design feasibility and engagement work (with the local community, businesses and the bus operator) should be undertaken**. This should include work to enable an understanding of the **likely economic impacts** of the proposed parallel route proposals on local businesses.

Option 4 includes variants A, B and C at the eastern end of the A944 corridor, which consider bus priority infrastructure into the city centre from the corridor:

- **Variant A:** Routes via Mounthooly Roundabout and West North Street to Union Street. Such a route would not offer the most direct access to the city centre and is not heavily used for bus services at present.

- **Variant B:** Routes via Skene Square, Woolmanhill and Denburn Road to Union Square, and onwards to via Market Street to Union Street. The variant assumes the widening of Skene Square and Caroline Place as part of the committed Berryden Corridor Improvement Project (which will provide two traffic lanes in both directions throughout the length of the corridor, widening the existing road between Skene Square and Ashgrove Road and creating a new road between Ashgrove Road and Kittybrewster Roundabout). Additionally, over the southern part of the scheme, requires the reallocation of a lane of traffic in each direction to public transport on Skene Square, Woolmanhill and Denburn Road.

- **Variant C:** Routes via Skene Square and Woolmanhill, with a new bus only access to Blackfriars Street, Rosemount Viaduct, Union Terrace and onto Union Street, and similar to variant B, assumes the widening of Skene Square and Caroline Place as part of the committed Berryden Corridor Improvement Project. Additionally, over the southern part of the scheme, requires the reallocation of a lane of traffic in each direction to public transport on Skene Square, and Woolmanhill.

The most suitable variant for progression will be heavily dependent on the outcomes of the ART development work, and at this stage it is not recommended that any of the variants are discounted.

Next Steps: Risks and Issues for further consideration

At the next stage of the appraisal / business case, key issues and risks requiring more detailed consideration include:

- **Availability of third-party land for highway widening:** there is a need to understand the impact of the proposals on land outside the highway boundary and how this could be minimised. This is particularly relevant at junctions along Lang Stracht and Westburn Road where larger junctions are proposed to accommodate increased levels of bus priority and pedestrian / cycle facilities.

- **Impacts of road space reallocation** between Kingswells and Mounthooly roundabout, with the reallocation of a lane of the existing carriageway from general traffic to bus only over much of the corridor. The potential impacts on all road users needs consideration, especially the potential cumulative impacts of the proposals for the A944 and A9119 when considered with the proposals for the other corridor studies. Even with the corridors optimised to manage general traffic demand, it is likely some wider traffic reassignment will occur which potentially routes traffic along less suitable roads or onto those that delay other bus services. A strategic traffic modelling assessment is required to understand the extent of the reassignment and what mitigation is required.

- **Highway Corridor Performance**: The impact of proposals could create a corridor that is unable to efficiently manage the change to existing general traffic demands, resulting in exit blocked junctions and wider traffic disruption. Once the outline design is complete, the development of a micro-simulation traffic model should be considered to establish a suitable traffic management strategy for the corridors, one that ensures junctions have sufficient capacity and are co-ordinated.

- **Revenue Costs / Highway infrastructure maintenance liabilities**: There are several junctions1 that require major road layout changes to provide suitable provision for cyclists and / or level of bus priority. Those on A944 Lang Stracht / Westburn Road require enlargement and full signal upgrades while those in A9119 Queens Road require either the removal of the roundabout and replacement with a signalised crossroads or conversion to a compact roundabout with circulatory cycle lanes. In addition to the substantial capital cost to deliver these signal upgrades or conversions, they will require an increase to highway maintenance budgets unless savings can be found elsewhere in the network.

- **Impact on the Berryden Corridor Improvement Project** and the scheme objectives from the proposed variants B and C

- **Loss of on-street parking**: the proposals require the removal of on-street waiting, loading and parking provision to accommodate the bus priority and cycle route infrastructure which will likely lead to local resident and trader opposition. There is a need to understand current parking behaviours and what opportunities there are to relocate this activity into adjacent side roads.

- If the A944 parallel cycle routes progress as part of this option:

    - **Loss of on-street parking:** to accommodate the A944 parallel cycle routes on Eday Road, Stronsay Place, Summerhill Terrace, Edgehill Road, Woodstock Road, Oakhill Road, King's Gate, Beechgrove Terrace and Mid Stocket Road

    - **Bus route diversions**: to accommodate the A944 parallel cycle routes because it is not possible to accommodate bus stops because of a constrained highway boundary. In these cases, bus services will need to be diverted onto other routes where potentially connectivity of local bus services is reduced. Bus stop connectivity analysis is required on the potentially affected routes (3, 14, 23 and 218 in the Rosemount area) and suitable mitigation developed

    - **Economic impacts to local businesses**: to accommodate the A944 parallel cycle routes

    - **Changes to parking bays and loading provision** changes along Rosemount Place

Furthermore, the following design and operations issues need to be considered:

- **Parking policy / supply:** the availability and cost of parking within the city centre and at key employment sites undermines proposals to encourage the use of bus services

- **Cycle infrastructure design:** The proposals use various types of cycle route infrastructure and while consistent with Cycle by Design, there is a need to ensure a consistent approach is taken across all corridors to ensure the cycle route network as it develops, remains coherent

- **Bus infrastructure design**: It is not possible to provide enhanced bus lanes at all junctions along Lang Stracht and Westburn Road due to the highway boundary and capacity constraints. These gaps could potentially become congested leading to bus delays. Similar issues occur along Skene Road and Queen's Road but where bus lanes need to be staggered due to highway boundary constraints. Outline design and traffic modelling assessment is required to establish an effective traffic management strategy for the A944 and A9119 corridors.

- Foresterhill Health **Campus / Aberdeen Royal Infirmary access:** The connectivity of the health campus to bus services operating along Lang Stracht and Westburn Road needs to be improved through the development of a new interchange and junction modifications

[1] A944 junctions include Lang Stracht junction with Summerhill Drive, Lang Stracht junction with A92 North Anderson Drive and Lang Stracht junction with Foresterhill Road. A9119 junctions include Queen's Road junction with A92 Anderson Drive, Queen's Road junction with Forest Road and Queen's Road junction with Fountainhall Road (Queen's Cross).

- **Complexity of junction layouts and the method of signal control:** The proposed infrastructure is likely to require a substantial upgrade to the Council's Urban Traffic Control system including new and upgraded hardware/ software

- **Extent of utility diversions and protection** works

- **Impact on street** lighting

- **Waiting and loading restrictions:** and how these will need to be changed to accommodate the proposals

There are also a number of opportunities that need to be considered as the study progresses:

- **Bus interchanges:** Within the study area there are options to improve bus interchanges at the Aberdeen Royal Infirmary, Provost Graham Avenue bus terminus and at Prime Four / Kingswells P&R

- **Compact roundabouts (with circulatory cycle lanes):** There are three locations within the study area where existing roundabouts could be converted to Dutch style 'Zwolle' roundabouts. While the single traffic lane approaches and circulatory lanes will reduce the capacity for general traffic, they offer a less expensive option to providing suitable cycle route infrastructure than signalisation

- **Public realm:** The proposals to improve conditions for pedestrians, cyclists and bus services have the potential to improve the public realm through the repair and widening of existing footways which offers greater opportunity for tree planting, seating areas, upgrade of materials and less crowded footways. This is particularly relevant at locations where cycle routes pass through or close to local and district centres

- **Low Traffic Neighbourhood:** To create a more comprehensive cycle route network to the west of the city and support safer local walking routes there is an opportunity to create a Low Traffic Neighbourhood bounded by Westburn Road (to the north), North Anderson Drive/ Anderson Drive (to the west) and Cromwell Road/ Union Grove (to the south). The LTN concept requires detailed development and engagement with the local communities it will impact

- **Cycle Parking:** To support the proposed cycle routes new secure cycle parking should be delivered at key locations on or close to the route. This should include locations close to local shops, at schools and workplaces and at public transport interchanges such as the Kingswells P&R

1 Introduction

1.1 Overview

1.1.1 Stantec was appointed in July 2021 by Aberdeen City Council to undertake a Scottish Transport Appraisal Guidance (STAG) based Detailed Options Appraisal of the A944 and A9119 (including Albyn Place) corridors between Westhill and Aberdeen City Centre. This study builds on the findings of the *Case for Change* (Stantec, July 2020) and *Preliminary Options Appraisal* (Stantec, October 2020) STAG stages, which identified the need and options for delivering transformational change to sustainable transport provision on the western approaches to the city.

1.1.2 This STAG-based Detailed Options Appraisal includes the development of detailed options and concept sketches and designs . While the study focuses on improving conditions for walking/wheeling, cycling and public transport (per the Sustainable Travel Hierarchy), consideration has been given to impacts upon all road users.

1.1.3 The A944-A9119 Multi-Modal Corridor Study is one of eight corridor studies being undertaken across Aberdeen. Work undertaken as part of this commission will feed into adjacent corridor studies as well as the Aberdeen Rapid Transit Options Appraisal Study.

1.2 Background

1.2.1 The initial stage of this study, the development of the *Case for Change*, considered the problems, opportunities, issues, and constraints for the study, set Transport Planning Objectives, and developed and sifted a list of multi-modal transport options which sought to improve sustainable transport connections between Westhill and Aberdeen City Centre. At the *Preliminary Options Appraisal* stage, these options were then qualitatively appraised, against the objectives, the STAG appraisal criteria (Environment, Economy, Safety, Accessibility & Social Inclusion, and Integration), and against Implementability criteria (Feasibility, Affordability and Public Acceptability). Options were then rejected or selected for further development and more in-depth appraisal at the Detailed Options Appraisal stage. A Baselining and Monitoring Technical Note was also produced to accompany the Preliminary Options Appraisal report, which sets out a framework for monitoring the success of the options.

1.2.2 A summary of the outcomes of the Case for Change and Preliminary Options Appraisal is provided within this report with full details of all the earlier stages of this study presented in the following reports:

- A944/A9119 Transport Corridor Study – STAG-Based Appraisal, Case for Change (*Stantec, July 2020)*
- A944/A9119 Transport Corridor Study – STAG-Based Appraisal, Preliminary Appraisal,(*Stantec, October 2020*)
- A944/A9119 Transport Corridor Study – STAG-Based Appraisal, Baselining and Monitoring Interventions Technical Note (*Stantec, October 2020*).

1.3 Study Area

The study area is indicated in orange in Figure 1:1. Note that Union Street and King Street formed part of the study area during the Case for Change and Preliminary Options Appraisal stages but are now excluded to prevent duplication of work, these streets being part of the City Centre Masterplan area.



Figure 1:1: Study area

1.3.1 Within the study area, car mode share is notably higher than that seen in other Scottish cities - this is particularly true towards the west of the corridor. Combined with decreasing bus patronage and relatively low levels of walking and cycling, the region's networks are dominated by car-based trips. However, there is still a substantial number of people who depend on the bus and active travel networks along these corridors.

1.3.2 Regional and national policy seek to arrest these trends and encourage more sustainable travel, to support population health, aid social inclusion and to assist the Scottish Government in its aim of reducing car kilometres by 20% by 2030.

1.4 Scope of Work

1.4.1 The purpose of the study is to build on previously identified and appraised options for improving transport connections between Westhill and Aberdeen City Centre. The study considers the corridors in a holistic manner, looking at both eastbound and westbound movements and recognising development aspirations and pressures in both Aberdeen and Aberdeenshire.

1.4.2 The key output of this study is a set of end-to-end costed, indicative dimensioned concept designs, which are feasible and deliverable, and have demonstrable benefits, to enable the local authorities and partners to further develop them for implementation.

1.4.3 While the focus of the study is on the development of sustainable transport interventions, due regard has been given to the likely impact that the proposed interventions will have on all modes, including general traffic and freight. Reflecting the status of A944 and A9119 as priority routes per the North East Scotland Roads Hierarchy, particular attention has been given to the development of options which improve the competitiveness of sustainable modes without rerouting traffic down less appropriate routes. The study has sought to identify and design interventions to support this environment and minimise / or mitigate unintended routeing consequences.

1.4.4 The scope of work has therefore covered:

- Validation and development of previous work, including option refinement, and smartening of Transport Planning Objectives (TPOs)
- Development of end-to-end corridor options, including clarification of the existing road envelope, the development of concept sketches and concept designs, focussing on transformational options with the potential to provide significant benefits for active travel and public transport users
- Detailed Options Appraisal
- Engagement with the public and stakeholders, to inform and gain feedback on proposals

- STAG reporting, with the identification of the best-performing design options to inform decision making on a preferred option for further development and implementation

1.4.5 The associated workflow is summarised in Figure 1:2 below.

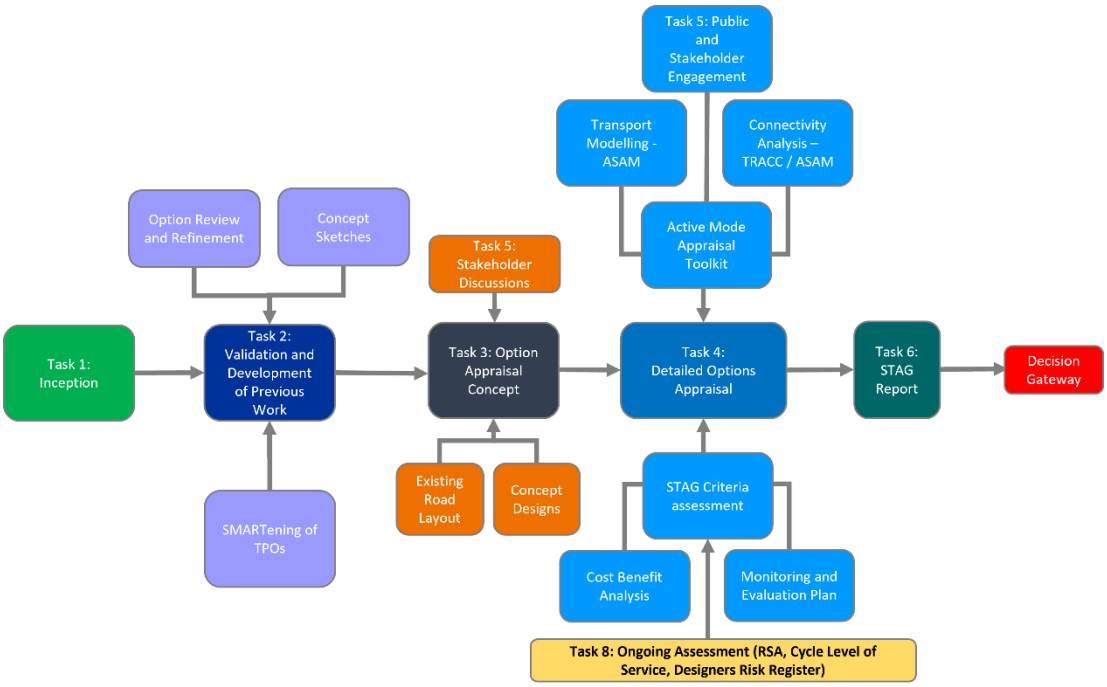


Figure 1:2: Task Workflow

1.4.6 Upon the study progressing through a Decision Gateway with Transport Scotland (Bus Partnership Fund team), the study will progress to the development of a robust business case including cost-benefit analysis for a preferred option (as selected by Aberdeen City Council).

2 Overview of Case for Change and Preliminary Options Appraisal

2.1 Introduction

2.1.1 This Chapter provides a summary of outcomes of the *Preliminary Options Appraisal,* which culminated in the recommendation of options for appraisal at this Detailed Options Appraisal stage. As noted in the section above, the full Preliminary Options Appraisal report (*A944/A9119 Transport Corridor Study – STAG-Based Appraisal, Preliminary Appraisal, Stantec, October 2020)* provides full details of the appraisal work.

2.2 Case for Change

Problems

2.2.1 The key problems identified at the Case for Change of the study included:

- Problem 1: Pedestrian infrastructure is inconsistent
- Problem 2: Cycle route infrastructure is disjointed
- Problem 3: Cycle infrastructure is inconsistent in form and quality
- Problem 4: Travel by public bus is not seen as an attractive option
- Problem 5: Bus priority infrastructure is sporadic, and buses are caught in traffic congestion
- Problem 6: Bus stop design and placement
- Problem 7: Kingswells Park & Ride infrastructure is underutilised
- Problem 8: Car travel is perceived as being cheaper than travel by public transport
- Problem 9: Bus network and service frequency are threatened by high car mode share
- Problem 10: Vehicular traffic dominates the city centre
- Problem 11: Poor driver behaviour and misuse of active/bus travel infrastructure
- Problem 12: Significant traffic delays are seen during peak periods
- Problem 13: Extensive development is planned to the western end of the corridor

Opportunities

2.2.2 A range of opportunities were identified including:

- Existing Active Travel Promotional Schemes
- Policy supports active travel improvements along the corridor
- Existing active Travel and bus priority infrastructure
- Existing smart ticketing system

- New / extended local authority powers under the Transport (Scotland) Act 2019
- Investment in line with NTS2 Sustainable Transport Hierarchy
- Availability of external funding sources
- Kingswells Park & Ride has significant spare capacity
- Business Improvement Districts Scheme
- Planned / Committed Improvements to Date
- Trip generators and attractors present along the corridors
- New developments lending support to the delivery of transport Improvements

2.2.3 Additionally, since the work was undertaken, changes across the policy landscape, most notably around climate change, now present decision makers with a clear rationale and justification to implement the changes and behavioural change catalysts required in the transport system. The publication of the Scottish Government's updated *Climate Change Plan* (2020), the *Reducing car use for a healthier, fairer and greener Scotland* (2022) publication, Transport Scotland's draft STPR2 and Scotland's NTS2 all provide clear opportunity for developing and implementing transformational sustainable transport schemes.

2.2.4 This strong underpinning policy context offers strengthened opportunities for successfully developing and implementing sustainable transport schemes and from the outset, the study aim has been to provide **transformational and more sustainable travel options** which can encourage modal shift towards walking, cycling and public transport.

Issues and Constraints

2.2.5 A range of **issues** were identified for the study including the impacts of the COVID-19 pandemic and the longer-term implications for public transport, the declining oil and gas industry in the region, commitment infrastructure to support residential and commercial developments along the corridors and the impacts of the Aberdeen CCMP on the road network. Identified **constraints** included significant road gradients (particularly for cyclists), limited road and junction widths at points along the corridors, and multiple agencies involvement in delivery.

2.2.6 A key design issue being addressed at this Detailed Options Appraisal stage, which was not present during the Case for Change and Preliminary Options Appraisal stages, is the need to ensure the infrastructure developed can facilitate the successful delivery of ART on the corridor(s).

Transport Planning Objectives

2.2.7 Eight TPOs for the study were developed at the Case for Change stage and were used to appraise the options at the Preliminary Options Appraisal stage. These have been smartened during the Detailed Options Appraisal, and further detail on these is provided in the next Chapter.

2.3 Preliminary Options Appraisal

Option Development

2.3.1 An initial long list of options was derived through: (i) options identified through previous and ongoing studies; (ii) options identified via the stakeholder consultation process; and (iii) those identified via internal team optioneering workshops.

2.3.2 An option sifting exercise was then undertaken to remove options that would not deliver against the TPOs and STAG criteria. Furthermore, options considered more appropriately implemented as part of a wider study, were routed away at this stage of the appraisal process.

2.3.3 Options were then packaged into four delivery packages, increasing in their ambition:

- Low Delivery Package – which requires the minimum level of works and investment and represents the minimum acceptable level of option delivery
- Medium Delivery Package – which requires a higher level of works and investment and will provide more options beyond the minimum in line with existing levels of work
- High Delivery Package – this involves a high level of infrastructure works alongside a significant investment in this infrastructure and other policy / regulatory changes to facilitate the delivery of these options
- Gold Delivery Package – this package represents the highest level of infrastructure works in line with best practice guidance and will require substantial financial investment to support the delivery of this package of options.

2.3.4 As the packages are developed from the minimum package to the gold package, not all options will be considered within each package as some replace others and others are already accounted for within another option, so these packages are **additive not cumulative**, as you progress through the hierarchy.

Option Appraisal

2.3.5 The four option packages were appraised against the STAG criteria which were, at that time, Environment, Economy, Safety, Accessibility & Social Inclusion, and Integration, and against Implementability criteria considering each options Feasibility, Affordability and Public Acceptability. Note that STAG was revised in early 2022 and the Detailed Options Appraisal is being undertaken in line with the revised guidance.

2.3.6 Various options within each of the packages are being considered further as part of this Detailed Options Appraisal stage of the study and are discussed in greater detail in Chapter 4.

2.4 Engagement

2.4.1 Engagement with stakeholders and the public was undertaken during the Case for Change stage of the study (which at the time of reporting, also incorporated the development of options), and included:

- **Stakeholders** were issued with a briefing note to capture their views on travel along the corridor by mode and any other key comments related to the study corridors
- Public Opinion:

- Initially sourced from (i) responses to consultations from other reports and studies interacting with the corridors and (ii) from responses to the Aberdeen City Commonplace page in support of COVID19 related Spaces for People response

- Online Public Engagement Exercise undertaken to gather public opinion on the options developed. An interactive and visual ArcGIS StoryMap was developed for the engagement, including a survey as part of the StoryMap to capture the feedback of the public on the outcomes of the study thus far and the options identified. The engagement was live for a period between 7th September 28th September 2020, with stakeholders previously consulted on the study receiving an invitation to complete the survey and public awareness attained through the social media channels of Aberdeen City and Shire councils and Nestrans, in addition to a wider press release by Aberdeen City Council.

3 Smartening the Transport Planning Objectives

3.1 Introduction

3.1.1 The STAG states that, at the start of any Detailed Options Appraisal, the Transport Planning Objectives (TPOs) for the study should be revisited and 'SMART-ened'.

3.1.2 This process was undertaken through two steps:

- **A rationalisation exercise** – where the TPOs were revisited to ensure they were still relevant to the study, and overall reduce the TPOs down from the eight developed at Case for Change stage
- A SMART-ening exercise, ensuring the TPOs were Specific, Measurable, Attainable, Relevant and Timed.

3.2 Rationalising the Objectives

3.2.1 Following a review of the eight TPOs developed at the Case for Change stage (and used to appraise the options at the Preliminary options Appraisal stage), three TPOs were discarded:

TPO3 - *Rebalance the city centre environment in favour of more sustainable modes* - the city centre has been removed from the study area at this stage of the appraisal as the Aberdeen City Centre Masterplan (CCMP) proposals aim to address identified problems. As a result, TPO3 is no longer needed within this study.

TPO6 - *Address the cost of public transport* - while recognising that addressing the cost of bus travel (or the perception) is an issue, especially in terms of ensuring equality of access, bus fares are set by commercial operators and Aberdeen City Council and Aberdeenshire Council do not have control over this. The options being developed and appraised as part of this study will not be able to address this TPO or provide any benefit or disbenefit with regards to this TPO, with no discernible difference in the appraisal between any of the options. While not directly addressing the cost of public transport itself, it is however recognised that the Councils can implement certain demand management measures in tandem with the options, which would increase the cost of using the car relative to public transport and active travel. Such measures could include increasing car parking charges, congestion zone charging and workplace parking licenses. The implementation of such options is likely to increase the overall success of sustainable transport option implementation.

TPO8 - *Increase the mode share for sustainable travel modes along the A944 and A9119 transport corridors* - Increased mode share is an *outcome* of TPOs 3, 4 and 5, and is not considered a TPO in its own right.

3.3 SMART-ening the Objectives

3.3.1 In accordance with STAG, TPOs should be SMART-ened, such that they are:

- Specific - it will say in precise terms what is sought
- Measurable - there will exist means to establish to stakeholders' satisfaction whether or not the objective has been achieved
- Attainable - there is general agreement that the objective can be achieved
- Relevant - the objective is a sensible indicator or proxy for the change which is sought

- Timed - the objective will be associated with an agreed future point by which it will have been met

3.3.2 The remaining TPOs have been assessed against SMART criteria and their wording SMART'-ened as shown in Table 3.1.

Table 3.1: SMART-ening the Transport Planning Objectives

Transport Planning Objective	Specific	Measurable	Attainable	Relevant	Timed
TPO1: Improve the quality of the pedestrian experience for all, and address the barriers which affect some groups moving around as a pedestrian	Objective is specific in that it seeks to address mode specific issues but should be updated to indicate location.	Walking counts, Travel Diary, Travel to Work 2022, local user surveys (e.g., Aberdeen Citizens Panel surveys), desired vs. actual route ratios at junctions, accident rates and vehicle speed surveys.	There is agreement among stakeholders that TPO can be attained within remit of the sponsoring bodies.	Addresses transport problem and root cause. Developed direct from identified transport problems via Case for Change.	Baseline established prior to opening. Initial monitoring 1 year after opening and then evaluation at 5 years.
TPO2: Improve cycle routes to ensure they are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists in the corridor	Objective is specific in that it seeks to address mode specific issues on study corridors (inc. parallel routes).	Cycle counts, Travel Diary, Travel to Work 2022, local user surveys (e.g., Aberdeen Citizens Panel surveys), shortest route vs actual route ratios, accident rates and vehicle speed surveys.	There is agreement among stakeholders that TPO can be attained within remit of the sponsoring bodies.	Addresses transport problem and root cause. Developed direct from identified transport problems via Case for Change.	Baseline established prior to opening. Initial monitoring 1 year after opening and then evaluation at 5 years.
TPO3: Reduce journey times by bus and improve service punctuality	Objective is specific in that it seeks to address mode specific issues but should be updated to indicate location.	Bus journey time information can be obtained from Bus GPS/AVL data (e.g., Bus Open Data or from operators) and via TRACC analysis.	There is agreement among stakeholders that TPO can be attained within remit of the sponsoring bodies.	Addresses transport problem and root cause. Developed direct from identified transport problems via Case for Change.	Baseline established prior to opening. Initial monitoring 1 year after opening and then evaluation at 5 years.
TPO4: Improve the quality of bus services and bus stop infrastructure in the corridor, enhancing the experience for current bus users and attracting new passengers	Objective is specific in that it seeks to address mode specific issues along the study corridors.	Local user surveys (e.g., Aberdeen Citizens Panel surveys), bus patronage / km, inventory of facilities at bus stops, Kingswells P&R car park occupancy	There is agreement among stakeholders that TPO can be attained within remit of the sponsoring bodies.	Infrastructure improvements should enhance the experience of travelling by bus but resulting behaviour change is an outcome and should not form part of TPO.	Baseline established prior to opening. Initial monitoring 1 year after opening and then evaluation at 5 years.
TPO5: Provide improved integration between sustainable travel modes	Objective is specific in that it seeks to address mode specific issues but should be updated to indicate location.	Travel diary, local user surveys (e.g., Aberdeen Citizens Panel surveys), Kingswells P&R car park occupancy	There is agreement among stakeholders that TPO can be attained within remit of the sponsoring bodies.	Addresses transport problem and root cause. Developed direct from identified transport problems via Case for Change.	Baseline established prior to opening. Initial monitoring 1 year after opening and then evaluation at 5 years.

3.3.3 Table 3.2 presents the original set of objectives from the Case for Change, on the left alongside the corresponding revised objectives on the right.

Table 3.2: Revising the Transport Planning Objectives

Preliminary Appraisal		Detailed Appraisal	
Ref.	**Original Objective**	**New Ref.**	**SMART Objective**
TPO1	Improve the quality of the pedestrian experience for all, and address the barriers which affect some groups moving around as a pedestrian	TPO1	Improve the quality of the pedestrian experience and address barriers to walking / wheeling along the A944, A9119 and Albyn Place between Westhill and Aberdeen city centre.
TPO2	Improve cycle routes to ensure they are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists in the corridor	TPO2	Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors.
TPO3	Rebalance the city centre environment in favour of more sustainable modes	-	No longer applicable as city centre has been removed from study area
TPO4	Reduce journey times by bus and improve service punctuality	TPO3	Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre.
TPO5	Improve the quality of bus services and bus stop infrastructure in the corridor, enhancing the experience for current bus users and attracting new passengers	TPO4	Improve the quality of bus stop infrastructure on the A9119 and A944, to enhance accessibility and provide a more comfortable waiting experience.
TPO6	Address the cost of public transport and reduce gaps in bus connectivity along the corridor	-	Not applicable. Ticket pricing and service routing are outside the control of the client group, but improvements to infrastructure can drive changes to routing and connectivity.
TPO7	Provide improved integration between sustainable travel modes	TPO5	Improve bus stop connectivity to ease interchange between active travel and public transport on the A944 and A9119 corridors.
TPO8	Increase the mode share for sustainable travel modes along the A944 and A9119 transport corridors	-	Increased mode share is likely to be an outcome of TPOs 3, 4 and 5, and so is not needed as a TPO.

3.3.4 These TPOs reflect the range of things which the study is setting out to achieve across all modes of travel.

3.3.5 Key Performance Indicators to gauge how successful selected options are in satisfying these TPOs are set out in the Monitoring and Evaluation section.

4 Option Development

4.1 Options recommended from the Preliminary Options Appraisal

4.1.1 At the end of the Preliminary Options Appraisal, a range of options within the four packages were recommended for further appraisal. These primarily concerned bus, cycle, and pedestrian infrastructure improvements. Several options identified at Preliminary Options Appraisal stage have since been progressed through other projects and/or are no longer relevant given the changes to the study area and policy.

4.1.2 Table 4.1 presents the options output from the Preliminary Options Appraisal and highlights which of these options have been carried through into the Detailed Options Appraisal and which have not. Where an option has not been carried through to Detailed Options Appraisal, an explanation is provided in the final column and the row in the table is coloured grey.

Table 4.1: Options recommended for consideration at Detailed Options Appraisal stage

Mode			Package				
		Option Description	Low	Med	High	Gold	Comment
Walking & Wheeling	ACTO1	Programme of pavement maintenance and decluttering.		✓	✓	✓	To be progressed to Detailed Options Appraisal
	ACTO2	Review pedestrian desire lines and install pedestrian crossing facilities to suit.	✓	✓	✓	✓	To be progressed to Detailed Options Appraisal
	ACTO3	Develop Green Corridors in city centre and between development sites	✓	✓	✓	✓	Falls under CCMP remit.
	ACT04	Identify and formalise a city centre cycle network	✓	✓	✓	✓	Falls under CCMP and the associated Sustainable Urban Mobility Plan (SUMP) remit
Cycling	ACTO5a	Provision of segregated 2-way cycle lane from Prime Four to CC via A944.				✓	To be progressed to Detailed Options Appraisal
	ACTO5b	Provision of segregated 2-way cycle lane from Prime Four to ARI via A944.			✓		To be progressed to Detailed Options Appraisal
	ACTO6	Provision of segregated 2-way cycle lane from Prime Four to Union St/Holburn St junction via A9119.				✓	To be progressed to Detailed Options Appraisal
	ACTO7a	Replace & extend existing advisory cycle lanes to provide a connected network.	✓	✓			Not supported by Cycling by Design Update 2021.
	ACTO7 b/c	Replace and extend all existing advisory cycle routes with mandatory cycle lanes to provide a	✓	✓	✓	✓	Not supported by Cycling by Design Update 2021.

Mode			Package				
		Option Description	Low	Med	High	Gold	Comment
		connected network, with the option of including light segregation.					
	ACT08	Create a cycle route on Old Lang Stracht		✓	✓	✓	Option is proceeding to delivery.
	ACTO9	Provide advance stop lines or cycle by-passes at all signalised junctions.				✓	To be progressed to Detailed Options Appraisal
Bus	PTO1	Reconfigure roundabout junctions to signalised junctions, complete with bus and cycle pre-signals.				✓	To be progressed to Detailed Options Appraisal
	PTO2	Bus Rapid Transit on the A944 Westhill – Aberdeen City Centre, via Kingswells Park & Ride			✓		This concept is being further developed by Nestrans as part of an Aberdeen Rapid Transit study.
	PTO3	Continuous Bus Lane from Westhill to Aberdeen via A944.			✓		To be progressed to Detailed Options Appraisal
	PTO4	Continuous Bus Lane from Westhill to Aberdeen City Centre via A9119.	✓	✓	✓	✓	To be progressed to Detailed Options Appraisal
	PTO5	Changes to bus lane operational hours and enforcement.		✓	✓	✓	Proceeding to Business Case development as part of a package of traffic management measures to improve bus efficiency on the corridor and within the city centre.
	PTO6	Bus stop upgrade programme and stop rationalisation.		✓	✓	✓	To be progressed to Detailed Options Appraisal. Also, to be considered in tandem with ART study.
	PTO7	Bus Prioritisation / Pre-Signals at all signalised junctions on the corridors.		✓	✓	✓	be progressed to Detailed Options Appraisal
	PTO8	Reallocate all lay-by bus stops to on-street bus stops.		✓			To be progressed to Detailed Options Appraisal. Also, to be considered in tandem with ART study.
	PTO9a	Make Castle Street to Union terrace, bus, cycle and walk only.			✓	✓	These options are being considered as part of CCMP and Low Emission Zone proposals.
	PTO9b	Make Castle Street to Holburn Street Junction, bus, cycle and walk only	✓	✓	✓	✓	
	PTO10	Rebrand of Kingswells Park & Ride.	✓	✓	✓	✓	Work is ongoing to promote and encourage increased use of the

Mode			Package				
		Option Description	Low	Med	High	Gold	Comment
							network of bus and rail Park and Ride sites around the city and to facilitate multimodal journeys to and from the sites.
	PTO11	Advanced VMS on AWPR		✓	✓	✓	Submitted to Transport Scotland, as trunk roads authority, for consideration.
	PTO12	Establish a Bus Service Improvement Programme (BSIP)		✓	✓	✓	Being progressed via the North East Bus Alliance.
	PTO13	Develop Sustainable Transport Hubs	✓	✓			Work is ongoing to promote and encourage increased use of the network of bus and rail Park and Ride sites around the city and to facilitate multimodal journeys to and from the sites.
	PTO14	North West Street to Castle Street Right Turn – Bus Only			✓	✓	Being considered as part of CCMP bus priority work.
General	GTO1	Reclaiming Streets Programme	✓	✓	✓	✓	Taken forward as part of the ACC City Centre Masterplan, Sustainable Urban Mobility Plan and Active Travel Action Plan.
	GTO2	Improve Wayfinding and Signage		✓	✓	✓	The corridors are included within a wider active travel signage audit being progressed by ACC.

4.1.3 Remaining options from the Preliminary Options Appraisal have then been incorporated into the development of end-to-end concept corridor designs where careful consideration has been given to the options which could be implemented together and how to maximise benefits by mode.

4.2 Developing End-to-End Options

4.2.1 The supplementary *A944-A9119 Multi-modal Study Concept Design Report,* which should be viewed in tandem with this report, provides extensive detail on the option development process, the design principals adopted (taking cognisance of the available good practice guidance) and presents the Concept Sketches and Concept Designs for the options developed.

4.2.2 In terms of the design work:

- **Concept Sketches:** Design development for each option starts with a concept sketch that sets out the strategy for the corridor or routes by indicating the type of highway infrastructure required. This infrastructure is developed with an understanding of known problems but also what is needed to achieve the TPOs. For example, if a cycle route is required along a busy main road, then the sketch would indicate a continuous and segregated cycle lane or track with major changes at signalised junctions to provide

protected crossings. Or, for a strategically important walking route into a city centre, wide footways and side road junction modifications would be shown to ensure good pedestrian comfort levels and priority over side roads. The concept sketch would also show the location of key transport interchanges (e.g., Park & Ride or large employment sites) and the connections to other important walking or cycling routes along the corridor.

- **Concept Designs**: Once the transport strategy for the corridor is established, the concept sketch is developed into a concept design that uses an Ordnance Survey map base with scaled objects to begin to understand the physical and engineering constraints of delivering the infrastructure. The concept design establishes any road space reallocation required, the likelihood of impacting land outside the highway boundary which can inform qualitative assessment of how link and junction capacity would change for general traffic.

4.2.3 For the purpose of this report, higher level strategic plans are provided to present the options (discussed in the following section).

Approach

4.2.4 End-to-end corridor options have been developed through the production of concept sketches and designs. This approach has allowed a set of options to be developed to ensure that there is an understanding of what could be accommodated within the existing highway envelope, where third party land take would be necessary, and what features would be affected. Recognising the constraints along each corridor and incorporating the options developed during the earlier stages of the study, four core 'end-to-end' corridor options were identified.

4.2.5 As there is insufficient space at numerous locations along each corridor to accommodate both bus lanes and segregated cycle lanes (those which can meet current design best practice standards), these end-to-end options were developed on the basis that the infrastructure required for one mode may therefore need to be prioritised over the other. Infrastructure requirements for the other, or secondary mode, would then be accommodated where possible and in the case of active travel, use alternative parallel routes to the A944 or A9119 (noting that providing priority bus infrastructure off the main corridors is clearly less practical).

4.2.6 In all cases, where bus priority or active travel provision is proposed, there will be a reallocation of road space away from general traffic.

4.2.7 The end-to-end corridor options are as follows:

- **Option 1: Prioritise cycling on A944 and A9119**. Reflecting the Sustainable Travel Hierarchy, this option prioritises cycling infrastructure on A944 and A9119 (and thereafter provide the greatest additional bus priority infrastructure possible)

- **Option 2: Prioritise bus on A944 and A9119** (and thereafter provide the greatest additional cycle infrastructure possible). In this instance, parallel cycle route provision has been considered to ensure both modes are sufficiently provided for.

- **Option 3: Prioritise cycling on A944 and bus on A9119**. In this instance, the parallel cycle route provision for the A9119 as provided under Option 2 is considered.

- **Option 4: Prioritise cycling A9119 and bus on A944**. In this instance, the parallel cycle route provision for the A944 as provided under Option 2 is considered.

4.2.8 The measures considered for each of the four options are illustrated and discussed in the sections below. More detail on the option development process and option concept sketches can be found in and the supplementary *A944-A9119 Multi-modal Study Concept Design Report* which show the approximate location of the bus, cycle and pedestrian infrastructure proposed.

4.2.9 Under all options, improvements to walking and wheeling provision is included and is discussed as part of the options below.

4.2.10 Across the options there are various sections over which the proposed infrastructure is the same. To aid in the presentation and understanding of the options, the corridors have been divided into three sections as shown in the figure below. These sections are shown in the table and figure below.

Table 4.2: Corridor Sections for Option Development

Section		Walking and Wheeling Proposals	Cycling Proposals	Public Transport Proposals
I	Westhill to Kingswells	Same across all options		
II	Kingswells to city centre via A944	Same across all options	Same across Options 1 and 3	Same across Options 2 and 4
III	Kingswells to city centre via A9119	Same across all options	Same across Options 1 and 4	Same across Options 2 and 3



Figure 4:1: Corridor Sections for Option Development

4.2.11 Under all four options, improvements are assumed at bus stops, including:

- Bus Shelters and seating
- Footway Width
- Lighting (Internal)
- Lighting (Street Lighting)
- Information Board for Timetables
- Real Time Information
- Kassel Kerb (Equality compliant Kerb).

Option 1: Prioritise cycling on A944 and A9119

4.2.12 Option 1 seeks to prioritise the cycling infrastructure that can be provided along each of the two corridors. Thereafter, the greatest additional bus priority infrastructure possible is provided. The proposals are as shown in the table and figure below.

4.2.13 Note that in the figure, where:

- **Junction Adjustment** is noted this infers changes to side roads to make the walking and cycling experience safer and more comfortable. These changes establish the priority pedestrians and cyclists have over turning traffic at side roads as set out in the Highway Code, and using features such as tighter junction corners, entry treatments and continuous footways

- **Junction Redesign** is noted this infers changes to the method of signal control (i.e., to accommodate new pedestrian / cycle crossing facilities) or major change to the layout (i.e., roundabout removal and replacement with signalised cross roads).

4.2.14 Where a **traffic gate** is noted in the table this refers to a measure to provide a level of bus priority where there is insufficient space for carriageway reallocation to bus lanes. A traffic gate is a technique used to control the inflow of vehicles into sensitive areas where it is particularly important to prevent serious congestion. One of its most important applications is to reduce bus delays by relocating congestion from narrow sections of the road network into an upstream section where bus lanes can be provided. Buses are then able to bypass the queued relocated traffic via the bus lane and enter the downstream section which is maintained as free flowing by the traffic gating signals. Journey times for general traffic remain approximately the same as they effectively queue on a different section of road and then benefit from the free-flowing conditions once past the gating point.

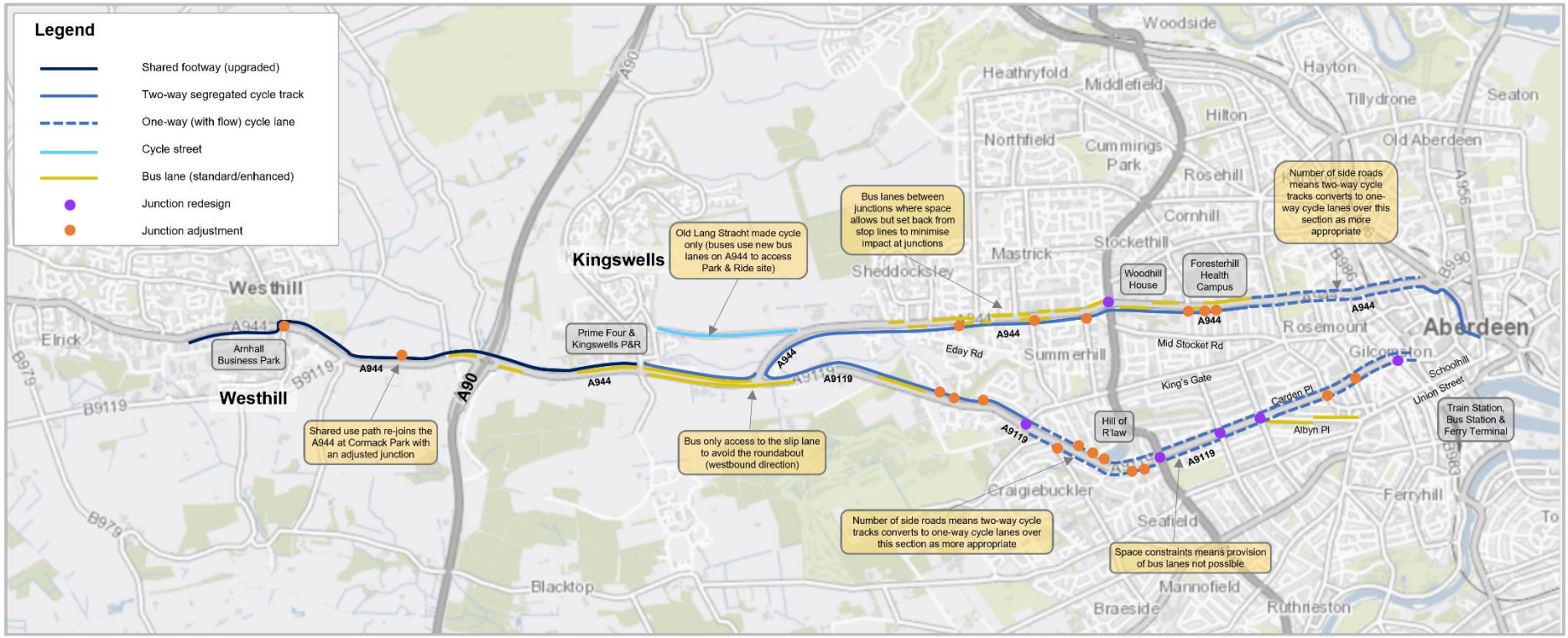


Figure 4:2: Option 1 – Strategic Plan

Table 4.3: Option 1 – Description

Section		Walking and Wheeling Proposals	Cycling Proposals	Public Transport Proposals
I	Westhill to Kingswells	Proposals to improve the provision for walking and cycling along Straik Road, the A944 and parts of Old Skene Road between Westhill and Kingswell include: • Wider footpaths (shared with cyclists) along Straik Road (southern side) and A944 (northern side) • New and improved crossing facilities at the Westhill Drive roundabout, the Aberdeen Western Peripheral Road (AWPR - A90) junction, the Kingswells Causeway junction and Fairley Road roundabout • Side roads junctions are changed to make it easier to cross while walking or cycling • A new cycle track that bypasses Old Skene Road with an alignment along the northern side of the A944		Proposals to improve the provision for walking and cycling along Straik Road, the A944 and parts of Old Skene Road between Westhill and Kingswell include: • **Bus stop improvements** including fully accessible stops with an improved waiting environment • **A90 AWPR junction**: Standard bus lanes on the eastbound and westbound approaches to the junction. These bus lanes will be set-back from the junctions to minimise impact on general traffic Kingswells Causeway junction: An eastbound bus lane on the approach to this junction with the bus lane set-back from the junction to ensure car drivers are not delayed accessing the Park & Ride site • **Chapel of Stoneywood - Fairley Road roundabout**: A westbound bus lane on the approach to this junction. A traffic signal and stop line will make it easier for buses to access the Park & Ride site. This bus lane will extend back through the roundabout with Lang Stracht using the existing bypass lane for general traffic • **Lang Stracht and Skene Road roundabout**: Westbound bus lane as mentioned above and an eastbound bus lane on the approach to the junction
II	Kingswells to city centre via A944	Proposals to improve the provision for walking along the A944 Lang Stracht, Westburn Road and Hutcheon Road include: • **Improved crossing facilities** at signalised junctions, between paired bus stops and at mid-block locations (where required) to	To create a high quality cycle route along Lang Stracht, Westburn Road and Hutcheon Street the following infrastructure is proposed: • **Lang Stracht and Westburn Road (Skene Road to Cairnfield Road)** - dual carriageway section: A two-way cycle track along the southern side of the road with signalised	Improvements to bus travel along Lang Stracht, Westburn Road and Hutcheon Street were developed ensuring there was no compromise to the walking, wheeling and cycling proposals: • **Existing bus lanes extended**, and new bus lanes (set-back from junctions) introduced - between Stronsay Drive and Cairnfield Place

Section		Walking and Wheeling Proposals	Cycling Proposals	Public Transport Proposals
		reduce the severance to pedestrians created by the road layout and traffic flows. Improvements include longer pedestrian green times, wider crossings and islands (suitable for shared-use) and removal of staggered crossings where feasible • **Side-road junctions will be upgraded** to make pedestrian routes safer and more continuous. These measures will be focused to the east of Cairnfield Place where walking along the A944 becomes more attractive due to the width of the road and proximity of residential frontages and parkland • **Footway surfacing** will be replaced where necessary to ensure they are smooth and free from trip hazards • **Footways widening** where it can be justified, and appropriate kerb heights established to deter pavement parking • **Bus shelters, lighting columns and other street furniture** will be designed to maximise the effective width of the footways	crossings at all major junctions and priority over side roads • **Westburn Road and Hutcheon Street (Cairnfield Road to Mounthooly**) – single carriageway section: Fully segregated provision for cyclists with signalised cycle priority at major junctions and a right of way over side roads • **Side-road junctions** along the corridor will be modified to give the cycle route priority but also create a safer environment for pedestrian to cross	which includes the A92 North Anderson Drive and Foresterhill Road junctions • **Traffic gate for eastbound traffic at the Cairnfield Place junction**. This traffic gate aims to keep Cairnfield Place to Berryden Road free flowing, thereby allowing buses to move freely in a section where bus lanes cannot be introduced because of the road space taken up by the proposed cycle route infrastructure
III	Kingswells to city centre via A9119	Proposals to improve the provision for walking along Skene Road, Queen's Road, Carden Place, Skene Street and Rosemount Viaduct are focused on sections where there is greatest potential to increase walking trips: • **Queen's Road, Carden Place, Skene Street and Rosemount Viaduct** (from the A92 Anderson Drive junction): wider and more continuous footways with a focus on establishing pedestrian right of way at side roads • **A92 Anderson Drive junction**: Major changes to reduce the severance the A92 causes to pedestrian and cycle movements.	To establish a high quality cycle route along Skene Road, Queen's Road, Carden Place, Skene Street and Rosemount Viaduct the following infrastructure is proposed: • **Skene Road and Queen's Road** (to the King's Gate roundabout): Fully segregated provision for cyclists on the northern side of the road requiring road widening and possible removal of existing bus lanes • **Queen's Road** (King's Gate to A92 Anderson Drive): Fully segregated provision for cyclists requiring the removal of on-street waiting, loading and bus lane provision	With the cycle route and pedestrian improvements in place the following changes to existing bus infrastructure need to be made along Skene Road and Queen's Road: • **Existing bus lanes** to be removed to accommodate the cycle route infrastructure described above • **New bus lanes along Albyn Place** requiring the removal of on-street parking bays (Residential Permit, Pay & Display, Car Club)

Section		Walking and Wheeling Proposals	Cycling Proposals	Public Transport Proposals
		Proposals being developed in combination with work being undertaken as part of a separate A92 Multi-modal study • **Queen's Road (King's Gate to Anderson Drive):** Side-road entry treatments and improved pedestrian crossing facilities to maintain the continuity of the walking route and connectivity to bus stops	**A92 Anderson Drive junction**: Major change required to create safe crossing routes for pedestrian and cyclists • **Queen's Road, Carden Place, Skene Street and Rosemount Viaduct**: Fully segregated provision for cyclists requiring the removal of on-street waiting, loading and parking bay provision • **Forest Road and Queens Cross roundabouts**: Major changes proposed to these roundabouts to create safe crossing routes for cyclists	

Option 2: Prioritise Buses on A944 and A9119

4.2.15 Option 2 seeks to maximise the bus priority infrastructure that can be provided along each of the two corridors. In this instance, parallel cycle route provision is provided to ensure both modes of transport are sufficiently provided for.

A944 - East of Cairnfield Place

4.2.16 For the dual / wide-single carriageway sections of the A944, the bus lanes are continuous in that they are on both sides of the road. This will require some road widening outside the highway boundary. To extend these bus lanes to the stop line requires the footprint of the junction to be increased because there is a need for dedicated lanes for the left, ahead and right movements.

4.2.17 While this layout works for the A944 / A92 junction and other junctions with on the A944 at Mastrick Drive / Summerhill Road, Foresthill Road, and Maidencraig Drive, it is more difficult to implement at other locations because of the proximity to residential properties. At these locations there is a need to set the bus-lanes back from the junctions and design work has been undertaken to establish how many of these set-back gaps are needed along the corridor.

4.2.18 The sections of the A944 which narrow to a single lane carriageway (Cairnfield Place to Berryden Road and Berryden Road to Mounthooly) have the following constraints which makes road widening difficult to consider as feasible:

- **Cairnfield Place to Berryden Road:** This section is bounded by residential front gardens or historic parkland and within the Rosemount Conservation Area. There are also a number of listed buildings and structures that are located close to the highway boundary.

- **Berryden Road to Mounthooly**: This section would be slightly easier to dual, but the widening would impact on the Maberly Street Broadford Works site which is also listed. This section of the corridor also does not provide the most direct bus route into the city centre and is the reason why Variants B and C (see below) have been developed that use the southern section of the Berryden Corridor Improvement Project.

4.2.19 For these reasons, the provision of continuous bus lanes east of Cairnfield Place has not been included in the option.

Supporting Aberdeen Rapid Transit

4.2.20 It is recognised that there are no bus services operating the full length of the A944 between Westhill / Kingswells and the city centre, with services only using sections of the road as part of their routes. However, the infrastructure is being developed here to both assist these bus services and to enable the ART vision to be realised. The A944 corridor is the least constrained of the two corridors and has space to provide **continuous** bus priority over much of its length in both directions. The corridor could then be used as one of the ART corridors offering fast and frequent services operating between Kingswells P&R and the city centre. The analysis undertaken to support the options appraisal has considered the bus travel time saving that could be achieved if new P&R to city centre services were to operate along the A944 (as discussed in the appraisal table below).

4.2.21 For buses, the eastern section of the A944 (Hutcheon Street) routes into the city centre to the north of the city core, at Mounthooly roundabout. However, bus services may prefer a route which serves the city centre (Union Street) more directly and does not require routeing via Mounthooly roundabout. Three variants of Option 2 have therefore been developed at the eastern end of the A944. These variants are:

- **Variant 2A:** Route via Mounthooly Roundabout and West North Street to Union Street

- **Variant 2B:** Route via Skene Square, Woolmanhill and Denburn Road to Union Square, and onwards to via Market Street to Union Street

- **Variant 2C:** Route via Skene Square and Woolmanhill, with a new bus only access to Blackfriars Street, Rosemount Viaduct, Union Terrace and onto Union Street

4.2.22 Variants B and C assume the widening of Skene Square and Caroline Place as part of the committed Berryden Corridor Improvement Project (which will provide two traffic lanes in both directions throughout the length of the corridor, widening the existing road between Skene Square and Ashgrove Road and creating a new road between Ashgrove Road and Kittybrewster Roundabout) and requires, over the southern part of the scheme:

- **Under Variant B:** the reallocation of a lane of traffic in each direction to public transport on Skene Square, Woolmanhill and Denburn Road. Access from the A944 onto Skene Square would be via Rosemount Terrace which would be made bus, cycle and local access only

- **Under Variant C:** the reallocation of a lane of traffic in each direction to public transport on Skene Square, and Woolmanhill. Access from the A944 onto Skene Square would be via Rosemount Terrace which would be made bus, cycle and local access only

Parallel Cycling Routes

4.2.23 Under this option, parallel cycle routes have been developed to provide a high level of cycle provision. Two potential parallel cycle routes have been considered for each of the A944 and A9119, with all four parallel routes routeing on the streets between the corridors. Separate, more detailed diagrams are provided showing the parallel cycle route proposals below the main option plan and table which details the proposals. The parallel route proposals link into the city centre network of streets of recommended cycle routes and directly link into National Cycle Network Route 1.

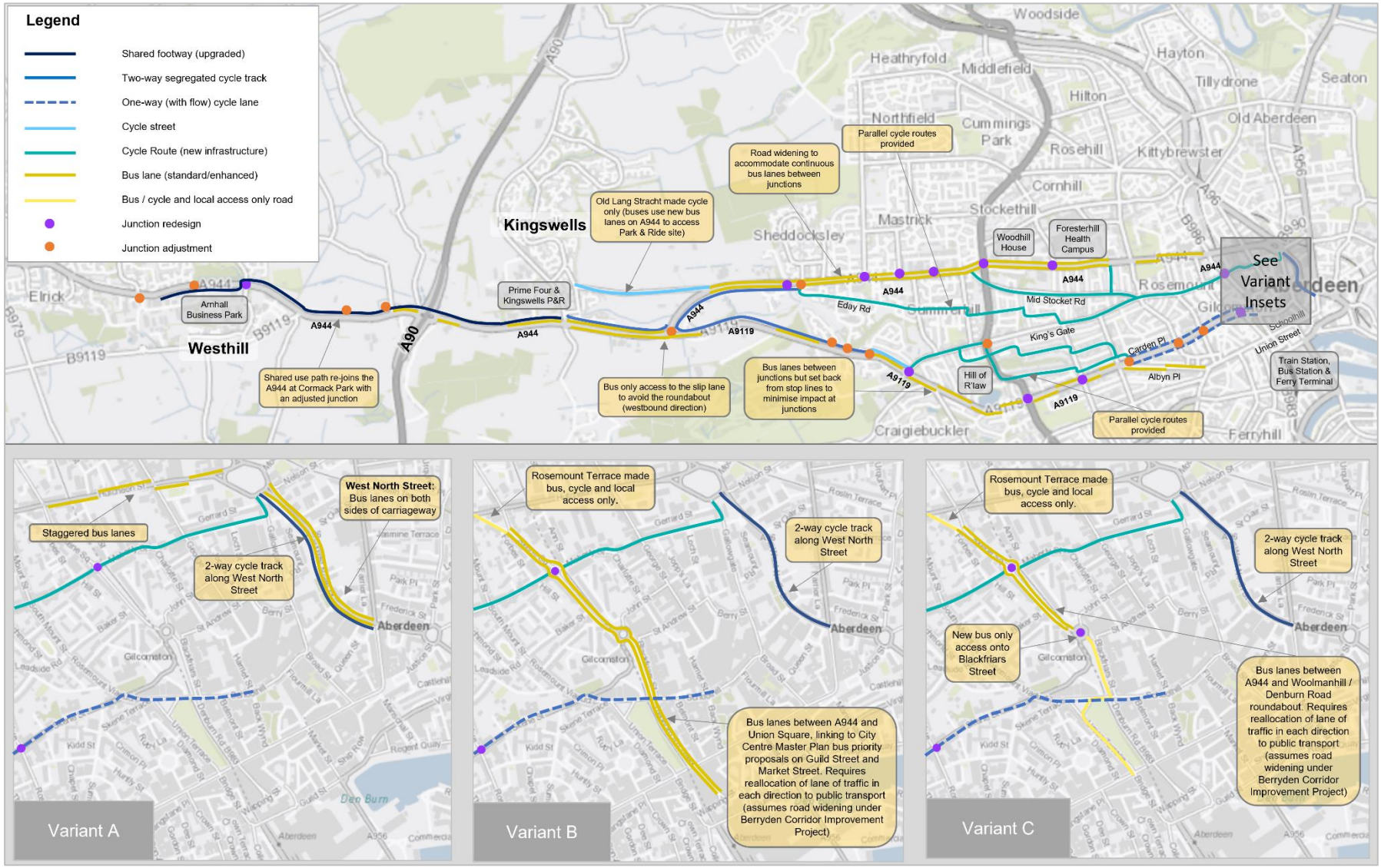


Figure 4:3: Option 2 – Strategic Plan

Table 4.4: Option 2– Description

Section		Walking and Wheeling Proposals	Cycling Proposals	Public Transport Proposals
I	Westhill to Kingswells	Same as Option 1		
II	Kingswells to city centre via A944	Same as Option 1	**A944 Parallel Route 1:** Bressay Brae (at Sheddocksley) - Eday Road - Stronsay Place - Summerhill Terrace - Summerhill Road - Campsie Place - Edgehill Road - Woodstock Road - Oakhill Road - King's Gate - Beechgrove Terrace - Rosemount Place - Maberly Street - Spring Gardens - Gallowgate. Please refer to the A944 Parallel Route 1 diagram below **A944 Parallel Route 2:** Summerhill Drive and Mid Stocket Road Please refer to the A944 Parallel Route 2 diagram below	Proposals to improve bus journey times along **Lang Stracht and Westburn Road** (over which Options 2A, 2B and 2C are the same for public transport): • **Lang Stracht (Old Lang Stracht to North Anderson Drive):** New bus lanes and extension to existing bus lanes requiring road widening and changes to signalised junctions. Possible third party land requirements and removal of right turns at priority junctions. Only one general traffic lane provided in each direction • **Junction with North Anderson Drive:** Major change to junction to accommodate bus lanes and pedestrian crossing facilities which is likely to result in a significant reduction in capacity for general traffic. Proposals being developed in combination with work being undertaken as part of a separate A92 Multi-modal study • **Westburn Road (North Anderson Drive to Cairnfield Place):** New bus lanes in both directions which reduces the road to a single carriageway in each direction for general traffic. In the eastbound direction the bus lane will end at a signalised traffic gate which will control traffic into the single carriageway section of Westburn Road and keep it free flowing. In the westbound direction the bus lane will extend up to the stop line of the North Anderson Drive junction • **Westburn Road (Cairnfield Place to Berryden Road):** Bus lanes will be staggered in each direction on the approaches to the Argyll Place / Argyll Crescent, Watson Street / Cornhill Road and Caroline Place / Berryden Road junctions. These bus lanes will be set back from the junctions (to maintain the same number of general traffic lanes on each approach arm) but will require the removal of all on-street parking and its relocation onto side roads. **East of Hutcheon Street**, the variant infrastructure differs: • **Variant A - Hutcheon Street (Berryden Road to Mounthooly Roundabout and West North Street):** Staggered bus lanes in each direction on the approach to the George Street junction and on the eastbound approach to Mounthooly roundabout and westbound approach to the Berryden Road junction. These bus lanes will require the removal of on-street parking bays including Residential and Pay & Display bays. Bus lanes in both directions on West North Street

Section		Walking and Wheeling Proposals	Cycling Proposals	Public Transport Proposals
				• **Variant B - Skene Square, Woolmanhill and Denburn Road:** Bus lanes in each direction between the A944 and Union Square, linking into the proposed Aberdeen City Centre Masterplan bus priority infrastructure on Guild Street and Market Street. Assumes the widening of Skene Square and Caroline Place as part of the committed Berryden Corridor Improvement Project and requires the reallocation of a lane of traffic in each direction to public transport on Skene Square, Woolmanhill and Denburn Road. Access from the A944 onto Skene Square would be via Rosemount Terrace which would be made bus, cycle and local access only • **Variant C - Skene Square, Woolmanhill, and with a new bus only access to Blackfriars Street, Rosemount Viaduct, Union Terrace and onto Union Street:** Bus lanes in each direction between the A944 and Woolmanhill / Denburn Road Roundabout. Assumes the widening of Skene Square and Caroline Place as part of the committed Berryden Corridor Improvement Project and requires the reallocation of a lane of traffic in each direction to public transport on Skene Square and Woolmanhill. New bus only access onto Blackfriars to provide access to Rosemount Viaduct, Union Terrace and onto Union Street. Access from the A944 onto Skene Square would be via Rosemount Terrace which would be made bus, cycle and local access only.
III	Kingswells to city centre via A9119	Same as Option 1	**A9119 Parallel Route 1** This Parallel Route uses: King's Gate - King's Cross Terrace - Kings Cross Road - Carnegie Crescent - Moray Place - Rubislaw Den North - Forrest Road - Desswood Place ('lane' route) - Fountainhall Road - Albert Lane - Blenheim Place. Please refer to the A9119 Parallel Route 1 diagram below **A9119 Parallel Route 2** This Parallel Route uses: A92 Anderson Drive (Carnegie Place to Rubislaw Den South) - Rubislaw Den South - Forest Road – Queens Lane North.	**Proposals to improve bus journey times along Skene Road, Queen's Road and Albyn Place include:** • **Skene Road:** On the westbound approach to the Lang Stracht roundabout the by-pass traffic lane is converted to a bus lane which extends back into Skene Road, requiring some road widening • **Queen's Road (eastbound approach to Kings Gate):** The eastbound bus lane is extended back to the junction with Woodend Crescent • **Queen's Road (King's Gate to A92 Anderson Drive):** Staggered bus lanes are proposed on both approaches to the Springfield Road junction and the westbound approach to the Hill of Rubislaw junction, requiring removal of on-street parking • **Junction with North Anderson Drive:** Major change to junction to prioritise bus movements along Queen's Road while also providing pedestrian and cycle crossing facilities to reduce severance issues along the A92. Proposals being developed in combination with work being undertaken as part of a separate A92 Multi-modal study • **Queen's Road (Anderson Drive to Queen's Cross):** Staggered eastbound bus lanes on the approaches to the Forrest Road and Queen's Cross roundabouts and

Section		Walking and Wheeling Proposals	Cycling Proposals	Public Transport Proposals
			Please refer to the A9119 Parallel Route 2 diagram below	staggered westbound bus lanes on the approaches to the Forrest Road and Anderson Drive roundabout requiring removal of on-street parking • **Forrest Road roundabout:** Options to signalise this junction being considered • **Queens Cross roundabout:** No change is currently proposed to this junction • **Albyn Place:** Staggered bus lane proposed on the eastbound approach to Union Street/ Holburn Street junction and the westbound approach to the Queen's Cross roundabout requiring the removal of on-street parking bays

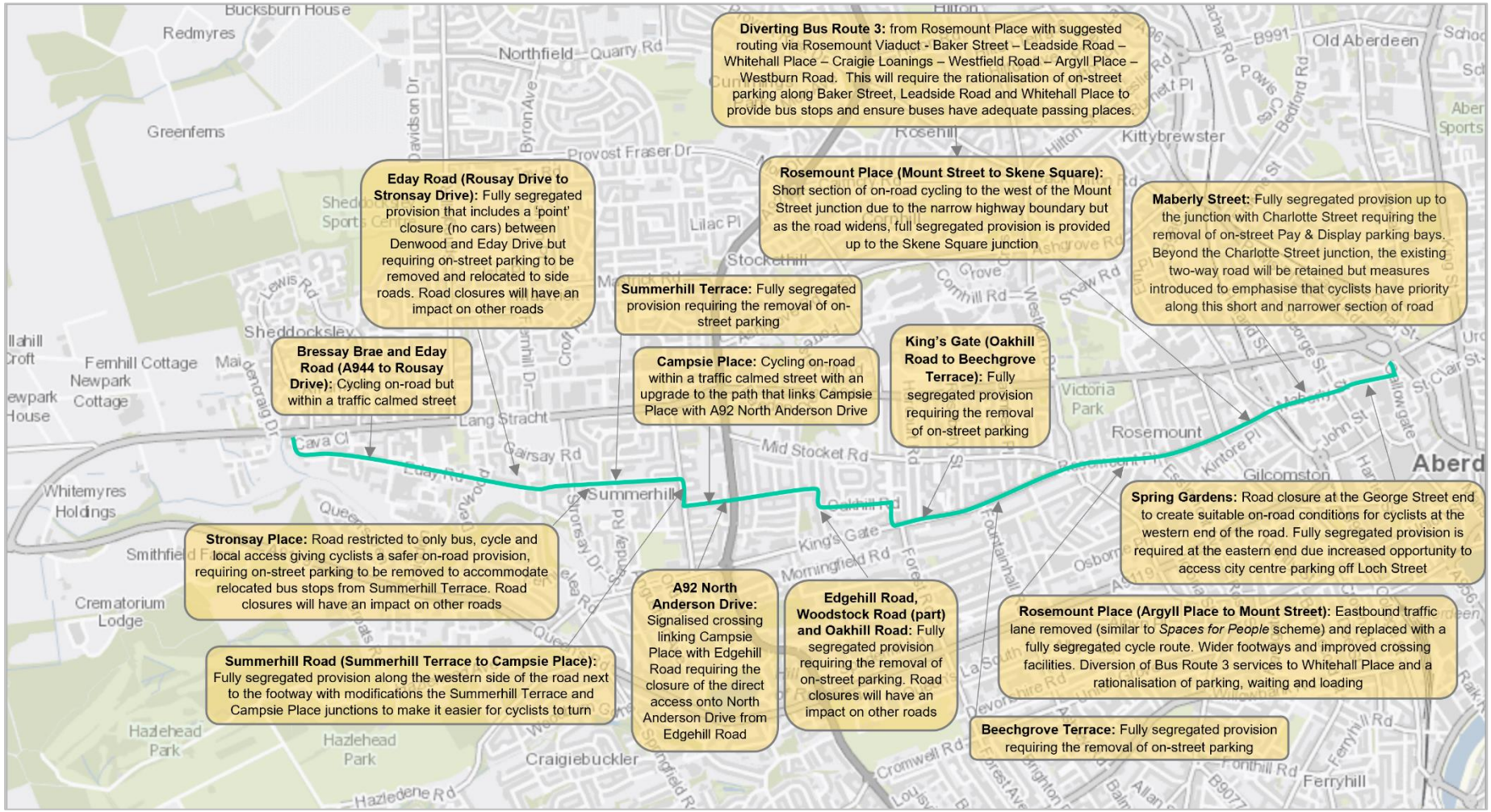


Figure 4:4: Option 2 – A944 Parallel Route 1

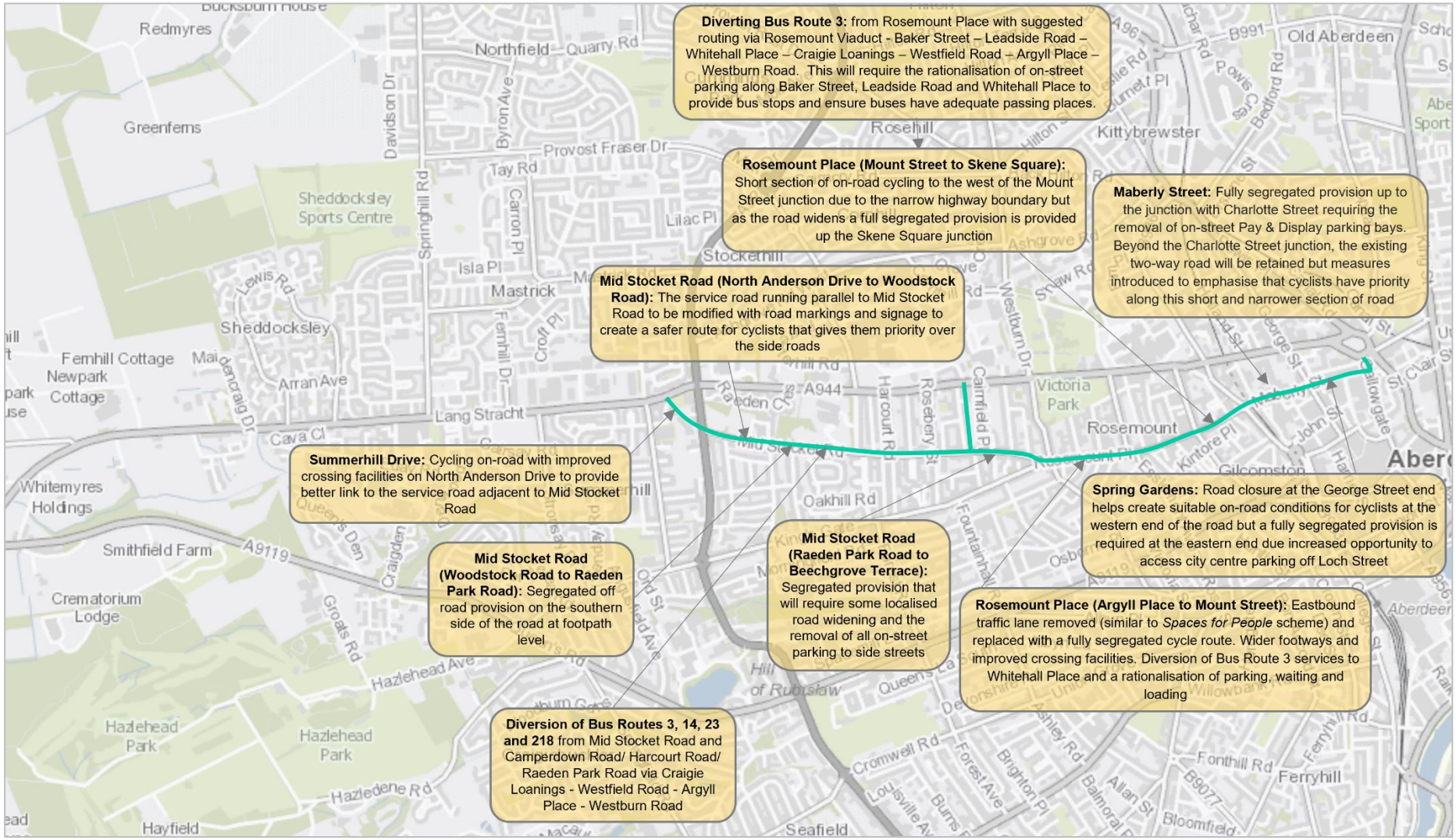


Figure 4:5: Option 2 – A944 Parallel Route 2

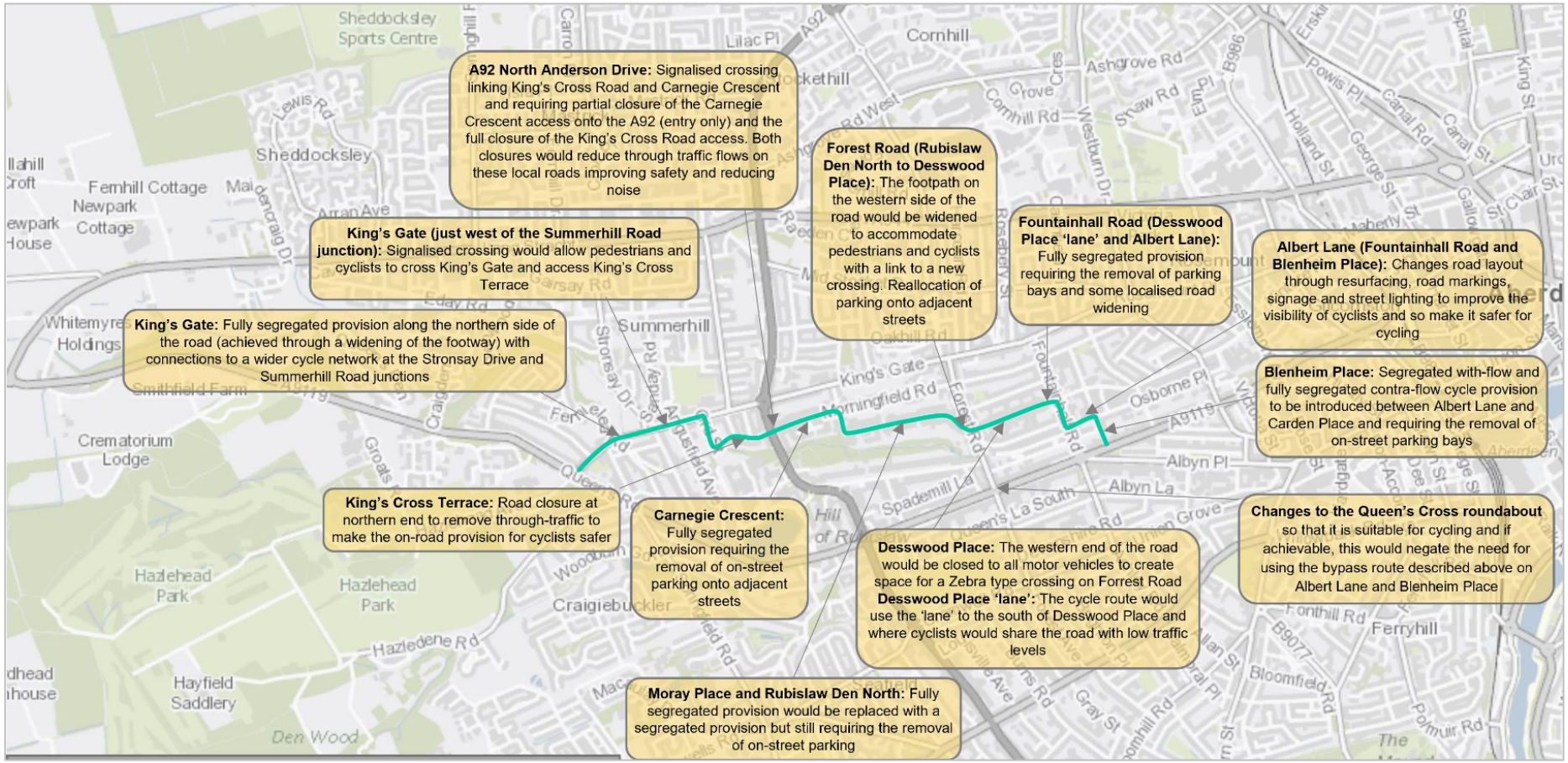


Figure 4:6: Option 2 – A9119 Parallel Route 1

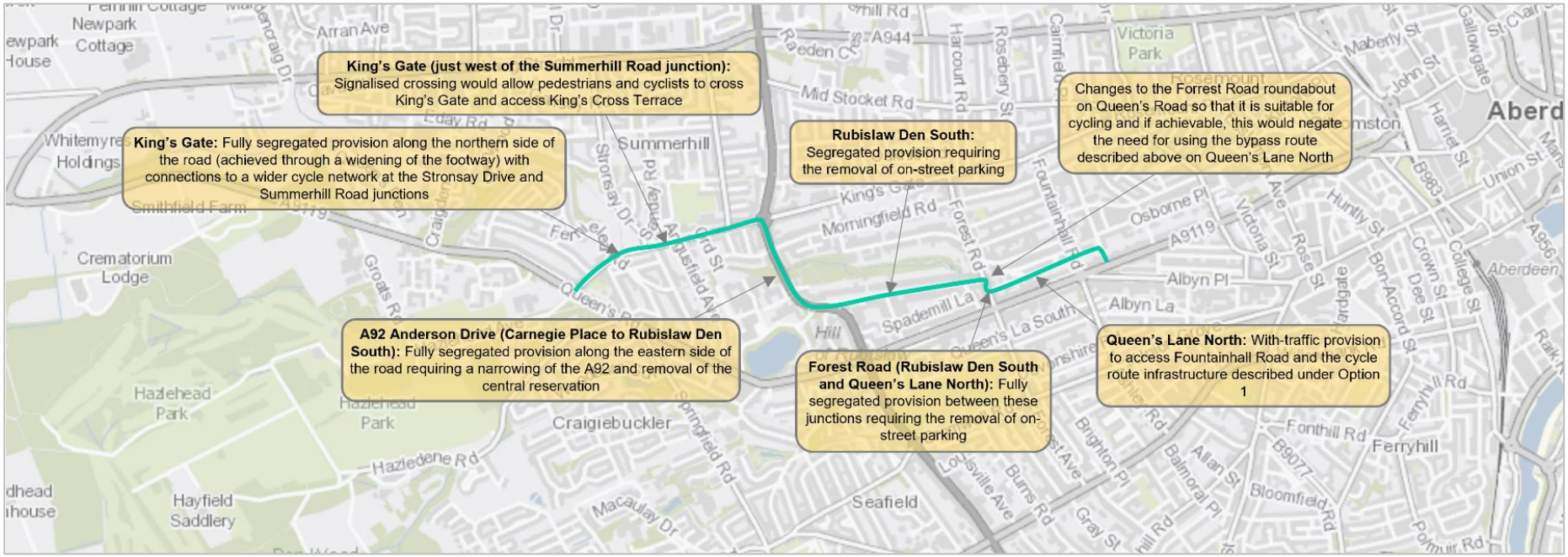


Figure 4:7: Option 2 – A9119 Parallel Route 2

Option 3: Prioritise Cycling on A944 and Buses on A9119

4.2.24 Option 3 seeks to maximise the cycling infrastructure that can be provided along the A944 corridor and the bus priority infrastructure that can be provided along the A9119 corridor. Under this option, the A944 would be the main cycle route between Westhill and the city centre, with the A9119 the main bus route.

4.2.25 With the A9119 prioritised for buses, as per Option 2, two parallel cycle routes have been considered to provide a high level of cycle provision close to the corridor:

- Over Section I (Westhill to Kingswells) and Section II (Kingswells to city centre via A944): Proposals are the same as Option 1 (see Figure 4:2 and Table 4.3)
- Over Section III (Kingswells to city centre via A9119): Proposals are the same as Option 2 (see Figure 4:3 and Table 4.4).

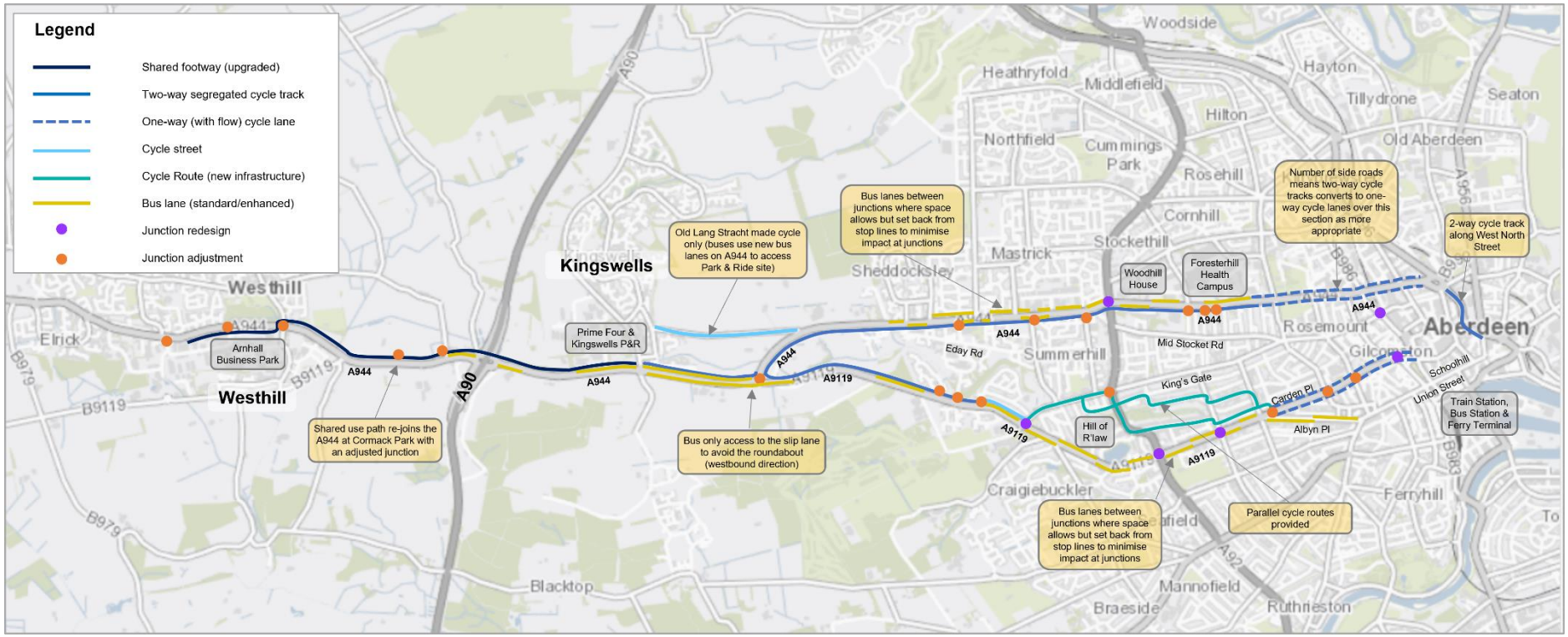


Figure 4:8: Option 3 – Strategic Plan

Option 4: Prioritise Cycling on A9119 and Buses on A944

4.2.26 Option 4 seeks to prioritise cycling infrastructure along the A9119 corridor and the bus priority infrastructure along the A944 corridor. Under this option, the A9119 would be the main cycle route between Westhill and the city centre, with the A944 the main bus route.

4.2.27 With the A944 prioritised for bus travel, as per Option 2, two parallel cycle routes have been considered to provide a high level of cycle provision close to the corridor:

- Over Section I (Westhill to Kingswells) and Section II (Kingswells to city centre via A944): Proposals are the same as Option 2 (see Figure 4:3 and Table 4.4)
- Over Section III (Kingswells to city centre via A9119): Proposals are the same as Option 1 (see Figure 4:2 and Table 4.3)

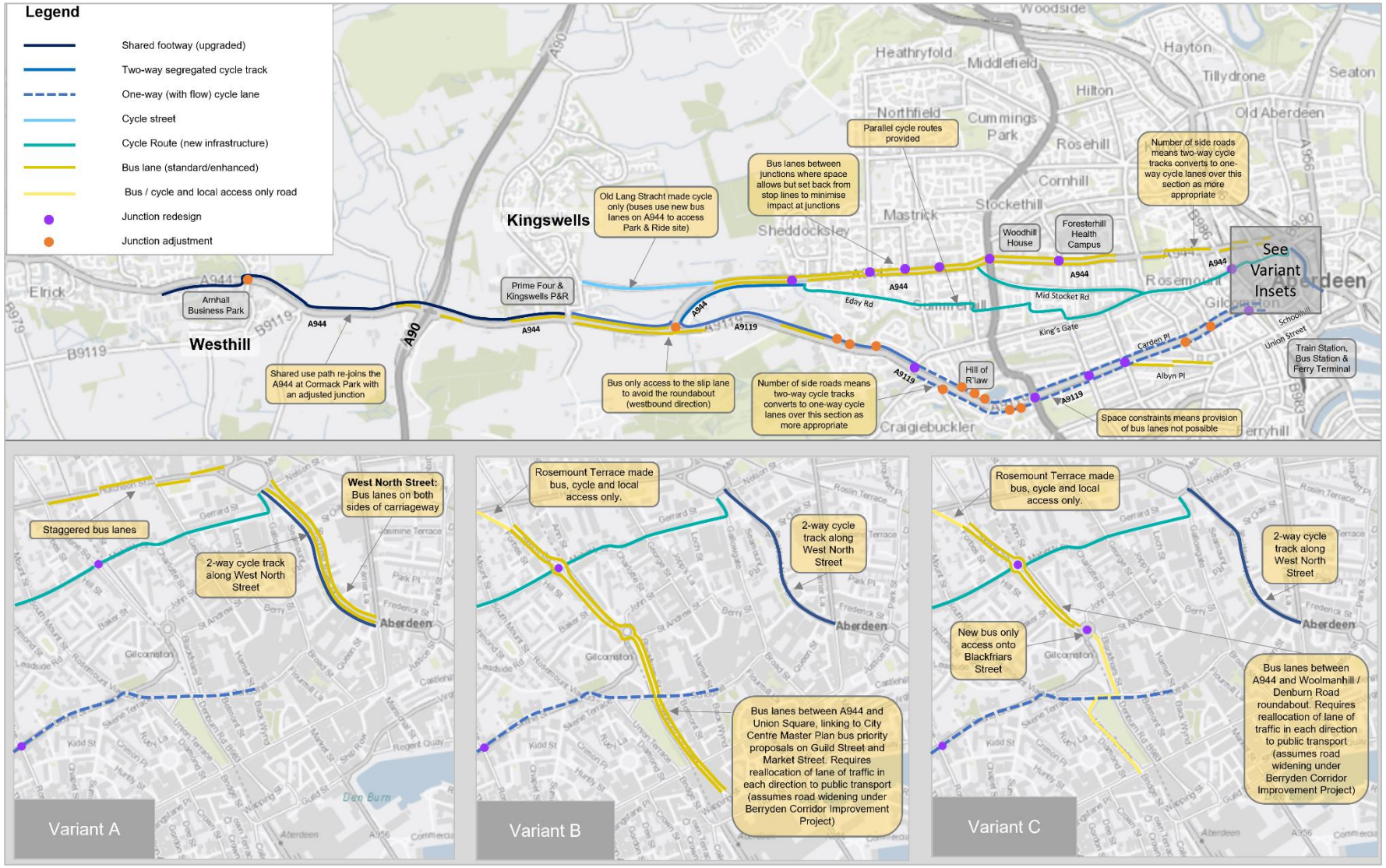


Figure 4:9: Option 4 – Strategic Plan

4.3 Low Traffic Neighbourhood

4.3.1 All the options presented above require the reallocation of road space away from general traffic to accommodate priority for more sustainable modes. This may cause unwanted vehicle routeing away from the main roads onto less suitable residential streets. To reduce the potential impacts of this, part of the option development process has included the development of a *potential* Low Traffic Neighbourhood (LTN) which could be considered to mitigate the impacts. The LTN could encompass the streets between the A944 and A9119, and south of the A9119 as shown in the figure below. The LTN is not part of the options themselves but could be considered as an additional traffic management measure.

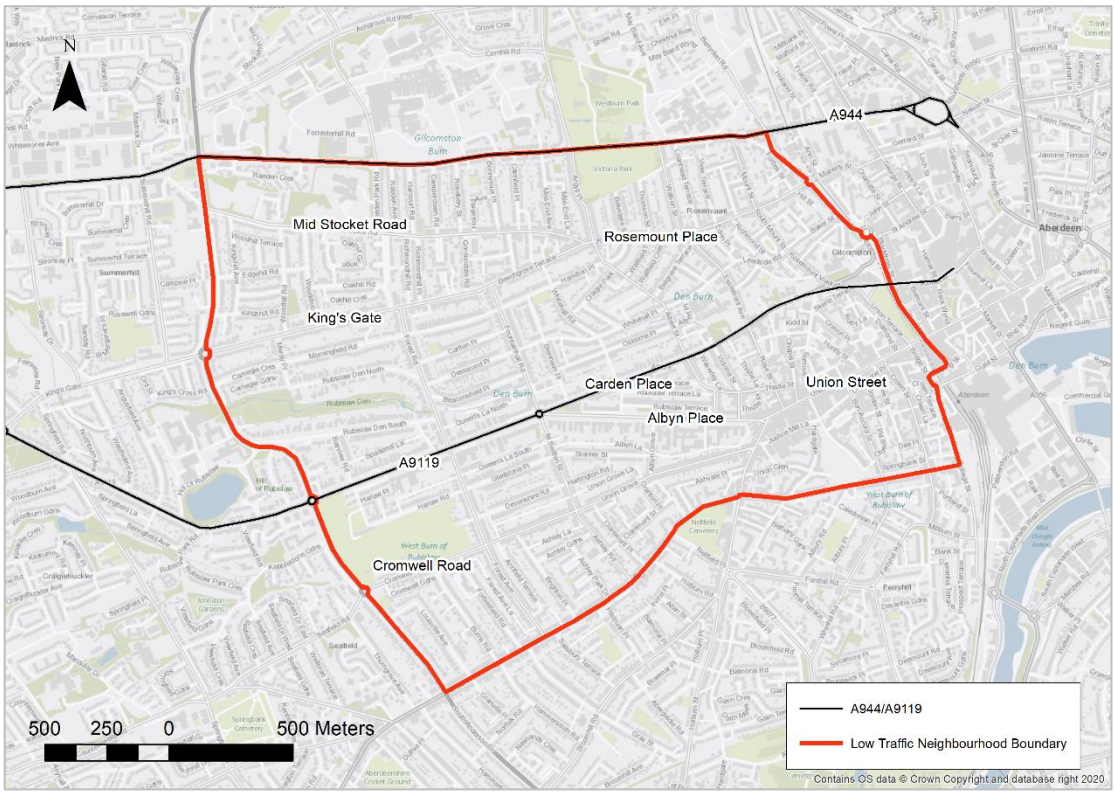


Figure 4:10: Potential Low Traffic Neighbourhood

4.3.2 LTNs are places where motor traffic in residential streets is greatly reduced. This is done by minimising the amount of traffic using the streets within the neighbourhoods to get to another destination (i.e., 'through-traffic' or 'rat-running' traffic). Private motorised vehicles still maintain access to all homes and businesses within the neighbourhood. This opens up networks of streets so people can more safely travel through the area on foot, bicycle, by wheeling or by bus. Emergency vehicles can also be prioritised to reach their destinations quicker.

4.3.3 Measures to facilitate the LTNs could include:

- Possible 'point' closures with access restricted to bus and cycle only, or cycle only
- Re-routeing of bus services to provide safe cycle routes, requiring reduced segregation / road space given the lower traffic volumes in the neighbourhood

4.3.4 More detailed work will be required to establish the exact form of the LTN once a preferred option is determined and if the LTN is taken forward as part of the proposals.

4.4 Supporting Measures

4.4.1 The implementation of the options would provide significant benefits to pedestrians, cyclists and bus users with improved public transport journey times and service reliability, while, through road space allocation, likely dis-benefitting travel by car. These factors are likely to incentivise people to switch modes. However, there are further **supporting measures** which can drive behavioural change from private vehicle to more sustainable modes, which would significantly support the success of the options. Such measures can ensure the options realise the potential benefits, particularly the wider environmental and socio-economic benefits including helping work towards the national climate change targets, vehicle kilometre reduction targets and improved equality of access.

4.4.2 Such supporting measures could include:

- **Parking policy changes**: the management of parking can be used as part of a range of measures to discourage use of private cars and to increase the use of public transport and active travel. Measures might include changes to waiting restrictions, charges or a combination with charges set to dissuade longer stay parking (i.e., commuter parking) without significantly impacting on businesses or the vitality of town and city centres

- **Workplace Parking Licensing:** the Transport (Scotland) Act 2019 provides discretionary powers to Scottish local authorities to create a licensing scheme. The adopted Regional Transport Strategy (RTS:2040) contains an action to explore the introduction of a Workplace Parking Licensing scheme, alongside other charging regimes which could manage the demand for travel. However, in the run up to the May 2022 local elections, a cross party consensus was established against such measures, and post-election, the new Council's policy agreement '*Working in Partnership for Aberdeen'* states that a Workplace Parking Licensing scheme will not be progressed during the current Council term. However, **such policy levers would encourage modal shift to active travel and public transport and support bus patronage, and therefore the success of the options.** It is however recognised that Workplace Parking Licensing scheme would need strong political advocacy (especially in light of the recent policy agreement against such measures), may be perceived to impact business operations and constrain the labour market, and create inequality in access with the better off finding the charge easier to pay, especially in the likelihood that charges are past to employees.

- **Reducing cross city-centre car movements**: changes to the road network to make it more difficult for city centre through traffic. In accordance with the CCMP, the Aberdeen Sustainable Urban Mobility Plan proposed removing a number of streets in the city centre. The Roads Hierarchy reclassification has been formalised and looks to discourage through traffic from the city centre and is being formalised through the ongoing delivery of the CCMP, in order to enable a more vibrant and people-focussed city centre. Such measures can support the use of active travel and public transport as the preferred mode through ensuring journey times by such modes between city segments are quicker than travel by private car.

- **Low Emission Zone**: A LEZ in Aberdeen has been progressed and following approval from Scottish Ministers (received on 19th May 2022), Aberdeen City Council introduced the LEZ in Aberdeen City Centre from 30th May 2022. The LEZ has a two year 'grace' period. meaning that between 2022 and May 2024, drivers will not be fined for entering the LEZ with a non-compliant vehicle. The LEZ will then come into full effect in June 2024. The benefits of the LEZ include prioritising active travel and public transport.

- **Subsidising public transport**: All residents in Scotland under the age of 22 became eligible for free bus travel from January 2022. There is however the potential for expansion of the scheme, to cover other groups, and indeed there is an ever-growing list of cities around the world offer free or near-free public transport travel on some / all routes. Such measures would undoubtedly support modal shift to public transport and also offer financial equality of access to the public transport network across the

population. However, it is recognised that such a measure would require significant additional funding.

- **Congestion / road user zone charging:** In the UK road user charging has primarily been used to tackle congestion. Such measures could support the options through disincentivising travel by car. It is however recognised that such a measure would need strong political advocacy, may impact business operations and constrain the labour market, and create inequality in access with the better off finding the charge easier to pay.

5 Detailed Options Appraisal

5.1 Methodology

5.1.1 In line with the revised (February 2022) STAG, the Detailed Options Appraisal has encompassed appraising each of the options against:

- TPOs
- STAG Criteria:
  - Environment
  - Climate Change
  - Health, Safety and Wellbeing
  - Economy
  - Equality and Accessibility
  - Risk and Uncertainty
- Established Policy Directives
- Feasibility and Affordability
- Public Acceptability

5.1.2 All elements have been appraised again the STAG seven-point scale as shown in Table 5.1.

Table 5.1: STAG seven-point scale

Major Negative Impact	Moderate Negative Impact	Minor Negative Impacts	No Impact	Minor Positive Benefit	Moderate Positive Benefit	Major Positive Benefit
xxx	xx	x	-	✓	✓✓	✓✓✓

5.1.3 The information contained within the appraisal table (presented below) has been developed through consideration of:

- **Existing studies** – drawing on appraisals undertaken to date. In particular, quantitative analysis undertaken for the A96 Multi-modal Transport Study using the Aberdeen Sub Area Model (ASAM) has been drawn on to provide an indication of the similar impacts anticipated for this study.
- **Benchmarking & case studies** – this has been particularly appropriate e.g., for the active travel measures where step changes are made to the availability and quality of the active travel network.
- **Professional knowledge and consensus** – through various internal workshops, where the option impacts have been fully considered by the entire appraisal team
- **Stakeholder and Public Engagement** – through an online engagement exercise
- **Quantitative analysis** including the following elements:

- **Cycle Route Preferences**: Comparison of existing and direct routeing choices (Appendix B)
- **Public transport journey time analysis** (Appendix C)
- **Economic Impact Analysis:** including Transport Economic Efficiency and Active Mode Appraisal (Appendix D)

- **Option Costs**: development of high-level cost estimates for the options (with active travel and bus element of each option estimated separately) to inform the affordability appraisal criteria (Appendix A)
- **'Hansen' Accessibility Analysis** (Appendix E)

5.2 Options Appraisal

5.2.1 The appraisal of each option is shown in the Appraisal Table below supported by the information in the appendices (referenced within the table).

5.2.2 To recap, Options 1 and 2 focus on prioritising cycling and buses respectively along both corridors, while Options 3 and 4 comprise parts of the first two options, prioritising cycling on one corridor and buses on the other (and vice-versa). Comments which are relevant across more than one option and / or variant are noted once in a merged comments box or referred to earlier sections.

5.2.3 It is worth noting that this study was undertaken as the country transitioned out of the COVID-19 pandemic. Consideration has been given within the appraisal to both the potential positive and negative impacts of the pandemic on the viability of the options and their ability to support a 'green recovery' from the pandemic and 'lock-in' positive pandemic behaviours e.g., increased active travel or reduced trip making. Monitoring of travel behaviour and trends as the region transitions out of the pandemic will enable an understanding of the potential legacy impacts of the pandemic and enable a robust business case to be developed to allow for appropriate decision making.

Table 5.2: Appraisal Table - TPOs

Criteria	Option	Commentary	Score
TPO1: Improve the quality of the pedestrian experience and address barriers to walking / wheeling along the A944, A9119 and Albyn Place between Westhill and Aberdeen city centre	ALL	Previous studies and the study site visits highlighted a range of issue including poor footway surface quality, poor maintenance, constrained footway widths, street clutter and footway parking, sub-standard pedestrian crossing facilities, non-Equalities Act compliant infrastructure, long distances between crossing locations on some sections, excessive wait times at crossings and pedestrian severance along the corridors. The site visit scoring along the route for walking and wheeling (see *A944-B9119 Multi-modal Study Preliminary Options Appraisal, Stantec, September 2020*) highlighted that walking and wheeling provision was below satisfactory on the A944 between the A944/AWPR junction to Kingswells and from Sheddocksley to Mounthooly, as well as on the A96 between Mounthooly and King Street and on Albyn Place. Measures are included within all options to improve the pedestrian environment, include fixing broken paving; introducing tactile paving/ dropped kerbs where missing; tackling footway parking; ensuring good and consistent lighting levels; decluttering footways; improving wayfinding through signage; and consistent use of materials. Under all options, the existing shared path between Westhill and Kingswells will be widened to 3m, and a buffer provided between pedestrians and the busy road carriageway. Path widening will make walking in this area a more comfortable experience and provide greater space to reduce conflicts between pedestrians and cyclists. Widening will include the construction of a shared use path across the frontage of Five-Mile Garage, where there are currently narrow footways, barriers, and large bell mouth access and egress points. Minor junctions which interact with the new shared path will be modified such that priority is given to users of the shared path, rather than vehicles crossing it, and junction geometries will be tightened to reduce pedestrian crossing distances. Additionally, new pedestrian crossings will be installed at key locations to reduce north-south severance and to better reflect pedestrian desire lines, specifically including new pedestrian crossings of the circulatory carriageway at the junction of the A944 with the AWPR. Under all options, signalised junctions would incorporate effective pedestrian crossing times within the overall signal cycle time, with maximum pedestrian waiting time at signals to be less than 90 seconds, minimising the number of pedestrians crossing without the green man and reducing the safety risk associated with this. Footway decluttering will be undertaken under all options to ensure that pedestrian space is maximised, and pedestrian movement is not unnecessarily impeded. This will include the removal of extraneous sections of pedestrian barriers, including those outside Foresterhill Health Campus and at Mounthooly roundabout. Signage will be introduced to indicate pedestrian routes to key destinations along both corridors. There is also potential to introduce a LTN covering the streets between the A944 and A9119, and streets south of the A9119, to mitigate traffic re-routeing that may occur due to the reallocation of road space away from general traffic. Such a neighbourhood would open up the networks of streets so people can safely travel through the area on foot, bicycle, by wheeling or by bus. Clearly there would be pedestrian improvements with reduced general traffic in the streets creating quieter and safer walking routes and street crossings.	✓✓✓

Criteria	Option	Commentary	Score
TPO2: Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors	ALL	There is limited existing cycle provision along the A944 and A9119 which fulfils the requirements of Cycling by Design 2021 and multiple sections where cycle infrastructure is not present at all. Additionally, the existing cycle infrastructure features gaps and switches between sides of the road, making navigation more challenging, requiring users to cross the road at several locations - reducing the attractiveness of cycling as a mode of travel, particularly for less confident riders. Under all options, continuous coherent cycle routes are proposed between Westhill and Aberdeen city centre, supported by toucan crossings where the route crosses a carriageway and junction treatments to provide cycle route priority across side roads. Infrastructure on the A944 and A9119 will primarily take the form of either bidirectional 3m segregated cycle tracks or one-way with flow segregated cycle tracks in both directions (in more constrained urban settings). The new infrastructure will provide: • A safe route which minimises the potential for accidents – a risk which is a key barrier to cycle use in Aberdeen. Consultation undertaken to support the Aberdeen Active Travel Action Plan found that the main barriers to cycling all centre on safety and protection from traffic. Similarly, research undertaken as part of the British Social Attitudes Survey in 2017 found that 62% of people agreed that '*It is too dangerous for me to cycle on the road*'. The proposed bidirectional cycle tracks and one-way with flow tracks are segregated from the main carriageway. This provides a consistent design to avoid ambiguity and is highly likely to address the key barrier of safety which often prevents people from cycling. The route provides improved cycle access to Harlaw Academy, St Joseph's RC School, Mile End School, St Margaret's School for Girls, and Albyn School which face directly onto the A944/A9119, as well as Hazelhead Academy, Holy Family RC School, Fernielea School, Muirfield School, Kingsford School and Hazelhead Primary School which are located nearby. It is anticipated that the provision of segregated cycle infrastructure in close proximity to the schools would encourage parents to allow their children to cycle to school and embed healthy travel choices from a young age. As well as new cycle tracks, safe junction crossings (with new toucan crossings and the conversion of existing crossing facilities to toucan control with dedicated cycle phases) would be provided which would further increase both real and perceived safety for cyclists along the route. • A coherent network which links the many residential urban communities including new developments at Maidencraigs and Countesswells with Aberdeen City Centre. This will include direct connections to health facilities, schools, parks and businesses, although the specific connections depend on the option. • Direct routes along the length of the corridor. Strava data highlights that at present, cyclists often take longer routes via the A9119 to access locations along the A944 (e.g., the most popular route between the Foresterhill Health Campus and Westhill utilises the A9119 and is approximately 1km longer than the most direct route which runs along the A944 – see Appendix B for further details). The main reason for these diversions is the significant westbound gradient on the A944, current lack of supporting cycle infrastructure and associated safety concerns. The provision of segregated cycle infrastructure will give cyclists the confidence to take the more direct route to their destination, by ensuring that cyclists do not have traffic queuing behind them/passing as they climb steeper sections. These changes would also reduce journey distances and travel time which can be a barrier to cycling. • Appropriate lighting, personal security, environmental quality, and a continuous level of infrastructure provision, likely to increase the attractiveness of the route and attract new users. • A smooth, uninterrupted, and well-maintained surface likely to attract 'non-sport' cyclists	

Criteria	Option	Commentary	Score
TPO2: Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors		• Integration with the public transport proposals - would involve additional infrastructure such as bus stop bypasses to ensure additional street furniture does not impact on the cycle route.	
	Option 1	Option 1 maximises provision for cyclists and best reflects the Scottish Government's Travel Hierarchy by catering for active travel first and then addressing provision for other modes. Under Option 1 segregated cycle infrastructure will be provided to form two coherent cycle routes from Westhill to Aberdeen city centre, with enhanced segregation from traffic and supporting crossing infrastructure. Routes are direct and easy to follow. These improvements address all aspects of TPO1. On the A944, between Kingswells P&R and Westburn Drive / Argyll Place, and on the A9119 between the A944 and King's Gate, a **bidirectional segregated track** is proposed. Such provision offers a step change in cycling provision and, of the two active travel options discussed, is also more closely aligned with good practice design on a priority road section like the A944 where traffic volumes and speeds are higher than a typical city environment. In terms of route maintenance, the two-way track also offers quicker, and likely cheaper maintenance given the ability to grit / de-ice / manage vegetation for both directions of the track at once. Additionally, a two-way track with cyclists travelling in opposite directions having visual contact can also help create a feeling of being part of a cycling community and increase the sense of security and safety felt using the route. However, a key disadvantage of the two-way track is the difficulty in connecting users with destinations on the opposite side of the carriageway. Appropriate integrated crossing facilities should enable such movements to be undertaken easily and safely. On the A944 east of Westburn Drive / Argyll Place and on the A9119 east of King's Gate, there are many more side roads joining the main carriageway. Here, it is proposed that **one-way with-flow cycle tracks** are provided on both sides of the carriageway which would provide a step change in provision from that at present. One-way with flow cycle tracks enable easy connections with other cycle routes and make moving between the track and the road much easier than with a two-way track. However, there is the potential for cyclists to use the track in the wrong direction if it is easier than crossing a major road. This can lead to safety risks for cyclists using the track. Proposals cannot address the considerable gradient on the A944 in the vicinity of the Foresterhill Health Campus, but proposals should make the A944 a viable option for those cyclists who currently lack the confidence to traverse this section without physical infrastructure to protect them from general traffic. This should support cyclists in taking the most direct route to destinations along the A944 and accrue journey time savings as well as health benefits. In particular, the new continuous cycling connections provide direct cycling connections to a variety of large trip generators, business and community facilities, as illustrated in Appendix B . This specifically includes direct connections to: • On the A944 and A96 West North Street: ○ A range of regional healthcare facilities at the Foresterhill Health Campus (which includes Royal Aberdeen Children's Hospital, Aberdeen Royal Infirmary, and Aberdeen Maternity Hospital) and Cornhill Hospital (specialising in mental health problems) ○ Employment at Prime Four, Woodhill House, Arnhall Business Park and well as significant planned employment development around Kingswells, both north and south of the A944	✓✓✓

Criteria	Option	Commentary	Score
TPO2: Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors		○ Retail premises at Whitemyres retail and business park, Tesco Mastrick Superstore, Lidl Mounthooly, Morrisons on West North Street and the George Street shopping area ○ Parkland at Westburn Park and Victoria Park ○ Onward cycle connections via National Cycle Network Route 1 at Mounthooly, and proposed new cycle infrastructure on A92, on A96 north of Mounthooly and on Berryden Corridor • On the A9119: ○ Employment sites including Hill of Rubislaw Business Park and the West End Office Area; ○ Education facilities at Aberdeen Grammar School, Albyn School (private), Gilcomstoun School, Hazlehead Academy, Hazlehead Primary School and St. Joseph's RC School; ○ Parkland including Hazlehead Park and Den of Maidencraig; ○ Aberdeen City Centre Masterplan area which includes cultural sites such as Aberdeen Central Library, His Majesty's Theatre, Aberdeen Art Gallery and Union Terrace Gardens; and the Bon Accord and St Nicholas Shopping Centres. ○ Onward cycle connections via National Cycle Route 1 at Rosemount Viaduct.	
	Option 2 A/B/C	Under Option 2, bus infrastructure is prioritised in the first instance and despite the removal of one lane for general traffic there is insufficient space to accommodate continuous cycle infrastructure provision along the A9119 and A944. Proposals are as per Option 1 to the west of the junctions of the A944 with Bressay Brae and the A9119 with King's Gate, but to the east is provided via adjacent parallel routes through largely residential neighbourhoods. Two possible parallel cycle routes have been identified for the A944. Both deviate from the A944 and in so doing, provide a longer route to Mounthooly (+17%), but a more direct route to Aberdeen city centre. The parallel routes better serve the Rosemount Place shopping area but do not connect as closely with trip attractors on the A944 such as Foresterhill Health Campus, Woodhill House, and the Royal Cornhill Hospital. • A944 parallel route 1 extends from Bressay Brae to Mounthooly. Fully segregated cycle tracks will be provided along the majority of the route, except for short sections on Bressay Brae, Eday Road, Campsie Place and Rosemount Place where cycling will occur on-road but point closures and traffic calming will be implemented to reduce traffic volumes and speeds. • A944 Parallel Route 2 extends from Summerhill Drive (immediately to the west of the A92 North Anderson Drive) to join A944 Parallel Route 1 on Rosemount Place. A944 Parallel Route 2 is shorter than A944 Parallel Route 1 and does not connect with the proposed infrastructure on the A944 to the west which terminates at Eday Road. However, it would allow those approaching the corridor from the north to join the cycle route network more quickly. As such, A944 Parallel Route 2 is likely to be delivered in addition to A944 Parallel Route 1, rather than alone. A944 Parallel Route 2 more constrained that Parallel Route 1, and a lower degree of segregation is possible; however, through point closures and supporting cycle infrastructure, it is considered that comfortable and safe cycling conditions can be achieved. Similarly, two possible parallel cycle routes have been identified for the A9119 corridor. In this case, only one of the two routes will be delivered, as the routes are similar and provision of both would bring no additional benefit. Both of the A9119 parallel routes travel through the residential areas to the north of Queen's Road and re-join the A9119 at Queen's Cross Roundabout. These routes	✓✓

Criteria	Option	Commentary	Score
TPO2: Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors	Option 2 A/B/C	are less coherent than the parallel section of the A9119 and approximately 15% longer but allows cyclists to avoid what is a busy route for entering Aberdeen city centre. The corresponding section of the A9119 carries five bus routes with a combined frequency of approximately 20 buses per hour, and significant volumes of general traffic (approximately 13,500 vehicles per day in 2018). The new continuous cycling connections provide direct cycling connections to a variety of large trip generators, business and community facilities, as illustrated in Appendix B . The A944 and A944 parallel route 1 would provide direct cycling connectivity to: • Employment at Prime Four, Arnhall Business Park and well as significant planned employment development around Kingswells, both north and south of the A944 • Healthcare facilities at Woodend Hospital • Education facilities at Fernielea School, Holy Family RC School and Skene Square Primary School • Rosemount Place shops and George Street shopping area • Proposed new cycle infrastructure on the A92 by junction with Edgehill Road an on the A96 north of Mounthooly A944 parallel route 2 would provide additional direct cycling connectivity to: • Mile End School; and • Rosemount Place shops and George Street shopping area. The A9119 parallel routes 1 and 2 would provide direct cycling connectivity to: • Employment at the West End Office Area • Education facilities at Aberdeen Grammar School, Countesswells School, Gilcomstoun School, Hazlehead Academy, Hazlehead Primary School and St. Joseph's RC School • Parkland including Den of Maidencraig, Fernielea Park and Hazlehead Park • Aberdeen City Centre Masterplan area including cultural sites such as Aberdeen Central Library, His Majesty's Theatre, Aberdeen Art Gallery and Union Terrace Gardens; and the Bon Accord and St Nicholas Shopping Centres • Onward cycle connections via National Cycle Route 1 at Rosemount Viaduct • Proposed new cycle infrastructure on the A92 by junction with Edgehill Road	
	Option 3	Cycling provision under Option 3 on the A944 corridor mimics that proposed under Option 1 and on the A9119 provision mimics that proposed under Option 2. Please refer to the corresponding rows immediately above.	✓✓
	Option 4 A/B/C	Cycling provision under Option 4 mimics that proposed under Option 2 for the parallel route provided for the A944, and on the A9119 provision mimics that proposed under Option 1. Please refer to the corresponding rows immediately above but note that through providing cycle infrastructure on the A9119 itself and A944 parallel routes, Option 4 maximises the number of schools served directly by cycle infrastructure (total of 10 schools served directly but additional schools located nearby will also benefit, e.g., Harlaw Academy and St. Margaret's School for Girls).	✓✓

Criteria	Option	Commentary	Score
TPO3: Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre	ALL	The main bus routes which travel along the A9119 and A944 corridors are the Stagecoach 4/5/6, Stagecoach 14, First 11 and First 23 services. It is important to note that no bus services use the A944 end-to-end from Westhill to Mounthooly. In fact, there is very little usage of the A944 corridor east of Foresterhill Health Campus. The 4, 5/6 and 11 services predominantly run along the A9119 and the 14 and 23 run along the A944. Analysis has been undertaken to estimate the impacts of each of the options on bus journey times, and is described in Appendix C. This analysis used existing bus timetables (as at Spring 2022) to assess the typical level of delay incurred by each bus service and output estimates of how delay could be reduced, dependent on the extent and quality of bus infrastructure proposed. This has assumed: • Provision of continuous bus lanes on a section will allow buses to travel at free-flow/uncongested speeds and journey times will reflect the daily minimum on that section as per the existing timetable • Provision of staggered bus lanes on a section will reduce delay by half compared with the existing timetable (i.e., time saving = (timetabled section journey time – minimum daily journey time for that section) / 2) • Provision of a new junction between Blackfriars Street and Denburn Road (as per Option 2C) will remove the need for services to circulate around the square encapsulated by St Andrew Street, John Street and Charlotte Street, accruing a time saving of one minute From the analysis undertaken (as presented in Appendix C), on the whole, there appears to be greater existing delay on the A9119 than A944, which likely reflects that there is greater bus priority infrastructure on the A944 at present. The analysis also considered the potential benefits that could be achieved if services used the full length of the proposed infrastructure on the A944, as per Options 2 and 4, (recognising that at present buses only utilise sections of the A944 corridor, but under the proposals for Aberdeen Rapid Transit, the full corridor may be part of an 'ART' network). As such, consideration has been given to three theoretical new 'dummy' ART services, with routeing as per the routes of the variant A, B and C infrastructure proposals. For the majority of its length, the A944 is wide and has good capacity to accommodate continuous bus priority. The A9119 is much more constrained and can accommodate staggered bus lanes at most. It is suggested that if new bus priority infrastructure was installed along the A944 east of Foresterhill Health Campus and along onward connections to Aberdeen city centre, bus journey times via the A944 may be substantially shorter than those along the A9119 and bus operators may be persuaded to operate new services or reroute existing services along the A944 to take full advantage of this. This could potentially take the form of a new ART service as proposed under the ART project. Detailed discussion is provided under Option 2 A/B/C and Option 4 A/B/C below.	-
	Option 1	Under Option 1, cycle infrastructure is prioritised first on the study corridors and only limited additional bus priority infrastructure can be accommodated. The table below indicates maximum bus journey time savings under Option 1 variants for the existing services which make greatest use of the study corridors. Full details of supporting calculations and outputs can be found in Appendix C .	✓

<table>
<tr><th>Criteria</th><th>Option</th><th>Commentary</th><th>Score</th></tr>
<tr><td rowspan="2">TPO3: Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre</td><td></td><td>
<table>
<tr><th>Service No.</th><th>Route Section</th><th>Study Corridor</th><th>Change in Journey Time vs Do Nothing (Peak)</th></tr>
<tr><td>4</td><td>Kingswells P&R – Bus Station</td><td>A9119</td><td>-8%</td></tr>
<tr><td>5/6</td><td>Kingswells P&R – Bus Station</td><td>A9119</td><td>-16%</td></tr>
<tr><td>11</td><td>Woodend - Union St</td><td>A9119</td><td>-5%</td></tr>
<tr><td>14</td><td>Kingswells - Bus Station</td><td>A944</td><td>-2%</td></tr>
<tr><td>23</td><td>Sheddocksley – Union St</td><td>A944</td><td>-7%</td></tr>
</table>

The outputs from bus journey time analysis show:
• Service 4 journey times reducing by up to 8% from the Do Minimum journey time, equating to 3 minutes of journey time saving. The greatest saving is made in the PM period in the eastbound direction (i.e., Kingswells - Aberdeen).
• Service 5/6 journey times reducing by up to 16% from the Do Minimum journey time, equating to 6 minutes of journey time saving. The greatest saving is made in the PM period in the eastbound direction (i.e., Kingswells - Aberdeen).
• Service 11, 14 and 23 journey times reducing by a negligible amount.

Note that the analysis relates to changes in the peak. Changes in journey time in the off-peak periods would be smaller.

In short, Option 1 provides limited additional bus priority infrastructure and small journey time benefits. The majority of existing delay experienced on these services will not be alleviated by the extent of infrastructure proposed.</td><td></td></tr>
<tr><td>Option 2 A/B/C</td><td>Under Option 2 variants A, B and C, bus infrastructure is prioritised first on the study corridors and active travel provision is largely offline to maximise space for bus infrastructure. As such, continuous bus lanes are possible along the majority of the A944 corridor and staggered bus lanes along the majority of the A9119.

Proposals under Option 2A/B/C are the same in terms of interaction with existing bus routes and so journey time benefits are also the same across the variants for the existing services. Options 2A/B/C provides the greatest journey times savings for existing services of all the options.

As noted above, no services currently run along the full length of the A944 corridor and as such no existing services can take full advantage of the proposed new infrastructure under Options 2A/B/C. In order to assess the potential benefits of the full infrastructure, as noted above, consideration has been given to three theoretical new ‘dummy’ ART services, with routeing east of Berryden Road / Skene Square as per the routes of the variant A, B and C infrastructure, respectively.</td><td>✓✓✓</td></tr>
</table>

<table>
<tr><th>Criteria</th><th>Option</th><th>Commentary</th><th>Score</th></tr>
<tr><td>TPO3: Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre</td><td>Option 2 A/B/C</td><td>
The table below indicates maximum bus journey time savings under each of the Option 2 variants for existing services and the defined three theoretical new ART services which maximise use of proposed infrastructure. Full details of supporting calculations and outputs can be found in Appendix C .
<table>
<tr><th colspan="3"></th><th colspan="3">Change in Journey Time vs Do Nothing (Peak)</th></tr>
<tr><th>Service</th><th>Route</th><th>Corridor</th><th>2A</th><th>2B</th><th>2C</th></tr>
<tr><td>4</td><td>Kingswells P&R – Bus Station</td><td>A9119</td><td>-18%</td><td>-18%</td><td>-18%</td></tr>
<tr><td>5/6</td><td>Kingswells P&R – Bus Station</td><td>A9119</td><td>-24%</td><td>-24%</td><td>-24%</td></tr>
<tr><td>11</td><td>Woodend - Union Street</td><td>A9119</td><td>-13%</td><td>-13%</td><td>-13%</td></tr>
<tr><td>14</td><td>Kingswells - Bus Station</td><td>A944</td><td>-3%</td><td>-3%</td><td>-3%</td></tr>
<tr><td>23</td><td>Sheddocksley – Union Street</td><td>A944</td><td>-6%</td><td>-6%</td><td>-6%</td></tr>
<tr><td>New A variant</td><td>Kingswells P&R – Union Street</td><td>A944</td><td>-18%</td><td>n/a</td><td>n/a</td></tr>
<tr><td>New B variant</td><td>Kingswells P&R – Union Street</td><td>A944</td><td>n/a</td><td>-16%</td><td>n/a</td></tr>
<tr><td>New C variant</td><td>Kingswells P&R – Union Street</td><td>A944</td><td>n/a</td><td>n/a</td><td>-17%</td></tr>
</table>
The outputs from bus journey time analysis show:

Service 4 journey times reducing by up to 18%, equating to 7 minutes. The greatest saving is made in the PM period in the eastbound direction (i.e., Kingswells - Aberdeen). Results are the same under all Option 2 variants.
Service 5/6 journey times reducing by up to 24%, equating to 10 minutes. The greatest saving is made in the PM period in the eastbound direction (i.e., Kingswells - Aberdeen). Results are the same under all Option 2 variants.
Service 11 journey times reducing by up to 13%, equating to 3 minutes. The greatest saving is made in the PM period in the eastbound direction (i.e., Woodend - Aberdeen). Results are the same under all Option 2 variants.
Service 14 journey times reducing by a negligible amount. Service 14 only uses the A944 between Old Lang Stracht and Foresterhill Health Campus, and so only benefits from proposed new infrastructure towards the west of its route where congestion is not as severe. Under existing timetables, Service 14 shows only a small variation in journey times across the day between Kingswells and Union Square bus station, with 50% of this delay occurring outside of the study corridors, meaning that the potential time saving is very low.
Service 23 journey times reducing by up to 13%, equating to 4 minutes. The greatest savings are made in the PM period in the westbound direction (i.e., Aberdeen to Kingswells). Results are the same under all Option 2 variants.

</td><td></td></tr>
</table>

Criteria	Option	Commentary	Score
TPO3: Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre	Option 2 A/B/C	• New A service journey times reduce by up to 18% equating to 6 minutes. The greatest savings are made in the PM period in the westbound direction (i.e., Aberdeen to Kingswells) under Option 2A. • New B service journey times reduce by up to 16% equating to 5 minutes. The greatest savings are made in the AM period in the eastbound direction (i.e., Kingswells - Aberdeen) under Option 2B. • New C service journey times reduce by up to 17% equating to 5 minutes. The greatest savings are made in the AM period in the eastbound direction (i.e., Kingswells - Aberdeen) under Option 2C. When reviewing the above, note that the A944 already features sections of bus lane in key areas (while the A9119 does not) and appears to suffer from a lower level of delay than the A9119. The 14 and 23 services also divert from the A944 by the Foresterhill Health Campus and so do not benefit from proposed bus priority improvements for a substantial portion of their routes. Under Option 2, Journey times become more consistent across the board with the difference between maximum and minimum journey times reducing by up to: • 60% on Service 4 under all variants. • 55% on Service 5/6 under all variants. • 40% on Service 11 under all variants. • 20% on Service 14 under all variants. • 25% on Service 23 under all variants. • 66% on New A service under all variant 2A. • 90% on New B service under variants 2B. • 90% on New C service under variant 2C. In the case of the theoretical new ART services, this means that new service journey times during morning and afternoon peaks under the Do Something scenario would be within one minute of minimum journey times under the Do Nothing scenario. It is worth noting that if the ART scheme were to be fully implemented, journey time savings are likely to be even greater as the scheme would likely utilise a reduced stopping pattern and well as reduced stop dwell times accomplished through seamless ticketing and improved stop infrastructure. Such measures are not reflected in the existing timetables used as the basis for the journey time estimates presented here. In short, all variants permit bus journey time savings of 5 minutes or more on the existing 4, 5 and 6 services, as well as on theoretical new services. Small journey time savings (< 5minutes) are also achievable on the 11, 14 and 23. On all routes, bus journey times will become more consistent, with the difference between maximum and minimum journey times reducing by 20-90%, resulting in a maximum anticipated difference of 5 minutes between peak and off peak journey times.	
	Option 3	Under Option 3, bus priority provision on the A944 corridor mimics that proposed under Option 1 and on the A9119 provision mimics that proposed under Option 2. Please refer to the corresponding rows immediately above.	✓✓
	Option 4 A/B/C	Under Option 4, bus priority provision on the A944 corridor mimics that proposed under Option 2 and on the A9119 provision mimics that proposed under Option 1. Please refer to the corresponding rows immediately above.	✓✓

Criteria	Option	Commentary	Score
TPO4: Improve the quality of bus stop infrastructure on the A9119 and A944, to enhance accessibility and provide a more comfortable waiting experience.	ALL	None of the options seek to improve the bus vehicle itself but all options would improve the attractiveness of the bus travel experience - key components of which are the waiting conditions at the stop and the ease of movement from the bus stop onto the bus, particularly for those with limited mobility or a pushchair/pram. The waiting environment should feel safe and comfortable whatever the time of day and provide good levels of protection from the weather, seating, and have easy to understand bus information. Getting on and off the bus should be achieved independently by wheelchair users requiring a step-free route between the footway and the bus floor, while those who are visually impaired should be able to locate the boarding zone without assistance. During the site visit, a review of bus stop infrastructure was undertaken, and the findings recorded as part of the site audit. The review concluded that although there were many examples of good bus stop infrastructure, there were several stops that lacked basic infrastructure including shelter, seats, Kassel kerbs, internal lighting and bus cages. Internal lighting is not available at many bus stops and real time information is only available via apps and QR code links, rather than via screens (meaning that this information may not be accessible to some travellers, particularly the elderly). Under all options, it is proposed that: • Bus stop clearways are protected by a Traffic Regulation Order that is fully enforceable and keeps the bus stop clear of parked vehicles at times when buses operate (ideally this should cover a 24 hr period, 7 days a week to improve compliance) • Bus stop clearway lengths allow a bus to pull into the kerb and achieve a minimum horizonal gap between the bus floor and footway of 200mm • The boarding point should be located beyond the bus stop flag to support those who are visually impaired. • Bus stop kerb heights will allow level boarding. • Boarding and alighting zones (if buses have two sets of doors) are clear from street furniture or other obstacles and will be indicated using tactile paving as appropriate. • The bus stop clearway should be free from gully grates (which can also increase highway maintenance liabilities). • Bus shelters provide a good level of protection against the weather • Waiting passengers have clear visibility of oncoming traffic • Bus shelters are well lit and be exposed to high levels of natural surveillance • Easy to understand information about bus routes, destinations and service arrival times is provided • Real time passenger information is be provided at busy stops or where more than one route serves the stop • Bus stops are clean and well-maintained. • Seating/rest space is provided at larger stops.	✓✓✓
TPO5: Improve bus stop connectivity to ease interchange between active travel and public	ALL	Bus stop connectivity will be aided by the proposals to improve conditions for walking and cycling along the study corridors. Bus stops should be well connected to the key trip generators along the route. This generally means a walk distance of 400 metres or less with walking routes providing a high level of continuity, good sense of personal security and safe crossing routes particularly between paired bus stops. Under all options, it is proposed that:	✓✓✓

Criteria	Option	Commentary	Score
transport on the A944 and A9119 corridors.		• Bus stop positioning is reviewed and stops positioned close to side roads and pedestrian crossing facilities where possible. • Walking routes to bus stops are fully accessible, being step-free, sufficiently wide and with suitable gradients (if possible). • Walking routes feel safe and are well lit with good levels of forward visibility. • Walking routes are continuous and protected from traffic. • Walking routes are well maintained, have an even surface and are free from excessive litter. • Cycle parking is provided at busy bus stops and key interchange points.	

Table 5.3: Appraisal Table – STAG Criteria

Criteria	Option	Commentary	Score
Environment	ALL	**Active Travel:** • Mode switch from car to active travel would reduce traffic related carbon and other harmful emissions. This would support the Scottish Governments Climate Change Bill which sets a 2045 target for net zero emissions. • The provision of a continuous active travel route from Westhill to Aberdeen city centre is likely to provide a number of localised community improvements along its length and would help target shorter distance 'everyday' trips – these account for a large proportion of daily trips within Scotland. Transport and Travel in Scotland 2019 (based on Scottish Household Travel Diary 2019) states that 17% of journeys made are less than 1km, and a further 23% are under 3km. Therefore, 40% of journeys are less than 3km and could be made by active travel if suitable routes and facilities were available. Aberdeen is a compact city with high potential for increased walking and cycling. • The provision of connected active travel provision along the corridors would tie into Aberdeen's strategic city-wide Green Space Network (GSN) connecting natural green and blue spaces and habitats to each other. There are substantial areas of the GSN which border the study corridors including: Hazlehead and Hazlehead Park, Westburn Park/Victoria Park, Kingswells South/Sheddocksley/Maidencraig and these areas provide onward connections to Brimmond Hill, West Hatton and Countesswells Woods. All options serve these green space areas equally well. **Bus:** • Increased bus priority along the corridor offering reliable services has the potential to radically alter perceptions of bus travel. This could significantly help towards achieving a 50:50 mode share target for sustainable transport, in turn reducing car kilometres and hence local and global emissions. This shift is likely to be greatest for Option 2 where bus priority infrastructure is provided along the length of both the A944 and A9119 study corridors. • The COVID-19 pandemic has severely impacted bus passenger numbers and the number of operating services. In Scotland, concessionary bus patronage fell to around 20% of 2019 levels during the initial stages of the pandemic, and in Autumn 2021, concessionary bus journeys were still down by 35% compared to pre-pandemic levels. Improving the bus network has the potential to help 'build back greener' as the region emerges from the pandemic. **All options:** • While new bus and cycle infrastructure is proposed along the length of the study corridors, additional cycle and bus infrastructure provision can typically be achieved within the existing road envelope through removal of parking and reallocation of road space. However, there are sections where land take and new 'tarmac' will be required (as illustrated in the figure below), although this will typically only be needed on one side of the road. This additional hard construction will impact on the environment at these locations with an increase in the embedded carbon of the scheme, although the extents of new tarmac will not vary substantially between options. • As the infrastructure being developed under all options primarily involves the reallocation of road space and localised widening of up to 3m, it is unlikely there will be any significant impacts on biodiversity and habitats, geology and soils, water, drainage and flooding, or landscape.	

Criteria	Option	Commentary	Score
Environment	ALL	• It is noted that the Albyn Place and Rubislaw Conservation Area covers much of the area between Queen's Road and King's Gate and that there are many listed buildings located immediately adjacent to these sections. None of the options propose changes outside of the existing road envelope and so there will be no physical impacts on conservation area or listed properties.  In 2014, Aberdeen City Council identified 20 Candidate Noise Management Areas (CNMAs) where on-street noise levels are 55dB or greater. These include A9119 Queen's Road between Queen's Parade and Anderson Drive, the A92 by its junction with the A944 and Holburn Street by its junction with Albyn Place. These areas were considered to experience higher than desirable levels of noise, and an action plan was set-out to address these issues. However, CNMAs were identified prior to the opening of the AWPR, which dramatically altered traffic routeing in and around Aberdeen. Transport Scotland reported that HGV traffic along the A92 through Aberdeen reduced by between 49 per cent and 61 per cent when comparing January to June 2019 data with comparable 2014 data[2]. As such, the A92/A944 junction may no longer qualify as a CNMA and other CNMAs may have been similarly affected. Nevertheless, the CNMAs are likely to be more vulnerable to changes in traffic than other areas on the corridors. Cycle and bus infrastructure may encourage modal shift from the car, which in turn should reduce traffic related noise; however, the reallocation of road space from general traffic to active travel/bus lanes could potentially increase congestion unless sufficient modal	

[2] https://www.transport.gov.scot/news/awpr-first-anniversary/#:~:text=Depending%20on%20the%20location%2C%20HGV,data%20with%20comparable%202014%20data

Criteria	Option	Commentary	Score
Environment	ALL	shift occurs. This may increase noise levels at key junctions on the corridors, and/or increase noise levels on alternative routes as car drivers re-route. Changes to the transport infrastructure and associated modal shift may also impact air quality. Again, greater impacts would be felt in areas where there are existing air quality issues, such as the West North Street (King St to 100m north of junction with Littlejohn Street) and North Anderson Drive (Bridge of Dee to A96) Air Quality Management Areas (AQMAs). Both AQMAs overlap the study area and will be affected by the options. Any reduction in traffic would help improve air quality in these designated AQMAs, however, increased congestion on the corridors could also occur given that a lane of traffic will be removed on the sections shown in the figure below. This may increase emissions and pollutants on the corridors themselves and/or disperse the issue across a wider area as car drivers re-route. If re-routeing/rat-running becomes an issue, a Low Traffic Neighbourhood (LTN) is proposed across the area shown in Figure 4:10 (bounded by the A92, A93, A944 and B896), which would reduce the potential for radial movements to reroute onto less suitable streets. For more information on LTNs, see Section 4.3.  There will be significant impacts during construction works, and these will be most pronounced under Options 2 and 4 where the maximum bus priority on the A944 is provided as well as parallel routes undergoing construction. During construction there is likely to be noise, vibration and air quality impacts through increased traffic congestion and the constructions works themselves.	

Criteria	Option	Commentary	Score
Environment		If significant modal shift to more sustainable modes can be achieved, and due to road space reallocation and reduced general traffic capacity along the corridors, there will be an overall reduction in noise and emissions along the corridors. However, noise and emission may increase on secondary and local roads due to traffic rerouting away from the corridors or may transfer to other primary routes in Aberdeen (such as the A93). Mitigation, such as the Low Traffic Neighbourhood discussed in Section 4.4 is required to minimise the potential impacts.	
	Option 1	Under Option 1, cycle infrastructure is routed directly along the A944 and A9119, and some additional bus lanes are provided where remaining road space allows. Option 1 is likely to deliver the most substantial modal shift from car to bicycle and the lowest modal shift from car to bus, given the relative extents of new infrastructure proposed. On balance, it is considered that the overall modal shift from car will be lowest under Option 1, as all options provide end-to-end cycle infrastructure, and all other options also provide more substantial bus infrastructure. There is expected to be a small to negligible decrease in traffic volumes as a result. Approximately 7km of general traffic lanes will be lost on the A944 to accommodate the proposed bus and cycle infrastructure. This is the lowest level of general traffic lane loss of all options but as it is not accompanied by a notable reduction in traffic volumes, overall car journey times and traffic congestion are likely to increase. This may increase noise levels at key junctions on the corridors, and/or increase noise levels on alternative routes as car drivers re-route. A general traffic lane will be lost in both directions on the section of the A944 near the intersection with the A92, which may increase noise levels at the A92/A944 CNMA compared to existing, but as traffic levels have dropped substantially on the A92 relative to the situation when CNMAs were declared, this is not expected to have a discernible impact. No traffic lane loss is proposed on the A9119 in the vicinity of the Queen's Road or Holburn Junction CNMAs. Option 1 is expected to have a small to negligible impact on air quality. No changes to infrastructure are proposed on West North Street and so the AQMA will be unaffected under Option 1. Similar to the above, there may be a small increase in congestion in the vicinity of the A92 AQMA as a result of traffic lane loss; however, this impact may be offset by the substantial reduction in traffic seen on the A92 since opening of the AWPR. Overall Option 1 is considered to have both small to negligible negative and positive environmental impacts within the study area.	✗ - ✓
	Option 2A/B/C	Under Option 2, cycle infrastructure is routed along the A944 and A9119 parallel routes, while bus priority infrastructure is provided on the A944 and A9119 corridors themselves. This is likely to deliver the most substantial modal shift overall through providing two end-to-end cycle routes from Westhill to Aberdeen as well as maximising bus priority infrastructure on both the A944 and A9119 corridors. As a result, a reduction in car traffic on these corridors should occur - however on the A944 this is unlikely to provide a reduction in car journey times given that 10-11km (dependent on the A, B or C variant) of general traffic lanes will be lost to accommodate bus and cycle infrastructure. This is the highest level of general traffic lane loss of all options but if it is not accompanied by a notable reduction in traffic volumes, car	✗✗ - ✓✓

Criteria	Option	Commentary	Score
Environment		journey times and traffic congestion are likely to increase, with corresponding negative impacts on air quality and noise. This may increase noise levels at key junctions on the corridors, and/or increase noise levels on alternative routes as car drivers re-route. Substantial journey time savings should be possible for bus users, which in turn will support modal shift and reductions in car traffic volumes on the corridor. As such, an overall reduction in road noise is expected on the A9119, which will particularly benefit the Queen's Road CNMA. A reduction in traffic on the A9119 should also support improved air quality, but as there are no identified AQMAs on the A9119 corridor, no measurable benefit is assumed. The route of A944 Parallel Route 1 requires negotiating a number of trees on Summerhill Terrace, opposite Holy Trinity RC School, with the specific impacts to be clarified if the option progresses. Similarly, A944 Parallel Route 2 includes the provision of cycle infrastructure along Midstocket Road and in order to accommodate cycle infrastructure on the section to the immediate east of Oakhill Grange, some removal of trees and earthworks may be required. An area of semi-mature trees on the eastern side of the A92 may be similarly affected by proposals for A9119 Parallel Route 2; however, at this stage A9119 Parallel Route 1 appears to have greater potential and so A9119 Parallel Route 2 may not ultimately be pursued. Overall Option 2 is considered to have both small to moderate negative and positive environmental impacts within the study area.	
	Option 3	Under Option 3, cycle infrastructure is routed along the A944 and A9119 parallel route, while bus priority infrastructure is provided on the A9119 itself. As such the environmental impacts of Option 3 which relate to the A944 are as per Option 1 and those associated with the A9119 are as discussed under Option 2.	✗ - ✓
	Option 4 A/B/C	Under Option 4, cycle infrastructure is routed along the A944 parallel routes and directly along A9119, while bus priority infrastructure is provided on the A944 corridor itself. As such the environmental impacts of Option 4 which relate to the A944 are as per Option 2 and those associated with the A9119 are as discussed under Option 1.	✗ - ✓
Climate Change	ALL	The Climate Change Scotland Act (2019) includes a target date of 2045 for achieving net zero carbon as well as a target of 75% reduction against 1990 emissions levels by 2030. Improvements to cycle and bus infrastructure and the reallocation of road space should encourage modal shift from the car to more sustainable modes, which in turn should reduce traffic related levels of carbon emissions and contribute to the aspirations for net-zero carbon by 2045. The use of the A96 Multi-modal study traffic modelling outcomes as a case study for this study is discussed in detail against the Economy criteria below. The outcomes of that modelling work highlighted that traffic rerouting due to the reallocation of road space resulted in longer distance journeys which led to increased fuel consumption. The economic appraisal found greenhouse gas emissions impacts ranging from a **£-4.7m disbenefit to a £-7.5m disbenefit** for the options most similar to those proposed here. The ASAM14 modelling tool (the traffic model used in the assessment) is not particularly sensitive to modal choice, and large improvements in bus journey times do not necessarily translate to proportionate modal shift within the model. Given this, it is worth noting that the outcomes of the A96 modelling and the associated economic impacts represent a *worst-case* scenario in terms of journey times and economic impacts (in reality, it is likely that a greater number of car trips would switch to public transport). This	-

Criteria	Option	Commentary	Score
Climate Change		also reflects the fact that alternative routes were available for cars. If all the major routes into Aberdeen were subject to similar measures, these alternative routes would be much less attractive, and a higher level of modal shift is more likely.	
	Option 1	Option 1 (and Option 3) requires significant reallocation of road space. This loss occurs predominantly on the A944 corridor. The general traffic lane loss is approximately: 7.2km. Given the lost general traffic capacity, if significant modal shift is not achieved, the option is likely to generate significant traffic rerouting and as discussed above, associated increases in greenhouse gas emissions similar to the disbenefits noted for the A96 study. If significant mode shift is achieved, and there is a net reduction in car-km then this would bring benefits.	✗ - ✓
	Option 2 A/B/C	Option 2 (and Option 4) requires the greatest reallocation of road space, greater than under Options 1 and 3. This loss occurs predominantly on the A944 corridor due to the implementation of continuous bus lanes. Across the variants, the general traffic lane loss is approximately: • Option 2A: 10.2km • Option 2B: 11.4km • Option 2C: 11.1km Given the lost general traffic capacity, if significant modal shift is not achieved, the option is likely to generate significant traffic routeing, greater than anticipated under Options 1 and 3, and as discussed above, associated increases in greenhouse gas emissions similar to the disbenefits noted for the A96 study. If significant mode shift is achieved, and there is a net reduction in car-km then this would bring benefits.	✗✗ - ✓✓
	Option 3	As noted for Option 1 above.	✗ - ✓
	Option 4 A/B/C	As noted for Option 2 above.	✗✗ - ✓✓
Health, Safety and Wellbeing	ALL	**Accidents** Active Travel: • The provision of an end-to-end dedicated cycle infrastructure (with complete or near complete segregation) would generate a safer perception of cycling and is likely to encourage a greater number of people to travel actively. Consultation undertaken to support the Aberdeen Active Travel Action Plan found that the most commonly cited concern with regard to active travel in the city was safety. Similarly, research undertaken as part of the British Social Attitudes Survey in 2020 found that 66% of people agreed that '*It is too dangerous for me to cycle on the road*'. • The proposed active travel routes offer much improved safety for cyclists and removing cyclists from the carriageway will reduce the likelihood of collisions involving cyclists with cars / HGVs. • Casualty rates per million passenger miles by user type highlights that cyclists, and those on foot are far likelier to be a casualty or a fatality than those travelling by car or bus. In fact, cyclists are over 23 times more likely to be a casualty, and 16 times more likely to be a fatality on the road network than those travelling by car. However, these statistics should be viewed within the context that the statistics incorporate all cycle trips and those made on the road where no cycle provision is provided. In	-

Criteria	Option	Commentary	Score
Health, Safety and Wellbeing	ALL	addition, cycle trips tend to be shorter in distance than the car trips they replace. Given, under the option proposals, safe segregated provision is provided over significant parts of the corridors, modal shift from car to bicycle should occur under all options and so there is likely to be a small reduction in road accident rates. • Cycle accident data (covering 2015-2019) analysed and presented in A944/A9119 Transport Corridor Study – STAG-Based Appraisal, Case for Change (Stantec, July 2020) shows 13 accidents involving cyclists occurred within the study area between 2014 and 2019 (zero fatal, six serious, and seven slight). Two serious and two slight collisions occurred at the Mounthooly Roundabout and involved conflict between cyclists and vehicles entering/exiting the roundabout. One serious and two slight collisions occurred at the Queen's Cross Roundabout. At no other location was more than one cycle collision recorded. Segregated facilities at these roundabouts would reduce the likelihood of these accidents involving cyclists (for more detail see option specific discussion below). • Providing a segregated cycle track which is clearly delineated to keep cyclists and pedestrians separate would also reduce the risk of cyclist-pedestrian collisions and improve the safety and attractiveness of both modes of active travel • If segregated one-way with traffic flow tracks were implemented, cyclists may incorrectly use the tracks in the wrong direction if it is easier than crossing the A944/A9119 carriageway. This would lead to an increased safety risk • There may be some increased safety risk where the segregated two-way track is implemented given the need to move between the cycle track and the road, which would be more difficult for cyclists travelling against the flow of traffic • There is likely to be an increased feeling of safety and security where the segregated two-way track is implemented given the dedicated cycling 'carriageway' and the opportunity to interact with cyclists traveling in the opposite direction • There may be some increased safety risk where the segregated two-way track is implemented, and steep gradients are present and cyclists heading downhill may be travelling at speed on the track towards those cycling uphill • There may be some increased safety risk to cyclists on the segregated two-way track if they were dazzled by the headlights of on-coming motor vehicles on the road although this is less likely to be an issue in the urban lit areas • Safety, and the perceptions of safety surrounding active travel schemes is likely to improve as a critical mass of users is established and this travel behaviour is 'normalised' <u>Bus:</u> • A switch to bus travel from the car would reduce traffic on and around the corridor and the associated number of accidents. The scale of this change would depend on the extent of the modal shift from car achieved – likely to be greater for Option 2 where the journey time by bus will be shorter given the increased level of bus priority delivered. However, any increase in traffic onto other corridors into the city, or onto secondary and local roads, could see traffic levels increase alongside the associated number of accidents. Mitigation measures such as the Low Traffic Neighbourhood described in Section 4.3 would need consideration to minimise such impacts. • Travel by bus is also safer than travel by car, bicycle and indeed as a pedestrian. • Any reduction in accidents would provide savings to the public purse from the reduced social-economic costs including: o Loss of output due to injury o Human cost of casualties o Damage to vehicle and property o Police and insurance administration cost	-

Criteria	Option	Commentary	Score
Health, Safety and Wellbeing	ALL	• **Security:** Several stops lack basic infrastructure, specifically including internal lighting. Under all options, bus stops on the corridor would be upgraded to ensure they are well lit and offer good levels of natural surveillance. At busy stops there will be CCTV monitoring and/or help points. **Health Outcomes:** All public transport journeys involve an element of active travel and so under all options, there is likely to be an increase in the number of trips made by active modes. This will have a positive impact on public health outcomes, although the scale of this increase will vary across the options. Such benefits include reduced risk of premature death, absenteeism as well as journey ambience, noise, air quality and accidents (see Appendix D for greater detail). The table provided in the Economy appraisal below provides a summary of the outputs from the Department for Transport's (DfT) Active Mode Appraisal Toolkit. In terms of the health benefits, assuming an appraisal period of 20 years, it is noted that: • Given that all options offer end-to-end cycle infrastructure, all options accrue substantial benefits. Options 1 and 3 deliver approximately £7.8m of health benefits in relation to accidents, air quality, noise, reduced risk of premature death, absenteeism and journey quality, while Options 2 and 4 deliver approximately £7m of similar health related benefits[3]. The main difference between these options being that Options 1 and 3 offer a greater distance of off-road segregated tracks; however, AMAT appraisal does not account for the difference in the quality of junction infrastructure which is judged to be better on the A9119 corridor than the A944. • Aberdeen's developing e-bike hire scheme[4] could be integrated with proposed bus stop improvements to facilitate interchange between active modes and should also bolster use of the proposed new cycles routes – this is particularly relevant on the study corridors which features sections of notable gradients. • There would be disbenefits if current active travel users switch to using the bus (e.g., switching from a full 5km cycle (with the associated health benefits) to using the bus instead with only walking or cycling part of the trip to and from the bus stops and the origin/destination) but given the current low level of cycling within Aberdeen this impact will be marginal. **Access to Health and Wellbeing Infrastructure**: A number of Aberdeen's main healthcare facilities sit on or adjacent to the study corridors. These include the Foresthill Health Campus (including Aberdeen Royal Infirmary, Aberdeen Maternity Hospital, and Royal Aberdeen Children's Hospital) and Royal Cornhill Hospital on the A944, in addition to Woodend Hospital and the Albyn Hospital on the A944. The Kingswells P&R would therefore provide direct connectivity to these facilities for those along the corridors. A number of parks and play areas are also located along the A944 including Countesswells Wood[5], Hazlehead Park and Westburn Park/Victoria Park, all of which would become more accessible by bus/cycle. Bus stops would be reviewed and repositioned to ease access to these facilities.	-

[3] Additional benefits calculated through the AMAT toolkit relating to congestion and deferred infrastructure are noted in the Economy section and included in the overall Cost to Government Benefit to Cost ratio calculations

[4] Sharebike launches Aberdeen e-bike rental scheme | CiTTi Magazine

[5] Countesswells woods are currently closed to the public, but this is understood to be a result of recent storm damage, rather than a long-term situation.

Criteria	Option	Commentary	Score
Health, Safety and Wellbeing		Through providing high-quality cycle infrastructure which connects directly with a number of schools, the project should support the development of healthy travel habits in local children. Segregated infrastructure and defined cycle routes may give the children more confidence and parents more reassurance that cycling in the city can be done safely: • Aberdeen Grammar, Albyn School, Hazlehead Academy, Hazlehead Primary, Gilcomstoun School and St Joseph's R. C. School are located directly on the A9119 cycle corridor. • Fernielea School, Holy Family R. C. School and Skene Square Primary School are located on A944 Parallel Route 1. • Mile-End School sits on A944 Parallel Route 2. **Visual Amenity**: The options proposed should facilitate some level of modal shift from car to bus and bicycle. This will reduce the intensity of traffic movements along the A944 and A9119 corridors, providing benefit to those living and working along the corridors. The reallocation of road space from general traffic would also further reduce the traffic volumes using the corridors. It is however noted that there may be disbenefits to other roads / routes if there is traffic re-routeing, rat running due to the road space reallocation on the corridors. This would have negative impacts on those residing away from the corridors from whom traffic levels may increase, especially in neighbourhoods where the road network is not suitable for higher traffic volumes. In such instances, this should be mitigated against through the implementation of a LTN within the area enclosed by the A944, B896, A92 and A93. For further information see Section 4.3.	
	Option 1	While all options provide end-to-end cycle infrastructure with a good degree of segregation from traffic, Option 1 provides the highest quality cycle infrastructure, including the greatest length of off-road segregated cycle tracks. Option 1 also routes along the two key corridors for accessing the city from the west and so will be very prominent, meaning that more people are likely to be aware of the provision. As such, Option 1 is considered to have the greatest potential to prompt modal shift from car to cycle; and while cycle accident rates tend to be higher per km, this is not likely to be the case given the segregated nature of the proposed cycling infrastructure. The Active Mode Appraisal indicates that Option 1 will yield the greatest active travel health benefits of all options (£7.85m) with 66% of the benefits being derived from lower absenteeism and a reduced risk of premature death. Option 1 will provide only a small amount of additional bus lanes and is expected to only provide a small improvement in bus journey times. As a result, modal shift from car to bus is expected to be low and associated road safety improvements low also. Option 1 will notably improve access to healthcare facilities by bicycle and will provide more of a benefit to those working and visiting patients at the hospital. Removal of general traffic lanes and replacement with bicycle lanes should create a less intense and more visually pleasing streetscape on the corridors themselves. Some degree of traffic rerouting is to be expected, which may have negative visual impacts on other road sections. The degree of rerouting cannot be quantified at this stage as it crucially depends on initiatives taken forward in other corridors.	✓✓
	Option 2 A/B/C	All Options provide end-to-end cycle infrastructure between Westhill and Aberdeen city centre and so deliver substantial active travel benefits. The differences between the options are whether they are on route or off-route, and whether they are segregated from	✓✓

Criteria	Option	Commentary	Score
Health, Safety and Wellbeing		general traffic. Option 2 infrastructure is proposed on routes parallel to the main study routes to the east of Bressay Brae and King's Gate. These parallel routes carry lower levels of traffic but are more constrained and so cannot accommodate the same extent of segregated provision as the larger corridor. Under Option 2: • a combination of on-road segregated, and on-road non-segregated cycling is provided along A944 Parallel Routes (whereas under Option 1 the corresponding section of the A944 provides off-road segregated and on-road segregated (through the use of orcas etc.) provision). • a combination of on-road segregated, and on-road non-segregated cycling is provided on A9119 Parallel Routes (whereas under Option 1 the corresponding section of the A9119 provides on-road segregated along its length). Consequently, AMAT indicates Option 2 will yield the lowest active travel health benefits of all options (£7.05m – see Appendix D for more detail) with 68% of the benefits being derived from lower absenteeism and a reduced risk of premature death. While Option 2 (and Option 4) will yield lower active travel benefits than Option 1, it should be noted that this only relates to a difference of approximately £0.8million. Proposals for increased bus priority should encourage more bus users and every public transport journey has an element of active travel associated with it, and while these additional trips made by bus users could not be captured by the active mode appraisal, there is an inherent value to public health. By placing cycle infrastructure on parallel road sections, Option 2 is also able to deliver the greatest amount of bus priority of all the options and is consequently expected to generate the greatest modal shift from car to bus. The new cycle infrastructure is expected to generate some modal shift from car to bicycle and have a positive impact on accident rates. Additionally, efficient public transport services have further value in terms of the health and wellbeing as they can support older people to live independently for longer and reduce social exclusion by helping them to comfortably access amenities and services, and to visit friends and family. Option 2 will notably improve bus access to healthcare facilities including Foresterhill Health Campus, Royal Cornhill Hospital, Woodend Hospital and Albyn Hospital.	
	Option 3	Under Option 3, cycle infrastructure is of a similar quality to Option 1, with cycle infrastructure running along the A944 itself and along A9119 Parallel Route 1. Consequently, AMAT similarly indicates Option 3 will yield the second highest active travel benefits of all options (£7.84m – see Appendix D for more detail), with 66% of the benefits being derived from lower absenteeism and a reduced risk of premature death By placing A9119 cycle infrastructure on parallel road sections, Option 3 is also able to provide staggered bus lanes on the A9119, which is not possible under Options 1 and 4. The A9119 carries more east-west bus services than the A944 and appears to suffer from greater congestion. As such, Option 3 offers additional benefits compared to Option 1, specifically including improved access to Woodend Hospital and Albyn Hospital. Considering both the modal shift from car to bicycle and from car to bus, driven by Option 3 improvements, it is expected to have positive impact on accident rates and broader population health.	✓✓
	Option 4 A/B/C	Under Option 4 cycle infrastructure is of a similar quality to Option 2, with cycle infrastructure running along the A944 Parallel Routes and along A9119 itself. AMAT indicates Option 4 will yield the second lowest active travel health benefits of all options (£7.05m –	✓✓

Criteria	Option	Commentary	Score
		see Appendix D for more detail), with 68% of the benefits being derived from lower absenteeism and a reduced risk of premature death By placing A944 cycle infrastructure on parallel road sections, Option 4 is also able to provide continuous bus lanes on the A944 up to the east of Foresterhill Health Campus and staggered bus lanes on the A944 thereafter, which is not possible under Options 1 and 3. As such, Option 4 offers additional benefits compared to Option 1, specifically including improved public transport access to Foresterhill Health Campus and improved cycle access to Woodend Hospital. Considering both the modal shift from car to bicycle and from car to bus, driven by Option 4 improvements, it is expected to have positive impact on accident rates and broader population health.	
Economy	ALL	To provide quantitative analysis to the Economy criteria appraisal, (to provide an indication of the value for money of a scheme and the potential Costs to Government), at STAG Detailed Options Appraisal stage, the monetised economic impacts of options are normally estimated for road traffic, public transport, and active travel, through the use of available transport models and modelling tools. The following economic analysis has been undertaken: • **for road and public transport modes:** using the A96 Multi-modal study[6] economic outcomes as a case study (as discussed below) • **for active travel modes:** using the DfT's latest Active Mode Appraisal Toolkit (AMAT), which is a spreadsheet-based tool for evaluating the costs and benefits of walking and cycling interventions. **Road and Public Transport Modes** Analysis for the recently completed A96 Multi-modal corridor study was undertaken using the Aberdeen Sub Area Model (ASAM14). ASAM is a multi-modal transport model and covers the main road and public transport network of Aberdeen City and Aberdeenshire. It was developed by Nestrans in partnership with Aberdeen City and Aberdeenshire Councils, the Strategic Development Planning Authority and Transport Scotland. The then-current version ASAM14 had a base year of 2014, and an update (ASMA19) is currently being finalised to reflect observed travel patterns following the opening of the AWPR with a new base year of 2019. Therefore, during the A96 study, the ASAM14 model was the most appropriate modelling tool to use and ASAM14 forecast years of 2027 and 2037 were considered. These forecast years include (amongst other committed schemes) the AWPR as a committed scheme. The outcomes of the ASAM A96 testing provided, amongst other outputs, quantitative analysis relating to: • general traffic strategic re-routeing impacts – which was important given the scale of the schemes and road space reallocation	-

[6] *A96 Multi-modal Corridor Study, Preliminary Options Appraisal, Stantec, April 2022*

Criteria	Option	Commentary	Score
Economy	ALL	• general traffic and public transport inputs to the (DfT) TUBA (Transport User Benefit Appraisal) software to generate **Travel Economic Efficiency (TEE)** impacts and, when combined with scheme costs, to provide an indication of the benefit to cost ratio (BCR) for each option – as discussed in the Cost to Government section below. The objectives of the A96 study are very similar to this A944 / A9119 study with a focus on improving travel in the corridor for more sustainable modes, and in terms of public transport specifically, improving the quality of bus travel in the corridor, reducing bus journey times, improving bus journey time reliability, and managing general traffic to minimise the impacts of traffic re-routeing onto secondary and local routes (due to the reallocation of road space and reduced junction capacities). The infrastructure options developed for the A96 study, similar to those developed for this study, were developed to ensure the ART vision could be delivered. The level of bus priority along the corridors is therefore similar and includes the reallocation of road space, reducing the corridor capacity for general traffic in favour of more sustainable modes, as well as public transport and active travel priority at signals. Three levels of public transport intervention were considered, of which intervention levels 1 and 2 are very similar to the proposals for this study. Intervention level 1 was standard bus lanes (bus lanes between junctions but with the bus lane set back from the junction reducing the impact on junction capacity) with intervention level 2 being enhanced bus lanes, (bus lanes right up to junction stops lines, impacting more greatly on junction capacities). The outcomes of the ASAM A96 tests provided some clear indications as to the potential impacts of the schemes in terms of impacts on general traffic re-routeing and public transport journey times. Given the similarity between the objectives of the two studies, and the similar types of intervention considered, rather than repeat the ASAM testing and analysis, in order to provide a proportionate approach to the appraisal, the outcomes of the A96 testing have been used as a well aligned case study to provide a robust indication of the likely impacts. Before discussing the A96 outcomes, it is important to note that the TEE analysis focusses mainly on travel time benefits so the reallocation of road space from general traffic to bus and active travel is likely to create significant disbenefits to general traffic. Given this, schemes which reallocate road space away from general traffic are highly likely to generate an overall disbenefit in terms of travel time savings. The scale of the disbenefit would depend on the level of modal shift achieved, the scale of any re-routeing and how this was mitigated. The public transport journey time savings that could be achieved along the study corridors are discussed against TPO3 in the table above. Key outcomes of the A96 study model testing were: • Significant traffic reductions along the corridor (up to 30% where enhanced bus lanes were introduced and road capacity for general traffic was halved as a result) • Traffic re-routeing onto alternative primary routes into the city centre as well as secondary and local roads. This re-routeing was prevalent along all other primary routes into the centre of Aberdeen (in this case the A92(N), A944, A9119, A92 (S) and A956) • Significant economic disbenefits to general traffic with vehicles travelling further to reach their destinations, increasing travel time, fuel costs, vehicle operating costs and greenhouse gas emissions, all contributing to total road disbenefits of over £200m for the enhanced bus lane options	-

Criteria	Option	Commentary	Score
Economy	ALL	• Significant public transport economic benefits of up to approximately £90m under the enhanced bus lane options • Combined overall road and public transport disbenefits in excess of -£120m (in the 'best' performing option) under the enhanced bus lane options Within the analysis, it was however noted that ASAM14 is not particularly sensitive to modal choice, and large improvements in bus journey times do not necessarily translate to proportionate modal shift within the model. The outcome of this is that the modelling results were considered to represent a worst-case scenario in terms of journey times and economic impacts, as in reality, it is likely that a greater number of car trips would convert to public transport. Given the above, it can be assumed that for the options being considered under this study: • There is likely to be a significant reduction in traffic on the A944 and A9119, particularly under Option 2 and 4 where the greatest level road space reallocation is required. Option 1 is likely to see the lowest impact given the scale of the proposals which are focused on active travel and require less significant road space reallocation. In addition, Option 3 requires similar road space reallocation to Option 1. • Traffic is likely to re-route onto the other primary routes into Aberdeen with the largest increases likely to be seen on the A96, and A93 given their proximity to the A944/A9119 corridors. This assumes the A96 study outcomes are *not* in place. If similar road space reallocations were made on the other primary corridors into Aberdeen (as is likely to be required to implement ART) then secondary and more local roads are likely to experience a significant increase in traffic unless a substantial shift to public transport can be achieved. It is noted that the A93 lies in close proximity to the A944 / A9119 corridors and is not being considered as an ART corridor (although this is still to be confirmed). Given this, it may be that the A93 sees a significant increase in traffic. It is understood that Aberdeen City Council is in the process of developing a specification for a larger scale cumulative modelling exercise which will use ASAM19 to evaluate the combined impacts of all corridor studies and the ART scheme, as well as incorporating the proposals of the Aberdeen City Centre Masterplan. Understanding the combined impact of these A944/A9119 proposals alongside similar proposals on the other corridors is crucial to understanding the city-wide impacts • In Options 3 and 4, where the A9119 and A944 respectively are prioritised for bus priority measures, it is likely that the opposing corridor in each case will suffer with increased traffic due to the road space reallocation. This is particularly unwanted given in these options the opposing corridor is being prioritised for cycling. **<u>Active Travel:</u>** As noted above, the DfT's AMAT toolkit was used to estimate scheme benefits. The following benefits are anticipated, although the scale of benefits will vary across options: • Greater number of trips made by active travel modes would have a positive impact on health creating business savings from reduced absenteeism • Modal shift from the car may result in deferred infrastructure provision (roads, junction upgrades etc.) with the associated cost saving	-

<table>
<tr><th>Criteria</th><th>Option</th><th>Commentary</th><th>Score</th></tr>
<tr><td>Economy</td><td>ALL</td><td>
A high quality segregated and attractive route may encourage and promote sustainable tourism – with links to Aberdeen Art Gallery, His Majesty's Theatre, The Gordon Highlanders Museum, Marischal College and the Maritime Museum.
The AMAT analysis, detailed in Appendix D and summarised in the table below provides an indication of benefits related to active travel in terms of congestion, infrastructure, accidents, local air quality, noise, greenhouse gases, reduced risk of premature death, absenteeism, journey ambience and indirect taxation.
<table>
<tr><th rowspan="2">Impact</th><th colspan="4">Active Travel Infrastructure Monetised Benefits (in £'000s)</th></tr>
<tr><th>1</th><th>2A/B/C</th><th>3</th><th>4A/B/C</th></tr>
<tr><td>Congestion benefit</td><td>314</td><td>291</td><td>314</td><td>291</td></tr>
<tr><td>Infrastructure maintenance</td><td>2</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>Accident</td><td>53</td><td>49</td><td>53</td><td>49</td></tr>
<tr><td>Local air quality</td><td>7</td><td>6</td><td>7</td><td>6</td></tr>
<tr><td>Noise</td><td>4</td><td>3</td><td>4</td><td>3</td></tr>
<tr><td>Greenhouse gases</td><td>21</td><td>20</td><td>21</td><td>20</td></tr>
<tr><td>Reduced risk of premature death</td><td>4,613</td><td>4,277</td><td>4,613</td><td>4,277</td></tr>
<tr><td>Absenteeism</td><td>568</td><td>526</td><td>568</td><td>526</td></tr>
<tr><td>Journey ambience</td><td>2,290</td><td>1,900</td><td>2,288</td><td>1,902</td></tr>
<tr><td>Present Value of Benefits</td><td>7,845</td><td>7,050</td><td>7,843</td><td>7,053</td></tr>
</table>
Although large-scale infrastructure schemes for other modes typically assume a 60-year appraisal period, this is generally not recommended for active mode interventions as they are more likely to have more finite project lifespans and increased uncertainty around the longevity of their impacts. Therefore, in line with most appraisals of cycling and walking infrastructure schemes, the above has assumed an appraisal period of 20 years.
Analysis shows that Options 1 and 3 are anticipated to provide approximately £7.85m of active travel benefits and Option 2 and 4 are anticipated to provide approximately £7.05m of benefits (present value of benefits). Note: AMAT calculates cycle benefits based on the quality of link infrastructure only, and it does not consider the cycle friendliness of junctions or assign any benefit to more cycle appropriate junction infrastructure. As such, this approach does not account for the additional benefits that cycle friendly junction upgrades will provide in terms of cycle travel times and cycle safety (actual and perceived). AMAT also does not take</td><td>-</td></tr>
</table>

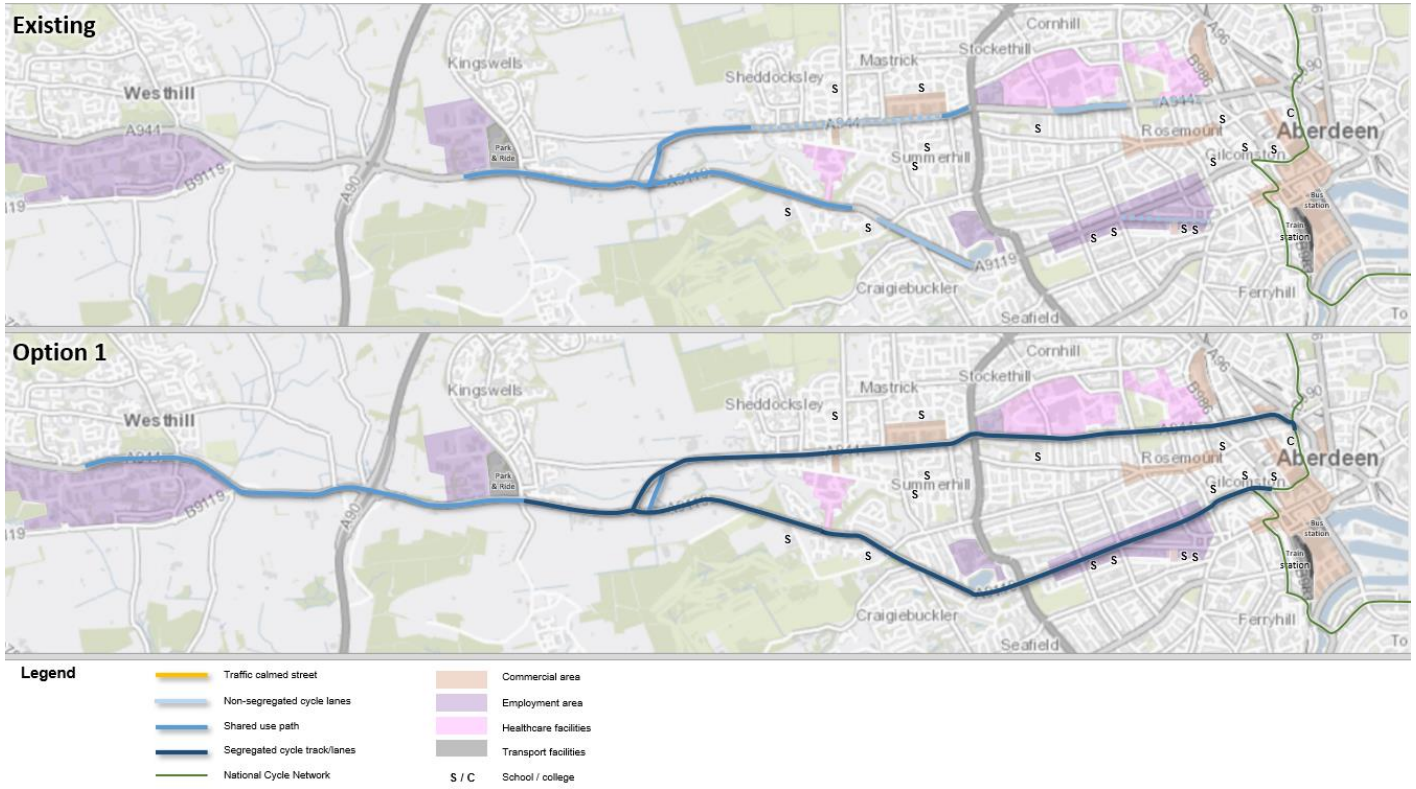
Criteria	Option	Commentary	Score
Economy		*account of other factors which will affect demand for a route such as directness and visibility. As such, it is considered that the benefits for cycle infrastructure on the main corridors are likely to be underestimated.* As outlined in Appendix D, the AMAT tool uses demand estimates for the study corridors to calculate benefits. Existing demand on the corridors was estimated based on Travel to Work data from the 2011 census, but demand was halved to reflect the fact that there are many route options within the city environment and so it is likely that some demand will use off-corridor routes. However, as the A9119 and A994 are the main traffic distributors in the area and provide the most direct routes, this may underestimate demand. As such, a sensitivity test was undertaken to identify the impact on active travel benefits and BCRs if 75% of those travelling between destinations within the study area actually used the study corridors themselves. This boosted benefits by 50%. **Wider Economic Impacts** There may be an impact on land-use through the improved public transport and cycle connectivity, and this may positively impact to encourage development. The effect is likely to be more pronounced where the new infrastructure can increase the commutable area through reducing travel times. This effect will largely be determined by changes to bus priority infrastructure and the balance of shorter bus journeys versus longer bus journeys. Bus journey time impacts are summarised under discussion on TPO3 and discussed in detail in Appendix C. • Connectivity improvements could lead to more efficient labour markets, providing access to new or better jobs for people who could not previously access these jobs, especially through the improved access to Arnhall business park, Prime Four business park, the Aberdeenshire Council offices at Woodhill House, the range of healthcare facilities at the Foresterhill Health Campus, and the West End business district located along the A9119 corridor • Improvement may help catalyse and unlock development opportunities along and close to the corridors, as well as supporting existing employment and other economic generators located along the corridors (as listed above). • Better access to education and training leading to more skilled local labour markets	
	Option 1 Active Travel	Will generate the greatest economic benefits through the provision of segregated safe infrastructure along both the A944 and A9119 corridors, enabling direct access to the key trip generators and attractors located immediately adjacent to both corridors.	✓✓✓
	Option 1 Public Transport	Will generate the lowest economic benefits as only minimal bus infrastructure is provided (on the A944) in addition to the active travel infrastructure.	✓
	Option 1 General Traffic	Likely to generate general traffic disbenefits given the road space reallocation, but likely to be less significant than the other options.	×
	Option 2 A/B/C	Will generate significant economic benefits through the provision of segregated safe infrastructure on parallel routes to the main corridors. Connecting routes would be required to be utilised to enable access to the key trip generators and attractors located adjacent to both corridors.	✓✓

Criteria	Option	Commentary	Score
Economy	Active Travel		
	Option 2 A/B/C Public Transport	Likely to generate the greatest economic benefits as priority bus infrastructure is provided on the A944 and A9119 corridors	✓✓✓
	Option 2 A/B/C General Traffic	Likely to generate the greatest general traffic disbenefits given the road space reallocation	×××
	Option 3 A/B/C Active Travel	Will generate economic benefits through the provision of segregated safe infrastructure on the A944 and on parallel routes to the A9119 corridor. It is noted that connecting routes would be required to be utilised to enable access to the key trip generators and attractors located adjacent to the A9119 corridor.	✓✓✓
	Option 3 A/B/C Public Transport	Likely to generate lower public transport economic benefits when compared to Option 2 as priority bus infrastructure is provided on the A9119 corridor only.	✓✓
	Option 3 A/B/C General Traffic	Likely to generate disbenefits given the road space reallocation. However, in Option 3 the A9119 is prioritised for bus travel which requires less road space reallocation than under Options 2 and 4 (where bus priority is provided on the A944, and the road space reallocation is greater).	××
	Option 4 A/B/C Active Travel	Will generate economic benefits through the provision of segregated safe infrastructure on the A9119 and on parallel routes to the A944. Connecting routes would be required to be utilised to enable access to the key trip generators and attractors located adjacent to the A944 corridor.	✓✓
	Option 4 A/B/C Public Transport	Likely to generate public transport economic benefits than Option 2 but similar to Option 3, as priority bus infrastructure is provided on the A944 corridor only.	✓✓
	Option 4 A/B/C General Traffic	Likely to generate disbenefits given the road space reallocation, similar to Option 2 given the road space lost for general traffic.	×××

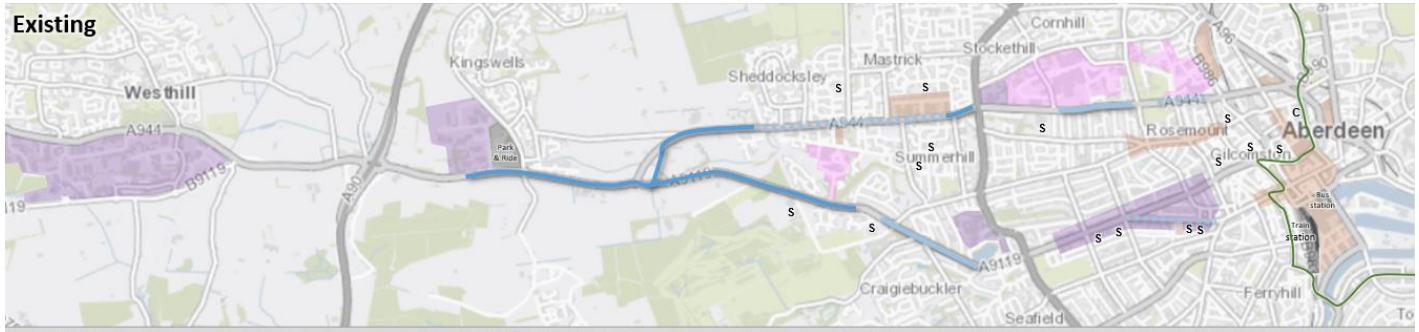
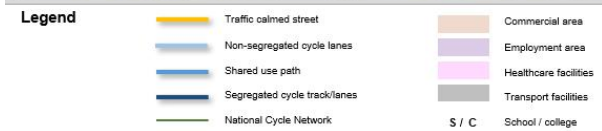
Criteria	Option	Commentary	Score
Equality and Accessibility	ALL	The implementation of these options will not widen the existing bus network coverage as there are already public transport services operating along all the study corridors. Improved journey times for buses operating on the corridors, will however, improve the accessibility of jobs, education and social opportunities, which may now become 'time' accessible. Under all options, pedestrian infrastructure will be upgraded with footways widened, junction radii narrowed to ease pedestrian crossing, and junction entry treatments applied to emphasise the presence of, and need to, provide priority to pedestrians. Similarly, all bus stops will be upgraded to become fully Equality Act compliant (as discussed in relation to TPO4 above) and offer level platform boarding and alighting, improvements to comfort at bus stops, and may permit more of those with physical impairments to use the bus network (e.g., if you need shelter and a seat when waiting).	-
	Option 1	**Active Travel:** Under Option 1 substantial improvements are proposed to the active travel networks. The pedestrian environment will be similarly upgraded under all options, but Option 1 will provide the most extensive segregated cycling infrastructure of all the options. This will include continuous segregation along the A944 from Westhill to Mounthooly, along the A96 from Mounthooly to King Street, and along the A9119 from the A944 to Schoolhill in the city centre. Given that there is no segregated cycle infrastructure on the A944 and A9119 east of A92 North Anderson Drive and limited quality infrastructure to the west at present, this represents a huge change from existing. As such community and comparative accessibility benefits are expected. **Community Accessibility:** • access to local services by walking and cycling would markedly improve. This would be true in both the peripheral and more densely urban community environments. • there would be improved active travel linkages to key trip attractors along the route including Arnhall industrial estate, Prime Four, Mastrick Whitemyres retail/business park, Woodhill House, Foresterhill Health Campus, Royal Cornhill Hospital, Hill of Rubislaw Business Park, West End Office Area, Tesco Mastrick, Lidl Hutcheon Street and Morrisons West North Street, and the city centre itself. • the provision of segregated cycle facilities will also improve safe routes to schools. These impacts will be particularly pronounced along the A9119 corridor which directly serves Albyn School, Hazlehead Academy, Hazlehead Primary and St Joseph's RC School and which is also used for access to Countesswells School, Harlaw Academy and St Margaret's School for Girls. • Improved and safer crossings for pedestrians (through reduced wait time at signals and the tightening up of junction geometries on side roads to reduce crossing lengths and slow down turning vehicles). **Comparative Accessibility:** • Safer, higher quality segregated active travel routes and facilities would remove barriers which prevent some groups in society using active travel. This is particularly likely to affect those with safety and intimidation concerns. The DfT's British Social	✓

Criteria	Option	Commentary	Score
Equality and Accessibility	Option 1	Attitudes Survey 2013[7] found that women were 30% more likely than men to feel that cycling on road was too dangerous for them. Women also make more trips accompanied by children and so have an increased need for high quality routes that can be safely navigated by slower moving, less experienced, young cyclists. • The DfT's British Social Attitudes Survey also found that the consideration that cycling was too dangerous increased with age: 47% of 18-24 year olds agreed with this statement compared with 61% of 45-54 year olds and 76% of those aged 65+. Therefore, if safety concerns can be addressed, many more women and older people could see cycling as a viable alternative for short trips. • Additional cycling infrastructure is less likely to have a material impact on access to jobs and the inequalities associated with deprivation, although cycling can provide a cost-effective alternative to the private car. However, in an area where cycle mode share is low, the majority of those within deprived communities will not own bicycles and may not be able to afford the up-front expense. This is where council bike-hire schemes, as proposed to be implemented in Aberdeen, can ensure that access to a bicycle is possible for those living in more deprived communities like Sheddocksley and Mastrick.	

[7] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/326097/british-social-attitudes-survey-2013.pdf

Criteria	Option	Commentary	Score
Equality and Accessibility	Option 1	 **Bus Travel:** In addition to the stop improvements proposed under all options (described above), Option 1 will also provide small extensions to existing bus priority on the corridors. Bus journey time analysis indicates that Option 1 will only provide small (<5min) improvements to bus journey times and so employment catchments are unlikely to be much affected. 'Hansen' connectivity analysis has been undertaken to consider the improved level of accessibility to employment against a Do Minimum scenario. The analysis suggests that Option 1 would provide a 1% improvement in terms of access to employment (Appendix E presents the full analysis).	

Criteria	Option	Commentary	Score
Equality and Accessibility	Option 2A/B/C	**Active Travel:** Under Option 2 substantial improvements are proposed to the active travel network running parallel to the A944 and A9119 corridors. **Community Accessibility:** • Access to local services by walking and cycling would markedly improve. This would be true in both the peripheral and more densely urban community environments. • There would be improved active travel linkages to a number of key trip attractors along the route including Arnhall industrial estate, Prime Four, Woodhill House, West End Office Area, and Morrisons West North Street, and the city centre itself. • The provision of segregated cycle facilities will also improve safe routes to schools. These impacts apply along the A9119 corridor and A9119 parallel routes which directly serve Aberdeen Grammar School, Countesswells School, Gilcomstoun School, Hazlehead Academy, Hazlehead Primary and which are also used for access to Albyn School, St Joseph's RC School Harlaw Academy and St Margaret's School for Girls. Similarly, A944 Parallel Routes 1 and 2 provide direct access to Fernielea School, Holy Family RC School, Mile End School and Skene Square Primary School. • Improved and safer crossings for pedestrians (through reduced wait time at signals and the tightening up of junction geometries on side roads to reduce crossing lengths and slow down turning vehicles). **Comparative Accessibility:** • Safer, higher quality segregated active travel routes and facilities would remove barriers which prevent some groups in society using active travel, as noted under Option 1 above • Many more women and older people could see cycling as a viable alternative for short trips, as noted under Option 1 above • Additional cycling infrastructure is less likely to have a material impact on access to jobs and the inequities associated with deprivation, although cycling can provide a cost-effective alternative to the private car. However, in an area where cycle mode share is low, the majority of those within deprived communities will not own bicycles and may not be able to afford the up-front expense. This is where council bike-hire schemes, as proposed to be implemented in Aberdeen, can ensure that access to a bicycle is possible for those living in more deprived communities like Sheddocksley and Mastrick.	✓✓✓

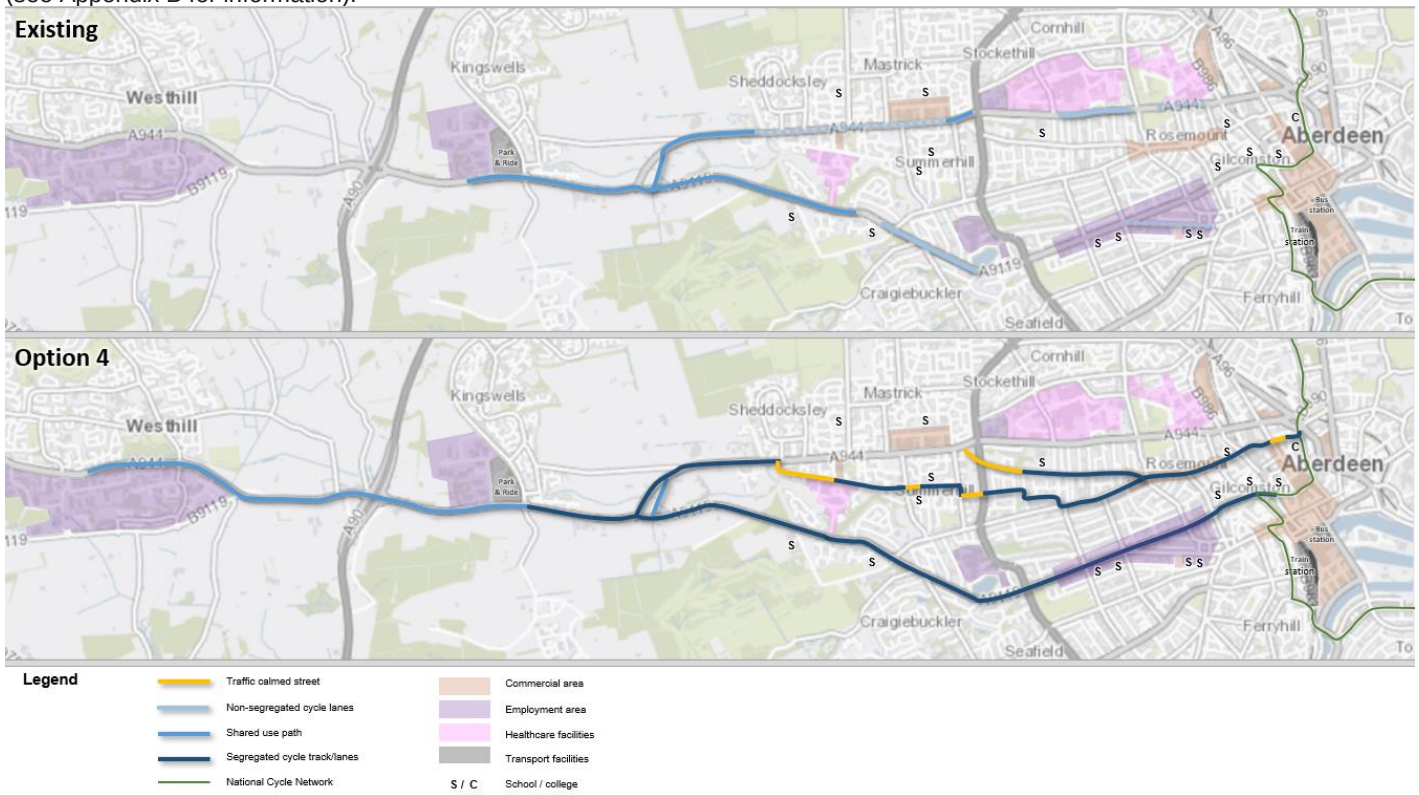
Criteria	Option	Commentary	Score
Equality and Accessibility	Option 2A/B/C	   **Bus Travel:** **Community Accessibility:** • Access to local services by bus would improve through reduced journey times. Option 2 variants provide the greatest journey time savings for existing services. Variant 2C provides the shortest journey times to Union Street and variant 2B provides the shortest journey times to Union Square Bus Station. • There would be improved access to a number of key trip attractors along the route including Arnhall industrial estate, Prime Four, Mastrick Whitemyres retail/business park, Woodhill House, Foresterhill Health Campus, Royal Cornhill Hospital, Hill of Rubislaw Business Park, West End Office Area, Tesco Mastrick, Lidl Hutcheon Street and Morrisons West North Street, and the city centre itself.	

Criteria	Option	Commentary	Score
Equality and Accessibility	Option 2A/B/C	• Access by bus to Albyn School, Aberdeen Grammar School, Harlaw Academy, Hazlehead Academy, and St Margaret's School for Girls (all accessed from A9119 corridor) would be improved for those living further from the school campus. **Comparative Accessibility:** • Reduced journey times by bus would support increased access to public services and opportunities for those without access to a car and may help reduce 'forced' car ownership. People from minority ethnic groups, young people not in education, employment or training, students, older people and women are considered to be at higher risk of transport poverty[8], meaning that they typically have a greater dependence on the availability of low cost public transport in order to participate in society. These segments of society could particularly benefit from reductions in bus journey times and a corresponding increase in the facilities and opportunities accessible within a commutable distance. • Improved bus stop infrastructure (i.e., appropriate bus shelters, accessible boarding and alighting etc.) would remove barriers which prevent some groups in society using the bus. Research suggests that women have greater concerns than men regarding their personal safety while travelling bus, and similarly disabled people have particular concerns regarding personal safety as well as concerns regarding physical access and facilities at points of departure[9]. The 'Hansen' connectivity analysis undertaken suggests that Option 2 would provide a 4% improvement in terms of access to employment (Appendix E presents the full analysis). Option 2 performs most strongly of all options in terms of advancing public transport accessibility to employment.	
	Option 3	Under Option 3, bus infrastructure will be improved on the A9119 corridor and new cycle infrastructure installed on the A944. Supplementary cycle infrastructure will be installed on one of the two identified A9119 parallel routes.	✓✓

[8] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/953951/Transport_and_inequality_report_document.pdf

[9] https://dspace.stir.ac.uk/bitstream/1893/23004/1/Dobbie%20et%20al_Understanding%20Why%20Some%20People%20do%20not%20use%20buses_2010.pdf

Criteria	Option	Commentary	Score
Equality and Accessibility	Option 3	 The 'Hansen' connectivity analysis undertaken suggests that Option 3 would provide a 2% improvement in terms of access to employment Appendix E presents the full analysis). Option 3 performs more poorly than Options 2 and 4, but better than Option 1 in this regard.	

Criteria	Option	Commentary	Score
Equality and Accessibility	Option 4A/B/C	Information from Strava indicates that cyclists prefer travel along the A9119 over the A944, even where this increases travel distance (see Appendix B for information).  The 'Hansen' connectivity analysis undertaken suggests that Option 4 would provide a 3% improvement in terms of access to employment (Appendix E presents the full analysis). Option 4 performs more poorly than Options 2, but better than Options 1 and 3 in this respect.	✓✓
Cost to Government		<u>Investment Costs</u> The construction costs associated with each of the options is presented in Appendix A and in greater detail in the supplementary *A944-A9119 Multi-modal Study Concept Design Report.* A high-level summary of the option costs is presented in the table below. Note that the costs do not account for: • Land / property acquisition	-

<table>
<tr><th>Criteria</th><th>Option</th><th>Commentary</th><th>Score</th></tr>
<tr><td>Cost to Government</td><td></td><td>

Statutory approvals / consents
Adjustments to existing public utility apparatus
Surveys and investigation
Design and works supervision fees
Value Added Tax (VAT) and Inflation, as the date of construction is yet to be established

<table>
<tr><th rowspan="2">Option</th><th colspan="4">Cost (£m, 2022 prices)</th><th colspan="4">Cost (£m, 2022 prices) with 46%[10] Optimism Bias</th></tr>
<tr><th>Walking</th><th>Cycling</th><th>Bus</th><th>Total</th><th>Walking</th><th>Cycling</th><th>Bus</th><th>Total</th></tr>
<tr><td>1</td><td>12.6</td><td>23.7</td><td>17.7</td><td>54.0</td><td>18.4</td><td>34.6</td><td>25.8</td><td>78.8</td></tr>
<tr><td>2A</td><td>15.4</td><td>16.6</td><td>53.2</td><td>85.2</td><td>22.5</td><td>24.2</td><td>77.7</td><td>124.4</td></tr>
<tr><td>2B</td><td>14.7</td><td>16.6</td><td>51.3</td><td>82.6</td><td>21.5</td><td>24.2</td><td>75.0</td><td>120.7</td></tr>
<tr><td>2C</td><td>14.7</td><td>16.6</td><td>59.8</td><td>91.1</td><td>21.5</td><td>24.2</td><td>87.3</td><td>133.0</td></tr>
<tr><td>3</td><td>8.3</td><td>17.0</td><td>26.9</td><td>52.2</td><td>12.2</td><td>24.8</td><td>39.3</td><td>76.3</td></tr>
<tr><td>4A</td><td>19.7</td><td>23.3</td><td>43.9</td><td>86.9</td><td>28.8</td><td>34.0</td><td>64.1</td><td>126.9</td></tr>
<tr><td>4B</td><td>19.0</td><td>23.3</td><td>42.1</td><td>84.4</td><td>27.7</td><td>34.0</td><td>61.4</td><td>123.1</td></tr>
<tr><td>4C</td><td>19.0</td><td>23.3</td><td>50.5</td><td>92.8</td><td>27.7</td><td>34.0</td><td>73.8</td><td>135.5</td></tr>
</table>
Note: Costs in the table above account for cycle infrastructure on both parallel routes for the A944 (as the routes are seen as complementary) but just for A9119 parallel route 1 (as only A9119 parallel route 1 or 2 would be implemented, and their costs are similar).
Options 1 and 3 come with the lowest capital costs, and Options 2 and 4 have the highest capital costs. The difference in costs is primarily driven by two factors:

The much more comprehensive bus priority infrastructure that can be accommodated, and is proposed on the A944 than the A9119 (continuous bus lanes vs. staggered bus lanes)
Two A944 parallel cycle routes are proposed and costed whereas only one A9119 parallel route would be implemented

</td><td>-</td></tr>
</table>

[10] TAG UNIT A1.2 scheme costs (publishing.service.gov.uk)

Criteria	Option	Commentary	Score
Cost to Government		Among the Option 2 and Option 4 route variants, Route Variant B has the lowest cost and Route Variant C the highest. Maintenance Costs The options would increase maintenance costs along the corridor due to new / altered signals at junctions (including at cycle and pedestrian crossings) often with more complex signal arrangements. Segregated active travel infrastructure would create additional maintenance costs due to the need to de-ice / grit and manage vegetation alongside the cycle tracks as well as keep them free of litter e.g., broken glass. This cost would be lower for the two-way segregated track sections given the ability to undertake maintenance over both directions of the track at the same time. Benefit to Cost Ratios (Road and Public Transport) As noted above for the Economy appraisal, analysis undertaken as part of the A96 study has been used to provide indicative outcomes for this study, given the similar nature of the proposals. Part of the A96 analysis generated **benefit to cost ratio** (BCR) for the schemes. Also as noted in the Economy appraisal above, it is important to note TEE analysis focusses mainly on travel time benefits and, as such, the reallocation of road space from general traffic to bus and active travel is likely to create significant disbenefits to general traffic. The resulting Benefit to Cost Ratios (BCR) can be negative, meaning the scheme creates a disbenefit (with disbenefits to general traffic outweighing benefits to bus and active travel users), which is counter-intuitive to a 'standard' desired outcomes. However, in this case, this may be a desired outcome, as time penalties are likely to encourage car drivers to switch to more sustainable modes, in line with policy and the TPOs. The scale of the disbenefit would depend on the level of modal shift achieved, the scale of any re-routeing and how this was mitigated. The smaller the differential between car and bus/cycle journey times, the higher (or less negative) the BCR will be. It is therefore important to recognise that the quantitative economic impacts discussed here only represent a part of the overall appraisal picture. The outcomes of the A96 study BCR analysis, for the options most similar to the proposal for this study, were: • the BCRs generated under the enhanced bus lane options (similar to the proposals for this study) ranged from approximately -2 to -6, meaning that the benefits to public transport users was not sufficient to offset the disbenefits to general traffic • When a BCR was considered purely considering the benefits to public transport against the capital infrastructure costs, the BCR figures ranged from around 1.5 to 2.2. Option BCRs for this study are likely to follow a similar pattern to those for the A96 study, with: • Overall BCR values likely to be negative, recognising that the benefits to public transport users is not sufficient to offset the disbenefits to general traffic	-

<table>
<tr><th>Criteria</th><th>Option</th><th>Commentary</th><th>Score</th></tr>
<tr><td>Cost to Government</td><td></td><td>
Public transport only BCRs considering the benefits to public transport against the capital infrastructure costs are likely to be greater than one, indicating an overall benefit
As noted against TPO3, if the ART scheme was to be fully implemented, journey time savings are likely to be greater than estimated for this study, particularly under Options 2 and 4, as the scheme would likely utilise a reduced stopping pattern and well as reduced stop dwell times through seamless ticketing and improved stop infrastructure. In this case, the benefits to users and hence the overall BCRs would increase.

<u>Benefit to Cost Ratios (Active Travel)</u>

The table below sets out the present values of the costs (derived from the costs in the above table) and benefits of cycle infrastructure proposed under each option, the methodology or which is presented in Appendix D in greater detail.

<table>
<tr><th></th><th colspan="4">Active Travel Costs and Benefits (PVC, £000s)</th></tr>
<tr><th></th><th>Option 1</th><th>Option 2A/B/C</th><th>Option 3</th><th>Option 4A/B/C</th></tr>
<tr><td>Present Value of Benefits</td><td>7,845</td><td>7,050</td><td>7,843</td><td>7,053</td></tr>
<tr><td>Present Value of Costs</td><td>16,405</td><td>12,220</td><td>12,888</td><td>15,737</td></tr>
<tr><td>BCR</td><td>0.48</td><td>0.58</td><td>0.61</td><td>0.45</td></tr>
</table>
Note: Costs in the table above account for cycle infrastructure on both A944 Parallel Routes and A9119 Parallel Route 1.

The present value of cycle infrastructure costs varies from £12.2m for Option 2 to £16.4m for Option 1. The main difference in costs arises from the scale of junction interventions needed on the main corridors compared with the parallel routes.

Overall, Options 3 generates the highest BCR of 0.61, as it provides the 2nd highest benefits and 2nd lowest costs. Option 2 follows closely behind with a BCR of 0.58.

However, it is important to note that costs include required junction upgrades, but the AMAT-derived benefits are based solely on link infrastructure and do not account for the additional benefits that cycle friendly junction upgrades will bring. AMAT also does not take account of other factors which will affect demand for a route such as directness and visibility. As such, it is considered that the BCRs for cycle infrastructure on the main corridors are likely to be underestimated.
</td><td>-</td></tr>
</table>

Criteria	Option	Commentary	Score
Risk and Uncertainty	ALL	There are a range of risks and uncertainties associated with the options relating to design, implementation, operation, impacts, and public and political appetite for the proposals. <u>Highway Design and Infrastructure</u> • Highway widening, depending on land ownership, could require Compulsory Purchase Order powers and be met with resistance by those affected. Early discussions with those likely to be impacted can help mitigate the risks and costs associated with this. • Changes to waiting and loading restriction required to facilitate the infrastructure may impact on business and freight operations, and discussion would be required with affected business to ensure these are minimised • The complexity of junction layouts and the method of signal control will need further detailed consideration during the design stage • The extent of utility diversions and protection works will need further detailed consideration during the design stage • There may be impacts of street lighting with lighting relocation required • The ART Options Appraisal project is ongoing and will influence the options in terms of the ART network and service routeing. This may require a focus on one of the corridors as the ART route and is likely to influence the decision on which option to take forward from this study and the level of bus priority required across each corridor. Ongoing dialogue between the two studies is critical to ensuring the proposals taken forward through this study do not impede the ART project. <u>Operational</u> • There are likely to be significant wider traffic impacts due to traffic reassignment, especially when combined with the proposals for the other primary arterial routes into the city centre. The programmed cumulative impact testing of the proposals will be critical to understanding the impacts of the proposals across all the corridors, combined with the emerging ART proposals. • Should variant B (under Options 2 and 4) be implemented, this would impact on the city Berryden Corridor Improvement Project committed scheme and is likely to impact on the objectives and operation of that scheme • The variant proposals all, to some extent, impact on the CCMP. Cognisance of the proposals as they progress will be important to ensuring the options for this study dovetail and support the masterplan. This is especially important with regards to the future plans for Union Street and whether bus access is permitted. <u>Political and Public Appetite</u> • Strong political backing will be required given the transformational changes proposed. Finding a key advocate within the Councils to champion the proposals, across all corridors, can help raise awareness of the schemes, clearly promote their benefits and help minimise any media negativity surrounding the schemes • There may be a lack of political will or appetite to implement supporting measures i.e., workplace parking licenses, review of parking charges / policy etc. and public opposition elements of the proposals (e.g., removal of parking, reduction in general traffic lanes etc). Again, a political champion for the schemes would be highly beneficial. Cross sector involvement, especially with those in the health sector, is likely to lend weight to the schemes if the health benefits can be promoted. This could be especially beneficial for this scheme given the wealth of healthcare facilities located along both the A944 and A9119 and NHS Grampian should be seen as a key stakeholder in the scheme promotion.	- -

Criteria	Option	Commentary	Score
Risk and Uncertainty		• There is likely to be some public opposition to the proposals, especially from drivers unlikely (or unable) to switch modes to public transport and business users / freight who will see their journey times increase • There is likely to be some public opposition to the loss of on-street parking both within residential areas and along the main corridors themselves. • There is likely to be some potential opposition from freight operators if the movement of freight within the city is significantly impacted. Early and on-going dialogue with freight operators is required especially around the cumulative impacts of the corridor studies to understand how freight movements may be affected.	
Public Acceptability	ALL	An online interactive Arc StoryMap was live on Aberdeen City Council's Citizens Space consultation page from 1st June 2022 to 1st July 2022 (this was also available in hard copy if requested). The survey was publicised through Aberdeen City Council's Citizen Space portal and the Council's media channels. In addition, leaflets were distributed to over 20,000 residential properties and businesses located close to the A944 and A9119 corridors to raise awareness of the engagement process. It was also shared through contact with local councillors, community councils and other local interest groups to further publicise the survey within the communities most likely to be affected by the proposals. Furthermore, a link to the survey was provided to a range of stakeholders, who were invited to complete the survey on behalf of their organisation or respond directly by email to the study team with comments. All options identified involve the reallocation of road space in favour of more sustainable modes at the expense of general traffic. The public survey (a full write up of which can be found in Appendix F) found that whilst there is an appreciation that society as a whole needs to travel more sustainably, there is a reluctance to make that change at a personal level and sacrifice some of the current convenience of car travel experienced by those living in the study area. Over 1,100 responses provided to the public survey from the general public and local businesses, in addition to eight responses from stakeholder organisations such as the NHS. The vast majority of responses came from people who live on the corridor and 93% of respondents say that they currently use the A944 and/or A9119. It is important to note that 40% of responses came from Rosemount and Midstocket which are situated off the main corridors but are affected by the parallel cycling routes proposed under Options 2 and 4. This is a much higher proportion than might be expected based on population, and this has skewed the results. Discussion is provided on the reasons for dissatisfaction expressed in these responses further below. The public survey found that 82% of respondents make car journeys along the A944/A9119, while 34% travel on foot, 22% travel by bus and 21% cycle. The proportion of respondents who drive is very high compared with bus for a city environment and the proportion cycling compared with walking is also high. Key findings: • Overall, 29% of respondents felt that one or more of the options should be taken forward for further development, while 64% said none should be progressed and 7% said another option should be progressed. The most common suggestion for 'another option' was to improve conditions for sustainable modes without reducing on-street car parking. In contrast, half of the stakeholders surveyed were supportive of one or more of the options. The public opposition noted in respect of the A944 parallel routes in particular and their potential impact on Rosemount Place is likely to have influenced the survey outcomes and	-

Criteria	Option	Commentary	Score
Public Acceptability	ALL	the high number of respondents noting that none of the options should be progressed. Further analysis was therefore undertaken to establish the preferences of sub-sets of the respondents – namely those residing in Midstocket and Rosemount and those not residing in these areas. The analysis showed that support for the options goes from 24%, for those resident in Rosemount and Midstocket, to 33% among residents of other areas. . While a lower level of support for Options 2 and 4 was expected, it is perhaps surprising that Rosemount and Midstocket residents were much more likely to be unsupportive of all the options. • Respondents who indicated their support for one or more of the options were then asked to rank the options. Option 1 was favoured by 66% with Options 2, 3 and 4 being the first choice for 14%, 8% and 11% of respondents respectively. A scoring was also undertaken to rank the options across their ranking preferences (i.e., 4 points for a 1st place ranking, decreasing to 1 point for a 4th place ranking). Under this ranking, Option 1 was still the most favoured, but that was followed by Option 3, then Option 2 and finally Option 4. • Based on the results of the public survey, of those who noted an option preference, it appears that Option 1 is most likely to generate modal shift towards more sustainable travel with 79% of respondents who favoured this option saying that they would change their travel habits. Option 4 follows close behind with 73% but Options 2 and 3 perform more poorly with 59% and 57% respectively saying that they would change their travel habits. • Respondents were asked whether they agree with the concept of a LTN. Some 56% of respondents selected 'No', while 30% selected 'Yes' and 14% either did not know or had no opinion. Within Rosemount and Midstocket, support for an LTN was 10% lower than elsewhere. Respondents were also given the opportunity to provide any additional comments via an open question at the end of the survey or via email. The most common responses are outlined below. • 335 respondents cited concerns relating to reductions in on-street parking, as this would increase walking distances between car and home and between car and shops which is inconvenient, would disadvantage those with mobility problems and may reduce customers at local businesses. 24 of these respondents also noted concerns that a reduction in on-street parking would reduce house values. Four stakeholders also noted that they were against the loss of on-street car-parking to accommodate options. • In a related point, 216 respondents were concerned that proposals would have an adverse effect on local businesses, particularly on Rosemount Place. It was felt that reduction in car-parking on Rosemount Place, combined with rerouting of the No.3 bus service onto Leadside Road, would reduce customer footfall and reduce accessibility for the elderly and those with mobility problems. • The potential re-routing of bus services around Rosemount (Options 2 and 4) was highlighted by 93 respondents as being likely to have a detrimental impact on both residents and businesses in the area. Two stakeholders echoed this concern. • 90 respondents highlighted that they are supportive of proposals for new cycle infrastructure, while 82 felt that the routeing of cycle infrastructure is inappropriate (comments including: parallel routes not sufficiently direct, adverse gradients on the A944/A944 parallel routes and safety concerns about cycle traffic speeds on residential streets forming part of parallel routes) • 76 respondents considered that there was no need for additional cycle infrastructure as existing infrastructure is sufficient and very few people cycle	

Criteria	Option	Commentary	Score
Public Acceptability		• 57 respondents noted that they are concerned that reallocation of road space to more sustainable modes would increase congestion and 46 respondents felt that car users were being unfairly penalised to improve conditions for a minority of travellers who either travel by bus or cycle • 36 respondents noted that they support the introduction of additional bus priority infrastructure, while 36 respondents stated that additional bus infrastructure was unnecessary as delays were not a problem and existing bus lanes underused • The potential LTN outlined was objected to by 27 respondents who said that it would have a negative impact on those who work and live in the area. A further 9 respondents raised concerns that 'rat-running' would occur on streets to the north/south of the LTN and suggested that the surrounding roads could not support the increase in traffic flow. Overall, 28 members of the public indicated support for an LTN. As noted above, there is strong opposition from some Rosemount and Midstocket residents to proposals for cycle infrastructre as proposed for the A944 parallel routes, given the need to reduce on-street car parking and adjust bus services, specifically including the number 3 service. The responses to the open questions reflect this, with a high number of comments made on issues which relate to the A944 parallel cycle routes proposed under Options 2 and 4. While this does skew the results, it also underlines the strength of feeling among some in the community.	
	Option 1	As noted above, 29% of respondents indicated their support for one or more of the options identified. **Two-thirds** of these 'supportive' respondents ranked Option 1 as their 1st choice and Option 1 was also the option which was found to be most likely to encourage modal shift. As such, on balance, it appears to be the most popular of the identified options.	✓
	Option 2	Option 2 was the first choice for **14%** of 'supportive' respondents but even among those for whom it was their first choice, only just over half say that they would change their travel habits as a result of its implementation. The lack of support for Option 2 is likely to be influenced by proposals for cycle infrastructure along Mid Stocket Road and Rosemount Place, which requires a reduction in on-street car parking and the local rerouting of bus services. These proposals are highly unpopular with some local residents, as a result of concerns regarding the accessibility of local shops and homes, and possible knock-on effects on local businesses. First, the operator of the number 3 bus service, also noted that they are strongly against the rerouting of the service as they feel that bus users want direct access to the Rosemount Place shopping area and the additional 200m walk from Leadside Road may dissuade people from visiting.	xxx
	Option 3	Option 3 was the first choice for **8%** of 'supportive' respondents but even among those for whom it was their first choice, only just over half say that they would change their travel habits as a result of its implementation.	xx
	Option 4	Option 4 was the first choice for **11%** of 'supportive' respondents and it was found to perform well in terms of its ability to prompt modal shift with 73% of these respondents saying that they would travel more sustainably as a result. As is the case with Option 2, support for Option 4 is likely to be adversely impacted by the proposals for parallel cycle infrastructure along Mid Stocket Road and Rosemount Place.	xxx

5.3 Appraisal Summary

5.3.1 Table 5.4 below presents a summary of all the scores from the appraisal. Thereafter, the main advantages and disadvantages in relation to the active travel proposals, and public transport proposals are shown in the tables that follow.

Table 5.4: - Appraisal Summary – Scores

Assessment Criteria		Option			
		1 **Prioritise cycling on A944 & A9119**	2 **Prioritise buses on A944 & A9119**	3 **Prioritise cycling on A944 & buses on A9119**	4 **Prioritise cycling A9119 & buses on A944**
TPO	TPO1: Improve the quality of the pedestrian experience and address barriers to walking / wheeling along the A944, A9119 and Albyn Place between Westhill and Aberdeen city centre	✓✓✓	✓✓✓	✓✓✓	✓✓✓
	TPO2: Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors	✓✓✓	✓✓	✓✓	✓✓
	TPO3: Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre.	✓	✓✓✓	✓✓	✓✓
	TPO4: Improve the quality of bus stop infrastructure on the A9119 and A944, to enhance accessibility and provide a more comfortable waiting experience	✓✓✓	✓✓✓	✓✓✓	✓✓✓
	TPO5: Improve integration between sustainable travel modes	✓✓✓	✓✓✓	✓✓✓	✓✓✓
STAG Criteria	Environment	× - ✓	×× - ✓✓	× - ✓	× - ✓
	Climate Change	× - ✓	×× - ✓✓	× - ✓	×× - ✓✓
	Health, Safety and Wellbeing	✓✓	✓✓	✓✓	✓✓
	Economy – Active Travel	✓✓✓	✓✓	✓✓✓	✓✓
	Economy – Public Transport	✓	✓✓✓	✓✓	✓✓
	Economy – General Traffic	×	×××	××	×××
	Equality and Accessibility	✓	✓✓✓	✓✓	✓✓
	Risk and Uncertainty	Low	High	Medium	Medium
	Public Acceptability	✓	×××	××	×××

Table 5.5: - Appraisal Summary – Option Advantages and Disadvantages

Option		Advantages	Disadvantages
All Options		• Provide more sustainable travel options to support carbon reduction targets • Align with local, regional and national transport policy • Provide much improved pedestrian environment with pavement widening, segregation between pedestrians and cyclists, footway decluttering, improved crossing facilities and improved signage. This was welcomed by members of the public as noted in the public survey • Provide a step change in cycling provision between Westhill, Kingswells and Aberdeen city centre • Provides safe segregated cycling routes across significant sections of the corridor(s) likely to encourage new cyclists • Likely to reduce traffic accidents through modal shift from the car and the provision of segregated cycle routes	• Likely to generate congestion (at least in the short term but this may help encourage modal shift to more sustainable modes) and potential unwanted re-routeing • Requires significant investment in infrastructure • Impacts on on-street parking • Requires bus service route adjustments (as discussed against the relevant option)
1	Prioritise cycling on A944 and A9119	• Step change improvement in cycle provision, offering continuous segregated provision along both corridors and direct active travel access to key employment and healthcare facilities located along the corridors • Best reflects the Sustainable Travel Hierarchy by catering for active travel first and then addressing provision for other modes along both corridors • Mode switch from car (and bus) to active travel would reduce traffic related carbon and other harmful emissions • Greater number of trips made by active travel modes would have a positive impact on health and well-being • Most preferred option by members of the public, with two-thirds of respondents who were supportive of the options citing Option 1 as their preferred option. This may in part be influenced by the strong opposition to the other options due to the parallel route proposals • Based on the responses to the public survey, expected to generate the greatest modal shift towards sustainable travel	• Gradients between the Foresterhill Health Campus and the A92 (Anderson Drive) may deter use (as is highlighted in the Strava Metro analysis) • Does not provide continuous bus priority along either corridor alongside the cycle proposals due to lack of space, particularly on the A9119 where space is more challenging east of Anderson Drive • Likely to provide the lowest bus journey time benefits of all options and therefore likely to generate only minor modal shift to the bus • Would not support the implementation of ART on either of the corridors
2	Prioritise buses on A944 and A9119	• Provides continuous fully segregated bus priority infrastructure on the A944 and maximises bus priority infrastructure (given the more constrained environment) on the A9119 • Would provide more consistent bus journey times across the day • Provides the greatest bus journey time benefits across both corridors	• Likely to generate the most significant rerouting by general traffic given the road space reallocation which may negatively impact on secondary and local routes with increased noise and reduced air quality • Challenging to provide continuous fully segregated bus priority on the A9119 due to space constraints, reducing the extent of journey time reductions that could be achieved

Option		Advantages	Disadvantages
2	Prioritise buses on A944 and A9119	• Would offer a more competitive bus journey time when compared with travel by car along both corridors, supporting modal shift to more sustainable travel modes: • For services between Kingswells P&R and Aberdeen bus station (Services 4, 5 and 6 routeing via the A9119) - up to a 10 minute journey time saving • More limited journey time savings on Services 11, 14 and 23 which utilise only parts of the A944 • Potential journey time savings of around 5 minutes on the A944 with new services operating over the full length of the corridor between Kingswells P&R and the city centre (note that journey times from Kingswells P&R to the city centre would be shorter via the A944 than the A9119) • Would encourage use of the Kingswells P&R • Would enable ART vision to be realised through highly segregated public transport provision on the A944 corridor • Based on the responses to the public survey, expected to generate the greatest modal shift towards travel by bus • While parallel cycle routes would be required, the quieter cycle routes along more residential streets may be preferred by users (as opposed to cycling on the corridors themselves) and be perceived as safer encouraging use • The parallel cycle routes provide a good level of segregated provision • Variants B and C provide quick bus access from the A944 to Union Street (and to Union Square for interchange to the railway and bus stations under Variant B)	• Segregated cycle routes along both corridors cannot be provided alongside bus priority requiring parallel cycle routes which would not route directly past key destinations such as the Foresterhill Health Campus or Woodhill House (although access to these destinations could be made on a number of suitable 'connector' roads) • Difficult to access the A9119 parallel cycle routes from south of the corridor and fewer suitable 'connector' cycle links from the parallel routes to the A9119 corridor itself • Variants B and C would impact on the Berryden Corridor Improvement Scheme objectives due to the changes proposed to the Skene Square junction with Rosemount Place / Maberly Street and the reallocation of a lane of traffic on Skene Square and Woolmanhill (Variants B and C) and on Denburn Road (Variant B) • Very strong opposition to the A944 parallel route proposals, particularly from both members of the public and local businesses with regards to the route along Rosemount Place and the subsequent need to reduce on-street parking and re-route the number 3 bus service from both Rosemount Place and Mid Stocket Road. The current bus operator also noted the number of elderly passengers who would be affected in terms of losing their direct bus access to the shops along Rosemount Place and overall were opposed to the suggested re-routeing of the service • Second least preferred option by members of the public, with the disagreement with this option focussed on the A944 parallel route proposals • Design constraints make the A9119 parallel routes challenging to implement and access to the routes from the residential areas south of the A9119 would be difficult To accommodate A944 parallel cycle routes: • Car parking would need to be removed from Eday Road, Stronsay Place, Summerhill Terrace, Edgehill Road, Woodstock Road, Oakhill Road, King's Gate, Beechgrove Terrace and Mid Stocket Road onto side roads, which may make it more difficult for local residents to directly access their homes, especially for those with mobility issues, with young children etc. • Requires diversion of bus service 3 from Rosemount Place which may require some users to walk further to access the service, and there is very strong public opposition to this, and the bus operator has also noted concern

Option		Advantages	Disadvantages
2	Prioritise buses on A944 and A9119		• Requires parking bays and loading provision changes along Rosemount Place which may impact on local businesses and there is very strong public opposition to this • Requires diversion of bus services 3, 14, 16 and 23 from Mid Stocket Road which may require some users to walk further to access the service. Again, and there is very strong public opposition to this To accommodate A9119 parallel cycle routes: • Requires road closures on King's Cross Terrace, King's Cross Road and partial closure of the A92 access to Carnegie Crescent which would impact on residents • Requires reallocation of parking from Carnegie Crescent, Forrest Road and Fountainhall Road into adjacent streets which may make it more difficult for local residents to directly access their homes, especially for those with mobility issues, with young children etc.
3	Prioritise cycling on A944 and buses on A9119	• Step change improvement in cycle provision along the A944, offering continuous segregated provision along the corridor • Prioritising one corridor for public transport and the other for active travel provides a clear distinction between the corridor purposes and better use of the available space • Providing space for segregated cycling infrastructure along the main corridor sends a clear message about the priority and importance of active travel within the travel hierarchy and the city, and is likely to encourage use by raising the awareness of infrastructure and through seeing users on the route • Would provide direct and high quality cycle access to the Foresterhill Health Campus and the Aberdeenshire Council offices at Woodhill House • Would provide more consistent bus journey times across the day for bus travel on the A9119 • As with Option 2, would offer a more competitive bus journey time when compared with the car along the A9119, supporting modal shift to more sustainable travel modes with up to a 10 minute journey time saving for services between Kingswells P&R and Aberdeen bus station (Services 4, 5 and 6) • While A9119 parallel cycle routes would be required the quieter cycle routes along more residential streets may be preferred by users (as opposed to cycling on the corridors themselves) and be perceived as safer encouraging use	• Gradients between the Foresterhill Health Campus and the A92 (Anderson Drive) may deter use of the cycle infrastructure (as is highlighted in the Strava Metro analysis) • Design constraints make the A9119 parallel routes challenging to implement and access to the routes from the residential areas south of the A9119 would be difficult • Second most preferred option by members of the public when overall ranking of options considered, although was only the first choice for 8% To accommodate A9119 parallel cycle routes: • Requires road closures on King's Cross Terrace, King's Cross Road and partial closure of the A92 access to Carnegie Crescent which would impact on residents • Requires dispersal of parking from Carnegie Crescent, Forrest Road and Fountainhall Road into adjacent streets which may make it more difficult for residents to directly access their homes, especially for those with mobility issues, with young children etc.

Option		Advantages	Disadvantages
4	Prioritise cycling on A9119 and buses on A944	• Step change improvement in cycle provision, offering continuous segregated provision along the A9119. Responses to the public survey suggested that providing cycle infrastructure on the main corridors is significantly preferred over the parallel routes and also that cycling along the A9119 is preferred over the A944 • Prioritising one corridor for public transport and the other for active travel provides a clear distinction between the corridor purposes and better use of the available space • Providing clear space for segregated cycling infrastructure along the main corridor sends a clear message about the priority and importance of active travel within the travel hierarchy and the city and is likely to encourage use by raising the awareness of infrastructure and through seeing users on the route • The A9119 is a more residential route and can offer a more pleasant cycling experience for the user • Cycling infrastructure on the A9119 corridor itself can be more easily accessed by those south of the corridor • While A944 parallel cycle routes would be required, the quieter cycle routes along more residential streets may be preferred by users (as opposed to cycling on the corridors themselves) and be perceived as safer encouraging use • Would provide improved public transport access to the Foresterhill Health Campus and the Aberdeenshire Council offices at Woodhill House • Would provide more consistent bus journey times across the day for bus travel on the A944 • As with Option 2, could offer a more competitive bus journey time when compared with travel by car along the A944, supporting modal shift to more sustainable travel modes with up to a 5 minute journey time saving for services between Kingswells P&R and Aberdeen city centre (if new ART services were operating) • Would enable ART vision to be realised through highly segregated public transport provision	• Variants B and C would impact on the Berryden Corridor Improvement Scheme objectives, in particular due to the changes proposed to the Skene Square junction with Rosemount Place / Maberly Street and the reallocation of a lane of traffic on Skene Square and Woolmanhill (Variants B and C) and on Denburn Road (Variant B) • Very strong opposition to the A944 parallel route proposals, particularly from both members of the public and local businesses with regards to the route along Rosemount Place and the subsequent need to reduce on-street parking and re-route the number 3 bus service from both Rosemount Place and Mid Stocket Road. The current bus operator also noted the number of elderly passengers who would be affected in terms of losing their direct bus access to the shops along Rosemount Place and overall were opposed to the suggested re-routeing of the service. • Least preferred option by members of the public when overall ranking of options considered, although was only the first choice for 11%. Disagreement with this option focussed on the A944 parallel route proposals To accommodate A944 parallel cycle routes: • Car parking would need to be removed from Eday Road, Stronsay Place, Summerhill Terrace, Edgehill Road, Woodstock Road, Oakhill Road, King's Gate, Beechgrove Terrace and Mid Stocket Road onto side roads, which may make it more difficult for local residents to directly access their homes, especially for those with mobility issues, with young children etc. • Requires diversion of bus service 3 from Rosemount Place which may require some users to walk further to access the service, and there is very strong public opposition to this, and the bus operator has also noted concern • Requires parking bays and loading provision changes along Rosemount Place which may impact on local businesses and there is very strong public opposition to this • Requires diversion of bus services 3, 14, 16 and 23 from Mid Stocket Road which may require some users to walk further to access the service. Again, and there is very strong public opposition to this

6 Monitoring and Evaluation

6.1 Introduction

6.1.1 The Monitoring Plan should focus on the supply side changes and the resulting changes in travel behaviour across the study area. The evaluation would then interpret this data and perhaps add primary research to assess the success of the option in terms of the TPOs and the STAG criteria. If implemented in isolation, these measures (particularly the reallocation of road space) would likely have a material impact on traffic levels on adjacent radial routes to which traffic would likely reroute. In this case though, the measures are likely to be implemented in combination with similar measures in other corridors, and indeed in combination with significant changes to bus journey times reflecting the ART vision. It is therefore recommended that a Monitoring Plan be developed to cover the totality of the project as it emerges rather than in relation to the incremental projects.

6.2 Monitoring and Evaluation Plan

6.2.1 Given that the corridor studies have in the main built from a pre COVID-19 position, a new common travel baseline should be established once the data indicates a stable post COVID19 position. Aberdeen City Council's ongoing monitoring of travel in the town should be used to make a judgement on when a new, settled position has been reached. At this point, for each corridor a baseline data collation should be undertake e.g., as follows:

- Quantitative 'audit' of walking / cycling / bus facilities (as per *Case for Change* audit)
- Description of bus services in corridor – to identify service changes which may / may not be due to the measures over time
- Analysis of bus travel times / compliance with timetable– using GPS/AVL data
- General traffic journey times – using e.g., INRIX data for selected point to point movements
- 'Screenline' counts by mode – three screenline could be determined e.g., between Kingswell P&R and A944/A9119 junction; between A944/A9119 junction and Anderson Drive; and east of Anderson Drive. These counts could be undertaken in a neutral week – recording pedestrians, cyclists, cars, vans, lorries etc. All significant streets crossing the screenline should be included – this will be required to assess the scale of re-routeing in the streets parallel to the A944 and A9119
- Bus passenger absolute and origin-destination data in equivalent weeks
- Bus passenger surveys / pedestrian & cyclist surveys – aimed primarily at 'scoring' satisfaction levels with different aspects of the service

6.2.2 This exercise could be repeated say one and five years after implementation. There may be value in undertaking a subset of this data collection annually (e.g., screenline counts).

6.2.3 If measures are implemented as part of an Aberdeen wide project, a control area or counterfactual should be identified. This should provide a 'no-intervention' scenario in terms of trip making and mode share. Given Scotland's other cities are likely to be implementing similar measures over the next decade, this could be problematic, and the control area(s) may have to be based on larger towns in Scotland where significant reallocation of road space is not planned. If the A944/A9119 measure are implemented in isolation, then control areas based on other (non-neighbouring) corridors in Aberdeen can be established.

6.2.4 The following table provides an indication of how the above data could be used to inform an evaluation of the A944/A9119 project against the TPOs and the STAG Criteria.

6.2.5 As noted above, unless the A944/A9119 infrastructure measures are implemented in isolation of similar measures in other corridors (and indeed ART) there should be a coordinated Monitoring Plan spanning all the ART and other corridors. This should be developed primarily under the ART banner.

Table 6.1: Monitoring and Evaluation Plan

	Supply Side				Demand Side		Primary Research
Transport Planning Objective / STAG Criteria	**Corridor audit**	**Bus services**	**Bus travel times**	**General traffic travel time**	**Screenline counts**	**Bus patronage**	**Pedestrian, cyclist and bus passenger, surveys**
TPO1: Improve the quality of the pedestrian experience and address barriers to walking / wheeling along the A944, A9119 and Albyn Place between Westhill and Aberdeen city centre	✓				✓		
TPO2: Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors	✓				✓		
TPO3: Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre		✓	✓		✓	✓	
TPO4: Improve the quality of bus stop infrastructure on the A9119 and A944, to enhance accessibility and provide a more comfortable waiting experience	✓				✓		✓
TPO5: Improve bus stop connectivity to ease interchange between active travel and public transport on the A944 and A9119 corridors	✓				✓		
Environment	✓				✓		
Climate Change					✓		
Health, Safety and Wellbeing	✓				✓	✓	✓
Economy			✓	✓	✓	✓	
Equality and Accessibility		✓	✓		✓	✓	

7 Summary and Conclusions

7.1 Summary

7.1.1 This report has presented the development and appraisal of **transformational sustainable travel options** on the A944 / A9119 corridors which can encourage modal shift towards walking, cycling and public transport. Along with the similar multi-modal corridor studies for Aberdeen's other main arterial routes, this study is also feeding into the development of ART, where the ambition is to develop a **high quality, high frequency mass transit network across the city on key corridors and linking key destinations, anchored by P&R facilities** on each corridor. ART has national recognition within Transport Scotland's draft *Strategic Transport Projects Review 2* (STPR2) and in the Scottish Government's Draft National Planning Framework 4 (NPF4). The work undertaken as part of this A944 / A9119 Multi-modal study has recognised throughout the need to develop options which could facilitate the successful delivery of ART on the corridor.

7.1.2 Through establishing the problems and opportunities for the corridor, a set of five Transport Planning Objectives were defined:

- **TPO 1** - Improve the quality of the pedestrian experience and address barriers to walking / wheeling along the A944, A9119 and Albyn Place between Westhill and Aberdeen city centre
- **TPO 2** - Ensure cycle routes are sufficiently direct and connected, while improving journey quality, times, and safety for cyclists along the study corridors
- **TPO 3** - Reduce bus journey times and make journey times more consistent on the A944 and A9119 between Westhill and Aberdeen city centre
- **TPO 4** - Improve the quality of bus stop infrastructure on the A9119 and A944, to enhance accessibility and provide a more comfortable waiting experience
- **TPO 5** - Improve bus stop connectivity to ease interchange between active travel and public transport on the A944 and A9119 corridors

7.1.3 These objectives were used, along with the STAG criteria, to appraise the range of options developed.

7.2 Conclusions and Next Steps

Conclusions

7.2.1 In terms of the options:

- **Option 1: Prioritise cycling on both the A944 and A9119** - while providing much improved segregated cycling infrastructure along both corridors, this does not provide a significant step change in public transport provision, and this lack of more transformational bus priority measures along either corridor is likely to prohibit / undermine the implementation of ART between Westhill and the city centre. For that reason, it is **not recommended** that this option progress.
- **Option 2: Prioritise buses on both the A944 and A9119** - would provide significant benefits to bus users and is likely to attract new users. The proposals would also facilitate ART. While the proposed A944 parallel cycling routes are not directly along the A944, there are many suitable short linking 'connector' roads from the route to the A944 offering access to the main trip generators and attractors (e.g., Foresterhill Health Campus) and the routes offer quieter, less trafficked routes through residential areas and may be

preferred by cyclists. It is however noted that to implement the parallel routes, there are a number of challenges including (i) the loss of on-street parking, (ii) bus service diversions, and (iii) parking bays and loading provision changes along Rosemount Place. As seen through the public survey, there is strong opposition from some to such changes, and should the A944 parallel routes progress, early design feasibility and engagement work (with both the local community, businesses and the bus operator) should be undertaken. This should include work to enable an understanding of the likely economic impacts of the proposed measures on local businesses. While recognising that the proposed A9119 parallel cycle routes offer a high level of segregation from general traffic and routes through quieter residential streets, there are a number of design constraints which make the routes challenging to implement - and access to the routes from the residential areas south of the A9119 would be difficult. For that reason, **the A9119 parallel routes are not recommended for further development** (in favour of cycling infrastructure on the A9119 itself, as per Option 4 (see below)). If the option was to progress without the A9119 parallel routes this option would not then provide any improved environment for cyclists either on or close to the A9119 corridor.

- **Option 3: Prioritise cycling on A944 and buses on A9119** - would provide significant benefits to bus users on the A9119 and is likely to attract new users. However, the constrained nature of the A9119 corridor means continuous bus priority cannot be provided which will limit the benefits that could be realised through ART. In addition, the constrained nature of the route may preclude certain elements of ART (e.g., new stop infrastructure to enable faster boarding and alighting times). For this reason, this option is **not recommended** for further consideration. In addition, the option was the first choice for only 8% of those who were supportive of an option (this was the lowest of all options).

- Option **4: Prioritise cycling on A9119 and buses on A944** - would, as noted above for Option 2, enable ART to be facilitated on the A944 corridor where there is space for continuous bus lanes and the supporting stop infrastructure and there are numerous trip generators of both local and regional significance (such as Foresterhill Health Campus). Gradient issues heading westbound on the A944 are clearly unfavourable with cyclists, and cycle conditions on the A9119 appear preferable (as seen through the Strava data analysis). In addition, prioritising one corridor for public transport and the other for active travel provides a clear distinction between the corridor purposes, and better use of the available space with the A9119 corridor, which is a more residential route offering a more pleasant cycling experience for the user. The cycling infrastructure could also be more easily accessed by those south of the corridor (than the proposed parallel routes required if 'on corridor' infrastructure were not provided). As noted for Option 2 above, the outcomes of the public survey highlighted the opposition to the proposed A944 parallel cycling routes and therefore, early design feasibility and engagement work should be undertaken.

7.2.2 Given the above and particularly the ability to facilitate the implementation of ART, and the clear distinction between the corridor purposes the option would provide, **it is recommended that Option 4 be progressed**. However, given the opposition expressed within the study to the A944 parallel route proposals from Rosemount and Midstocket residents and local business, **early design feasibility and engagement work (with the local community, businesses and the bus operator) should be undertaken**. This should include work to enable an understanding of the **likely economic impacts** of the proposed parallel route proposals on local businesses.

7.2.3 Option 4 includes variants A, B and C at the eastern end of the A944 corridor, which consider bus priority infrastructure into the city centre from the corridor:

- **Variant A:** Routes via Mounthooly Roundabout and West North Street to Union Street. Such a route would not offer the most direct access to the city centre and is not heavily used for bus services at present.

- **Variant B:** Routes via Skene Square, Woolmanhill and Denburn Road to Union Square, and onwards to via Market Street to Union Street. The variant assumes the widening of Skene Square and Caroline Place as part of the committed Berryden Corridor Improvement Project (which will provide two traffic lanes in both directions throughout the length of the corridor, widening the existing road between Skene Square and Ashgrove Road and creating a new road between Ashgrove Road and Kittybrewster Roundabout). Additionally, over the southern part of the scheme, requires the reallocation of a lane of traffic in each direction to public transport on Skene Square, Woolmanhill and Denburn Road.

- **Variant C:** Routes via Skene Square and Woolmanhill, with a new bus only access to Blackfriars Street, Rosemount Viaduct, Union Terrace and onto Union Street, and similar to variant B, assumes the widening of Skene Square and Caroline Place as part of the committed Berryden Corridor Improvement Project. Additionally, over the southern part of the scheme, requires the reallocation of a lane of traffic in each direction to public transport on Skene Square, and Woolmanhill.

7.2.4 The most suitable variant for progression will be heavily dependent on the outcomes of the ART development work, and at this stage it is not recommended that any of the variants are discounted.

Next Steps: Risks and Issues for further consideration

7.2.5 At the next stage of the appraisal / business case, key issues and risks requiring more detailed consideration include:

- **Availability of third-party land for highway widening:** there is a need to understand the impact of the proposals on land outside the highway boundary and how this could be minimised. This is particularly relevant at junctions along Lang Stracht and Westburn Road where larger junctions are proposed to accommodate increased levels of bus priority and pedestrian / cycle facilities.

- **Impacts of road space reallocation** between Kingswells and Mounthooly roundabout, with the reallocation of a lane of the existing carriageway from general traffic to bus only over much of the corridor**.** The potential impacts on all road users needs consideration, especially the potential cumulative impacts of the proposals for the A944 and A9119 when considered with the proposals for the other corridor studies. Even with the corridors optimised to manage general traffic demand, it is likely some wider traffic reassignment will occur which potentially routes traffic along less suitable roads or onto those that delay other bus services. A strategic traffic modelling assessment is required to understand the extent of the reassignment and what mitigation is required.

- **Highway Corridor Performance:** The impact of proposals could create a corridor that is unable to efficiently manage the change to existing general traffic demands, resulting in exit blocked junctions and wider traffic disruption. Once the outline design is complete, the development of a micro-simulation traffic model should be considered to establish a suitable traffic management strategy for the corridors, one that ensures junctions have sufficient capacity and are co-ordinated.

- **Revenue Costs / Highway infrastructure maintenance liabilities**: There are several junctions[11] that require major road layout changes to provide suitable provision for cyclists and / or level of bus priority. Those on A944 Lang Stracht / Westburn Road require enlargement and full signal upgrades while those in A9119 Queens Road require either the removal of the roundabout and replacement with a signalised crossroads or

[11] A944 junctions include Lang Stracht junction with Summerhill Drive, Lang Stracht junction with A92 North Anderson Drive and Lang Stracht junction with Foresterhill Road. A9119 junctions include Queen's Road junction with A92 Anderson Drive, Queen's Road junction with Forest Road and Queen's Road junction with Fountainhall Road (Queen's Cross).

conversion to a compact roundabout with circulatory cycle lanes. In addition to the substantial capital cost to deliver these signal upgrades or conversions, they will require an increase to highway maintenance budgets unless savings can be found elsewhere in the network.

- **Impact on the Berryden Corridor Improvement Project** and the scheme objectives from the proposed variants B and C

- **Loss of on-street parking:** the proposals require the removal of on-street waiting, loading and parking provision to accommodate the bus priority and cycle route infrastructure which will likely lead to local resident and trader opposition. There is a need to understand current parking behaviours and what opportunities there are to relocate this activity into adjacent side roads.

- If the A944 parallel cycle routes progress as part of this option:

    - **Loss of on-street parking:** to accommodate the A944 parallel cycle routes on Eday Road, Stronsay Place, Summerhill Terrace, Edgehill Road, Woodstock Road, Oakhill Road, King's Gate, Beechgrove Terrace and Mid Stocket Road

    - **Bus route diversions:** to accommodate the A944 parallel cycle routes because it is not possible to accommodate bus stops because of a constrained highway boundary. In these cases, bus services will need to be diverted onto other routes where potentially connectivity of local bus services is reduced. Bus stop connectivity analysis is required on the potentially affected routes (3, 14, 23 and 218 in the Rosemount area) and suitable mitigation developed

    - **Economic impacts to local businesses:** to accommodate the A944 parallel cycle routes

    - **Changes to parking bays and loading provision changes** along Rosemount Place

7.2.6 Furthermore, the following design and operations issues need to be considered:

- **Parking policy / supply:** the availability and cost of parking within the city centre and at key employment sites undermines proposals to encourage the use of bus services

- **Cycle infrastructure design:** The proposals use various types of cycle route infrastructure and while consistent with Cycle by Design, there is a need to ensure a consistent approach is taken across all corridors to ensure the cycle route network as it develops, remains coherent

- **Bus infrastructure design:** It is not possible to provide enhanced bus lanes at all junctions along Lang Stracht and Westburn Road due to the highway boundary and capacity constraints. These gaps could potentially become congested leading to bus delays. Similar issues occur along Skene Road and Queen's Road but where bus lanes need to be staggered due to highway boundary constraints. Outline design and traffic modelling assessment is required to establish an effective traffic management strategy for the A944 and A9119 corridors.

- **Foresterhill Health Campus / Aberdeen Royal Infirmary access:** The connectivity of the health campus to bus services operating along Lang Stracht and Westburn Road needs to be improved through the development of a new interchange and junction modifications

- **Complexity of junction layouts and the method of signal control:** The proposed infrastructure is likely to require a substantial upgrade to the Council's Urban Traffic Control system including new and upgraded hardware/ software

- **Extent of utility diversions and protection works**
- **Impact on street lighting**
- **Waiting and loading restrictions:** and how these will need to be changed to accommodate the proposals

7.2.7 There are also a number of opportunities that need to be considered as the study progresses:

- **Bus interchanges:** Within the study area there are options to improve bus interchanges at the Aberdeen Royal Infirmary, Provost Graham Avenue bus terminus and at Prime Four / Kingswells P&R
- **Compact roundabouts (with circulatory cycle lanes):** There are three locations within the study area where existing roundabouts could be converted to Dutch style 'Zwolle' roundabouts. While the single traffic lane approaches and circulatory lanes will reduce the capacity for general traffic, they offer a less expensive option to providing suitable cycle route infrastructure than signalisation
- **Public realm:** The proposals to improve conditions for pedestrians, cyclists and bus services have the potential to improve the public realm through the repair and widening of existing footways which offers greater opportunity for tree planting, seating areas, upgrade of materials and less crowded footways. This is particularly relevant at locations where cycle routes pass through or close to local and district centres
- **Low Traffic Neighbourhood:** To create a more comprehensive cycle route network to the west of the city and support safer local walking routes there is an opportunity to create a Low Traffic Neighbourhood bounded by Westburn Road (to the north), North Anderson Drive/ Anderson Drive (to the west) and Cromwell Road/ Union Grove (to the south). The LTN concept requires detailed development and engagement with the local communities it will impact
- **Cycle Parking:** To support the proposed cycle routes new secure cycle parking should be delivered at key locations on or close to the route. This should include locations close to local shops, at schools and workplaces and at public transport interchanges such as the Kingswells P&R

Appendix A Option Costs

A.1 Introduction

A.1.1 This appendix describes the method used to prepare a cost plan for the options with a summary of the option costs. The information provided should be read in conjunction with the *A944-A9119 Multi-modal Transport Study – Concept Design Report, Stantec, July 2022*, which includes concept sketches and concept designs of all proposals summarised below (and as summarised in this report).

A.1.2 The cost plan was derived from the concept designs developed for both corridors. These proposals were prepared using standard highway interventions which have been allocated either a unit cost (for signal controlled crossings, bus stops, etc.) or a rate cost (for bus lanes, cycle track, etc.). These costs have been estimated using the SPON'S Civil Engineering and Highways Works Price Book and supplemented with typical costs that Local Highway Authorities use to estimate costs for scheme funding. These costs are assumed to be set at 2022 prices on which actual inflationary uplifts could be added if they differ from assumed rates.

A.1.3 Measurements taken from the concept designs were used to build up an itemised bill of quantities for each corridor option and by applying the unit or rate costs, a cost plan was generated.

A.1.4 The following summarises the corridor options; describes the standard highway interventions used in the concept design with their estimated cost; sets out the assumptions made related to preliminaries and optimism bias (including contingencies); and explains how the costs were apportioned to support the Active Mode Appraisal Toolkit (AMAT) analysis. The final table provides the estimated costs for each corridor option.

A.1.5 The cost plan spreadsheets for each option can be found in Appendix E of the *Concept Design Report*.

A.2 The Options

A.2.1 Under all four options, the same improvements to the walking (and wheeling) environment and bus stop infrastructure are proposed.

A.2.2 The corridors were divided into the following sections for concept design and costing purposes:

- Main Corridor I - A944 (Westhill to Kingswells) including Straik Road
- Main Corridor II - A944 including Lang Stracht and Westburn Road
- Main Corridor III - A9119 including Skene Road, Queen's Road, Carden Place and Skene Street

A.2.3 When bus priority infrastructure is prioritised along the A944 (i.e., Options 2 and 4), it is assumed this corridor would become the main bus route for city centre services. At the point where the A944 intersects with Berryden Road (programmed to be upgraded to a dual carriageway) three potential routes buses could take to access the city centre have been considered. These routes variants are defined as A, B and C.

A.2.4 The options requiring a cost plan are therefore 1, 2A, 2B, 2C, 3, 4A, 4B and 4C, with their costed components set out in the table below.

Table A.1: Options by costed component parts

Components	Option							
	1	2A	2B	2C	3	4A	4B	4C
Main Corridor I	✓	✓	✓	✓	✓	✓	✓	✓
Main Corridor II (A944)	✓	✓	✓	✓	✓	✓	✓	✓
Main Corridor III (A9119)	✓	✓	✓	✓	✓	✓	✓	✓
Parallel Route (A944) – primary & secondary	-	✓	✓	✓	-	✓	✓	✓
Parallel Route (A9119) – primary & secondary	-	✓	✓	✓	✓	-	-	-
MC II Route Variant A (via Mounthooly)	-	✓	-	-	-	✓	-	-
MC II Route Variant B (via Denburn Road)	-	-	✓	-	-	-	✓	-
MC II Route Variant C (via Union Terrace)	-	-	-	✓	-	-	-	✓

A.3 Standard Highway Infrastructure and Costs

A.3.1 The table below sets out estimated costs for each of the standard highway infrastructure items used in the concept designs. This provides a short description of each type of infrastructure and sets out the assumptions used to estimate the unit or rate cost.

A.3.2 Within the cost plan, the standard highway infrastructure items were grouped into categories that broadly reflected the mode of transport they support. These categories (used in the table below) are as follows:

- Main Junctions – ranging from kerb works to increase the number of approach arms to full conversions such as roundabouts to signalised cross-roads
- Bus Infrastructure – bus lanes, bus stops, bus priority at traffic signals
- Cycle Infrastructure – cycle lanes/ tracks, shared crossing facilities
- Pedestrian Infrastructure – wider footways, crossing facilities, side road entry treatments
- General Highway Works – road resurfacing, high friction surfacing
- Street Lighting – modified or new
- Miscellaneous Items

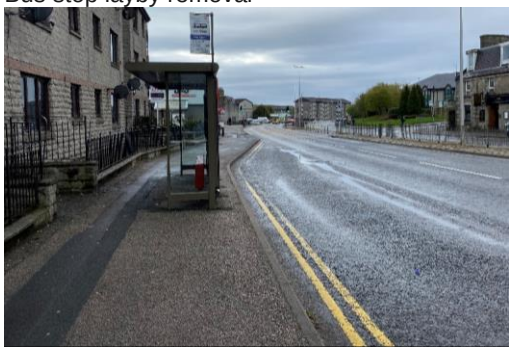
A.3.3 Miscellaneous items are bespoke interventions required to overcome specific issues along the corridor. For example, alterations to subway structures, significant earth works, retaining walls or bridge widening

Table A.2: Typical types of highway infrastructure and estimated unit and rate costs

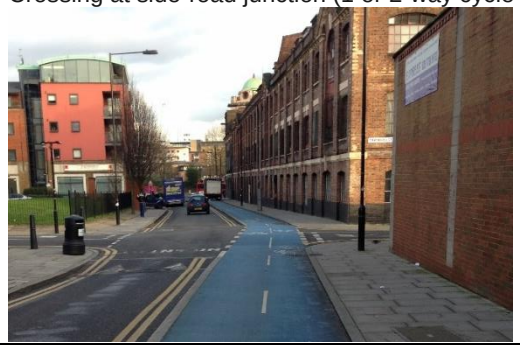
Ref	Item	Unit	Rate	Description	Cost Assumption	
Main Junctions					**Single Carriageway**	**Dual Carriageway**
J1	Main road junction modification (low intervention)	no.	£750,000	1. Replacement of traffic signals (new MoC)	£750,000	£3,500,000
				2. Geometric and signal modification (2-arms)	£750,000	£3,500,000
J2	Main road junction modification (medium intervention)	no.	£3,500,000	3. Introduction of cycle track/ full ped facilities	£750,000	£3,500,000
				4. Geometric and signal modification (4-arms)	£3,500,000	£7,500,000
J3	Main road junction modification/ replacement (high intervention)	no.	£7,500,000	5. Signalisation of cross-road junction	£3,500,000	£7,500,000
				6. Roundabout replacement	£3,500,000	£7,500,000
Bus Infrastructure						
B1	Bus lane (standard) @ 3.25m wide 	m	£145	A new 3.25 metres wide bus lane created within the nearside lane of an existing multi-lane road carriageway. The works would include resurfacing in red SMA, all signage and road markings for the bus lane and adjacent traffic lane.	1. Road resurfacing (base courses) = £37/m2 x 3.25m= £122/m 2. Road markings and signage = £20/m	
B2	Bus lane (enhanced) @ 3.5m wide	m	£155	As above for the bus lane (standard) but at 3.5 metres wide to support higher bus speeds. Bus lanes extended up to junction stop lines. No cyclists.	1. Road resurfacing (base courses) = £37/m2 x 3.5m = £130/m 2. Road markings and signage = £25/m	

Ref	Item	Unit	Rate	Description	Cost Assumption
B3	Bus lane (busway) @ 7.0m wide 	m	£500	Busway on one side of a dual carriageway and conversion of the adjacent carriageway to two-way general traffic. The busway would be resurfaced in red SMA with appropriate busway signage and road markings. A new kerbed central reservation would be created, and all road markings replaced to create a two-way general traffic road on the other side of the road. Link costs only. Junctions costed separately.	1. Road resurfacing (base courses) = £37/m2 x 7.3m = £260/m 2. Road markings and signage = £20/m 3. New kerbs = £50/m 4. Drainage = £135/m * 5. Plus works to the other side of the road = £35/m * assumes every 100m there are 10 gullies at£500 each (including 2.5 metre drainage runs to reconnect) and 1 manhole cover at£3,500 each.
B4	Bus lane (existing) resurfacing @ 3.25m wide	m	£120	Road resurfacing in red SMA at 3.25 metres wide.	1. Road resurfacing (base courses) = £37/m2 x 3.25m= £122/m
B5	Bus only road (road resurfacing, road markings and signage only) 	m	£280 (reduced to £50 for this study)	Conversion of an existing single carriageway road to bus and local access only requiring resurfacing (red SMA), road markings and signage. Does not include the bus gates at the access points (see B10).	1. Road resurfacing (base courses) = £37/m2 x 7.3m = £260/m 2. Road markings and signage = £20/m

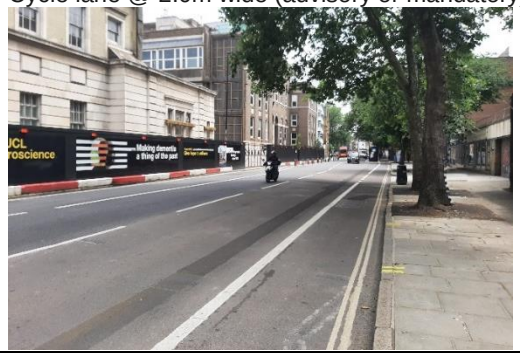
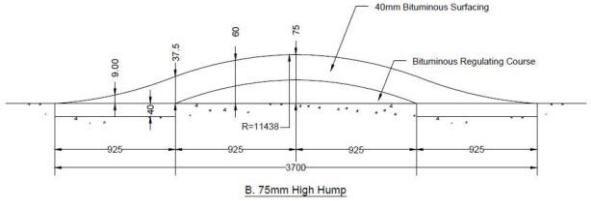
Ref	Item	Unit	Rate	Description	Cost Assumption
B6	Bus stop & shelter - standard shelter with fully accessibility stop 	no.	£10,000	Fully accessible bus stop with compliant clearway, kerb height, road markings, good quality shelter and waiting area. Boarding and alighting zones clear of obstructions with sufficient drainage to eliminate standing surface water within the clearway and waiting area.	1. New shelter = £7,500 2. Kerb works, road markings and drainage (as required) = £2,500
B7	Bus stop & shelter - 'enhanced' bus shelter with fully accessible stop 	no.	£17,500	As above for bus stop & shelter (standard) but with additional measures to ensure the bus does not need to pull into the bus stop i.e., introduction of a bus boarder. Higher quality bus shelter assumed.	1. New shelter = £12,500 2. Kerb works, road markings and drainage (as required) = £5,000

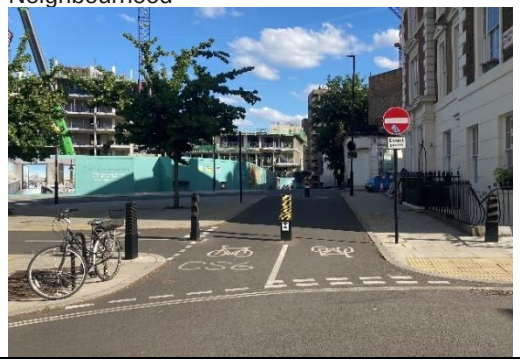
Ref	Item	Unit	Rate	Description	Cost Assumption
B8	Bus stop & shelter - 'busway' type bus shelter with fully accessible stop 	no.	£30,000	As above for bus stop & shelter (enhanced) but with additional measure to provide tram stop facilities including highway works to allow the stop to accommodate articulated vehicles or higher frequencies bus services.	1. New shelter = £20,000 2. Kerb works, road markings and drainage (as required) = £10,000
B9	Bus stop layby removal  (showing typical layby to be removed)	no.	£10,000	The removal of a bus stop layby with new kerbs, pre-cast concrete (PCC) paving and drainage/ gully modifications. Excludes new shelter/ bus stop flag, street lighting.	1. New footway paving (£37/m (l) x 3.5m (w) = 130m/2 @£40/m2 = £5,200 2. Road resurfacing (£37/mm (l) x 3.25m (w) = 120m/2 @£37/m2 = £4,440 3. Road markings (cage and clearway) = 50m @£15/m = £750
B10	Bus gate with CCTV enforcement	no.	£100,000	Traffic signal infrastructure, CCTV cameras for enforcement, signage and wider traffic management measures to create a bus only road (with local access)	

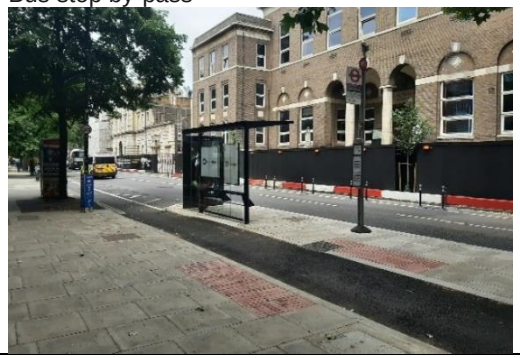
Ref	Item	Unit	Rate	Description	Cost Assumption
B11	Bus pre-signal (traffic gating)	no.	£100,000	A new traffic signal at the end of a bus lane to meter traffic into a downstream link. The traffic signal would be linked to queue detection loops located in the downstream link via a fixed link and operated under a UTC system. New traffic signal controller required.	
B12	Bus pre-signal (bus advance area)	no.	£100,000	A new traffic signal at the end of a bus lane in advance of a signalised junction creating. This traffic signal would have a fixed link to the traffic signal control of the main junction. New traffic signal controller required.	
Cycle Infrastructure					
C1	Cycle track (2-way) @ 3.0m wide plus buffer > 1.5m wide 	m	£425	A new asphalt surfaced 3.0 metre wide cycle track with kerbed edge on both sides. The cycle track would include gullies and connections to local drainage runs to remove surface water, all road marking and regulatory signage. The cycle track would be off-set from the road with a buffer of > 1.5 meters.	1. Full depth footway construction with asphalt surfacing = £90^m2 x 3/m = £270/m 2. New kerbs = £50/m x 2 = £100/m 3. Signing and road markings = £10/m 4. Modified drainage = £30/m 5. Buffer (unpaved) = £15/m

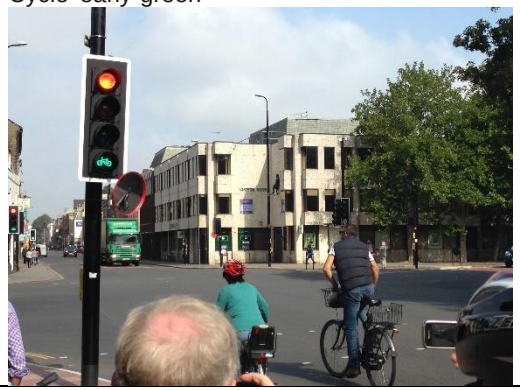
Ref	Item	Unit	Rate	Description	Cost Assumption
C2	Cycle track (2-way) @ 3.0m wide plus buffer < 1.5m wide 	m	£410	As above with narrower buffer.	As above minus buffer (unpaved)
C3a	Crossing at side-road junction (1 or 2-way cycle track across junction) 	no.	£7,500	One-way cycle track running straight across the mouth of the side junction requiring kerb line and road marking modifications.	

Ref	Item	Unit	Rate	Description	Cost Assumption
C3b	Crossing at side-road junction (1 or 2-way cycle track off-set from junction) 	no.	£12,500	One-way or two-way cycle track off-set from the main road with raised table and give-way road markings.	
C4	Cycle track (1-way) or cycle lane (fully segregated) @ 2.0m 	m	£160	A cycle lane/ track segregated from traffic by either and full height kerb or stepped track. Assumes changes to drainage are required.	1. Road resurfacing (asphalt) = £45/m 2. New kerb (double - back to back) = £75/m 3. Road markings and signage = £10/m 4. Modified drainage = £30/m
C5	Cycle lane @ 2.0m wide (light segregated) 	m	£70	A cycle lane with light segregation (armadillo or orca separators plus wands). Would include all road markings (diag. 1057) and regulatory signage along the cycle lane. Assumes no change to the road surfacing, drainage or removal of existing road markings (covered under site clearance).	1. Cycle lane separators = £50/m 2. Road markings and signage = £20/m

Ref	Item	Unit	Rate	Description	Cost Assumption
C6	Cycle lane @ 2.0m wide (advisory or mandatory) 	m	£20	A cycle lane marked out on an existing road carriageway. No road surfacing of drainage works changes. Assumes no removal of existing road markings (covered under site clearance).	1. Road markings and signage = £20/m
C7	Cycling with traffic in a traffic-calmed or cycle street 	m	£95	Road markings (including diag. 1057 cycle logos) and directional signage plus a sinusoidal speed hump every 100 metres. Assumes no road resurfacing and excludes a point closure to support reduced traffic flows (see C10).	1. Sinusoidal speed hump every 100 metres @£7,500 = £75/m 2. Signage and road markings = £20/m
C8	Shared use path @ 3.5m wide plus appropriate buffer (new) 	m	£340	New shared use path at 3.5 metres wide with appropriate width buffer between the path and the road. The buffer would form a grass verge to the road.	1. Full construction inc. surfacing = £90/m2 x 3.5m = 315/m 2. Pin kerbs = £15/m x 2 = £15/m 3. Signage = £5/m

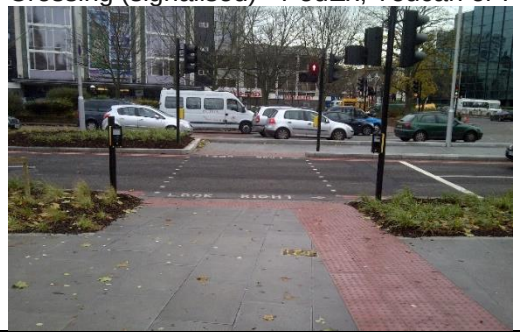
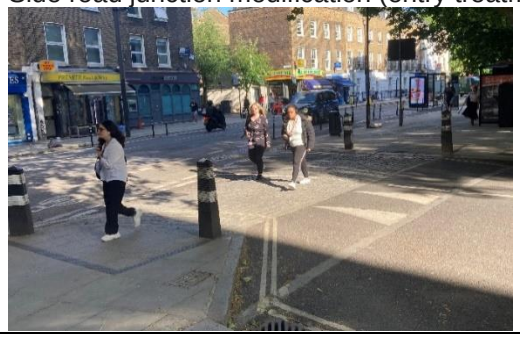
Ref	Item	Unit	Rate	Description	Cost Assumption
C9	Share use path @ 3.5m wide plus appropriate buffer (upgrade)	m	£220	Widening of an existing asphalt surfaced path from 2.5 to 3.5 metres requiring 1 metre width of full depth path construction. There would also be a buffer of appropriate width (for the speed of the road) between the path and the road. The buffer area would form a grass verge to the road.	1. Full construction inc. surfacing = £90/m2 x 1m = 90/m 2. Partial construction inc. surfacing = £37/m2 x 3.5m = 111/m 3. Pin kerbs = £15/m x 1 = £15/m 4. Signage = £5/m
C10	Point closure (motorised traffic) - mid block as part of a Low Traffic Neighbourhood 	no.	£7,500	Bollards or planters plus road markings and signage.	
C11	Crossing (signalised) - Cycle only	no.	£25,000	A signalised crossing of a single carriageway road for cyclists only including push-buttons, tactile paving and detection loops.	

Ref	Item	Unit	Rate	Description	Cost Assumption
C12	Bus stop by-pass 	no.	£25,000	Cycle track bypass including all kerb works, surfacing, road markings, pedestrian crossing facilities. Includes all pavement works associated with creating an accessible bus stop but not the installation of the bus shelter and flag.	
C13	Advance Stop Lane (@ 5.0m) 	no.	£500	Road marking to create an Advance Stop Line on the approach to a signalised junction or crossing.	

Ref	Item	Unit	Rate	Description	Cost Assumption
C14	Cycle 'early-green' 	no.	£25,000	New traffic signal aspects (high and low level) and controller to introduce an 'early green' for cyclists.	
C15	Cycle pre-signal (cycle advance area)	no.	£25,000	New traffic pre-signal, signal aspects (low level) and controller to introduce a cycle advance area for cyclists.	
C16	Cycle route signage 	m	£12	Comprehensive directional route signage for a main or parallel route.	Based on the CCAG costs of£12k/km

Ref	Item	Unit	Rate	Description	Cost Assumption
Pedestrian Infrastructure					
P1a	Footway surfacing (pavers - concrete) @ 3.0m wide	m	£120	Resurfacing of an existing footway with concrete pavers (ASP's). Assumes existing kerbs are retained with no replacement or repair required.	1. Resurfacing (sub-base + paving) = £40/m2 x 3.0m = £120/m
P1b	Footway surfacing (asphalt) @ 3.0m wide	m	£135	Resurfacing of an existing footway with asphalt. Assumes existing kerbs are retained with no replacement or repair required.	1. Resurfacing (sub-base + surfacing) = £45/m2 x 3.0m = £135/m
P1c	Footway surfacing (pavers – Granite) @ 3.0m wide	m	£280	Resurfacing of an existing footway with Granite pavers. Assumes existing kerbs are retained with no replacement or repair required.	
P2	Footway widening into road carriageway (kerbs and drainage only)	m	£80	Widening of a footway over existing road carriageway. Excludes resurfacing costs which are covered by P1.	1. New kerb @£50/m 2. Modified drainage @£30/m
P3	Footway (new) @ 3.0m wide - requiring full depth construction	m	£350	New footway requiring full depth construction (surface course, binder course and base course)	1. Full construction inc. surfacing = £90/m2 x 3m = £270/m 2. New kerb @£50/m 3. Modify drainage @£30/m
P4	Crossing (uncontrolled) - dropped kerbs and tactile paving	no.	£2,500	New or upgraded uncontrolled crossing with dropped kerbs and tactile paving on each side of the road	

Ref	Item	Unit	Rate	Description	Cost Assumption
P5	Crossing (priority) - Zebra or Parallel Zebra 	no.	£30,000	Zebra crossing on a single carriageway road without island (belisha beacons, dropped kerbs, tactile paving, road markings, signage, street lighting)	
P6	Crossing (signalised) - upgrade to Toucan or Parallel	no.	£60,000	Conversion of signal crossing to a controlled shared-use crossing (Toucan or Parallel) on a single carriageway road. Assumes replacement/ upgrade of existing traffic signal infrastructure (including controller), dropped kerbs, tactile paving and road markings. For a dual carriageway road, the cost would be x2 to include widening of the crossing island.	

Ref	Item	Unit	Rate	Description	Cost Assumption
P7	Crossing (signalised) - PedEx, Toucan or Parallel 	no.	£75,000	New signal controlled crossing. For a dual carriageway road, the cost would be x2 to include widening of the crossing island	
P8	Side road junction modification (corner radii - give way markings - kerb adjustments)	no.	£5,000	Reduction to the corner radii of an existing junction between 1 to 3 metres depending on the width of the side road. No modification required to drainage.	
P9	Side road junction modification (entry treatment) 	no.	£12,500	A reduction to the corner radii of an existing junction (as above) plus a tabletop entry treatment. No modification required to drainage.	

Ref	Item	Unit	Rate	Description	Cost Assumption
P10	Side road junction modification (continuous footway) 	no.	£20,000	A reduction to the corner radii (as above) of an existing junction plus a continuous footway treatment. No modification required to drainage.	
P11	Side road junction modification - point closure for motorised traffic as part of a Low Traffic Neighbourhood 	no.	£12,500	The closure of a side road on a main road with the footway built across the junction by re-establishing the kerb and extending the footway surfacing	
General Highway Infrastructure					
G1	Road resurfacing @ 1.0m wide	m	£40	Replacement of surface course, binder course and base course	1. Resurfacing = £37/m
G2	Road construction (full depth) @ 1.0m wide	m	£290	As G1 plus sub-base	1. Construction (sub-base) = £200/m 2. Surfacing = £37/m 3. Modified drainage (road) = £50/m

Ref	Item	Unit	Rate	Description	Cost Assumption
G3	High friction surfacing (anti-skid) @ 3.25m wide	m	£65		1. Surface dressing = £20/m
Street Lighting					
L1	Street lighting minor modification	m	£14	Minor modification to street lighting on one side of the road	Assumes a lighting column (at £3500 each) is replaced every 250 metres along the corridor
L2	Street lighting 50% replacement	m	£70	Intermediate modification to street lighting on one side of the road	Assumes a lighting column (at £3500 each) is replaced every 50 metres along the corridor
L3	Street lighting full replacement	m	£140	Major modification to street lighting on one side of the road	Assumes a lighting column (at £3500 each) is replaced every 50 metres along the corridor

A.4 Preliminaries and Optimism Bias

A.4.1 Given the level of detail that can be extracted from the concept designs and the extent to which on-site highway constraints can be established at this phase of scheme development, it has been necessary to apply a relatively high preliminary uplift of 15 percent.

A.4.2 In addition, STAG requires an optimism bias to be added to the base cost plus preliminary total. This optimism bias (set out in Section 13, STAG Technical Database, May 2014) aims to address the tendency of project appraisers to be overly optimistic when estimating the base cost for schemes. STAG sets this optimism bias at 44 percent for Outline Business Case.

A.4.3 The associated TAG Unit A1.2 guidance was updated in May 2022 and indicates that a revised optimism bias level of 46% should be used at Stage 1. For the purposes of a robust appraisal, 46 precent optimism bias was applied.

A.5 AMAT Analysis Assumptions

A.5.1 To complete the AMAT analysis, only the costs associated with improving the cycle route infrastructure were required. The majority of this cost is captured in the Cycle Infrastructure category in the cost plan but for Main Junctions and Street Lighting, the costs needed to be split across multiple modes given that multiple modes would benefit. This is set out in the table below.

Table A.3: Costs apportioned by mode for main junctions and street lighting

Mode	Allocation of Costs to Mode	
	Main Junction	Street Lighting
Pedestrian	15%	5%
Cycle	15%	25%
Bus	70%	70%

A.6 Cost Summary

A.6.1 Using a bill of quantities for the standard highway infrastructure indicated in the concept designs, the unit and rate costs in Table A.2 and the proposed split between bus, cycle and pedestrian modes in Table A.3, a cost plan was produced for each option. The table below provides a high level breakdown of these costs for each option, with further detail provided in Table A.5.

Table A.4: Option Capital Costs

Option	Infrastructure + Preliminaries (£m)				Plus 46% Optimism Bias (£m)			
	Walking	Cycling	Bus	Total	Walking	Cycling	Bus	Total
1	12.6	23.7	17.7	54.0	18.4	34.6	25.8	78.8
2A	15.4	16.6	53.2	85.2	22.4	24.2	77.7	124.3
2B	14.6	16.6	51.3	82.6	21.4	24.2	75.0	120.6
2C	14.6	16.6	59.8	91.1	21.4	24.2	87.3	132.9
3	8.3	17.0	26.9	52.3	12.2	24.8	39.3	76.3
4A	19.6	23.3	43.9	86.8	28.7	34.0	64.1	126.8
4B	18.9	23.3	42.1	84.3	27.6	34.0	61.4	123.0
4C	18.9	23.3	50.5	92.7	27.6	34.0	73.8	135.4

Table A.5: Breakdown of the Option costs

Option	Corridor/ Route	Infrastructure				Inf + Prelim	Inf + Prelim + OB	Total (inc. Variants)		
		Walking	Cycle	Bus	TOTAL			Variant A	Variant B	Variant C
1	Main Corridor A944 I	£665,168	£2,138,040	£648,959	£3,452,167	£3,969,991	£5,796,188	£78.8M		
	Main Corridor A944 II	£1,607,328	£7,815,114	£11,476,461	£20,898,902	£24,033,737	£35,089,256			
	Main Corridor A9119 III	£8,702,713	£10,630,033	£3,233,702	£22,566,449	£25,951,416	£37,889,067			
2	Main Corridor A944 I	£665,168	£2,138,040	£648,959	£3,452,167	£3,969,991	£5,796,188	£124.7M	£120.9M	£132.9M
	Main Corridor A944 II	£4,116,022	£1,316,086	£30,670,721	£36,102,829	£41,518,253	£60,616,650			
	Main Corridor A944 II - RV A	£629,412	£0	£2,626,647	£3,256,059	£3,744,468	£5,466,923			
	Main Corridor A944 II - RV B	£0	£0	£1,015,323	£1,015,323	£1,167,621	£1,704,727			
	Main Corridor A944 II - RV C	£0	£0	£8,382,487	£8,382,487	£9,639,860	£14,074,196			
	Main Corridor A9119 III	£4,284,976	£3,843,234	£11,306,656	£19,434,866	£22,350,096	£32,631,140			
	A944 Parallel Route 1	£1,785,628	£3,296,935	£1,009,074	£6,091,638	£7,005,383	£10,227,859			
	A944 Parallel Route 2	£1,187,938	£2,856,974	£0	£4,044,912	£4,651,648	£6,791,406			
	A9119 Parallel Route 1	£693,043	£975,259	£0	£1,668,301	£1,918,546	£2,801,078			
	A9119 Parallel Route 2	£21,540	£173,760	£0	£195,300	£224,595	£327,908			
3	Main Corridor A944 I	£665,168	£2,138,040	£648,959	£3,452,167	£3,969,991	£5,796,188	£76.6M		
	Main Corridor A944 II	£1,607,328	£7,815,114	£11,476,461	£20,898,902	£24,033,737	£35,089,256			
	Main Corridor A9119 III	£4,284,976	£3,843,234	£11,306,656	£19,434,866	£22,350,096	£32,631,140			
	A9119 Parallel Route 1	£693,043	£975,259	£0	£1,668,301	£1,918,546	£2,801,078			
	A9119 Parallel Route 2	£21,540	£173,760	£0	£195,300	£224,595	£327,908			
4	Main Corridor A944 I	£665,168	£2,138,040	£648,959	£3,452,167	£3,969,991	£5,796,188	£126.8M	£123.0M	£135.4M
	Main Corridor A944 II	£4,116,022	£1,316,086	£30,670,721	£36,102,829	£41,518,253	£60,616,650			
	Main Corridor A944 II - RV A	£629,412	£0	£2,626,647	£3,256,059	£3,744,468	£5,466,923			
	Main Corridor A944 II - RV B	£0	£0	£1,015,323	£1,015,323	£1,167,621	£1,704,727			
	Main Corridor A944 II - RV C	£0	£0	£8,382,487	£8,382,487	£9,639,860	£14,074,196			
	Main Corridor A9119 III	£8,702,713	£10,630,033	£3,233,702	£22,566,449	£25,951,416	£37,889,067			
	A944 Parallel Route 1	£1,785,628	£3,296,935	£1,009,074	£6,091,638	£7,005,383	£10,227,859			
	A944 Parallel Route 2	£1,187,938	£2,856,974	£0	£4,044,912	£4,651,648	£6,791,406			

Appendix B Cycle Route Preferences

B.1 Overview

B.1.1 This appendix outlines a brief exercise undertaken to understand how cyclists currently travel to key destinations on the corridor, and how travel distances could be reduced if cyclists used the more direct routes if these were provided as proposed in the options.

B.1.2 Through Aberdeen City Council, access has been made available to Strava Metro data.

B.1.3 It is recognised that the Strava data is only representative of a subset of those who cycle, and particularly is likely to be skewed towards those more likely to be willing to cycle on road. However, it is none-the-less a very useful source of information regarding which routes / roads are more heavily used for cycling journeys, the times of day when cycle flows are highest, and the preferred routes people are taking – which do not always match the most direct route.

B.1.4 **Note that all Strava Metro data within this report is aggregated and de-identified data from Strava Metro.**

B.2 Approach

B.2.1 Strava Metro was used to identify how cyclists using the Strava app travel eastbound and westbound between:

- Westhill and Foresterhill Health Campus
- Westhill and George Street (north of city centre)
- Westhill and Union Street

B.2.2 Strava Metro has been used to identify the **most popular** routes and **most dire**ct routes alongside the associated travel distance and elevation change data for both.

B.2.3 Cycle journey times were estimated based on the assumption that a cyclist travels at an average speed of 15kph.

B.3 Route Comparison

Westhill to Foresterhill Health Campus

B.3.1 Cyclists travelling from Westhill to the Foresterhill Health Campus (inc. Aberdeen Royal Infirmary) typically follow the A944 with some small deviations to use parallel shared path sections as shown in the figure below.

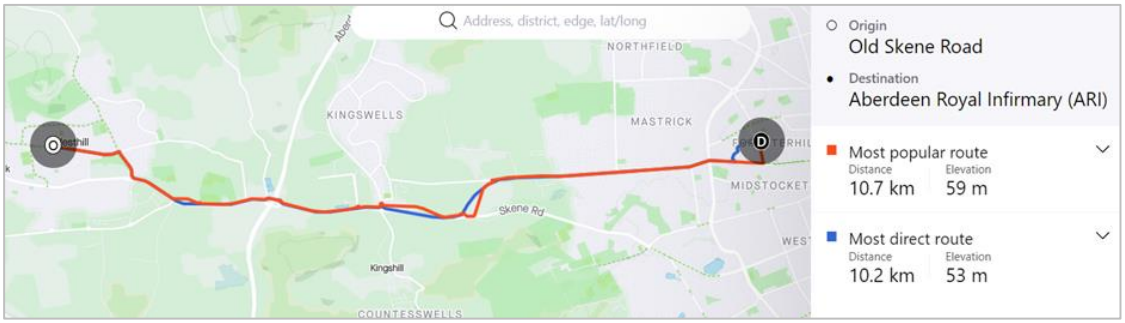


Figure B:1: Most direct and most popular cycle routes from Westhill to Foresterhill

Foresterhill Health Campus to Westhill

B.3.2 In the westbound direction, cyclists deviate from the A944, in preference of taking a longer route via the A9119 and King's Gate. This increases the cycle distance by 900m relative to the direct route via the A944.

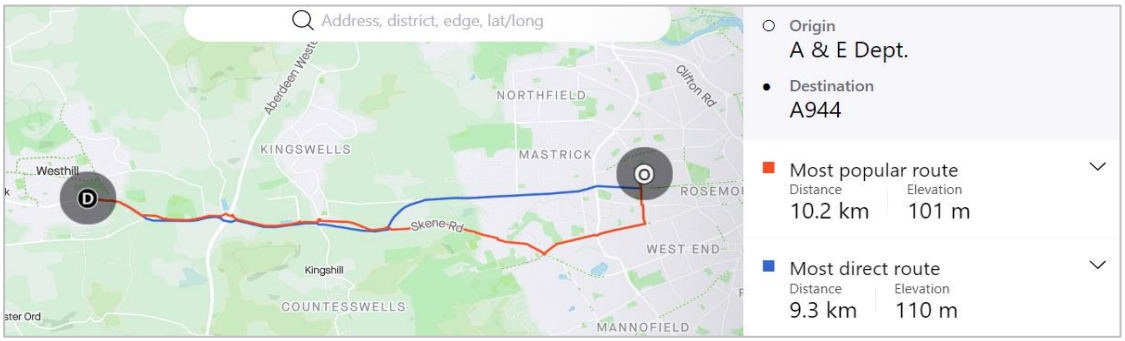


Figure B:2: Most direct and most popular cycle routes from Foresterhill to Westhill

B.3.3 Clearly the eastbound and westbound routes differ. This is likely to be influenced by the relatively steep gradient found on the A944 east of the A92.

B.3.4 Examination of Google Earth data shows that on the 1km section between Roseberry Street and the A92, the A944 shows a sustained 5% gradient and a maximum gradient of approximately 10%. It seems likely that cyclists are content to coast down this hill on their way to Foresterhill Health Campus but would prefer to avoid the westbound climb.

Westhill to George Street

B.3.5 The most popular route for cycle travel from Westhill to George Street, which sits to the north of the city centre, runs along the A9119 then routes north from Union Street. This route is 1.2km longer than the most direct route which runs eastbound along the A944 then south onto George Street.

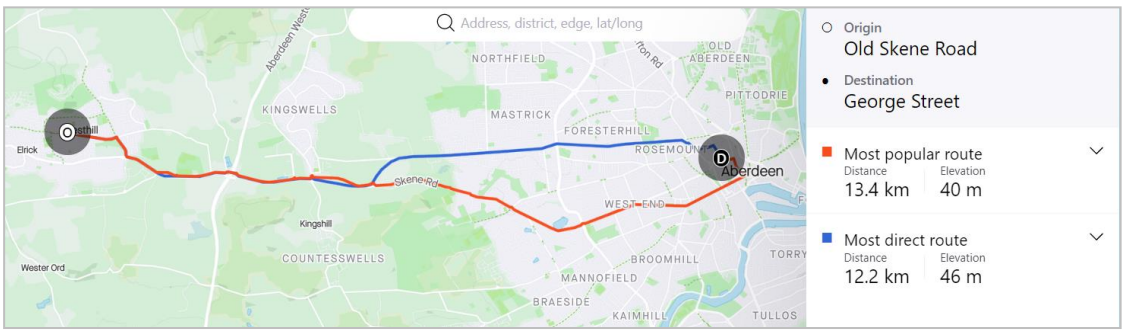


Figure B:3: Most direct and most popular routes between Westhill and George Street

B.3.6 Again, cyclists are choosing to take a longer route to avoid use of the A944. However, in this instance, cyclists would be travelling downhill and so the gradient is likely to be less of a factor. The quality of existing cycle infrastructure on both corridors is comparable, but other influencing factors may be:

- **Traffic volume:** Traffic volumes are approximately 20% higher on the A944 than the A9119.
    - Traffic count data from the DfT indicates that in 2019 average annual daily traffic on the A944 varied from 14,500 to 17,500 vehicles per day (based on counters 78516,

80028, 80029 and 80031), and on the A9119 traffic average annual daily traffic was recorded as approximately 13,500 vehicles per day (only one counter available).

- **Traffic speed:** traffic speed data from INRIX suggests that eastbound traffic speeds are comparable on the A944 and A9119 during the morning peak and slightly higher on the A9119 during the evening peak. Full details in Table B.6.

- **Perceived safety:** During the Stantec site visit in early 2020, the survey team cycled the A944 Westburn Road during the PM peak but noted that they felt unsafe due to heavy traffic flow, instances of speeding and parked cars obstructing their movement. As a result, the survey team chose to dismount and walk.

Table B.6: INRIX mean speed data (7th-10th October 2019)

Section	Mean Speed					
	Eastbound (kph)			Westbound (kph)		
	07:00	16:00	20:00	07:00	16:00	20:00
A944 - Westhill to AWPR	47	51	59	51	50	59
A944 - AWPR to Kingswells	41	42	53	16	15	36
A944 - Kingswells to A9119	28	28	41	56	49	64
A944 - A9119 to Sheddocksley	49	57	59	32	33	52
A944 - Sheddocksley to A92	26	26	37	31	30	40
A944 - A92 to Westburn Dr	26	26	37	36	33	41
A944 - Westburn Dr to Berryden Rd	14	19	32	24	27	33
A944 - Berryden Rd to Mounthooly	29	26	33	28	24	33
A96 (W N St)	23	19	31	26	26	33
Albyn Place	19	17	34	20	23	35
A9119 - Albyn Pl to Queen's Cross	20	33	41	25	20	36
A9119 - Queen's Cross to Hazlehead	28	33	46	22	22	37
A9119 - Hazlehead to A944	43	44	56	49	53	56

George Street to Westhill

B.3.7 Similarly, the most popular route for cycle travel from George Street to Westhill routes south onto Union Street and then routes west along the A9119. This route is **1km longer than the most direct route** which runs westbound along the A944.

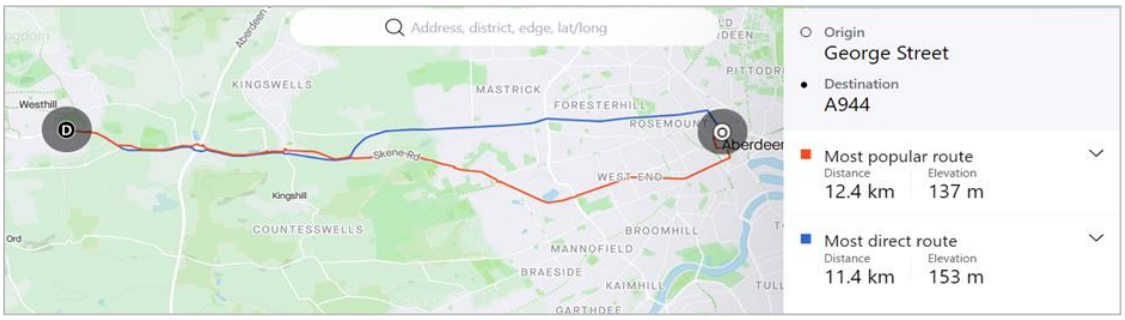


Figure B:4: Most direct and most popular routes between Westhill and George Street

B.3.8 As noted earlier, there is a steep gradient on the A944, east of the A92. This is an uphill gradient for those travelling westbound. While this gradient may dissuade some cyclists from the section, issues surrounding traffic volumes, traffic speeds and perceived safety may also be contributory factors.

Westhill to Union Street

B.3.9 The most direct and most popular routes from Westhill to Union Street essentially follow the same path along the A9119, with only small deviations to use parallel road sections on the western part of the route.

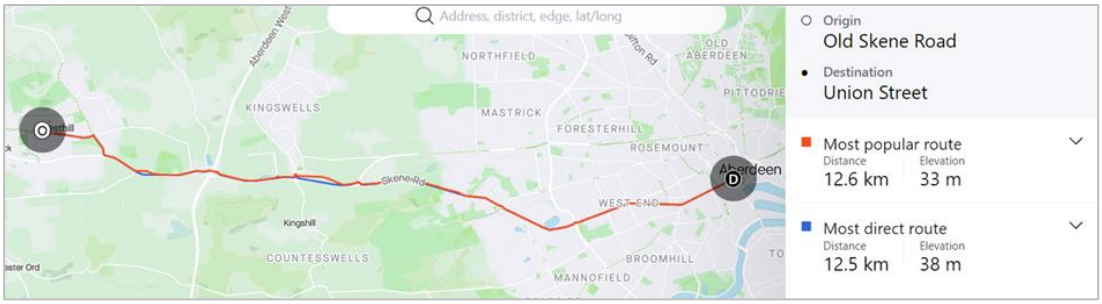


Figure B:5: Most direct and most popular routes between Westhill and Union Street

Union Street to Westhill

B.3.10 Similarly, the most direct and most popular routes from Union Street to Westhill essentially follow the same path along the A9119, as shown below.

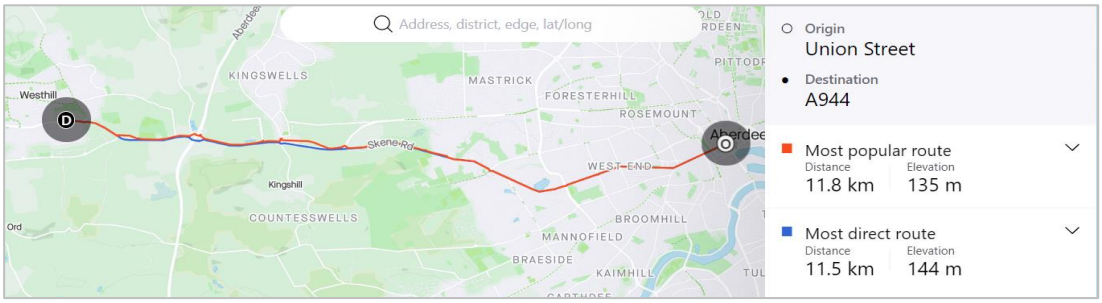


Figure B:6: Most direct and most popular routes between Union Street and Westhill

Appendix C Bus Journey Time Analysis

C.1 Introduction

C.1.1 Additional analysis has been undertaken to estimate the impacts of each of the options on bus journey times. This analysis has used existing bus timetables (as at Spring 2022) to assess the typical level of delay incurred by each bus service and output estimates of how delay could be reduced, dependent on the extent and quality of bus infrastructure proposed.

C.2 Bus Routes

Existing services

C.2.1 Review of existing bus route maps identified that the services which are likely to be most heavily impacted by the options are:

- Stagecoach 4/5/6 services which operate between Westhill/Countesswells and the city centre. These services converge at Kingswells Park & Ride site and follow the A9119 and Albyn Place to Holburn Junction where they access Union Street.
- First 11 service which operates between Woodend and Northfield, travelling along the A9119 and Albyn Place to Holburn Junction, where the service joins Union Street.
- Stagecoach 14 service which operates between Kingswells and the city centre, travelling via the A944 between the junction with Old Lang Stracht and the Foresterhill Health Campus. This service then travels via residential areas before accessing the west end of Union Street.
- First 23 service which operates between Sheddocksley and Heathryfold, travelling via the A944 between Sheddocksley and the Foresterhill Health Campus. This service then travels via residential areas before accessing the west end of Union Street. The 23 exits Union Street via King Street and joins the A96, travelling north to Mounthooly.

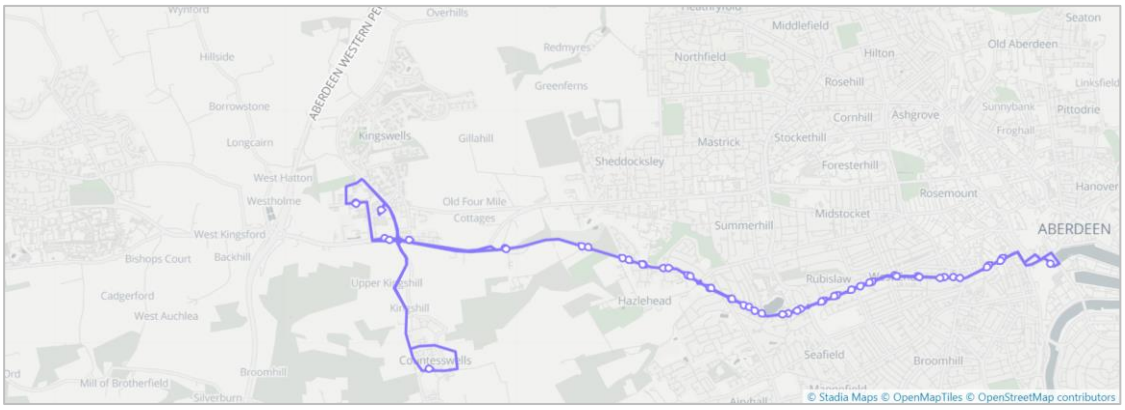


Figure C:1: Stagecoach 4 bus route (bustimes.org)

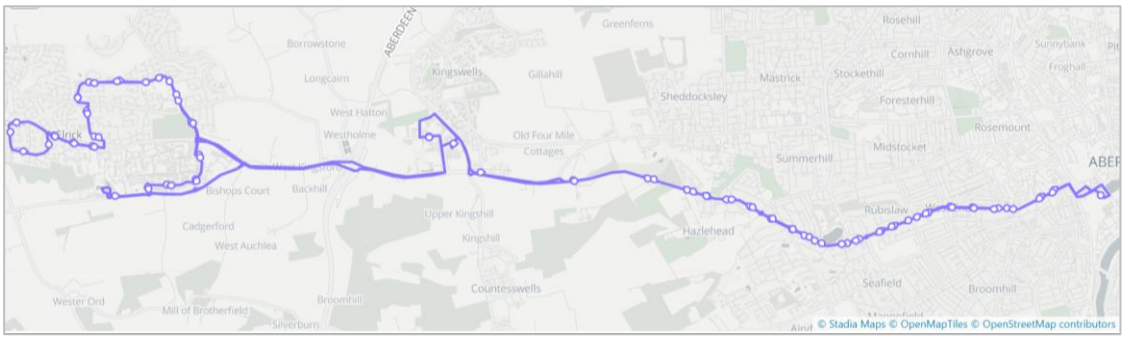


Figure C:2: Stagecoach 5 bus route (bustimes.org)

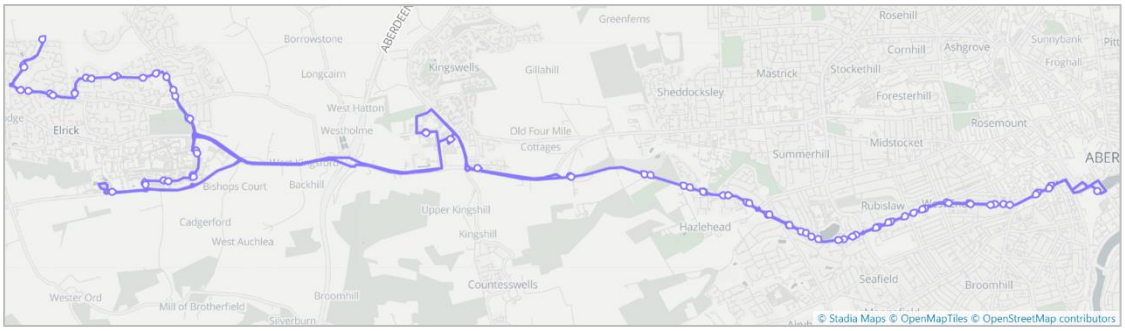


Figure C:3: Stagecoach 6 bus route (bustimes.org)

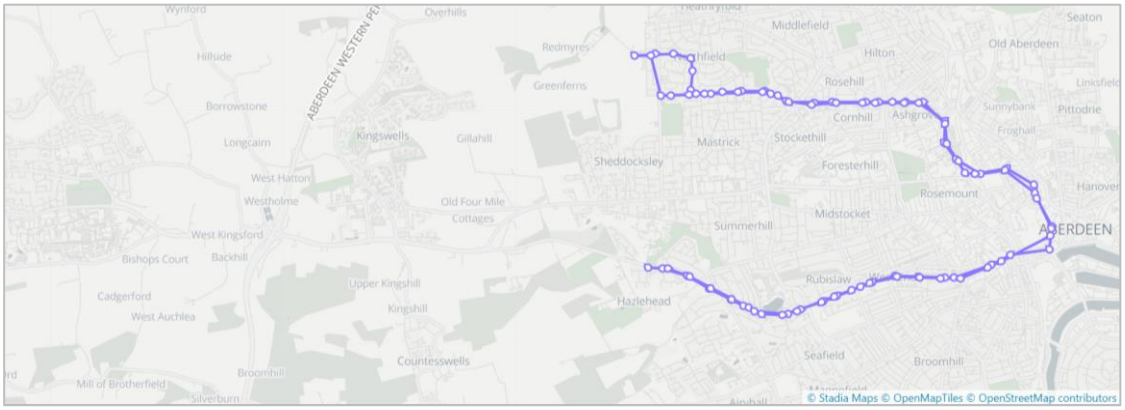


Figure C:4: First 11 bus route (bustimes.org)

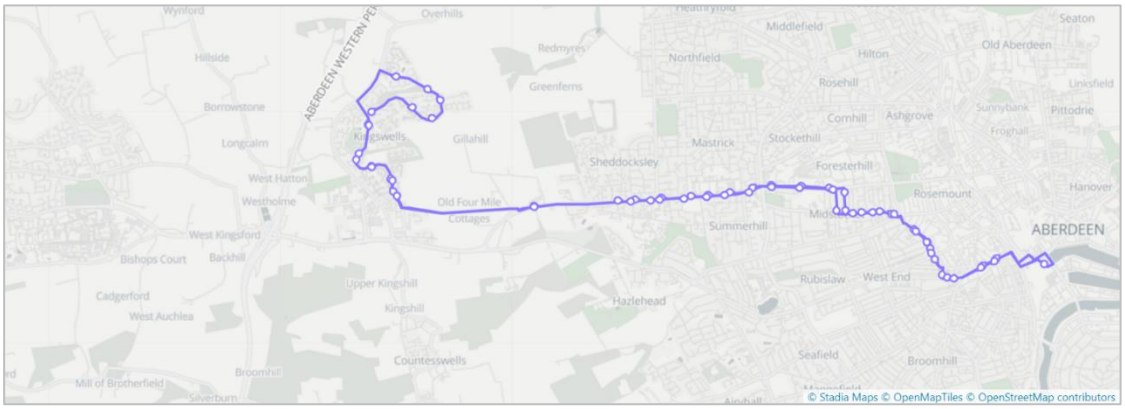


Figure C:5: Stagecoach 14 bus route (bustimes.org)

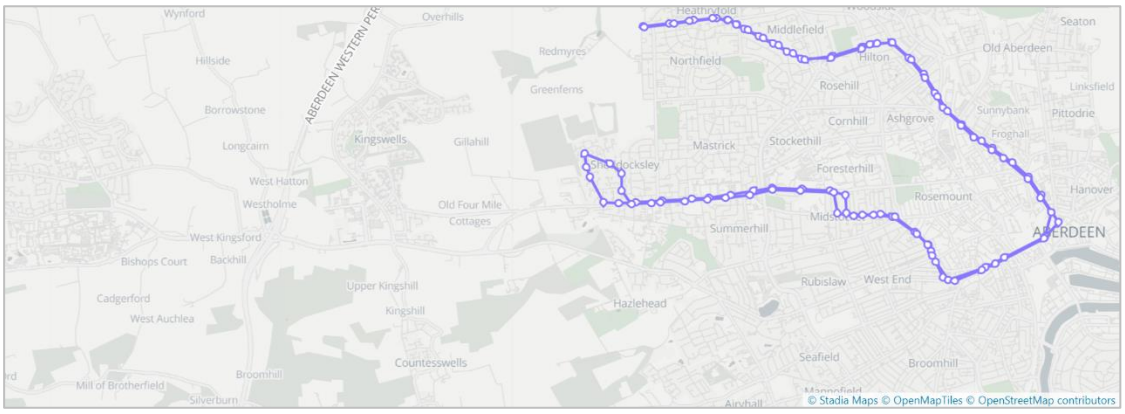


Figure C:6: First 23 bus route (bustimes.org)

Dummy ART services

C.2.2 There are no existing bus services which route the full length of the A944 between Kingswells and Aberdeen city centre. Therefore, the benefits of the proposed bus priority along the A944 (as proposed under options 2 and 4) are not fully realised, particularly between Foresterhill Health Campus and Mounthooly roundabout.

C.2.3 However, it is recognised that the Aberdeen Rapid Transit Options Appraisal study is ongoing, and as the ART network is not yet fully defined, it could include a rapid transit route between Kingswells Park & Ride and Aberdeen city centre along the A944. Indeed, the lesser constraints along the A944, and the key trip generators at Woodhill House and the Foresterhill Health Campus make it an attractive route for ART implementation. Given this, it has been important to assess the potential time savings could be accrued by such services if the proposed bus priority infrastructure along the A944 were implemented and ART services took full advantage of the infrastructure along the full length of the route.

C.2.4 Three dummy 'ART' bus services have been developed and tested for this purpose, one for each of the Option 2 and 4 A, B and C variants. All services follow the A944 from Kingswells Park & Ride up to the junction with the B986/Berryden corridor and then diverge as below:

- Dummy A (assumed if variant A were in place) continues along the A944 to Mounthooly before travelling south on the A96 to Union Street via King Street
- Dummy B (assumed if variant B were in place) turns south to follow the B986 (Skene Square, Denburn Road) as far as Guild Street, before heading north to Union Street via Market Street
- Dummy C (assumed if variant C were in place) routes south to follow the B986 (Skene Square) as far as Woolmanhill Roundabout, before joining Blackfriars Street (via the proposed new access). The service then travels along Union Terrace for a short distance, before following Rosemount Viaduct and Union Terrace to Union Street

C.2.5 **Note: these services do not form part of any of the options themselves and have only been considered to identify the journey time savings which could be accrued from the infrastructure.**

C.2.6 Timetables have been developed for the dummy ART services based on existing timetables for the existing services noted above, as well as the First 20, Stagecoach 35, Stagecoach 37 and Stagecoach 59 bus services. It is assumed that boarding/alighting activity at a stop incurs a 20 second delay.

C.3 Study Area

C.3.1 While the study area for the appraisal excludes the city centre, bus journey time analysis has considered the full section between Kingswells and Union Street/Union Square Bus Station given the relevance of this analysis to the ART project.

C.3.2 The table below indicates which bus routes use each of the existing route sections.

Table C.1: Bus route usage by section

Road	Section	Bus Route use by Section						
		4/5/6	11	14	23	Dummy A	Dummy B	Dummy C
A944	Kingswells P&R to A9119	X				X	X	X
A944	A9119 to Old Lang Stracht					X	X	X
A944	Old Lang Stracht to Sheddocksley			X		X	X	X
A944	Sheddocksley to ARI			X	X	X	X	X
A944	ARI to Berryden Rd					X	X	X
A944	Berryden Rd to Mounthooly		X			X		
A96	Mounthooly to King St				X	X		
A9119	A944 to Woodend	X						
A9119	Woodend to King's Gate	X	X					
A9119	King's Gate to Queen's Cross	X	X					
Albyn Pl	Queen's X to Holburn Junction	X	X					
B896	A944 to Woolmanhill Roundabout						X	X
B896	Woolmanhill Roundabout to Guild St						X	
B'kfriars St	Link between St Andrews St & Rosemount Viaduct							X
Union St	Bridge St to Market St		X		X			X
Bridge St	Union St to Guild St	X		X				
Guild St	East of Carmelite St	X		X			X	
Market St	Guild St to Union St						X	

C.4 Quantifying Delay

C.4.1 In order to estimate existing delay, bus journey times for all services have been compared across the day, with the minimum journey time on each route section being assumed to reflect free flow/uncongested movement. The difference between timetabled journey times and the daily minimum is assumed to reflect congestion/delay on the route.

C.4.2 Limited delay is understood to apply on the corridor west of Kingswells (between Kingswells and Westhill) so minimal journey time savings are expected to apply on that section. Consequently, this analysis considers conditions from Kingswells Park & Ride eastwards.

Do Nothing Scenario

C.4.3 As part of the Aberdeen City Centre Masterplan proposals, consideration is being given to additional traffic restrictions within the very heart of the city:

- Union Street is pedestrianised between Bridge St and Market St (cycles still permitted and time limited servicing), and use of Guild Street (east of Carmelite St), Bridge St, Market Street (north of Guild Street) is restricted to bus, taxi and cycle only
- Union Street is made bus and cycle only between Bridge St and Market St (again limited time servicing permitted)

C.4.4 However, modelling[12] found that even if Union Street remained open to buses, restrictions to general traffic would still be needed on Guild Street, Bridge Street and Market Street. Given that Aberdeen City Council has most recently decided to permit bus movement along Union Street, it has been assumed that in the Do Nothing scenario, Guild Street (east of Carmelite St), Bridge St, and Market Street (north of Guild Street) are restricted to bus, taxi and cycle only.

C.4.5 Bus timetables for the services 4/5/6, 11, 14, 23 and the dummy ART services were adjusted to assume that minimum journey times applied throughout the day on sections where road traffic would be limited to buses, taxis and bicycles.

C.4.6 The table below sets out key statistics on bus journey times and delay assumed to apply in the Do Nothing scenario. Journey times for all services except the 11 and 23 reflect travel between Kingswells and the city centre (Union Street /Union Square Bus Station). As such journey times for the 11 and 23 services cannot be directly compared with other services.

Table C.2: Do-Nothing Bus Journey Time Data (minutes)

No.	Direction	Section	Max. Journey Time	Mean Journey Time	Max. Delay	Mean Delay
4	Eastbound	Kingswells P&R – Bus Station	36	27	12	3
4	Westbound	Bus Station – Kingswells P&R	32	28	8	4
5/6	Eastbound	Kingswells P&R – Bus Station	39	27	22	11
5/6	Westbound	Bus Station – Kingswells P&R	35	26	16	7
11	Eastbound	Woodend - Union St (by Broad St)	20	19	6	5
11	Westbound	Union St (by Broad St) - Woodend	24	22	9	7
14	Eastbound	Kingswells (Kingswood Dr) - Bus Station	30	28	7	5
14	Westbound	Bus Station – Kingswells (Kingswood Dr)	24	23	4	3
23	Eastbound	Sheddocksley – Union St (by Broad St)	31	29	8	6
23	Westbound	Union St (by Broad St) to Sheddocksley	30	27	9	6
Dummy A	Eastbound	Kingswells P&R – Union St (by Broad St)	28	26	6	4
Dummy A	Westbound	Union St (by Broad St) – Kingswells P&R	30	27	8	5

[12] https://committees.aberdeencity.gov.uk/documents/s126158/Appendix%20C.pdf

No.	Direction	Section	Max. Journey Time	Mean Journey Time	Max. Delay	Mean Delay
Dummy B	Eastbound	Kingswells P&R – Union St (by Broad St)	29	26	5	2
Dummy B	Westbound	Union St (by Broad St) – Kingswells P&R	28	25	4	1
Dummy C	Eastbound	Kingswells P&R – Union St (by Broad St)	26	24	5	3
Dummy C	Westbound	Union St (by Broad St) – Kingswells P&R	28	26	4	2

C.4.7 Analysis of timetables identified some interesting points:

- The 4, 5 and 6 services are the most frequent existing services which serve Kingswells/Kingswells Park & Ride, although they show substantially longer journey times than the 14 at peak times
- Journey times on the 4/5/6 bus services reach a maximum of 39 minutes for travel between Kingswells and Union Square Bus station, compared with 30 minutes on the 14 service
- On the whole, services which run along the A9119 appear to suffer from more delay than those which run along the A944. This makes sense in that the A9119 corridor has negligible bus priority infrastructure at present whereas the A944 includes substantial lengths of bus lane between Sheddocksley and the Foresterhill Health Campus
- Consequently, there is greater variability in journey times on services which travel via the A9119. For example:
  - on the 5/6 service journey times from Kingswells Park & Ride to Union Square Bus Station vary from 17 to 39 minutes
  - on the 14 service journey times from Kingswells to Union Square Bus Station vary from 23 to 30 minutes
  - On the A9119, eastbound services incur more delay that westbound services
- New services along the A944, show journey times comparable to the existing Stagecoach 14 service under the Do Nothing scenario

Do Something Scenario

C.4.8 Consideration has been given to the potential impacts of new infrastructure proposed under the options.

C.4.9 The table below sets out the infrastructure assumed on each road section under each corridor option.

Table C.3: Do Something proposals by option and road section

Road	Section	Infrastructure by Option							
		Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 3C
A944	Kingswells P&R to A944 / A9119 roundabout	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes
A944	A944/A9119 roundabout to Old Lang Stracht	No change	No change	No change	No change	No change	No change	No change	No change
A944	Old Lang Stracht to Sheddocksley	No change	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes	No change	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes
A944	Sheddocksley to ARI (Raeden Av approx.)	Staggered bus lanes	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes	Staggered bus lanes	Continuous bus lanes	Continuous bus lanes	Continuous bus lanes
A944	ARI to Berryden Rd junction	No change	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	No change	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes
A944	Berryden Rd junction to Mounthooly	No change	Staggered bus lanes	No change	No change	No change	Staggered bus lanes	No change	No change
A96	Mounthooly to King St junction	No change	Continuous bus lanes	No change	No change	No change	Continuous bus lanes	No change	No change
A9119	A944/A9119 roundabout to Woodend	No change	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	No change	No change	No change
A9119	Woodend to King's Gate	No change	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	No change	No change	No change
A9119	King's Gate to Queen's Cross Roundabout	No change	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	No change	No change	No change
Albyn Place	Queen's Cross Roundabout to Holburn Junction	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes	Staggered bus lanes
B896	A944 junction to Woolmanhill Roundabout	No change	No change	Continuous bus lanes	Continuous bus lanes	No change	No change	Continuous bus lanes	Continuous bus lanes
B896	Woolmanhill Roundabout to Guild St junction	No change	No change	Continuous bus lanes	No change	No change	No change	Continuous bus lanes	No change
B'friars St	Link between St Andrew's Street & Rosemount Viaduct	No change	No change	No change	New junction with Denburn Rd	No change	No change	No change	New junction with Denburn Rd
Union Street	Bridge St junction to Market Street junction	No change	No change	No change	No change	No change	No change	No change	No change
Bridge St	Union St junction to Guild St junction	No change	No change	No change	No change	No change	No change	No change	No change
Guild St	East of Carmelite St	No change	No change	No change	No change	No change	No change	No change	No change
Market St	Guild St junction to Union St	No change	No change	No change	No change	No change	No change	No change	No change

C.4.10 It has been assumed that:

- Provision of continuous bus lanes on a section will allow buses to travel at free-flow/uncongested speeds and journey times will reflect the daily minimum on that section as per the existing timetable.

- Provision of staggered bus lanes on a section will reduce delay by half compared with the existing timetable (i.e., time saving = (timetabled section journey time – minimum daily journey time for that section) / 2).

- Provision of a new junction between Blackfriars Street and Denburn Road will remove the need for services to circulate around the square encapsulated by St Andrew Street, John Street and Charlotte Street, accruing a time saving of one minute.

C.4.11 Based on the above assumptions, revised journey times were calculated for each bus service under each option. Key statistics are set out in the tables below.

Table C.4: Do Something Journey Times (minutes)

Service	Section	Max. Journey Time (min) by Option								Mean Journey Time (min) by Option							
		Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C	Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C
4	Kingswells P&R – Bus Station	33	30	30	30	30	33	33	33	26	25	25	25	25	26	26	26
4	Bus Station – Kingswells P&R	31	29	29	29	29	31	31	31	26	25	25	25	25	26	26	26
5/6	Kingswells P&R – Bus Station	35	30	30	30	30	35	35	35	25	23	23	23	23	25	25	25
5/6	Bus Station – Kingswells P&R	30	27	27	27	27	30	30	30	23	22	22	22	22	23	23	23
11	Woodend - Union St	19	18	18	18	18	18	19	19	18	17	17	17	17	17	18	18
11	Union St - Woodend	23	21	21	21	21	21	23	23	21	20	20	20	20	20	21	21
14	Kingswells - Bus Station	30	29	29	29	30	29	29	29	28	27	27	27	28	27	27	27
14	Bus Station – Kingswells	24	24	24	24	24	24	24	24	23	23	23	23	23	23	23	23
23	Sheddocksley – Union St	30	29	29	29	30	29	29	29	28	28	28	28	28	28	28	28
23	Union St - Sheddocksley	28	26	26	26	28	26	26	26	26	25	25	25	26	25	25	25
Dummy A	Kingswells P&R – Union St		23				23				22				23		
Dummy A	Union St – Kingswells P&R		25				25				23				25		
Dummy B	Kingswells P&R – Union St			25				25				24				24	

Service	Section	Max. Journey Time (min) by Option								Mean Journey Time (min) by Option							
		Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C	Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C
Dummy B	Union St – Kingswells P&R			25				25				24				24	
Dummy C	Kingswells P&R – Union St				22				22				21				21
Dummy C	Union St – Kingswells P&R				25				25				24				24

Table C.5: Do Something Time Savings (minutes per service)

Service	Section	Max. Time Saving (min)								Mean Time Saving (min)							
		Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C	Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C
4	Kingswells P&R – Bus Station	3	7	7	7	7	3	3	3	1	2	2	2	2	1	1	1
4	Bus Station – Kingswells P&R	2	4	4	4	4	2	2	2	2	3	3	3	3	2	2	2
5/6	Kingswells P&R – Bus Station	4	10	10	10	10	4	4	4	2	4	4	4	4	2	2	2
5/6	Bus Station – Kingswells P&R	6	9	9	9	9	6	6	6	3	4	4	4	4	3	3	3
11	Woodend - Union St	1	3	3	3	3	3	1	1	1	2	2	2	2	2	1	1
11	Union St - Woodend	1	3	3	3	3	3	1	1	1	2	2	2	2	2	1	1
14	Kingswells - Bus Station	1	3	3	3	1	3	3	3	0	1	1	1	0	1	1	1
14	Bus Station – Kingswells	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
23	Sheddocksley – Union St	2	3	3	3	2	3	3	3	1	2	2	2	1	2	2	2
23	Union St - Sheddocksley	2	4	4	4	2	4	4	4	1	2	2	2	1	2	2	2
Dummy A	Kingswells P&R – Union St		5				5				4				4		
Dummy A	Union St – Kingswells P&R		6				6				3				3		
Dummy B	Kingswells P&R – Union St			5				5				2				2	
Dummy B	Union St – Kingswells P&R			3				3				1				1	

Service	Section	Max. Time Saving (min)								Mean Time Saving (min)							
		Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C	Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C
Dummy C	Kingswells P&R – Union St				5				5				3				3
Dummy C	Union St – Kingswells P&R				3				3				2				2

Table C.6: Do Something Time Savings (%)

No.	Section	Maximum Journey Time Reduction								Mean Journey Time Reduction							
		Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C	Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C
4	Kingswells P&R – Bus Station	-8%	-18%	-18%	-18%	-18%	-8%	-8%	-8%	-2%	-6%	-6%	-6%	-6%	-2%	-2%	-2%
4	Bus Station – Kingswells P&R	-5%	-11%	-11%	-11%	-11%	-5%	-5%	-5%	-7%	-9%	-9%	-9%	-9%	-7%	-7%	-7%
5/6	Kingswells P&R – Bus Station	-10%	-24%	-24%	-24%	-24%	-10%	-10%	-10%	-6%	-16%	-16%	-16%	-16%	-6%	-6%	-6%
5/6	Bus Station – Kingswells P&R	-16%	-24%	-24%	-24%	-24%	-16%	-16%	-16%	-10%	-15%	-15%	-15%	-15%	-10%	-10%	-10%
11	Woodend - Union St	-5%	-13%	-13%	-13%	-13%	-13%	-5%	-5%	-5%	-10%	-10%	-10%	-10%	-10%	-5%	-5%
11	Union St - Woodend	-4%	-13%	-13%	-13%	-13%	-13%	-4%	-4%	-4%	-11%	-11%	-11%	-11%	-11%	-4%	-4%
14	Kingswells - Bus Station	-2%	-3%	-3%	-3%	-2%	-3%	-3%	-3%	-1%	-3%	-3%	-3%	-1%	-3%	-3%	-3%
14	Bus Station – Kingswells	0%	0%	0%	0%	0%	0%	0%	0%	-1%	-1%	-1%	-1%	-1%	-1%	-1%	-1%
23	Sheddocksley – Union St	-3%	-6%	-6%	-6%	-3%	-6%	-6%	-6%	-3%	-6%	-6%	-6%	-3%	-6%	-6%	-6%
23	Union St - Sheddocksley	-7%	-13%	-13%	-13%	-7%	-13%	-13%	-13%	-4%	-8%	-8%	-8%	-4%	-8%	-8%	-8%
Dummy A	Kingswells P&R – Union St		-18%				-18%				-14%				-14%		
Dummy A	Union St – Kingswells P&R		-18%				-18%				-13%				-13%		
Dummy B	Kingswells P&R – Union St			-16%				-16%				-8%				-8%	

No.	Section	Maximum Journey Time Reduction								Mean Journey Time Reduction							
		Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C	Option 1	Option 2A	Option 2B	Option 2C	Option 3	Option 4A	Option 4B	Option 4C
Dummy B	Union St – Kingswells P&R			-11%				-11%				-4%				-4%	
Dummy C	Kingswells P&R – Union St				-17%				-17%				-11%				-11%
Dummy C	Union St – Kingswells P&R				-11%				-11%				-6%				-6%

C.4.12 Analysis shows that:

- Option 1 infrastructure provides limited journey time savings – a maximum of 6 minutes on the 5/6 service eastbound and on average of about one minute
- Option 2A/B/C provides the greatest journey times savings for existing services with Options 3 and 4 providing comparable time savings for services, which run along the A9119 and A944, respectively
- Under Option 2, journey times on the:
    - 4 service reduce by up to 7 minutes eastbound and 4 minutes westbound, resulting in a maximum journey time of 29 minutes and a mean journey time of 25 minutes eastbound, and a maximum journey time of 28 minutes and a mean journey time of 25 minutes westbound
    - 5/6 service reduce by up to 10 minutes eastbound and 9 minutes westbound, resulting in a maximum journey time of 29 minutes and a mean journey time of 22 minutes eastbound, and a maximum journey time of 26 minutes and a mean journey time of 22 minutes westbound
    - 14 service reduce by up to 3 minutes eastbound and 1 minute westbound, resulting in a maximum journey time of 29 minutes and a mean journey time of 27 minutes eastbound, and a maximum journey time of 24 minutes and a mean journey time of 22 minutes westbound
- It makes sense that time savings are higher on the 4/5/6 than the 14 as the sections of the A944 used by the 14 already feature substantial stretches of bus lane and there is less existing delay to address
- The new services which could potentially run along the A944, accrue greater journey time savings than the existing 14 and 23 services which also use the A944. The reason for this is that the new services benefit from improved bus priority along a much greater proportion of their routes
- Under Option 2A/4A, the Dummy A service achieves a maximum journey time of 23 min and a mean journey time of 22 minutes eastbound, and a maximum journey time of 25 min and a mean journey time of 23 minutes westbound
- Under Option 2B/4B, the Dummy B service achieves a maximum journey time of 25 minutes and a mean journey time of 24 minutes in both directions.
- Under Option 2C/4C, the Dummy C service achieves a maximum journey time of 22 min and a mean journey time of 21 minutes eastbound, and a maximum journey time of 25 min and a mean journey time of 24 minutes westbound.
- In each of the above three variant cases, this means that dummy service journey times during morning and afternoon peaks under the Do Something scenario will be within one minute of minimum journey times under the Do Nothing scenario. If an ART Rapid Transit service were introduced on these routes, time savings are likely to be even greater as a reduced stopping frequency would be implemented, which is not reflected in the existing timetables which were used as a basis for journey time estimates.

Appendix D Active Travel Economic Impacts

D.1 Introduction

D.1.1 To provide quantitative analysis to the economy criteria appraisal, the monetised economic impacts of the active travel (cycling) elements of the options have been estimated using the DfT's latest Active Mode Appraisal Toolkit (AMAT), which is a spreadsheet-based tool for estimating the costs and benefits of walking and cycling interventions.

D.1.2 It is important to recognise that the quantitative economic impacts presented in this appendix only represent a part of the overall appraisal picture and overly focusing on the BCRs generated by the options as a means of assessing the value of each option is not advised. The schemes to be implemented all consider significant reallocation of road space away from the private vehicle and as such will have a similarly significant journey time disbenefit and associated economic impact on traffic.

D.2 Monetised Benefits - Cycling

Overview

D.2.1 In order to provide an indication of the potential economic benefit of the proposed active travel interventions proposed under each of the options, an appraisal of the benefits based on the Department for Transport latest (May 2022) Active Mode Appraisal Toolkit (AMAT) has been undertaken. This analysis covers benefits relating to Congestion, infrastructure, accidents, local air quality, noise, greenhouse gases, reduced risk of premature death, absenteeism, journey ambience, indirect taxation, and government costs.

D.2.2 Although large-scale infrastructure schemes for other modes typically assume a 60-year appraisal period, this is generally not recommended for active modes interventions as they are more likely to have more finite project lives and increased uncertainty around the longevity of their impacts. Therefore, most appraisals of cycling and walking infrastructure schemes assume an appraisal period of 20 years and this approach has been adopted for this appraisal.

D.2.3 Analysis first requires an estimation of cycling demand, and the approach taken to estimating demand is set out below.

Active Travel Demand

D.2.4 All approaches to active mode appraisal require estimation of Do Nothing and Do Something active travel demand and this section describes the method used for the this study. These demand forecasts are used in the appraisal of benefits of the identified options.

D.2.5 Active travel counters in Aberdeen City and Shire are focussed in areas where active travel infrastructure already exists and there is insufficient data available to estimate demand within the study area. In such a situation TAG Unit A.5.1 suggests that cycle demand can be estimated using Travel to Work Data (TTW) from the 2011 Census. This approach was adopted and is described below.

Study Area

D.2.6 The study area was defined as those intermediate zones which have population weighted centroids within 1km of the core study corridors (i.e., A944 between Westhill and Mounthooly, A9119 between A944 and Albyn Place and Albyn Place itself. The Kingswells and Countesswells intermediate zones were also added to the study area given the substantial

development which has been ongoing in these areas since 2011. As such, the Study Area was identified as those intermediate zones shown in pink in the figure below.

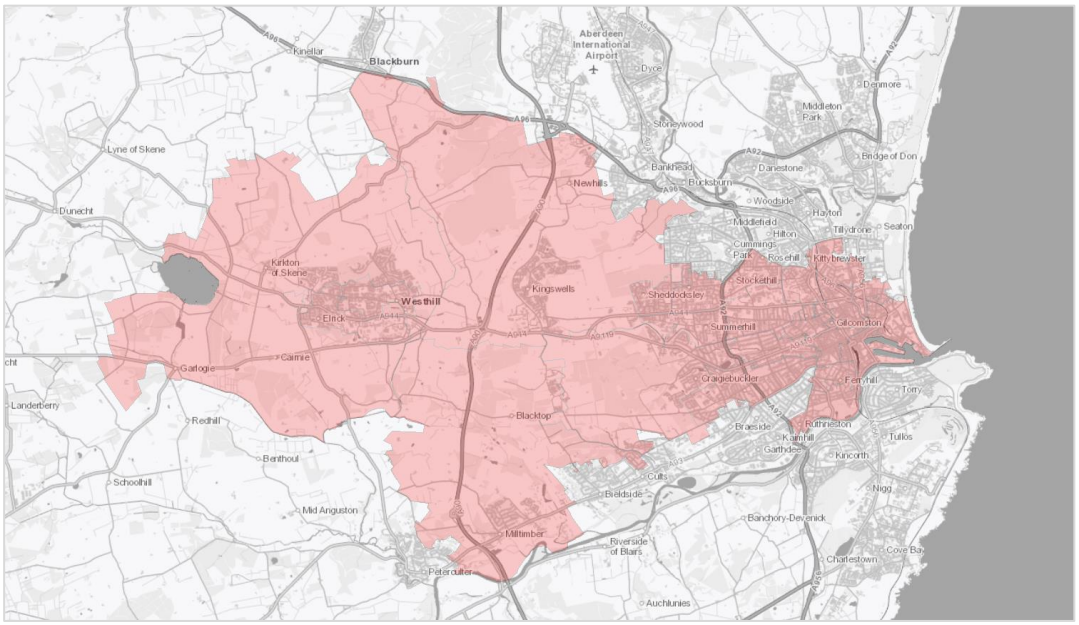


Figure D:1: Active Mode Appraisal Study Area

D.2.7 The study corridors were broken up into sections according to where different standards of infrastructure are proposed under the various options, and zones at the Intermediate Zone level were allocated to the sections based on which section was nearest to the population weighted centroid.

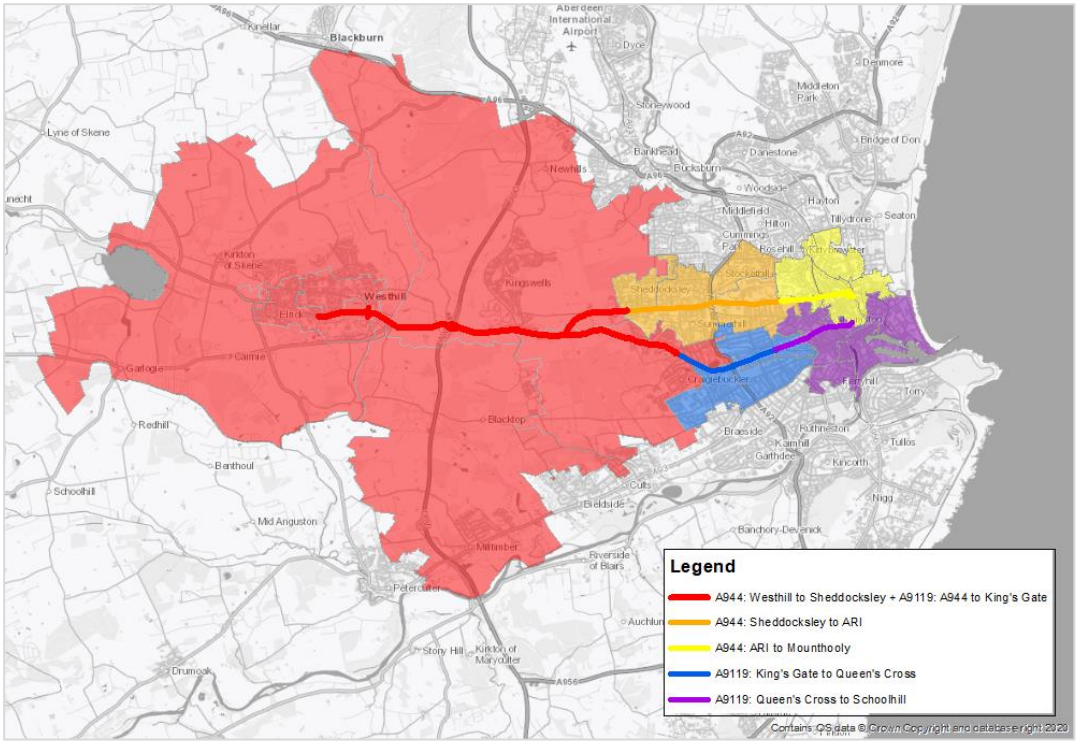


Figure D:2: Active Mode Appraisal Study Area split by section

Baseline Data

D.2.8 As part of the census, participants are asked where they live, where they work and the main mode of travel they use to travel to work. This dataset is available with origins and destinations described at Intermediate Zone (IZ) level or higher geographies. TTW data was collated for journeys where:

- the main mode of travel was bicycle;
- the residence and workplace fell within the study area;
- the residence and workplace fell within different intermediate zones; and
- from high level review of mapping, it appeared that travel between home and workplace could use the identified study corridors.

D.2.9 This process output estimates of the number of people who cycled to work through the study area in 2011.

Baseline Demand for Active Travel

D.2.10 TTW data provides an indication of how many people travel to work between given intermediate zones by bike. However, this is not equivalent to cycle demand on an average weekday as return trips involve two movements, those surveyed will work differing numbers of hours per week and differing days and may not attend work due to sickness or annual leave. As such, we used this data as the basis for estimating underlying cycle commuter demand and then growthed commuting demand up to total cycle demand using factors obtained from the Scottish Household Survey. Specific steps are described below.

D.2.11 WebTAG Unit A5-1 requires that active travel demand be expressed in terms of the average number of cycling trips per day. As such, it was necessary to generate an estimate of the proportion of commuters who would be travelling on an average weekday. We estimated that 72% of employees would be working on a given weekday based on the following approach:

- Identify the proportion of people in employment who work <6 hours, 6-15 hours ,15-30 hours, 31-45 hours, and more than 45 hours per week (Annual Population Survey / Labour Force Survey 2019) and estimate average number of days worked per year for each band.
- Estimate the average number of Saturdays and Sundays worked in each band, based on outputs from the Labour Force Survey 2013 (could not find equivalent data from 2019, but assume proportions have not changed significantly).
- Estimate the number of days' holiday taken each year for each band, on basis of a full-time employee taking 28 days per year (pro-rated).
- Estimate the number of sick leave taken each year for each band, on basis the average worker taking 4.2 days per year (Labour Force Survey 2019).
- Deduct the above from the average number of weekdays worked per year for each band to estimate the likelihood of an employee working on a given weekday.

D.2.12 We assumed that 72% of employees who commute to work would be working on an average weekday and also that 90% of trips would be a return (per TAG Unite A.5-1), allowing us to generate an estimate of the average number of weekday commuting trips undertaken by bicycle in 2011.

D.2.13 The next step was to consider how cycle travel demand had evolved between 2011 and 2022. There are two key aspects to consider:

- Population change: Data from the Sub-Area population estimates from the National Records of Scotland show that the population of the study area grew by 4.4% between 2011 and 2020.

- Change in propensity to travel by bike: Scottish Transport Statistics 2020 shows that cycle mode share for commuting trips increased by 14% between 2011 and 2019. Given that 2020 was an anomalous year as a result of pandemic impacts upon cycling, it was simply assumed that there was no change in terms of propensity to cycle between 2019 and 2020.

D.2.14 Each of these uplifts was applied to daily 2011 commuter cycle demand estimates to generate the equivalent for 2020. Given the continuing impacts of COVID on travel trends, it was simply assumed that population in 2022 is as per 2020- and prosperity to cycle remains as per 2019.

D.2.15 The next consideration was the proportion of trips that travel between ODs which actually use the study corridors. A first high-level pass was under taken to remove trips between ODs which would not use the study infrastructure (e.g., travel from Mounthooly to Union Street), and secondly a factor of 50% was applied to reflect that there are many routing options within a city environment and many cyclists will use routes parallel to the study corridors, rather than the study corridors themselves.

D.2.16 A factor was then applied to expand the estimate from average weekday commuter cycle trips to all cycle trips. Data from the National Travel Survey (DfT, 2016) indicates that in England 33% of cycling trips are undertaken for commuting purposes (Note: corresponding statistics were sought for Scotland from the Scottish Household Survey but could not be found). Commuter cycle trip numbers were divided by this proportion to estimate total cycle trips in 2022.

D.2.17 The above generated an estimate of total cycle demand on the study corridors. This demand was then allocated to corridor sections, based on the origin destination sections and the intervening sections which cyclists would pass through, e.g.: A trip beginning in Section 1 and ending in Section 3, would add demand to Sections 1, 2 and 3.

Origin Section	Destination Section	Sections Used				
		1	2	3	4	5
1	**1**	✓				
1	**2**	✓	✓			
1	**3**	✓	✓	✓		
1	**4**	✓			✓	
1	**5**	✓			✓	✓
2	**2**		✓			
2	**3**		✓	✓		
2	**4**		✓		✓	
2	**5**		✓		✓	✓
3	**3**			✓		
3	**4**			✓	✓	
3	**5**			✓		✓
4	**4**				✓	

Origin Section	Destination Section	Sections Used				
		1	2	3	4	5
4	**5**				✓	✓
5	**5**					✓

D.2.18 After existing cycle demand estimates were developed for each of the main corridor sections, additional calculations were completed to estimate demand for the A944 Parallel Route 1 and A9119 Parallel Route 1 (as descried in Section 4.2). A944 Parallel Route provides an alternative to routing along the main corridor Sections 2 and 3, and A9119 Parallel Route 1 provides an alternative to travelling along main corridor Section 5. On this basis, demand for these routes was assumed to equivalent to the number of unique trips on the respective sections (i.e., a trip which added demand to Sections 2 and 3 is assumed to add only one trip to A944 Parallel Route 1).

Forecasting Future Demand: The Do-Nothing Case

D.2.19 After estimating demand in 2020, the next step was to consider how demand for cycle infrastructure may evolve in the absence of the proposed scheme. Opening year is assumed to be 2027 and benefits are assumed to be accrued over a 20-year period up to 2047.

D.2.20 TEMPRO was used to generate trip-end growth factors for cycling in Aberdeen City for the average weekday. These factors showed that cycle demand is likely to grow by 1% between 2027 and 2047. Growth of 1% over 20 years is very low (equivalent to 0.05% growth p.a.) and so it was assumed that cycle demand would remain flat across the whole appraisal period.

Forecasting Future Demand: The Do-Something Case

D.2.21 TAG Unit A5.1 presents three approaches to estimating the demand impact of a new active travel scheme. The decision was taken to use a comparator approach, whereby a similar active travel scheme is identified and observed growth in cycle trips is applied to Do Nothing demand within the study area.

D.2.22 A number of monitoring reports were reviewed for various cycle schemes; however, the Greater Bristol Cycling City scheme was selected due to fact that it involved a programme of infrastructure improvements which focussed on radial and arterial routes into Bristol.

D.2.23 Cycle volumes within the Greater Bristol Cycling City study area grew by 40% following implementation of the scheme. The table below compares Do Nothing and Do Something cycle demand if a similar level of cycle growth was seen in Aberdeen.

Table D.7: Future Cycle Demand

Section	Do Nothing	Do Something
A944: Westhill to Sheddocksley & A9119: A944 to King's Gate	341	477
A944: Sheddocksley to Foresterhill Health Campus	511	715
A944: Foresterhill Health Campus to Mounthooly	448	627
A9119: King's Gate to Queen's Cross	513	719
A9119: Queen's Cross to Schoolhill	426	596
A944 Parallel Route 1	759	1,063
A9119 Parallel Route 1	513	719

D.2.24 It is recognised that while the nature of cycle infrastructure improvements proposed in Bristol is similar to that proposed in Aberdeen, the Bristol scheme benefitted from a supporting travel planning scheme. However, demand estimates for the study corridors are considered to be conservative, given that demand estimate have already been halved to account for the range of route options available. As such, it is considered that there is more demand within the broader study area which can reroute on to the study corridor once conditions improve, in addition to the new trips which can be generated, and therefor 40% is an appropriate demand uplift estimate.

Summary

D.2.25 Do Nothing active travel demand was calculated from first principles using TTW outputs from the 2011 census and then multiplying these volumes up to total cycle trips using assumptions primarily based on NTS, NRS and SHS data. Observed growth from comparator schemes was then applied to Do Nothing demand forecasts to generate an estimate of how trip making activity may change if proposed options are implemented (i.e., the Do Something case).

D.2.26 These demand forecasts form the basis of the active mode appraisal.

Active Mode Appraisal Toolkit Analysis

D.2.27 In May 2020, the Department for Transport (DfT) published the latest Active Mode Appraisal Toolkit (AMAT), which is a spreadsheet-based tool for estimating the costs and benefits of walking and cycling interventions. This tool was used to calculate and monetise the key costs and benefits of the active travel infrastructure proposed under this study.

D.2.28 The AMAT spreadsheet quantifies a range of potential benefits including health improvements from increased physical activity, improvements to journey quality and impacts associated with modal shift.

Existing Conditions

D.2.29 There is very limited existing cycle infrastructure between Westhill and Aberdeen along the A944 and A9119 corridors. Where infrastructure does exist, it falls below current standards for appropriate cycle infrastructure, and so it has been assumed that there is no existing compliant cycle infrastructure within the study corridors.

Proposed Options

D.2.30 All options provide continuous cycle infrastructure between Westhill and Aberdeen city centre via the A944, A9119 and identified Parallel Routes. The table below summarises assumed infrastructure provision under each option. While two potential parallel routes have been

identified for each of the A944 and A9119 corridors, only one parallel route has been assessed for each corridor. The longer of the routes have been chosen for robustness.

D.2.31 Note: As the majority of the route has existing pedestrian connections where needed, the Active Mode Appraisal focusses on cycling benefits only, although the costs associated with pedestrian improvements have been included.

Table D.8: Proposed infrastructure by option

Section	Assumed Infrastructure			
	Option 1	Option 2	Option 3	Option 4
A944: Westhill to Sheddocksley & A9119: A944 to King's Gate	Off-road segregated cycle track	Off-road segregated cycle track	Off-road segregated cycle track	Off-road segregated cycle track
A944: Sheddocksley to Foresterhill Health Campus	Off-road segregated cycle track	No provision	Off-road segregated cycle track	No provision
A944: Foresterhill Health Campus to Mounthooly	On-road segregated cycle lane	No provision	On-road segregated cycle lane	No provision
A9119: King's Gate to Queen's Cross	On-road segregated cycle lane	No provision	No provision	On-road segregated cycle lane
A9119: Queen's Cross to Schoolhill	On-road segregated cycle lane	On-road segregated cycle lane	On-road segregated cycle lane	On-road segregated cycle lane
A944 Parallel Route 1	No provision	On-road segregated cycle lane	No provision	On-road segregated cycle lane
A9119 Parallel Route 1	No provision	On road non-segregated cycle lane	On road non-segregated cycle lane	No provision

D.2.32 The AMAT spreadsheet requires the user to input key pieces of data concerning the proposals and also allows the user to refine underlying assumptions where more locally specific data is available. The table below indicates the assumptions made and how key variables were defined.

Table D.9: AMAT Inputs

AMAT Section	Variable Description	Input	Comment
Intervention Details	Appraisal year	2022	
	Intervention Opening year	2027	
	Last year of funding	2027	
	Appraisal period	20 years	
	Local area type	Other Urban	The majority of NTEM zones within the study area fall into the Other Urban category.
Mode information - cycling	No. trips without proposed intervention	Varies by option. See Table D.7	
	No. trips with proposed intervention		

AMAT Section	Variable Description	Input	Comment
	How much of an average cycling trip will use the intervention?	Varies by section. See Table D.10 below.	
	Current cycling infrastructure	No provision	Existing provision is limited and where it does exist, it does not meet current standards
	Proposed cycling infrastructure	Varies by option and by section. See Table D.8	
	Are any additional shower facilities being added?	No	
	Are any additional secure storage facilities being added?	No	
Assumptions (Where changed from default)	Average length of trip	4.8 km	Transport and Travel in Scotland 2019 (SHS Travel Diary TD5)
	Proportion otherwise using a car	14.9%	Values from TAG Databook Table A5.4.7 normalised per AMAT Guidance (as no light rail or rail on study corridor)
	Proportion otherwise using a taxi	10.9%	
	Background growth rate in trips	0.0%	TEMPRO Cycle Growth Factors

D.2.33 As noted above, the AMAT spreadsheets also require the proportion of an average cycling trip which will use the study infrastructure. This will obviously vary across each of the road sections as they vary in length, but the average cycling trip length is fixed. These values were estimated based on the following assumptions:

- Where a trip starts and ends within the same section study area, it will use 25% of the section infrastructure.
- Where a trip starts in one section study area, but ends in another, it will use 50% of the infrastructure in the origin and destination areas, as well as 100% of the infrastructure within the intermediary areas.
- An average cycling trip measures 4.8km as above.

Table D.10: Proportion of section infrastructure used by an average cycle trip

Section	% of section infrastructure used by average cycle trip
A944: Westhill to Sheddocksley & A9119: A944 to King's Gate	62%
A944: Sheddocksley to Foresterhill Health Campus	29%
A944: Foresterhill Health Campus to Mounthooly	14%
A9119: King's Gate to Queen's Cross	33%
A9119: Queen's Cross to Schoolhill	17%
A944 Parallel Route 1	27%
A9119 Parallel Route 1	33%

Option Costs

D.2.34 Costs have been developed for the delivery of all options. The table below sets out the costs in 2022 prices, including optimism bias at 46%[13], and assumes that only one parallel route will be delivered for each corridor under Options 2 and 4.

Descriptions	Option 1	Option 2	Option 3	Option 4
A944: Westhill to Sheddocksley & A9119: A944 to King's Gate	£5,405,330	£5,405,330	£5,405,330	£5,405,330
A944: Sheddocksley to Foresterhill Health Campus	£5,239,794	-	£5,239,794	-
A944: Foresterhill Health Campus to Mounthooly	£2,832,397	-	£2,832,397	-
A9119: King's Gate to Queen's Cross	£6,283,886	-	-	£6,283,886
A9119: Queen's Cross to Schoolhill	£3,909,257	£3,909,257	£3,909,257	£3,909,257
A944 Parallel Routes 1 & 2	-	£7,076,996	-	£7,076,996
A9119 Parallel Route 1	-	£1,121,547	£1,121,547	-
Full Route	£23,670,664	£17,513,130	£18,508,326	£22,675,468

D.2.35 The costs of delivering Options 1 and 4, are the highest and the costs of delivering Options 2 and 3 are the lowest. The difference is primarily driven by the difference in costs of providing cycle infrastructure (links and junctions) suitable for a high flow busy arterial route like the A944 and A9119, versus provision of cycle infrastructure on a quieter parallel route. Additionally, cycle route infrastructure is costed for two parallel routes for the A944 but only one parallel route for the A9119.

D.2.36 Costs were also generated for the maintenance of active travel infrastructure. It was assumed that maintenance would cost £3,000 per km of cycle infrastructure per annum. This is roughly equivalent to the cost of cycle track replacement every 30 years.

AMAT Results

D.2.37 The AMAT spreadsheets for the respective sections output individual estimates of option benefits for the corresponding section, and these outputs were summed to generate total benefits for each option for the whole study area.

D.2.38 The results for the active mode appraisal are provided in Table D.11.

Table D.11: AMAT Results Summary

Impact	Active Travel Infrastructure Monetised Costs and Benefits (in £'000s)			
	Option 1	Option 2A/B/C	Option 3	Option 4A/B/C
Congestion benefit	314	291	314	291
Infrastructure maintenance	2	2	2	2
Accident	53	49	53	49

[13] An optimism bias of 46% was applied to all costs, given the phase of scheme development. However, given the highly detailed costing exercise undertaken, a 23% optimism bias may be more appropriate.

Impact	Active Travel Infrastructure Monetised Costs and Benefits (in £'000s)			
	Option 1	Option 2A/B/C	Option 3	Option 4A/B/C
Local air quality	7	6	7	6
Noise	4	3	4	3
Greenhouse gases	21	20	21	20
Reduced risk of premature death	4,613	4,277	4,613	4,277
Absenteeism	568	526	568	526
Journey ambience	2,290	1,900	2,288	1,902
Indirect taxation	-24	-22	-24	-22
Government costs	16,164	11,959	12,639	15,484
Private contribution	243	262	251	254
PVB	7,845	7,050	7843	7,053
PVC	16,405	12,220	12,888	15,737
BCR	0.48	0.58	0.61	0.45

D.2.39 While all options provide end-to-end cycle infrastructure with a good degree of segregation from traffic, Option 1 is considered to provide the highest quality cycle infrastructure, including the greatest distance of off-road segregated cycle tracks. Option 1 cycle infrastructure also routes along the two key corridors for accessing the city from the west and so will be very prominent, meaning that more people are likely to be aware of the provision. The Active Mode Appraisal indicates that Option 1 will yield the greatest active travel benefits of all options (£7.845m PVB), with 66% of the benefits being derived from lower absenteeism and a reduced risk of premature death.

D.2.40 Option 2 similarly provides end-to-end cycle infrastructure and also accrues substantial active travel benefits. However, Option 2 infrastructure is proposed on routes parallel to the main study corridors to the east of Bressay Brae and King's Gate. These parallel routes carry lower levels of traffic but are more constrained and so cannot accommodate the same extent of off-road and segregated provision as the larger corridor. Consequently, the Active Mode Appraisal indicates Option 2 will yield the lowest active travel benefits of all options (£7.050m PVB). While Option 2 (and Option 4) will yield lower active travel benefits than Option 1, it should be noted that this only relates to a difference of £0.8million. Option 2 proposals for increased bus priority should increase demand for bus travel and every public transport journey has an element of active travel associated with it, and while these additional trips made by bus users could not be captured by the active mode appraisal, there is an additional uncaptured value to public health.

D.2.41 Option 3 provides a very similar standard of link infrastructure to Option 1 and Option 4 provides a similar standard of cycle link to Option 2. However, the provision of cycle infrastructure on the main study corridors, which are arterial routes into the city is a lot more costly in terms of junction upgrades, given the volumes of traffic and scale of the junctions involved. As such, costs are highest for Option 1 which focuses cycle infrastructure on both the A944 and A9119 and costs are lowest for Option 2 which focuses cycle infrastructure on quieter parallel routes. Also, Option 3 provides cycle infrastructure on one main corridor and one parallel route, while Option 4 provides cycle infrastructure on one main corridor and two parallel routes which is notably more costly.

D.2.42 In short, Options 2 and 3 generate the highest BCRs and Options 1 and 4 the lowest BCRs.

D.2.43 If Options 2 and 4 were only to provide cycle infrastructure on one parallel route for the A944, as is the case for the A9119, then Option 2 would provide the highest BCR (0.71)and Option 1 the lowest (0.48).

D.3 Sensitivity Testing

D.3.1 As discussed above, cycle demand forecasts were halved for the core AMAT calculations to reflect the fact that not all cycle demand travelling through the study area will use the specific study corridors. A sensitivity test has been undertaken to explore how active travel benefits and BCRs would be affected if it were assumed that 75% of cycle trips within the study area used the study corridors themselves. As the study corridors reflect the main traffic corridors and most direct cycle routes, this may be a reasonable assumption.

D.3.2 The results for the active mode appraisal sensitivity test are provided in Table D.7

Table D.12: Sensitivity Tests Defined

Impact	Cycle Infrastructure Monetised Costs and Benefits (in £'000s)			
	Option 1	Option 2A/B/C	Option 3	Option 4A/B/C
Congestion benefit	469	435	469	435
Infrastructure maintenance	3	2	3	2
Accident	79	73	79	73
Local air quality	10	10	10	10
Noise	5	5	5	5
Greenhouse gases	32	30	32	30
Reduced risk of premature death	6,892	6,391	6,892	6,391
Absenteeism	848	786	848	786
Journey ambience	3,435	2,849	3,431	2,852
Indirect taxation	-36	-33	-36	-33
Investment costs	16,164	11,959	12,639	15,484
Operating & maintenance costs	243	262	251	254
PVB	11,733	10,545	11,730	10,548
PVC	16,404	12,219	12,887	15,736
BCR	0.72	0.86	0.91	0.67

D.3.3 Benefits increase by 50%, compared with the core scenario and BCRs are improved accordingly but all BCRs remain below 1.

D.4 Summary

D.4.1 All options provide end-to-end cycle infrastructure between Westhill and the Aberdeen city centre area. The differentiator between options is the degree of segregation which can be provided and whether this infrastructure runs entirely along the main A944 and A9119 study corridors or uses parallel routes on local roads to the east of Sheddocksley/King's Gate Roundabout.

D.4.2 Benefits are highest for Options 1 and 3 which provide the greatest lengths of off-road segregated cycle tracks (approx. £7.8m PVB), but this is only £0.8m higher than the benefits expected to be derived from Options 1 and 4.

D.4.3 Costs were developed for the delivery and maintenance of all options and are estimated to vary from £12.2 to £16.4m (PVC). Costs are highest for Option 1 and lowest for Option 2; a result of the much more substantial works required on junctions on the busy A944/A9119 routes than the parallel off-corridor cycle routes.

D.4.4 The highest BCR is obtained for Option 3 which generates benefits similar to Option 1 but has costs similar to Option 2. However, BCRs are below 1 for all options.

Appendix E Hansen Analysis

E.1 Introduction

E.1.1 Hansen indicators provide a measure of accessibility from a specific origin to all destinations in a study area, weighted by chosen criteria. High scores indicate good accessibility, and low scores suggest there is poor accessibility according to the chosen criteria.

E.1.2 The key accessibility indicator which has been considered to provide an indication of the accessibility change with the options in place, compared to the reference case situation is the Hansen Indicator for *Change in Accessibility to Employment* by public transport. The change represents how accessible the area is in terms of accessing employment between the reference case and each option scenario.

E.1.3 In this instance the change in public transport journey time between each pair of origins/destinations is weighted by the number of jobs at the destination zones as the 'criteria'. The results of each origin – destination (O-D) pair are then summed over all origin zones and the global change in employment accessibility (as a percentage) between the reference case and the option can then be calculated.

E.2 Hansen Indicator Calculation – Methodology

E.2.1 Travel times were generated for each origin and destination pair using TRACC. TRACC is a multi-modal transport accessibility analysis tool which generates travel times for end-to-end bus-based journeys, including walking time to and from bus stops. TRACC requires a number of inputs from the user, and for this project the inputs are listed below:

- Transport network and public transport timetables: The public transport network imported into TRACC was obtained from Datacutter and reflects conditions and timetables from the first quarter of 2022
- The TRACC runs were undertaken for the AM Peak 08:00 – 10:00 with all data zones (population weighted centroids) in Aberdeen City and Aberdeenshire being used as origins and destinations. TRACC provided a journey time for each origin – destination combination.
- Two Do Nothing scenarios were tested, the first was based on existing timetables with a one minute time-saving applied to allow for proposed new traffic restrictions within the city centre under the council's City Centre Masterplan. The second was as per the first with the addition of a dummy service running from Kingswells to Union Street via the A944 and Denburn corridor, with a 15-minute frequency in each direction. Dummy service B (as per Appendix C) was chosen to be modelled
- Additionally, a series of Do Something scenarios were tested to reflect the impact of proposed infrastructure improvements under each of the defined corridor options
- Data zones were then grouped into common sectors, and sector to sector journey time savings estimated by pro-rating full route bus journey time savings set out in Appendix C. As part of this process, it was necessary to make an assumption as to which bus service would be used
- It was assumed that the following bus services would benefit from journey time savings as a result of the proposed options: Stagecoach 4/5/6, First 11, Stagecoach 14/218, First 11 and dummy ART Service B. The existing service used was identified by entering origins and destinations into Traveline Scotland and selecting the fastest option. Note: it was assumed that journey time savings accrued by the Stagecoach 218 would be the same as the Stagecoach 14. Consideration was finally given to whether the ART Service B could

be used as a substitute to the existing service and was assumed to be used where the journey times were shorter.

E.2.2 Although TRACC was used to output journey times for bus-based trips between all data zones in Aberdeen City and Aberdeenshire, only those journeys where the origin is located within 1km of the study corridors were used for the purposes of the Hansen analysis (see figure below). It is assumed that bus travellers will not walk more than 1km to access a bus stop.

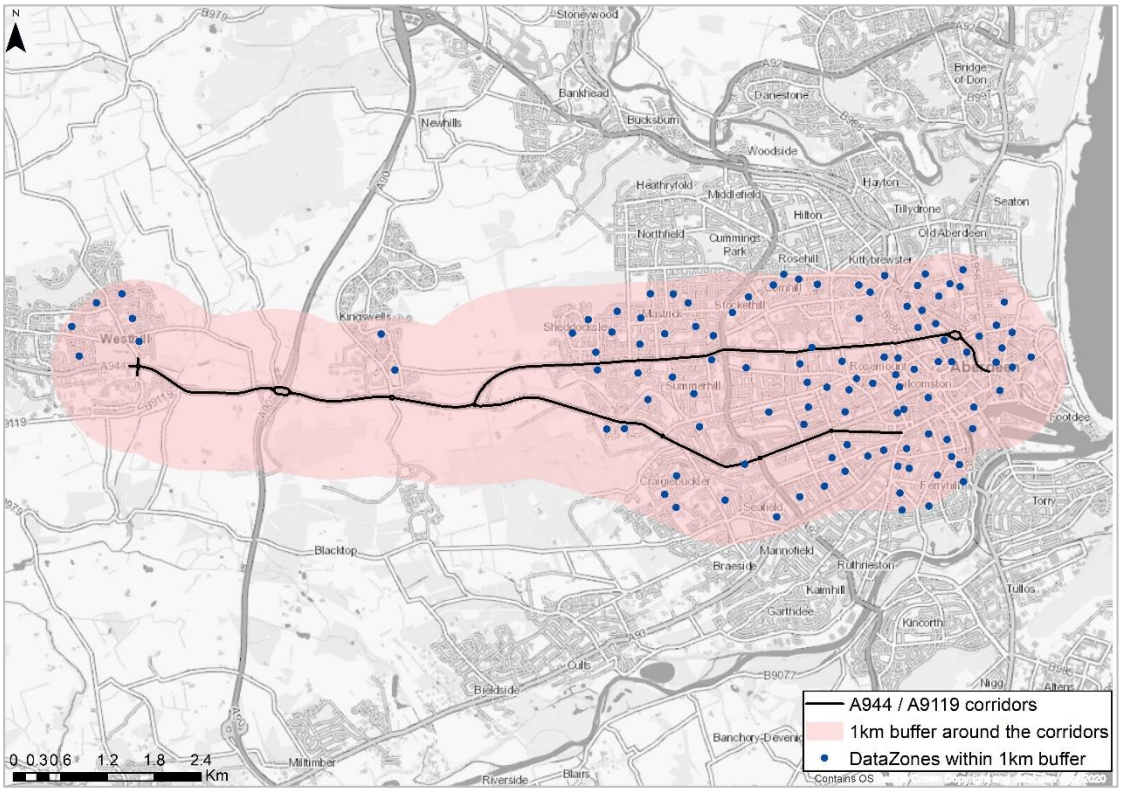


Figure E:1: Data zone population weighted centroids within 1km of study corridors

E.2.3 The Hansen calculation, as described above for the change in accessibility to employment, requires the number of jobs within each Data Zone. Jobs data was acquired from the Business Register and Employment Survey (BRES) 2020.

E.2.4 The Hansen calculation considers the 'deterrent' effect of travel time by means of a negative exponential function which is hypothesised to describe the relationship between travel duration and the likelihood of travel.

E.2.5 The Hansen value for each origin-destination pair has been calculated using the following formula:

$$Hansen_{ij} = E_j * e^{-\lambda t_{ij}}$$

Where:

- E is the number of jobs (employment) at the destination zone j
- t is the journey time (public transport) in minutes between the origin (i) and destination (j)

- λ is the deterrent coefficient factor. For this analysis λ has been set as 0.044 for public transport[14] commuting.

E.2.6 The Hansen values are calculated for each origin-destination pair, before being summed across all origin-destination pairs.

E.2.7 Finally, the change in accessibility is calculated as:

$$Change\ in\ Accessibility_s = \frac{\sum Hansen^s{}_{ij}}{\sum Hansen^r{}_{ij}}$$

Where:

- s is scenario (Do Something)
- r is the reference case (Do Nothing)

E.3 Hansen Accessibility Analysis Results

E.3.1 The outcome of the Hansen analysis for the AM Peak (08:00-10:00) is shown in the table below.

Table E.1: Hansen Analysis (08:00 – 10:00)

Option	% change in public transport accessibility (full study area)	Range (% change in public transport accessibility DZ)
1	+1.1%	0% to +7%
2B	+3.6%	0% to +14%
3	+2.0%	0% to +13%
4B	+3.0%	0% to +13%

E.3.2 The table shows:

- Public transport accessibility to jobs is improved by all options
- Option 2B shows the greatest increase in public transport accessibility, which is to be expected given that bus priority infrastructure is maximised on both the A944 and A9119 corridors
- Options 3 and 4B prioritise bus infrastructure on the A9119 and A944, respectively. 4B performs better – this is likely to be a result of the proposed continuous bus lanes which can be accommodated on the A944 (whereas space constraints only permit staggered bus lanes on the A9119)

[14] Source: https://webarchive.nationalarchives.gov.uk/ukgwa/+/http:/www.dft.gov.uk/pgr/regional/ltp/accessibility/guidance/gap/technicalappendix6informatio3639

Appendix F Stakeholder and Public Engagement

F.1 Introduction

F.1.1 In order to inform the appraisal of the options, and in particular feed into the STAG public acceptability criteria, a stakeholder and public engagement exercise was undertaken towards the end of the Detailed Options Appraisal.

F.1.2 An online interactive Arc StoryMap was live on Aberdeen City Council's Citizens Space consultation page for just over four weeks from 1st June 2022 to 1st July 2022 (this was also available in hard copy if requested). The StoryMap provided background on the study, presented the options developed and each option's advantages and disadvantages, and then presented a set of embedded questions for feedback on the options.

F.1.3 The opportunity to respond to the survey was publicised through Aberdeen City Council's Citizen Space portal and the Council's media channels. In addition, leaflets were distributed to over 20,000 residential properties and businesses located close to the A944 and A9119 corridors to raise awareness of the opportunity. It was also shared through direct contact with local councillors, community councils and other local interest groups to further publicise the survey within the communities most likely to be impacted by / benefit from the proposals. Furthermore, a link to the survey was provided to a range of stakeholders, who were invited to complete the survey on behalf of their organisation or respond directly by email to the study team with comments. Details of the stakeholders contacted can be found in the Stakeholder Engagement section below.

F.2 Stakeholder Engagement

F.2.1 Table F:1 lists the stakeholders contacted to inform them about the opportunity to respond to the survey.

Table F:1: Stakeholders Contacted

Group	Stakeholder
Active Travel	Aberdeen Outdoor Access Forum
	Aberdeen Cycle Forum
	Grampian Cycling Partnership
	Grampian Cyclists Touring Club
	CTC Grampian
	Cycling Scotland
Accessibility / Equality	Aberdeen Disability Equity Partnership
	Aberdeen Action on Disability
	Aberdeenshire Disability Equity Partnership
	Paths for All
	Co-Wheels
	Aberdeen City Youth Council
	North East Sensory Services
	Bon Accord Access Panel
Bus Operators	Stagecoach
	First

Group	Stakeholder
	Bains Coaches
Public Transport	Aberdeen Taxi Consultation Group
	Bus Users UK
	Confederation of Passenger Transport
	Community Transport Association (Scotland)
	Transport Scotland
Health	NHS Grampian
	Health & Transport Action Plan Working Group
Freight	Road Haulage Association
	Logistics UK
Education	Robert Gordon University
	Harlaw Academy
	Hazlehead Academy
	Holy Family RC Primary School
	St Joseph's RC School
	Fernielea School
	Muirfield School
	Kingsford School
	Mile End School
	Hazlehead Primary School
	St Margaret's School for Girls
	Albyn School
	Aberdeen Grammar
	Gilcomstoun School
	Skene Square Primary School
Emergency Services	Police Scotland
	Scottish Ambulance Service
	Scottish Fire and Rescue Service
Business	Aberdeen and Grampian Chamber of Commerce
	Federation of Small Businesses
	Opportunity North East
	Scottish Enterprise Grampian
	Federation of Small Businesses
	Aberdeen Inspired Business Improvement District
	Prime Four Management Ltd
	Aberdeen Football Club
	Aberdeen Council of Voluntary Organisations
Environment	SEPA
	Aberdeen Climate Action

Group	Stakeholder
	Aberdeen Friends of the Earth
	Aberdeen City Heritage Trust
	Historic Scotland
	NatureScot (Scottish Natural Heritage)
Elected Members	Aberdeenshire Council - Councillors
	Aberdeenshire Council - MSPs
	Aberdeenshire Council - MPs
	Aberdeen City Council - Councillors
	Aberdeen City Council - MSPs
	Aberdeen City Council - MPs
Community Councils	Kingswells Community Council
	City Centre Community Council
	Westhill and Elrick Community Council
	Mastrick, Sheddocksley & Summerhill Community Council
	Craigiebuckler & Seafield Community Council
	Cults, Bieldside & Milltimber Community Council
	Queen's Cross & Harlaw Community Council
	Rosemount & Mile End Community Council
	George Street Community Council

F.2.2 Stakeholder feedback was received via requested meetings, email and survey responses.

Stakeholder Discussions

F.2.3 Individual discussions were held, at request, with a number of groups / organisations and a summary of the key points from these discussions is noted below.

First Bus

F.2.4 A meeting was held with First bus operator on 14th July 2022. Key points noted were:

- First strongly oppose moving the Number 3 from Rosemount Place. First had lots of problems and objections from the public when COVID restrictions meant Spaces for People measures altered Rosemount Place with a one way system in place for buses. Travellers want the bus to serve the Rosemount Place shopping area directly and the elderly do not want to walk up the hill to get to Rosemount Place. First anticipate losing customers if the No. 3 is diverted
- First foresee problems if Service 23 is rerouted. Residents on Mid Stocket Road want their buses on the road and easy to access. If diverted, there is likely to be a reduction in bus connectivity for those living south of Mid Stocket Road
- Biggest issue in terms of congestion on A944 is with traffic at junction of North Anderson Drive (A92) and Lang Stracht
- No traffic flow issues experienced by First at A92 / A9119 Queens Road junction, but care will need to be taken to ensure proposals between this study and A92 study dovetail

- Similarly, the traffic typically flows wells at the A9119 / Queens Cross Roundabout but First noted that this is a difficult junction to manoeuvre through and its certainly an issue for cyclists

- First highlighted that consideration needs to be given to parking charges to support modal shift from car to bus

- First noted that the proposals seem more geared towards benefitting longer distance out of town bus services and not the local bus network

Stagecoach

F.2.5 A meeting was held with Stagecoach bus operator on 28th June 2022. Key points noted were:

- There is a more dense demand for Stagecoach services on A9119 than A944 but recognised that A944 serves substantial trip generators and has greater space to accommodate new infrastructure. However, Stagecoach note that it is important not to "leave behind" the A9119 corridor, as it will be impractical for most bus users on the A9119 corridor to transfer to the A944 corridor. Population density is also arguably higher on the A9119 corridor. From a Stagecoach point of view, it is important that even if A944 is selected as the "ART" corridor, that services that continue to use the A9119 can access any ART facilities between Westhill and the A944/A9119 junction. There are also some interventions that could still proceed even if A944 is selected for prioritisation of bus infrastructure, e.g., the westbound bus-only bypass lane at the A944/A9119 junction

- Key areas of delay to Stagecoach services on these corridors include A9119 between Springfield Road and A92, and on Albyn Place (Albyn Pl issues caused by car parking impacts on bus stops)

- Local diversions to Stagecoach services on Midstocket and Craigieloanings proposed under Options 2 and 4 would not pose a commercial problem to Stagecoach (14 service is tendered by ACC, limited bus priority possible on these sections and limited demand) but may present a social issue through increasing walking distances in an area where many older people reside

- Stagecoach queried whether options which prioritise active travel on the A9119, could include additional improvements for buses and Stantec confirmed that it may be possible to switch out proposed Dutch roundabouts for signals which would aid bus movement through junctions

- Route variant C (under Options 2 and 4) would also benefit Stagecoach 59 and First 12 services

- Restrictions to car parking will be needed in addition to bus infrastructure improvements, if any of the options are to generate substantial modal shift

George Street Community Council

F.2.6 A meeting was held with George Street Community Council on 14th June 2022, which was attending by the Aberdeen City Council Project Manager for the study. Key points noted were:

- Concern that the eastbound only restriction on Maberly Street during Spaces for People caused quite a bit of congestion, with traffic backing up onto Hutcheon Street. The Council queried whether a westbound only restriction would work instead – apparently at some point in the past during emergency works an eastbound only restriction has been in place and, following some opposition, this was reverted to a westbound only restriction which they felt worked much better

- Suggestion that the Maberly Street route was heavily used by Fire service vehicles which may be an issue if made one-way

Rosemount and Mile End Community Council

F.2.7 A meeting was held with Rosemount and Mile End Community Council on 29th June 2022. Key points noted were mainly in relation to Option 2 and the proposed A944 parallel cycle routes forming part of the option. In particular, RMCC noted:

- Very strong opposition to the re-routeing of the Number 3 bus service from Rosemount Place and Mid Stocket. It was noted that there are many older people in the area who rely on the service and walking further to access the service would present difficulties. The potential negative impact on local businesses due to the proposed change to the bus route was also noted
- Very strong opposition to the loss of any parking spaces from Rosemount Place and the potential negative impacts on businesses and local residents
- The topography of the cycle routes was noted and RMCC felt that the gradients meant the routes were likely to be avoided by cyclists
- The need for a specific quantitative economic impacts assessment to fully understand the impacts to Rosemount businesses should the undertaken if the A944 parallel cycle routes are being progressed

Stakeholder Engagement

F.2.8 In total, eight stakeholders responded to the online survey and three stakeholders provided email responses. The stakeholders that responded were:

- Aberdeen Football Club
- Bus Users UK
- Duncan Massey, Councillor for Lower Deeside
- Federation of Small Businesses
- Light Rail UK
- NHS Grampian
- North East Sensory Services
- Rosemount and Mile End Community Council
- Scottish Ambulance Service
- Westhill and Elrick Council

F.2.9 The section below summarises stakeholder consultation responses received via both the survey and email.

Options

F.2.10 Four of the eight stakeholders indicated support for the options, and three stakeholders said that none of the options should be taken forward. One stakeholder stated that additional investment on bus and cycle infrastructure is unnecessary as the road network in this area

currently functions well for both modes. Another suggested an alternative option, discussed below.

F.2.11 Some of the key comments made around the options are noted below.

Low Traffic Neighbourhoods

F.2.12 Five stakeholder respondents said that they agree with the concept of an LTN. One stakeholder indicated that they have no opinion, and three others said that they were not supportive. Key concerns related to the LTN were that it would create additional congestion and reduce the volume of passing traffic, to the detriment of local businesses.

Parking

F.2.13 Four stakeholders noted they were against the loss of car parking to accommodate bus/cycle infrastructure as this would increase walking distances for those accessing residences and businesses on the indicated routes. It was noted that this would be a particular issue for the elderly and those with mobility problems and may reduce custom at local businesses which typically attract shoppers from further afield.

Rerouting of No. 3 Bus Service

F.2.14 Two respondents specifically noted their opposition to the rerouting of the First No.3 bus service from Rosemount Place to Leadside Road. Concerns related to reduced custom for the Rosemount Place businesses, as longer walking distances between the bus route and the shops may dissuade/prevent some from accessing the shops.

Pedestrian Access

F.2.15 Three respondents also highlighted the importance of high quality pedestrian infrastructure. One respondent highlighted that not all residents are able to cycle and use public transport as a way to access essential goods and services, and two stakeholders also noted that those with visual impairments or mobility problems would benefit from segregation between cyclists and pedestrians.

Other Options

F.2.16 One stakeholder suggested that a further alternative to prioritising bus along the study corridors would be to implement a tram link from Kirkton of Skene to Aberdeen city centre via the A944 and the B986. They noted that a tram route would bring greater environmental and economic benefits than a bus rapid transit service on the same routing.

F.2.17 One stakeholder suggested another option to retain use of Old Lang Stracht for emergency vehicles should be considered. It should be noted that this would be accommodated within the defined options as any Traffic Road Order to limit vehicular use of Old Lang Stracht would have provisions to ensure continued access by emergency vehicles.

F.3 Public Engagement

F.3.1 In total, **1,106** responses were received to the online survey from members of the public (n=1095) and local businesses (n=11). The results of the public responses (including those from local businesses not captured as ‘stakeholders’) are summarised here.

Which area best describes where you live or where your business is based?

F.3.2 Survey respondents were asked to select which area best describes their home or business location. Figure F:2 presents the results. The most commonly stated home/business origins were Rosemount (21%), West End (20%), Midstocket (19%) and city centre (13%), covering 73% of all responses.

F.3.3 With 40% of all survey responses coming from Rosemount and Midstocket, the response rate from these areas is substantially higher than might be expected based on population and as such the survey results are likely to be skewed towards the opinions of those residing in these areas as a result. Seven of the 11 responses received from local businesses also came from businesses located on Rosemount Place itself.

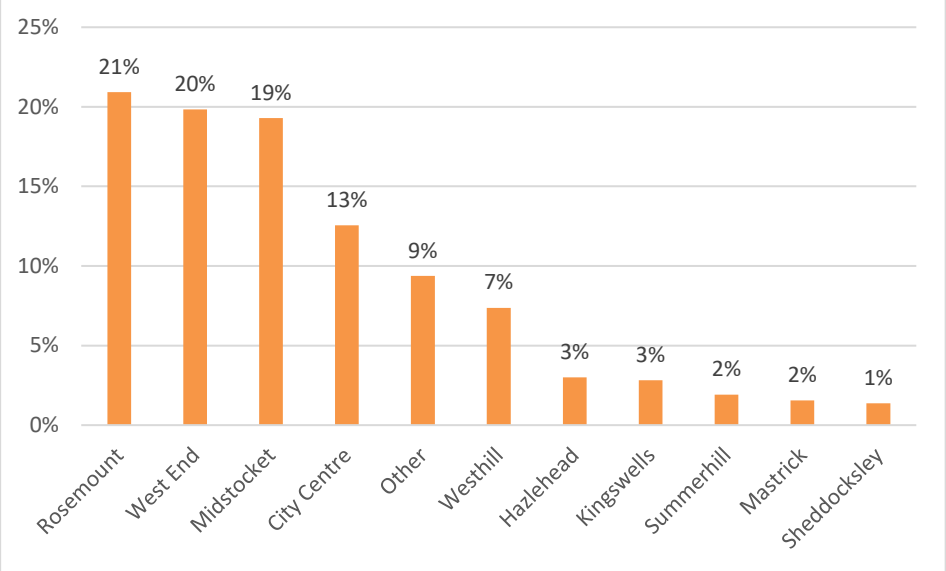


Figure F:2: Location of home/business

F.3.4 Respondents were also asked to provide their four character home/business postcode sector (e.g., AB10). Figure F:3 displays the home postcode sectors of the respondents.

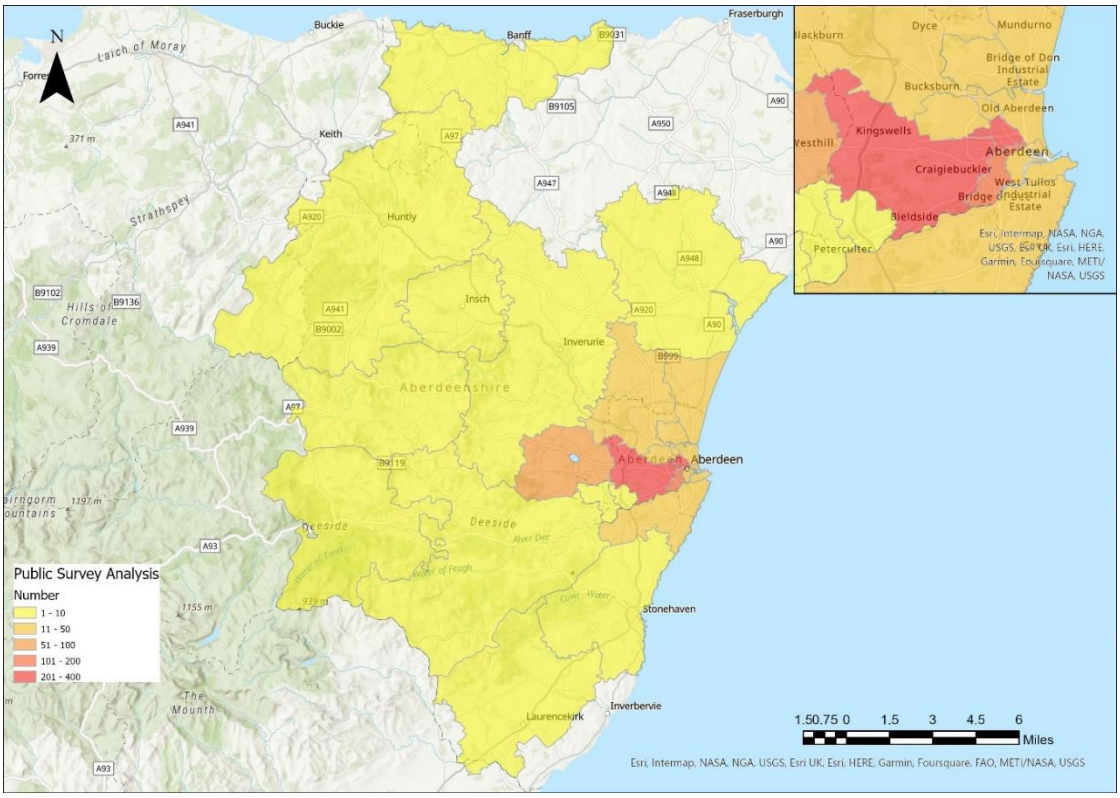


Figure F:3: Home postcode sector

F.3.5 The AB15 postcode sector (covering Kingswells, Countesswells, Hazlehead, Rubislaw and Midstocket) received the largest number of public survey responses, with 389 responses recorded. This was followed by AB25 (n = 204), AB10 (n = 108) and AB32 (n = 38). A number of responses were recorded from individuals living a significant distance from the study area, including respondents from Banff, Edinburgh and Huntly.

Do you currently use the A944/A9119?

F.3.6 All the respondents were then asked if they currently use the A944 or A9119 between Westhill and Aberdeen City Centre. 93% of respondents use these routes, while 7% of respondents do not.

How do you make these journeys?

F.3.7 The survey respondents were then asked to select which modes of transport they use to make their journeys along the A944 or A9119. To note, this was a ‘select all that apply’ question so some individuals may have selected more than one mode of transport.

F.3.8 Figure F:4 displays the results. The majority (82%) of respondents noted that they travel the corridors by car, while 34% travel on foot, 22% travel by bus, and 21% cycle.

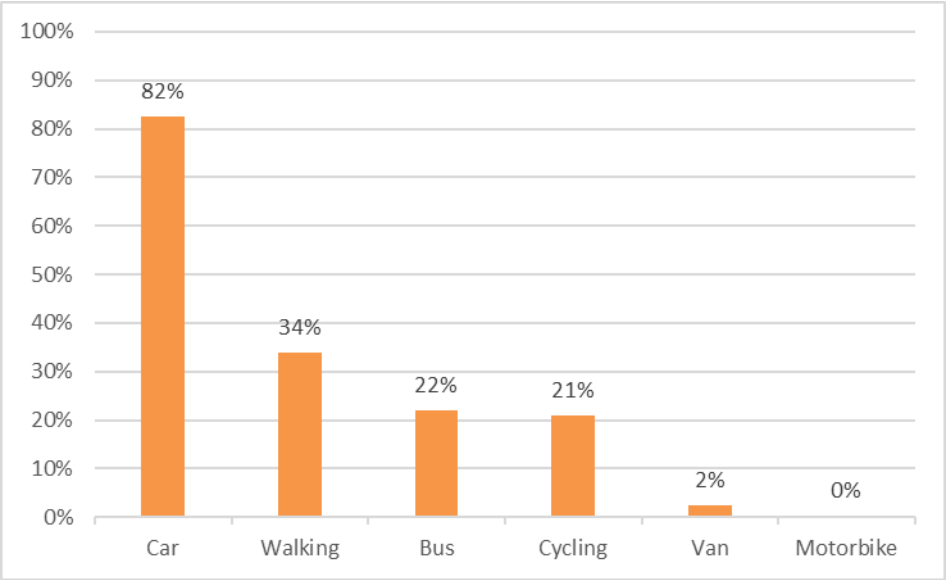


Figure F:4: Mode of travel along A944/A9119

Do you think any of the proposed options should be taken forward for further development?

F.3.9 Respondents were asked to select whether they think any of the proposed options should be taken forward for further development. Overall, 64% of respondents selected 'No', while 29% selected 'Yes' and 7% selected 'Another option'.

F.3.10 However, when the results are considered alongside location, a notable difference is seen in support between those living in Rosemount and Midstocket and elsewhere. Support for the options goes from 24%, for those resident in Rosemount and Midstocket, to 33% among residents of other areas.

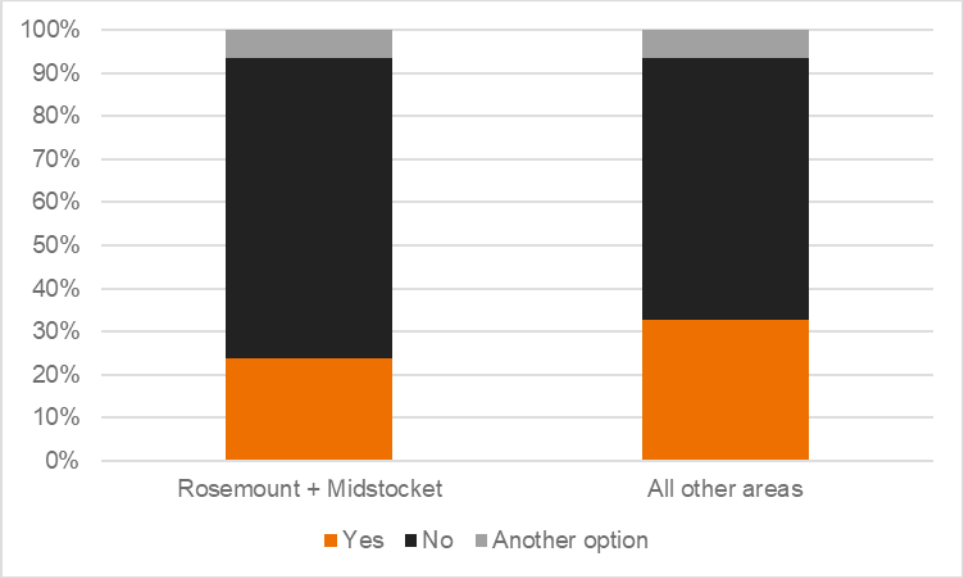


Figure F:5: Support for options

F.3.11 Respondents who selected 'another option' to the preceding question were then asked to describe the alternative option they would prefer. While 72 respondents suggested that they would prefer another option, only 43 respondents made alternative suggestion(s) which fell within the study scope. Suggestions which related to other locations (e.g., A96 or A92) or

activities which could not be influenced by the study (e.g., horticulture) were excluded as a result.

F.3.12 Responses were categorised into themes and are summarised below:

- 19 respondents commented on the retention of on-street car parking. Two respondents suggested the creation of additional car parking facilities off main street corridors, and a further two respondents suggested that parking laybys are formed on cycle route sections
- Four respondents noted that they would like to retain use of the westbound slip road at the A944-A9119 roundabout for all vehicles, as opposed to it becoming bus-only
- Four respondents suggested means of reducing car journey times, including removing traffic lights at the A944/AWPR junction, increasing the speed limit on dual carriageway sections of the A944, providing greater priority to traffic on the A944 at the junction with the A92 and controlling right turns at the junction of Spring Garden with George Street
- Three respondents suggested that some streets could be made one-way to reduce vehicular traffic volumes and/or increase space for other modes. Two of these respondents also suggested action should be taken to reduce traffic speeds in the area through reduction in the speed limit or traffic calming
- Three respondents suggested that there should be a more frequent bus service from Kingswells village into the city centre (most importantly at the weekend, when the 14 service does not currently run). Note: bus service routing and frequency are controlled by the bus operators themselves, but improvements to infrastructure can support shorter journey times and more efficient running of services, which may in turn make higher frequencies viable
- Three respondents suggested an express bus service between Westhill and the city centre, and one further respondent suggested that a tram could operate between Westhill and the Beach/Esplanade via the city centre. One respondent also suggested that a personal rapid transit system could be implemented in Aberdeen.
- Two respondents provided suggestions they felt could improve A944 Parallel Route 1 for cyclists. The first suggested widening Eday Road between Denwood and Stronsay Drive and the second suggested an alternative cycle route via Midstocket, Gordondale Road, King's Gate and Fountainhall Road to reach the A9119
- Two respondents suggested that cyclist/pedestrian safety could be improved through providing greater separation from vehicular traffic via underpass/bridges at busy junctions or installation of additional guard rails
- Two respondents suggested that car trip making could be reduced through wider adoption of 'work from home' practices or through making car travel more expensive
- One respondent suggested that Old Lang Stracht should remain open for bus traffic to ensure the Stagecoach 14 service remains as efficient as possible. A second respondent was concerned that Old Lang Stracht may become inaccessible to emergency service vehicles under proposals, but it should be noted that any new traffic regulation order would permit continued use of Old Lang Stracht by emergency services
- One respondent noted that they wish to maintain the current routing of the First No. 3 bus service along Rosemount Place.
- One respondent suggested that a Park & Ride site should be built in Westhill.

- One respondent suggested that consideration should be given to means of easing access to the city centre for those driving electric vehicles as they are already travelling more sustainably

How would you rank the four options?

F.3.13 Respondents were asked to rank the four options (in order of preference) for development of the A944 and A9119 corridors. The options presented were as follows:

- Option 1: Prioritise cycle infrastructure over bus priority on both corridors.
- Option 2: Prioritise bus priority infrastructure over cycle infrastructure on both corridors.
- Option 3: Prioritise cycle infrastructure on A944 and bus priority infrastructure on A9119.
- Option 4: Prioritise cycle infrastructure on A9119 and bus priority infrastructure on A944.

F.3.14 Figure F:6 indicates the proportion of respondents who ranked each option 1st/2nd/3rd/4th.

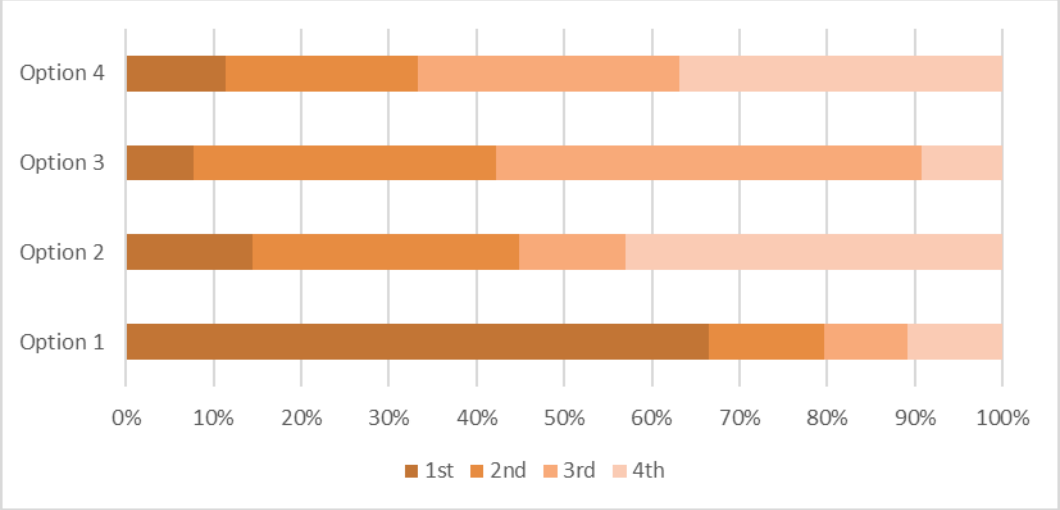


Figure F:6: Option ranking (all respondents)

F.3.15 Option 1 was the first choice for 66% of respondents, while Option 2 was the first choice for 14%, Option 4 for 11% and Option 3 for 8%.

F.3.16 Based on the ranking by each respondent, the options were then allocated a score between 1 and 4 points based on its ranking (i.e., 4 points for a 1st place ranking, decreasing to 1 point for a 4th place ranking). The scores awarded by all responses were then total to provide an overall option score. The results were as follows:

- Option 1 score: 1090
- Option 3 score: 782
- Option 2 score: 703
- Option 4 score: 675

F.3.17 The lowest scoring options (Options 2 and 4) both prioritise bus travel on the A944 and with the proposed A944 parallel cycle routes via Rosemount Place. The low scoring for these two options likely reflects the strong public opposition voiced through the survey with regards to the A944 parallel cycle routes proposed.

F.3.18 An exercise was undertaken to see if Rosemount and Midstocket residents ranked options similarly to those living elsewhere along the corridor. Figure F:7 contrasts option ranking results by home location.

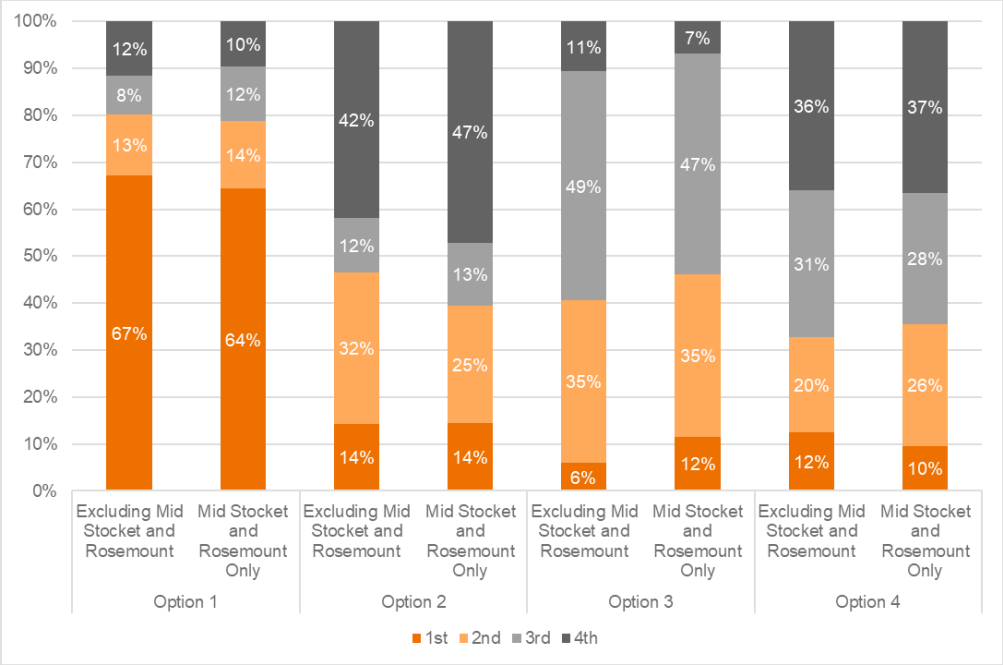


Figure F:7: Option ranking (by location)

7.2.8 There is not a substantial difference in option ranking between those living in Rosemount / Midstocket, and the rest of the respondents, although this ranking exercise was only undertaken by those respondents who noted support for the options.

How would you change the way you travel if your preferred option were implemented?

F.3.19 The second part of this question prompted respondents to answer whether they would change their travel behaviour if their preferred option (i.e., first choice) were to be implemented. Respondents were able to select 1 of 10 responses:

- I would not change the way I travel.
- I would change from travelling by car to walking.
- I would change from travelling by car to cycling.
- I would change from travelling by car to travelling by bus.
- I would change from travelling by bus to walking.
- I would change from travelling by bus to cycling.
- I would still cycle but would now use a different route.
- I would change from cycling to walking.
- I would change from cycling to travelling by bus.
- Other.

F.3.20 Respondents who selected 'Other' were able to describe how their travel habits would change. A reasonable proportion of respondents provided answers indicating that they would partially change their travel habits in favour of sustainable modes and so a corresponding category was added.

Option 1

F.3.21 Figure F:8 presents the results where Option 1 is the preferred option. 46% of respondents (n=97) said that they would change from travelling by car to bicycle if Option 1 was implemented. 21% of respondents (n=45) said that they would not change the way they travel and 14% said that they would still cycle, but now use a different route. 17 individuals also said that they would change from travelling by car to bus, but the reasoning for this is unclear as no improvement to bus infrastructure is proposed under Option 1.

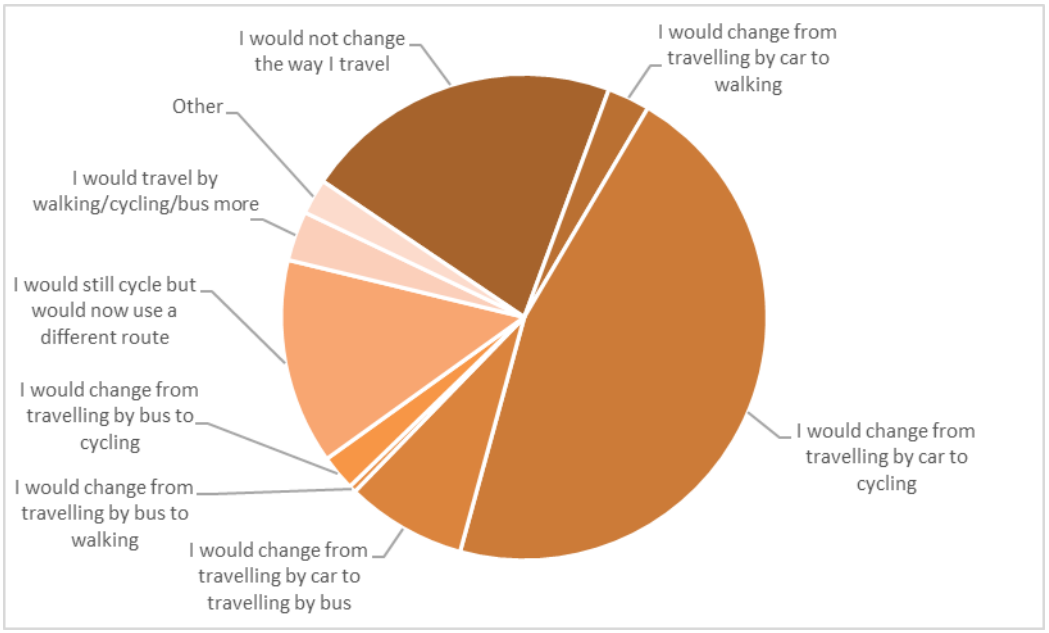


Figure F:8: Option 1 expected behaviour change

Option 2

F.3.22 Figure F:9 similarly presents the results for Option 2. 41% of respondents said that they would change from travelling by car to bus if Option 2 were implemented, while a further 41% of respondents said that they would not change the way they travel and 14% said that they would change from travelling by car to cycling.

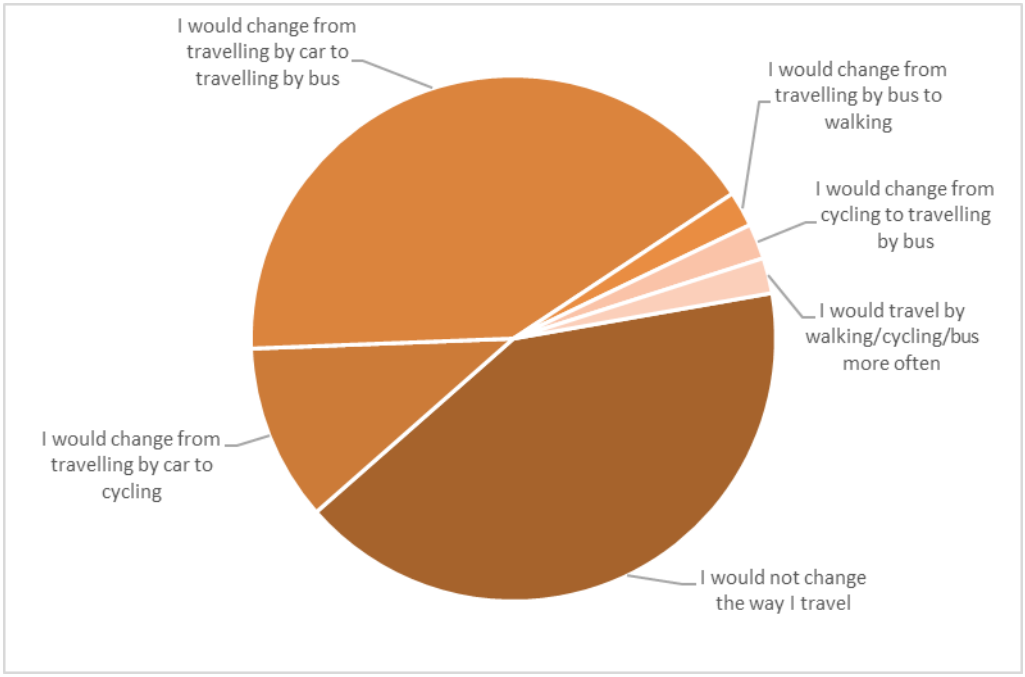


Figure F:9: Option 2 expected behaviour change

Option 3

F.3.23 Figure F:10 similarly presents the results for Option 3. 44% of respondents said that they would not change the way they travel, 28% said that they would change from travelling by car to bicycle and 12% who would change from car to bus.

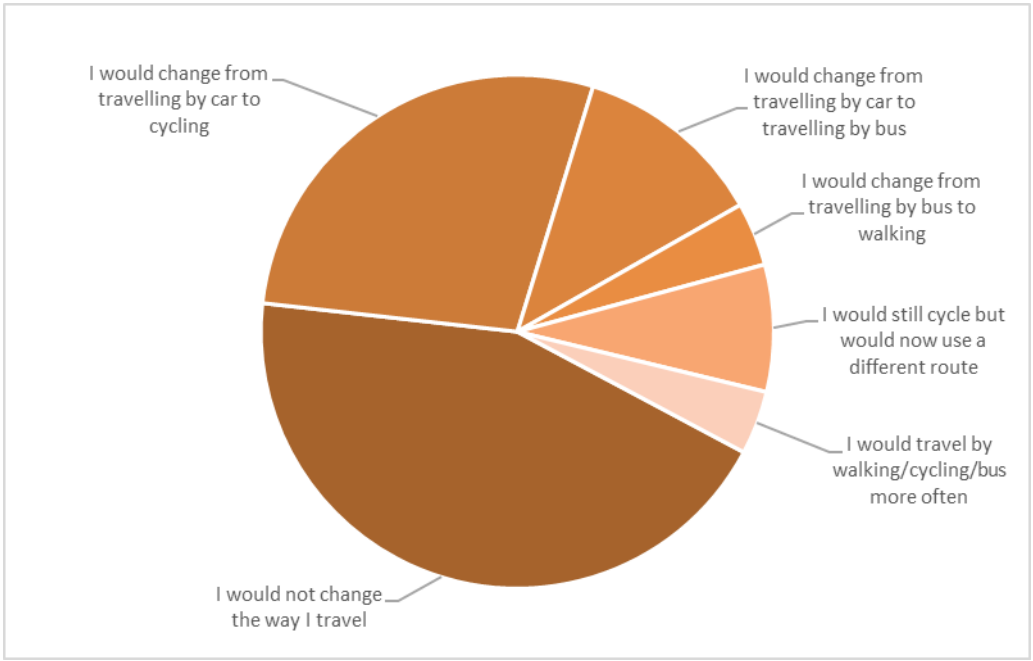


Figure F:10: Option 3 expected behaviour change

Option 4

F.3.24 Finally, Figure F:11 presents mode shift results for Option 4. 43% of respondents said that they change from other modes to cycling, followed by 27% who said they would not change the way they travel, and 14% who said they would change from car to bus.

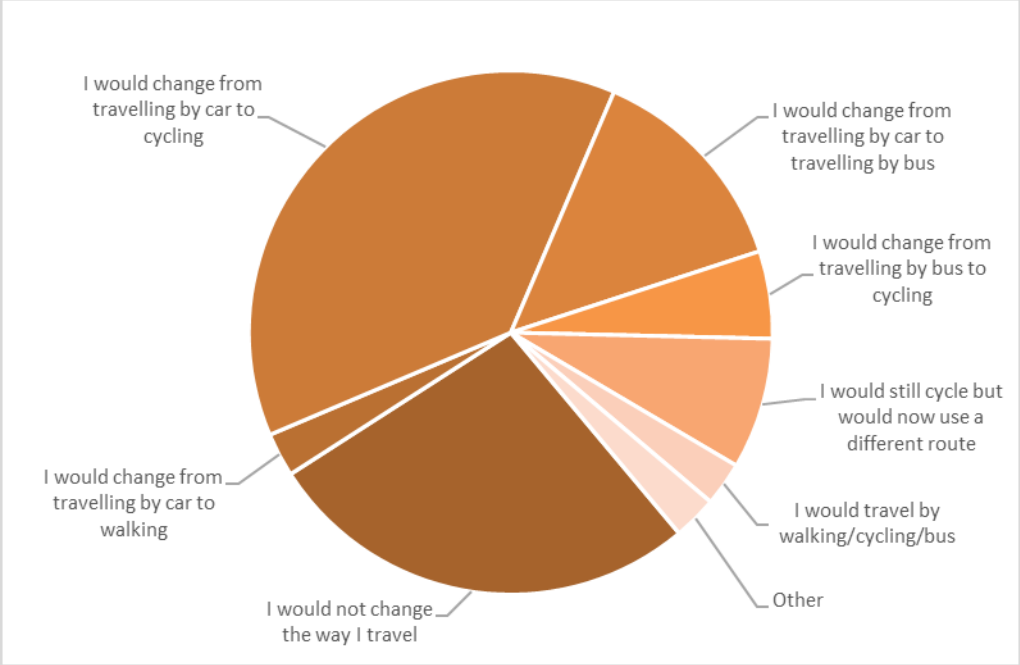


Figure F:11: Option 4 expected behaviour change

Summary

F.3.25 Overall, Option 1 is expected to generate the greatest modal shift towards sustainable travel with only 21% of respondents saying that they would not change their travel habits. Option 4 follows close behind with only 27% saying that they would not change their travel habits. Options 2 and 4 perform more poorly with 41% and 43% respectively saying that they would not change their travel habits.

F.3.26 As would be expected, Option 1 is expected to provide the most significant modal shift from car to cycling, although Option 4 also performs well with 43% saying that they would shift mode to cycling. Options 2 and 3 perform much more poorly in terms of modal shift to cycling with only 28% and 11% saying they would switch to cycling respectively. This suggests that providing cycle infrastructure on the main corridors is significantly preferred over the parallel routes and also that cycling along the A9119 is preferred over the A944.

F.3.27 Again, it is unsurprising that Option 2 is expected to generate the greatest modal shift from other modes to bus (43%), while the results for all other options are significantly poorer (8%, 12% and 15% modal shift under options 1, 3 and 4 respectively).

Do you agree with the concept of a proposed Low Traffic Neighbourhood?

F.3.28 Respondents were asked if they agree with the concept of a Low Traffic Neighbourhood. 56% of respondents selected ‘No’, while 30% selected ‘yes’ and 14% either did not know or had no opinion. Figure F:12 presents the results.

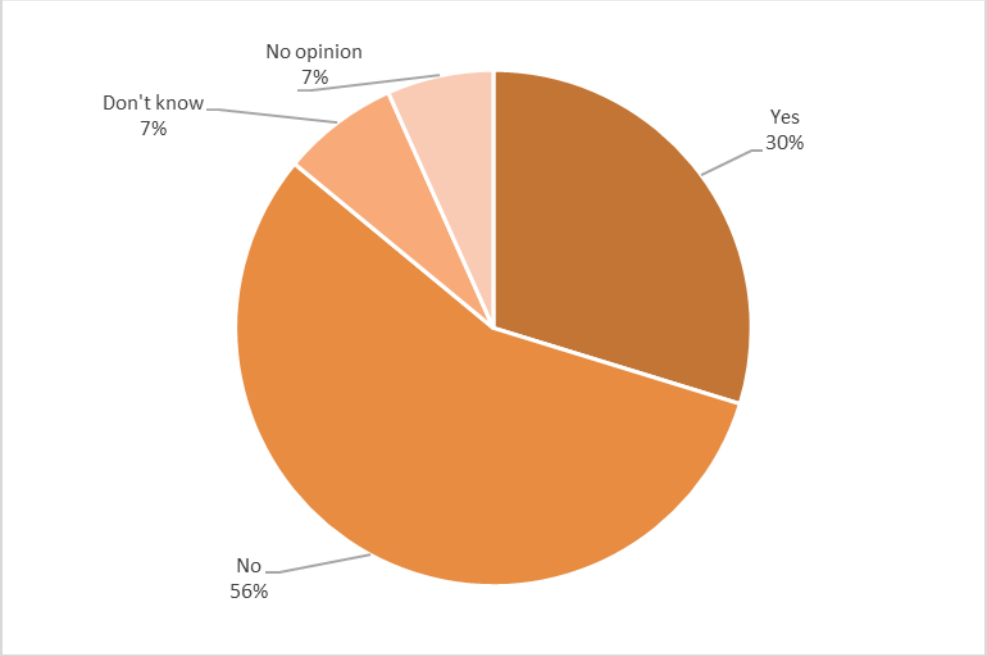


Figure F:12: Support for Low Traffic Neighbourhood (all respondents)

F.3.29 Again, further analysis was undertaken to identify whether there was a difference in support for a Low Traffic Neighbourhood based on location.

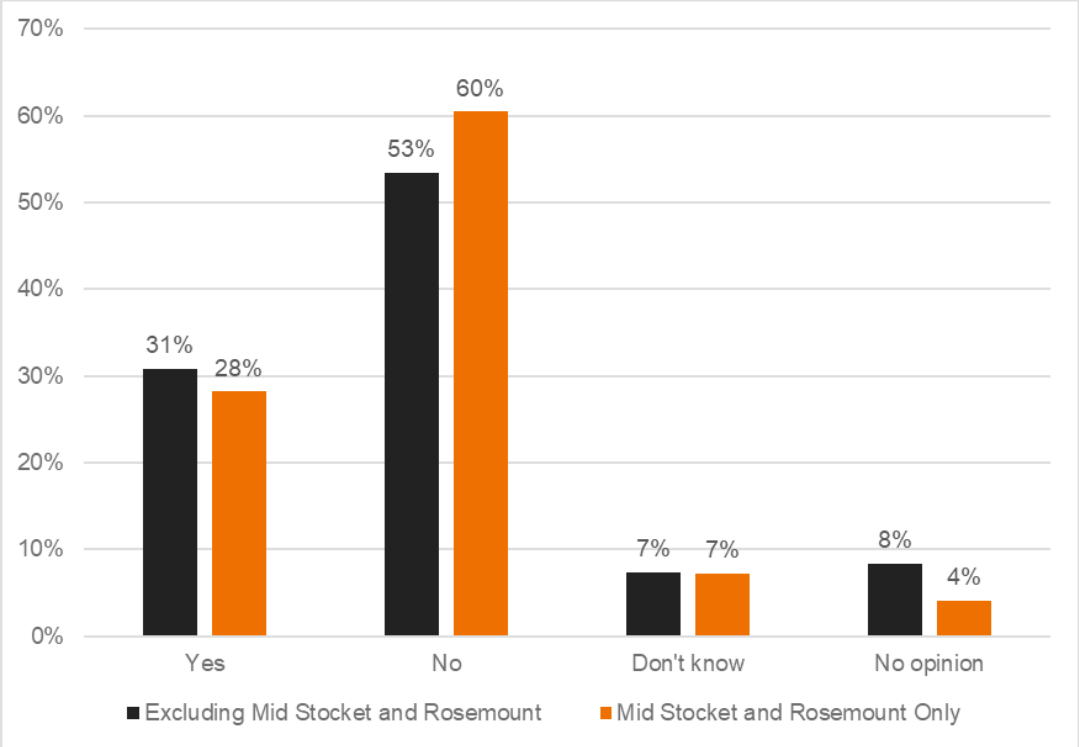


Figure F:13: Support for Low Traffic Neighbourhood (by location)

F.3.30 Support for an LTN is approximately 10% higher outside of Rosemount and Midstocket.

Do you have any comments on any of the proposed options?

F.3.31 Those who responded to the survey were provided an opportunity to comment further on the outlined proposals. In total 815 members of the public and local businesses provided a response. An additional 10 members of the public provided email responses which are also summarised here.

F.3.32 All the comments have been categorised and summarised in key points as discussed below. The strong opposition to the proposed parallel cycle routes, particularly the A944 parallel routes was evident in the responses in relation to the loss of on-street parking, bus service re-routing and subsequent business impacts.

Active Travel

F.3.33 90 respondents highlighted that they are supportive of the proposed cycle routes and agreed with the location of these routes as they will benefit cyclists.

F.3.34 In contrast, 82 respondents felt that the routing of cycle infrastructure is inappropriate. Concerns focussed on the indirect nature of the parallel routes, the gradients on A944 and A9119 parallel routes and safety implications of routing cycles along residential streets.

F.3.35 76 respondents suggested that there is no need for more cycle infrastructure as the existing infrastructure is currently under used and cyclists choose to travel with traffic. Additionally, the residential streets which are being proposed for the parallel routes are adequate for cyclists without the introduction of new infrastructure.

F.3.36 A further 15 respondents mentioned that the improvements to footways and crossing facilities would be beneficial to pedestrians.

Public Transport

F.3.37 The potential re-routing of bus services from Rosemount Place (Options 2 and 4) was highlighted by 93 respondents as being likely to have a detrimental impact on both residents and businesses in the area.

F.3.38 59 respondents suggested that the existing bus services are unreliable and infrequent, and explained this was a factor as to why they choose to travel by car. The high cost of bus services was also highlighted by 27 of the respondents as one of the main reasons why they do not currently travel by bus.

F.3.39 36 members of the public and local businesses felt that additional bus lanes are unnecessary as those which already exist are not well used. 15 respondents specifically noted an objection to the proposed bus only slip road from the A9119 westbound at the Kingswells roundabout as it was felt this will lead to increased congestion for general traffic.

F.3.40 Additionally, a total of 36 respondents noted that they support the introduction of bus priority infrastructure to aide in the improvement of journey times and reliability.

Car Use

F.3.41 The removal of on-street parking to accommodate new bus and/or cycle infrastructure was highlighted by 335 people as being a problem as this would increase walking distances between parking and residences/businesses. Key concerns were a reduction in accessibility for those with disabilities/mobility problems and reduction in customers at local businesses.

F.3.42 46 respondents mentioned that car users are being unfairly penalised through the reallocation of road space to sustainable modes and the potential for the introduction of a Low Traffic Neighbourhood (LTN).

Residents Quality of Life

F.3.43 A total of 113 respondents suggested that proposals could adversely affect travel opportunities and quality of life for those who are elderly, disabled or have mobility issues, as they rely on travelling by car, being able to park outside their homes and/or short walking distances to bus stops.

F.3.44 Concerns around negative impact the proposals will have on house prices in the area affected by the parallel cycle routes was raised by 24 respondents.

Low Traffic Neighbourhood

F.3.45 The potential Low Traffic Neighbourhood (LTN) outlined was objected to by 27 of the respondents who expected that it would have a negative impact on those who work and live in the area. A further 9 respondents raised concerns around the consequential 'rat-running' which would occur on streets to the north/south of the LTN and suggested that the surrounding roads could not support the increase in traffic flow.

F.3.46 Overall, 28 members of the public indicated support for an LTN.

Congestion

F.3.47 57 respondents felt that the reallocation of road space from general traffic to sustainable modes would increase traffic congestion, with some of suggesting that proposals would have an adverse environmental impact through increasing carbon emissions.

Businesses

F.3.48 The negative impact on proposals upon businesses was cited by 216 respondents. It was felt that the installation of cycle infrastructure, rerouting of the No. 3 bus service and loss of car parking would adversely affect the footfall in the Rosemount Place area and could lead to more shops closing as a result.

Electric Vehicles

F.3.49 It was raised by 11 respondents that there is a lack of focus on electric vehicles and the associated infrastructure needed to charge them.

Infrastructure

F.3.50 61 respondents indicated that they agree with the proposed improvements to infrastructure as the benefits will outweigh the disbenefits to make Aberdeen a more accessible city.

F.3.51 49 members of the public indicated an overall disagreement with the proposed options but did not specifically comment on particular aspects of the schemes.

Demographics

F.3.52 Respondents were asked a series of questions relating to the individual's sex, age, employment, illness/health condition (which impacts personal mobility) and pay.

Gender identity

F.3.53 Respondents were asked which gender they identify with. Figure F:14 displays the results. 50% of respondents identified as female, 43% as male, and 7% preferred not to say. Note that 3 respondents identified as non-binary, although due to the volume of respondents, this represents close to 0%.

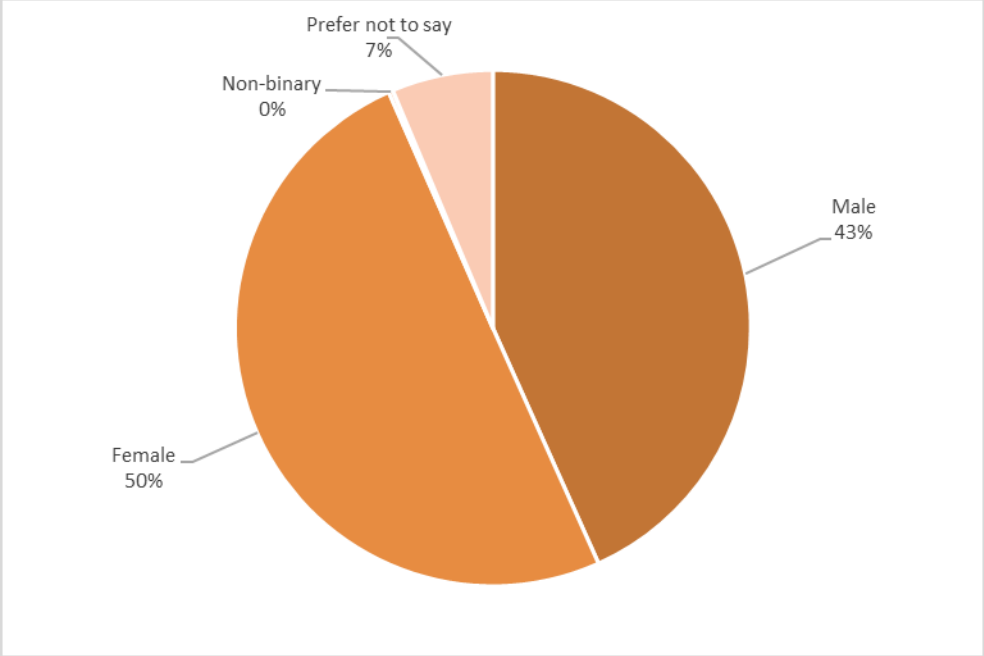


Figure F:14: Gender identity

Age

F.3.54 Figure F:15 presents the age group of respondents. The largest number of responses were received from those in the 35-44 age group (21%), followed by 45-54 (20%) and 55-64 (18%).

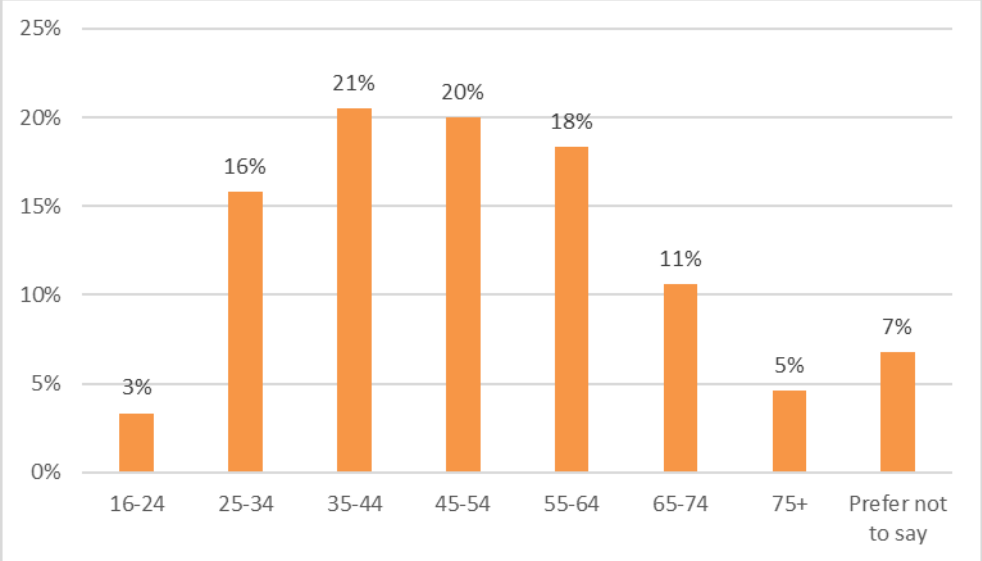


Figure F:15: Age

F.3.55 Population data for Aberdeen City indicates that in 2018 81% of the adult population was aged 16-64, which falls very closely in line with the above (83%) and indicates a good age representation within the survey sample.

Employment status

F.3.56 Figure F:16 presents the status of employment of respondents. 58% of respondents are employed or self-employed full time, 18% are retired, and 13% are employed/self-employed part-time. Note that 5% of respondents preferred not to say. Data from the Scottish

Government indicates that in Autumn 2021, 69% of those aged 16+ were economically active[15], compared with approximately 75% of survey respondents.

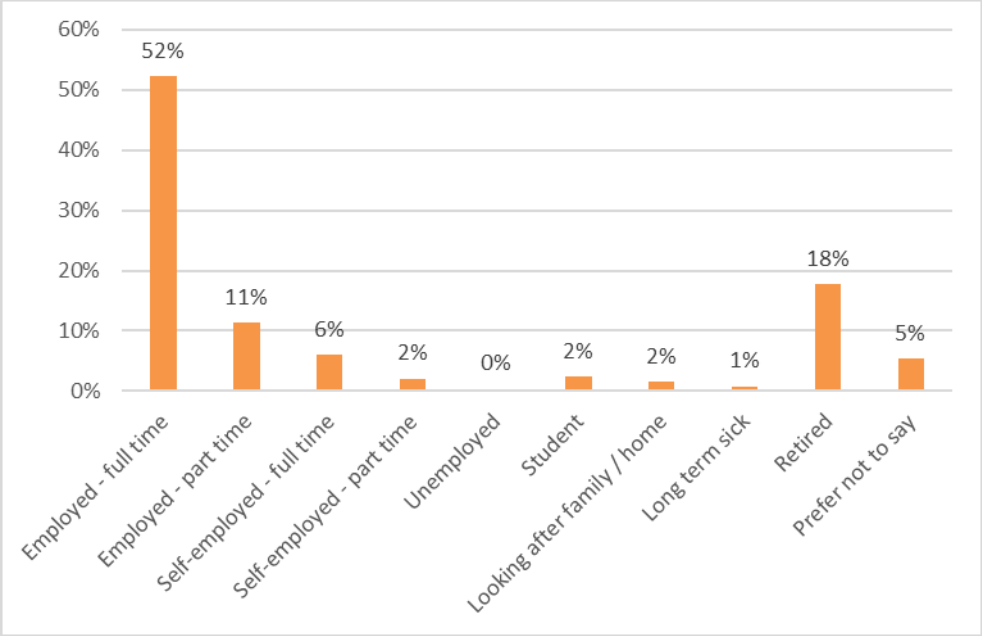


Figure F:16: Employment status

Health

F.3.57 Figure F:17 presents the proportion of respondents who have a health condition which affects their personal mobility. 80% selected 'No', 14% selected 'Yes, a little' and 6% selected 'Yes, a lot'.

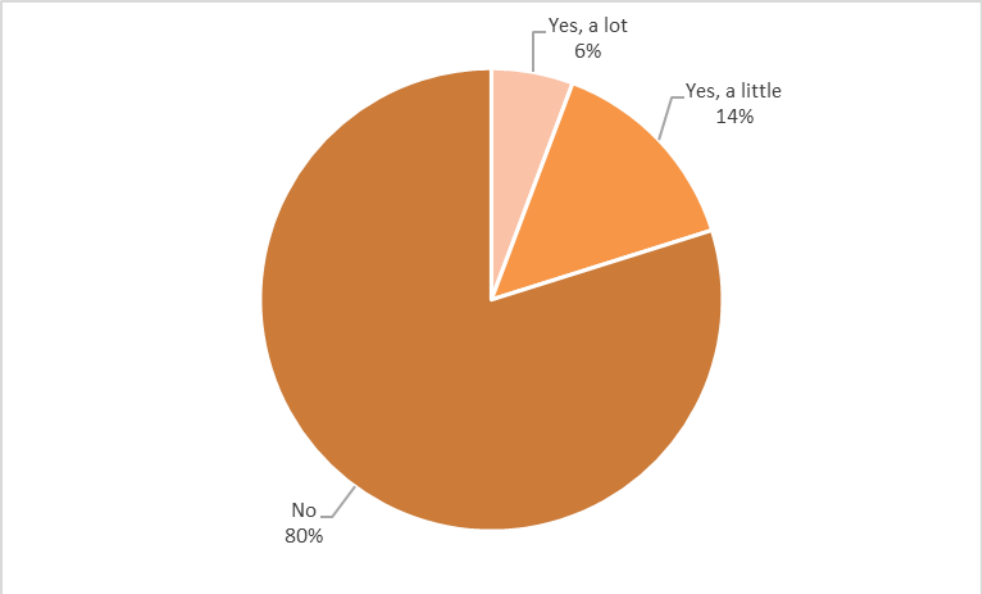


Figure F:17: Health condition which affects mobility

F.3.58 Respondents who selected 'Yes' to the previous question were then asked if their condition or illness affects their ability to use public transport. The results are presented in Figure F:18.

[15] https://statistics.gov.scot/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Feconomic-activity

20% of respondents selected 'Yes, a lot' and 33% selected 'Yes, a little'. 47% of respondents selected 'No'.

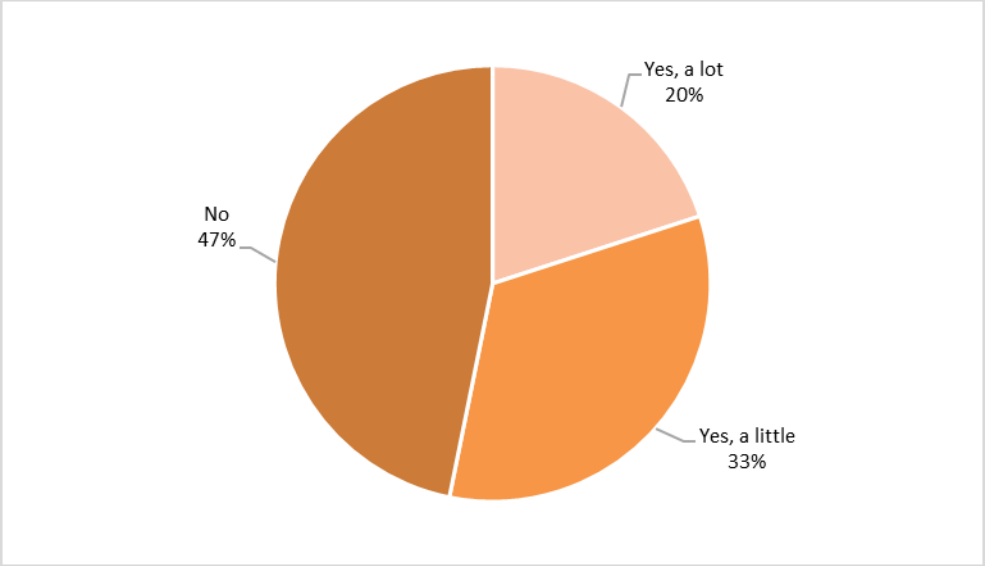


Figure F:18: Health condition which affects ability to use public transport

Household income

F.3.59 Figure F:19 displays the distribution of respondents' reported household annual incomes (before tax). Data from Aberdeenshire Council shows that in 2020 the average household income in Aberdeenshire was £38,000 per year, and £31,000 across Scotland. In comparison, 75% of survey respondents come from households earning more than £30,000 and 60% come from households earning more than £40,000. This suggests that those responding to the survey are likely to be better off than the general population, and more likely to have access to a car.

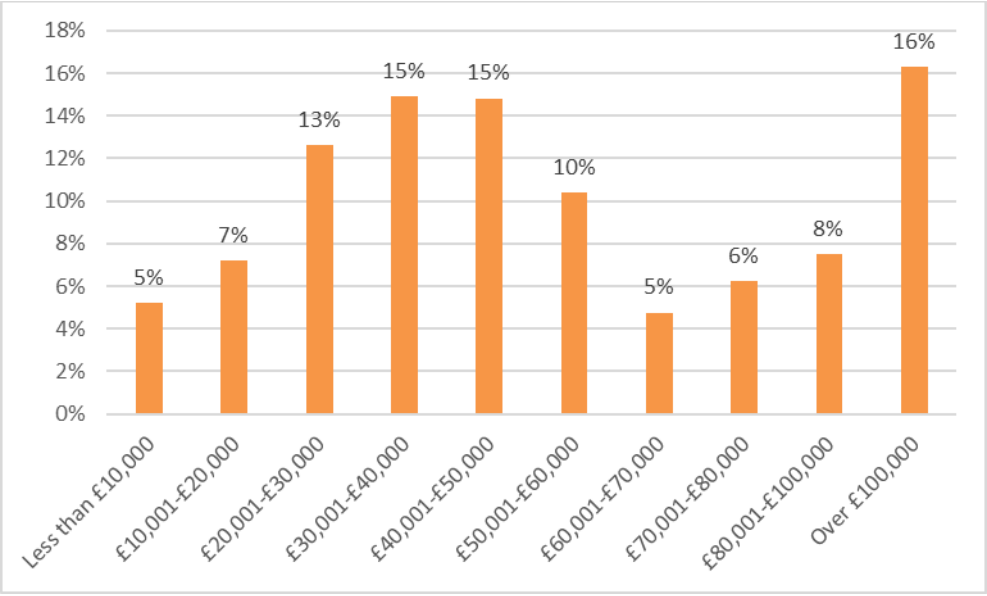


Figure F:19: Household income

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Appendix 3 – Route Plans

Figure 1 - Detailed Options Appraisal: Option B

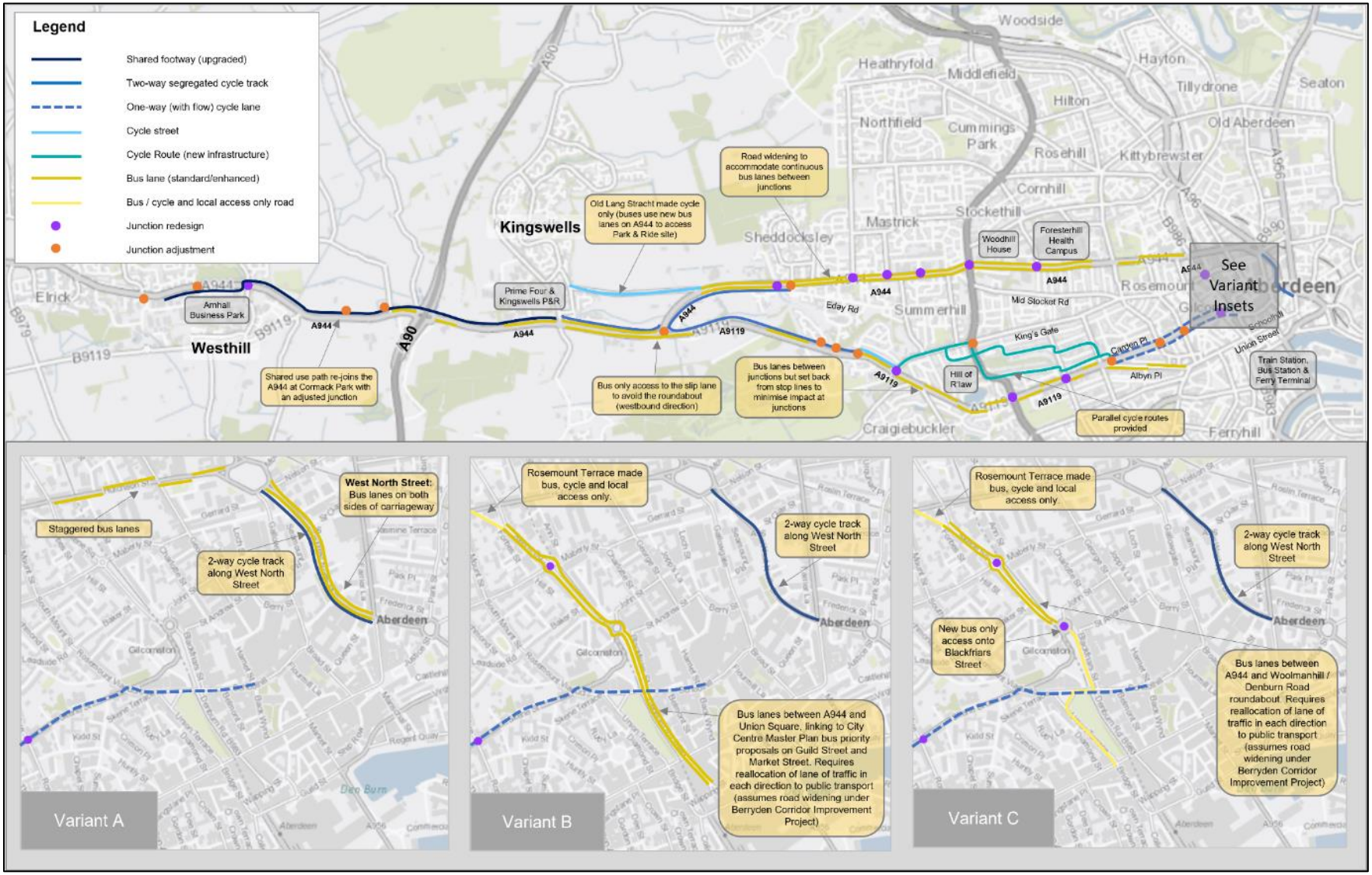


Figure 2 - Proposed Section 1: Main Route

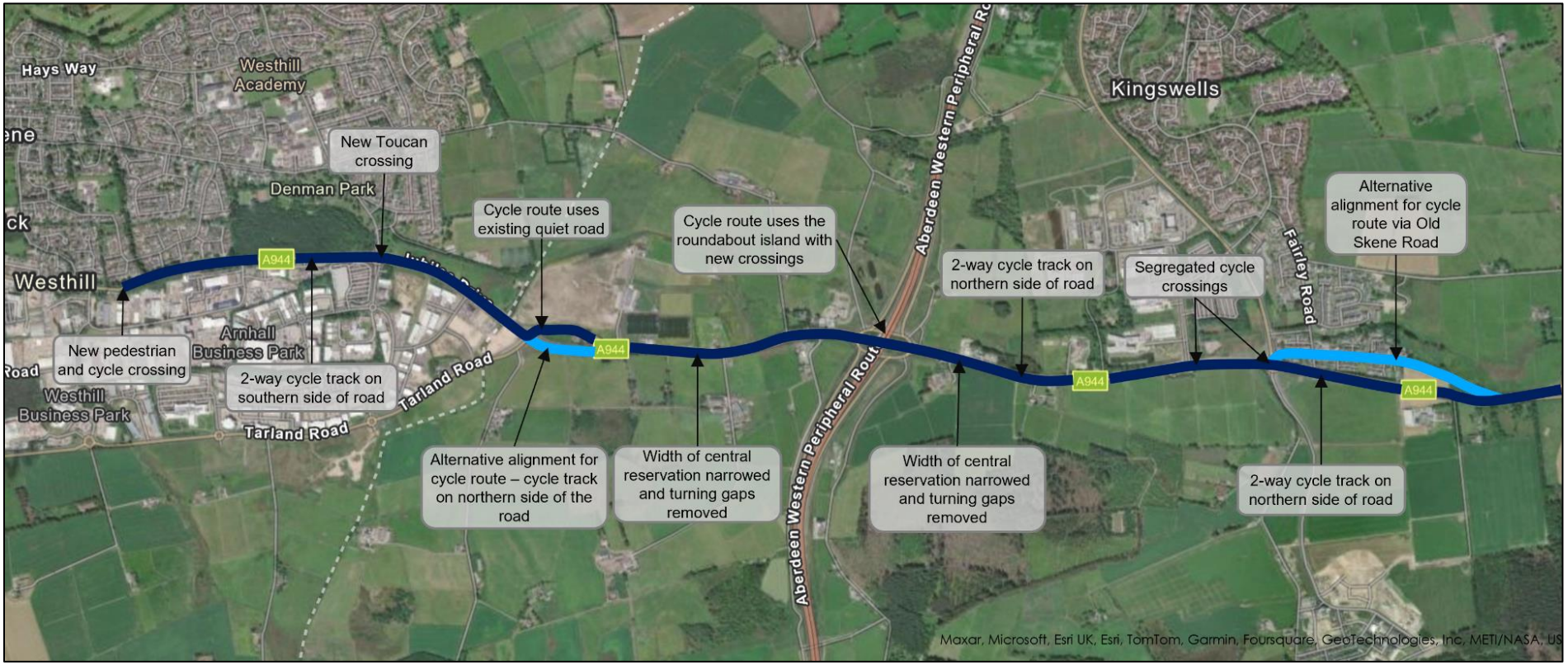


Figure 3 – Section 2: Main Route

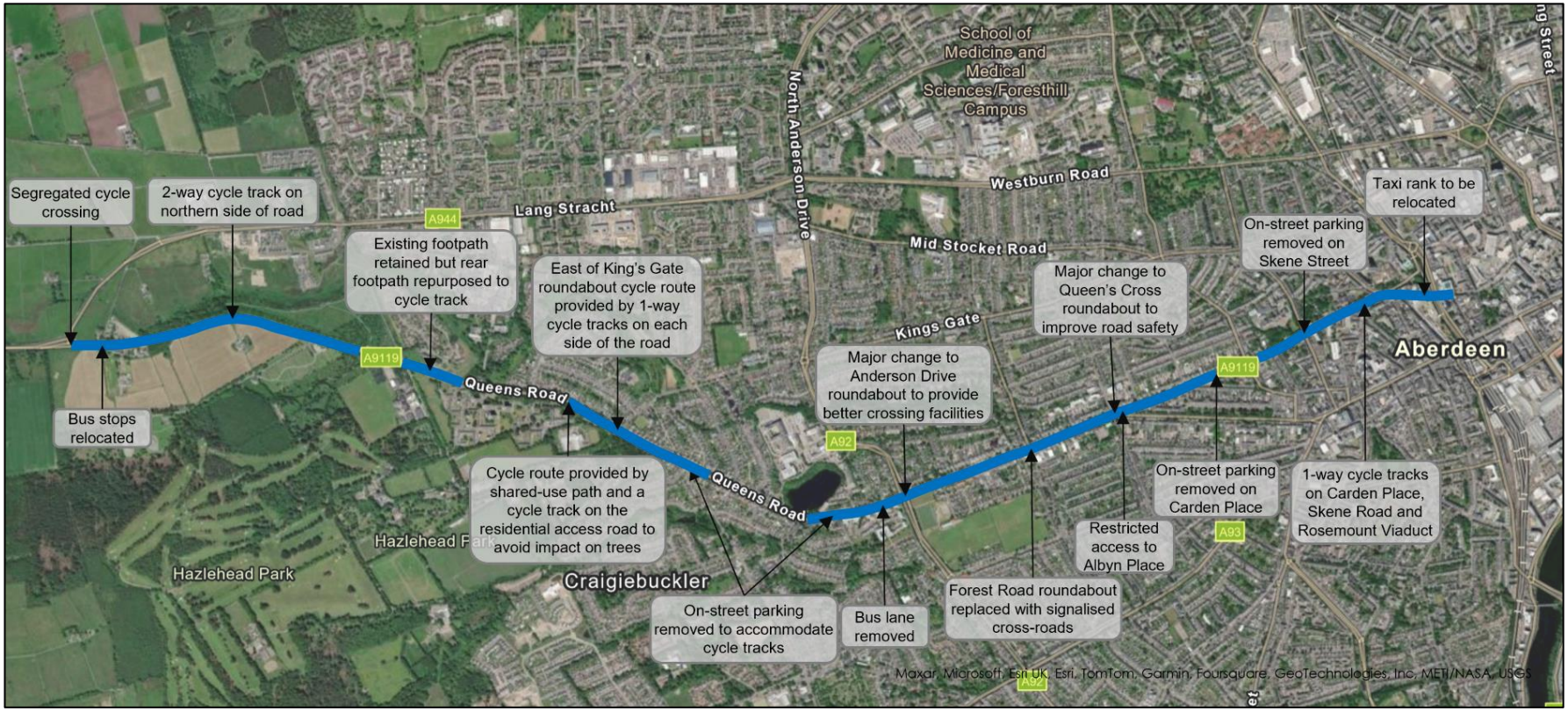
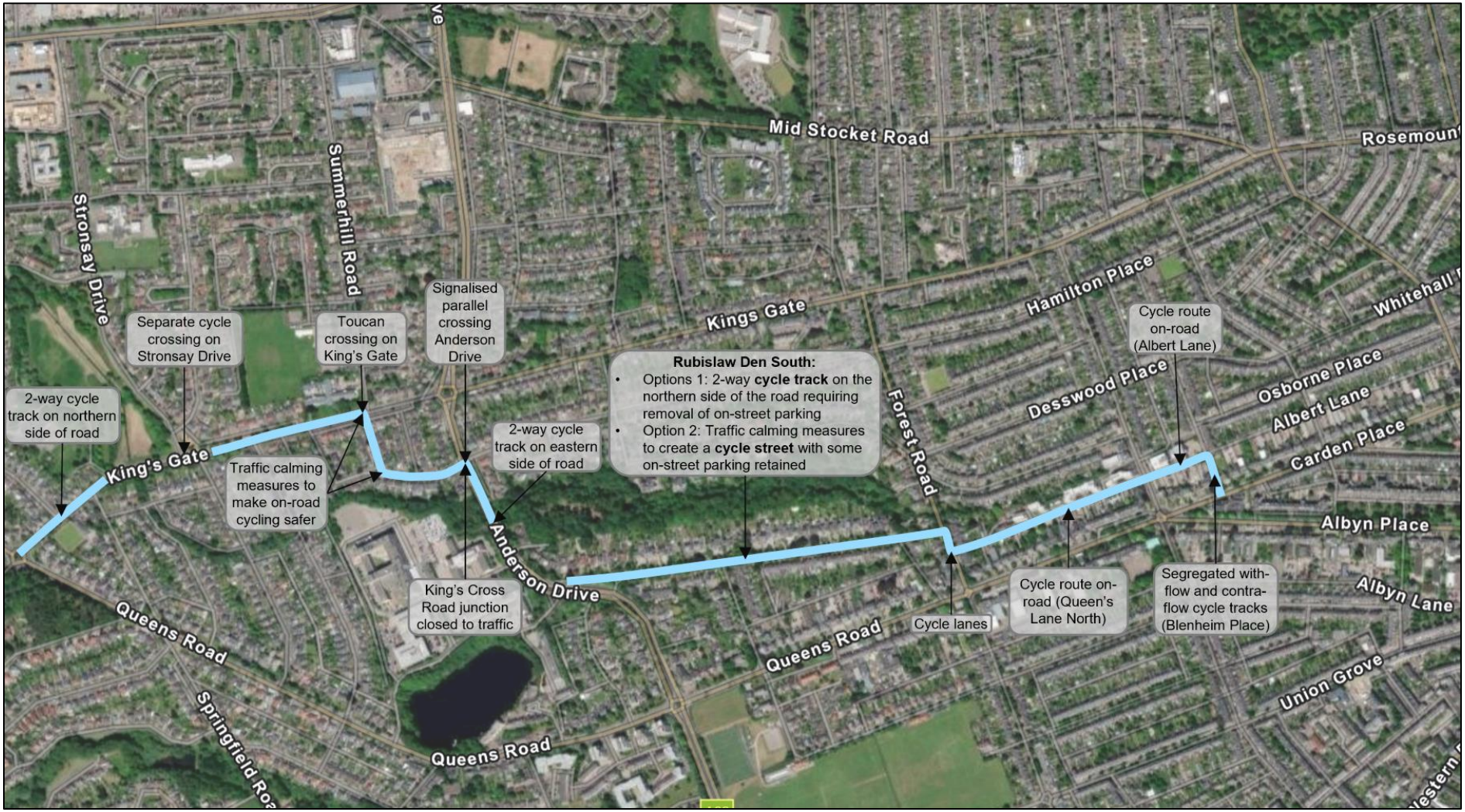


Figure 4 – Section 2: Alternative Parallel Route A



Figure 5 – Section 2: Alternative Parallel Route B



TECHNICAL NOTE

Job Name: A944/ A9119 Active Travel Corridor Study

Job No: 3326-10462

Note No: TN02

Date: 15th August 2024

Prepared by: Ginny Ludford Jones

Reviewed by: George Daugherty

Subject: **Cycle Level of Service (Outline Design Stage)**

Introduction

This note describes a Cycle Level of Service (CLoS) assessment for the active travel route options along the A944 and A9119 between Westhill and Aberdeen city centre (the study corridor). These cycling, walking and wheeling proposals were developed and appraised as part of the A944/ A9119 Multi-modal Corridor Study that included a concept design for bus priority measures and active travel routes using both or either the A944 (Lang Stracht and Westburn Road) and A9119 (Skene Road and Queen's Road).

With Lang Stracht and Westburn Road being more suitable for the introduction of bus priority measures, the Council decided to further develop the active travel route along on the A9119 (Skene Road and Queen's Road). This led to the commissioning of the A944/ A9119 Active Travel Corridor Study with the aim of developing the concept designs for cycling, walking and wheeling to an outline level of design along the route shown in Figure 1.

A CLoS assessment offers a framework to ensure the cycle routes conform to good practice and that they are safe and accessible, encouraging new cyclists to switch journeys from other transport modes and maintain this modal shift for the long term. The framework is based on established cycle route design principles.

An assessment is generally completed for the existing road layout and then compared with the assessment of the proposed road layout. A comparison of the scores indicates the extent to which the proposals improve the provision for cyclists but also identify areas for further improvement. This can help refine the proposals, ensuring the final design optimises the environment for cycling and so create a cycle route which is attractive to all potential users.

Cycle by Design (CLoS)

Link Assessment

Local Transport Note 1-20 (LTN 1-20) describes a CLoS assessment[1] based on five core design principles of Safety, Directness, Coherence, Comfort and Attractiveness. It then breaks down the core design principles into factors and at the next level of detail, indicator scores are used to measure performance against each factor. For example, Safety is made up of 6 factors, one of which is collision risk that is defined by two indicators assessing the need for 'segregation to reduce the risk of collision alongside or from behind' and 'conflicting movements at junctions'[2]. For the five core design principles there are 23 factors and 27 indicators, but these are not equally distributed over the core design principles which results in scores being weighted by importance. For example, the Safety score has a maximum of 16 while for Cohesion it is 6.

In Cycle by Design (CbD) there is no equivalent assessment albeit the two guidance documents are based on the same core design principles listed above. CbD does however include a sixth design principle of Adaptability to reflect the scope to which proposed infrastructure could be changed to meet future needs.

Both guidance documents define the core design principles using similar indicators which in turn are scored either 0, 1, 2 in LTN 1-20) or Low, Medium, High 'Level of Service' (LoS) in CbD. They also include a 'Not Acceptable' score defined either as 'Critical Fail' in LTN 1-20 or 'Do Not Use' by CbD and indicate unsafe conditions for cycling which must be addressed (or an alternative route found).

[1] Section 4.5 and Appendix A

[2] A more detailed analysis of conflicting movements at junction is provided by the Junction Assessment Tool

When developing this CbD compliant CLoS, the indicators set out in LTN 1-20 has been used except when CbD provides a different definition. The assumptions and changes made to achieve a CbD compliant CLoS assessment are set out in Appendix A.

Junction Assessment

Junctions pose significant injury risk to cyclists caused by conflicting movements with motor traffic and where the greatest risk occurs at junctions where these movements are not controlled i.e. at priority T-junctions, cross-roads and roundabouts. Around 45 percent of all cyclist deaths occur at or near junctions, with more than half of these recorded at T-junctions and just under a third at roundabouts, mini-roundabouts and cross-roads[3].

Roundabouts are particularly hazardous for cyclists accounting for around 20 percent of all reported cyclist killed or seriously injured (KSI) casualties[4]. A key factor is that roundabouts designed to standard UK geometry usually have flared entries and exits with two or more lanes and wide circulatory carriageways which are often unmarked, leading to high speed differentials and inherent lane changing conflicts between cyclists and motor vehicles.

The CLoS assessment does not fully consider the risk cyclists encounter when travelling through junctions although there are indicators that score the following:

- Ability to join and leave the route safely and easily (considering all left and right turns)
- Stopping and give-way frequency
- Delay at junctions
- Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway
- Conflicting movements at junctions

LTN 1-20 includes a Junction Assessment Tool to provide a more detailed assessment of the extent to which each cycle movement at the junction meets the requirements of the core design principles. Each movement at the junction is colour coded with RED the most uncomfortable or unsafe for cyclists, and so on:

- RED: where conditions exist that are most likely to give rise to the most common collision types
- AMBER: where the risk of those collision types has been reduced by design layout or traffic management interventions
- GREEN: where the potential for collisions has been removed entirely

It has not been possible within the scope of this study to use the Junction Assessment Tool on each junction along the study corridor, but a qualitative assessment has been developed using the above indicators which broadly define the risks cyclists encounter at junctions. This assessment has been carried out on key junctions along the study corridor for both the existing and proposed road layouts to understand how the latter has reduced or eliminated the risk.

Scope

Links

The extent of the CLoS assessment is shown in Figure 1 which includes a Main Route along the A944 and A9119 between Westhill and the city centre (Links 1 to 7).

Highway capacity constraints identified in the previous study indicates that the impact of the cycle route on bus journey times could be reduced if the cycle route used parallel roads to the A9119 between the King's Gate and Queen's Cross roundabouts. This assessment therefore includes two alternative routes, Parallel Route A (Links 8 and 9) or Parallel Route B (Links 8, 10 and 11) that could be used as an alternative to this section of Queen's Road (see Figure 2).

In addition to understanding how well the proposals along the study corridor align with the core design principles set out in CbD, the CLoS assessment has been used to understand which of the routes between the King's Gate and Queen's Cross roundabouts offers the best provision for cyclists based on those principles.

It is important to note that the CLoS does not assess the engineering constraints i.e. how difficult the proposals are to implement, so any preferred route conclusions drawn from the CLoS scoring should be cross referenced

[3] https://www.brake.org.uk/get-involved/take-action/mybrake/knowledge-centre/active-travel/cycling
[4] Pedal Cycling Road Safety Factsheet, DfT, March 2018

with the Design Risk Register [TN03] which sets out the potential impact each route has on highway capacity, third party land, on-street parking, biodiversity, etc.

Junctions

There are 34 signal controlled, roundabout and priority[5] junctions along the study corridor and each one represents a significant injury risk to cyclists in terms of collisions caused by the conflicting movements and speed of motor traffic through the junction. As part of the concept design, those junctions that posed the greatest risk to cyclists (and pedestrians) where identified as:

- Westhill Drive j/w A944 (Roundabout - priority)
- A9119 j/w A944 (Cross-roads - signal controlled)
- A90 AWPR j/w A944 (Roundabout – signal controlled)
- Kingswells Causeway j/w A944 (T-junction - signal controlled)
- Fairley Road j/w A944 (Roundabout - signal controlled)
- A944 j/w Skene Road or 'Jessiefield roundabout' (Roundabout – part signal controlled)
- King's Gate j/w Queen's Road or 'King's Gate roundabout' (Roundabout - priority)
- Springfield Road j/w Queen's Road (T-junction - signal controlled)
- Anderson Drive j/w Queen's Road or 'Anderson Drive roundabout' (Roundabout - priority)
- Forest Road j/w Queen's Road or 'Forest Road roundabout' (Roundabout - priority)
- Queen's Road j/w Fountainhall Road, Carden Place & Albyn Place or 'Queen's Cross roundabout' (Roundabout - priority)
- Skene Street j/w Rosemount Viaduct (Cross-roads - signal controlled)

For each of these junctions, a qualitative assessment has been undertaken to establish the most significant risks to cyclists and how these have been either partially or completely mitigated. It should be noted that within the scope of this study only the cycle movements required to progress along the route have been assessed.

Should the Council wish to develop the active travel proposals for the study corridor beyond this outline design then the suitability of all permitted movements should be considered. It is therefore recommended that as part of the feasibility design stage, the Junction Assessment Tool (as defined by LTN 1-20) is used on each junction along the corridor to ensure all permitted movements for cyclists are safe but also that cyclists are provided a clear transition to and from the main corridor cycle route.

[5] Excludes side road junctions

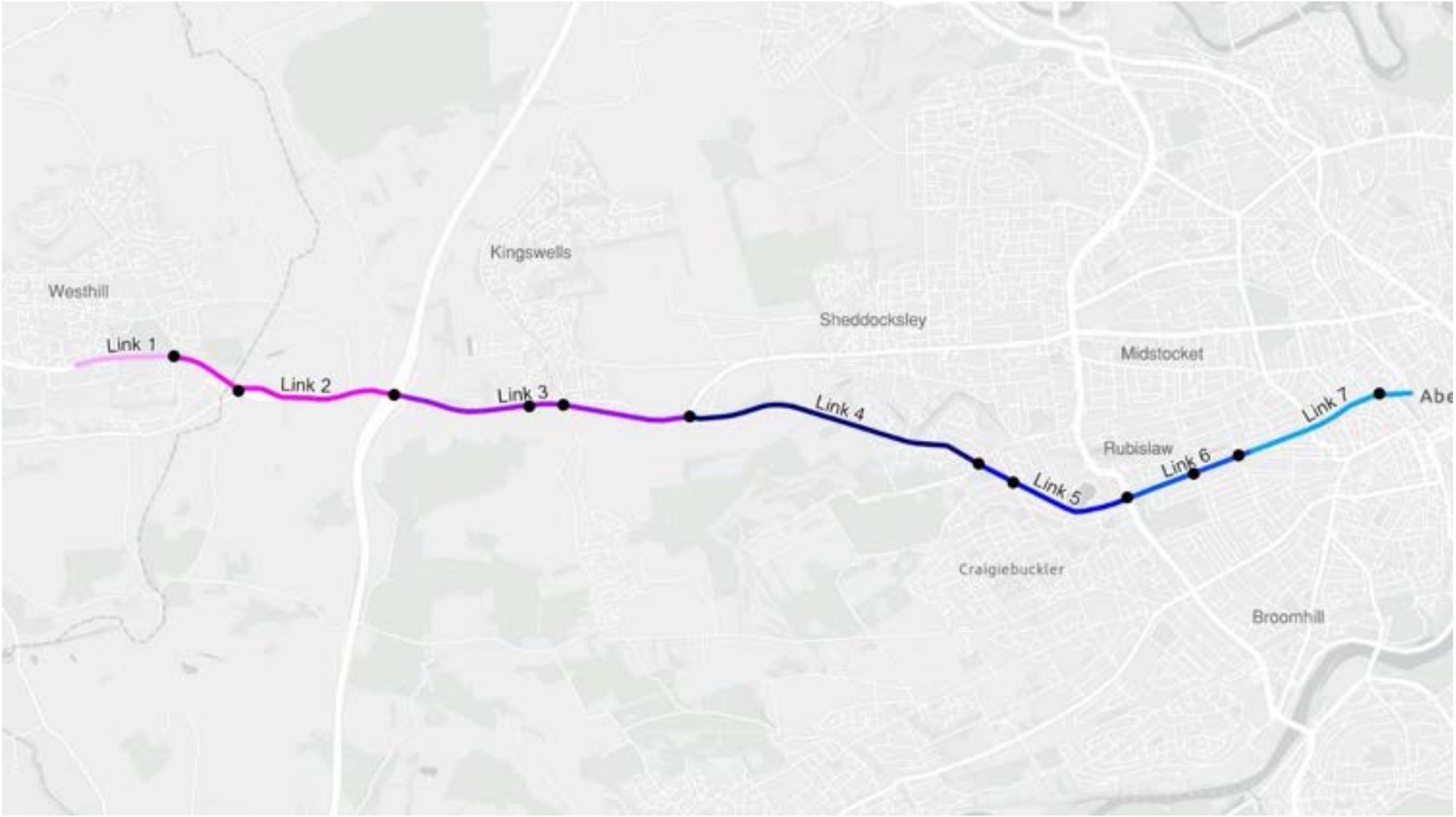


Figure 1: Main Route (Links 1 to 7)



Figure 2: Parallel Routes A and B (Links 8 to 11)

Methodology

Link Assessment

Each of the Routes (Main and Parallel) were divided into links which had a similar road layout and/ or traffic conditions. These are summarised below and illustrated in Figure 1 and Figure 2.

- Main Route (Link 1 to Link 7)
- Parallel Route A (Link 8 and Link 9)
- Parallel Route B (Link 8, Link 10 and Link 11)

Each link was then scored using the CLoS assessment for the existing and proposed road layouts. The scores for the existing road layout were based on google street view but also from the notes taken from site audits. Scores for the proposed road layouts where based on the first set of consultation plans which are provided in Appendix B.

It should be noted that following completion of the outline design, the Council undertook a public consultation process to gain local resident and stakeholder views and opinions of the scheme. As part of this process, the outline design was developed to produce consultation plans and as a result small changes were made to the proposed road layouts to reduce highway constraints and improve the provision for cyclists. As such this CLoS assessment is based on the consultation plans issued to the Council on the 14th June 2024 and which are described in the Cycle Route Design Summary technical note [TN01].

To score certain indicators within the CLoS (see Appendix A) additional data was required and these (with the data sources) are as follows:

- **Deviation Factor** (Indicator No. 4): This used google earth to estimate the route distance, the straight line (crow-fly) distance or (if required) the distance of the shortest alternative route by road
- **Gradient** (Indicator No. 8): Google earth was used to estimate the maximum elevation, minimum elevation, maximum slope and average slope of each link
- **Motor traffic volume on sections of shared carriageway** (Indicator No. 11): Data from the DfT road traffic counters was used to estimate the Annual Average Daily Total (AADT) and percentage of Heavy Goods Vehicles (HGV's)

As mentioned, an objective of the CLoS assessment was to help understand which of the proposed cycle routes between the King's Gate and Queen's Cross roundabouts i.e. the section of Main Route, Parallel Route A or Parallel Route B would provide the best route when compared against the core design principles. To do this an average of the following Link scores were calculated and compared.

- Main Route (Link 5 and Link 6)
- Parallel Route A (Link 8 and Link 9)
- Parallel Route B (Link 8, Link 10 and Link 11)

The only exception to the average score calculation was to the Deviation Factor and Gradient indicators where these where re-estimated using google earth between the start and end of the combined links.

Junction Assessments

To establish the risks cyclists' encounter at junctions and assess how the proposed road layouts have either reduced or eliminated this risk, a qualitative assessment has been undertaken at the 12 key junctions mentioned above. This assessment is based on four indicators related to core design principles of Safety, Directness, Coherence and Attractiveness but focused on the specific risks encountered at junctions.

- **Conflicting movements – motor traffic (Safety)*:** Accounts for the risk associated with;
  - left and right turn hooks
  - the flow of left turn movements including left turn slip lanes
  - the proportion of HGV movements
  - conditions for opposed right turns
  - motor vehicles accelerating into opportunistic gaps
  - motor vehicle lane changing particularly at roundabouts

- **Motor Traffic Speed Risk (Safety)*:** With motor traffic speed being the main contributing factor to the severity of road related injuries this considers the speed of motor traffic on the approach, through and exit to junctions and how this impacts the route cyclists take. For example, if cyclists are on-road and mixed with traffic it assesses the risk associated with the route through the junction. Alternatively, if the cycle route is off-road it assesses the risk associated with crossing arms of the junction.
- **Delay (Directness)*:** Accounts for the overall delay experienced by cyclists at junctions (compared to motor traffic) and considers both the frequency and duration of stopping/ give-ways but also the length of the route (i.e. the use of staggered or off-set crossings)
- **Ability to join and leave the route (Coherence):** Accounts for the ease to which cyclists can join and leave the route
- **Conflicting movements – pedestrians (Attractiveness):** Accounts for the level to which cyclists and pedestrians need to mix when crossing junctions

It should be noted that the outline design (on which this assessment is based) has not fully considered how cyclists negotiate all movements at the junctions, instead focusing on only those movements needed to progress along the designated cycle route. The indicators marked with an asterisk above do not therefore consider all cycle movements at the junction, with the recommendation being the Junction Assessment Tool (as defined by LTN 1-20) is used to inform on the next (feasibility) design stage.

Summary

The following section describes the analysis and results of the CLoS assessment. This includes the 11 individual links and the combined links that define the alternative routes between the King's Gate and Queen's Cross roundabouts which include the Parallel Routes A and B. The CLoS scoring for each of the 11 links and alternative route sections can be found in Appendix C while a detailed description of the assessment can be found in Appendix D. Appendix D provides a summary of each link which includes:

- Description of the existing road layout
- Description of the proposed road layout
- The overall CLoS score (sum of the core design principle scores) and areas for improvement.

Appendix E provides the outputs from the junction assessment based on the above indicators for the 12 key junctions identified along the study corridor. The aim of the assessment is to understand the extent to which these junctions have become safer for cyclists and pedestrians but also highlight areas for improvement.

Analysis and Results

Overview

Application of the CLoS tool provides a quantative assessment of how the existing provision for cyclists would change if the proposed road layouts provided in Appendix B where implemented. This assessment is based on the proposed road layouts compliance with the core design principles set out in CbD (Coherence, Directness, Safety, Comfort, Attractiveness and Adaptability) with the aim of:

- Identifying the key issues impacting the existing provision for cyclists
- Quantifying the extent to which the proposed road layout improves the provision for cyclists over the existing provision and that it achieves a minimum medium LoS as defined by CbD
- Identifying what further measures could be taken to improve the proposed road layouts for cyclists
- Understanding the most suitable route at locations where alternative cycle routes have been suggested

When assessing alternative routes, this applies to those proposed between the King's Gate and Queen's Cross roundabouts and which were developed because the introduction of cycle route infrastructure along this section of Queen's Road would result in a loss of bus priority and a likely increase in bus journey times. The alternative route to the Main Route (Link 5 and Link 6) is Parallel Route A (Link 8 and Link 9) and Parallel Route B (Link 8, Link 10 and Link 11).

A summary of the overall CLoS scores for the existing and proposed road layouts and for each link and alternative route sections is provided in Figure 3 . GREY bars relate to the existing road layout and BLACK bars the proposed road layout. Bars with a RED boarder are links that have one or more Critical Fail scores. To simplify the analysis, the overall Level of Service indicator has been given the following score ranges:

- Unsafe conditions for cyclists (●) – Score of zero or link with a Critical Fail
- Low Level of Service (●) – Score greater than zero and less than 33 percent
- Medium Level of Service (●●) – Score between 33 and less than 66 percent
- High Level of Service (●●●) – Score greater than 66 percent

Using these Level of Service definitions the next section provides a response to the above aims.

As the CLoS assessment does not fully consider the risk cyclists encounter at junctions and as it has not been possible to undertake the LTN 1-20 Junction Assessment Tool (JAT), a bespoke assessment has been adopted. This assessment, based on the core design principles set out in CbD, scores each of the key junctions along the study corridor (existing and proposed layouts) against the LoS indicators described above but using the following definitions. Note that only those indicators related to Safety use a Critical Fail score (●).

- Conflicting movements – motor traffic **(Safety):**
  - ● Cyclists exposed to a high level of significant conflicting movements
  - ● Cyclists exposed to a moderate level of significant conflicting movements
  - ●● All major and left turn conflicting movements removed
  - ●●● Conflicting movements eliminated

- Motor traffic speed risk **(Safety):**
  - ● Cyclists have a substantial interaction with motor traffic speeds greater than 30 mph
  - ● Cyclists have some interaction with motor traffic speeds greater than 30 mph (i.e. at crossings)
  - ●● Cyclists interact with motor traffic speeds (85th percentile) between 20 - 30 mph
  - ●●● Speeds (85th percentile) less than 20 mph on the approach, through and exiting the junction

- Delay **(Directness):**
  - ● Overall delay to cycle users at the junction is greater than the overall delay for motor traffic
  - ●● Overall delay to cycle users at the junction is equal to the overall delay for motor traffic
  - ●●● Overall delay to cycle users at the junction is less than the overall delay for motor traffic

- Ability to join and leave the route **(Coherence):**

- ● Cyclists cannot connect to other routes without dismounting
- ●● Cyclists can connect to other routes with minimal disruption to their journey
- ●●● Cyclists have dedicated connections to other routes provided, with no interruption to their journey

- Conflicting movements – pedestrians **(Attractiveness):**
  - ● Negative impact on pedestrian comfort levels
  - ●● No impact on pedestrian comfort levels
  - ●●● Pedestrian comfort levels enhanced by cycling provision

Compliance with Cycle by Design

Existing Link Provision

With reference to Appendix D and Figure 3, the existing provision along the main route (Links 1 to 7) scores poorly against the core design principles. The most compliant section with scores between 46 and 56 percent (●●) is ***between Westhill Drive and the A90 AWPR roundabouts*** (Links 1 to 2) due to the shared-use path and sections of cycle track along the northern side of the road. This shared-use path is however relatively narrow and does not always have a separation buffer with the road that has a 40 mph speed limit but the score is well within what can be considered a medium LoS as defined in CbD.

Along A944 ***between the A90 AWPR and Jessiefield roundabouts*** (Link 3) the CLoS score drops significantly to 34 percent to within what can just be considered a medium LoS. The reason for this relates to proximity of the shared-use path to the road (i.e. no separation buffer from the road), off-line and staggered crossing routes at junctions and a mixed traffic section along Old Skene Road which is a wide and heavily parked road with frequent driveway accesses. There is also a secluded shared-use path between Old Skene Road and the Jessiefield roundabout which has no natural surveillance along its length.

Along Skene Road and Queen's Road ***between the Jessiefield and King's Gate roundabouts*** (Link 4) the shared use-path continues along the northern side of the road until the Woodend Crescent junction where the footway narrows, and the cycle route is on-road for about 250 metres until the King's Gate roundabout. This shared-use path has a sub-standard width and has long sections were there is no buffer separation between the shared-use path and the road which has 30 and 40 mph speed limits. This results in an overall CLoS score of 34 percent (●●).

It should be noted that given the speed and flow of traffic on the mixed traffic section, the CLoS assessment should have possibly given a Critical Fail score to one or more of the indicators that define Safety. This was not done because of the relatively short on-road distance and there's also an alternative (unsigned) route via the adjacent residential road. If a Critical Fail score had been given to one of the Safety indicators, the overall CLoS score for Link 4 would have fallen to 24 percent (●).

Along Queen's Road ***between King's Gate and Anderson Drive roundabouts*** (Link 5) the cycle route is on-road. While advisory cycle lanes cover most of the link, they are narrow and provide little protection from the high traffic flows on a road with a 30 mph speed limit. Between Viewfield Road and Anderson Drive inbound cyclists are permitted to use the bus lane while outbound cyclists are on-road in what is likely to be the most heavily trafficked section of the link. This poor provision is reflected in a CLoS score of 24 percent (●) which includes a Critical Fail score for several of the indicators that define Safety.

Along Queen's Road ***between Anderson Drive and the Queen's Cross roundabout*** (Link 6) the link is made up of a wide single carriageway road with kerbside parking bays and bus stops located between frequent private driveway accesses. The cycling provision is on-road and mixed with traffic and given the flow and speed of motor vehicles combined with kerbside activity from parking bays, bus stops and the number of vehicle cross-overs, the CLoS score remains low at 24 percent (●) which again includes Critical Fail scores for several of the indicators that define Safety. The Queen's Cross roundabout presents a significant risk to all road users particularly those walking, wheeling and cycling.

Along Carden Place and Skene Street ***between the Queen's Cross roundabout and Rosemount Viaduct*** (Link 7) the existing road layout and operation is relatively consistent with Link 6. The link is made up of a wide single carriageway road with kerbside parking bays located between frequent private driveway accesses. The main difference when compared to Link 6 is that bus services do not operate along it, reducing the potential

conflict between buses and cyclists at bus stops. The cycling provision is on-road and mixed with traffic and given the flow and speed of motor vehicles combined with kerbside activity from parking bays and the vehicle cross-overs, the CLoS score is 26 percent (●) but which again includes Critical Fail scores for several of the indicators that define Safety.

The Links that define Parallel Route A (Links 8 and 9) and Parallel B (Links 8, 10 and 11) have CLoS scores that range from 22 to 32 percent.

- **Link 8** is mainly along King's Gate and scores relatively well with a CLoS score of 30 percent but this includes Critical Fail scores for several indicators that define Safety (●). The route taken by cyclists in the CLoS assessment is on-road as the footways are not shared-use but given the speed and flow of traffic it is acknowledged that most cycling is likely to be on the footway
- **Link 9** uses Carnegie Crescent, Rubislaw Den North, Desswood Lane, Fountainhall Road and Albert Lane and has a CLoS score of 32 percent (●). It scores relatively well on Safety (no Critical Fail scores) and Attractiveness with the route using predominantly quiet residential streets but scores low on Cohesion and Comfort due to poor continuity and difficult wayfinding
- **Link 10** uses Anderson Drive and scores poorly with a CLoS score of 22 percent that includes Critical Fail scores for several indicators that define Safety (●). The link also scores zero for Coherence due to a lack of potential connections to a wider cycle network. As with Link 8, the cycle route in the CLoS assessment is on-road but it is acknowledged that most cycling is likely to occur on the footway given the speed and flow of traffic
- **Link 11** is the equivalent of Link 9 for Parallel Route B using mainly quiet residential roads and lanes to connect to the Main Route on Carden Place. It has a CLoS score of 30 percent (●) with no Critical Fails which is slightly less than Link 9 mainly due to the greater use of 'Lanes' which result in a more secluded and therefore less Attractive route.

Proposed Link Provision (Main Route)

With reference to Figure 3 that summarises the link CLoS assessment (Appendix D) and the consultation plans (Appendix B) the proposed road layouts improve the CLoS score for each link substantially and well within the CLoS score that defines a high LoS (●●●). Importantly all Critical Fail scores are removed. This is as expected given the proposals provide either a fully segregated cycle route or when cyclists are mixed with traffic, it is within a low speed/ low flow motor traffic environment.

A summary of where improvements could be made to the proposals for the Main Route with reference to the core design principles is as follows:

- **Links 1 to 3** (A944): The buffer separation between cycle track and road plus enhanced street lighting, signage and road markings to support good wayfinding along the residential access road to the north of the Mayfield, Cherry Grove and Crommie Cottage residential properties are important to achieving an Attractive route. Changes at the A90 AWPR, Kingswells Causeway and Fairley Road junctions make a significant contribution to improving the Directness of the route. Directness would improve marginally if the alternative routes via a cycle track alongside the A944 replaced the route north of the above properties and the section along Old Skene Road.
- **Link 4** (Skene Road & Queen's Road): The lowest CLoS scores relate to Directness and Attractiveness but there is little scope for the proposals to improve on these scores given adjacent land uses (predominantly farmland) and route topography which remain unchanged.
- **Link 5** (Queen's Road west of Anderson Drive): Areas where the proposed road layout could be improved relate to Attractiveness where a reduction in shared-use areas at bus stops and at the Anderson Drive junction would reduce the impact of the proposals on pedestrian movement. It should be noted that a constrained highway boundary makes delivering fully segregated bus stop bypasses difficult and the most effective way to reduce the shared-use provision at the Anderson Drive junction would be to remove the roundabout and introduce a signal controlled cross-roads, but which would come at a substantial cost.
- **Link 6** (Queen's Road east of Anderson Drive): Again, the only area where the proposed road layout could be improved relates to Attractiveness and reducing areas of shared-use at bus stops and the Anderson Drive junction. Constraints as mentioned in Link 5 however still apply. Through discussions with businesses, hotel owners and schools it may be possible to improve the cycle parking provision along this link which would improve the Adaptability score.

- **Link 7** (Carden Place & Skene Street): The only area the proposed road layout could be improved is in Directness which includes indicators that measure delay at junctions. To do this the traffic signal off-set timings between junctions could be updated to give cyclists (not general traffic) a green wave through junctions.

Proposed Link Provision (Parallel Route)

Improvements that could be made to the proposed road layouts of the Parallel Routes are as follows:

- **Link 8** (Parallel Route A and B): The Cohesion of the route proposed along King's Gate could be improved further if a wider cycle route network was developed to the north, connecting to local schools and employment zones in Mastrick.
- **Link 9** (Parallel Route A): There are two scores of this link reflecting the cycle track (Option 1) and cycle street (Option 2) variants for Rubislaw Den North. Both scores indicate a high LoS as defined by CbD but suggest the cycle street layout has a slight advantage over the cycle track. The reason for this is that the cycle street layout scores slightly better for Adaptability and Safer than the cycle track. It should however be noted that each link includes a mix of cycle tracks and cycle streets, so the assessment is not making a direct comparison between a cycle street and a cycle track but road layouts that have more of one than the other. Both options have a reduced score for Attractiveness due to the limited levels of natural surveillance along Desswood Lane and Albert Lane.
- **Link 10** (Parallel Route B): There is little scope of improving the CLoS score further given the nature of the road (busy dual carriageway), highway constraints (trees) and the need to retain the cobblestone paving at the western end of Rubislaw Den North.
- **Link 11** (Parallel Route B): This link has a very similar score to Link 9 except for a higher Coherence score that can be attributed to this link requiring cyclists to make fewer turns. As with Link 9 the cycle street layout has a slight advantage over the cycle track but this time applied to Rubislaw Den South.

Main Route v's Parallel Route

To understand what the most suitable route between the King's Gate and Queen's Cross roundabouts the link scores were averaged over this section i.e. Main Route (Link 5 and Link 6), Parallel Route A (Link 8 and Link 9) and Parallel Route B (Link 8, Link 10 and Link 11). The result of this analysis is shown in Figure 3 and the following conclusion drawn.

- The Main Route is the preferred alignment with a CLoS score of 85 percent
- The next best route is Parallel Route B with a CLoS score of between 76 and 81 percent depending on whether a cycle track or cycle street is introduced along Rubislaw Den South
- The least good route (all provide a high LoS) is Parallel Route A with a CLoS score of between 73 and 77 percent again depending on whether a cycle track or cycle street is introduced along Rubislaw Den North
- When considering the most appropriate measure for Rubislaw Den North or Rubislaw Den South the above scores suggest the cycle street layout has a slight advantage over the cycle track

It is important to note that the CLoS assessment does not take account of engineering constraints i.e. how difficult the proposed road layouts are to implement, so the preferred alignment of the route suggested above should be cross referenced with the Design Risk Register [TN03] that sets out the potential impacts each route has on highway capacity, third party land, on-street parking, biodiversity, etc. For example, the Main Route between the King's Gate and Queen's Cross roundabouts requires substantial changes to major junctions including those at Anderson Drive, Forest Road and Queen's Cross and this is reflected in the Cost Plan [TN04]. These changes are also likely to reduce junction capacity which will increase journey times for general traffic and local bus services along this section of the corridor. The decision to recommend a preferred alignment for the cycle route should therefore take account of this CLoS assessment, the cost of implementing the proposed road layout and the impact the road layout will have on other road users particularly those using bus services.

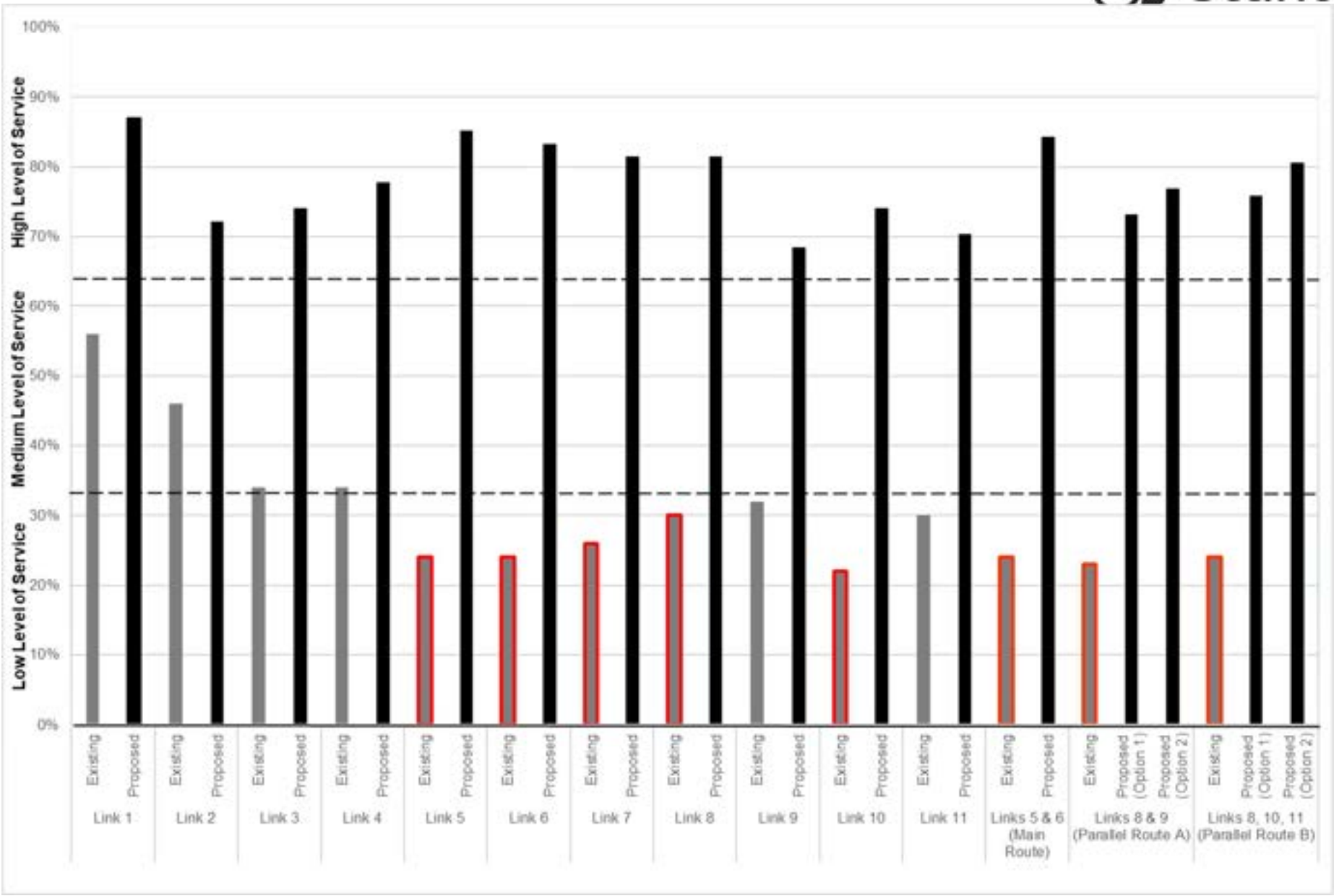


Figure 3: Summary of the link CLoS scores for the existing (base) and proposed road layouts

Existing & Proposed Junction Provision

Overview

With reference to the consultation plans (Appendix B) and junction CLoS (Appendix E), Table 1 summarises the qualitative assessment of 12 key junctions along the study corridor based on the indicators:

- Conflicting movements – motor traffic (Safety)*
- Motor Traffic Speed Risk* (Safety)
- Delay (Directness)*
- Ability to join and leave the route (Coherence)
- Conflicting movements – pedestrians (Attractiveness)

Those indicators with an asterisk only consider the movements cyclists need to take to progress along the proposed route. As such, the score for the ability of cyclists to join and leave the route is likely to improve as the design of the cycle route progresses from the outline to the feasibility design stages.

The following highlights the key issues, opportunities and challenges at each junction as part of the process to make the proposed junction layouts safe for cycling and support the delivery of a fully accessible and attractive route which encourages people to take up cycling as an everyday activity.

Westhill Drive j/w A944 (Roundabout - priority)

The provision of a signal controlled crossing on Westhill Drive removes a Critical Fail score (🔴) associated with the risk of conflicting movements from motor traffic and motor traffic speed at the roundabout. The proposals which improve the crossing on Straik Road and provide a new crossing on Westhill Drive make no significant reduction to delay, ability to join and leave the route or reduce conflicts with pedestrian movement which all have a low LoS (🔵). The next design stage should:

- Use traffic signal timings at the crossings to minimise the time that cyclists and pedestrians need to wait
- Ensure there are good connections to and from the route particularly along Westhill Drive
- Provide shared-use areas at the junction that are wide enough to minimise pedestrian and cycle conflict

A9119 j/w A944 (Cross-roads - signal controlled)

The cycle route bypasses the junction in both the existing and proposed layouts so there is no change to the scores for each of the above indicators with all achieving a medium LoS (🔵🔵) or better. With a low LoS (🔵) the area requiring most improvement is the ability for cyclists to leave and join the route particularly from the A9119 although this is unlikely to be an attractive connecting point given the speed and flow of traffic along this road.

A90 AWPR j/w A944 (Roundabout - signal controlled)

The proposals change the alignment of the cycle route from the northern perimeter of the roundabout to the northern perimeter of the island. This requires new signal controlled parallel crossings on the circulatory lanes on the roundabout but reduces the number of junction arms that need to be crossed.

The proposals reduce the risks associated with conflicting motor traffic movements and the speed of traffic with all other indicators achieving a medium LoS (🔵🔵). No further improvements required.

Kingswells Causeway j/w A944 (T-junction - signal controlled)

The proposals improve the cycle crossing provision on Kingswells Causeway replacing the signal controlled shared-use staggered crossing with a parallel crossing.

This will reduce the delay cyclists experience at the junction with all other indicators achieving a medium LoS (🔵🔵). No further improvements required.

Fairley Road j/w A944 (Roundabout - signal controlled)

The proposals improve the cycle crossing provision on Fairley Road replacing the signal controlled shared-use staggered crossing with a parallel crossing. The cycle route approaches to the junction are also improved.

This will reduce the delay cyclists experience at the junction and the potential conflict with pedestrian movements with the scores moving from a low LoS (🔵) to a medium LoS (🔵🔵). All other indicators achieve a medium LoS (🔵🔵) except for the ability to join and leave the route which remains at a low LoS (🔵) and which should be addressed at the next design stage.

Table 1: Summary of the junction CLoS scores for the existing (base) and proposed road layouts

Junction		Conflicting movements (motor traffic)		Motor Traffic Speed Risk		Delay		Ability to join and leave the route		Conflicting movements (pedestrians)	
		Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
Westhill Drive j/w A944 (Roundabout - priority)		●	●●	●	●●	●	●	●	●	●	●
A9119 j/w A944 (Cross-roads - signal controlled)		●●	●●	●●	●●	●●●	●●●	●	●	●●	●●
A90 AWPR j/w A944 (Roundabout - signal controlled)		●	●●	●●	●●	●	●●	●●	●●	●●	●●
Kingswells Causeway j/w A944 (T-junction - signal controlled)		●●	●●	●●	●●	●	●●	●●	●●	●●	●●
Fairley Road j/w A944 (Roundabout - signal controlled)		●●	●●	●●	●●	●	●●	●	●	●	●●
A944 j/w Skene Road 'Jessiefield roundabout' (Roundabout – part signal controlled)		●	●●	●	●	●	●●	●	●	●	●●
King's Gate j/w Queen's Road (1) (Roundabout - priority)	Main	●	●●	●	●●	●	●	●	●●	●●●	●
	Parallel		●●●		●●●		●●		●		●
Springfield Road j/w Queen's Road (T-junction - signal controlled)		●	●●	●	●●	●●	●●	●	●●	●●	●●
Anderson Drive j/w Queen's Road (Roundabout - priority)		●	●●	●	●●●	●●	●	●	●	●	●●
Forest Road j/w Queen's Road (Roundabout - priority)		●	●●	●	●●	●●	●●	●	●●	●	●●●
Queen's Road j/w Carden Place 'Queen's Cross' (Roundabout - priority)		●	●●	●	●●●	●●	●●●	●	●●●	●	●●●
Skene Street j/w Rosemount Viaduct (Cross-roads - signal controlled)		●	●●	●	●●	●●	●●	●	●●	●●	●●

Notes:

●(Critical Fail) ●(Low Level of Service) ●●(Medium Level of Service) ●●●(High Level of Service)

(1) There are two designs for the King's Gate roundabout depending on whether the Main Route or Parallel Route is used

A944 j/w Skene Road or 'Jessiefield roundabout' (Roundabout – part signal controlled)
The existing provision based on an off-road route has a Critical Fail score (🔴) for the risk from conflicting motor traffic movements. This is based on anecdotal evidence that there is poor compliance of the traffic signal controls at the crossing on the northern arm of the roundabout travelling along the A944 east to north.

The proposals improve this crossing by replacing the signal controlled shared-use staggered crossing with a parallel crossing and relocating it further from the roundabout. The cycle route approaches to the junction are also improved.

This will reduce the delay cyclists experience at the junction and potential conflict with pedestrian movements which changes from a low LoS (🔵) to medium LoS (🔵🔵). Indicators that remain at a low LoS (🔵) include the ability to join and leave the route and motor traffic speed. Ability to join and leave the route relates to the suitability of the connection to Lang Stracht while motor traffic speed highlights the further work required to ensure the non-compliance issues related to the crossing are resolved.

King's Gate j/w Queen's Road (Roundabout - priority)
The existing provision at the King's Gate roundabout is based on an on-road cycle route and which has Critical Fail scores (🔴) associated with the risk from conflicting motor traffic movements and the speed of motor traffic. The proposed off-road provision removes both Critical Fail scores (🔴).

The proposals for this junction differ depending on whether the cycle route continues along the Main Route (Queen's Road) or uses the Parallel Routes (via King's Gate).

As part of the proposals for the Main Route, areas for improvement at the next design stage should include:

- Increased delay (compared to motor traffic) due to cyclists having to use the parallel Zebra crossings on King's Gate and Queen's Road to bypass the junction
- Increased conflict with pedestrian movement due to the shared-use areas (some of them minimum width) between the crossings – the roundabout is close to Hazlehead Primary School so footways will be well used at the start and the end of the school day

As part of the proposals for the Parallel Route, areas for improvement include:

- Ability to join and leave the route particularly to/ from Hazlehead Avenue and the Queen's Road (west)
- Increased conflict with pedestrian movement as described above

It is notable that the risk of pedestrian movement conflict increases under both sets of proposals going from a high LoS (🔵🔵🔵) to low LoS (🔵). This is because the existing route assumes cyclists are on-road and the proposed route puts cyclist off-road but on minimum width shared-use paths.

Springfield Road j/w Queen's Road (T-junction - signal controlled)
The existing cycle route provision is on-road and results in a Critical Fail score (🔴) related to the risks associated with conflicting motor traffic movements. The proposals remove this Critical Fail score, allowing cyclists on Queen's Road to access cycle Advance Stop Lines (ASLs) from segregated cycle tracks while a cycle lane provides access to the ASL on Springfield Road. For all other indicators the proposals move the cycle route provision to a medium LoS (🔵🔵).

Although not highlighted by the assessment, further design work is required to improve the right turn from Queen's Road to Springfield Road. This would reduce the risk from conflicting motor traffic movements and improve the opportunity for cyclists to leave the route.

Anderson Drive j/w Queen's Road (Roundabout - priority)
The Anderson Drive roundabout presents a significant risk to cyclists, and this is reflected in the Critical Fail scores (🔴) associated with the risk from conflicting motor traffic movements and the speed of motor traffic. The proposed off-road provision removes both these Critical Fail scores (🔴) but there are residual deficiencies with the proposals related to:

- Delay due to the proposed off-road route using off-set crossings on Anderson Drive decrease the LoS from medium (🔵🔵) to low (🔵). This is because the existing provision assumes an on-road route but this is unlikely given the significant risks to cyclists using the roundabout so the score for the existing route may be underestimating the delay cyclists currently experience at the junction
- Ability to join and leave the route remain at a low LoS (🔵) given the lack of a suitable cycle route along Anderson Drive

- A potential increase in conflicting movements with pedestrians if the road widening required for the shared-use areas cannot be achieved – the scoring reflects the proposed road layout being delivered where shared-use areas are sufficiently wide to increase the LoS from low (●) to medium (●●)

Forest Road j/w Queen's Road (Roundabout - priority)
The existing provision at the Forest Road roundabout is based on an on-road cycle route, has Critical Fail scores (●) associated with the risk from conflicting motor traffic movements and the speed of motor traffic.

The proposed road layout replaces the roundabout with a signal controlled cross-roads removing both Critical Fail scores (●) and achieving a medium LoS (●●) for delay and ability to join or leave the route. The risk associated with pedestrian movement conflict reduces going from a low LoS (●) to a high LoS (●●●) and the proposed road layout provides a protected on-road provision which should be effective at encouraging cyclists not to use the footway.

Queen's Road j/w Fountainhall Road, Carden Place & Albyn Place (Roundabout - priority)
The Queen's Cross roundabout presents a significant risk to cyclists, and this is reflected in the Critical Fail scores (●) associated with the risk from conflicting motor traffic movements and the speed of motor traffic.

The proposed protected track roundabout layout (or 'Dutch-style' roundabout) removes both these Critical Fail scores (●) and increases the scores for delay, ability to join and leave the route and pedestrian movement conflict to a high LoS (●●●). No further improvements required.

Skene Street j/w Rosemount Viaduct (Cross-roads - signal controlled)
The existing provision based on an on-road cycle route has a Critical Fail score (●) for the risk from conflicting motor traffic movements.

The proposed road layout with protected cycle lanes on the approach and exit to the junction and advisory cycle lanes within the junction removes this Critical Fail score (●) and increases the remaining indicator scores to a minimum of a medium LoS (●●). Due to the geometry of the junction further work should be undertaken to ensure the cycle route can be safely accessed from the other junction arms i.e. Rosemount Viaduct (north) and Skene Street (east).

Summary and Conclusions

Cycle Level of Service Assessment

This Cycle Level of Service (CLoS) assessment has been undertaken to understand the compliance of the cycle route infrastructure developed during the A944/ A9119 Active Travel Corridor Study with respect the core design principles set out in Cycle by Design (CbD).

The assessment is based on the CLoS tool described in LTN 1-20 but adapted to align more closely with the indicators that define the core design principles of Safety, Coherence, Directness, Comfort, Attractiveness and Adaptability in CbD. It should be noted that there is broad alignment between the two guidance documents with respect to how the indicators are defined and scored. Appendix A includes a table that shows how the LTN 1-20 indicators were adjusted to achieve this broad alignment and so create a CbD compliant CLoS tool.

For the cycle route infrastructure developed as part of the A944/ A9119 active travel study the CbD CLoS tool has been used to establish the following aims:

- Identify the key issues impacting the existing provision for cyclists
- Quantify the extent to which the proposed road layouts improve the provision for cyclists over the existing road layout and that they achieve a high LoS as defined in CbD
- Identify what further measures could be taken to improve the proposed road layouts for cyclists
- Understand the most suitable route at locations where alternative cycle routes have been suggested

The assessment defined the corridor into 11 links which covered the main and alternative routes and was based on the consultation plans (prepared from the outline design) and which can be found in Appendix B.

The existing and proposed road layouts were assessed using the CLoS tool and each link was given a score for each of the indicators that define the core design principles. The scores for Safety, Coherence, Directness, Comfort, Attractiveness and Adaptability where then combined to provide an overall CbD compliance score which was used to inform on the above aims. The CLoS scoring (and notes) for each of the 11 links and alternative route sections can be found in Appendix C while a detailed description of the assessment is provided in Appendix D.

The CLoS assessment does not fully consider the risk cyclists encounter when travelling through junctions, so a bespoke junction assessment was developed based on the cycle design principles set out in CbD. The assessment used the most relevant CLoS indicators and a qualitative review of the junction operation for the existing and proposed road layouts to understand the extent to which the risk of cyclist injury at junctions could be reduced under the proposals. The junction CLoS indicators used, along with the core design principles they relate to, were:

- Conflicting movements – motor traffic (Safety)*
- Motor Traffic Speed Risk* (Safety)
- Delay (Directness)*
- Ability to join and leave the route (Coherence)
- Conflicting movements – pedestrians (Attractiveness)

Link Assessment

The following table summarises the CLoS assessment for the Links including the combined Links that make up the section of the study corridor were an alternative route is proposed.

Table 2: Link CLoS assessment summary

Link	Description	Existing			Proposed		
		CLoS Score	CLoS Ranking	Critical Fail	CLoS Score	CLoS Ranking	Critical Fail
1	Brimmond Drive to Westhill Drive	56%	●●	No	87%	●●●	No
2	Westhill Drive to A90 AWPR roundabout	46%	●●	No	72%	●●●	No
3	A90 AWPR to Jessiefield roundabout	34%	●●	No	74%	●●●	No
4	Jessiefield roundabout to King's Gate	34%	●●	No	78%	●●●	No
5	King's Gate to Anderson Drive	24%	●	Yes	85%	●●●	No
6	Anderson Drive to Queen's Cross	24%	●	Yes	83%	●●●	No
7	Queen's Cross to Schoolhill	26%	●	Yes	81%	●●●	No
8	King's Gate to Anderson Drive	30%	●	Yes	81%	●●●	No
9	Anderson Drive to Carden Place (via Rubislaw Den North)	32%	●	No	69%(1) 76%(2)	●●●	No
10	Carnegie Crescent to Rubislaw Den South (via Anderson Drive)	22%	●	Yes	74%	●●●	No
11	Anderson Drive to Carden Place (via Rubislaw Den South)	30%	●	No	70%(1) 78%(2)	●●●	No
MR	Main Route (Alternative)	24%	●	Yes	84%	●●●	No
PRA	Parallel Route A (Cycle Track)	23%	●	Yes	73%	●●●	No
	Parallel Route A (Cycle Street)				77%	●●●	No
PRB	Parallel Route B (Cycle Track)	24%	●	Yes	76%	●●●	No
	Parallel Route B (Cycle Street)				81%	●●●	No

Notes:
(1) Cycle track option
(2) Cycle street option

Key outputs from the link CLoS assessment of the existing cycle route along the study corridor are:

- Westhill to the A90 AWPR junction (Link 1 and Link 2) has an adequate provision (●●) with a sufficient level of Safety and Directness. The route however is not Attractive and so unlikely to encourage new cyclists to use the route
- A90 AWPR to the King's Gate roundabout (Link 3 and Link 4) meets the minimum requirements for a medium LoS (●●) but there are significant issues that make it unsuitable as a cycle route. This includes narrow sections of shared-used paths, unprotected side roads and an on-road section where cyclists share the road with heavy traffic flows approaching a multi-lane roundabout
- The route between King's Gate roundabout and the city centre (Link 5, Link 6 and Link 7) does not meet the minimum requirements for a cycle route and there are frequent locations (particularly at junctions) that pose a significant risk to cyclists resulting in a Critical Fail score (●) that make the route unsuitable even for confident cyclists

The proposed road layouts as set out in Appendix B enhance the link provision for cyclists to a high LoS (●●●) but importantly remove all Critical Fail scores (●) which are related to Safety, from the route.

With respect to the most suitable route between the King's Gate and Queen's Cross roundabouts the Main Route is the preferred alignment with a CLoS score of 84 percent. The next best route is Parallel Route B with

a CLoS score of between 76 and 81 percent with the cycle street option along Rubislaw Den South producing the higher score.

Junction Assessment

The qualitative assessment of 12 key junctions along the study corridor indicated the proposed road layouts (Appendix B) achieved in most cases, a medium LoS (●●) or higher (●●●) across the five defined junction indicators. Areas where a medium LoS (●●) was not achieved highlights areas where the next design stage should seek to make improvements. These areas are summarised in Table 3.

Table 3: Junction assessment – areas of improvement

Junction (type)	Areas of improvement[6] ●
Westhill Drive j/w A944	Delay Ability to join and leave route Conflicting movements (pedestrians)
A9119 j/w A944	Ability to join and leave route
A90 AWPR j/w A944	None
Kingswells Causeway j/w A944	None
Fairley Road j/w A944	Ability to join and leave route
A944 j/w Skene Road 'Jessiefield roundabout'	Motor traffic speed risk Ability to join and leave route
King's Gate j/w Queen's Road	Delay Ability to join and leave route Conflicting movements (pedestrians)
Springfield Road j/w Queen's Road	None
Anderson Drive j/w Queen's Road	Delay Ability to join and leave route
Forest Road j/w Queen's Road	None
Queen's Road j/w Fountainhall Road, Carden Place & Albyn Place 'Queen's Cross'	None
Skene Street j/w Rosemount Viaduct	None

For each of the five junction indicators the following describes measures to improve the score and which should be considered at the next design stage. This should focus on the above areas of improvement but extend across all junctions with the aim of moving any medium LoS (●●) score to a high LoS (●●●) score.

To reduce the risk from **motor traffic conflicting movements** the following measures should be considered:

- Cyclists should be provided with a dedicated crossing phase within the traffic signal plan
- At locations where cyclists are on-road, signal controlled junctions should include a cycle 'early release'

[6] Areas of improvement assume the proposed road layout for the junction is fully deliverable. If changes are required to the layout due to engineering, highway capacity or land constraints then these improvements to achieve a medium LoS (as a minimum) may change

To reduce the risk from **motor traffic speed** the following measures should be considered:

- Junction geometries should be modified (tightened up) to reduce vehicle speeds on the approach, through and exit to the junctions particularly at roundabouts (all movements) and at cross-roads (left and right turns)
- Good visibility of traffic signal heads particularly those associated with standalone side road crossings

To reduce the **delay** cyclists experience at junctions the following measures should be considered:

- Where new or upgraded cycle crossings are introduced, cycle detection on the approaches should be introduced to bring forward the cycle crossing phase within the signal plan
- At locations where cyclists are on-road but where signal controlled junctions are frequently spaced, the off-set timing between these junction should be set to give cyclists (rather than motor traffic) a 'green wave' along the route

To improve the ability of cyclists to **join and leave the route** the following measures should be considered:

- Crossing facilities on all arms of the junction should be made suitable for cyclists
- Shared-use areas between crossing facilities should meet or exceed desired width standards
- A wider cycle route network should be developed[7] across the western areas of Aberdeen providing safe cycle routes between adjacent residential and employment areas to the main cycle route

To reduce **conflicting movements with pedestrians** the following measures should be considered:

- The use of shared-use areas should be minimised with cycle tracks linked directly to dedicated parallel cycle crossings
- If shared-use areas are required these should meet or exceed desired width standards

There are several junctions along the study corridor where significant layout changes are proposed to provide a suitable cycle route on the approach, through and exit to the junction. The extent of these changes is likely to reduce the capacity of the junction for motor traffic which could have an impact on the performance of local bus services. It is therefore recommended that as part of the feasibility design stage, traffic modelling assessments are undertaken to assess the extent of traffic delays and develop mitigation to reduce the impact on motor traffic, particularly for bus services.

[7] As a minimum the cycle route density over this wider area should be between 200-800m (ideally less than 200m) between key primary and secondary route. See CbD page 30.

Conclusions

- **CLoS link assessment**: The proposed road layouts as set out in Appendix B enhance the provision for cyclists to a high LoS (●●●) but importantly removes all critical cycle safety risks (●) from the route
- **Route improvements**: The CLoS link assessment suggests the proposed road layouts can be improved in the following areas
  - **Westhill to Jessiefield roundabout (Links 1 to 3)**: An adequate separation buffer between the cycle track and the road is an important element of maintaining the Attractiveness of this section of route
  - **Use of bypass roads (Links 3 and 4)**: There is no additional justification to use the alternative route sections between the A9119 j/w A944 and the Cormack Park access and between the Fairley Road and Jessiefield roundabouts. These alternative routes proposed a continuation of the two-way cycle track alongside the A944 compared to the proposed alignment that uses an existing but modified by-pass road i.e. the Mayfield, Cherry Grove and Crommie Cottage access road and Old Skene Road
  - **King's Gate to Queen's Cross (Link 5)**: Reducing shared-use areas at bus stops or at the Anderson Drive junction to reduce the impact on pedestrian comfort levels
  - **Cycle parking (Link 6 and 7)**: To improve Attractiveness and Adaptability locations for cycle parking along the route should be identified and integrated into the route designs
  - **Carden Place and Skene Road (Link 7):** The signal timing off-sets between junctions should give cyclists (travelling at a typical speed) a 'green wave' through the Albert Street and Rose Street junctions plus intermediate signal controlled crossings
  - **Whole route:** To improve the Cohesion of the route, a wider cycle route network should be developed, connecting the main route to nearby schools, colleges, leisure facilities and employment areas
  - **Whole route:** To improve the Comfort of the route a comprehensive signage strategy (including cycle route and network branding) should be implemented to support good wayfinding and route promotion
- **Preferred route alignment**: Based on the CLoS link assessment the most suitable route between the King's Gate and Queen's Cross roundabouts is the Main Route with a CLoS score of 85 percent. The next best route is Parallel Route B with a CLoS score of between 76 and 81 percent with the higher score associated with using a cycle street rather than cycle track along Rubislaw Den South
- It is important to note that the CLoS assessment does not take account the physical/ engineering (cost) constraints associated with the proposed road layouts i.e. how difficult the proposals are to implement, so any conclusions drawn on the preferred route alignment from the CLoS scoring should be done so with reference to the Design Risk Register [TN03] and Cost Plan [TN04]
- In this case, the CLoS assessment indicates the Queen's Road alignment is preferred but this section of the corridor includes several high capacity junctions that will need substantial change to accommodate the proposed cycle route, and which are likely to result in a higher cost than the Parallel Routes. The Queen's Road alignment will also have a greater negative impact on local bus services
- **Cycle streets v's cycle tracks**: The CLoS scoring for Link 9 and Link 11 suggests the cycle street layout has a slight advantage over the cycle track when proposals for Rubislaw Den North and Rubislaw Den South are considered. The reason for this is that the cycle street layout is slightly more Adaptable and Safer than the cycle track
- **CLoS junction assessment**: The proposed junction layouts as set out in Appendix B make substantial improvements to the cycle route provision at junctions removing Critical Fail (●) scores as defined by the five junction indicators defined above. Further design work is required to remove the low LoS (●) scores (i.e. areas of improvement) and move the medium (●●) LoS scores to a high (●●●) score.
- This can be achieved by making changes to improve

  Safety

  - Cyclists should be provided with a dedicated crossing phase within the traffic signal plan
  - Where cycle tracks or lanes extend to the stop lines a cycle 'early-release' should be introduced
  - Junction geometries should be modified to reduce the speed of motor traffic particularly turning movements
  - Good visibility of traffic signal heads particularly at standalone side road crossings

Directness

- Where new or modified pedestrian and cycle crossings are proposed, signal timings and/ or method of detecting cycles should be optimised to minimise crossing delay
- The off-set between signal controlled junctions should be set to provide cyclists a 'green wave' along the route

Coherence

- At signal controlled junctions introduce 2-stage right turns to make it easier for cyclists to join and leave the route

Attractiveness

- Shared-use areas should be minimised with cycle tracks linked directly to dedicated parallel cycle crossings and where shared-use areas are required these should meet or exceed desired width standards

- To improve the proposed junction layouts, it is suggested that at the next design stage the Junction Assessment Tool set out in LTN 1-20, is applied to all junctions and changes made so that for all permitted movements, cyclists have a direct and safe route through each junction, providing clear transitions to and from the proposed cycle route.
- **CLoS updates**: This CLoS assessment is based on the outline design which presents a best case layout for the cycling provision along the study corridor as the outline design does not fully account for all:
  - physical/ engineering (cost) constraints i.e. availability of land where road widening is required or a narrowing of the central reservation
  - highway capacity including those impacts on bus services and on-street parking
  - public consultation responses
- These physical/ cost/ highway capacity constraints and public consultation inputs will inevitably lead to design change and value engineering with potentially some downgrading of the cycle route infrastructure as the final road space reallocation is modified to comply more closely with the roads hierarchy set by the National Transport Strategy
- It is suggested this CLoS assessment is updated at each design stage to confirm changes made to the proposed road layouts maintain a high LoS (●●●) score along the proposed cycle route and so ensure a safe, fully accessible and attractive route is delivered which encourages people to take up cycling as an everyday activity.

DOCUMENT ISSUE RECORD

Technical Note No	Rev	Date	Prepared	Checked	Reviewed (Discipline Lead)	Approved (Project Director)
332610462/300/TN02	-	15.08.24	Ginny Ludford-Jones		George Daugherty	Emily Seaman

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Appendix A: Cycle by Design CLoS Development

Contents

- Comparison of LTN 1-20 CLoS assessment with CbD

Cycle Level of Service Assessment
LTN 1-20 v's CbD

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				LTN 1-20 Level of Service					Cycle by Design Level of Service		
	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Design Principle	X Don't Use	● Low	●● Medium	●●● High
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	Cycling infrastructure should form a coherent network which links origins and destinations. This allows the cycle network to link communities, facilities and integrate with other modes of travel. Routes should be continuous from an origin to a destination, easy to navigate, well signed, intuitive and of a consistently high quality		Cycle users must dismount or are 'abandoned' at the end of a route	Cycle routes contribute to a network, but users experience some disruption when connecting between routes, and navigation may be difficult	Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions					
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 – 1000m	Route contributes to a network density mesh width <250m			*Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]*	*Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]*	*Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]*
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	Cycle users should be offered the most direct route based on existing and latent trip desire lines, minimising detours and delays. Directness has both geographical and time elements, with delays at junctions and crossings, as well as physical detours, affecting it		Cycle route is more than 20% less direct than the equivalent motor traffic journey, with frequent need to stop or give-way. Delay for cycle users at junctions is greater than for motor traffic	Cycle route is up to 20% less direct than the equivalent motor traffic journey, with some need to stop or give-way. Delay for cycle users at junctions is equal to motor traffic delay	Cycle route is at least as direct as the equivalent motor traffic journey, with minimal need to stop or give-way. Delay for cycle users at junctions is less than for motor traffic
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km			*At **priority junctions** cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]*	*At **priority junctions** cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]*	*At **priority junctions** motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]*
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (e.g. bypass at signals)			*At **signalised junctions** the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]*	*At **signalised junctions** the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]*	*At **signalised junctions** the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]*
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed					
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Route includes sections steeper than the gradients recommended in Chapter 5	There are no sections of route steeper than the gradients recommended in Chapter 5	There are no sections of route which steeper than 2%			*Much of the route exceeds 3% gradient [p.60]*	*Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]*	*There are no sections of route steeper than 3% gradient [p.60]*

				LTN 1-20 Level of Service					Cycle by Design Level of Service		
	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Design Principle	X Don't Use	● Low	●● Medium	●●● High
Safety	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph					
			10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph					
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT					
	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic. See Figure 4.1. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide	Cyclists in cycle lanes at least 1.8m wide on-carriageway; 85th percentile motor traffic speed max 30mph	Cyclists on route away from motor traffic (off road provision) or in off-carriageway cycle track. Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph	Designs should minimise the potential for actual and perceived accident risk. Perceived risk is a key barrier to cycle use. Users should feel safe as well as be safe at all stages of their journey, including parking at their origin and destination. It is important to provide consistency of design and avoid ambiguity		In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3
		A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated			*At **signalised junctions** cycle users share the same space as motor traffic and move through the junction at the same time [p.174]* ***Suitability of crossings for cyclists** : See Section 2.4 and Table 4.1 [p.124].* *Not suitable for a range of users, including novice and intermediate users. Shall be avoided unless the risk to these users is conveyed to the Overseeing Organisation by the designer and accepted by the Overseeing Organisation*	*At **signalised junctions** cycle users are provided with separate time to move through junction from conflicting motor traffic, but may share the same space [p.174]* ***Suitability of crossings for cyclists** : See Table 4.1 [p.124].* *May not be suitable for some users, particularly novice users. Designer shall consider the lack of attractiveness of the facility to these users and how this can be overcome or mitigated*	*At **signalised junctions** cycle users are separated from conflicting motor traffic in both time and space when moving through the junction [p.174]* ***Suitability of crossings for cyclists:** See Table 4.1 [p.124]. Suitable for most users*
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout					
	Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m					
	Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.					

Cycle Level of Service Assessment
LTN 1-20 v's CbD

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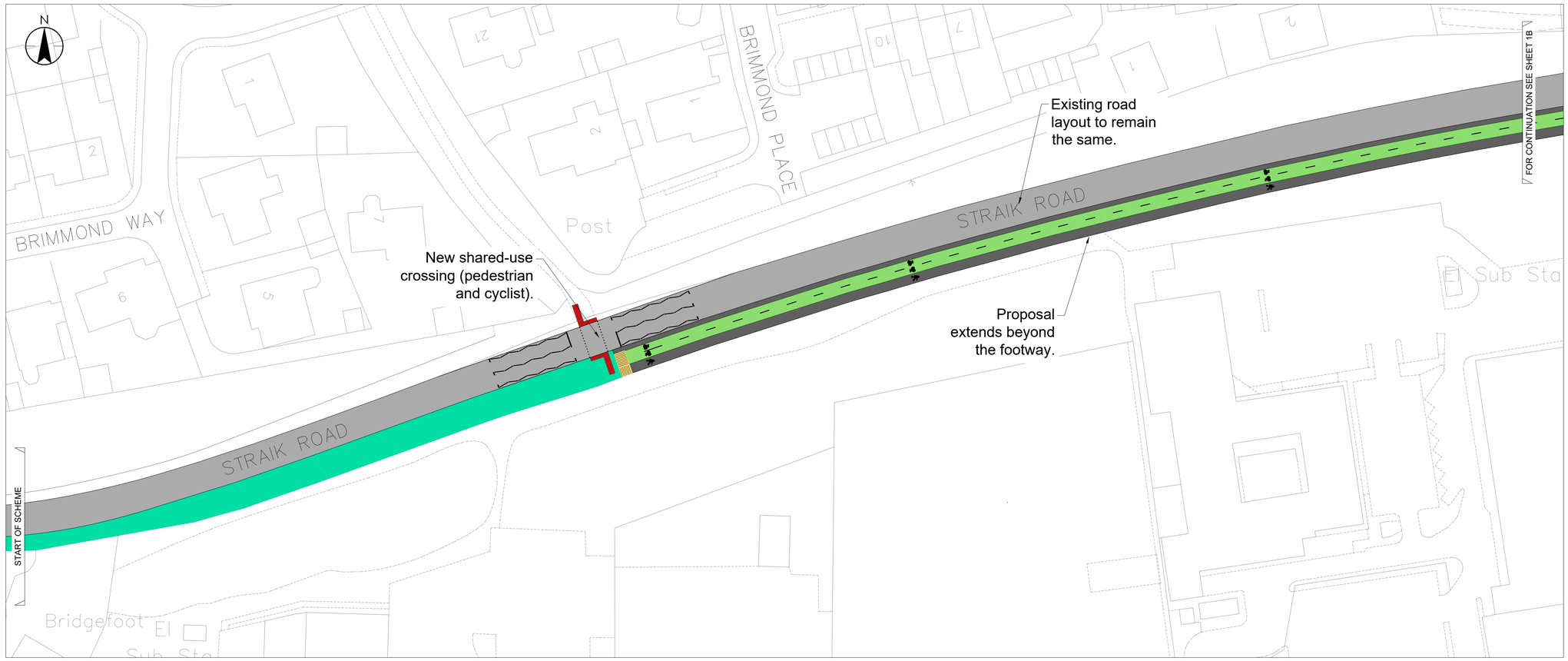
				LTN 1-20 Level of Service					Cycle by Design Level of Service		
	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Design Principle	X Don't Use	● Low	●● Medium	●●● High
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	Cycle user comfort is critical to journey experience and making cycling an everyday choice for users. Routes should minimise mental and physical stress and effort, be convenient and avoid complex manoeuvres. Smooth, uninterrupted surfaces with gentle gradients and secure, sheltered cycle parking will enhance comfort. Cycling infrastructure should be well-maintained to ensure its continued comfort and appeal		Sections of the route are unbound, bumpy, not regularly maintained or otherwise hazardous. Desirable minimum widths or gradients are not achieved for the majority of the route	Sections of route are hand-laid with frequent joints. Route is maintained less frequently than the road network. Desirable minimum widths or gradients are not achieved for some of the route	Cycle route surfaces are machine laid, smooth and well-maintained (at least as regularly as the road network). Desirable minimum widths and gradients are fully achieved
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints	Machine laid smooth and non-slip surface – e.g. Thin Surfacing, or firm and closely jointed blocks undisturbed by turning heavy vehicles			*Cycle route surface is unbound or deterioration has led to frequent defects [p.112]*	*Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]*	*Cycle route surface is machine laid and smooth, with no defects [p.112]*
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route			*Most of the route falls below desirable minimum widths. See Table 3.7 [p.64]*	*Some sections of the route fall below desirable minimum widths, or Most of the route falls below desirable minimum widths, but cycle user numbers are less than 50 per hour with limited scope for growth. See Table 3.7 [p.64]*	*Desirable minimum widths are fully achieved. See Table 3.7 [p.64]*
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions					
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most or all of route is unlit	Short and infrequent unlit/ poorly lit sections	Route is lit to highway standards throughout	Infrastructure should be designed in harmony with its surroundings in such a way that the whole experience makes cycling an attractive option. A route should complement and enhance the area through which it passes. Lighting, personal security, aesthetics, environmental quality and noise are important considerations		*Most of the link is infrequently lit or overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]*	*Some sections of the link are infrequently lit or overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]*	*The cycle link is well lit and overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]*
			22. Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length					
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A			The majority of the route is infrequently lit or not overlooked. Parking areas are not secure or are insufficient in number	Some sections of the route are infrequently lit or not overlooked. Parking areas are secure but not overlooked or are insufficient in number	Cycle route and parking areas are well lit, overlooked and do not create any personal security issues for users. The cycle route adds to the sense of place in the area, encouraging people to spend time there
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction					
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate provision in insecure non overlooked areas	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand			***Safety** : Not secure and below the desirable minimum level of provision [p211]*	***Safety** : Secure but not overlooked and/or only providing the desirable minimum level of provision [p211]*	***Safety** : Secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]*
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands							***Cycle route** : No scope to amend cycling infrastructure once installed [p.64]*	***Cycle route** : Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	***Cycle route** : Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*
	Cycle Parking		27. Cycle parking can be increased to meet future demands							***Cycle parking:** Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	***Cycle parking:** Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	***Cycle parking** : Has the flexibility to expand, evolve or adapt to changing demands [p211]*

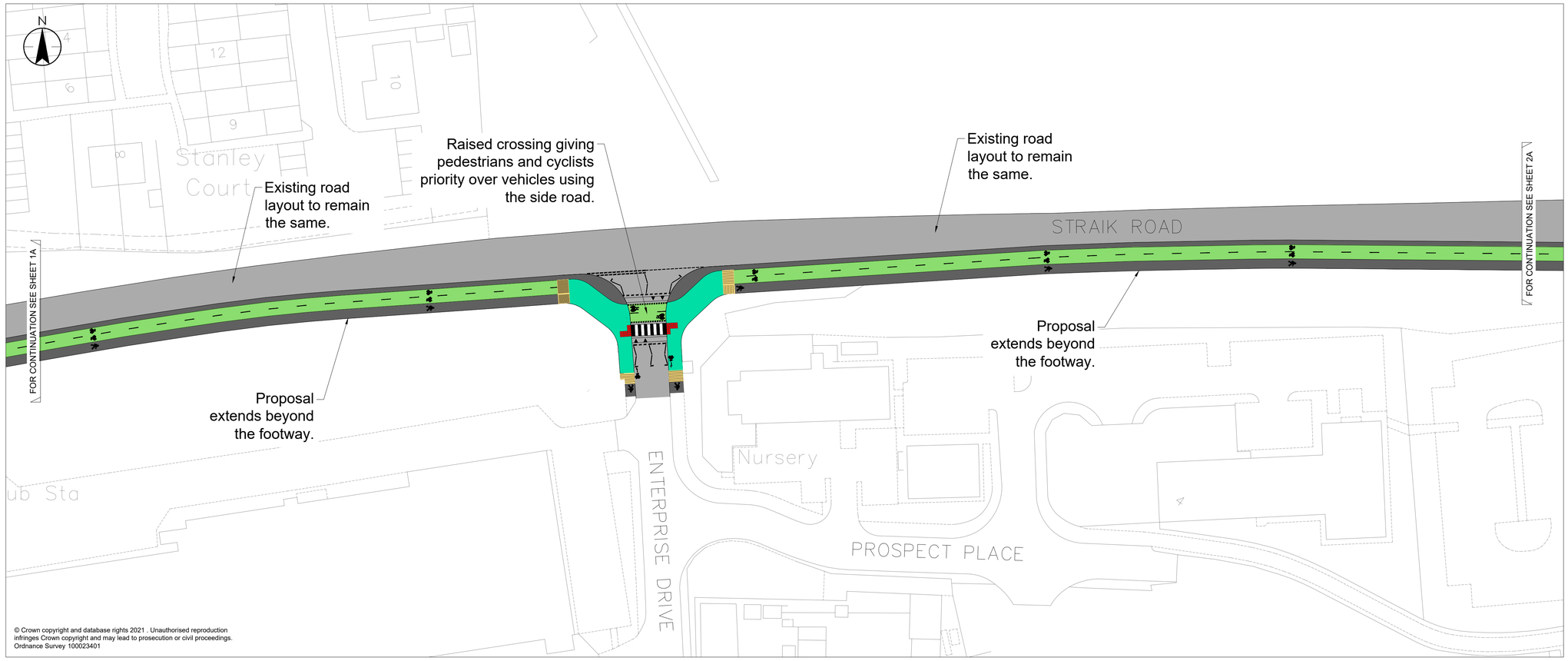
Appendix B: Proposed Road Layouts (Consultation Plans)

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Main Route Drawings

- Drawing Number: 332610462-STN-HGN-XX-DR-H-5501(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5502(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5503(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5504(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5505(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5506(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5507(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5508(P01)
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- Drawing Number: 332610462-STN-HGN-XX-DR-H-5510(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5511(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5512(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5513(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5514(P01)
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- Drawing Number: 332610462-STN-HGN-XX-DR-H-5517(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5518(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5519(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5520(P01)





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Notes

1. The layout is subject to detailed design, highway capacity testing, road safety audit, ground investigations, earthworks modelling, utilities & services searches, and confirmation of land ownership.
2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10

	Dwn.	Dsgn.	Chkd.	
	M.G	M.G	M.O'S	2024.01.10

Issue Status

S3 - FOR REVIEW AND COMMENT

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ABERDEEN CITY COUNCIL

Client/Project

WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 1 OF 28

Title

A944 - A9119 MAIN ROUTE

STRAIK ROAD (A944)

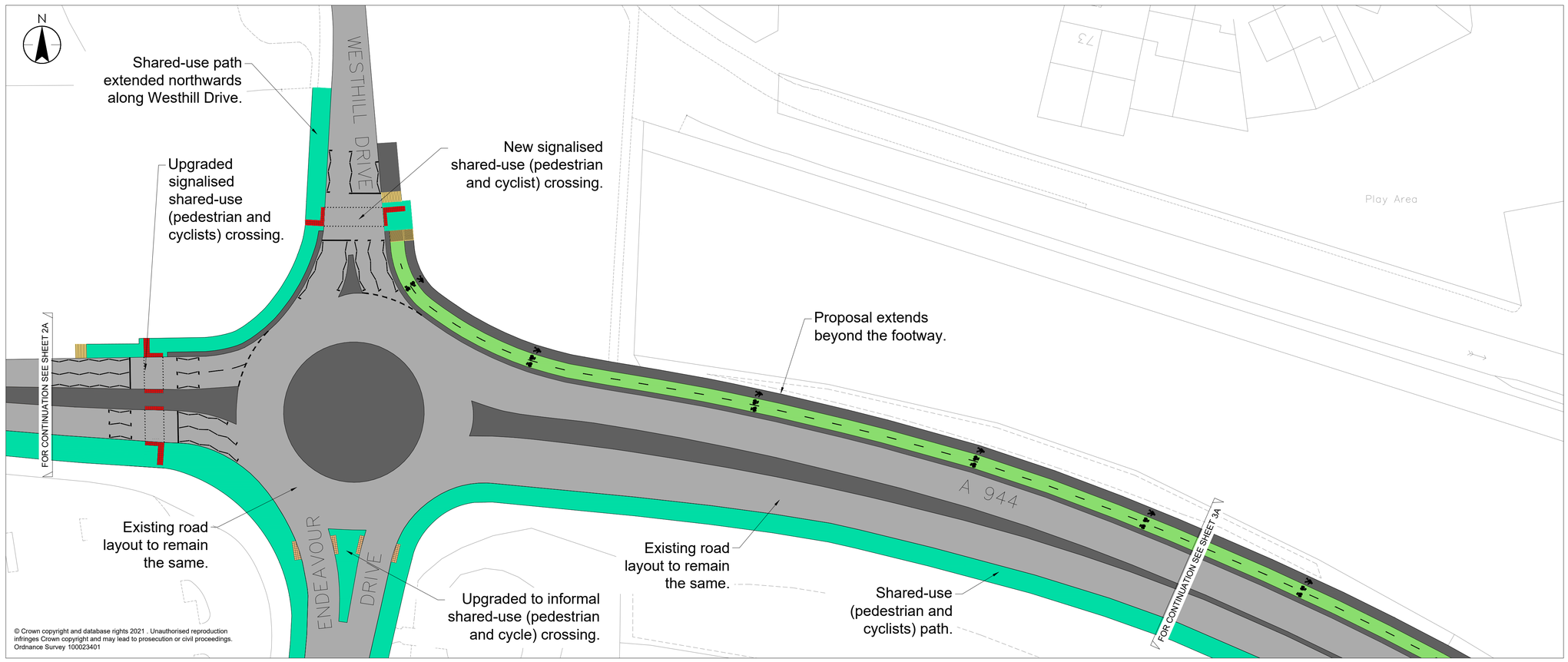
PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5501**

Plotted: 13/6/2024 2:04:43 PM By: Blake Erin
Plotted by: 0014 - \\stn-file01\projects\332610462\4 Design\5 Drawings\Current\2 2D\Design\332610462-stn-hgn-xx-dr-h-5501 to sx.t4 - consultation - main route





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Plotted: 13.06.2024 4:04:43 PM By: Barker, Erin
DrawingFile: 332610462-STN-HGN-XX-DR-H-5501 to 5504 - consultation - main route

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- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 2 OF 28

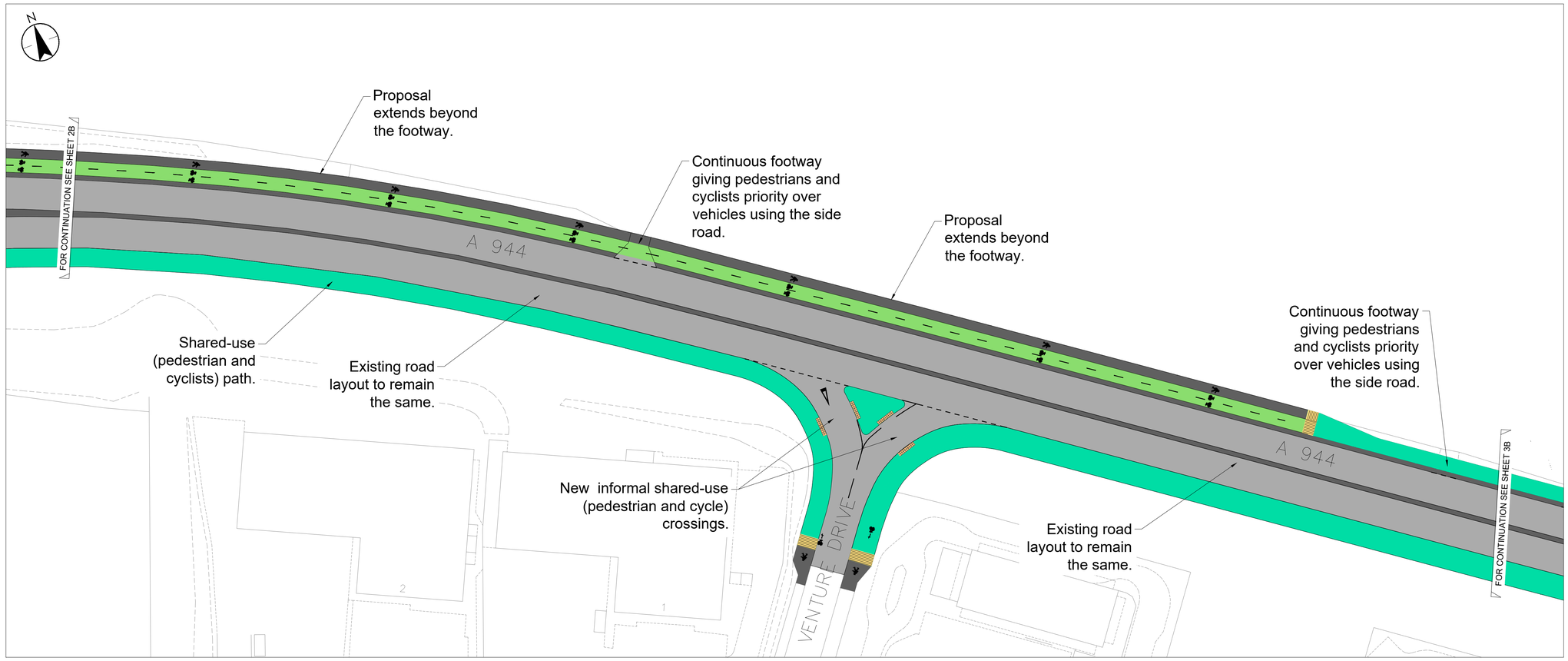
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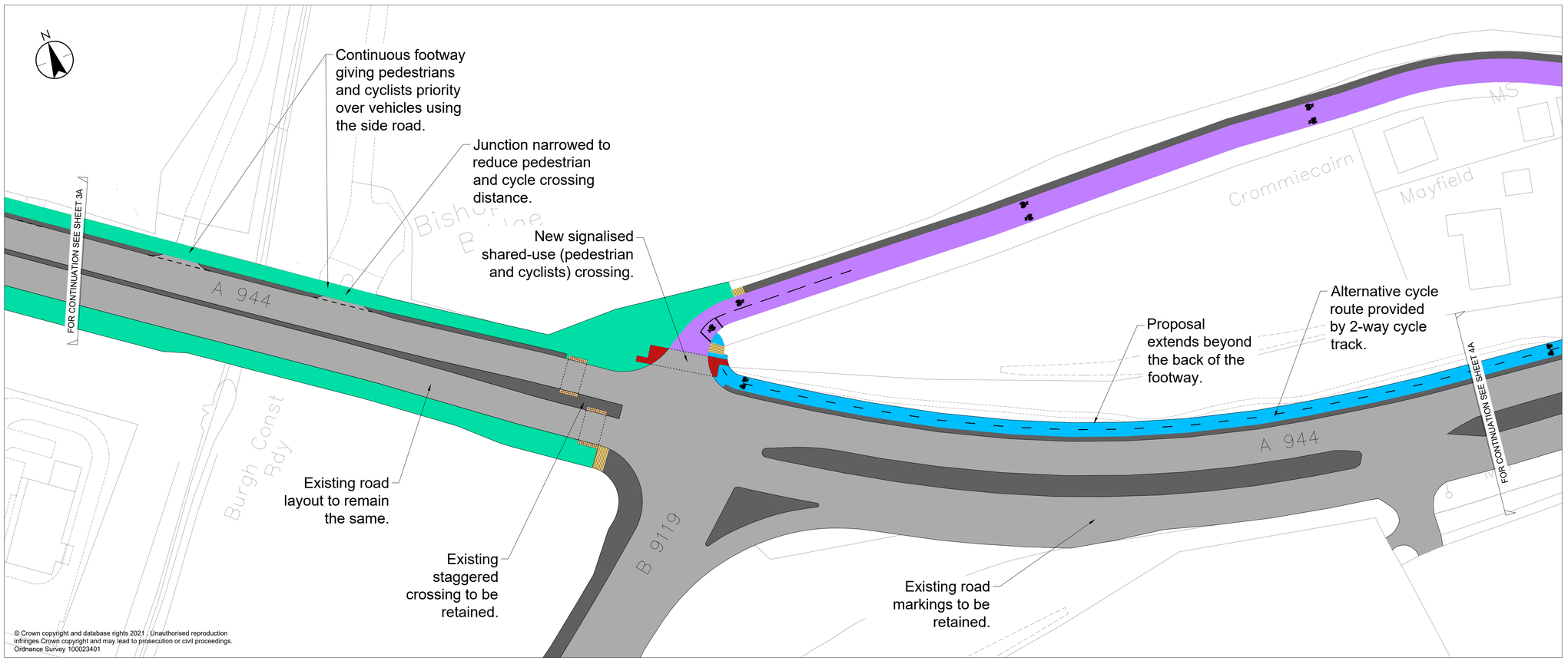
A944 - A9119 MAIN ROUTE

STRAIK ROAD (A944)

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500
Revision	**Drawing No.**
P01	**332610462-STN-HGN-XX-DR-H-5502**





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- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
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- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10	
Issued/Revision	By	Appd	YYYY.MM.DD	
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 3 OF 28

Title

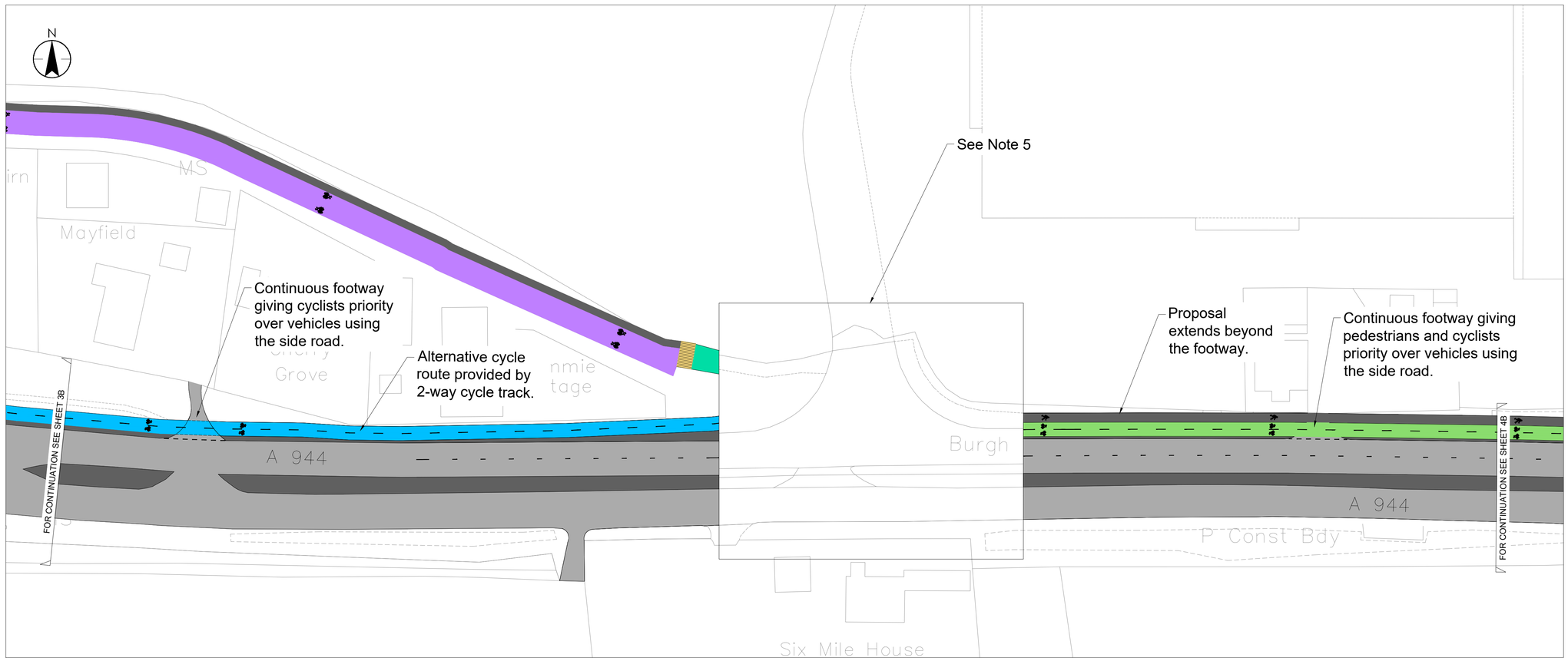
A944 - A9119 MAIN ROUTE

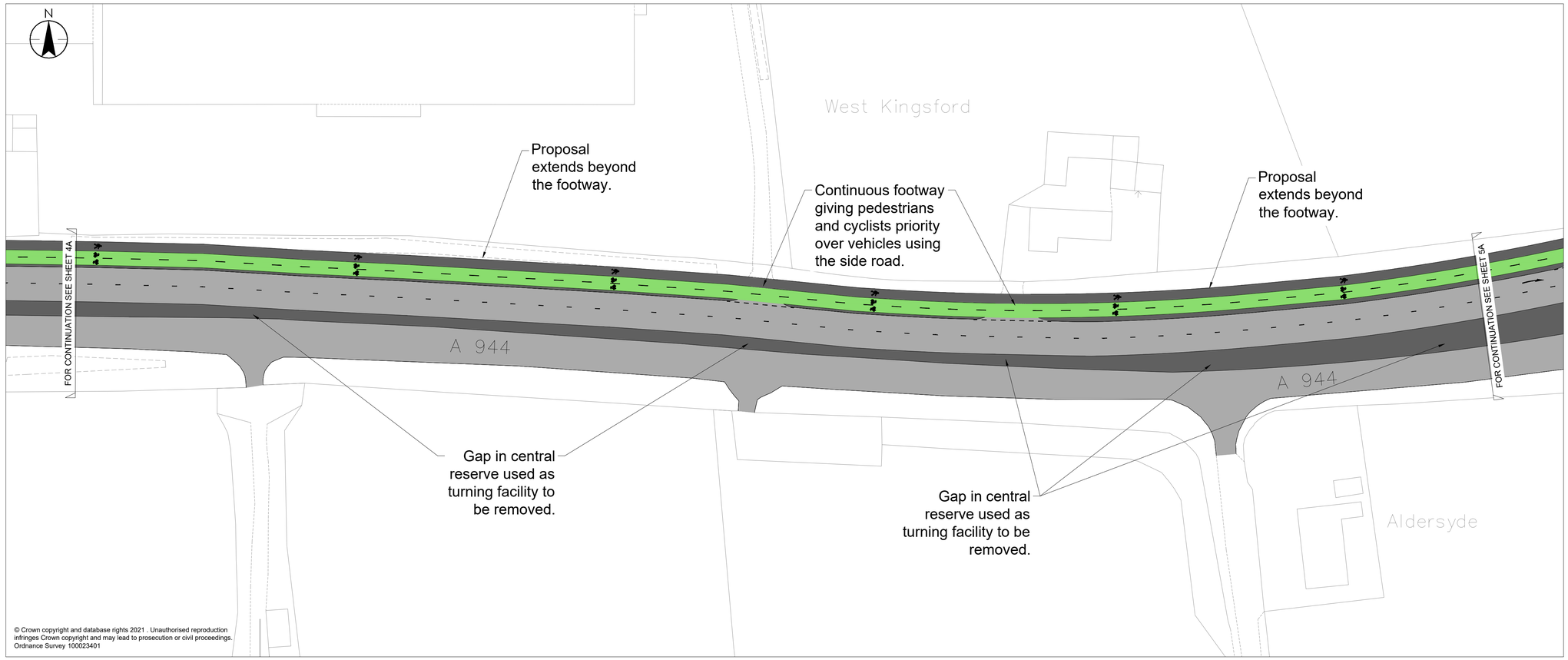
STRAIK ROAD (A944)

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500
Revision	**Drawing No.**
P01	**332610462-STN-HGN-XX-DR-H-5503**

Plotted: 15.01.2024 2:04:04 PM By: Blake, Erin
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Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
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5. This junction has planning permission to be changed to support the new Aberdeen FC stadium. As these changes have not been confirmed it is not currently possible to show how the proposed cycle track and footway would be aligned through the junction.

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 4 OF 28

Title

A944 - A9119 MAIN ROUTE

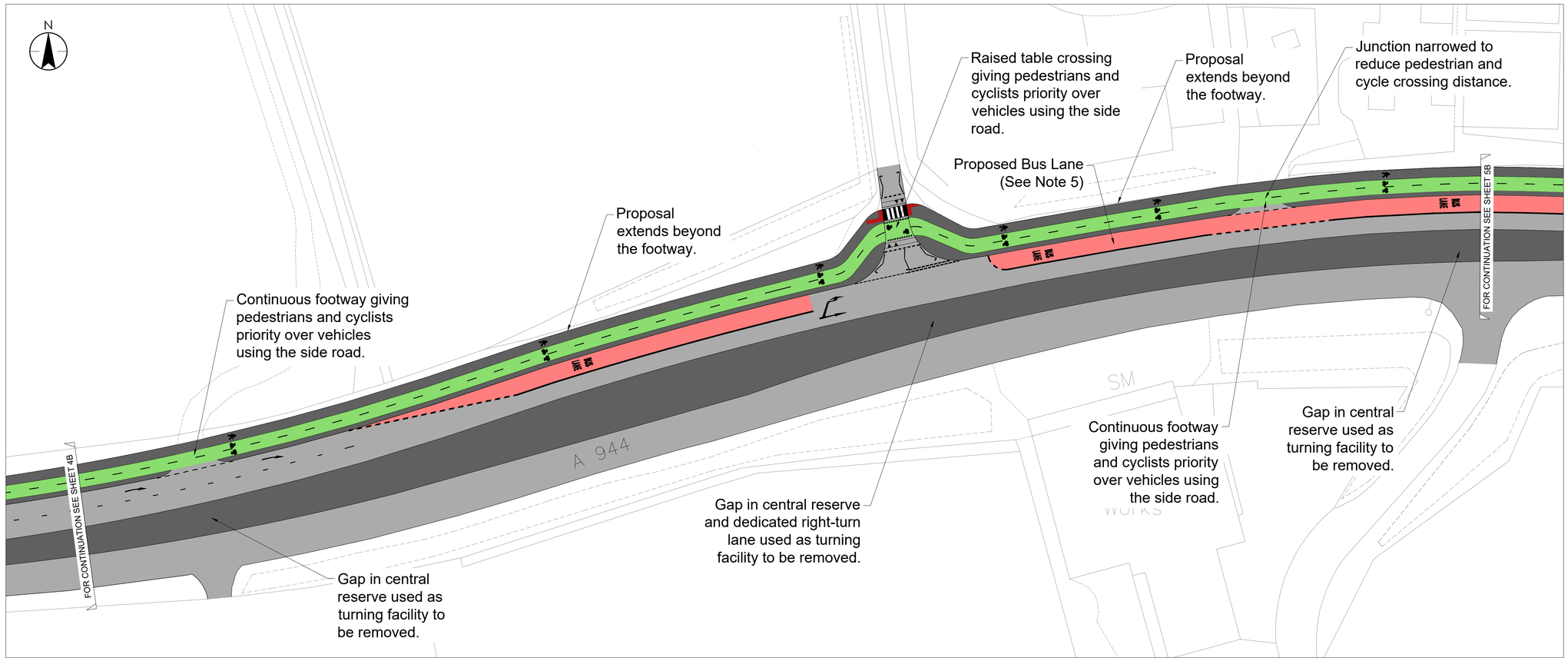
STRAIK ROAD (A944)

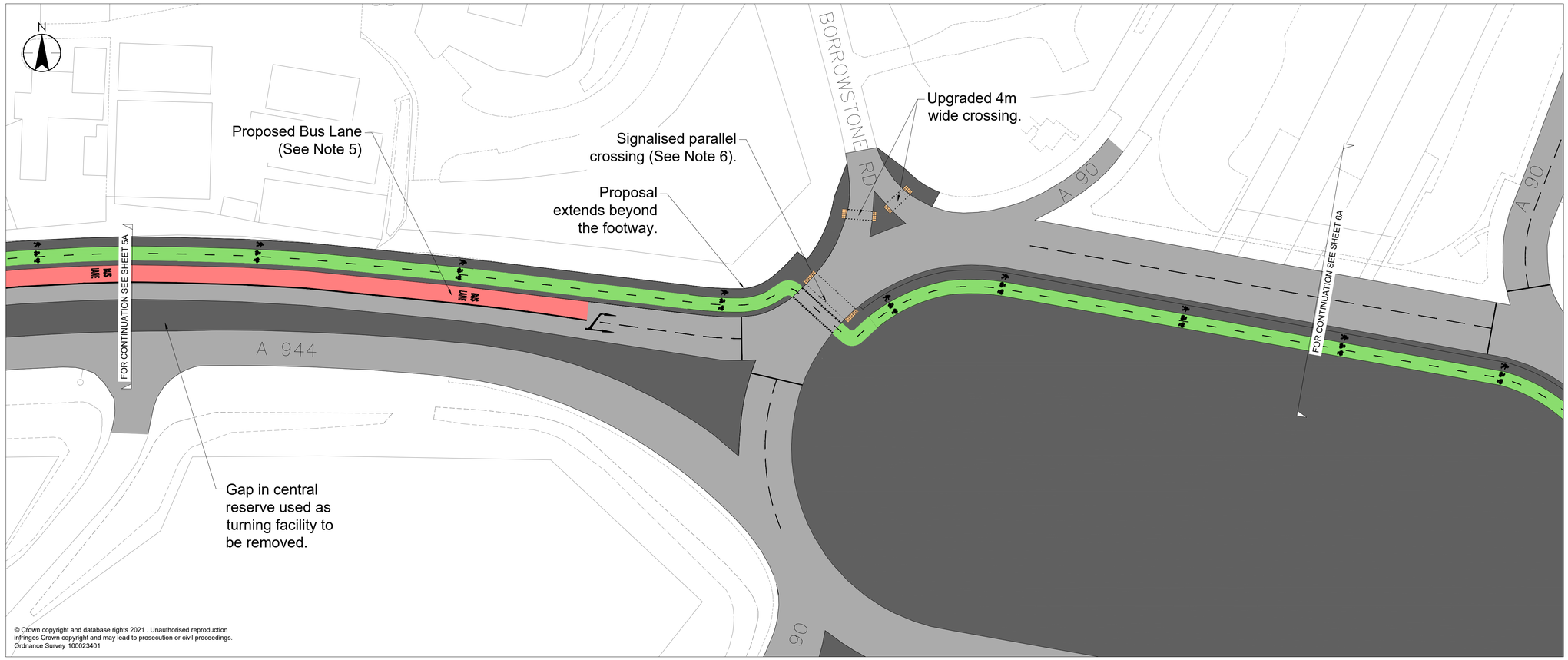
PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5504

Plotted: 13/3/2024 2:04:13 PM By: Blake, Erin
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P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 5 OF 28

Title

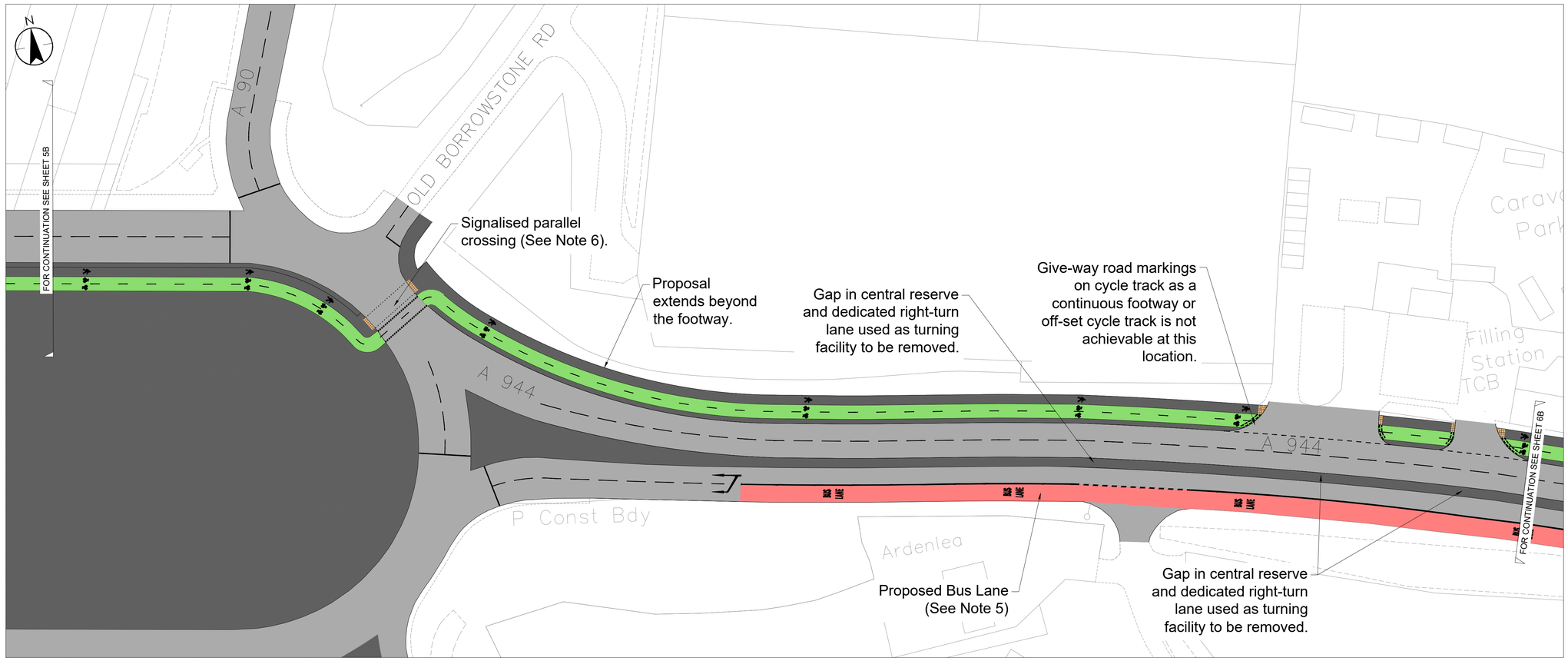
A944 - A9119 MAIN ROUTE

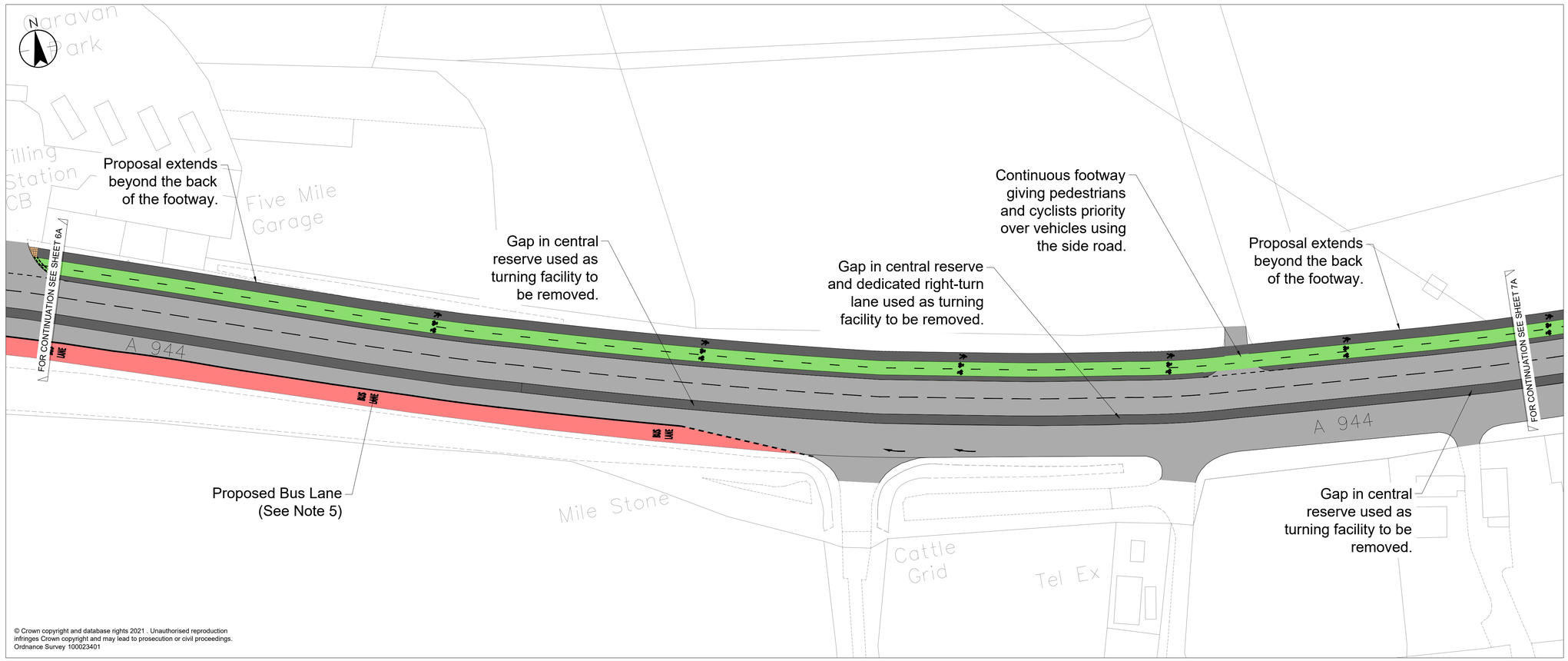
STRAIK ROAD (A944)

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500
Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5505**

Plotted: 15/01/2024 09:40:43 | Plotted By: Barker, Erin
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	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 6 OF 28

Title

A944 - A9119

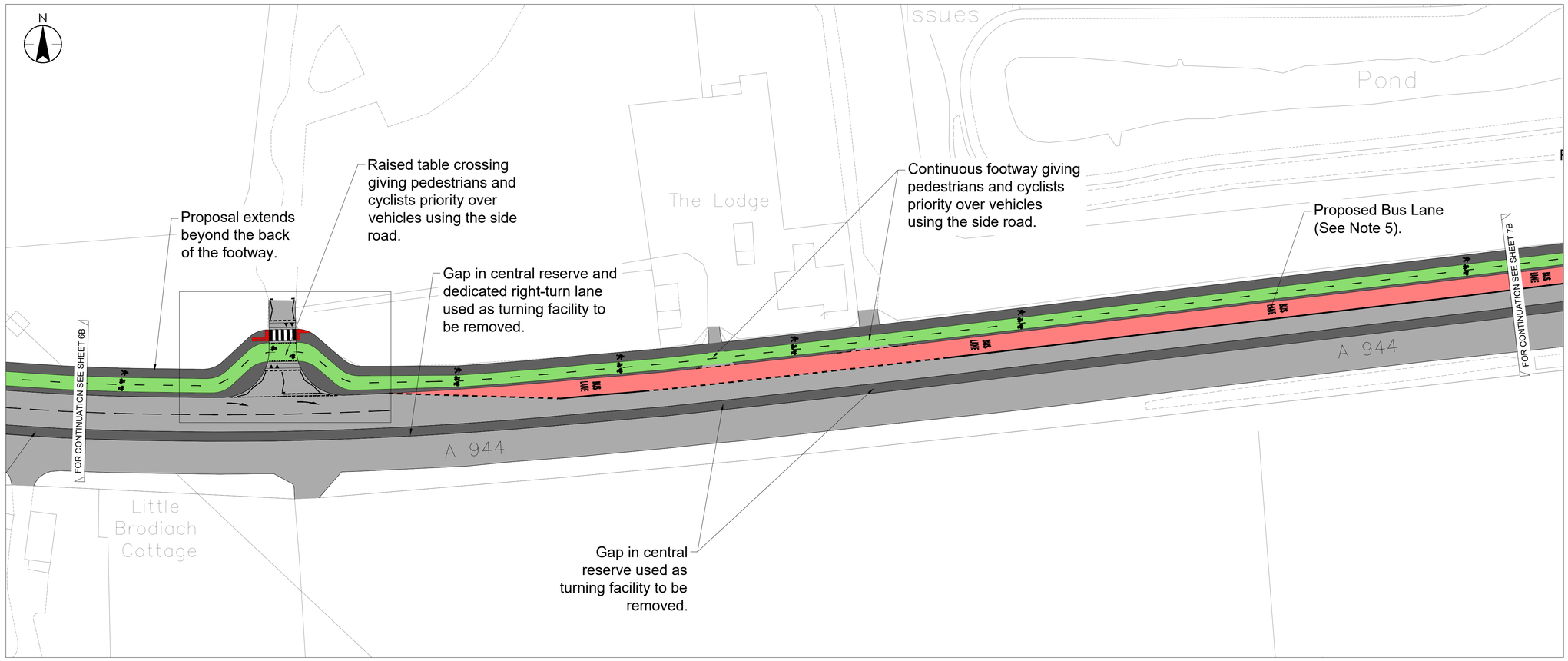
STRAIK ROAD (A944)

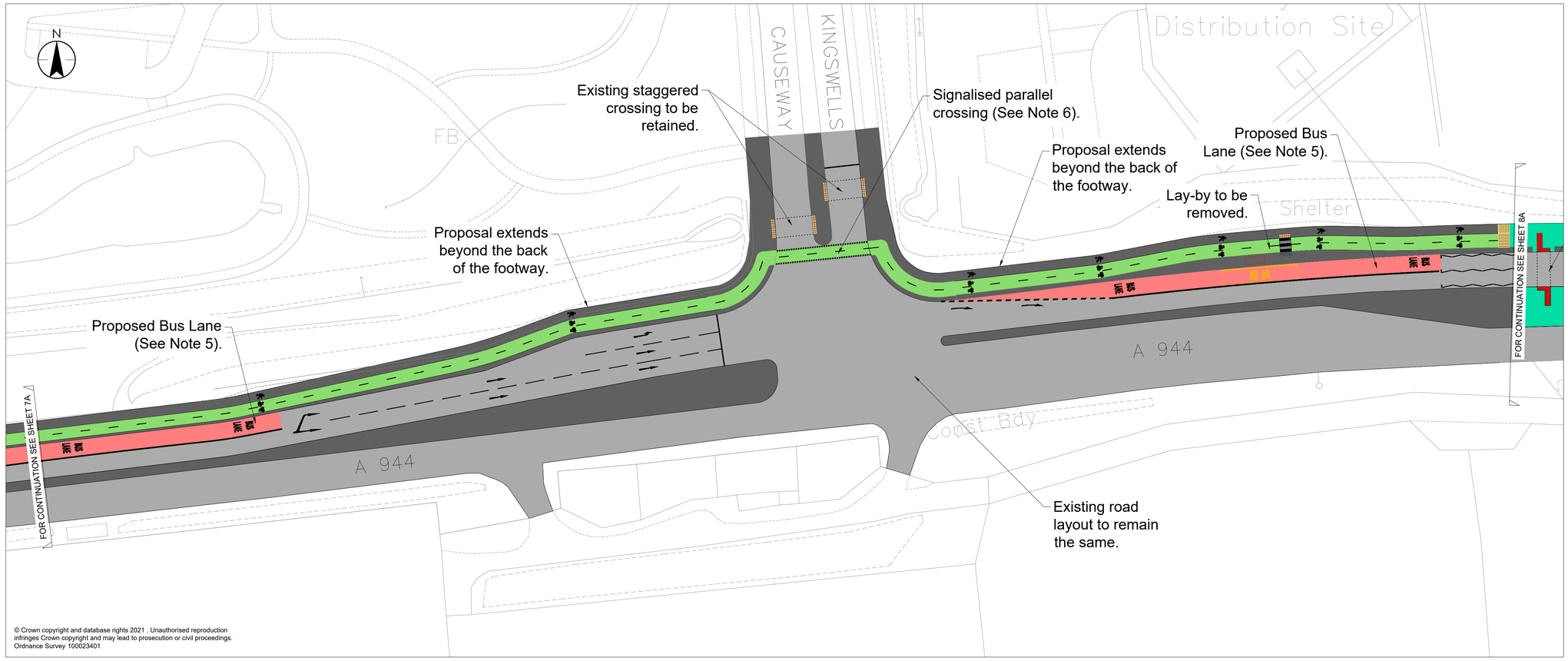
PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5506**

Plotted: 13.06.2024 09:44:13 | Plot By: Blake, Erin
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 7 OF 28

Title

A944 - A9119 MAIN ROUTE

STRAIK ROAD (A944)

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5507

Plotted: 13.06.2024 20:04:13 BST | Plotted By: Baker, Erin
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Existing staggered crossing to be retained.

Signalised parallel crossing (See Note 6).

Existing staggered crossing to be retained.

Proposed Bus Lane (See Note 5).

Proposal extends beyond the footway.

Proposal extends beyond the back of the footway.

Old Skene Road alternative mixed traffic route between Kingswells Causeway and the Jessiefield roundabout.

Lay-by to be removed.

Proposed Bus Lane (See Note 5).

Proposed Bus Lane (See Note 5).

FOR CONTINUATION SEE SHEET 7B

FOR CONTINUATION SEE SHEET 8B

Old Skene Road alternative mixed traffic route between Kingswells Causeway and the Jessiefield roundabout.

Proposal extends beyond the footway.

Proposed Bus Lane (See Note 5).

Gap in central reserve used as turning facility to be removed.

Proposed Bus Lane (See Note 5).

FOR CONTINUATION SEE SHEET 8A

FOR CONTINUATION SEE SHEET 9A

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Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 8 OF 28

Title

A944 - A9119 MAIN ROUTE

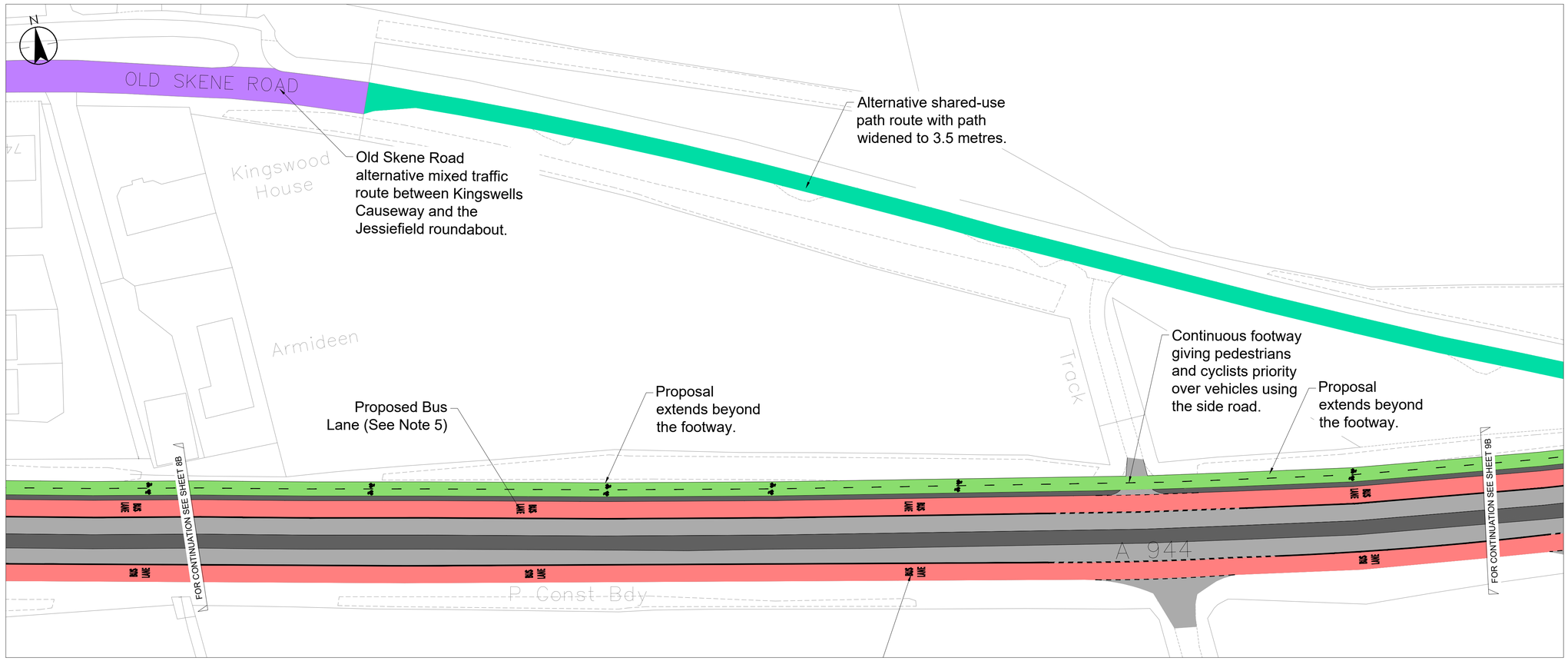
STRAIK ROAD (A944)

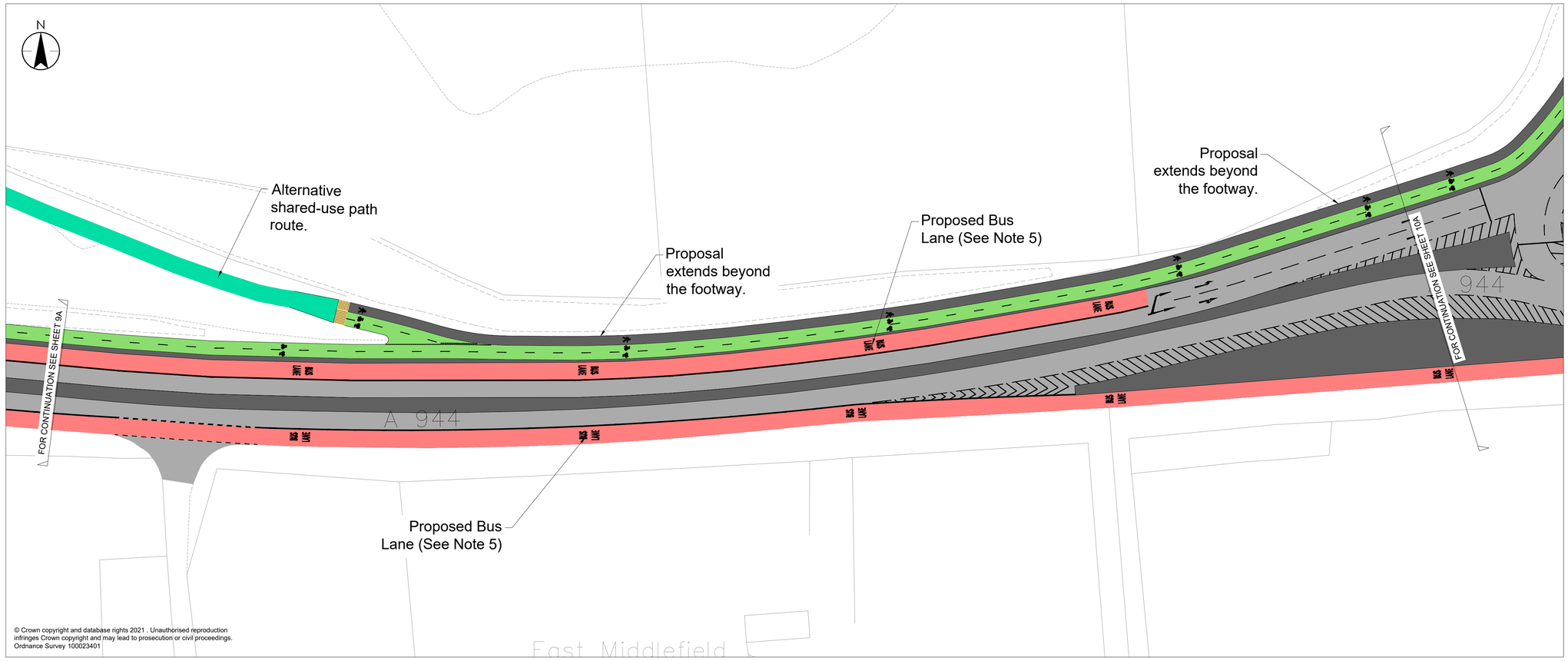
PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5508**

Plotted: 13.06.2024 09:43:42 PM By: Blaine, Erin
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Plotted: 13/6/2024 2:04:13 PM By: Baker, Erin
Drawing Path: \\corp.stantec.com\profiles\GLA\Documents\Desktop\Westhill to Aberdeen\Active Travel Design\GA drawings\Cost\Level 2\Drawings\332610462-STN-HGN-XX-DR-H-5501 to 5514 - consultation - main route - active travel design GA drawings.dwg

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Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10 YYYY.MM.DD

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	M.G	M.G	M.O'S	2024.01.10 YYYY.MM.DD

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 9 OF 28

Title

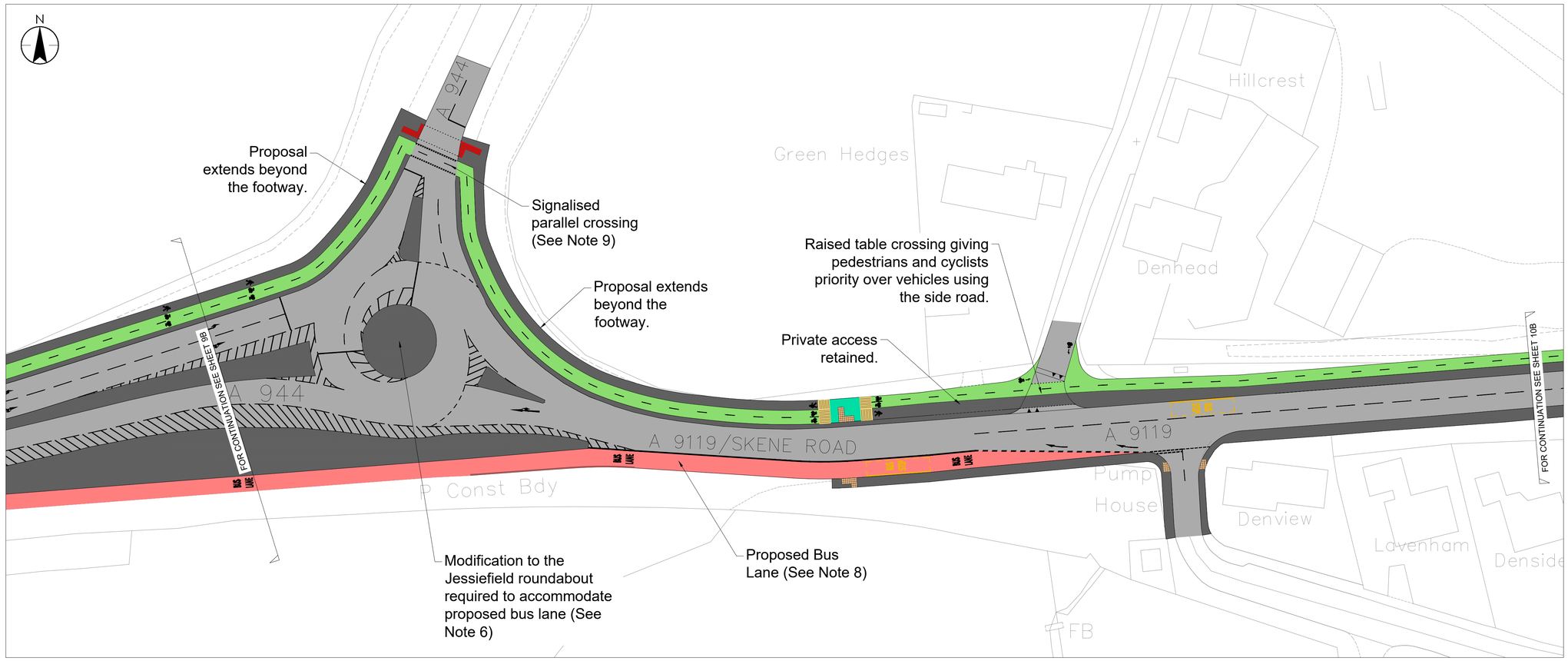
A944 - A9119 MAIN ROUTE

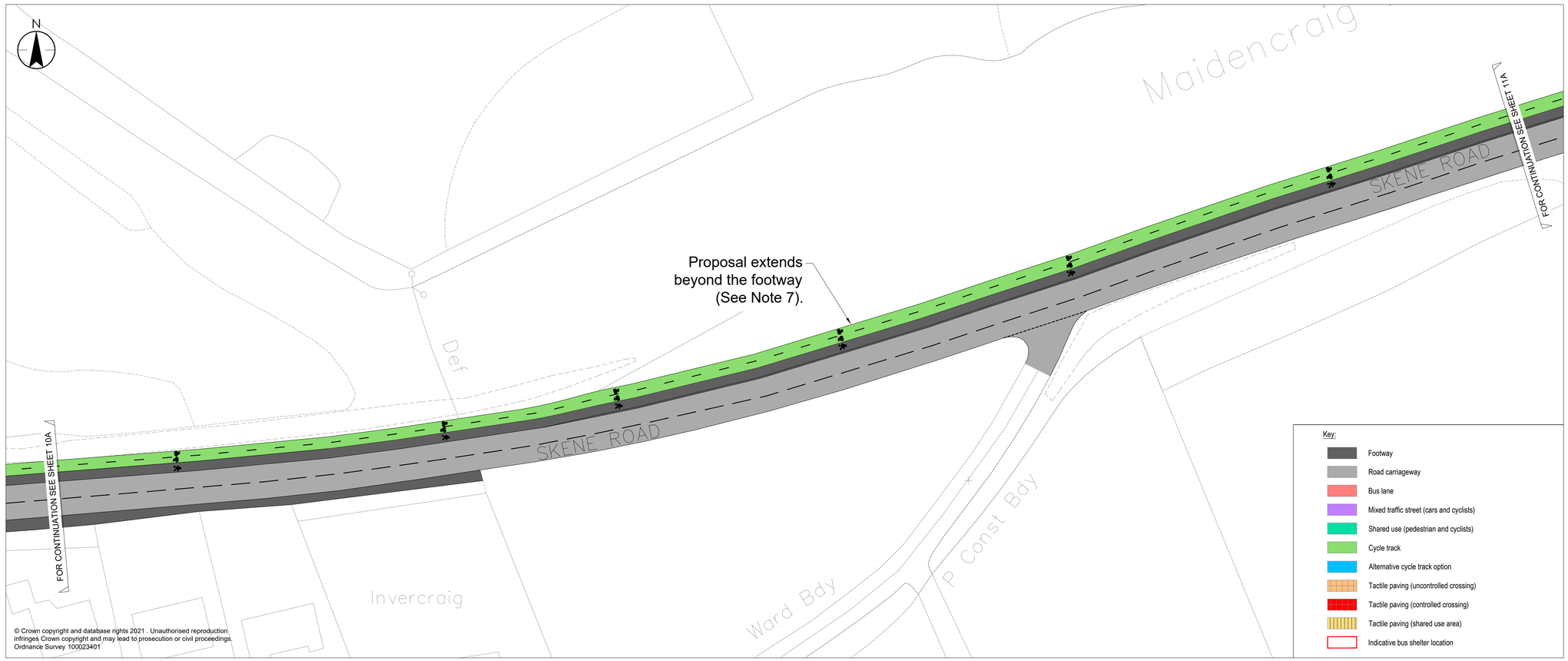
STRAIK ROAD (A944)

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5509**





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Notes

1. The layout is subject to detailed design, highway capacity testing, road safety audit, ground investigations, earthworks modelling, utilities & services searches, and confirmation of land ownership.
2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. The bus lane and new footway require land outside the highway boundary with potential impacts of trees.
6. A traffic modelling assessment of the Jessiefield roundabout is required to understand the highway capacity impacts of the bus lane but also how this may affect the Countesswells development proposals which would add a fourth arm to this junction.
7. Potential impact on grass verges, shrubs and trees.
8. The proposed bus lane shown is part of a city-wide bus priority strategy being developed by the Council and to be consulted on separately later in the year. The bus lanes are shown as part of this consultation to demonstrate that both the bus and active travel proposals are compatible.
9. A signalised parallel crossing means that people travelling on foot and by bike can cross the road separately from each other, increasing safety and making it easier to carry on their journey. This type of crossing is also known as a 'sparrow crossing'.

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10
	M.G	M.O'S	2024.01.10
	Dwn.	Chkd.	YYYY.MM.DD

Issue Status

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ABERDEEN CITY COUNCIL

Client/Project

WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 10 OF 28

Title

A944 - A9119 MAIN ROUTE

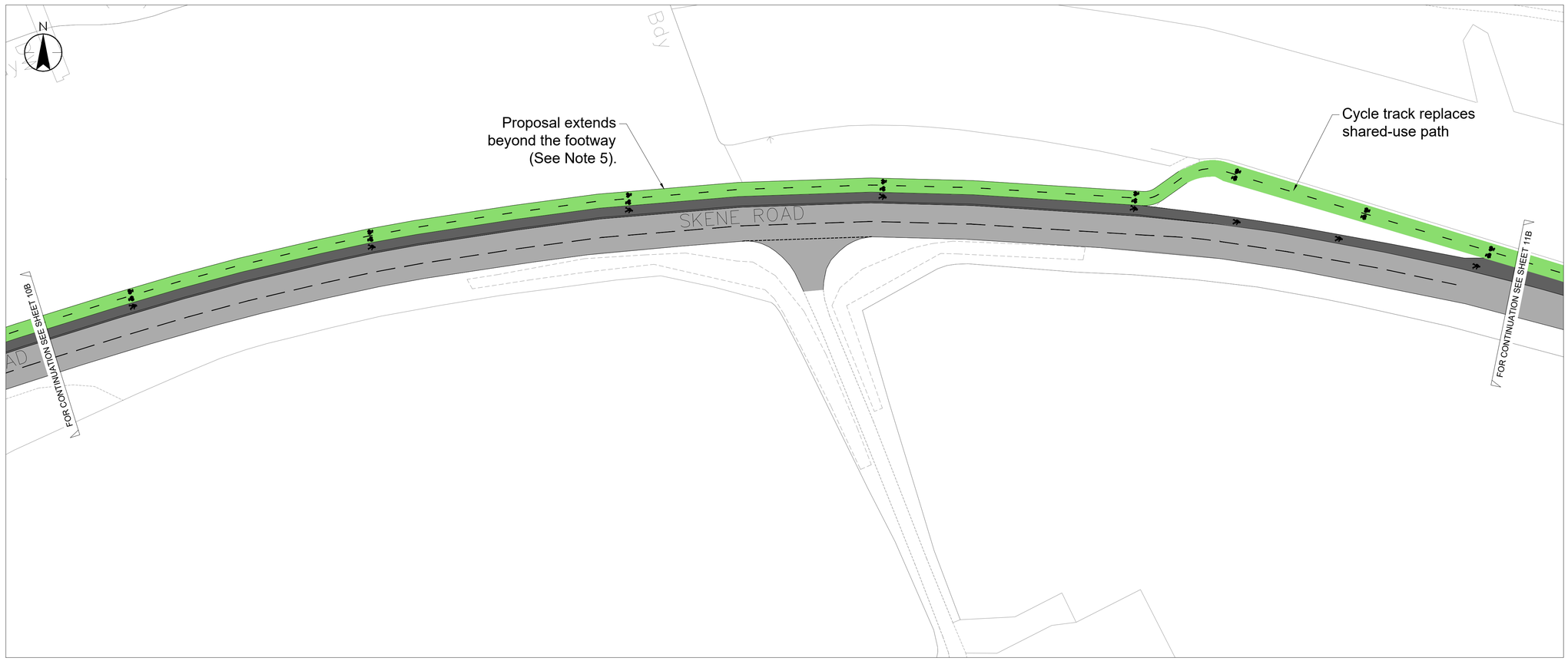
SKENE ROAD (A9119)

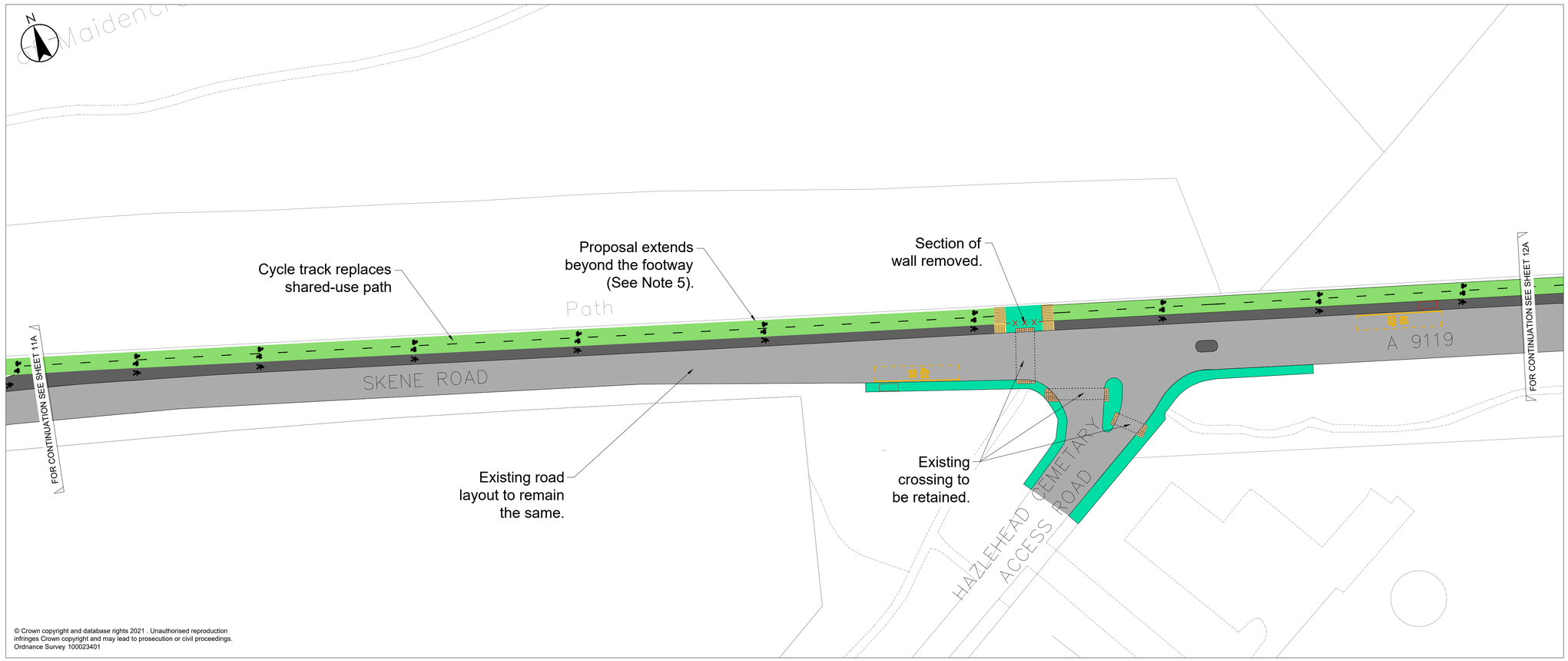
PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5510

Plotted: 10 Jan 2024 - 09:04a, 13:21:23 PM By: Blake, Erin
G:\Projects\332610462\Design\5. Drawings\3. cad\3dwf 3000\hgn\332610462-stn-hgn-xx-dr-h-5201 to xx_s4 - consultation - main route





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4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. Potential impact on grass verges, shrubs and trees.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10

	Dwn.	Dsgn.	Chkd.	
	M.G	M.G	M.O'S	2024.01.10

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Client/Project

WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 11 OF 28

Title

A944 - A9119 MAIN ROUTE

SKENE ROAD (A9119)

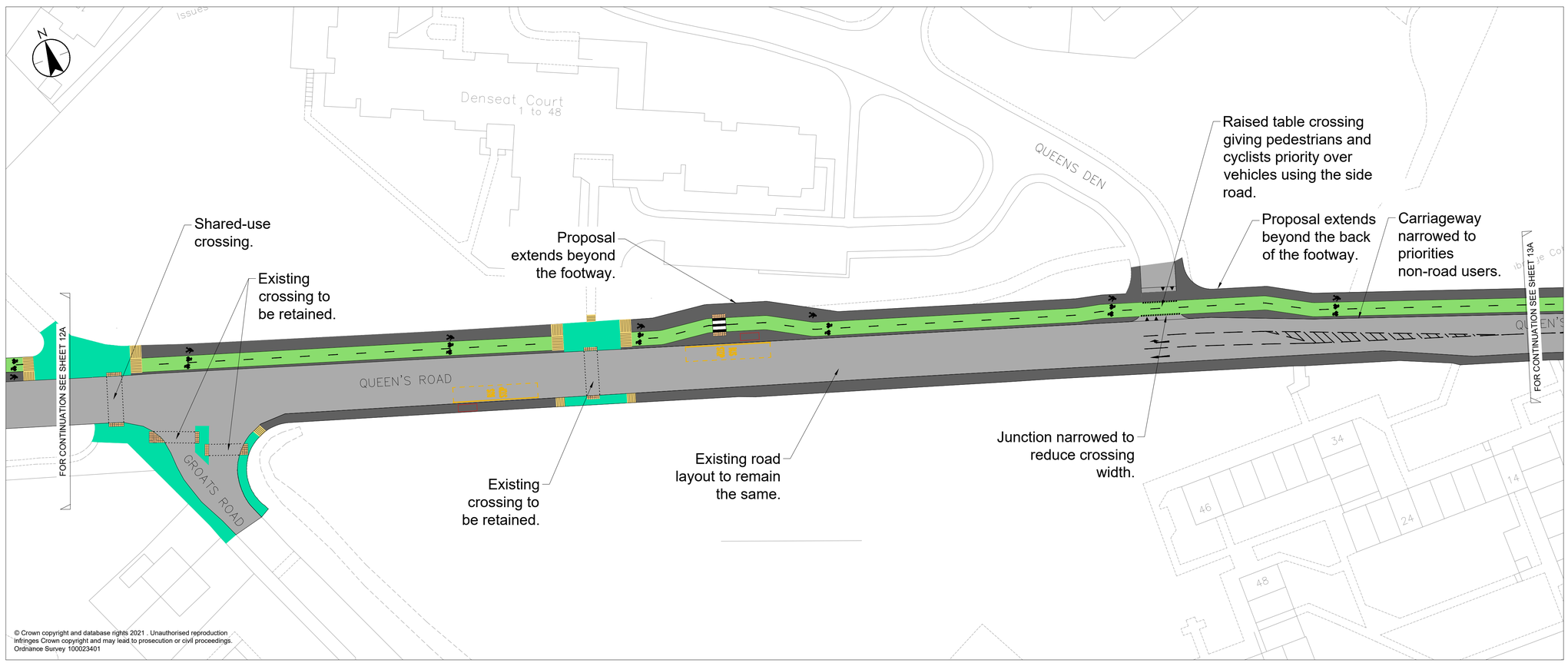
PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5511**

Plotted: 13.Dec.2024 2:04:13 PM By: Blake Erin
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Plotted: 15.06.2024 4:04:43 PM By: Barker, Erin
DrawingLocation: Z:\Projects\332610462\Technical\Drawings\Active Travel Design\5. Drawings\Layout Sheet\332610462-SHN-HGN-XX-DR-H-5501 to 5.14 - consultation - main route

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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 12 OF 28

Title

A944 - A9119 MAIN ROUTE

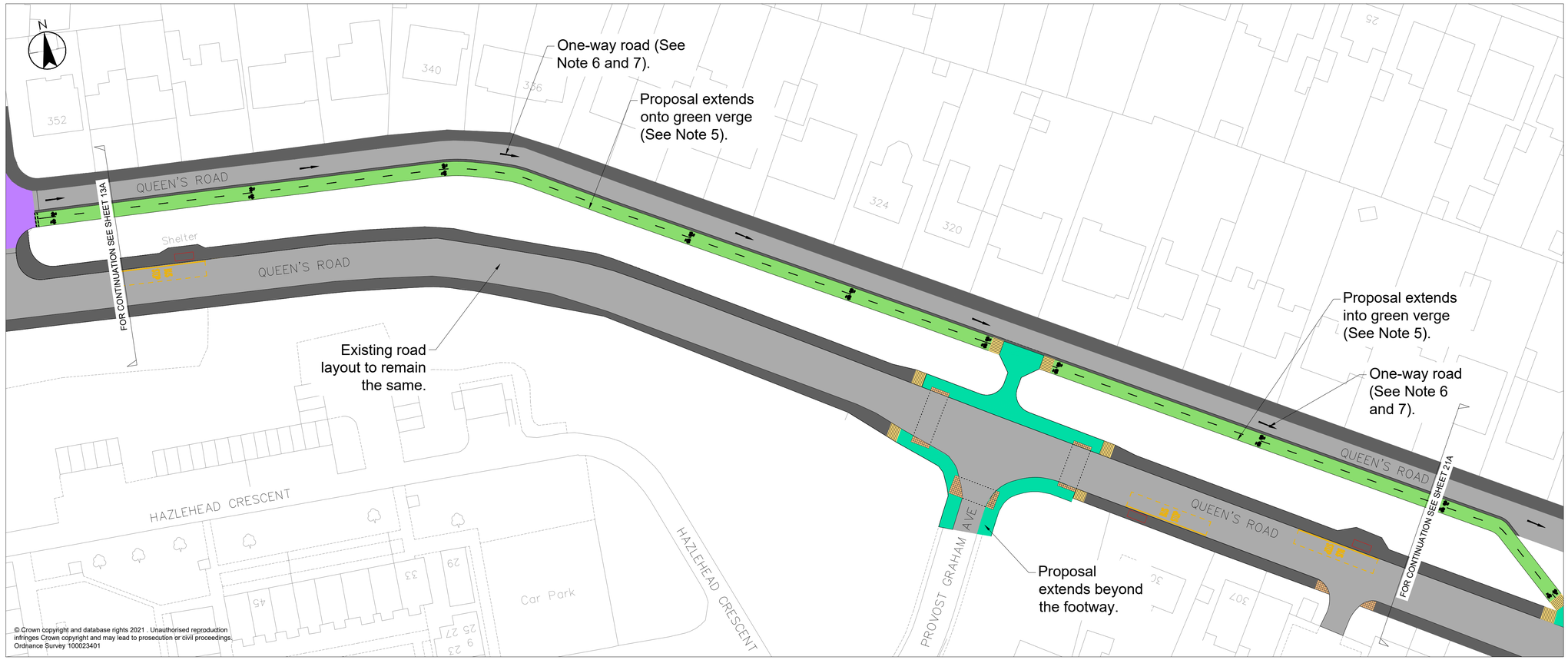
SKENE ROAD / QUEEN'S ROAD (A9119)

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5512**





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Plotted: 13.06.2024 2:04:43 PM By: Blake, Erin
File: N:\Projects\332610462\Engineering\Drawings\Highways\Active Travel\Active Travel design\A. drawings\cad\sheet 2\[Sheet 2]\332610462-STN-HGN-XX-DR-H-5513 to 5514 - consultation - main route

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4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. No dig construction method will be used to ensure delivery of the two-way cycle track has no impact on the trees.
6. On-street parking provision will be removed to maintain 4.0m width for one way general traffic.
7. Property accesses to be retained.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 13 OF 28

Title

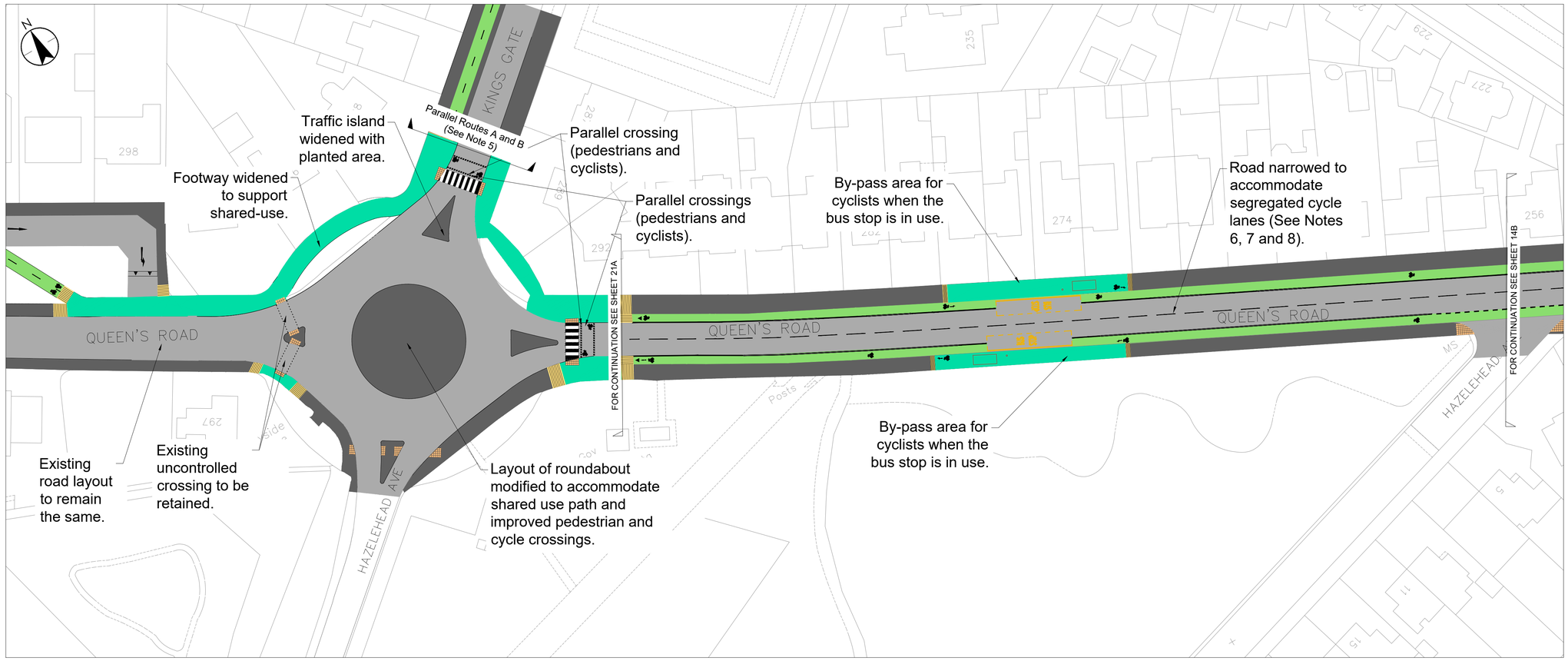
A944 - A9119 MAIN ROUTE

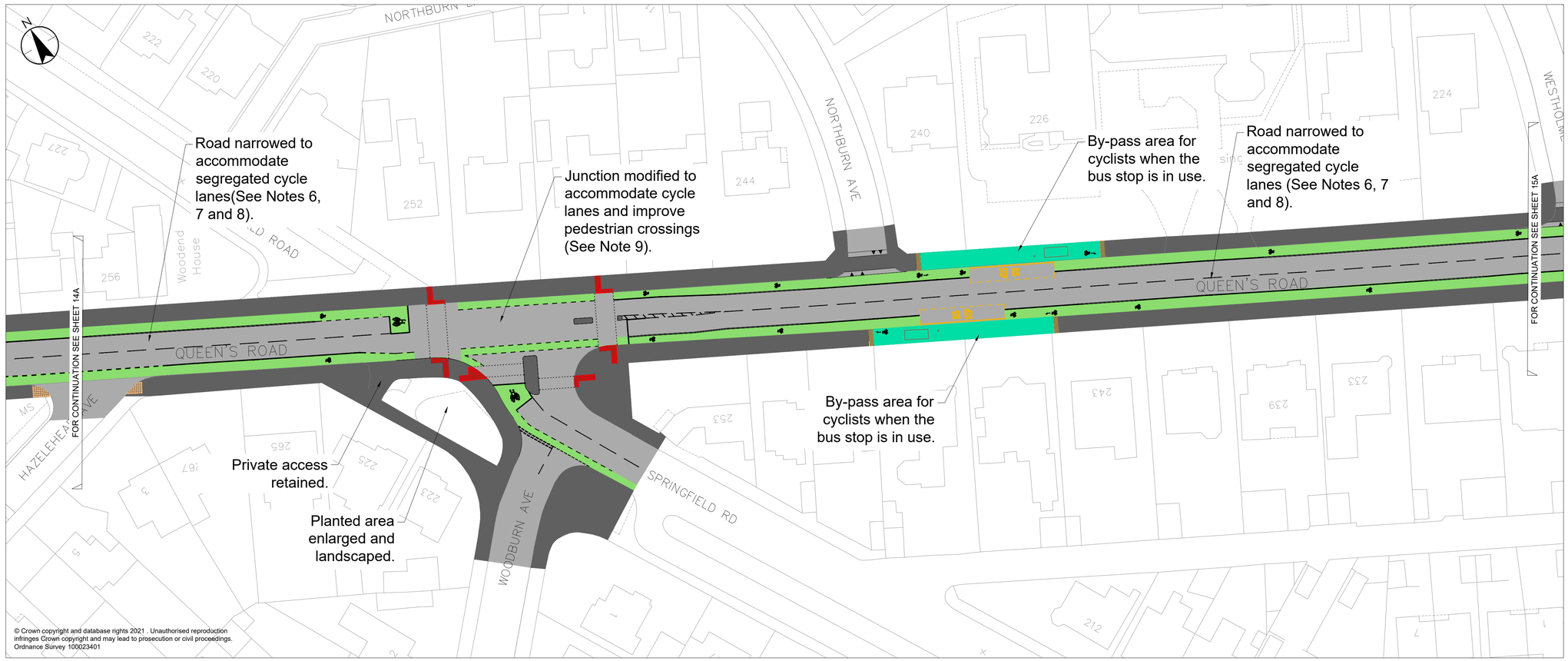
QUEEN'S ROAD (A9119)

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5513





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Plotted: 13.06.2024 09:04:24 | By: Blaise, Erin
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4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. See Sheets 21 to 28 for details of the proposed Parallel Routes A and B that use King's Gate, Carnegie Crescent/ Anderson Drive, Rubislaw Den North/ Rubislaw Den South, Desswood Place/ Queen's Lane North, Fountainhall Road and Albert Lane.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. A traffic modelling assessment will be undertaken at the next design stage to ensure the proposals minimise any impact on the capacity of the junction for traffic.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 14 OF 28

Title

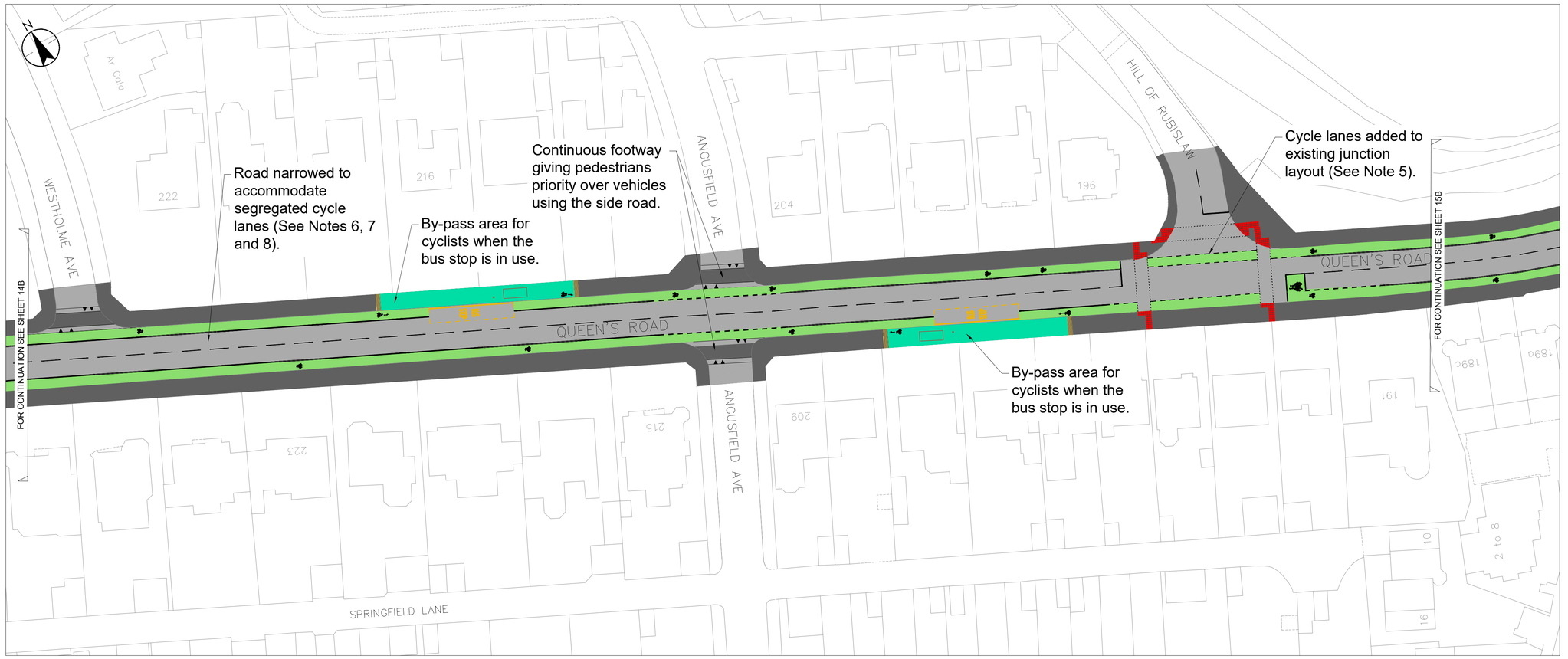
A944 - A9119 MAIN ROUTE

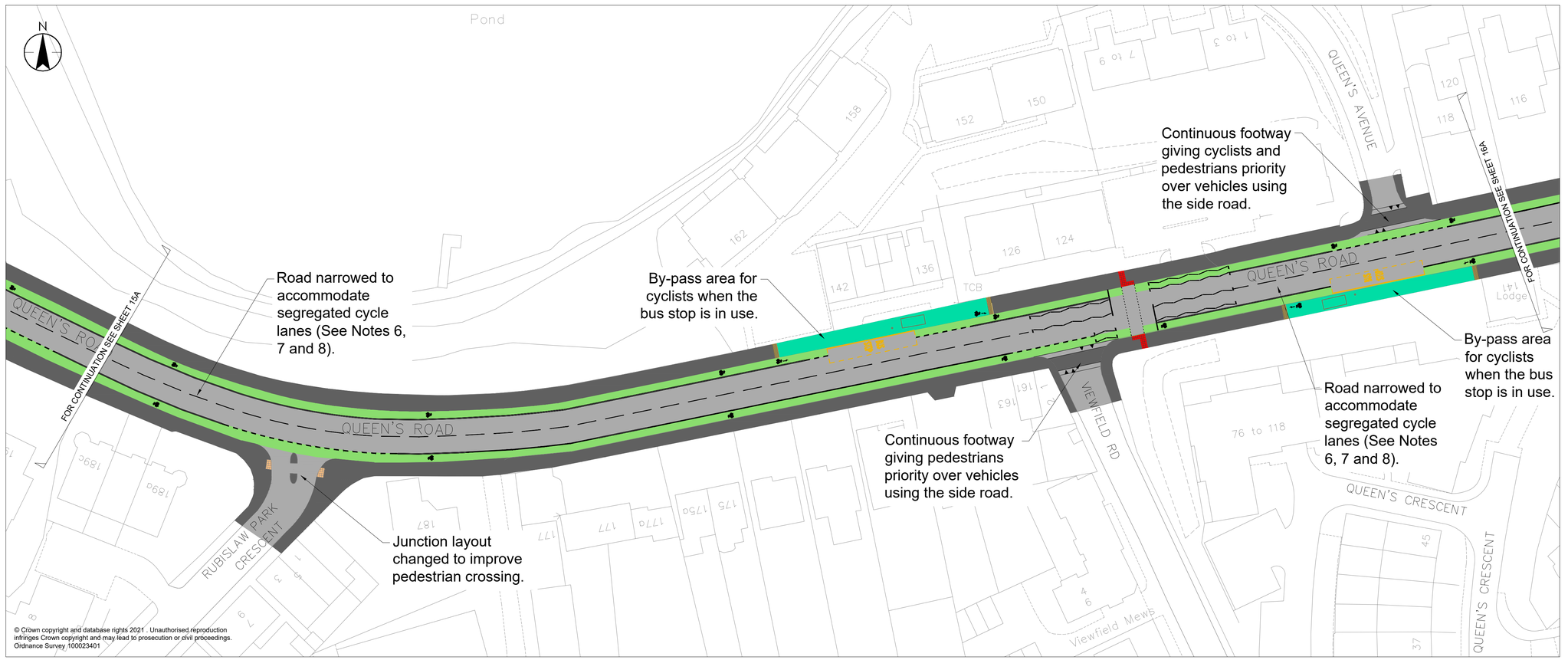
QUEEN'S ROAD (A9119)

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5514





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4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. A traffic modelling assessment will be undertaken at the next design stage to ensure the proposals minimise any impact on the capacity of the junction for traffic.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 15 OF 28

Title

A944 - A9119 MAIN ROUTE

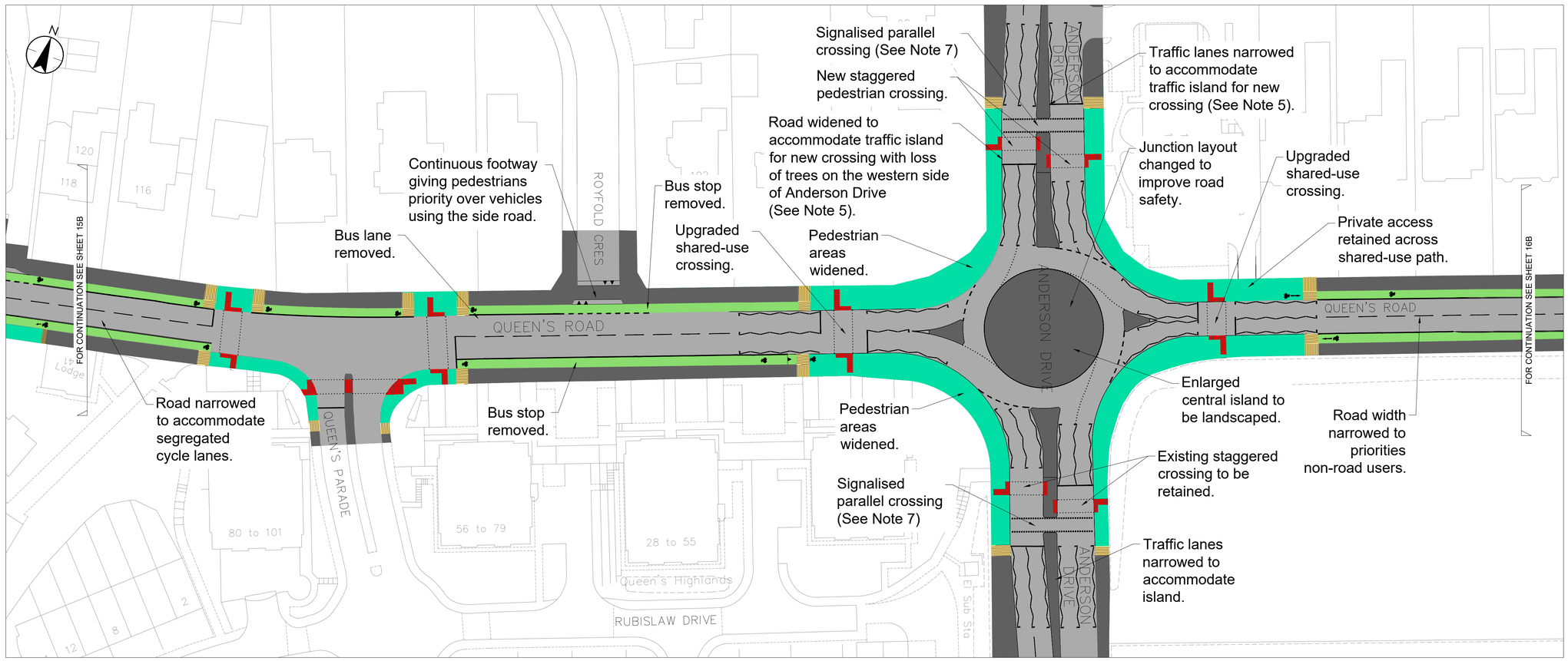
QUEEN'S ROAD (A9119)

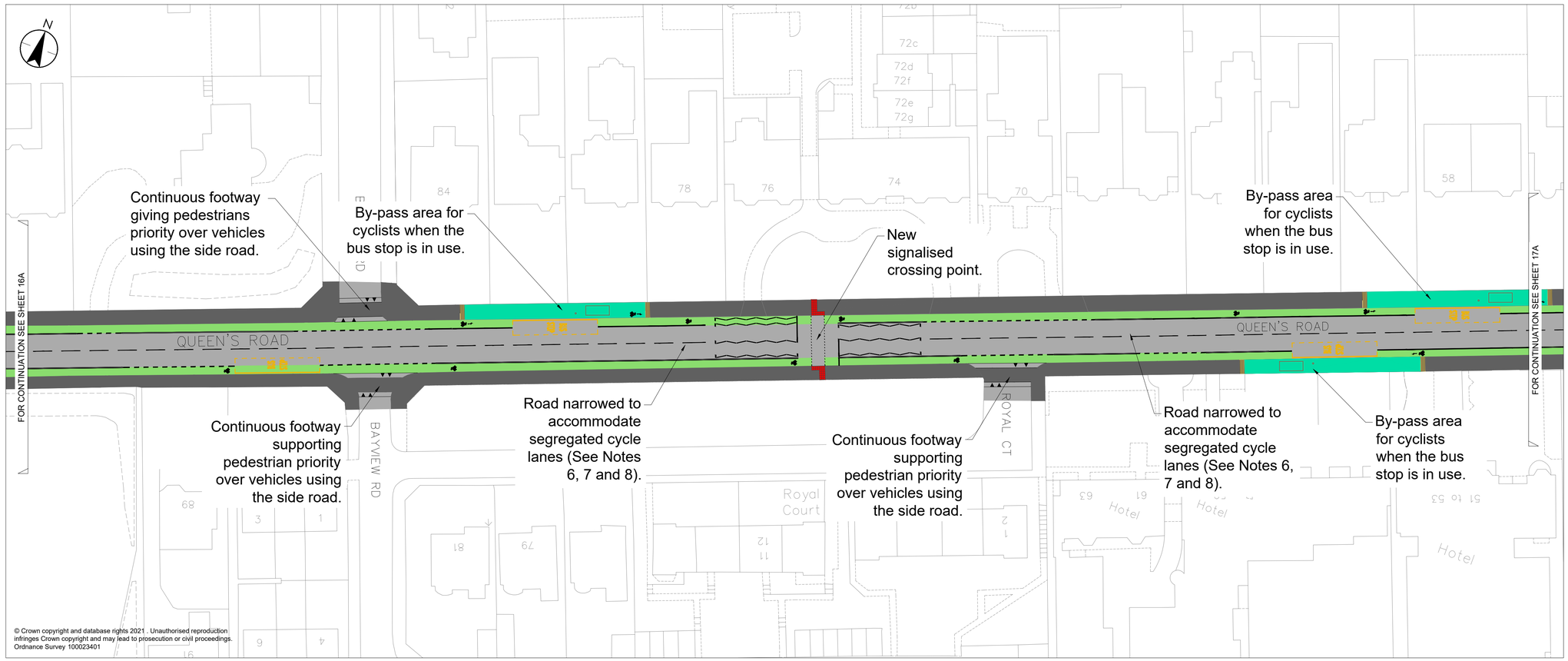
PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5515

Plotted: 10.01.2024 10:04:24 | 13:28:24 PM By: Alistair, Erin
File Name: \\stantecgroup.com\gbedfs\projects\332610462\3 Design\3 Drawings\3 Civil\Sheet 3000\Design 332610462-stn-hgn-xx-dr-h-5201 to xx-dr-h-5205 to xx-dr-h-5211 to xx-dr-h-5213 to xx-dr-h-5215 to xx-dr-h-5217 to xx-dr-h-5219 to xx-dr-h-5221 to xx-dr-h-5223 to xx-dr-h-5225 to xx-dr-h-5227 to xx-dr-h-5229 to xx-dr-h-5231 to xx-dr-h-5233 to xx-dr-h-5235 to xx-dr-h-5237 to xx-dr-h-5239 to xx-dr-h-5241 to xx-dr-h-5243 to xx-dr-h-5245 to xx-dr-h-5247 to xx-dr-h-5249 to





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4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. To provide a crossing on the northern arm of the Anderson Drive roundabout a central island needs to be created. This central island requires traffic lanes to be narrowed (within permitted widths) and the road widened. This widening will have an impact on trees close to the proposed crossing and so further investigations are required to understand the extent of the tree loss but also what mitigations measures are available.
6. On-street parking provision to be removed to maintain two-way road7. All vehicle accesses to properties retained 8. Trees retained with additional trees planted where appropriate.
7. A signalised parallel crossing means that people travelling on foot and by bike can cross the road separately from each other, increasing safety and making it easier to carry on their journey. This type of crossing is also known as a 'sparrow crossing'.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 16 OF 28

Title

A944 - A9119 MAIN ROUTE

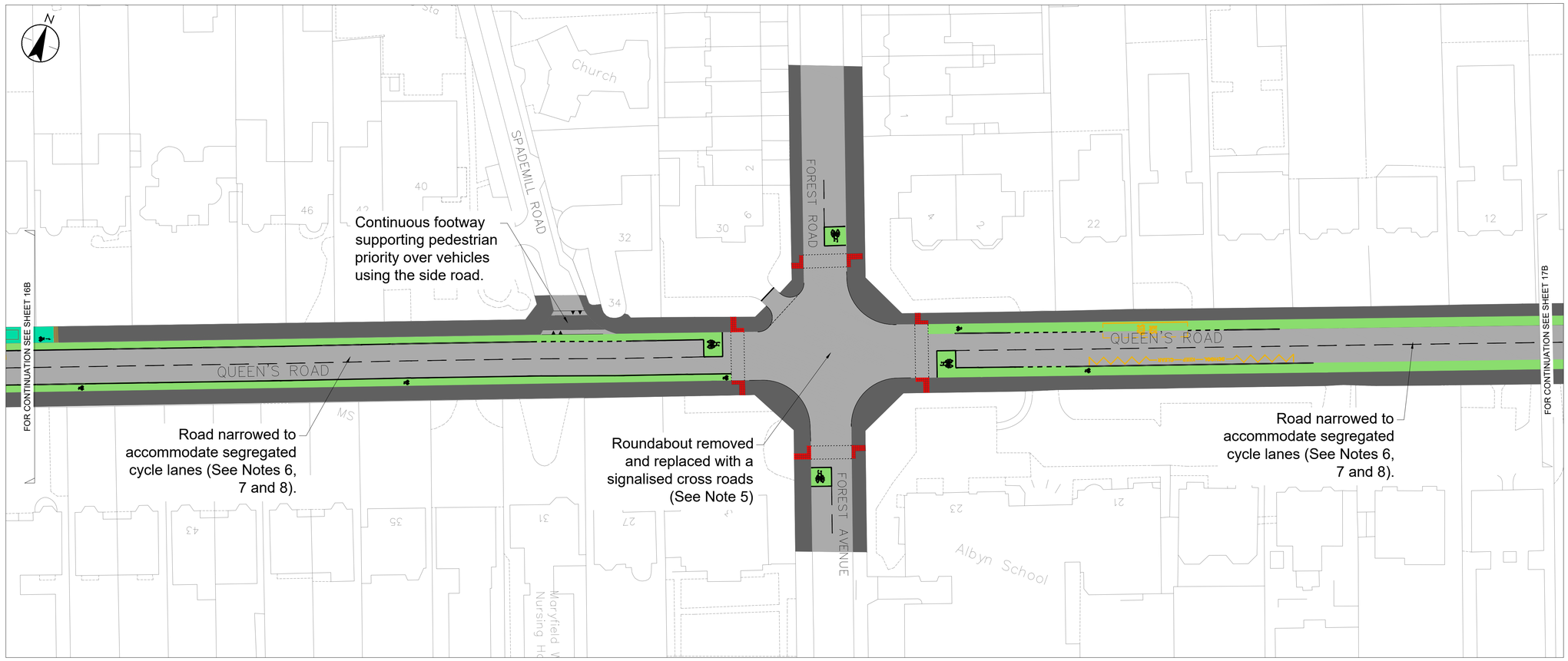
QUEEN'S ROAD (A9119)

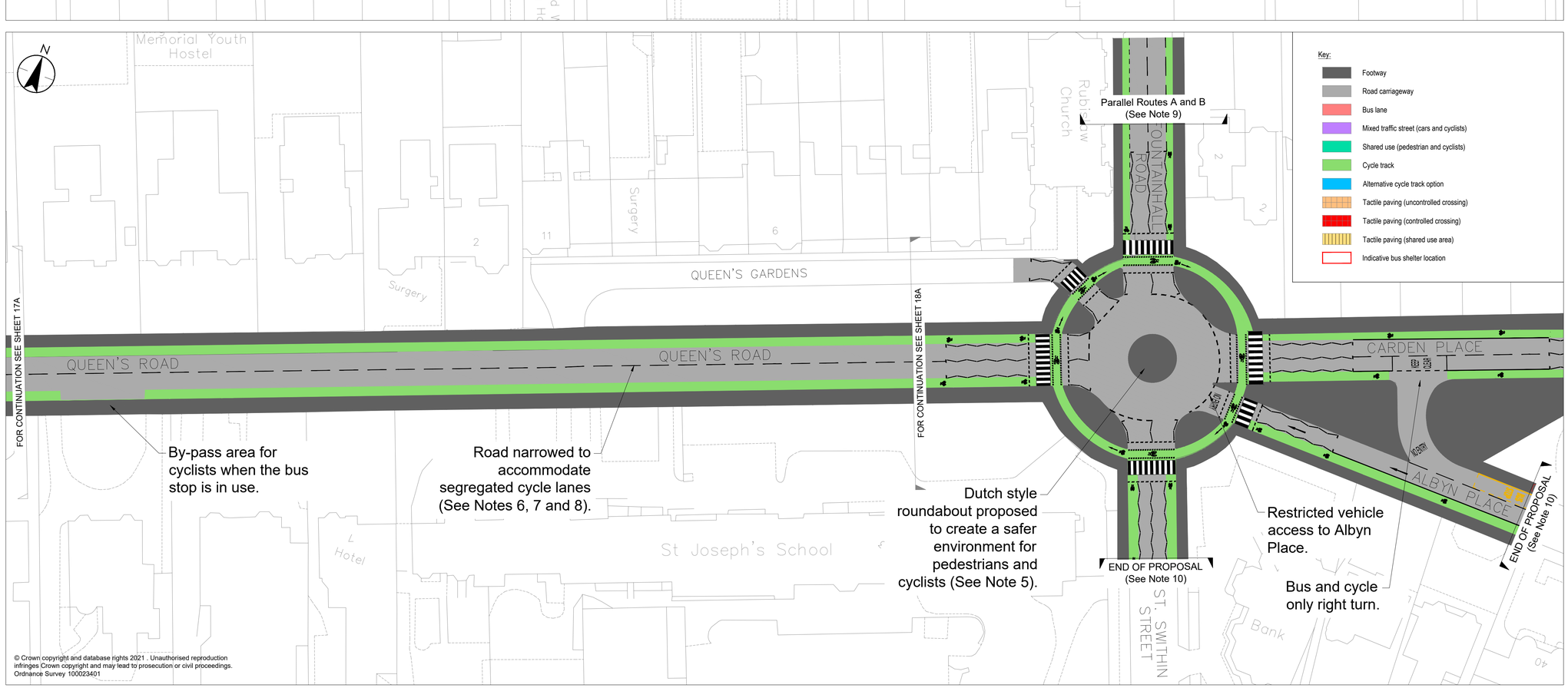
PROPOSE ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5516

Plotted: 13.06.2024 @24:04:13 2:29:30 PM By: Baker, Erin
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Plotted: 13.06.2024 12:04:24, 13:23:03 PM By: Blaise, Erin
File: C:\Users\BlaiseE\Documents\332610462_GF44Ldcr919 - active travel design\S_drawings_cad\3dwg\ 332610462-STN-HGN-XX-DR-H-5201 to xx_s4 - consultation - main route

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4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. A traffic modelling assessment will be undertaken at the next design stage to ensure the proposals minimise any impact on the capacity of the junction for traffic.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate9. There are no proposals beyond the END OF PROPOSALS but there are opportunities to extend the cycle route if the A9119 proposals are implemented.
9. See Sheets 21 to 28 for details of the proposed Parallel Routes A and B that use King's Gate, Carnegie Crescent/ Anderson Drive, Rubislaw Den North/ Rubislaw Den South, Desswood Place/ Queen's Lane North, Fountainhall Road and Albert Lane.
10. There are no proposals beyond this cut line but there are opportunities to extend the cycle route if the A9119 proposals are implemented.

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 17 OF 28

Title

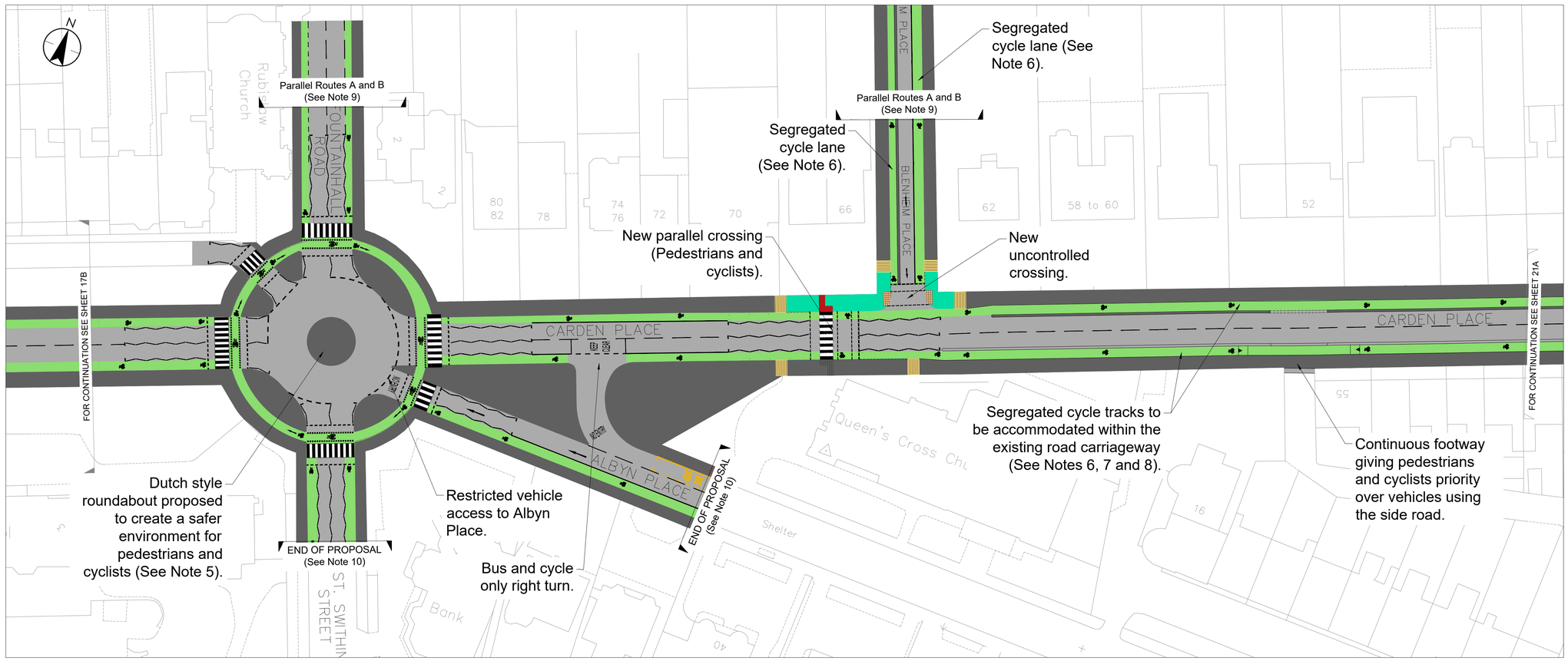
A944 - A9119 MAIN ROUTE

QUEEN'S ROAD/ CARDEN PLACE (A9119)

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5517





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Notes

1. The layout is subject to detailed design, highway capacity testing, road safety audit, ground investigations, earthworks modelling, utilities & services searches, and confirmation of land ownership.
2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. Some localised road widening will be required.
6. On-street parking provision removed to accommodate cycle tracks.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. See Sheets 21 to 28 for details of the proposed Parallel Routes A and B that use King's Gate, Carnegie Crescent/ Anderson Drive, Rubislaw Den North/ Rubislaw Den South, Desswood Place/ Queen's Lane North, Fountainhall Road and Albert Lane.
10. There are no proposals beyond this cut line but there are opportunities to extend the cycle route if the A9119 proposals are implemented.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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Client/Project

WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 18 OF 28

Title

A944 - A9119 MAIN ROUTE

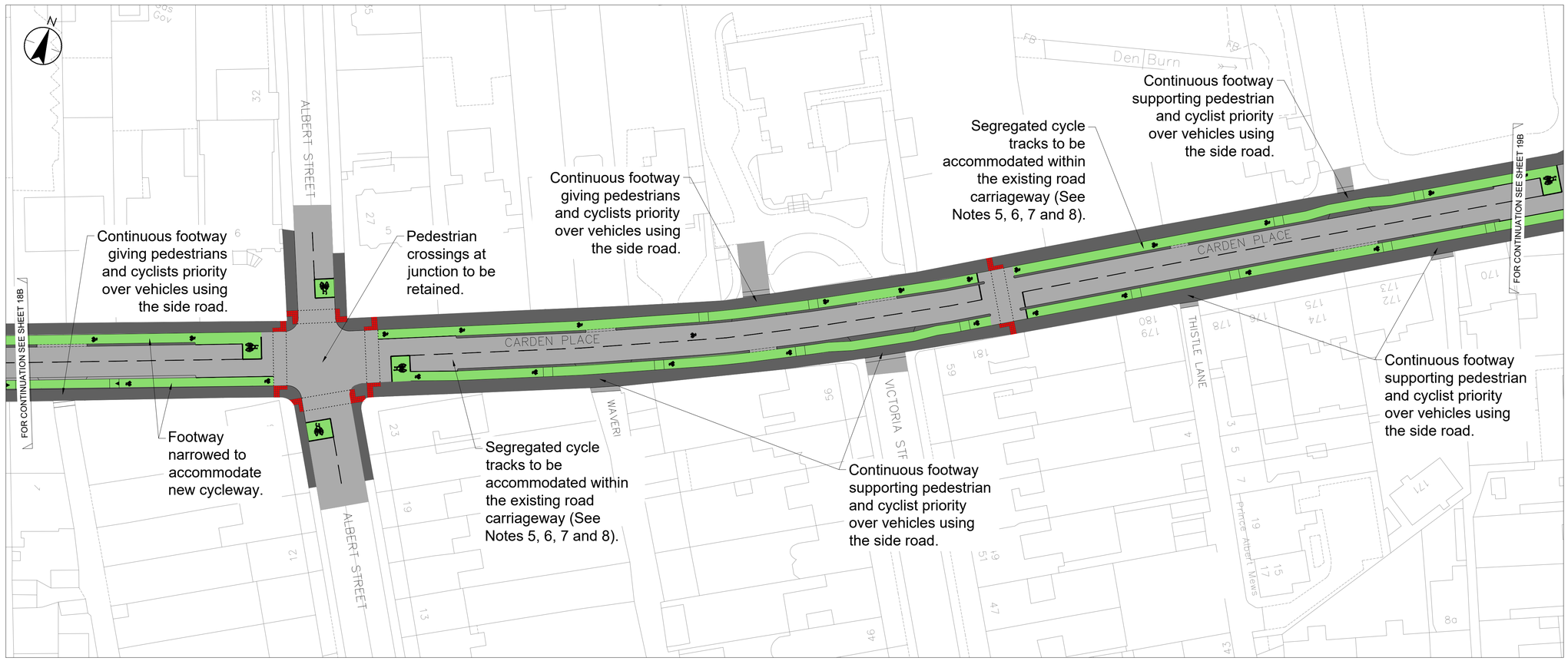
CARDEN PLACE (A9119)

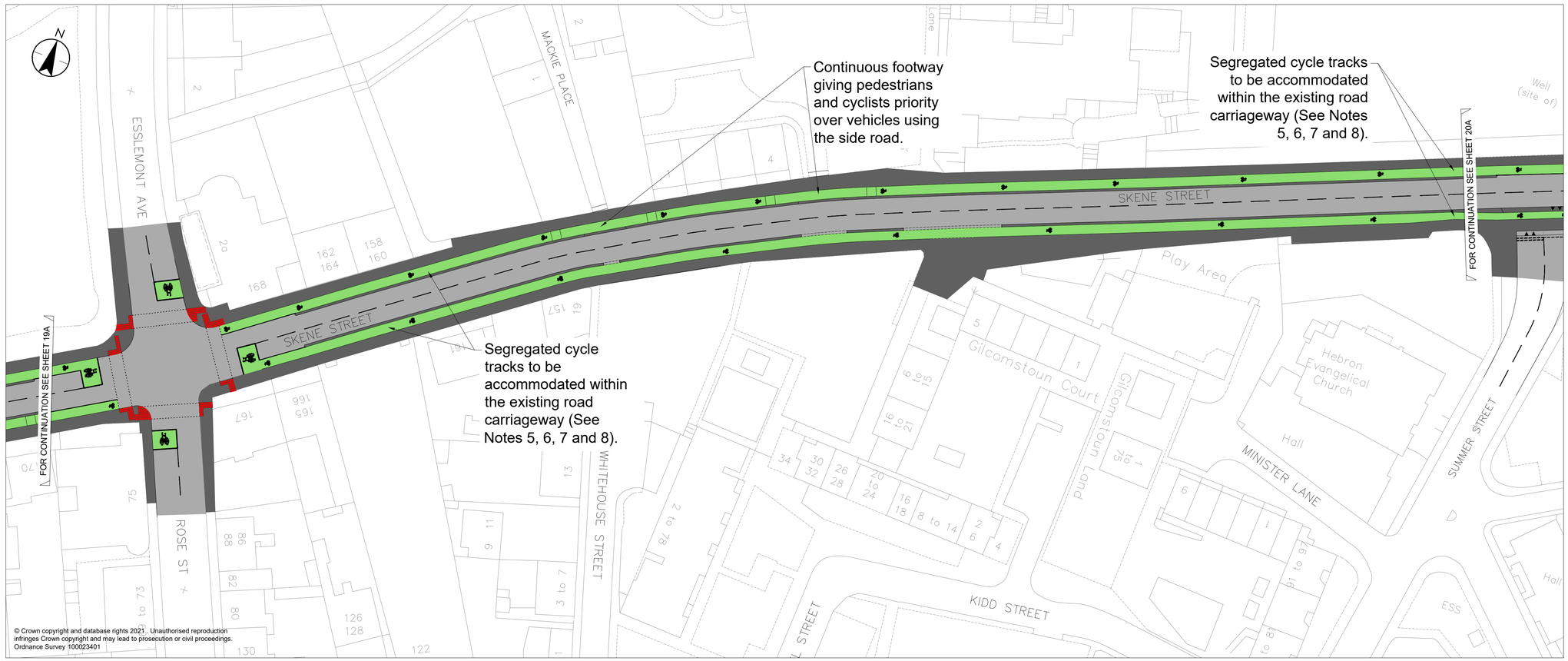
PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5518

Plotted: 10/1/2024 2:24:43 PM By: Blake Erin
DWG Ref: 332610462-STN-HGN-XX-DR-H-5518 - active travel design\3. drawings\cad\sheet 2(ft)\dwg\1:332610462-stn-hgn-xx-dr-h-5001 to sx.4 - consultation - main route





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Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

Notes

1. The layout is subject to detailed design, highway capacity testing, road safety audit, ground investigations, earthworks modelling, utilities & services searches, and confirmation of land ownership.
2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. Some localised road widening will be required.
6. On-street parking provision removed to accommodate cycle tracks.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.

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	Dwn.	Dsgn.	Chkd.
	M.G	M.G	M.O'S 2024.01.10

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 19 OF 28

Title

A944 - A9119 MAIN ROUTE

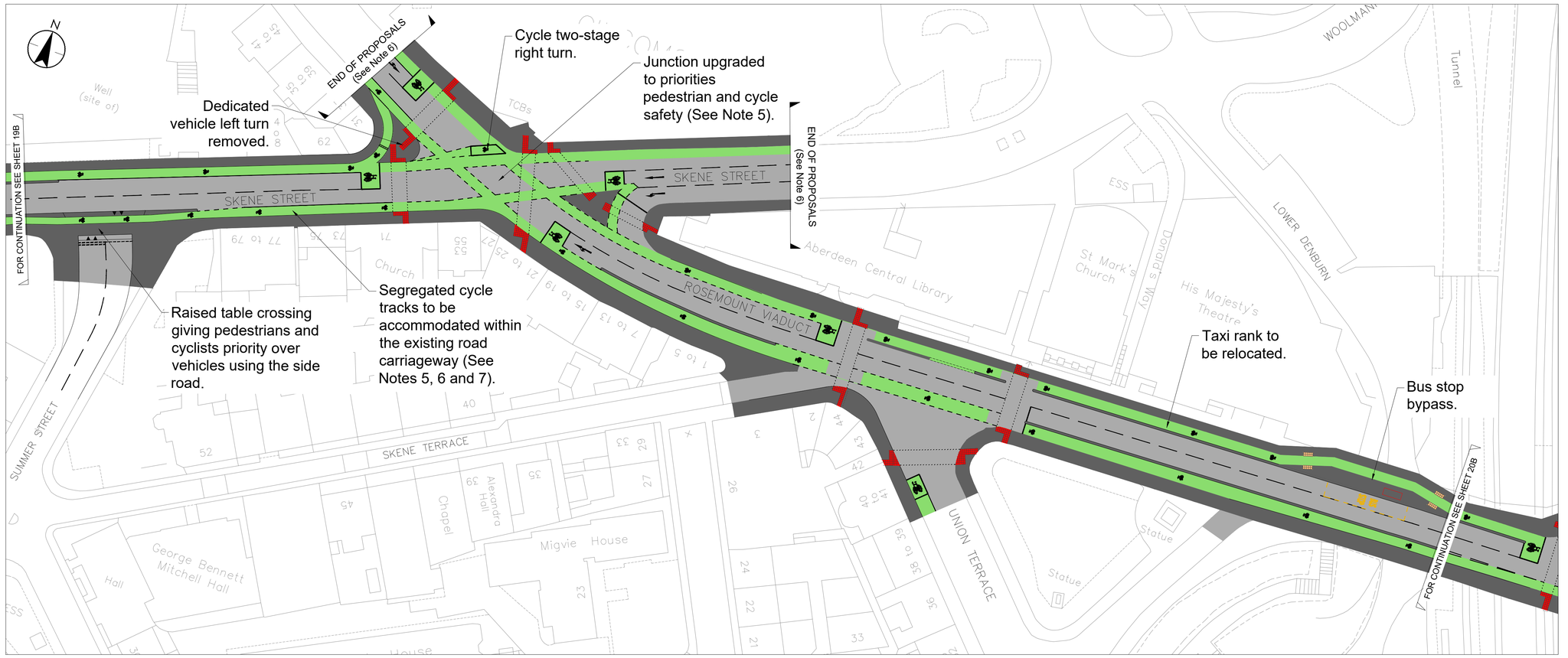
SKENE STREET / ROSEMOUNT VIADUCT

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5519

Plotted: 14 Feb 2024 at 14:57:13 AM By: Baxter, Erin
Drawing Path: \\stantecgroup.com\data\UKED\332610462\Drawings\Design\Civil\Sheet 2D\Drawings\332610462-stn-hgn-xx-dr-h-5501 to 5514 - consultation - main route





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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. A traffic modelling assessment will be undertaken at the next design stage to ensure the proposals minimise any impact on the capacity of the junction for traffic.
6. There are no proposals beyond this cut line but there are opportunities to extend the cycle route if the A9119 proposals are implemented.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
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	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 20 OF 28

Title

A944 - A9119 MAIN ROUTE

ROSEMOUNT VIADUCT

PROPOSED ROAD LAYOUT

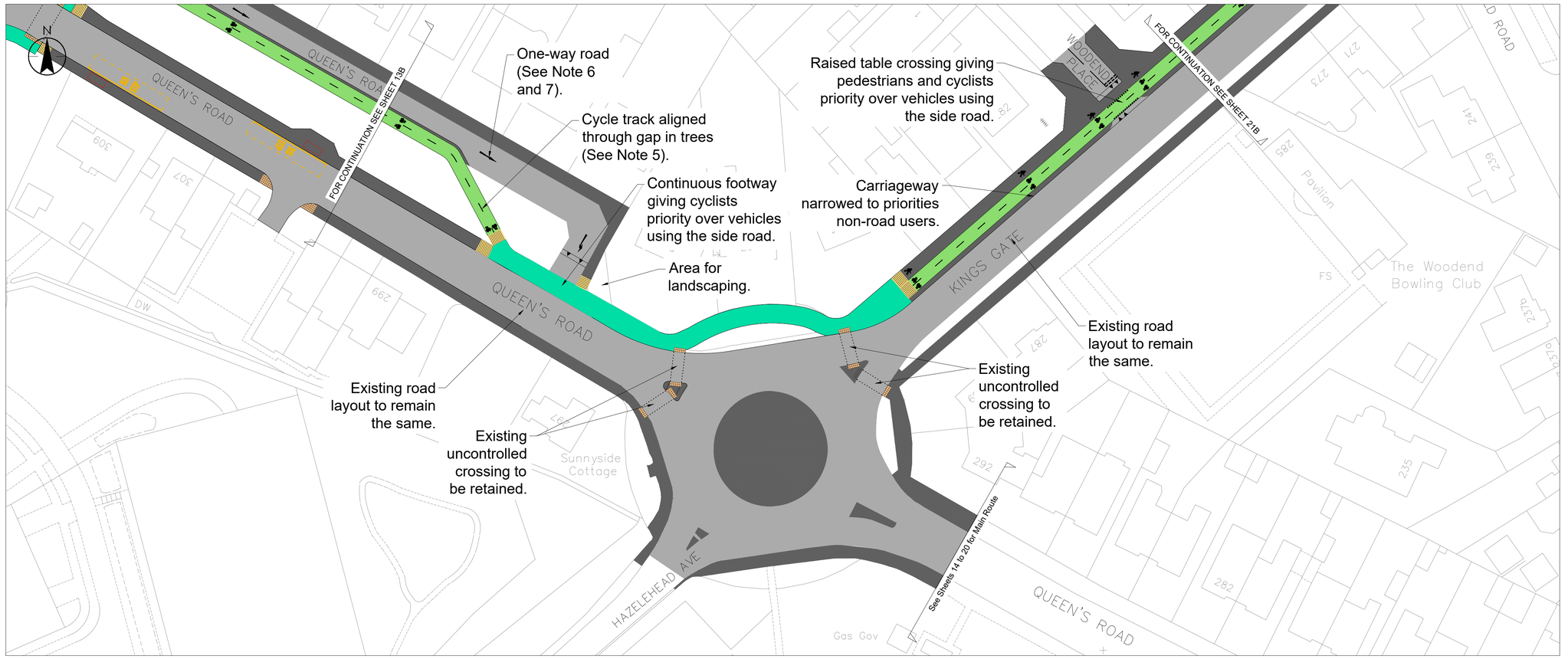
Project No.	A1 Scale
332610462	1:500

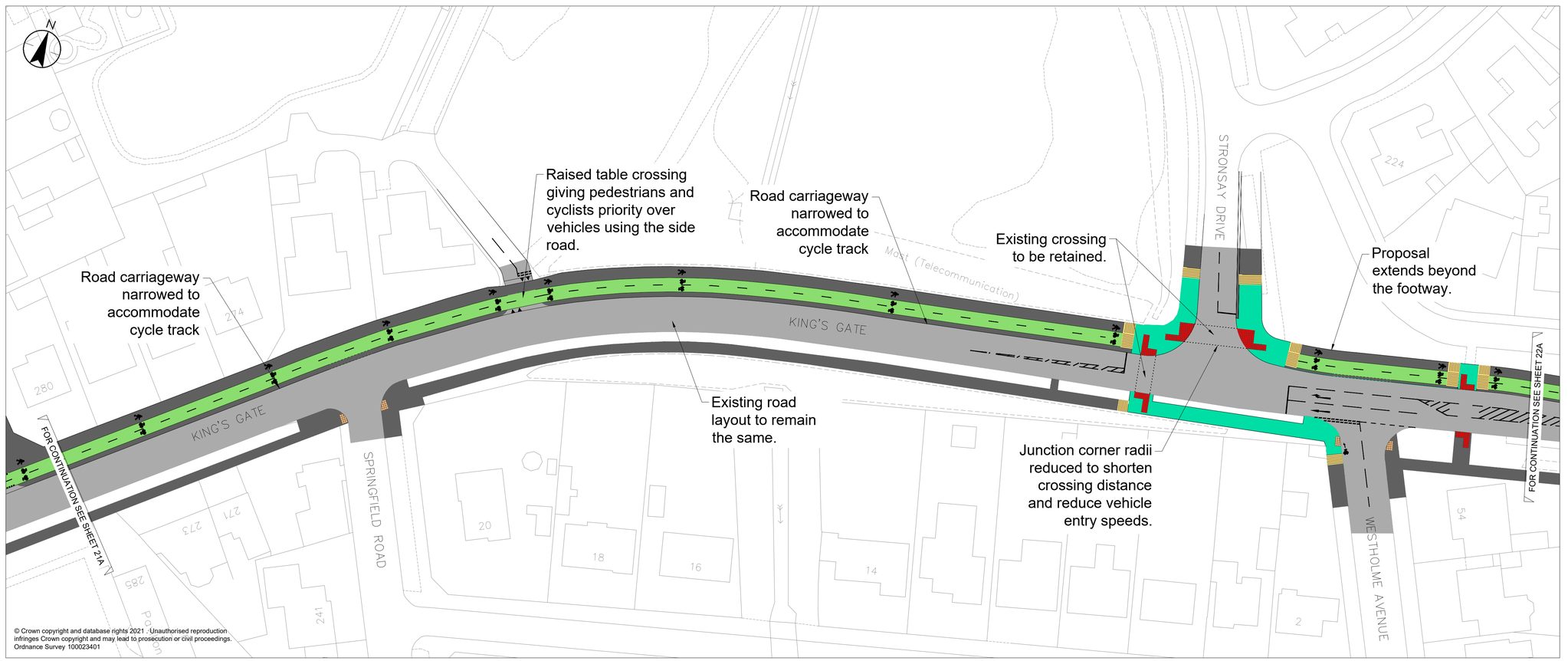
Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5520

Plotted: 13/5/2024 2:04:13 PM By: Blake Erin
Plotted By: Blake Erin
Drawing Path: \\stn-file01\projects\332610462\4444\9119 - active travel design\5. drawings\cad\sheet 20\(dwg)\332610462-stn-hgn-xx-dr-h-5201 to s4_s4 - consultation - main route

Parallel Route A Drawings

- Drawing Number: 332610462-STN-HGN-XX-DR-H-5521(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5522(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5523CT(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5523CS(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5524CT(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5524CS(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5525(P01)





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Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. No dig construction method will be used to ensure delivery of the two-way cycle track has no impact on the trees.
6. On-street parking provision will be removed to maintain 4.0m width for one way general traffic.
7. All vehicle property accesses to be retained.

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 21 OF 28

Title

PARALLEL ROUTE A (VIA RUBISLAW DEN NORTH)

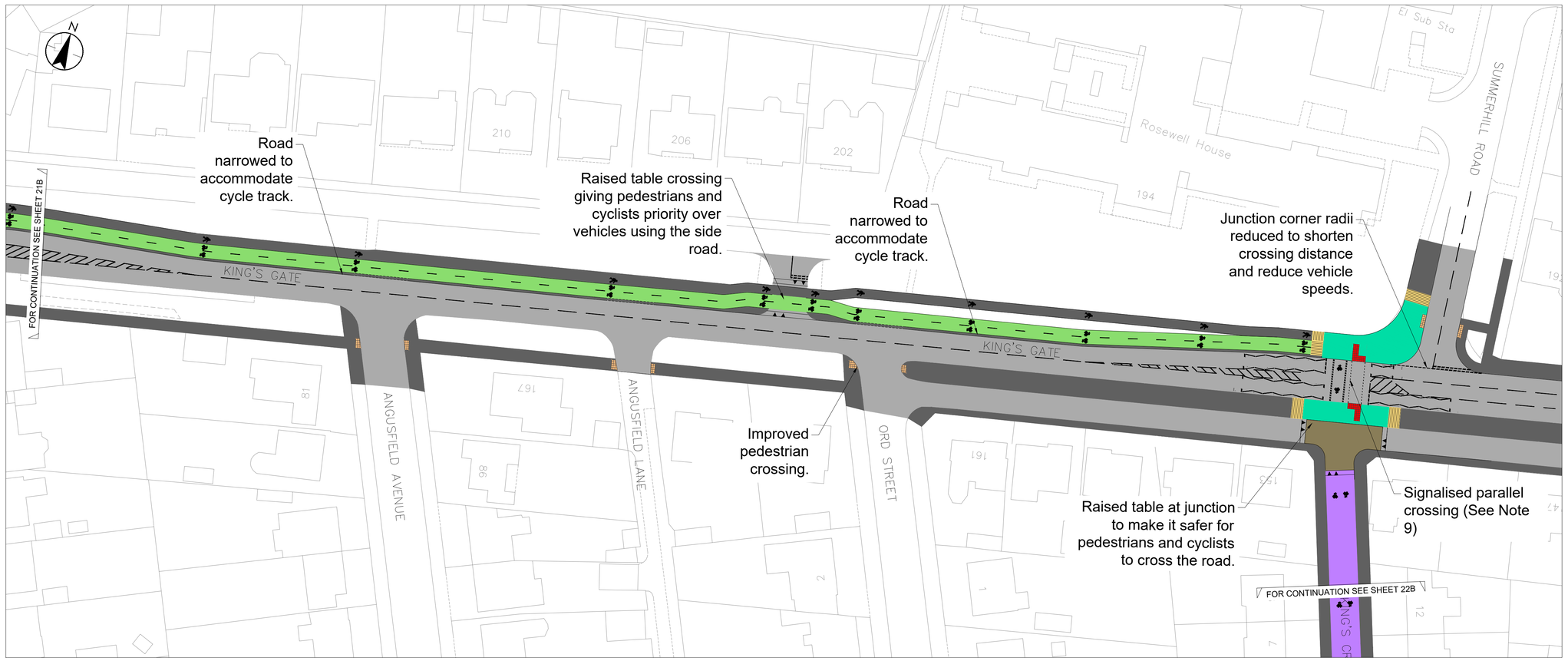
QUEEN'S ROAD / KING'S GATE

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	332610462-STN-HGN-XX-DR-H-5521

Plotted: 13.06.2024 4:20:44 PM By: Barker, Erin
DRAWING SHEET - A1.dwt | X-Ref: 332610462-HGN-XX-DR-H-5521.dwg | Layout: P01 | Model: 332610462-STN-HGN-XX-DR-H-5521 to A1.dwt - consultation - ctf.ctb



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C:\Users\ryan.pitt\OneDrive - Stantec\Documents\332610462-stn-hgn-xx-dr-h-5001 to x-L4 - consultation - dft.rvt

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3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. Requires the closure of the Kings Cross Road access on Anderson Drive and entry only to Carnegie Crescent.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. A signalised parallel crossing means that people travelling on foot and by bike can cross the road separately from each other, increasing safety and making it easier to carry on their journey. This type of crossing is also known as a 'sparrow crossing'.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 22 OF 28

Title

PARALLEL ROUTE A (VIA RUBISLAW DEN NORTH)

KING'S GATE / KING'S CROSS ROAD

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5522**





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Plotted: 14.06.2024 22:04:14 | 12:11:54 PM By: Baker, Erin
File Name: P:\Projects\332610462-STN-HGN-XX-DR-H-5001 to 5004 - consultation - all sheets\Highways\Drawings\Sheets\Active Travel Design\A. drawings\Corridor 2\Rev3\Corridor 2 Rev3.dwg\332610462-STN-HGN-XX-DR-H-5001 to 5004 - consultation - all sheets.dwg

Notes

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3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. There are two options for the cycle route along Moray Place and Rubislaw Den North. This option shows the cycle route as a Cycle Track. For the Cycle Street option see Sheet 23-CS and 24-CS.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained8. Trees retained with additional trees planted where appropriate.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 23-CT OF 28

Title

PARALLEL ROUTE A (VIA RUBISLAW DEN NORTH)

CARNEGIE PLACE / RUBISLAW DEN NORTH

PROPOSED ROAD LAYOUT (CYCLE TRACK OPTION)

Project No.	A1 Scale
332610462	1:500

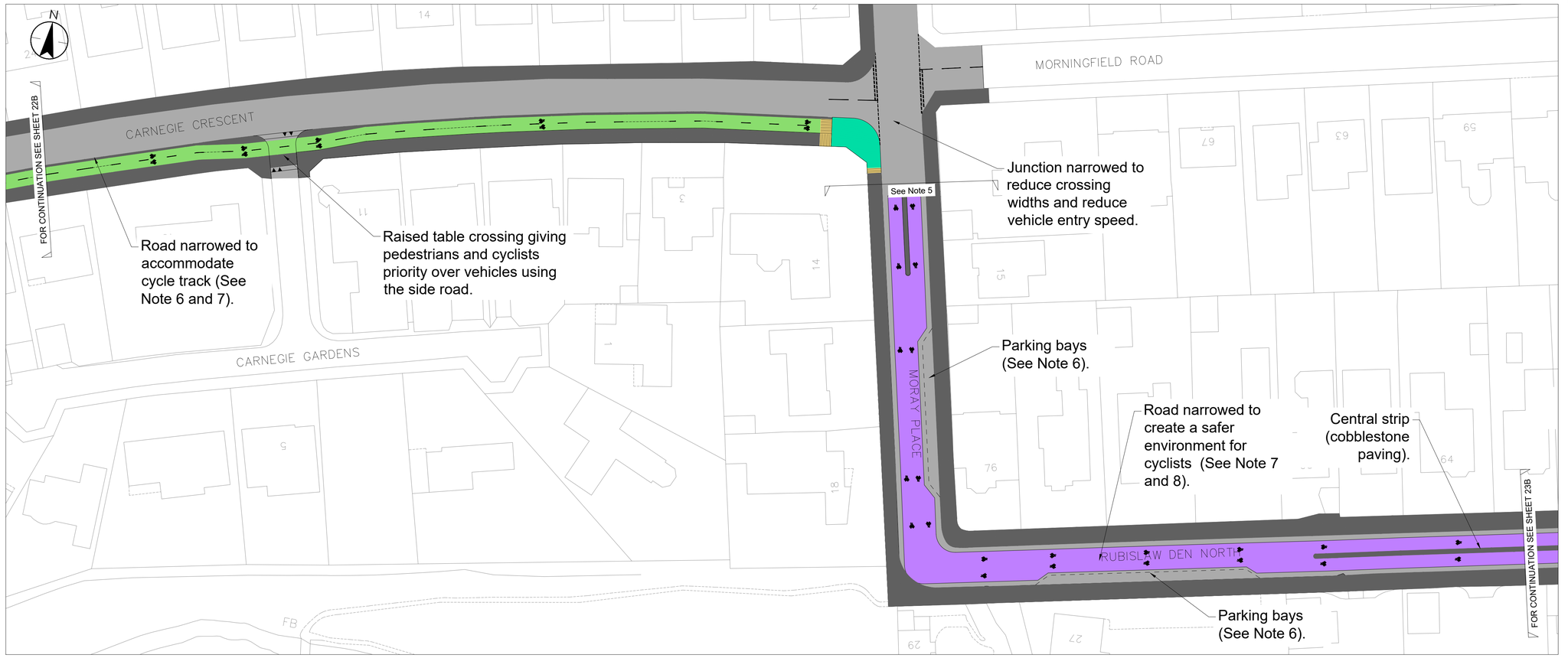
Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5523-CT**

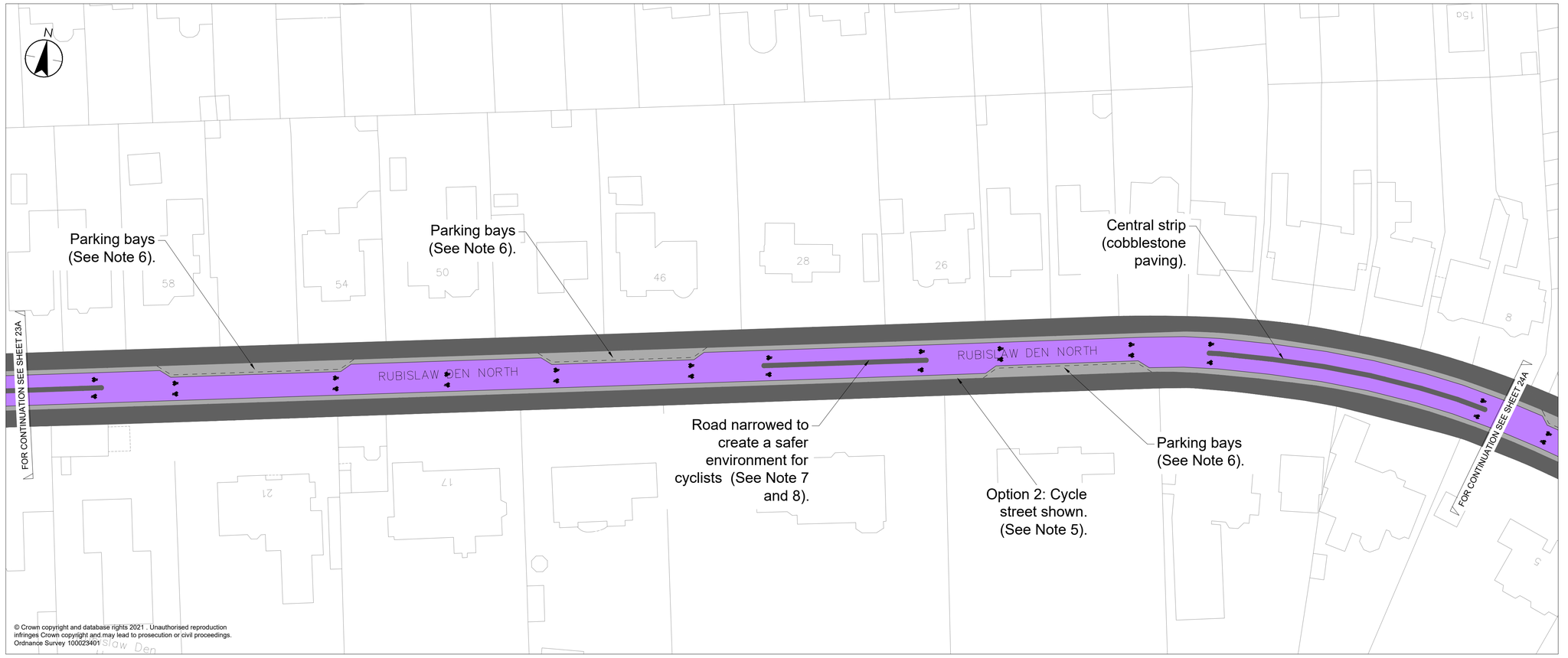
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File Name: S:\Projects\332610462-STN-HGN-XX-DR-H-5523-cs.dwg\Layouts\Layout 23(A3)\Layout 23(A3).dwg • 332610462-stn-hgn-xx-dr-h-5523 to cs.44 - consultation - str o

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3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. There are two options for the cycle route along Moray Place and Rubislaw Den North. This option shows the cycle route as a Cycle Street. For the Cycle Track option see Sheet 23-CT and 24-CT.
6. On-street parking rationalised with the provision of parking bays which can each accommodate 6-7 vehicles.
7. All vehicle accesses to properties retained8. Trees retained with additional trees planted where appropriate.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 23-CS OF 28

Title

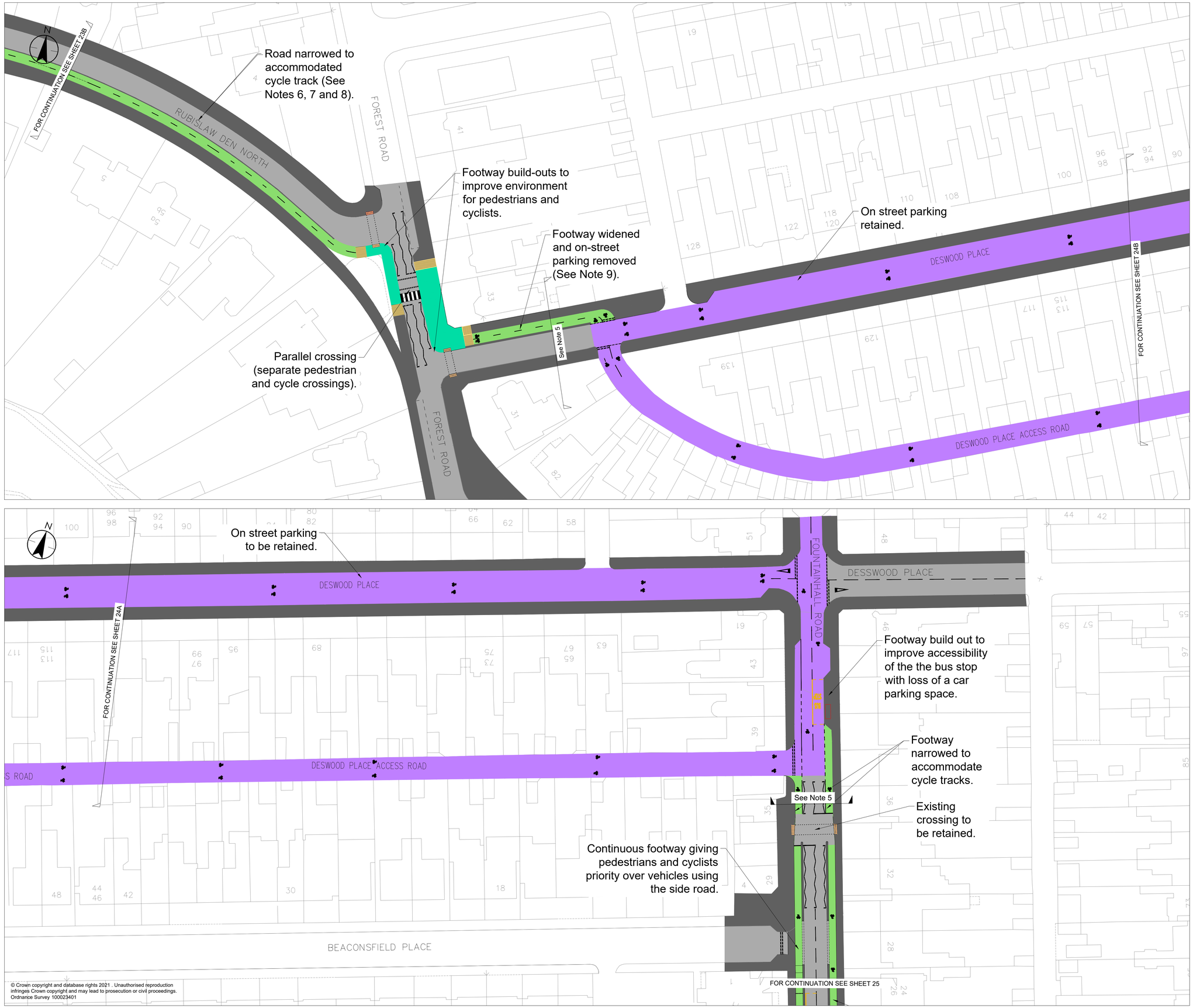
PARALLEL ROUTE A (VIA RUBISLAW DEN NORTH)

CARNEGIE PLACE / RUBISLAW DEN NORTH

PROPOSED ROAD LAYOUT (CYCLE STREET OPTION)

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5523-CS**



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Plotted: 13/06/2024 09:44:13 | By: Blake, Erin
C:\3D\Active Travel design\5. drawings\cad\sheet 2\[01.dwg]\332610462-stn-hgn-xx-dr-h-5001 to xx-s4 - consultation - all p
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3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. There are two options for the cycle route using either Desswood Place or the Desswood Place Access Road. Both routes provide the cycle route within a mixed traffic street.
6. On-street parking rationalised with the provision of parking bays which can each accommodate 6-7 vehicles.
7. All vehicle accesses to properties retained
8. Trees retained with additional trees planted where appropriate
9. To provide the cycle track on Desswood Place on-street parking is removed between Forest Road and Desswood Place Access Road.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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ABERDEEN CITY COUNCIL

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 24-CT OF 28

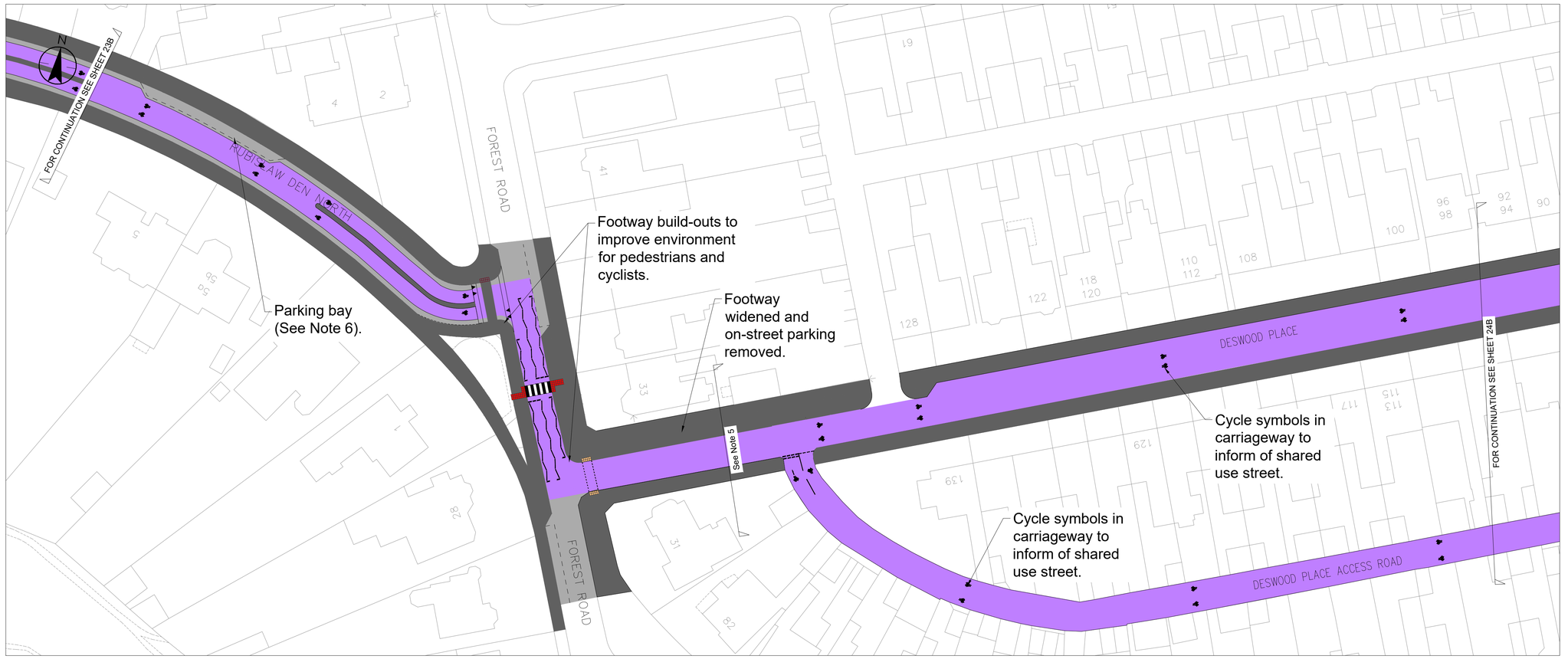
Title

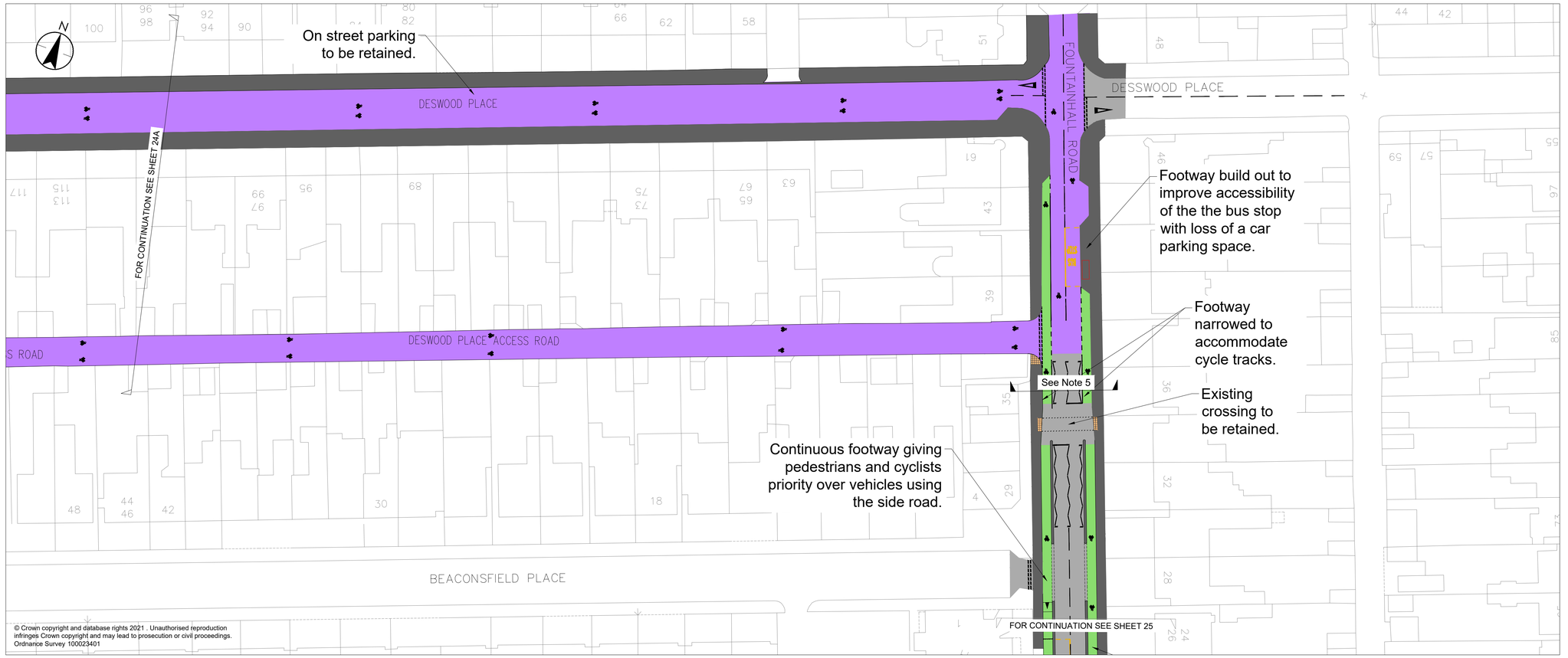
PARALLEL ROUTE A (VIA RUBISLAW DEN NORTH)

FOREST ROAD / DESSWOOD PLACE

PROPOSED ROAD LAYOUT (CYCLE TRACK OPTION)

Project No.	A1 Scale
332610462	1:500
Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5524-CT**





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Plotted: 13.01.2024 12:04:24 | 13:55:21 PM By: Blaise, Erin
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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. There are two options for the cycle route using either Desswood Place or the Desswood Place Access Road. Both routes provide the cycle route within a mixed traffic street.
6. On-street parking rationalised with the provision of parking bays which can each accommodate 6-7 vehicles.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10 YYYY.MM.DD
	Dwn.	Dsgn.	Chkd.	
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 24-CS OF 28

Title

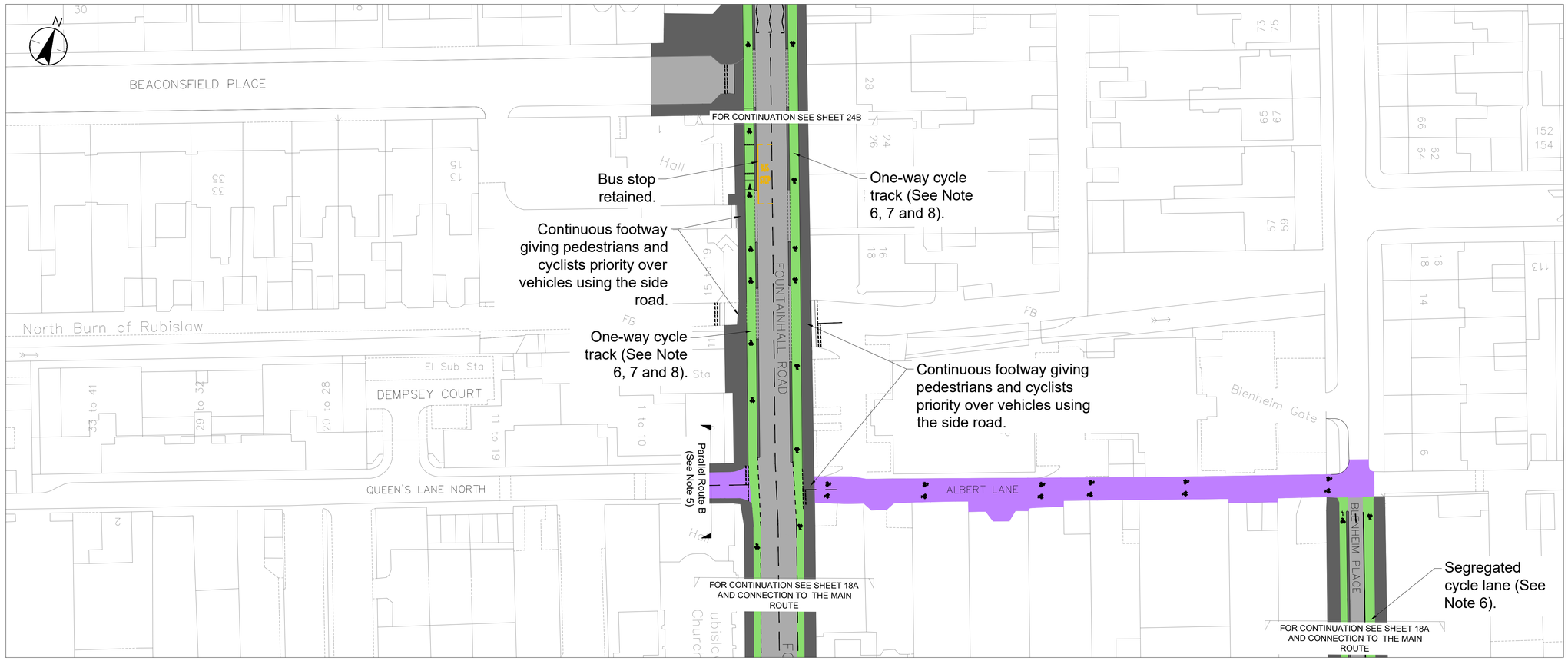
PARALLEL ROUTE A (VIA RUBISLAW DEN NORTH)

FOREST ROAD / DESSWOOD ROAD

PROPOSED ROAD LAYOUT (CYCLE STREET OPTION)

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5524-CS**



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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. For Parallel Route B see Sheets 26, 27 and 28.
6. On-street parking provision removed to accommodate cycle tracks.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10 YYYY.MM.DD

	Dwn.	Dsgn.	Chkd.	
	M.G	M.G	M.O'S	2024.01.10 YYYY.MM.DD

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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 25 OF 28

Title

PARALLEL ROUTE A (VIA RUBISLAW DEN NORTH)

FOUNTAINHALL ROAD / ALBERT LANE

PROPOSED ROAD LAYOUT

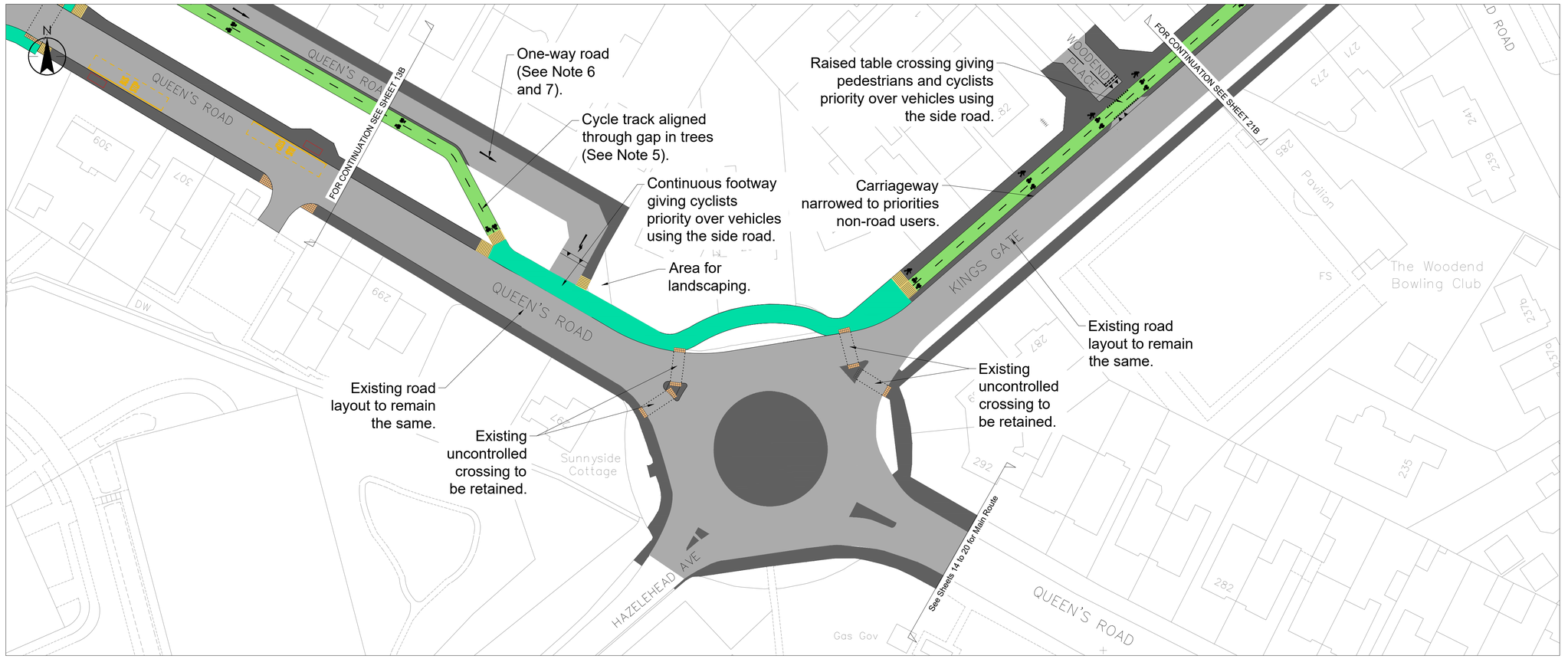
Project No.	A1 Scale
332610462	1:500

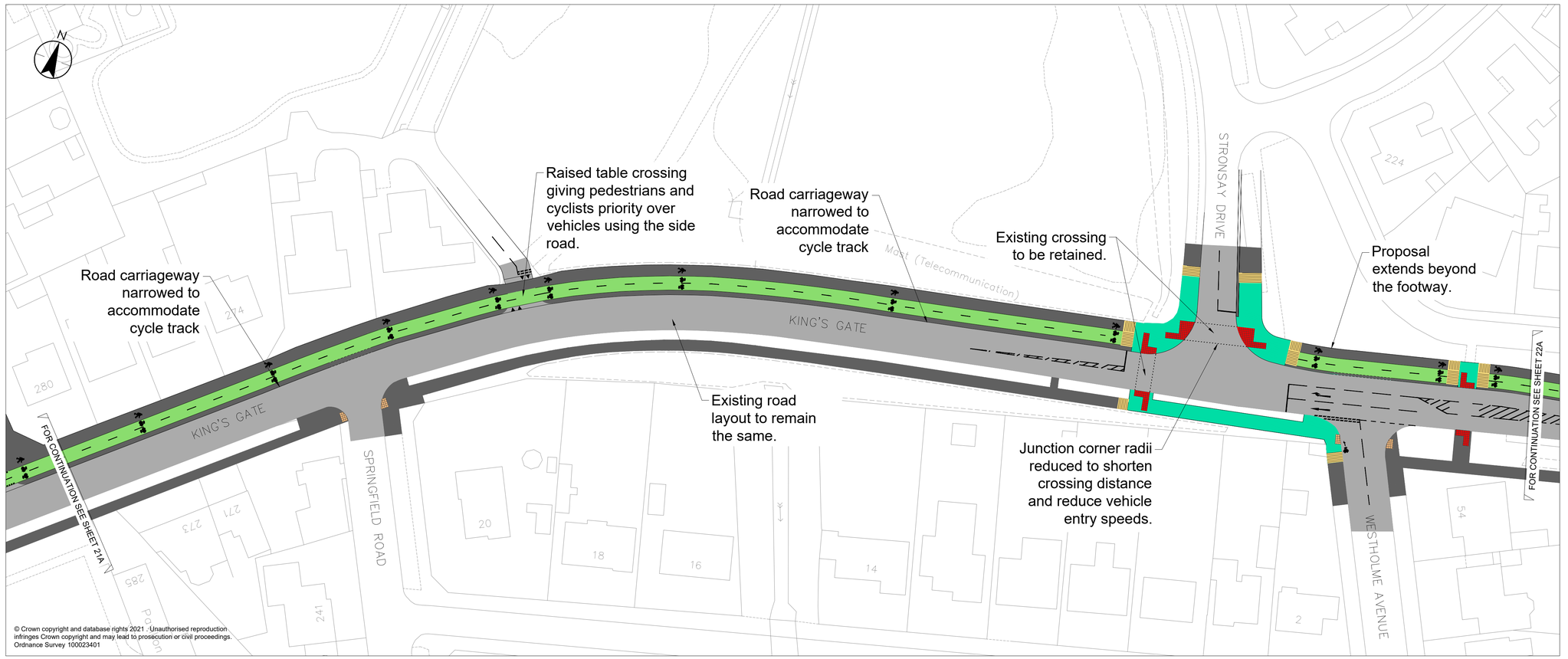
Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5525**

Plotted: 13/0c/2024 22/04/24 3:53:53 PM By: Blake, Erin
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Parallel Route B Drawings

- Drawing Number: 332610462-STN-HGN-XX-DR-H-5521(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5522(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5526CT(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5526CS(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5527CT(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5527CS(P01)
- Drawing Number: 332610462-STN-HGN-XX-DR-H-5528(P01)





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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. No dig construction method will be used to ensure delivery of the two-way cycle track has no impact on the trees.
6. On-street parking provision will be removed to maintain 4.0m width for one way general traffic.
7. All vehicle property accesses to be retained.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE		M.G	G.D	2024.01.10
Issued/Revision		By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 21 OF 28

Title

PARALLEL ROUTE B (VIA RUBISLAW DEN SOUTH)

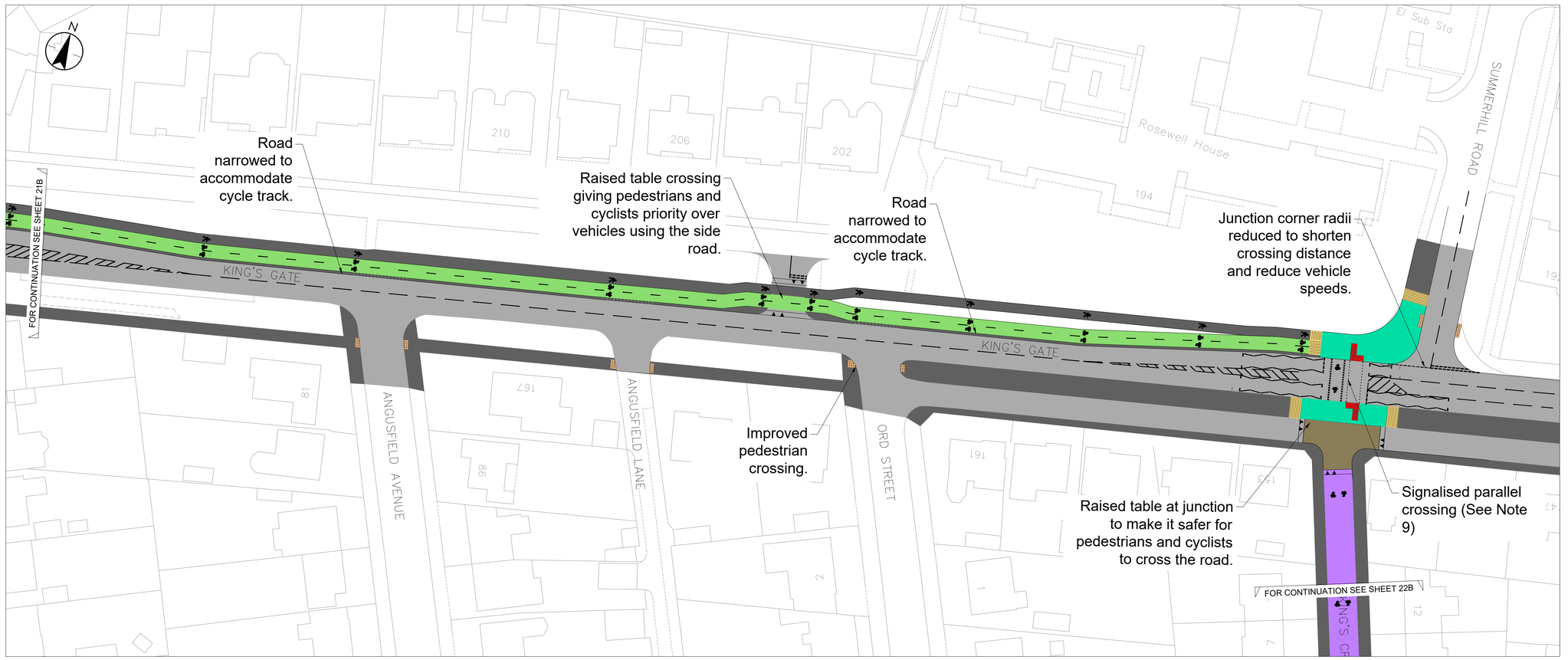
QUEEN'S ROAD / KING'S GATE

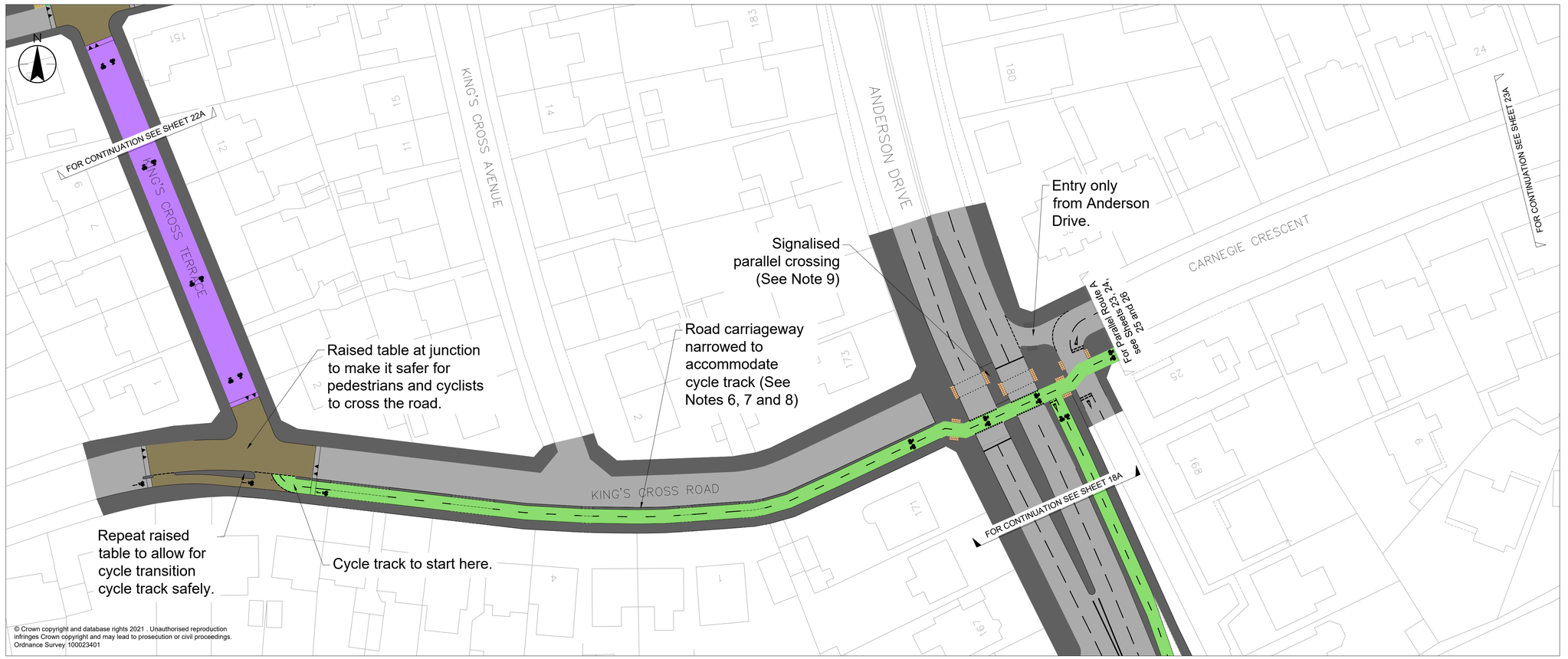
PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5521**

Plotted: 13.Dec.2024 20:04:13 BST | Plot By: Bolger, Erin
DrawingLocation: C:\Users\erin.bolger\Documents\332610462 - active travel design\3_drawings\cost\Land 2070.dwg\3332610462-stn-hgn-xx-dr-h-5501 to sx-h4 - consultation - a1 b





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Plotted: 13.06.2024 09:44:13 338653 PM By: Barker, Erin
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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. Requires the closure of the Kings Cross Road access on Anderson Drive and entry only to Carnegie Crescent.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. A signalised parallel crossing means that people travelling on foot and by bike can cross the road separately from each other, increasing safety and making it easier to carry on their journey. This type of crossing is also known as a 'sparrow crossing'.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 22 OF 28

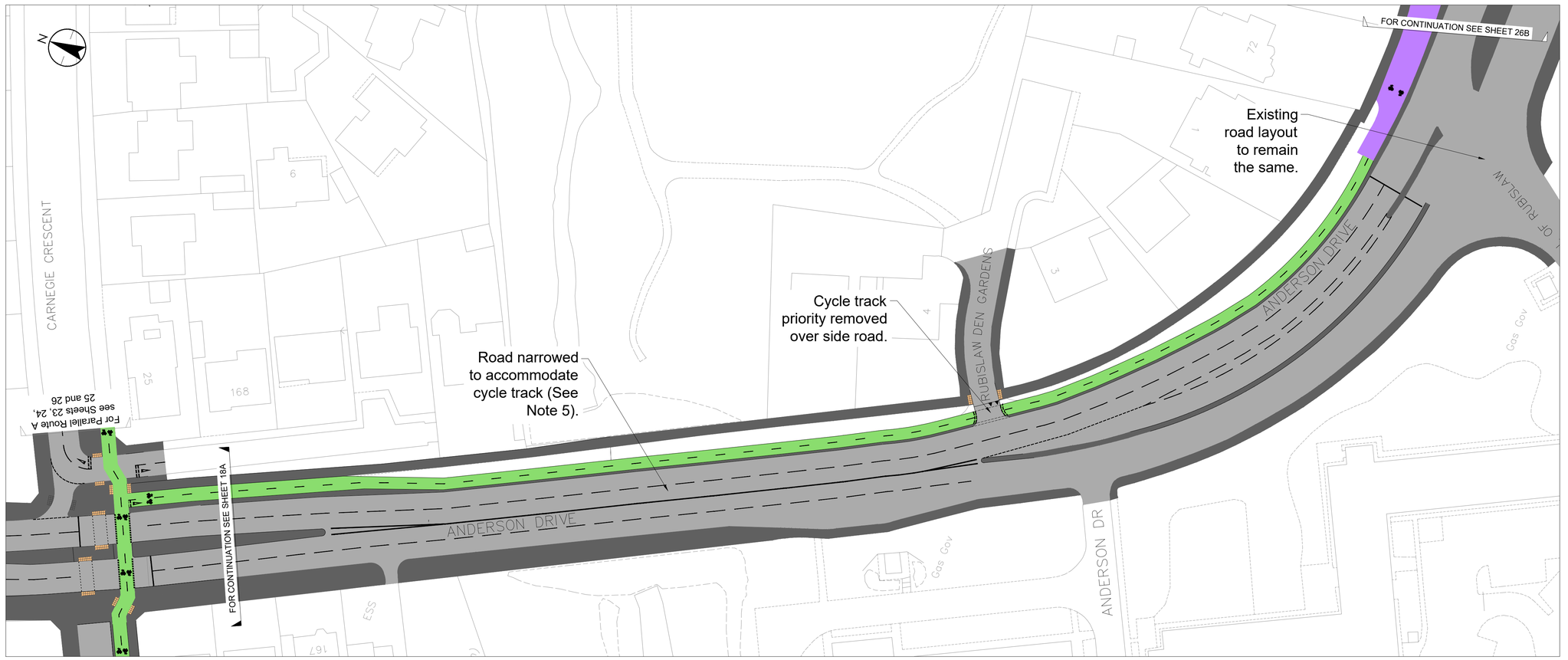
Title

PARALLEL ROUTE B (VIA RUBISLAW DEN SOUTH)

KING'S GATE / KING'S CROSS ROAD

PROPOSED ROAD LAYOUT

Project No.	## Scale
332610462	1:500
Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5522**





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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. The central reservation is removed and traffic lanes narrowed (to within permitted widths) allowing the cycle track to be delivered without the loss of trees along this section of Anderson Drive.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. There are two options for the cycle route along Rubislaw Den South. This option shows the cycle route as a Cycle Track. For the Cycle Street option see Sheet 26-CS.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 26-CT OF 28

Title

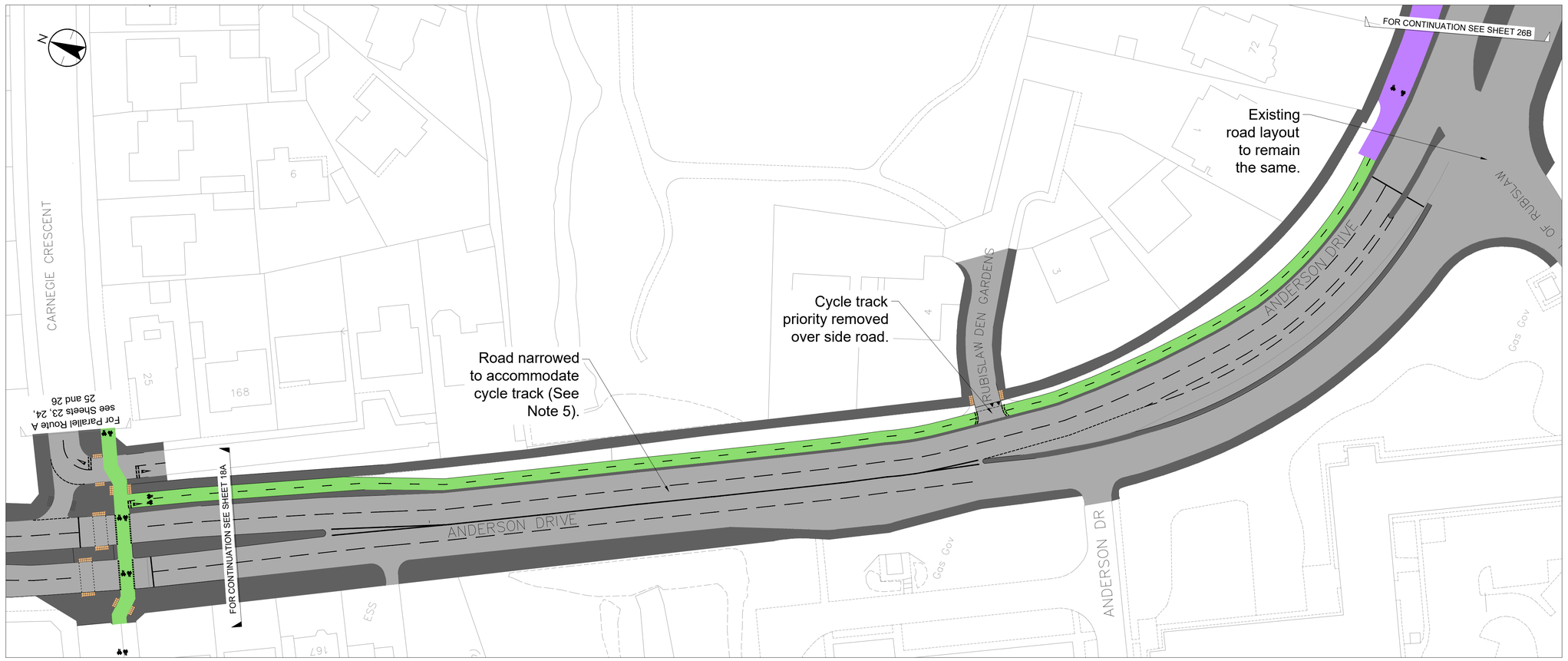
PARALLEL ROUTE B (VIA RUBISLAW DEN SOUTH)

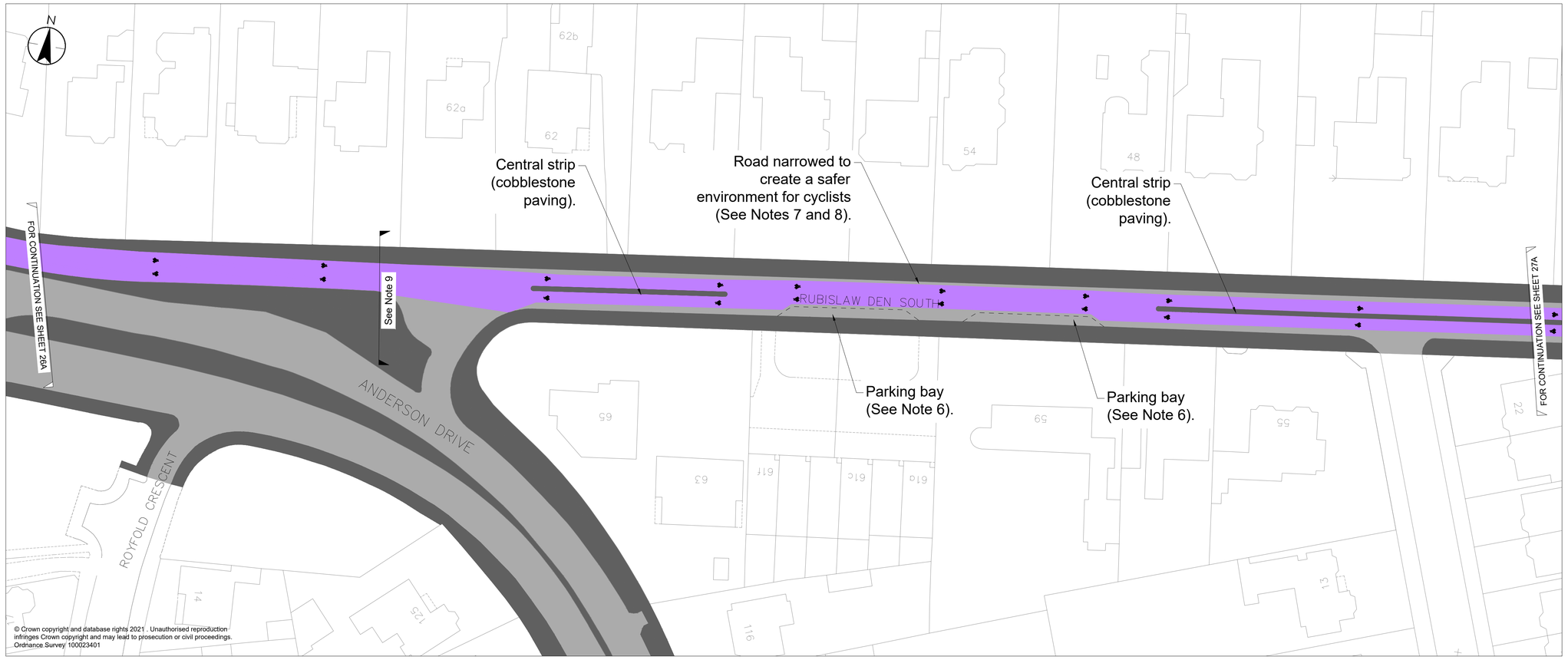
ANDERSON ROAD / RUBISLAW DEN SOUTH

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5526-CT**





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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. The central reservation is removed and traffic lanes narrowed (to within permitted width) allowing the cycle track to be delivered without the loss of trees along this section of Anderson Drive.
6. On-street parking rationalised with the provision of parking bays which can each accommodate 6-7 vehicles.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. There are two options for the cycle route along Rubislaw Den South. This option shows the cycle route as a Cycle Street. For the Cycle Track option see Sheet 26-CT.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 26-CS OF 28

Title

PARALLEL ROUTE B (VIA RUBISLAW DEN SOUTH)

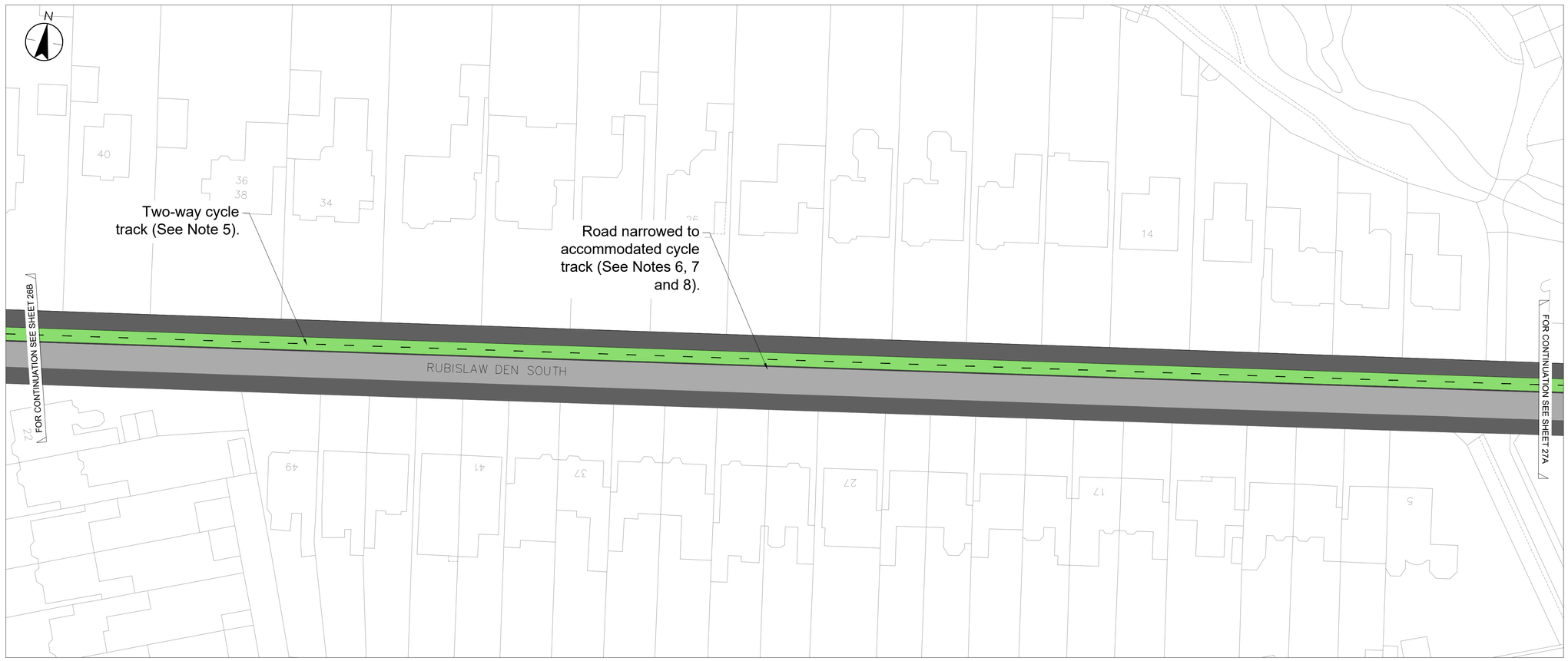
ANDERSON ROAD / RUBISLAW DEN SOUTH

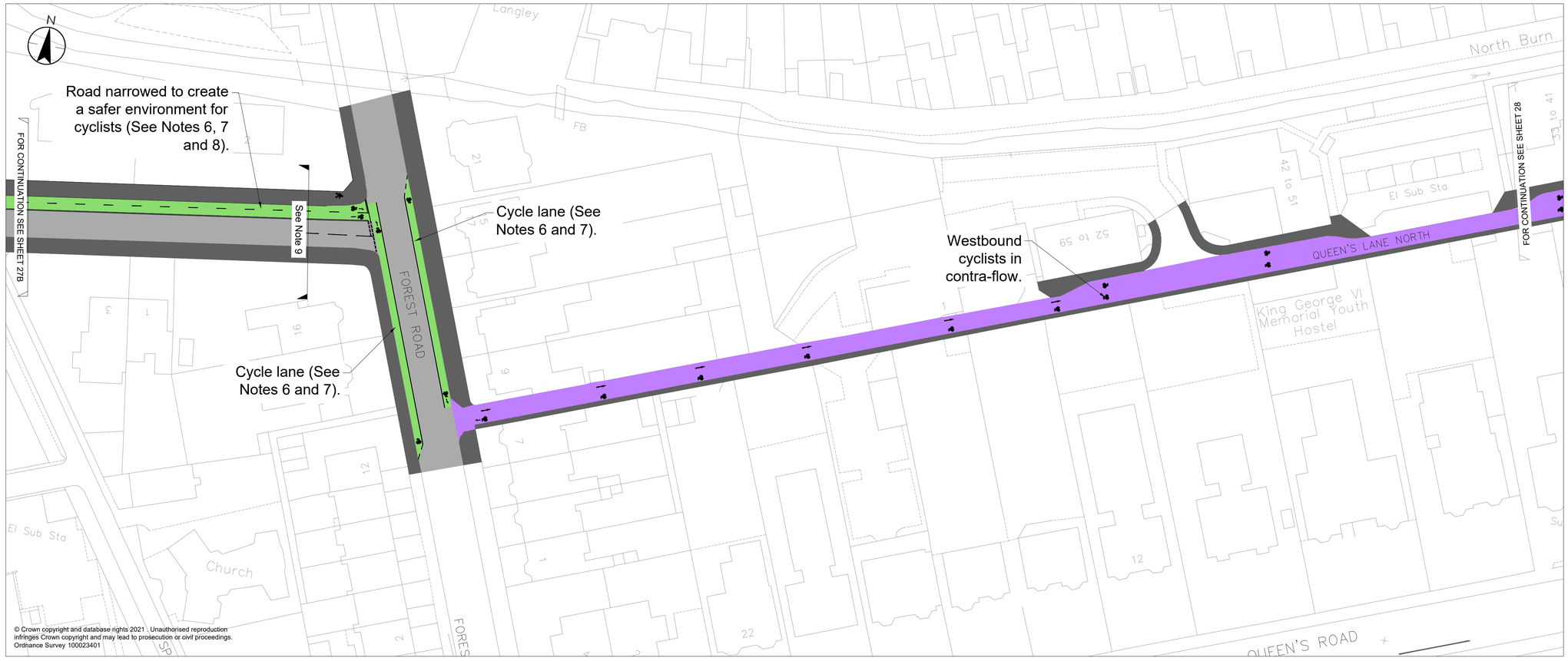
PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5526-CS**

Plotted: 1:40s 2024 220424 4:12:21 PM By: Baker, Erin
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2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. There is an alternative proposal for Rubislaw Den South that provides the cycle route within a 'cycle street' or mixed traffic street as shown on Sheet 20B.
6. On-street parking provision to be removed to maintain two-way road.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. There are two options for the cycle route along Rubislaw Den South. This option shows the cycle route as a Cycle Track. For the Cycle Street option see Sheet 27-CS.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE		M.G	G.D	2024.01.10
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		M.G	M.G	M.O'S	2024.01.10
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WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 27-CT OF 28

Title

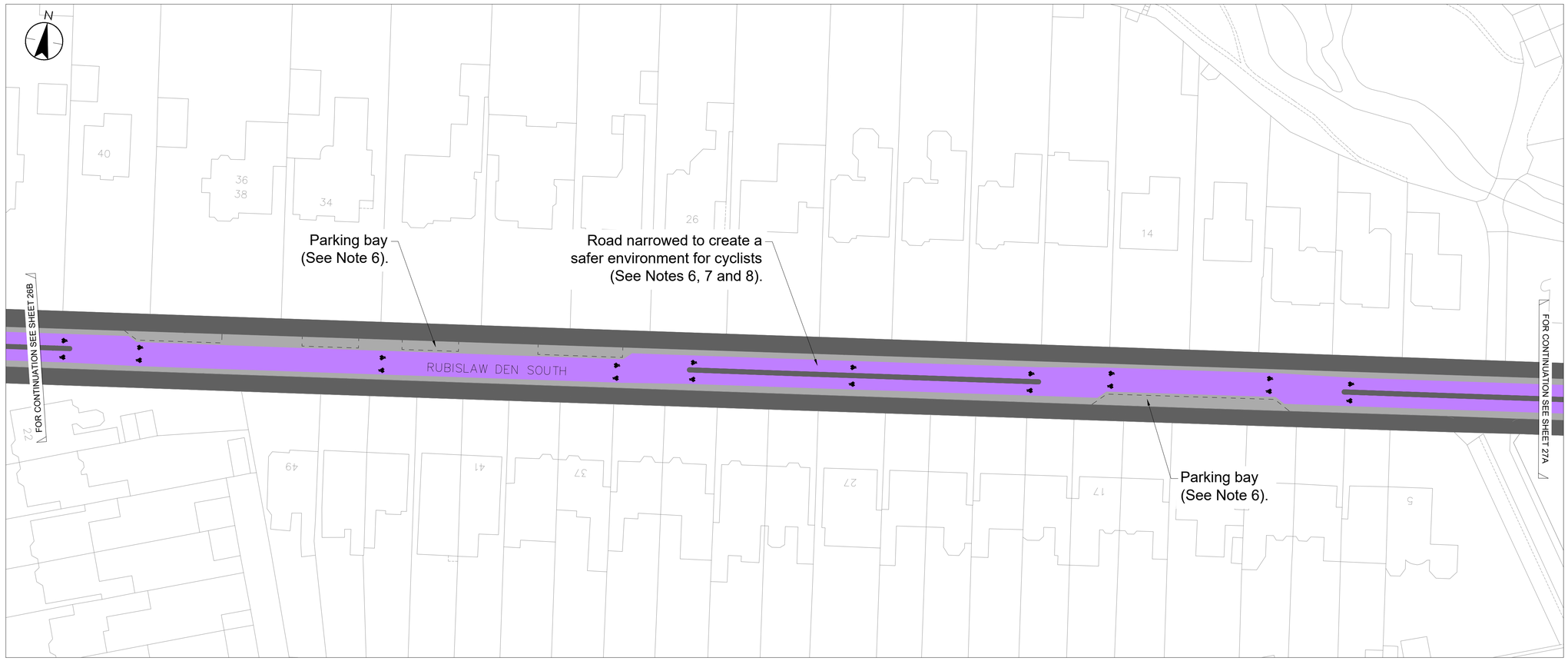
PARALLEL ROUTE B (VIA RUBISLAW DEN SOUTH)

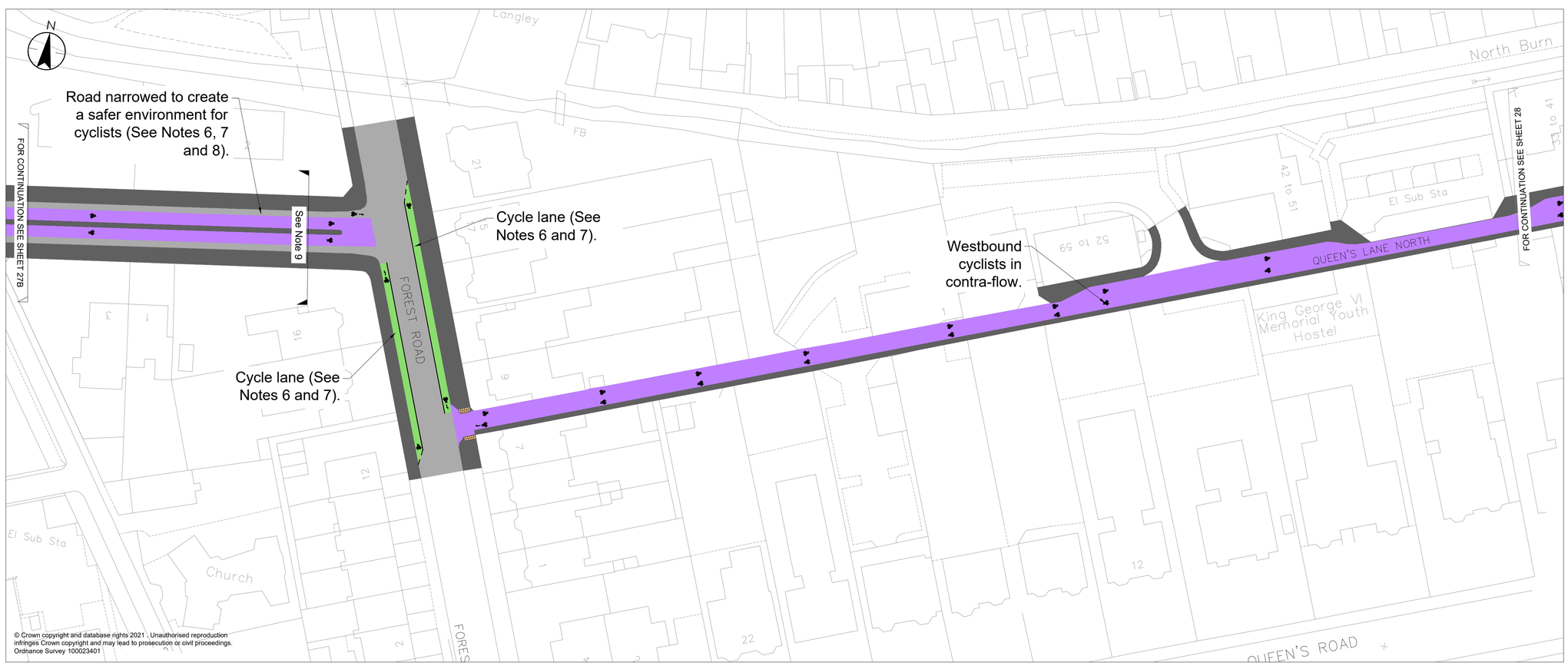
RUBISLAW DEN STH / FOREST ROAD / QUEEN'S LANE NTH

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5527-CT**





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Notes

1. The layout is subject to detailed design, highway capacity testing, road safety audit, ground investigations, earthworks modelling, utilities & services searches, and confirmation of land ownership.
2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. There is an alternative proposal for Rubislaw Den South that provides the cycle route using a two-way cycle track on the northern side of the road as shown on Sheet 20A.
6. On-street parking rationalised with the provision of parking bays which can each accommodate 6-7 vehicles.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.
9. There are two options for the cycle route along Rubislaw Den South. This option shows the cycle route as a Cycle Street. For the Cycle Track option see Sheet 27-CT.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

P01 FIRST ISSUE	M.G	G.D	2024.01.10
Issued/Revision	By	Appd	YYYY.MM.DD
	M.G	M.G	M.O'S	2024.01.10
	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD

Issue Status

S3 - FOR REVIEW AND COMMENT

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Client/Project Logo

ABERDEEN CITY COUNCIL

Client/Project

WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 27-CS OF 28

Title

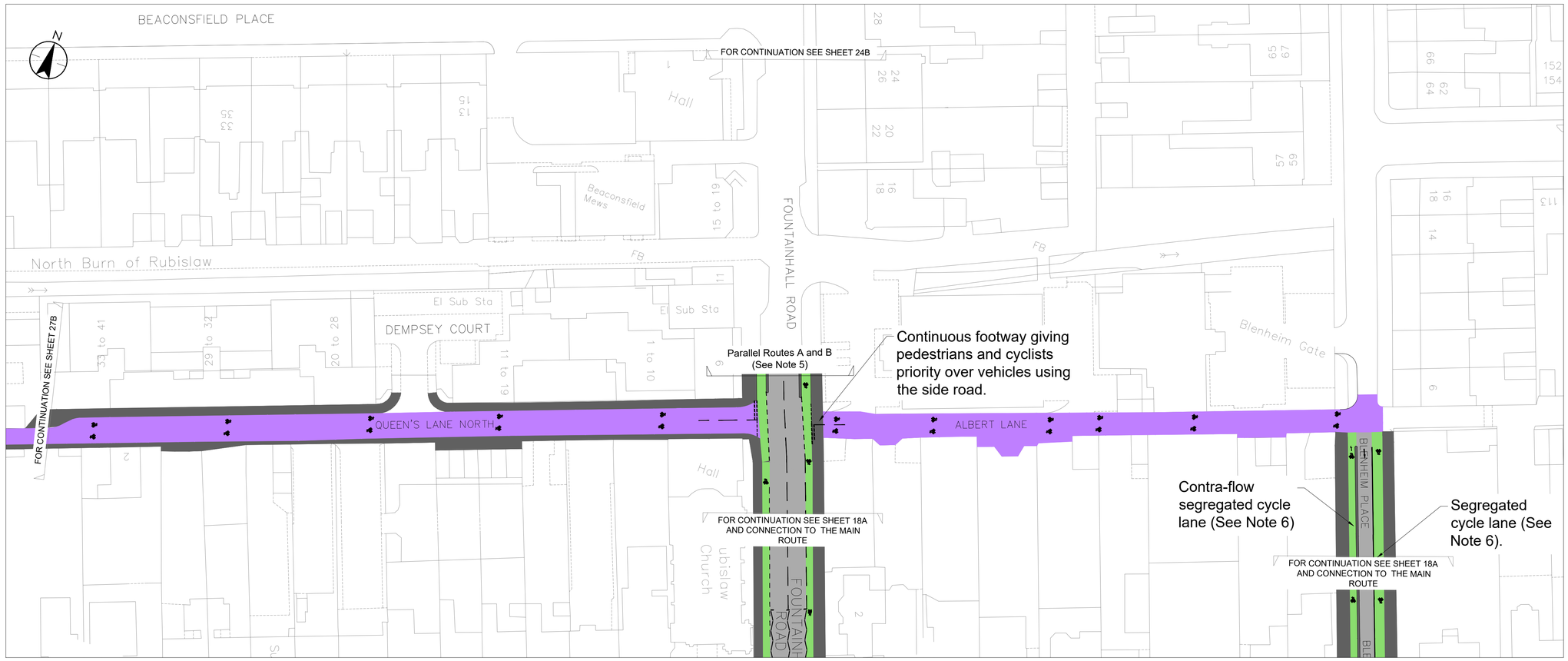
PARALLEL ROUTE B (VIA RUBISLAW DEN SOUTH)

RUBISLAW DEN STH / FOREST ROAD / QUEEN'S LANE NTH

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500
Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5527-CS**

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Notes

1. The layout is subject to detailed design, highway capacity testing, road safety audit, ground investigations, earthworks modelling, utilities & services searches, and confirmation of land ownership.
2. The detailed design will be in accordance with all relevant design guidance and standards.
3. The use of third-party land to deliver the proposed road layout is subject to legal agreement.
4. Where proposals extend beyond the footway there may be opportunities avoid this widening by narrowing the central reservation, traffic lanes and bus lane or the greater use sections of shared-use areas instead of separated cycle track and footway.
5. For Parallel Route A see Sheets 22, 23, 24 and 25 .
6. On-street parking provision removed to accommodate cycle tracks.
7. All vehicle accesses to properties retained.
8. Trees retained with additional trees planted where appropriate.

Key:

- Footway
- Road carriageway
- Bus lane
- Mixed traffic street (cars and cyclists)
- Shared use (pedestrian and cyclists)
- Cycle track
- Alternative cycle track option
- Tactile paving (uncontrolled crossing)
- Tactile paving (controlled crossing)
- Tactile paving (shared use area)
- Indicative bus shelter location

Issued/Revision	By	Appd	
P01 FIRST ISSUE	M.G	G.D	2024.01.10

	Dwn.	Dsgn.	Chkd.	
	M.G	M.G	M.O'S	2024.01.10

Issue Status

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Client/Project

WESTHILL TO ABERDEEN - ACTIVE TRAVEL IMPROVEMENTS

SHEET 28 OF 28

Title

PARALLEL ROUTE B (VIA RUBISLAW DEN SOUTH)

FOUNTAINHALL ROAD / ALBERT LANE

PROPOSED ROAD LAYOUT

Project No.	A1 Scale
332610462	1:500

Revision	Drawing No.
P01	**332610462-STN-HGN-XX-DR-H-5528**

Appendix C: Detailed CLoS Assessment Scoring (Tables)

Contents

- Detailed CLoS assessment scoring tables

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 1

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	Factor	Design Principle	Indicators	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns	Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1	Cyclists can connect to other networks but there are no formal links	2	Crossing facilities allow for users to join other routes to south safely and easily		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route	Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	At breaks in the shared use path there are no formal crossings, signs, or route markings to indicate which direction to continue in	2	Route is continuous and intuitive, allowing cyclists to maintain consistent speed		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network	Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is a good selection of shared use paths between Straik Road and Old Skene Road but the connections to this network are poor	0	There is a good selection of shared use paths between Straik Road and Old Skene Road but the connections to this network remain poor		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative	Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length: 825m Crow Flies: 820m Deviation Factor: 0.6% Alignment: Route follows the main road	2	Link Length: 825m Crow Flies: 820m Deviation Factor: 0.6% Alignment: Route follows the main road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency	At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	0	Cyclists give way to vehicles at side roads (assumes cyclists are using the shared-use path)	2	Formal crossings on side roads give cyclist and pedestrian priority		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions	At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	Toucan crossing on western arm of roundabout is offset, creating delay for users	1	Toucan crossing on western arm aligned to reduce delay to users		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links	Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	1	Width of shared use path could create delay to users	2	Segregated and bidirectional track allows choosing of appropriate speed		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient	Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	2	Elevation Max: 127m Elevation Min: 124m Max Slope: 3.2% Average Slope: 1.0% West to East: Gradual incline	2	Elevation Max: 127m Elevation Min: 124m Max Slope: 3.2% Average Slope: 1.0% West to East: Gradual incline		

Cycle Level of Service Assessment
Link 1

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Factor	Design Principle	Indicators	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2	There is a shared-use path on the southern side of the road so cyclists do not need to share the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
		10. Motor traffic speed on sections of shared carriageway	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2	There is a shared-use path on the southern side of the road so cyclists do not need to share the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	2	There is a shared-use path on the southern side of the road so cyclists do not need to share the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	2	There is a shared-use path on the southern side of the road so cyclists do not need to share the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions	Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side road junctions are infrequent but untreated	2	Side road junctions have priority crossings to separate traffic streams		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout	Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Generally legible road markings and road layout but some elements could be improved	2	Clear, understandable, simple road markings to be provided		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	2	Shared use path is separated from road by a verge, overall facility is 3m wide	2	Cycle track separated from carriageway and 3m wide		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards	Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	2	The route includes evasion room and avoids any physical hazards.	2	The route includes evasion room and avoids any physical hazards.		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 1

Stantec

	Factor	Design Principle	Indicators	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects	Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	2	Smooth high grip surface	2	Smooth high grip surface		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type	Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	2	Shared use path surface is machine laid and smooth, with no defects	2	Cycle route surface is machine laid and smooth, with no defects		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)	More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	2	Recommended widths are maintained throughout whole route		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing	Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	Route signing is poor with signs missing at key decision points.	2	Appropriate signage provided at key locations		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting	Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	Street lighting is on the northern side of the road and so may not provide the levels required along the shared-use path located on the south side of the road	1	Street lighting is on the northern side of the road and so may not provide the levels required along the proposed cycle track located on the south side of the road		
			22. Isolation	Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained	2	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)	Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	0	Pedestrians currently have to share facilities with cyclists	2	Cyclists and pedestrians are separated and both have priority at crossings		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size	Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	2	Signing for wayfinding purposes only and not causing additional obstruction.	2	Signing for wayfinding purposes only and not causing additional obstruction.		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands	Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	No evidence of cycle parking	0	No cycle parking requirement		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 1

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	Factor	Design Principle	Indicators	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands	*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited flexibility to expand, evolve or adapt the cycle route infrastructure provision to accommodate changing demands		
	Cycle Parking		27. Cycle parking can be increased to meet future demands	*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	There is flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (within the Westhill Industrial Estate and at the Tesco superstore)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	1	17%	4	67%	0	0%
	Directness (out of 10)	5	50%	9	90%	0	0%
	Safety (out of 16)	13	81%	16	100%	0	0%
	Comfort (out of 8)	4	50%	8	100%	0	0%
	Attractiveness (out of 10)	5	50%	7	70%	0	0%
	Adaptability (out of 4)	N/A	N/A	3	75%	0	0%
Audit Score Total (out of 54)		**28**	**56%**	**47**	**87%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 2

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1	Limited opportunity to join the route given the inter urban location	1	Minor changes made to improve the connectivity of the cycle route		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	1	The route is a combination of share use path and mixed traffic provision which are poorly connected	2	Proposals create a more continuous route for cyclists using cycle tracks, shared-use and a mixed traffic road		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	Rural setting with limited options or need for a wider network of cycle routes	0	Rural setting with limited options or need for a wider network of cycle routes		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length: 1,920m Crow Flies: 1,850m Deviation Factor: 3.6% Alignment: Follows the main road except diversion via minor road near Cormack Park	2	Link Length: 1,920m Crow Flies: 1,850m Deviation Factor: 3.6% Alignment: Follows the main road except diversion via minor road near Cormack Park		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	0	Cyclists give way at side roads (assumes cyclists are using the shared-use path)	1	Proposals reduce the frequency cyclists give way but the speed of traffic and limited opportunity to off-set side road crossings suggesting only some improvement can be made		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	Overall delay for cyclists likely to be greater than the overall delay for motor traffic	1	Improvements at AWPR junction		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	1	Narrow shared use path makes it more difficult for cyclist to pass one another	2	Cycle track provide additional space for cyclists		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1	Elevation Max: 137m Elevation Min: 115m Max Slope: 4.4% Average Slope: 2.3% West to East: Downhill to A9119 then uphill to the AWPR	1	Elevation Max: 137m Elevation Min: 115m Max Slope: 4.4% Average Slope: 2.3% West to East: Downhill to A9119 then uphill to the AWPR		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 2

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2	There is a shared-use path on the northern side of the road so cyclists do not need to use the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	2	There is a shared-use path on the northern side of the road so cyclists do not need to use the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	2	There is a shared-use path on the northern side of the road so cyclists do not need to use the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	2	There is a shared-use path on the northern side of the road so cyclists do not need to use the road	2	The 2-way cycle track provides a segregated provision so cyclists do not need to share the road		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side road junctions are infrequent but untreated	1	Side road are infrequent but priority crossings are provided where achievable		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Generally legible road markings and road layout but some elements could be improved	2	Clear, understandable, simple road markings to be provided as part of the proposed road layout		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	2	Urban clearway so no kerbside activity permitted. Shared use path has a verge	2	Urban clearway so no kerbside activity permitted. Cycle track and shared use path sections have a verge		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	1	The shared use path includes some physical obstacles (guard railing, sign posts) but there is sufficient space to avoid them	2	Proposals will reduce the number of physical obstacles within or close to the cycle track and footway		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 2

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1	Minor and occasional defects along shared use path and minor road	2	Resurfacing along the cycle tack/ footway will remove all defects		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1	As above	2	As above		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	Shared use path width does not meet desirable minimum values	1	Proposed cycle track meets desirable minimum values assuming widen of the highway can be achieved. Section of shared-use path does not meet desirable minimum values		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	No route signing identified but linear route with few decision points	1	Proposals will include directional signing and route branding. Details to be provided at the next design stage		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	Standard highway lighting	1	Standard highway lighting		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	Majority of route alongside main road although vehicle speeds high. The section using the minor access road has poor natural surveillance	1	Majority of route alongside main road although traffic speeds high. The section using the minor access road has poor natural surveillance		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1	Narrow shared use path although pedestrian footfall likely to be low	2	Segregated provision provided and improved crossing provision		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	0	Directional road signage only	1	Proposals will introduce appropriate signage for cycle route wayfinding and branding. Details to be provided at the next design stage		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	No cycle parking identified/ required	0	No cycle parking identified/ required		

Cycle Level of Service Assessment
Link 2

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited flexibility to expand, evolve or adapt the cycle route infrastructure provision to accommodate changing demands		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	There is flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (within the Westhill Industrial Estate and at the Tesco superstore)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	2	33%	3	50%	0	0%
	Directness (out of 10)	4	40%	7	70%	0	0%
	Safety (out of 16)	12	75%	15	94%	0	0%
	Comfort (out of 8)	2	25%	6	75%	0	0%
	Activeness (out of 10)	3	30%	5	50%	0	0%
	Adaptability (out of 4)	N/A	N/A	3	75%	0	0%
Audit Score Total (out of 54)		**23**	**46%**	**39**	**72%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
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Cycle Level of Service Assessment
Link 3

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1	Limited opportunity to join the route given the inter urban location but connection to the residential areas of Kingswells available via Old Skene Road	1	Limited opportunity to join the route given the inter urban location but connection to the residential areas of Kingswells available via Old Skene Road		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	1	The route is linear with few decision points required but the route along Old Skene Road is not as clear as it could be	2	Proposals create a more continuous route for cyclists using cycle tracks, shared-use and a mixed traffic road (Old Skene Road)		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	Limited evidence of a wider cycle network connecting to Prime Four, the Park & Ride site, Fairley and Kingswells	1	Limited evidence of a wider cycle network but increased opportunityto connect the route to Prime Four, the Park & Ride site, Fairley and Kingswells		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length: 2,540m Crow Flies: 2,470m Deviation Factor: 2.8% Alignment: Route follows A944 and Old Skene Road	2	Link Length: 2,540m Crow Flies: 2,470m Deviation Factor: 2.8% Alignment: Route follows A944 and Old Skene Road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	0	Cyclists give way at side roads (assumes cyclists are using the shared-use path)	0	Proposals reduce the frequency cyclists give way but the speed of traffic and limited opportunity to off-set side road crossings suggesting only minor improvements can be made		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	Overall delay for cyclists likely to be greater than the overall delay for motor traffic	1	Improvements made to the AWPR, Kingswells Causeway and Fairley Road junctions		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0	Narrow shared use path makes it more difficult for cyclist to pass one another	2	Cycle track provide additional space for cyclists		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1	Elevation Max: 147m Elevation Min: 135m Max Slope: 5.3% Average Slope: 1.5% West to East: Incline from the AWPR to the PFS, then level before short decline section before the Jessiefield r/a	1	Elevation Max: 147m Elevation Min: 135m Max Slope: 5.3% Average Slope: 1.5% West to East: Incline from the AWPR to the PFS, then level before short decline section before the Jessiefield r/a		

Project: A944/ A9119 Active Travel Corridor
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Cycle Level of Service Assessment
Link 3

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	At junctions there is a shared-use path on the northern side of the road so cyclists do not use the road. The only exception is along Old Skene Road which has a 30mph speed limit	2	At junctions there is a cycle track and shared-use facilities on the northern side of the road so cyclists do not use the road. Old Skene Road is traffic calmed within a cycle street reducing traffic speeds to less than 20mph		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	There is a shared-use path on the northern side of the road so cyclists do not use the road. The only exception is along Old Skene Road which has a 30mph speed limit	2	There is cycle track on the northern side of the road so cyclists do not use the road. Old Skene Road is traffic calmed within a cycle street reducing motor vehicle speeds to less than 20mph		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	2	There is a shared-use path on the northern side of the road so cyclists do not use the road. Traffic flows on Old Skene Road considered to be low	2	There is cycle track on the northern side of the road so cyclists do not use the road. Traffic flows on Old Skene Road will remain low		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	0	There is a shared-use path on the northern side of the road so cyclists do not use the road. Cyclists share the road along Old Skene Road which is a wide single carriageway road with on-street parking.	2	There is cycle track on the northern side of the road so cyclists do not use the road. Cyclists share the road along Old Skene Road which becomes a cycle street with narrow lanes allowing a safe primary riding position maintained		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side road junctions are infrequent and untreated	1	Side road junctions are infrequent but treated		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Generally legible road markings and road layout but some elements could be improved	2	Clear, understandable, simple road markings to be provided as part of the proposed road layout		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	1	Most of the route is an urban clearway so no kerbside activity permitted. The section of Old Skene Road is heavily parking but activity likely to be low	2	Urban clearway so no kerbside activity permitted. The layout of Old Skene Road is changed to a cycle street where buffer zones zones are provided around parking bays to reduce collision risk for cyclists		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	1	The shared use path includes some physical obstacles (guard railing, sign posts) but there is sufficient space to avoid them	2	Proposals will reduce the number of physical obstacles within or close to the cycle track and footway		

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Cycle Level of Service Assessment
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Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1	Minor and occasional surface defects along shared use path and minor road	2	Resurfacing along the cycle track, shared-use and mixed traffic areas will remove all surface defects		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1	As above	2	As above		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	Shared-use path and cycle track width do not meet desirable minimum values	2	Proposed cycle track and cycle street sections meet desirable minimum values. This assumes narrowing of the central reservation along the A944 can be achieved		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	No route signing identified but linear route with few decision points	1	Proposals will include directional signing and route branding. Details to be provided at the next design stage		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	Standard highway lighting	1	Standard highway lighting		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	Majority of route alongside main road although vehicle speeds high. The section using Old Skene Road has good natural surveillance given residential property frontages but the shared-use path is secluded with no natural surveillance	1	Majority of route alongside main road although vehicle speeds high. The section using Old Skene Road has good natural surveillance given residential property frontages but the shared-use path is secluded with no natural surveillance		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1	Narrow shared use path although pedestrian footfall likely to be low	2	Segregated provision and improved crossing provision provided		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	0	Directional road signage only	1	Proposals will introduce appropriate signage for cycle route wayfinding and branding. Details to be provided at the next design stage		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	No cycle parking identified/ required	0	No cycle parking identified/ required		

Cycle Level of Service Assessment
Link 3

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited flexibility to expand, evolve or adapt the cycle route infrastructure provision to accommodate changing demands		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	There is flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (within Prime Four and at the P&R)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	2	33%	4	67%	0	0%
	Directness (out of 10)	3	30%	6	60%	0	0%
	Safety (out of 16)	7	44%	15	94%	0	0%
	Comfort (out of 8)	2	25%	7	88%	0	0%
	Activeness (out of 10)	3	30%	5	50%	0	0%
	Adaptability (out of 4)	N/A	N/A	3	75%	0	0%
Audit Score Total (out of 54)		**17**	**34%**	**40**	**74%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 4

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1	Limited opportunity to join the route given the inter urban location of Skene Road but the opportunites improve along Queen's Road which has more urban surrounding and increased side roads	1	Changes made to improve the connectivity of the cycle route to side roads although further work is required to ensure the cycle track is on the southern side of the road connects to areas to the north of Queen's Road		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	The shared-use path is not continuous and the designation between shared-use and footway is unclear. Cyclists are on-road between Woodend Crescent and the King's Gate roundabout	2	A continous route is provide predominalty using a 2-way cycle track but short sections of share-use path are required in areas where the highway boundary and/ or trees constrain road widening.		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network to connect to and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but there are opportunities to make connections to wider destinations e.g. Hazlehead Academy and Woodend Hospital		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length: 2,510m Crow Flies: 2,430m Deviation Factor: 3.2% Alignment: Route follows main road	2	Link Length: 2,510m Crow Flies: 2,430m Deviation Factor: 3.2% Alignment: Route follows main road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	0	Cyclists give way at side roads (assumes cyclists are using the shared-use path)	1	Proposals reduce the frequency cyclists give way but the speed of traffic and limited opportunity to off-set side road crossings suggests futher improvements could be made		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	Cyclist can bypass the Cemetery and Groats Road jucntions by using the share-use path but they share the road with traffic at the Provost Graham Avenue junction	2	The bypass of the Cemetery and Groats Road jucntions is improved with the two-way cycle track. A separate bypass road (again with a 2-way cycle track) is provided at the Provost Graham Avenue junction		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0	The shared-use path is narrow and the traffic lane widths within the on-road section are narrow	2	The 2-way cycle track and short section of widened shared-use areas provide cyclists more space to maintain their own speed		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1	Elevation Max: 135m Elevation Min: 97m Max Slope: 6.8% Average Slope: 2.2% West to East: Steady decline	1	Elevation Max: 135m Elevation Min: 97m Max Slope: 6.8% Average Slope: 2.2% West to East: Steady decline		

Cycle Level of Service Assessment
Link 4

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	Cyclists have a narrow shared-use path on the northern side of the road. Some cyclists may therefore use the road which has a part 30 part 40 mph speed limit. Between Woodend Crescent and the King's Gate roundabout cyclists are on-road within a 30 mph speed limit	2	Cyclists have a segregated 2-way cycle track and short section of widened shared-use path which will reduce levels of on-road cycling and the risk/ severity of collisions		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	Cyclists have a narrow shared-use path on the northern side of the road. Some cyclists may therefore use the road which has a part 30 part 40 mph speed limit. Between Woodend Crescent and the King's Gate roundabout cyclists are on-road within a 30 mph speed limit	2	Cyclists have a segregated 2-way cycle track and short section of widened shared-use path which will reduce levels of on-road cycling and the risk/ severity of collisions		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	0	Cyclists have a narrow shared-use path on the northern side of the road. Some cyclists may therefore use the road which has a high traffic flow (16,881 AADT with <2% HGV). Cyclists also on-road to the west of the King's Gate roundabout. Score reflects that only a short section is on-road i.e. no critical fail	2	Cyclists have a segregated 2-way cycle track and short section of widened shared-use path which will reduce levels of on-road cycling and the risk/ severity of collisions		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	0	Cyclists have a narrow shared-use path on the northern side of the road but there is a short section of on-road provision to the west of the King's Gate roundabout. Some cyclists may therefore use the road where they will be in a traffic lane with a critical width. Score reflects that only a short section is on-road i.e. no critical fail	2	Cyclists have a segregated 2-way cycle track and short section of widened shared-use path which will reduce levels of on-road cycling and therefore need to share a traffic lane with a critical width		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side roads infrequent but untreated. Cyclists on the share-use path need to give-way	1	Side roads treated but highway boundary constraints make it difficult to off-set the cycle track which reduced the level of protection cylsits have from turning vehicles		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	There is a lack of shared-use path signage and it is not clear when this shared-use path start/ ends close to Craigen junction	2	Clear, understandable, simple road markings to be provided as part of the proposed road layout		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	1	There is potentially some conflict between cyclists on the shared-use path at bus stops. There are no waiting and loading restrictions but there is little demand for kerbside parking	2	Bus stop bypasses are provided and car parking removed on the residential road between Woodend Crescent and the King's Cross roundabout to accommodate the cycle track		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	1	There is little street infrastructure along the link that would 'pen' cyclists into areas that would either contribute to or increase the severity of a collsion	2	The proposals remove the need for cyclists to mix with traffic and therefore need for "evasion room"		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 4

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	2	The condition of the shared-use path looks to be in good condition (based on google streetview). The same true for the road surface between Woodend Crescent and the King's Gate roundabout where cyclists are on-road	2	The proposed cycle track, shared-use path and new footways will have a smooth high grip surface		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	2	Cycle route surface is machine laid and smooth, with no defects	2	Cycle route surface will be machine laid with a smooth high grip surface		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	The shared-use path does not meet the minimum widths or buffer separation requirement set out in CbD	1	The 2-way cycle track is proposed to be 3m wide with a 2m footway meeting the requirements set out in CbD		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	No route signing identified but linear route with few decision points. Limited signing of shared-use path	1	Proposals will include directional signing and route branding. Details to be provided at the next design stage		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	The cycle route is adjacent to or within the road carriagway which has standard road lighting along its extents	2	Lighting columns to be adjusted to ensure the cycle track (located at the back of the footway is appropriately lit		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility	1	Some sections of the link are infrequently overlooked. Vegetation would be managed along the link to ensure good visibility levels are maintained		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	0	Most of the link includes a narrow shared-use path which increases this risk of pedestrians and cyclists coming into conflict. There is increase risk around bus stops	2	Pedestrian comfort levels will improve as the cycle track sections of the route segregate cyclists and pedestrians and where share-use paths exist these are widened		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	There are frequent locations where sign poles reduce the effective width of the shared-use path	1	The cycle track and widened shared-use path will require additional signage in a constrained highway boundary		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	No cycle parking identified/ required	0	No cycle parking identified/ required		

Cycle Level of Service Assessment
Link 4

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited flexibility to expand, evolve or adapt the cycle route infrastructure provision to accommodate changing demands		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	There is flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (within local schools and at Woodend Hospital)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	1	17%	4	67%	0	0%
	Directness (out of 10)	3	30%	8	80%	0	0%
	Safety (out of 16)	5	31%	15	94%	0	0%
	Comfort (out of 8)	4	50%	6	75%	0	0%
	Activeness (out of 10)	4	40%	6	60%	0	0%
	Adaptability (out of 4)	N/A	N/A	3	75%	0	0%
Audit Score Total (out of 54)		**17**	**34%**	**42**	**78%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 5

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0	No protection for cyclists turning left or right (to and from the corridor)	2	Junctions are modified to make it easy for cyclist to enter and exit the cycle tracks on each side of the road. There is no break in the cycle track provision except to negotiate the Anderson Drive junction		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	Continuation of route through junctions is unclear particularly on the approach to the Anderson Drive junction. Advisory cycle lanes end abruptly	2	The proposed cycle tracks and road markings provide a continuous and dedicated route along the road and through junctions		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network to connect to and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but there are opportunities to make connections to wider destinations		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length: 1,350m Crow Flies: 1,270m Deviation Factor: 5.9% Alignment: Route is along the main road	2	Link Length: 1,350m Crow Flies: 1,270m Deviation Factor: 5.9% Alignment: Route is along the man road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	0	The only priority junctions are at the King's Gate and Anderson Drive roundabouts which are both unsuitable for cyclists	2	There are no priority junctions where cyclists need to give-way (excludes Anderson Drive junction)		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	There are no safe routes for cyclists to bypass traffic queuing at junctions	2	Cycle tracks provide a safe route to junction stop lines, allowing cyclists to bypass queued traffic and reduce their overall delay. The cycle tracks will operate at the sake time as the main traffic phases		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0	Cyclists are mixed with traffic and while the traffic lanes are relatively wide it may not be easy to over take other cyclists or queued/ slow vehicles	2	The cycle tracks along this link should be wide enough for cyclists to choose an appropriate speed		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1	Elevation Max: 97m Elevation Min: 64m Max Slope: 6.5% Average Slope: 2.5% West to East: Steady decline	1	Elevation Max: 97m Elevation Min: 64m Max Slope: 6.5% Average Slope: 2.5% West to East: Steady decline		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 5

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X	Cyclists share the road which has a 30mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions at junctions		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0	Cyclists share the road (within advisory cycle lanes) which has a 30mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions along the road		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 AADT and <2% HGV	0-2500 AADT	X	Cyclists share the carriageway (within advisory cycle lanes) with traffic flows that are greater than 10,000 AADT. DfT site number 93006 measured an AADT of 16,881 with an HGV component of 0.4% approx. (2023)	2	The proposals segregate cyclists from this traffic, significantly reducing the risk and severity of collisions along the link		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X	Cyclists share a traffic lane whose width makes it difficult for drivers to overtake cyclists safely	2	The proposals segregate cyclists from motor traffic reducing risk of collision alongside or from behind		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side roads are frequent and untreated	2	Side roads are frequent but proposals reduce the risk of collisions		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Some road markings are worn particularly the advisory cycle lanes but they generally show a clear road layout	2	Road markings for the proposed scheme will show a clear road layout		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	1	Waiting and loading restrictions permit on-street parking for most of the day (except at junction) which requires cyclists to over-take parked cars. Level of kerb-side parking activity not known but considered low	2	The cycle track proposals will introduce a no waiting restriction at anytime. Loading provisions to be confirmed. Bus stop bypasses introduced using areas of shared-use		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	1	Few physical hazards but some lighting columns and all trees located at the front of the footway	2	Proposals will reduce the number of physical hazards along the link and ensure sufficient 'evasion space' is provided where necessary		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 5

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1	Minor and occasional defects (based on google streetview)	2	Proposals will repair all defects within the road carriageway and provide a smooth high grip surface within the cycle track		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1	Cycle route surface is machine laid with some joint and surface defects	2	Cycle route will be machine laid providing a smooth continuous surface		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	No segregated provision for cyclists which is required by CbD given the speed and flow of traffic	2	Proposals introduce cycle tracks which will meet the recommended widths as set out in CbD		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	There is no directional signage only regulatory repeater signage for the advisory cycle lanes which terminate before junctions	2	Regulatory signage will be provided for the cycle track. The cycle route will be branded and included directional signage at key decision points		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	There is standard highway lighting along the link	2	The cycle tracks are located within the existing road (not footway) so will be adequately lit		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2	Existing provision for cyclists is on road so no impact on pedestrian comfort levels	1	The provision for cyclists is mainly on road (within cycle tracks) so no impact on pedestrian comfort levels. There is a proposed section of shared-use path at the Anderson Drive junction but any impact on pedestrians here will be off set by the improved crossing facilities elsewhere along the link. Bus stop bypasses rely on shared-use areas.		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	The route follows a main road so there is a moderate amount of signage along the link and at junctions. Additional cycle dismount signage should be introduced at the Anderson Drive junction	1	The cycle track and shared-use areas at the Anderson Drive junction will require additional regulatory and directional signage but this should not cause obstructions within the footway / cycle track		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	There is no cycle parking reflecting the low demand for cycle parking in this residential area	0	Predominately residential land uses so justification for cycle parking along the link is low. No cycle parking is proposed		

Cycle Level of Service Assessment
Link 5

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited scope to expand, evolve or adapt the cycle route infrastructure to accommodate changing demands. The cycle track widths should however be suitable to meet future demands		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	1	There is some flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (within Hill of Rubislaw Business Park)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	0	0%	5	83%	0	0%
	Directness (out of 10)	3	30%	9	90%	0	0%
	Safety (out of 16)	X	X	16	100%	0	0%
	Comfort (out of 8)	2	25%	8	100%	0	0%
	Activeness (out of 10)	7	70%	6	60%	0	0%
	Adaptability (out of 4)	N/A	N/A	2	50%	0	0%
Audit Score Total (out of 54)		**12**	**24%**	**46**	**85%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
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Cycle Level of Service Assessment
Link 6

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0	No protection for cyclists turning left or right (to and from the corridor)	2	Junctions are modified to make it easy for cyclist to enter and exit the cycle tracks on each side of the road. There is no break in the cycle track provision except to negotiate the Anderson Drive junction		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	Continuation of route through junctions is unclear particularly on the approach to the Anderson Drive junction and at the Queen's Cross roundabout	2	The proposed cycle tracks and road markings provide a continuous and dedicated route along the road and through junctions		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network to connect to and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but there are opportunities to make better connections to wider destinations		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length:1,100m Crow Flies: 1,100m Deviation Factor: 0% Alignment: Route is along the main road	2	Link Length:1,100m Crow Flies: 1,100m Deviation Factor: 0% Alignment: Route is along the main road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	0	The only priority junctions are at the Anderson Drive and Queen's Cross roundabouts which are both unsuitable for cyclists	2	A dutch style roundabout design at the Queen's Cross junction gives cyclists priority through the junction. There are no other priority junctions along this link (excludes Anderson Drive junction)		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	There are no safe routes for cyclist to bypass traffic queuing at signalised junctions	2	Cycle tracks provide a safe route to junction stop lines, allowing cyclists to bypass queued traffic and reduce their overall delay. The cycle track will operate with the main traffic phases		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0	Cyclists are mixed with traffic and while the traffic lanes are relatively wide it may not be easy to over take other cyclists or queued/ slow vehicles	2	The cycle tracks along this link should be wide enough for cyclists to choose an appropriate speed		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1	Elevation Max: 64m Elevation Min: 42m Max Slope: 4.8% Average Slope: 2.2% West to East: Steady decline	1	Elevation Max: 64m Elevation Min: 42m Max Slope: 4.8% Average Slope: 2.2% West to East: Steady decline		

Cycle Level of Service Assessment
Link 6

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X	Cyclists share the road which has a 30mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions at junctions		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0	Cyclists share the road which has a 30mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions along the road		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	X	Cyclists share the carriageway with traffic flows that are greater than 10,000 AADT. DfT site number 967523 measured an AADT of 13,738 with an HGV component of 0.5% approx. (2019)	2	The proposals segregate cyclists from this traffic, significantly reducing the risk and severity of collisions along the link		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X	Cyclists share a traffic lane whose width makes it difficult for drivers to overtake cyclists safely	2	The proposals segregate cyclists from motor traffic reducing risk of collision alongside or from behind		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side roads are frequent and untreated	1	Side roads are frequent but proposals reduce the risk of collisions		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Some road markings are worn but they generally indicate a clear road layout	1	All road markings for the proposed scheme will show a clear road layout. The dutch style (protected track) roundabout at Queen's Cross will introduce a road layout unfamiliar to most drivers		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	X	There are parking bays (P&D and Parking Permit) plus frequently spaces bus stops. There are two schools and several hotels which will increase the level of kerbside activity particularly at the start and the end of the school day	2	The parking bays are removed to accommodate the cycle track and bus stop bypasses (using shared-use areas) provided at some but not all bus stops due to space constraints.		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0	Trees and some lighting columns located at the front of the footway. Bollards present to discourage parking on the footway and guard railing at junction and signal controlled crossings. On-street parking also reduces the 'evasion room' for cyclists	2	Proposals will reduce the number of physical hazards along the link and reduce the need for an 'evasion space'		

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Cycle Level of Service Assessment
Link 6

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1	Minor and occasional defects (based on google streetview)	2	Proposals will repair all defects within the road carriageway and provide a smooth high grip surface within the cycle track		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1	Cycle route surface is machine laid with some joint and surface defects	2	Cycle route will be machine laid providing a smooth continuous surface		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	No segregated provision for cyclists which is required by CbD given the speed and flow of traffic	2	Proposals introduce cycle tracks which will meet the recommended widths as set out in CbD		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	There is no dedicated cycle signage only regulatory and directional signage for motor traffic	2	Regulatory signage will be provided for the cycle track. The cycle route will be branded and included directional signage at key decision points		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	There is standard highway lighting along the link	2	The cycle tracks are located within the existing road (not footway) so will be adequately lit		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2	Existing provision for cyclists is on road so there is no impact on pedestrian comfort levels	1	Provision for cyclists is mainly on road (within cycle tracks) so no impact on pedestrian comfort levels. There is a proposed section of shared-use path at the Anderson Drive junction but any impact on pedestrians here will be off set by the improved crossing facilities elsewhere along the link. Bus stop bypasses rely on shared-use areas.		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	The route follows a main road so there is a moderate level of signage along the link (parking) and at junctions. Additional cycle dismount signage should be introduced at the Forest Road and Queen's Cross junctions	1	The cycle track and dutch style (protected track) roundabout at Queen's Cross will require additional regulatory and directional signage but this should not cause obstructions to the footway/ cycle track		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	There is no cycle parking along the link	0	No cycle parking is proposed along the link although there is potential to increase cycle parking provision at schools, offices and hotels along the route		

Cycle Level of Service Assessment
Link 6

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited scope to expand, evolve or adapt the cycle route infrastructure to accommodate changing demands. The cycle track widths should however be suitable to meet future demands		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	There is flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (at schools, offices and hotels along this section of Queen's Road)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	0	0%	5	83%	0	0%
	Directness (out of 10)	3	30%	9	90%	0	0%
	Safety (out of 16)	X	X	14	88%	0	0%
	Comfort (out of 8)	2	25%	8	100%	0	0%
	Activeness (out of 10)	7	70%	6	60%	0	0%
	Adaptability (out of 4)	N/A	N/A	3	75%	0	0%
Audit Score Total (out of 54)		**12**	**24%**	**45**	**83%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 7

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1	No protection for cyclists turning left or right (to and from the corridor) but ASL provided at signalised cross roads	2	Junctions are modified to make it easy for cyclist to enter and exit the cycle tracks on each side of the road		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	Continuation of route through junctions is unclear particularly on the approach to the Queen's Cross roundabout and the Rosemount Viaduct junction	2	The proposed cycle tracks and road markings provide a continuous and dedicated route along the road and through junctions		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network to connect to and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but there are opportunities to make better connections to wider destinations		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length: 1,430m Crow Flies: 1,400m Deviation Factor: 2.0% Alignment: Route is along the main road	2	Link Length: 1,430m Crow Flies: 1,400m Deviation Factor: 2.0% Alignment: Route is along the main road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	1	There are no priority junctions where cyclists need to give-way There are 4 signalised junctions where cyclists may need to stop	1	There are no priority junctions where cyclists need to give-way While the 4 signalised junctions will include an 'early release' for cyclists this does not reduced the potential stopping frequency		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	There are no safe routes for cyclist to bypass traffic queuing at signalised junctions	2	Cycle tracks provide a safe route to junction stop lines, allowing cyclists to bypass queued traffic and reduce their overall delay. The cycle track will operate with the main traffic phases		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0	Cyclists are mixed with traffic and while the traffic lanes are relatively wide it may not be easy to over take other cyclists or queued/ slow vehicles	2	The cycle tracks along this link should be wide enough for cyclists to choose an appropriate speed		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	0	Elevation Max: 42m Elevation Min: 22m Max Slope: 7.6% Average Slope: 1.7% West to East: Steady decline with slope greatest between Rose Street and Summer Street	0	Elevation Max: 42m Elevation Min: 22m Max Slope: 7.6% Average Slope: 1.7% West to East: Steady decline with slope greatest between Rose Street and Summer Street		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 7

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0	Cyclists share the road which has a 30mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions at junctions Proposed 'early release' at signalised junctions		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0	Cyclists share the road which has a 30mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions along the road		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	1	Traffic flows lower than Link 6 and no local bus services	2	The proposals segregate cyclists from this traffic, significantly reducing the risk and severity of collisions along the link		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X	Cyclists share a traffic lane whose width makes it difficult for drivers to overtake cyclists safely On-street parking increases the risk to cyclists	2	The proposals segregate cyclists from motor traffic reducing risk of collision alongside or from behind		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side roads and driveway accesses are frequent and untreated	1	Side roads and driveway accesses are frequent but proposals reduce the risk of collisions		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Some road markings are worn but they generally indicate a clear road layout	2	The proposals will include new road marking which will make the road layout clear and understandable		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	1	There are frequent parking bays (P&D and Parking Permit). No bus stops c.f. link 6	2	The parking bays are removed to accommodate the cycle tracks		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0	Trees and some lighting columns located at the front of the footway. Bollards present to discourage parking on the footway On-street parking also reduces the 'evasion room' for cyclists	2	Proposals will reduce the number of physical hazards along the link and reduce the need for an 'evasion space'		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 7

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1	Minor and occasional defects (based on google streetview)	2	Proposals will repair all defects within the road carriageway and provide a smooth high grip surface within the cycle track		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1	Cycle route surface is machine laid with some joint and surface defects	2	Cycle route will be machine laid providing a smooth continuous surface		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	No segregated provision for cyclists which is required by CbD given the speed and flow of traffic	2	Proposals introduce cycle tracks which will meet the recommended widths as set out in CbD		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	There is no dedicated cycle signage only regulatory and directional signage for motor traffic.	2	Regulatory signage will be provided for the cycle track. The cycle route will be branded and included directional signage at key decision points		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	There is standard highway lighting along the link	2	The cycle tracks are located within the existing road (not footway) so will be adequately lit		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2	Existing provision for cyclists is on road so there is no impact on pedestrian comfort levels	2	Provision for cyclists is mainly on road (within cycle tracks) so no impact on pedestrian comfort levels There are improved pedestrian crossing facilities at all side roads and signalised junctions (particularly at the Rosemount Viaduct junction)		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	The route follows a main road so there is a moderate level of signage along the link (parking) and at junctions. Additional cycle dismount signage should be introduced at the Queen's Cross junctions	1	The cycle track and modified junction with Rosemount Viaduct will require additional regulatory and directional signage but this should not cause obstructions to the footway/ cycle track		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	There is no cycle parking along the link	1	No cycle parking is proposed along the link although there is potential to increase cycle parking provision at eastern end of Skene Street where the street frontage becomes more retail plus church		

Cycle Level of Service Assessment
Link 7

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	0	There is no scope to expand, evolve or adapt the cycle route infrastructure to accommodate changing demands. The cycle track widths should however be suitable to meet future demands		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	1	There is some flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (at eastern end of Skene Street)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	1	17%	5	83%	0	0%
	Directness (out of 10)	3	30%	7	70%	0	0%
	Safety (out of 16)	X	X	15	94%	0	0%
	Comfort (out of 8)	2	25%	8	100%	0	0%
	Activeness (out of 10)	7	70%	8	80%	0	0%
	Adaptability (out of 4)	N/A	N/A	1	25%	0	0%
Audit Score Total (out of 54)		**13**	**26%**	**44**	**81%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 8

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0	No protection for cyclists turning left or right (to and from the corridor)	1	There are good connections between the cycle track and side roads to the north of King's Gate. Access from sides roads to the south could be improved		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	There is no dedicated cycle route so cyclists are on-road relying on standard road signs	2	The proposed cycle track provides a continuous and dedicated route along the road and through junctions. The Toucan crossing near Summerhill Road provides a good connection to the mixed traffic section		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network to connect to and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but there are opportunities to make connections to wider destinations		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	1	Link Length: 992m Crow Flies: 860m Deviation Factor: 13% Alignment: Route is close to the main road	1	Link Length: 992m Crow Flies: 860m Deviation Factor: 13% Alignment: Route is close to the main road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	2	There are no priority junctions along the link (assumes cyclists are on-road)	2	The cycle track crosses several priority side roads by the proposals maintain cycle priority at these locations		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	There are no safe routes for cyclist to bypass traffic queuing at signalised junctions	1	The cycle track provides a safe and clear route to signalised junctions but the cycle crossing will operate as part of the pedestrian phases so the journey time benefit will be reduced		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0	Cyclists are mixed with traffic and while the traffic lanes are relatively wide it may not be easy to over take other cyclists or queued/ slow vehicles	2	The cycle tracks along this link is wide enough for cyclists to choose and appropriate speed. This will be the same for the mixed traffic street section		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1	Elevation Max: 97m Elevation Min: 83m Max Slope: 6.6% Average Slope: 2.4% West to East: Slight decline	1	Elevation Max: 97m Elevation Min: 83m Max Slope: 6.6% Average Slope: 2.4% West to East: Slight decline		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 8

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0	Cyclists share the road with motor traffic which has a 30mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions at junctions. The mixed traffic section is within a 20mph zone		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X	Cyclists share the road with motor traffic which has a 30mph speed limit but 85th percentile speeds are likely to be higher	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions along the road. The mixed traffic section is within a 20mph zone		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	1	Traffic flows estimated to have an AADT 2,500-5000 with the proportion of HGV likely to be <2%	2	The proposals segregate cyclists from this traffic, significantly reducing the risk and severity of collisions along the link. The mixed traffic section has and AADT of less than 2,500		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X	Cyclists share a traffic lane whose width makes it difficult for drivers to overtake cyclists safely i.e. in the critical range On King's Cross Road cyclists can safely adopt a primary riding position	2	The proposals segregate cyclists from motor traffic reducing risk of collision alongside or from behind. The mixed traffic section has narrow traffic lanes		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side roads are frequent and untreated	2	Side roads are frequent but proposals reduce the risk of collisions		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Some road markings are worn but they generally indicate a clear road layout	2	Road markings for the proposed scheme will show simple and clear road layout		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	2	The road has a mix of kerbside restrictions (no waiting at anytime and unrestricted). The residential frontages and service road suggests on-street parking demand is low. The King's Cross Road section has some on-street parking	2	The cycle track will isolate cyclists from any on-street parking provision		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0	Few physical hazards although some lighting columns and all trees located at the front of the footway	2	The cycle track will need to bypass mobile phone masts and utility cabinets and road signs relocated to reduce the number of physical hazards		

Cycle Level of Service Assessment
Link 8

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	2	The road surface looks well maintained (based on google streetview)	2	The proposals will provide a surface along the cycle route which is free from defects		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	2	Cycle route surface (within the traffic lane) is machine laid providing a smooth, high grip and level surface	2	The proposals will provide a smooth, high grip level surface along the cycle track.		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	There is no segregated provision for cyclists which is required by CbD given the speed and flow of traffic along King's Gate	2	Proposals introduce a 2-way cycle track which will meet the recommended widths as set out in CbD		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	With no dedicated cycle route, cyclists rely on regulatory and directional signage for motor traffic	2	Regulatory signage will be provided for the cycle track. The cycle route will be branded and include directional signage at key decision points		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	There is standard highway lighting along the link	2	The cycle track is located between the footway and road carriageway. The lighting columns are located at the back of the footway. Existing lighting levels should therefore be adequate for the cycle track		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties	2	The cycle link has good levels of natural surveillance from those in passing vehicles and residents of adjacent properties		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2	The existing provision for cyclists is on road so there is no impact on pedestrian comfort levels	2	The 2-way cycle track requires the verge and a narrowing of the road carriageway. There is no impact on the existing footway which will be widened at locations that are currently less than 2m. Pedestrian crossing facilities will be improved at Stronsay Road and a new Toucan crossing introduced to the west of the Summerhill Road		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	The cycle route follows a main road with few junctions and a residential frontage so there is a moderate level of signage along the link and at junctions	1	The cycle track will require additional regulatory and directional signage but this should not obstruct the footway, cycle route or significantly increase street clutter		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	There is no cycle parking within the highway boundary reflecting low demand in residential areas	0	No cycle parking is proposed within the highway due to surrounding land uses likely to remain unchanged		

Cycle Level of Service Assessment
Link 8

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited scope to expand, evolve or adapt the cycle track but the cycle track widths should be sufficient to accommodate future demand		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	1	Established residential land uses and few destinations suggests the justification for increasing cycle parking in future is low		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (2)	
Sub-Totals	**Cohesion** (out of 6)	0	0%	4	67%	0	0%
	Directness (out of 10)	4	40%	7	70%	0	0%
	Safety (out of 16)	X	X	16	100%	0	0%
	Comfort (out of 8)	4	50%	8	100%	0	0%
	Activeness (out of 10)	7	70%	7	70%	0	0%
	Adaptability (out of 4)	N/A	N/A	2	50%	0	0%
Audit Score Total (out of 54)		**15**	**30%**	**44**	**81%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
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Cycle Level of Service Assessment
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	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1	Cyclists can connect with other routes with minimal disruption to their journey via standard priority junctions	2	The proposals improve the safety of junctions along the route making it easier and safer for cyclists to connect to other routes	2	The proposals improve the safety of junctions along the route making it easier and safer for cyclists to connect to other routes
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	The route uses several residential roads and with no cycle route infrastructure cyclists must relying on standard road signs	1	The proposals include cycle tracks and mixed traffic sections using residential roads to form a dedicated cycle route	1	The proposals include cycle tracks, cycle street and mixed traffic sections using residential roads to form a dedicated cycle route
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network to connect to and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but the route does create opportunities to make connections to wider destinations	1	The proposals do not improve the wider cycle route network but the route does create opportunities to make connections to wider destinations
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	0	Link Length: 1,730m Crow Flies: 1,420m Deviation Factor: 18% Alignment: Route is not along the main road	0	Link Length: 1,730m Crow Flies: 1,420m Deviation Factor: 18% Alignment: Route is not along the main road	0	Link Length: 1,730m Crow Flies: 1,420m Deviation Factor: 18% Alignment: Route is not along the main road
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	1	At priority junctions cyclists give way to motor traffic on a similar number of occasions as motor traffic give way to cyclists	1	At priority junctions cyclists give way to motor traffic on a similar number of occasions as motor traffic give way to cyclists. The Desswood Place cycle track give-ways are compensated by the Parallel crossing on Forest Road and Carden Place	1	At priority junctions cyclists give way to motor traffic on a similar number of occasions as motor traffic give way to cyclists. The Desswood Place cycle track give-ways are compensated by the Parallel crossing on Forest Road and Carden Place
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	2	There are no signalised junctions along the link	2	There are no signalised junctions along the link	2	There are no signalised junctions along the link
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	1	Cyclists are mixed with traffic on residential streets which are relativley wide	2	The cycle tracks and mixed traffic street are wide enough for cyclists to choose an appropriate speed	2	The cycle tracks, cycle street and mixed traffic street are wide enough for cyclists to choose an appropriate speed
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	0	Elevation Max: 85m Elevation Min: 41m Max Slope: 7.7% Average Slope: 2.9% West to East: Steady decline	0	Elevation Max: 85m Elevation Min: 41m Max Slope: 7.7% Average Slope: 2.9% West to East: Steady decline	0	Elevation Max: 85m Elevation Min: 41m Max Slope: 7.7% Average Slope: 2.9% West to East: Steady decline

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Cycle Level of Service Assessment
Link 9

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Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	Cyclists share residential roads which have a 30mph speed limit except for Albert Lane which is part of a 20mph zone	1	Although the proposals segregate cyclists from motor traffic they are located within a 2-way cycle track on one side of the road. Drivers turning to and from side roads may not realise cycle flows are 2-way leading to a potential increase in collisions. The increased risk of collision compared to the existing layout is considered low given the low number of side roads	2	The proposals introduce traffic calming measures to reduce the 85th percentile speed to < 20mph and so reduce the risk and severity of collisions at junctions. Cyclists are also able to take up a primary riding position improving their visibility at junctions
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	Cyclists share residential roads which have a 30mph speed limit except for Albert Lane which is part of a 20mph zone	2	The proposals segregate cyclists from motor traffic and so reduce the risk and severity of collisions along the carriageway	2	The proposals introduce traffic calming measures to reduce the 85th percentile speed to < 20mph and so reduce the risk and severity of collisions along the carriageway
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	1	Most roads are residential and so likely to have a AADT of <2,500. The only exceptions are Forest Road and Fountainhall Road where the AADT is likely to be between 2,500 and 5,000	2	Most roads are residential and likely to have a AADT of <2,500. The only exceptions are Forest Road and Fountainhall Road where the AADT is likely to be between 2,500 and 5,000 but where segregated cycle route infrastructure is proposed	2	Most roads are residential and likely to have a AADT of <2,500. The only exceptions are Forest Road and Fountainhall Road where the AADT is likely to be between 2,500 and 5,000 but where segregated cycle route infrastructure is proposed
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	1	Some cases include Forest Road and Fountainhall Road	2	Segregated cycle route infrastructure is proposed along Rubislaw Den North, Forest Road, Fountainhall Road and Blenheim Place. On Desswood Lane and Albert Lane traffic flows are below those needing segregated route infrastructure so overall the provision is in line with a high level of service stated within CbD (Table 3.2)	2	Traffic calming measures are introduced to remove the need for segregated cycle route infrastructure however cyclists will still be required to share a relatively busy but short section of Forest Road. Segregated cycle route infrastructure is provided along Fountainhall Road as in Option so overall the provision is in line with a high level of service stated within CbD (Table 3.2)
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side roads (which are infrequent) are untreated and busy priority junctions at Forest Road and Fountainhall Road offer no protection to cyclists from motor traffic turning movements	1	Side road junctions (which are infrequent) are treated and busier priority junctions on Forest Road and Fountainhall Road include measures to protect cyclists from motor traffic turning movements. Cyclists are less protected at the Fountainhall Road j/w Albert Lane	1	Side road junctions (which are infrequent) are treated and busier priority junctions on Fountainhall Road include measures to protect cyclists from motor traffic turning movements. Cyclists are slightly less well protected at the junctions on Forest Road where they are mixed with traffic and at the Fountainhall Road j/w Albert Lane
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1	Road markings are worn but generally indicate a clear road layout	1	The continuation of the 2-way and 1-way cycle track/s along these residential roads creates a slightly more complex design compared to the mixed traffic street layout of Option 2	2	The mixed traffic street provision creates a less complex street layout compared to the 2-way cycle track in Option 1
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	1	It is unclear how much on-street parking activity occurs along Rubislaw Den North. Parking activity is higher on Fountainhall Road given the retail frontages (loading requirement) and as part of the local bus network (bus stops). There are P&D/ Ticket bays along Blenheim Place. There is limited parking along Desswood Lane due to the narrow width of the road	2	Segregated cycle route infrastructure will remove on-street parking along Moray Place, Rubislaw Den North, Fountainhall Road and Blenheim Place. Loading to be retained on Fountainhall Road which may require the cycle track to be suspended over a short section	2	Segregated cycle route will remove on-street parking along Fountainhall Road and Blenheim Place. Loading to be retained on Fountainhall Road which may require the cycle track to be suspended over a short section. Under this option some on-street parking will be retained on Moray Place and Rubislaw Den North cf Option 1 but the additional risk from kerbside activity this generates is likely to be small
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0	There are physical hazards that reduce the evasion space. They include parked cars, footway bollards/ guard railing (Fountainhall Road), boundary walls on road without footways (Albert Lane, Desswood Lane), lighting columns (front of footway), sign posts and utility cabinets	1	The proposals will minimise the physical hazards that reduce the 'evasion space' along the link. There is no perceived difference compared to Option 2	1	The proposals will minimise the physical hazards that reduce the 'evasion space' along the link. There is no perceived difference compared to Option 1

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Cycle Level of Service Assessment
Link 9

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	0	The road surface has numerous minor and several major defects along Rubislaw Den North and Albert Lane (based on google streetview)	2	Proposals will repair all defects within the road carriageway and provide a smooth high grip surface along the cycle route. Full resurfacing proposed along Albert Lane	2	Proposals will repair all defects within the road carriageway and provide a smooth high grip surface along the cycle route. Full resurfacing proposed along Albert Lane and Rubislaw Den North
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	0	Cycle route surface is machine laid but with frequent defects	2	The proposals will repair the road to provide a smooth level surface along the cycle route without defects	2	The proposals will repair the road to provide a smooth level surface along the cycle route without defects
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	1	The route uses residential roads that are wide but where the effective width is reduced by on-street parking. Other roads without parking are narrow. In all locations cyclists are comfortably able to adopt a primary riding position	2	The proposals introduce cycle tracks and mixed traffic streets with widths that comply with CbD	2	The proposals introduce cycle tracks, cycle streets and mixed traffic streets with widths that comply with CbD
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	With no dedicated cycle route, cyclist rely on regulatory and directional signage for motor traffic	2	Regulatory signage will be provided for the cycle track, cycle street and mixed traffic streets. The cycle route will be branded and include directional signage at key decision points	2	Regulatory signage will be provided for the cycle track, cycle street and mixed traffic streets. The cycle route will be branded and include directional signage at key decision points
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	There is standard highway lighting along the link although the provision along Albert Lane may result in areas where levels are not sufficient	2	The existing highway lighting should provide sufficient levels for most of cycle route but a lighting assessment should be undertaken to confirm this focusing on Desswood Lane and Albert Lane. The proposal will deliver suitable lighting levels	2	The existing highway lighting should provide sufficient levels for most of cycle route but a lighting assessment should be undertaken to confirm this focusing on Desswood Lane and Albert Lane. The proposal will deliver suitable lighting levels
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	0	The link includes roads where pedestrians and cyclists may have increased personal safety concerns (particularly at night) due to the lack of natural surveillance. For example along Rubislaw Den North, Desswood Place Lane and Albert Lane	0	While the proposals will ensure good street lighting the route surroundings will not change. Removal of on-street parking on Rubislaw Den North will improve the visibility for pedestrians	0	While the proposals will ensure good street lighting the route surroundings will not change. Removal of on-street parking on Rubislaw Den North will improve the visibility for pedestrians
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1	The existing provision for cyclists is on road so there is no impact on pedestrian comfort levels. The existing provision of pedestrians along the Desswood Lane and Albert Lane is poor due to a lack of footways	0	The proposals make changes to the pedestrian provision but these are both positive/ negative. Pedestrians will need to cross the cycle track (Rubislaw Den North) while new and upgraded crossings are provided (Forest Road, Fountainhall Road) and enhancements made to all side road crossings.	1	The proposals make changes to the pedestrian provision but these are small and positive/ negative. Pedestrians will need to cross the cycle track (Fountainhall Road) while new and upgraded crossings are provided (Forest Road, Fountainhall Road). The cycle street will make it easier to cross Rubislaw Den North
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	The cycle route uses several residential roads where existing signage is minimal. There are greater levels of signage (and street furniture) along Fountainhall Road.	1	The proposed cycle route will require additional signage. A greater level of directional signage is required given the number of roads used. With the footways being relatively narrow this may create additional obstructions but the impact is likely to be minor	1	The proposed cycle route will require additional signage. A greater level of directional signage is required given the number of roads used. With the footways being relatively narrow this may create additional obstructions but the impact is likely to be minor
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	1	There is some cycle parking located on Fountainhall Road (outside the Co-op) which is in a prominent position and well overlooked	2	There are opportunities to improve the cycle parking provision along Fountainhall Road to support local businesses and those visiting the church	2	There are opportunities to improve the cycle parking provision along Fountainhall Road to support local businesses and those visiting the church

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Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 9

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited scope to increase capacity of the proposed cycle route but the proposals meet recommended widths so should be sufficient to accommodate future demand	2	The cycle street has greater opportunity to accommodate a large increase in cycle demand than the cycle tracks whose widths are constrained by the highway boundary and need to maintain a 2-way road
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	Albert Lane provides access to private business car parking which could be used to increase cycle parking provision along the route	2	Albert Lane provides access to private business car parking which could be used to increase cycle parking provision along the route

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (Rubislaw Den North - Cycle	
Sub-Totals	**Cohesion** (out of 6)	1	17%	4	67%	4	67%
	Directness (out of 10)	4	40%	5	50%	5	50%
	Safety (out of 16)	6	38%	12	75%	14	88%
	Comfort (out of 8)	1	13%	8	100%	8	100%
	Activeness (out of 10)	4	40%	5	50%	6	60%
	Adaptability (out of 4)	N/A	N/A	3	75%	4	100%
Audit Score Total (out of 54)		**16**	**32%**	**37**	**69%**	**41**	**76%**

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Cycle Level of Service Assessment
Link 10

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0	The dual carriageway creates a severance to cycle crossing movements with no suitable and few convenient crossing facilities	1	The proposals provide a compliant cycle route along the eastern side of Anderson Drive with a new Toucan crossing at the northern extent (at King's Cross Road). There are no improvements proposed at the southern extent (at Hill of Rubislaw)		
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	There is no suitable cycle route due to the speed and volume of motor traffic on Anderson Drive. Cyclists are therefore more likely to use the footway which are continuous but too narrow for shared-use	2	The proposals provide a continuous cycle track although give-ways are likely at the side road crossing (Rubislaw Den Gardens) due to a lack of highway land to off-set a crossing		
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but the route does create opportunities to make connections to wider destinations		
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	0	Note: This includes Link 11 to make it comparable with Link 9 Link Length: 1,660m Crow Flies: 1,420m Deviation Factor: 14.5% Alignment: Route is not close to main road	0	Note: This includes Link 11 to make it comparable with Link 9 Link Length: 1,660m Crow Flies: 1,420m Deviation Factor: 14.5% Alignment: Route is not close to main road		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	2	There are no priority junctions along the link (assumes cyclists are on road)	2	A give way is proposed within cycle track at the Rubislaw Den Gardens junctions due to the lack of highway land to off-set a crossing. As this is a minor access the score remains unaffected		
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0	Given the speed and flow of traffic on Anderson Drive combined with the traffic lane widths, cyclists have no safe route to bypass traffic on the approach to the Hill of Rubislaw junction	0	The proposed cycle track bypasses the Hill of Rubislaw junction		
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0	Given the speed and flow of traffic on Anderson Drive combined with the traffic lane widths, cyclists have no safe route to bypass slow moving or queued traffic	2	The proposed cycle track gives cyclists a dedicated route which is wide enough for cyclists to choose an appropriate speed		
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	2	Elevation Max: 85m Elevation Min: 82m Max Slope: 4.5% Average Slope: 1.6% West to East: Level	2	Elevation Max: 85m Elevation Min: 82m Max Slope: 4.5% Average Slope: 1.6% West to East: Level		

Cycle Level of Service Assessment
Link 10

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X	Cyclists share the road with motor traffic which has a 40mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions at junctions		
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	Cyclists share the road with motor traffic which has a 40mph speed limit	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions along the road		
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	X	Cyclists share the carriageway with traffic flows that are greater than 10,000 AADT. DfT site number 91161 (SB) = 24,927/ 4.2% HGV (2023) DfT site number 50863 (NB) = 31,871 AADT/ 4.2% HGV (2018)	2	The proposals segregate cyclists from traffic, significantly reducing the risk and severity of collisions along the road		
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X	Cyclists share a traffic lane whose width makes it difficult for drivers to overtake cyclists safely i.e. in the critical range	2	The proposals segregate cyclists from motor traffic, significantly reducing the risk and severity of collisions alongside or from behind		
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	The only side road (Rubislaw Den Gardens) is untreated. This is a minor access so the risk of a collision from a vehicle turning movement is relatively low	1	Cycle track give-ways are introduced to reduce the risk of a collision from vehicles turning into and out of Rubislaw Den Gardens. The highway boundary does not allow the cycle track to be off-set which would remove the need for the give-ways		
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	2	The road markings are in good condition and indicate a clear road layout (google streetview)	2	The proposals add a cycle track on the eastern side of Anderson Drive which requires the removal of the central reservation and realignment of the road carriageway. The cycle track and new road alignment will have road marking which set out a clear and understandable road layout		
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	2	Anderson Road is a strategic dual carriageway road with a 40mph speed limit so kerbside activity will be very limited (urban clearway?)	2	No change is proposed to the classification of the road and so kerbside activity is expected to remain the same		
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	2	There is a grass verge between the road carriageway and the footway and although lighting columns and trees are located within it they are located far enough back from the kerb line to ensure they do not present physical hazards or reduce the evasion space	2	The cycle track provides a route segregated from motor traffic. This cycle track will be close to the trees and the buffer will be a minimum width but this should not significantly impact the safety of the cycle route		

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Cycle Level of Service Assessment
Link 10

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	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	2	The road surface looks well maintained (based on google streetview)	2	The proposals will introduce a surface along the cycle route free from defects		
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1	Cycle route surface is machine laid and smooth with few joint or surface defects. The cycle route however uses a section of cobbled paving which reduces the smoothness and grip of the cycle route surfacing	1	The proposals will introduce a cycle track with a smooth high grip surface. The proposed cycle route however uses a section of cobbled paving which reduces the smoothness and grip of the cycle route surfacing		
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0	There is no segregated provision for cyclists which is required by CbD given the speed and flow of traffic along Anderson Drive	1	The proposals introduce a cycle track which will meet the minimum widths as set out in CbD [The width of the cycle track is constrained by trees and minimum traffic lane requirements along Anderson Lane		
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	With no dedicated cycle route, cyclists rely on regulatory and directional signage for motor traffic	2	Regulatory signage will be provided for the cycle track. The cycle route will be branded and include directional signage at key decision points		
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2	There is standard highway lighting along the link	2	The cycle track will be located between the lighting columns (located within the verge) and the road carriageway. Existing lighting levels should therefore be adequate for the cycle track		
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1	The cycle link has some level of natural surveillance from those in passing vehicles and residents of adjacent properties	1	The cycle link has some level of natural surveillance from those in passing vehicles and residents of adjacent properties		
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	0	The existing provision for cyclists is on road so in theory there should be no impact on pedestrian comfort levels. The speed and flow of traffic however makes on-road cycle unattractive so it can be assumed most cycling occurs on the narrow footways which will have an impact on pedestrian comfort levels	2	The 2-way cycle track requires the verge and a narrowing of the road carriageway. There is no impact on the existing footway but which will be widened at locations that are currently less than 2m (where achievable)		
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	The cycle route follows a main road with few junctions. There is a low level of signage along Anderson Drive and on the approach to the Hill of Rubislaw junction	1	The cycle track will require additional regulatory and directional signage but given space constraints this may limit the opportunity to introduce signage to support the cycle route		
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0	There is no cycle parking within the highway boundary reflecting the lack of destinations accessed directly off this section of Anderson Road	0	No cycle parking is proposed within the highway due to surrounding land uses likely to remain unchanged		

Cycle Level of Service Assessment
Link 10

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited scope to increase capacity of the proposed cycle route. The cycle track only meets minimum desirable widths so may be insufficient to accommodate future demand		
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	There is flexibility to expand, evolve or adapt cycle parking provision to accommodate changing demands (within Hill of Rubislaw Business Park)		

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout	
Sub-Totals	**Cohesion** (out of 6)	0	0%	4	67%	0	0%
	Directness (out of 10)	4	40%	6	60%	0	0%
	Safety (out of 16)	X	X	15	94%	0	0%
	Comfort (out of 8)	3	38%	6	75%	0	0%
	Activeness (out of 10)	4	40%	6	60%	0	0%
	Adaptability (out of 4)	N/A	N/A	3	75%	0	0%
Audit Score Total (out of 54)		**11**	**22%**	**40**	**74%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 11

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	1	Cyclists can connect with other routes with minimal disruption to their journey via standard priority junctions	2	The proposals improve the safety of junctions along the route making it easier and safer for cyclists to connect to other routes	2	The proposals improve the safety of junctions along the route making it easier and safer for cyclists to connect to other routes
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0	The route uses several residential roads and with no cycle route infrastructure cyclists must relying on standard road signs	2	The proposals include cycle tracks and mixed traffic sections using residential roads to form a dedicated cycle route	2	The proposals include cycle tracks, cycle street and mixed traffic sections using residential roads to form a dedicated cycle route
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0	There is no wider cycle route network to connect to and where cycle infrastructure is provided it does not meet the minimum requirements set out in CbD	1	The proposals do not improve the wider cycle route network but the route does create opportunities to make connections to wider destinations	1	The proposals do not improve the wider cycle route network but the route does create opportunities to make connections to wider destinations
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	1	Note: This includes Link 10 to make it comparable with Link 9 Link Length: 1,660m Crow Flies: 1,420m Deviation Factor: 14.5% Alignment: Route is close to the main road	1	Note: This includes Link 10 to make it comparable with Link 9 Link Length: 1,660m Crow Flies: 1,420m Deviation Factor: 14.5% Alignment: Route is close to the main road	1	Note: This includes Link 10 to make it comparable with Link 9 Link Length: 1,660m Crow Flies: 1,420m Deviation Factor: 14.5% Alignment: Route is close to the main road
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic [p.160]	1	At priority junctions cyclists give way to motor traffic on a similar number of occasions as motor traffic give way to cyclists	1	At priority junctions cyclists give way to motor traffic on a similar number of occasions as motor traffic give way to cyclists. There is a cycle only contra-flow section on Queen's Lane North	1	At priority junctions cyclists give way to motor traffic on a similar number of occasions as motor traffic give way to cyclists. There is a cycle only contra-flow section on Queen's Lane North
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	2	There are no signalised junctions along the link	2	There are no signalised junctions along the link	2	There are no signalised junctions along the link
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	1	Cyclists are mixed with traffic and with lane/ road widths that are relatively narrow cyclists should be able to pass slow traffic and other cyclists	1	The cycle tracks and mixed traffic street are wide enough for cyclists to choose an appropriate speed	1	The cycle tracks, cycle street and mixed traffic street are wide enough for cyclists to choose an appropriate speed
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	0	Elevation Max: 82m Elevation Min: 41m Max Slope: 7.2% Average Slope: 3.2% West to East: Steady decline	0	Elevation Max: 82m Elevation Min: 41m Max Slope: 7.2% Average Slope: 3.2% West to East: Steady decline	0	Elevation Max: 82m Elevation Min: 41m Max Slope: 7.2% Average Slope: 3.2% West to East: Steady decline

Cycle Level of Service Assessment
Link 11

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	Cyclists share residential roads which have a 30mph speed limit except for Queen's Lane North and Albert Lane which are part of a 20mph zone	1	Although the proposals segregate cyclists from motor traffic they are located within a 2-way cycle track on one side of the road. Drivers turning to and from side roads may not realise cycle flows are 2-way leading to a potential increase in collisions. The increased risk of collision compared to the existing layout is considered low given the low number of side roads	2	The proposals either segregate cyclists from motor traffic or where they remain shared propose traffic calming measures to reduce the 85th percentile speed to < 20mph and so reduce the risk and severity of collisions at junctions
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1	Cyclists share residential roads which have a 30mph speed limit except for Queen's Lane North and Albert Lane which are part of a 20mph zone	2	The proposals either segregate cyclists from motor traffic or where they remain shared, introduce traffic calming measures to reduce the 85th percentile speed to < 20mph and so reduce the risk and severity of collisions along the carriageway	2	The proposals either segregate cyclists from motor traffic or where they remain shared, introduce traffic calming measures to reduce the 85th percentile speed to < 20mph and so reduce the risk and severity of collisions along the carriageway
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	1	Most roads are residential and so likely to have a AADT of <2,500. The only exceptions is along a short section of Forest Road where the AADT is likely to be between 2,500 and 5,000	2	Most roads are residential and likely to have a AADT of <2,500. The only exception is Forest Road where the AADT is likely to be between 2,500 and 5,000 but where segregated cycle route infrastructure is proposed	2	Most roads are residential and likely to have a AADT of <2,500. The only exception is Forest Road where the AADT is likely to be between 2,500 and 5,000 but where segregated cycle route infrastructure is proposed
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	1	Forest Road	2	Segregated cycle route infrastructure is proposed along Rubislaw Den South, Forest Road and Blenheim Place. On Queen's Lane North and Albert Lane traffic flows are below those needing segregated route infrastructure so overall the provision is in line with a high level of service stated within CbD (Table 3.2)	2	On most roads (Rubislaw Den South, Queen's Lane North, Albert Lane) traffic calming measures are introduced to remove the need for segregated cycle route infrastructure. Segregated cycle route infrastructure is provided on busier roads (Forest Road, Blenheim Place) so overall the provision is in line with a high level of service stated within CbD (Table 3.2)
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0	Side roads (which are infrequent) are untreated and busy priority junctions at Forest Road and Fountainhall Road offer no protection to cyclists from motor traffic turning movements	1	Side road junctions (which are infrequent) are treated and busy priority junctions on Forest Road include measures to protect cyclists from motor traffic turning movements. The Fountainhall Road junction remains untreated	1	Side road junctions (which are infrequent) are treated and busy priority junctions on Forest Road include measures to protect cyclists from motor traffic turning movements. The Fountainhall Road junction remains untreated
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	0	Road markings are worn but generally do not indicate a clear road layout	1	The continuation of the 2-way cycle track along these residential roads creates a slightly more complex design compared to the mixed traffic street layout of Option 2	2	The mixed traffic street provision creates a less complex street layout compared to the 2-way cycle track in Option 1
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	2	There is some on-street parking demand along Rubislaw Den South but it unclear how much activity occurs given the residential frontages. There are P&D/ Ticket bays along Blenheim Place. There is no parking along Queen's Lane North due to the narrow width of the road	2	On-street parking will be removed from Blenheim Place and the northern side of Rubislaw Den South to implement the proposed cycle tracks	2	On-street parking will be removed from Blenheim Place to implement the proposed cycle tracks. Some parking along Rubislaw Den South will be retained as part of the cycle street proposals
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0	There are physical hazards that reduce the evasion space. They include parked cars, footway bollards/ guard railing (Fountainhall Road), boundary walls on road without footways (Albert Lane, Desswood Access Road), lighting columns (front of footway), sign posts and utility cabinets	1	The proposals will minimise the physical hazards that reduce the 'evasion space' along the link. There is no perceived difference compared to Option 2	1	The proposals will minimise the physical hazards that reduce the 'evasion space' along the link. There is no perceived difference compared to Option 1

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Cycle Level of Service Assessment
Link 11

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	0	The road surface has numerous minor and major defects along Rubislaw Den South, Queen's Lane North and Albert Lane (based on google streetview)	2	Proposals will repair all defects within the road carriageway and provide a smooth high grip surface along the cycle route. Full resurfacing proposed along Rubislaw Den South, Queen's Lane North and Albert Lane	2	Proposals will repair all defects within the road carriageway and provide a smooth high grip surface along the cycle route. Full resurfacing proposed along Rubislaw Den South, Queen's Lane North and Albert Lane
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	0	Cycle route surface is machine laid but with frequent defects	2	The proposals will repair the road to provide a smooth level surface along the cycle route without defects	2	The proposals will repair the road to provide a smooth level surface along the cycle route without defects
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	1	The route uses residential roads that are wide but where the effective width is reduced by on-street parking. Other roads without parking are narrow. In all locations cyclists are comfortably able to adopt a primary riding position	2	The proposals introduce cycle tracks and mixed traffic streets using widths that comply with CbD	2	The proposals introduce cycle tracks, cycle streets and mixed traffic streets using widths that comply with CbD
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0	With no dedicated cycle route, cyclist rely on regulatory and directional signage for motor traffic	2	Regulatory signage will be provided for the cycle track and mixed traffic streets. The cycle route will be branded and include directional signage at key decision points	2	Regulatory signage will be provided for the cycle track, cycle street and mixed traffic streets. The cycle route will be branded and include directional signage at key decision points
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	0	There is standard highway lighting along the link but the provision along Queen's Lane North and Albert Lane could result in areas where levels are not sufficient. Tree coverage could do the same along Rubislaw Den South	2	The existing highway lighting should provide sufficient levels for most of cycle route but a lighting assessment should be undertaken to confirm this focusing on Rubislaw Den South, Queen's Lane North and Albert Lane. The proposal will deliver suitable lighting levels	2	The existing highway lighting should provide sufficient levels for most of cycle route but a lighting assessment should be undertaken to confirm this focusing on Rubislaw Den South, Queen's Lane North and Albert Lane. The proposal will deliver suitable lighting levels
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	0	The link includes roads where pedestrians and cyclists may have increased personal safety concerns (particularly at night) due to the lack of natural surveillance. For example along Rubislaw Den South, Queen's Lane North and Albert Lane	0	While the proposals will ensure good street lighting the route surroundings will not change. Removal of on-street parking on Rubislaw Den South will improve the visibility for pedestrians	0	While the proposals will ensure good street lighting the route surroundings will not change. Removal of on-street parking on Rubislaw Den South will improve the visibility for pedestrians
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	0	The existing provision for cyclists is on road so there is no impact on pedestrian comfort levels. The existing provision of pedestrians along the Queen's Lane North and Albert Lane is poor due to a lack of footways	0	The proposals make changes to the pedestrian provision but these are both positive/ negative. Pedestrians will need to cross the cycle track (Rubislaw Den South) while new and upgraded crossings are provided (Forest Road, Fountainhall Road) and enhancements made to all side road crossings	1	The proposals make no change to the pedestrian environment except on Rubislaw Den South where the cycle street will make it easier to cross the road
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1	The cycle route uses several residential roads where existing signage is minimal. There are greater levels of signage on Queen's Lane North to support the one-way working and no entry restriction	1	The proposed cycle route will require additional signage. A greater level of directional signage is required given the number of roads used but this should not lead to levels of signage that would be considered 'street clutter'	1	The proposed cycle route will require additional signage. A greater level of directional signage is required given the number of roads used but this should not lead to levels of signage that would be considered 'street clutter'
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	1	No cycle parking was identified along the link although there is some cycle parking located on Fountainhall Road (outside the Co-op). This provision is in a prominent position and well overlooked	2	There are opportunities to improve the cycle parking provision along Fountainhall Road to support local businesses and those visiting the church	2	There are opportunities to improve the cycle parking provision along Fountainhall Road to support local businesses and those visiting the church

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Link 11

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1	There is limited scope to increase capacity of the proposed cycle route but the proposals meet recommended widths so should be sufficient to accommodate future demand	2	The cycle street has greater opportunity to accommodate a large increase in cycle demand than the cycle tracks whose widths are constrained by the highway boundary and need to maintain a 2-way road
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	2	Albert Lane and Queen's Lane North provides access to private business car parking which could be used to increase cycle parking along the route	2	Albert Lane and Queen's Lane North provides access to private business car parking which could be used to increase cycle parking along the route

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (Rubislaw Den South Cycle	
Sub-Totals	**Cohesion** (out of 6)	1	17%	5	83%	5	83%
	Directness (out of 10)	5	50%	5	50%	5	50%
	Safety (out of 16)	6	38%	12	75%	14	88%
	Comfort (out of 8)	1	13%	8	100%	8	100%
	Activeness (out of 10)	2	20%	5	50%	6	60%
	Adaptability (out of 4)	N/A	N/A	3	75%	4	100%
Audit Score Total (out of 54)		**15**	**30%**	**38**	**70%**	**42**	**78%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Links 5 and 6

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0		2			
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0		2			
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0		1			
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	2	Link Length: 2,450m Crow Flies: 2,270m Deviation Factor: 7.3% Alignment: Route is along the main road. Compare DF for PRA (16.8%) and PRB (15.0%)	2	Link Length: 2,450m Crow Flies: 2,270m Deviation Factor: 7.3% Alignment: Route is along the main road. Compare DF for PRA (16.8%) and PRB (15.0%)		
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	0		2			
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0		2			
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0		2			
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1	Elevation Max: 97m Elevation Min: 43m Max Slope: 6.2% Average Slope: 2.4% West to East: Decline	1	Elevation Max: 97m Elevation Min: 43m Max Slope: 6.2% Average Slope: 2.4% West to East: Decline		

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Links 5 and 6

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X		2			
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0		2			
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	X		2			
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X		2			
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0		1.5			
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1		1.5			
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	X		2			
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0.5		2			

Cycle Level of Service Assessment
Links 5 and 6

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1		2			
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1		2			
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0		2			
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0		2			
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2		2			
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	2		2			
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2		1			
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1		1			
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0		0			

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Links 5 and 6

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1			
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	1.5			

Summary		Existing Road Layout		Proposed Road Layout (1)			
Sub-Totals	**Cohesion** (out of 6)	0	0%	5	83%	0	0%
	Directness (out of 10)	3	30%	9	90%	0	0%
	Safety (out of 16)	X	X	15	94%	0	0%
	Comfort (out of 8)	2	25%	8	100%	0	0%
	Activeness (out of 10)	7	70%	6	60%	0	0%
	Adaptability (out of 4)	N/A	N/A	2.5	63%	0	0%
	Audit Score Total (out of 54)	**12**	**24%**	**46**	**84%**	**0**	**0%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Links 8 and 9 (PR-A)

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0.5		1.5		1.5	
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0		1.5		1.5	
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0		1		1	
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	0	Link Length: 2,740m Crow Flies: 2,280m Deviation Factor: 16.8% Alignment: Route is not along the main road. Compare DF for MR (7.2%) and PRB (15.0%)	0	Link Length: 2,740m Crow Flies: 2,280m Deviation Factor: 16.8% Alignment: Route is not along the main road. Compare DF for MR (7.2%) and PRB (15.0%)	0	Link Length: 2,740m Crow Flies: 2,280m Deviation Factor: 16.8% Alignment: Route is not along the main road. Compare DF for MR (7.2%) and PRB (15.0%)
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	1.5		1.5		1.5	
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	1		1.5		1.5	
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0.5		2		2	
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	0	Elevation Max: 97m Elevation Min: 41m Max Slope: 7.2% Average Slope: 2.7% West to East: Level along King's Gate and Carnegie Place followed by decline along RDN to Fountainhall Road	0	Elevation Max: 97m Elevation Min: 41m Max Slope: 7.2% Average Slope: 2.7% West to East: Level along King's Gate and Carnegie Place followed by decline along RDN to Fountainhall Road	0	Elevation Max: 97m Elevation Min: 41m Max Slope: 7.2% Average Slope: 2.7% West to East: Level along King's Gate and Carnegie Place followed by decline along RDN to Fountainhall Road

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Links 8 and 9 (PR-A)

Stantec

Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	0.5		1.5		2	
		10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X		2		2	
Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	1		2		2	
Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X		2		2	
	A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0		1.5		1.5	
Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1		1.5		2	
Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	1.5		2		2	
Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0		1.5		1.5	

Cycle Level of Service Assessment
Links 8 and 9 (PR-A)

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1		2		2	
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1		2		2	
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0.5		2		2	
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0		2		2	
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1.5		2		2	
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1		1		1	
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1.5		1		1.5	
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1		1		1	
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0.5		1		1	

Cycle Level of Service Assessment
Links 8 and 9 (PR-A)

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1		1.5	
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	1.5		1.5	

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (Rubislaw Den North - Cycle	
Sub-Totals	**Cohesion** (out of 6)	0.5	8%	4	67%	4	67%
	Directness (out of 10)	3	30%	5	50%	5	50%
	Safety (out of 16)	X	X	14	88%	15	94%
	Comfort (out of 8)	2.5	31%	8	100%	8	100%
	Activeness (out of 10)	5.5	55%	6	60%	6.5	65%
	Adaptability (out of 4)	N/A	N/A	2.5	63%	3	75%
Audit Score Total (out of 54)		**12**	**23%**	**40**	**73%**	**42**	**77%**

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Links 8, 10 and 11 (PR-B)

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network	1. Ability to join/ leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0.3		1.3		1.5	
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions	Cyclists are provided with a continuous route, including through junctions	0.0		2.0		2.0	
	Density of network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m	3. Density of routes based on mesh width i.e. distances between primary and secondary routes within the network		Cycle network density is greater than 800 m between key primary and secondary routes. Cycle users must dismount or are 'abandoned' at the end of a route [p.30]	Cycle network density is 200-800 m between key primary and secondary routes. Cycle routes contribute to a network but users experience some disruption when connecting between routes, and navigation may be difficult [p.30]	Cycle network density is less than 200 m between key primary and secondary routes. Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive [p.30]	0.0		1.0		1.0	
Directness	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative		Cycle route is more than 20% less direct than the equivalent motor traffic journey	Cycle route is up to 20% less direct than the equivalent motor traffic journey	Cycle route is at least as direct as the equivalent motor traffic journey	1.0	Link Length: 2,670m Crow Flies: 2,270m Deviation Factor: 15.0% Alignment: Route is not along the main road. Compare DF for MR (7.2%) and PRA (16.8%)	1.0	Link Length: 2,670m Crow Flies: 2,270m Deviation Factor: 15.0% Alignment: Route is not along the main road. Compare DF for MR (7.2%) and PRA (16.8%)	1.0	Link Length: 2,670m Crow Flies: 2,270m Deviation Factor: 15.0% Alignment: Route is not along the main road. Compare DF for MR (7.2%) and PRA (16.8%)
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc	5. Stopping and give way frequency		At priority junctions cycle users will need to give way to motor traffic more often than motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions cycle users will need to give way to motor traffic on a similar number of occasions as motor traffic will need to give way to cycle users along a route [p.160]	At priority junctions motor traffic will need to give way to cycle users more often than cycle users will need to give way to motor traffic along a route [p.160]	1.7		1.7		1.5	
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc	6. Delay at junctions		At signalised junctions the overall delay for cycle users at the junction is greater than the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is equal to the overall delay for motor traffic [p.174]	At signalised junctions the overall delay for cycle users at the junction is less than the overall delay for motor traffic [p.174]	0.7		1.0		1.5	
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed	0.3		1.7		1.5	
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent	8. Gradient		Much of the route exceeds 3% gradient [p.60]	Some sections of route exceed 3% gradient due to local topography, but the route is designed to minimise the length of these sections [p.60]	There are no sections of route steeper than 3% gradient [p.60]	1.0	Elevation Max: 97m Elevation Min: 41m Max Slope: 7.0% Average Slope: 2.7% West to East: Level along King's Gate and Carnegie Place followed by decline along RDS to Fountainhall Road	1.0	Elevation Max: 97m Elevation Min: 41m Max Slope: 7.0% Average Slope: 2.7% West to East: Level along King's Gate and Carnegie Place followed by decline along RDS to Fountainhall Road	1.0	Elevation Max: 97m Elevation Min: 41m Max Slope: 7.0% Average Slope: 2.7% West to East: Level along King's Gate and Carnegie Place followed by decline along RDS to Fountainhall Road

Cycle Level of Service Assessment
Links 8, 10 and 11 (PR-B)

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Safety	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X		1.7		2.0	
			10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	X		2.0		2.0	
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5% HGV	2500-5000 and <2% HGV	0-2500 AADT	X		2.0		2.0	
	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see LTN 1/20 (Figure 4.1) or CbD (Figure 3.2). This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	In some cases, cycle users are expected to mix with motor traffic in significantly higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	In some cases, cycle users are expected to mix with motor traffic in higher speed or volume conditions that are set out in Table 3.2 in Chapter 3	Cycle users are always protected from motor traffic when required by the conditions set in Table 3.2 in Chapter 3	X		2.0		2.0	
		A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/ motor traffic streams separated	0.0		1.3		1.5	
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and self-evident to all road users. All users should understand where they and other road users should be and what movements they might make	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1.0		1.7		2.0	
	Consider and reduce risk from kerb side activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/ loading	Significant conflict with kerbside activity (e.g. nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	Some conflict with kerb side activity – e.g. less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer	No/ very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m	2.0		2.0		2.0	
	Reduce severity of collisions where they do occur	Wherever possible routes should include “evasion room” (such as grass verges)and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards	0.7		1.7		1.5	

Project: A944/ A9119 Active Travel Corridor
Client: Aberdeen City Council

Cycle Level of Service Assessment
Links 8, 10 and 11 (PR-B)

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Comfort	Surface quality	Density of defects including non cycle friendly ironworks, raised/ sunken covers/ gullies, potholes, poor quality carriageway paint (e.g. from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1.3		2.0		2.0	
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Cycle route surface is unbound or deterioration has led to frequent defects [p.112]	Cycle route surface is hand-laid with frequent joints, or contains some defects [p.112]	Cycle route surface is machine laid and smooth, with no defects [p.112]	1.0		1.7		2.0	
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles)		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0.3		1.7		2.0	
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps	20. Signing		Route signing is poor with signs missing at key decision points	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	0.0		2.0		2.0	
Attractiveness	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used	21. Lighting		Most of the link is infrequently lit. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently lit. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well lit. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1.3		2.0		2.0	
			22. Isolation		Most of the link is infrequently overlooked. Vegetation or other obstacles create regular breaks in visibility [p.68]	Some sections of the link are infrequently overlooked. Vegetation or other obstacles create localised breaks in visibility [p.68]	The cycle link is well overlooked. Full forward visibility is achieved and vegetation is regularly maintained [p.68]	1.0		1.0		1.0	
	Impact on pedestrians, including people with disabilities	Introduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	0.7		1.3		1.5	
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions	Signing for wayfinding purposes only and not causing additional obstruction	1.0		1.0		1.0	
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		Provision not secure and below the desirable minimum level of provision [p211]	Provision is secure but not overlooked and/ or only providing the desirable minimum level of provision [p211]	Provision is secure, overlooked, well-lit and exceeds the desirable minimum level of provision [p211]	0.3		0.7		1.0	

Cycle Level of Service Assessment
Links 8, 10 and 11 (PR-B)

Stantec

	Factor	Design Principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Baseline Score	Comments	Option 1 Score	Comments	Option 2 Score	Comments
Adaptability	Cycle Routes	Cycling infrastructure should be able to evolve and improve as cycle demands change. Meeting the preceding design principles in a way that allows infrastructure to adapt to changing user needs will form a critical component of cycle networks. Trialling of potential measures using more flexible infrastructure will assist in meeting this aim	26. Cycle routes can evolve to meet future demands		*No scope to amend cycling infrastructure once installed [p.64]*	*Only some of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	*Cross section of the route has the flexibility to expand, evolve or adapt to changing demands [p.64]*	X	Not Applicable	1.0		1.5	
	Cycle Parking		27. Cycle parking can be increased to meet future demands		*Has no scope to expand, evolve or adapt to changing demands once installed [p211]*	*Has only limited flexibility to expand, evolve or adapt to changing demands [p211]*	*Has the flexibility to expand, evolve or adapt to changing demands [p211]*	X	Not Applicable	1.7		1.5	

Summary		Existing Road Layout		Proposed Road Layout (1)		Proposed Road Layout (Rubislaw Den South Cycle	
Sub-Totals	**Cohesion** (out of 6)	0.3	6%	4.3	72%	4.5	75%
	Directness (out of 10)	4.7	47%	6.3	63%	6.5	65%
	Safety (out of 16)	X	X	14.3	90%	15.0	94%
	Comfort (out of 8)	2.7	33%	7.3	92%	8.0	100%
	Activeness (out of 10)	4.3	43%	6.0	60%	6.5	65%
	Adaptability (out of 4)	N/A	N/A	2.7	67%	3.0	75%
Audit Score Total (out of 54)		**12**	**24%**	**41**	**76%**	**44**	**81%**

Appendix D: Detailed CLoS Scoring (Description)

Contents

- Detailed description of the CLoS assessment scoring

Link 1: Brimmond Drive to Westhill Drive

Overview

Link 1 is part of Straik Road (A944) in Westhill and is located between a footpath from Brimmond Drive to the roundabout junction with Westhill Drive shown in Figure 1.

Existing Road Layout

The existing road layout can be described (west to east) as:

- Single carriageway road with 40mph speed limit
- Standard streetlighting on the northern side
- A narrow footway/ shared-use path on the southern side separated from the carriageway by a grass verge
- No formal crossing facilities at side roads
- Separate shared-use path for access to the Westhill Industrial Estate
- At the Westhill Drive roundabout the only signal controlled crossing facility is a staggered Toucan crossing on the western arm.

For the purposes of the CLoS assessment, the cycle route within the existing road layout is via the footway/ shared-use path on the southern side of Straik Road.

Proposed Road Layout

The proposed road layout for Link 1 is shown on Drawing Numbers 5501 and 5502 (Appendix B) and can be summarised as follows.

- Toucan crossing to connect the existing Brimmond Drive footpath to the new cycle track and footway
- Segregated two-way cycle track (3 metre wide) and footway (2 metre wide) on southern side of road with 1 metre wide verge
- Priority parallel crossings at junction with Enterprise Drive and entrance to the Premier Inn hotel
- Protected cycle transitions on Enterprise Drive to allow users to continue journey south
- Highway boundary constraints adjacent to the Tesco Extra store require a section of shared-use path to connect to the proposed two-way cycle track with the upgraded Toucan crossing on the Straik Road arm of the Westhill Drive junction
- Two-stage direct Toucan crossing to link shared-use paths across western arm of roundabout
- Widening of existing shared-use path to 3 metre minimum with 1 metre verge where required
- Toucan crossing on Westhill Drive arm of roundabout to connect to new segregated cycleway and footway on northern side of A944.

CLoS Scoring

A summary of the CLoS scoring for Link 1 (existing and proposed road layouts) is shown in Table 4.

Table 4: CLoS scoring - Link 1

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	1	17%	4	67%
Directness (out of 10)	5	50%	9	90%
Safety (out of 16)	13	81%	16	100%
Comfort (out of 8)	4	50%	8	100%
Attractiveness (out of 10)	5	50%	7	70%
Adaptability (out of 4)	N/A	N/A	3	75%
Total	28	56%	47	87%

The existing shared-use path provides an adequate provision for cyclists which is reflected in the overall CLoS score of 28 (56%).

The proposed two-way cycle track on the southern side of the road and improvements to side road crossings improves the score to 48 (87%) which represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 4. This indicates that if the proposals can be delivered there is little opportunity to improve the provision.

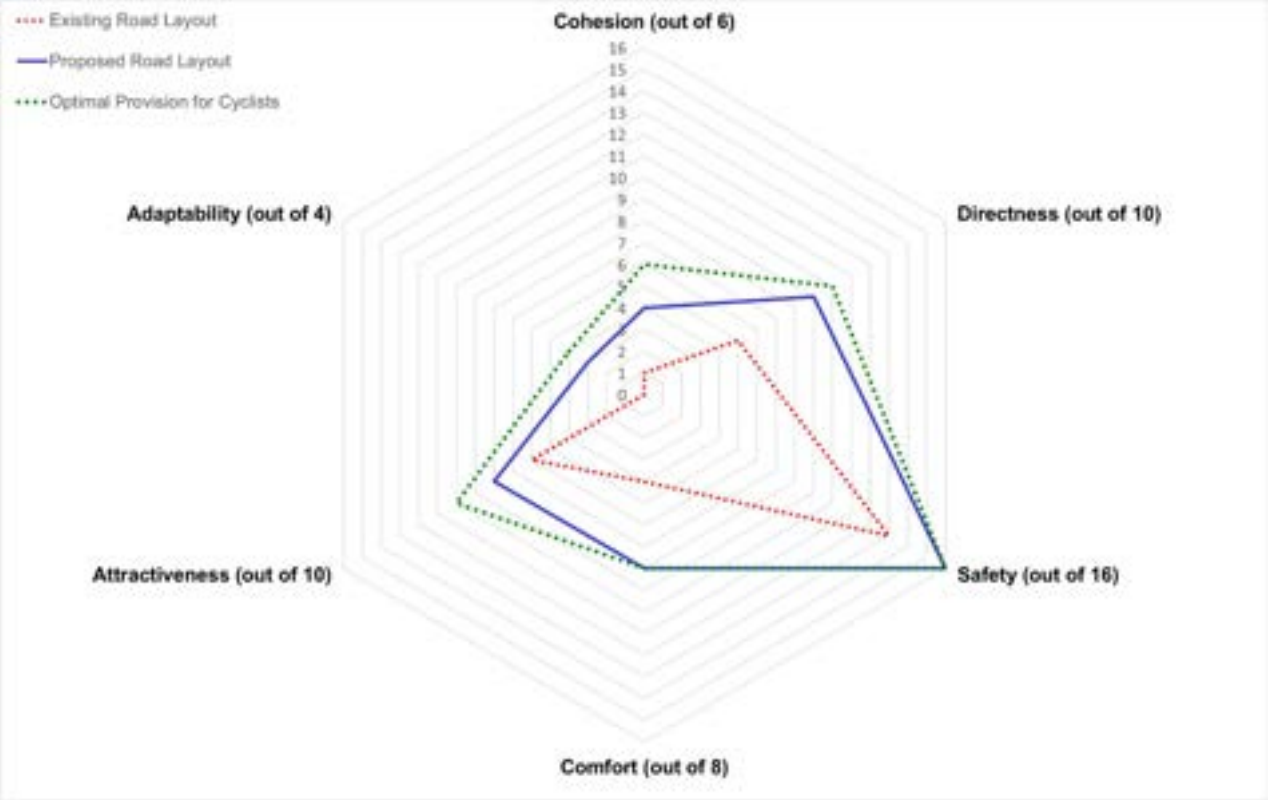


Figure 4: CLoS scoring - Link 1

Link 2: Westhill Drive to A90 AWPR roundabout

Overview

Link 2 is part of the A944 between the roundabout junctions at Westhill Drive and the A90 Aberdeen Western Peripheral Road (AWPR) as shown in Figure 1.

Existing Road Layout

The existing road layout can be described (west to east) as:

- Dual carriageway road with a 40mph speed limit
- Standard streetlighting along extent
- Shared-use path with verge separation on both sides of carriageway from Westhill Drive roundabout to A9119 junction
- The A944 j/w A9119 is signal controlled and includes a staggered signal controlled shared-use crossing on the western arm – no other crossing facilities are provided
- The A944 j/w A9119 has an ASL on the A9119 approach
- The cycle route connections between the A9119 and the A944 are poor
- There is a residential access road between the A9119 junction and Cormack Park access which has limited natural surveillance
- The layout of the Cormack Park access junction is subject to change under the Aberdeen Football Club planning application for a new stadium at Cormack Park
- Shared-use path with no verge separation on north side of the road between the Cormack Park access and A90 AWPR roundabout
- No formal crossing arrangements at side roads and accesses
- The A90 AWPR junction is a large high-speed roundabout where cyclists use the share-use path along the northern perimeter of the roundabout. This requires crossing A90 northbound entry and southbound exit slip roads (both signal controlled) and two priority junctions at Borrowstone Road and Old Borrowstone Road

For the purposes of the CLoS assessment, the cycle route within the existing road layout uses a shared-use path and the residential access road to Mayfield, Cherry Grove and Crommie Cottage residential properties to the north of the A944. At the A90 AWPR junction, pedestrians and cyclists are required to cross four roads on the northern side of the junction. Two of the four crossing are not signal controlled.

Proposed Road Layout

The proposed road layout for Link 2 is shown on Drawing Numbers 5502, 5503, 5504 and 5505 (Appendix B) and can be summarised as follows.

- Segregated two-way cycle track (3 metre wide) and footway (2 metre wide) on northern side of road with 1 metre wide verge
- A section of shared-use path (3 metre wide path with 1 metre wide verge) on the northern side of road where the Brodiach Burn bridge creates a constraint to the highway boundary
- At the A9119 junction the existing layout is retained but with improved road markings and signage for wayfinding
- At the A9119 junction the alternative cycle route option (see below) adds a controlled shared-use crossing on the residential road
- Between the A9119 junction and the Cormack Park access the route uses the residential access road as a mixed traffic street to the north of the Mayfield, Cherry Grove and Crommie Cottage properties
- An alternative route developed in response to uncertainty around the Aberdeen Football Club stadium access proposals at Cromack Park continues the two-way cycle track (3 metre wide) with 1 metre verge alongside the A944 to the south of the Mayfield, Cherry Grove and Crommie Cottage residential properties
- Narrowing of central reservation on carriageway to provide width for cycle track and requiring closing of turning gaps
- Minor accesses to be retained with dropped kerbs
- Bus lane provision on approach to A90 AWPR roundabout (to be delivered separately)

- Priority parallel crossing at access to Cairdhillock Farmhouse
- At the A90 AWPR roundabout, two signal controlled parallel crossings are proposed giving pedestrians and cyclists a more direct route through the junction via the northern verge of the central island.

It should be noted the bus lanes shown on the proposed road layouts form part of a different study. They are shown here to demonstrate how improvements to bus, cycle, walking and wheeling infrastructure would integrate to provide a coordinated improvement to travel options along this section of the A944.

CLoS Scoring

A summary of the CLoS scoring for Link 2 (existing and proposed road layouts) is shown in Table 5.

Table 5: CLoS scoring - Link 2

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	2	33%	3	50%
Directness (out of 10)	4	40%	7	70%
Safety (out of 16)	12	75%	15	94%
Comfort (out of 8)	2	25%	6	75%
Attractiveness (out of 10)	3	30%	5	50%
Adaptability (out of 4)	N/A	N/A	3	75%
Total	23	46%	39	72%

The existing shared-use path provides an adequate provision for cyclists which is reflected in the overall CLoS score of 23 (46%). This is a lower score than Link 1 because parts of the shared-use path are narrow (at the Brodiach Burn bridge) or have no verge separation (Cormack Park to A90 AWPR junction) and part of the route is more secluded.

The proposed two-way cycle track on the northern side of the road and improvements to side road crossings improves the score to 39 (72%) which represents a high LoS as defined by CbD. Included in this is the more direct route through the A90 AWPR junction.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 5. Opportunities to improve the proposals are most achievable in those indicators that define Attractiveness and relate to providing good street lighting levels, signage and road markings particularly along the along the mixed traffic section of the route. The proposals show an alternative option which avoids the mixed traffic street section and continues the cycle track along the northern side the A944 but this has property boundary and so significant engineering constraints.

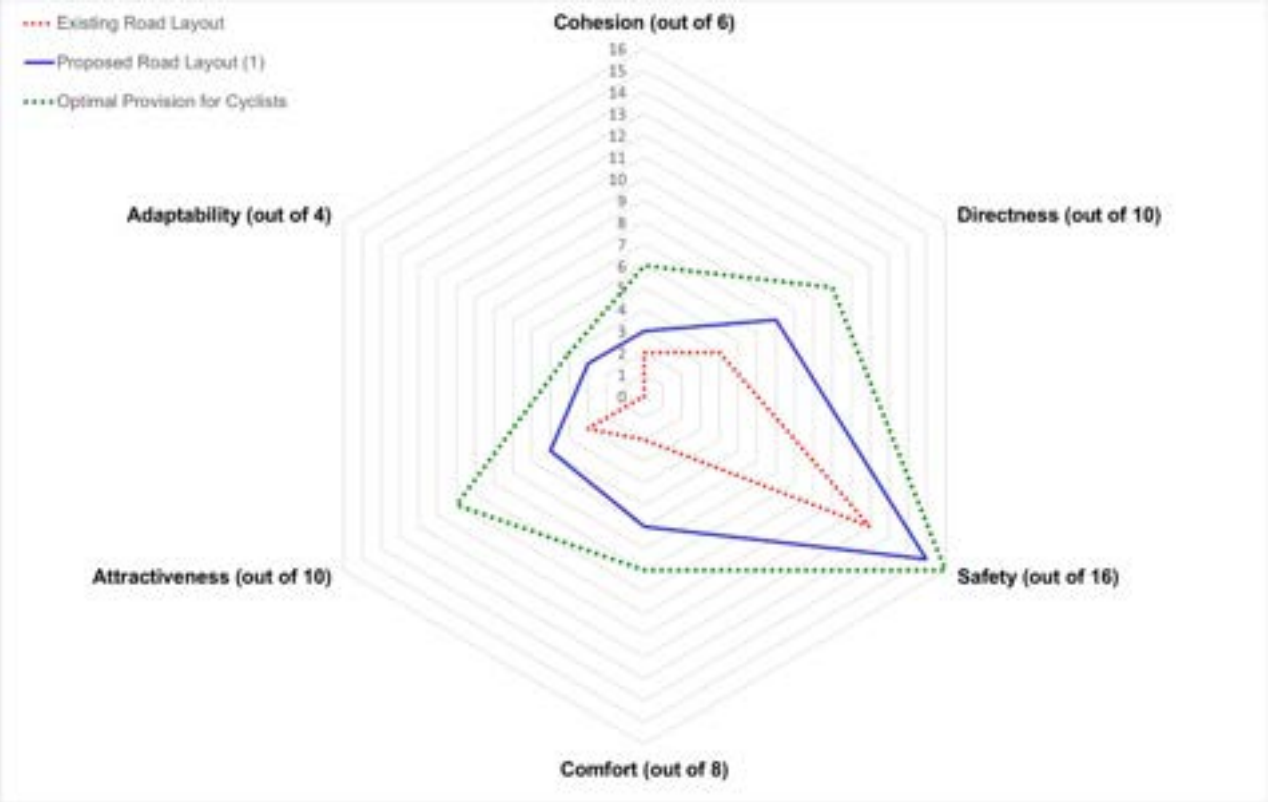


Figure 5: CLoS scores for core design principles - Link 2

Link 3 – A90 AWPR to Jessiefield roundabout

Overview

Link 3 is part of the A944 between the A90 AWPR and Jessiefield roundabouts shown in Figure 1.

Existing Road Layout

The existing road layout can be described (west to east) as:

- The A90 AWPR junction is a large high-speed roundabout where cyclists use the share-use path along the northern perimeter of the roundabout. This requires crossing A90 northbound entry and southbound exit slip roads (both signal controlled) and two priority junctions at Borrowstone Road and Old Borrowstone Road
- Dual carriageway road with 40 mph speed limit
- Shared-use path with no verge separation on north side between A90 AWPR roundabout and Kingswells Causeway
- Off-set shared-use staggered crossing of Kingswells Causeway
- Segregated cycle track and footway between Kingswells Causeway and the Fairley Road roundabout
- Off-set shared-use staggered crossing on Fairley Road
- Mixed traffic street along Old Skene Road with on-street parking and frequent side roads
- No formal crossing arrangements at side roads or vehicle accesses
- Standard streetlighting along extent.

For the purposes of the CLoS assessment, the cycle route within the existing road layout is along the shared-use path on the northern side of the A944 with shared-use crossings on Kingswells Causeway and Fairley Road. Between the Fairley Road and Jessiefield roundabout junctions the cycle route is via Old Skene Road and a shared use path.

Proposed Road Layout

The proposed road layout for Link 3 is shown on Drawing Numbers 5505, 5506, 5507, 5508 and 5509 (Appendix B) and can be summarised as follows.

- At the A90 AWPR roundabout the cycle track is aligned along the northern edge of the central island with new signal controlled parallel crossings on the circulatory lanes and which connect the cycle track to the northern side of the A944
- A90 AWPR to Kingswells Causeway - segregated two-way (3 metre wide) cycle track and footway (2 metre wide) on northern side of road with 1 metre wide verge to be provided but which requires a narrowing of the central reservation. If this is not possible then sections may need to revert to shared-use particularly adjacent to the petrol filling station and protected woodland. Give-ways may be required at the vehicle entry and exit to the petrol filling station forecourt due to property boundary constraints
- At the Kingswell Causeway junction the staggered shared-use crossing will be replaced with a separate pedestrian (staggered) and cycle (straight across) parallel crossings
- Kingswells Causeway to Fairley Road – the segregated two-way cycle track and footway will be improved through widening of both the track and footway
- At the Fairley Road junction the staggered shared-use crossing will be replaced with a separate pedestrian (staggered) and cycle (straight-across) parallel crossings
- Fairley Road to the Jessiefield roundabout – pedestrians and cyclists will use the existing route along Old Skene Road but the road layout will be designed around cycle street principles to create a safe mixed traffic route for cyclists
- An alternative route to using Old Skene Road uses a dedicated cycleway (3 metre wide) with 1 metre verge separation along the northern edge of the A944 between the Fairley Road and Jessiefield roundabouts
- Fairley Road to the Jessiefield roundabout (alternative route) - pedestrians and cyclists use Old Skene Road but with significant changes made to the road layout to make it suitable for cycling as mixed traffic street (road narrowing, rationalisation of the on-street parking)
- West of Jessefield roundabout, the existing shared-use path will join the proposed track and return to a 3 metre wide segregated two-way cycle track and 2 metre wide footway with 1 metre verge separation
- Narrowing of central reservation to provide width for track, requiring closing of turning gaps

- Minor accesses to be retained
- Additional bus priority measures on the eastbound approach to Kingswells Causeway and the east and westbound approach to the Fairley Road roundabout while the southern bypass lane for Jessefield roundabout to be repurposed as a bus lane
- Priority parallel crossing at Ardene House Vet access
- Parallel crossing on northern arm of Jessefield roundabout to be set back from give way line

Again, the bus lane provision (part of a different study) is shown to demonstrate how improvements to bus, cycle, walking and wheeling infrastructure would integrate to provide a coordinated improvement to travel options along this section of the A944.

CLoS Scoring

A summary of the CLoS scoring for Link 1 (existing and proposed road layouts) is shown in Table 6.

Table 6: CLoS scoring - Link 3

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	2	33%	4	67%
Directness (out of 10)	3	30%	6	60%
Safety (out of 16)	7	44%	15	94%
Comfort (out of 8)	2	25%	7	88%
Attractiveness (out of 10)	3	30%	5	50%
Adaptability (out of 4)	N/A	N/A	3	75%
Total	17	34%	40	74%

The existing shared-use path provides an adequate provision for cyclists which is reflected in the overall CLoS score of 17 (34%). This is lower than Link 2 due to the share-use path being narrow and for much of its length having no verge separation. Side road and access road crossings either have no protection from turning traffic or cyclists must share staggered crossing facilities with pedestrians.

The proposed two-way cycle track and improvements to side road crossings between the A90 AWPR and Fairley Road junctions plus the cycle street proposals for Old Skene Road improves the score to 40 (74%) and which represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 6. Improvements could be made to Directness and Attractiveness but there is little opportunity to increase the score for those indicators that define these design principles. For example, the route is relatively straight and the gradient fixed (Directness) while street lighting levels and signing would not improve above and beyond those already proposed (Attractiveness).

The alternative route via Old Skene Road that continues the two-way cycle track on the northern side of the road is only marginally shorter in distance and would be less Coherent given the reduced opportunity to connect to the residential areas of Kingswells. Although not considered by the CLoS assessment this option also has considerable highway engineering constraints.

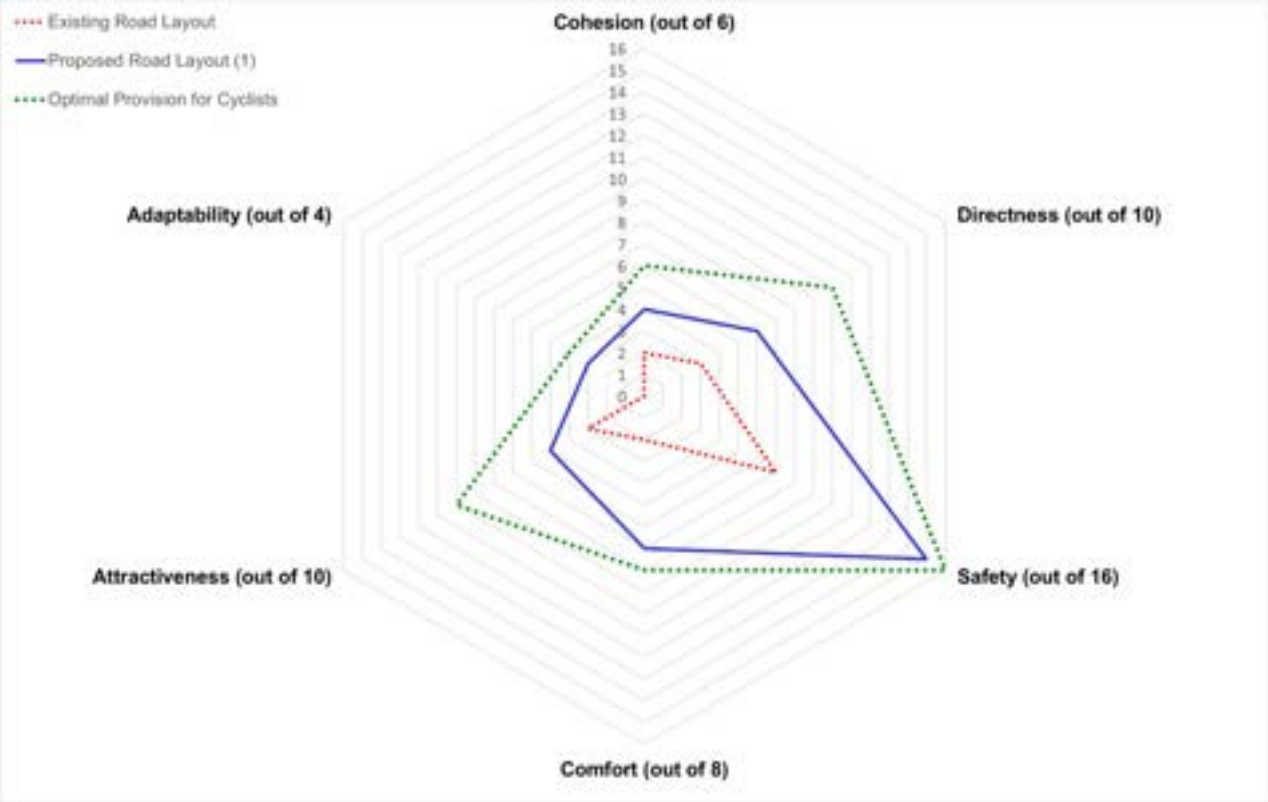


Figure 6: CLoS scoring - Link 3

Link 4 - Jessiefield roundabout to King's Gate



Figure 7: Skene Road where a two-way cycle track and separate footway is proposed on the south (left) side of the road

Overview

Link 4 includes Skene Road and part of Queen's Road (A9119) between the Jessiefield and King's Gate roundabouts shown in Figure 1.

Existing Road Layout

Within the existing road layout, the cycle route is provided by a shared-use path along the northern side of Skene Road and Queen's Road. Between the junctions with Woodend Crescent and the King's Gate roundabout the cycling provision is assumed to be on-road given the lack of signage and road markings to suggest otherwise but also the inbound bus lane permitting use by cyclists.

The existing road layout can be summarised (west to east) as:

- Narrow shared-use path with no verge separation on north side between Jessefield roundabout and Woodend Crescent junction
- On-road cycle route provision between the Woodend Crescent junction and the King's Gate roundabout with eastbound cyclists using the bus lane
- Bus lane between Provost Graham Avenue and a 45 metre set back from the King's Gate roundabout
- Single carriageway road with 40 mph speed limit between Jessiefield roundabout and Cemetery junction and 30 mph speed limit between the Cemetery junction and the King's Gate roundabout
- Shared-use crossings at the Cemetery and Groats Road signal controlled junctions but not at Provost Graham Avenue
- One Toucan crossings and two Pelican crossings
- No formal crossing arrangements at minor side roads or minor access roads

- Standard streetlighting along extent

This link is used by bus services on Routes 4, 5, 6 and 6A with those on Route 11 only using the section between Hazlehead Gardens and the King's Gate roundabout.

For the purposes of the CLoS assessment, the cycle route within the existing road layout uses the shared-use path on the northern side of Skene Road and Queen's Road until the Woodend Crescent junction where cycling is on-road (in both directions) until the King's Gate roundabout.

Proposed Road Layout

The proposed road layout for Link 4 is shown on Drawing Numbers 5510, 5512, 5513 and 5514 (Appendix B) and can be summarised as follows.

- Jessiefield roundabout to Craigden a 3 metre wide segregated two-way cycle track and 2 metre wide footway is provided on the northern side of road with minimal buffer separation and requiring a narrowing width of the road carriageway to 6.8 metres
- Section of shared-use path between Craigden and Woodend Crescent due to mature trees constraining opportunities to widen the highway boundary
- Woodend Crescent to King's Gate roundabout a 3 metre wide segregated cycle track is provided along the southern side of the residential road that runs parallel to Queen's Road – this section of road becomes one-way and allows the inbound bus lane to be retained on Queen's Road between Provost Graham Avenue and the King's Gate roundabout
- Cycle track given priority over side road traffic using continuous footways (Den Burn road, Den of Maidencraig Local Nature Reserve car park access, Queen's Den) and potentially off-set cycle tracks (Queen's Den)
- Cycle track bus stop bypasses
- Improved crossing facilities provided at the Hazlehead Cemetery Access Road, Groats Road and Provost Graham Avenue to ensure good cycle track connectivity.

CLoS Scoring

A summary of the CLoS scoring for Link 1 (existing and proposed road layouts) is shown in Table 7.

Table 7: CLoS scoring - Link 4

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	1	17%	4	67%
Directness (out of 10)	3	30%	8	80%
Safety (out of 16)	5	31%	15	94%
Comfort (out of 8)	4	50%	6	75%
Attractiveness (out of 10)	4	40%	6	60%
Adaptability (out of 4)	N/A	N/A	3	75%
Total	17	34%	42	78%

This link has an existing provision for cyclists based on a shared-use path which is reflected in the overall CLoS score of 17 (34%). This score is relatively low because the share-use path is narrow and for much of its length, has no verge separation and is not continuous, relying on untreated and unsigned mixed traffic sections. Side and access road crossings have no protection from turning traffic with cyclists required to give-way.

The proposed two-way cycle track on the northern side of the road and improvements to side and access road crossings increases the score to 42 (78%) which represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 8. The lowest CLoS scores relate to Directness and Attractiveness but there is little scope for the proposals to improve on these scores given adjacent land uses (predominantly farmland) and route topography which are fixed/ remain unchanged.

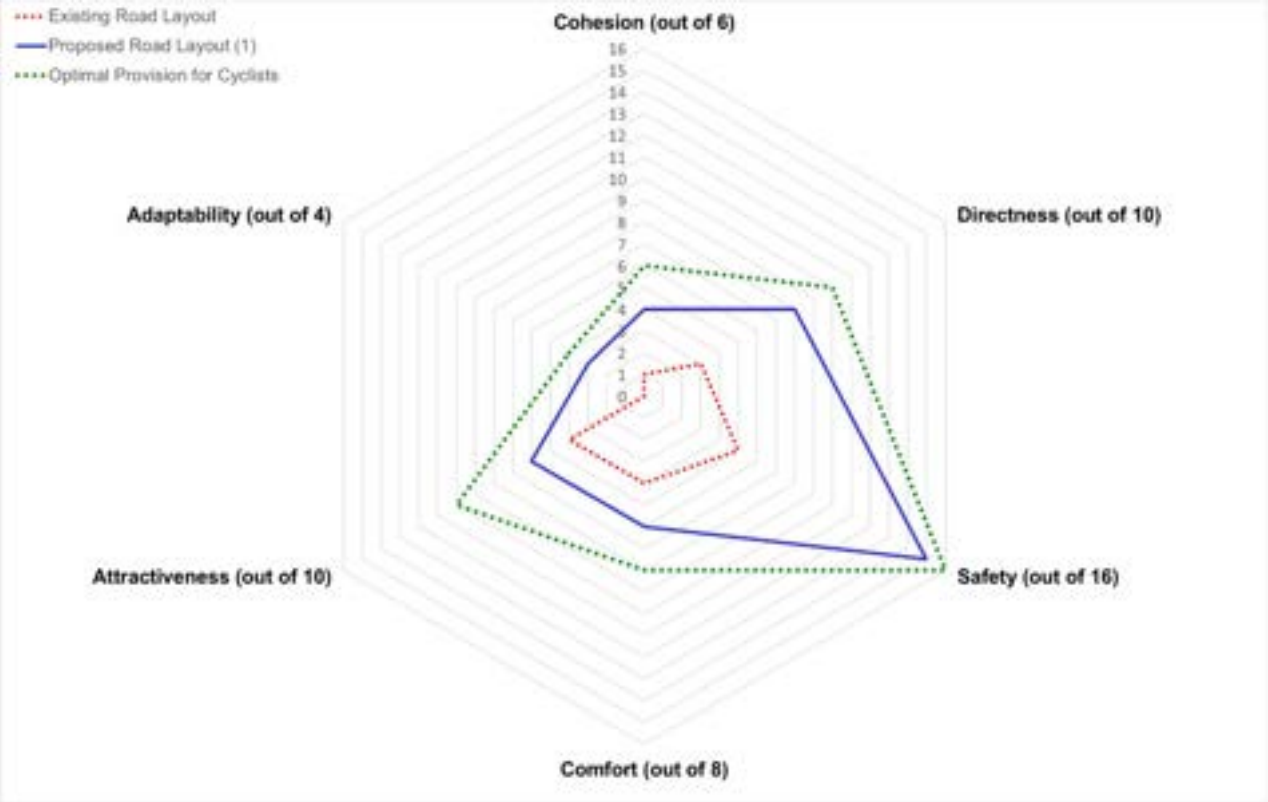


Figure 8: CLoS scoring - Link 4

Link 5 - King's Gate to Anderson Drive

Overview

Link 5 includes Queen's Road (A9119) between the King's Gate and Anderson Drive roundabouts shown in Figure 1.

Existing Road Layout

The existing road layout can be summarised (west to east) as:

- Single carriageway road with 30mph speed limit
- Standard streetlighting along extent
- Advisory cycle lanes between King's Gate and Viewfield Road
- No cycle route provision between Viewfield Road junction and Anderson Drive roundabout although inbound cyclist are permitted to use the bus lane
- Inbound bus lane (Monday-Saturday, 7.30-9.30am and 4 – 6pm) between Viewfield Road and a 40 metre set-back from the Anderson Drive roundabout
- Advance Stop Lines at the Springfield Road and Hill of Rubislaw junctions
- No signal controlled crossings for cyclists along Queen's Road or at the Anderson Drive junction
- Most side roads do not have a formal crossing provision
- Frequency vehicle cross-overs to access private driveways
- High speed and multi-lane roundabout at the Anderson Drive junction

This link is used by bus services on Routes 4, 5, 6 and 6A with those on Route 11 only using the section between Hazlehead Gardens and the King's Gate roundabout.

For the purposes of the CLoS assessment, the cycle route within the existing road layout is on-road, mixed with traffic and using the advisory cycle lanes where provided.

Proposed Road Layout

The proposed road layout for Link 5 is shown on Drawing Numbers 5514, 5515 and 5516 (Appendix B) and can be summarised as follows.

- 1.5 metre wide one-way cycle tracks with 0.2 metre buffers along both sides of the carriageway
- Traffic lane widths reduced (minimum of 3.4 metres) to accommodate cycle tracks – some localised widening may be required
- The inbound bus lane between Viewfield Road and the Anderson Drive roundabout is removed to accommodate the cycle tracks
- Anderson Drive roundabout modified to provide signal controlled parallel crossings on all arms
- All residential driveway accesses retained except for the access on the northwest corner of the Anderson Drive roundabout
- Crossings at all signal controlled junctions modified to accommodate share-use
- Bus stop by-passes using shared-use areas with dropped kerbs to exit and enter the cycle tracks
- Cycle 'early release' proposed at the Springfield Road, Hill of Rubislaw and Queen's Parade junctions
- Continuous footways across all minor side road junctions

CLoS Scoring

A summary of the CLoS scoring for Link 5 (existing and proposed road layouts) is shown in Table 8.

Table 8: CLoS scoring - Link 5

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	0	0%	5	83%
Directness (out of 10)	3	30%	9	90%
Safety (out of 16)	X	X	16	100%
Comfort (out of 8)	2	25%	8	100%

Design Principles	Existing Road Layout		Proposed Road Layout	
Attractiveness (out of 10)	7	70%	6	60%
Adaptability (out of 4)	N/A	N/A	2	50%
Total	12	24%	46	85%

This link has an existing provision for cyclists based on advisory cycle lanes which is inadequate given the speed, mix (HGV's, buses) and flow of traffic. These cycle lanes are not continuous which also leaves cyclists having no protection from motor traffic within the busiest section of the link (i.e. Viewfield Road and Anderson Drive) although an eastbound bus lane provides some protection. There is no protection from turning traffic at side roads. This results in Critical Fail scores[8] that define Safety and an overall CLoS score of 15 (30%) which suggests the existing provision is inadequate even for confident cyclists who are familiar with the route.

The continuous one-way cycle tracks on each side of the road combined with side road treatments provide cyclists a protected route along the link. Bus stop bypasses allow cyclists a safe route around stopped buses but rely on shared-use areas which increases the pedestrian collision risk although this is deemed to be small. The combined impact of these measures is to increase the CLoS score to 46 (85%) which represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 9. There is a substantial improvement in Safety which goes from a Critical Fail score of 16 (100%) and Comfort which also increases to a maximum score (of 8). The only area where the proposed road layout could be improved is in Attractiveness (7 out of 10), related to reducing shared-use areas at bus stops and at the Anderson Drive junction to reduce the impact on pedestrian comfort levels. It should be noted that Attractiveness score gets worse in the proposed road layout because of the increased in shared-use areas. Highway boundary constraints however make delivering fully segregated bus stop bypasses unworkable and a signalisation of the Anderson Drive junction would come at a substantial cost.

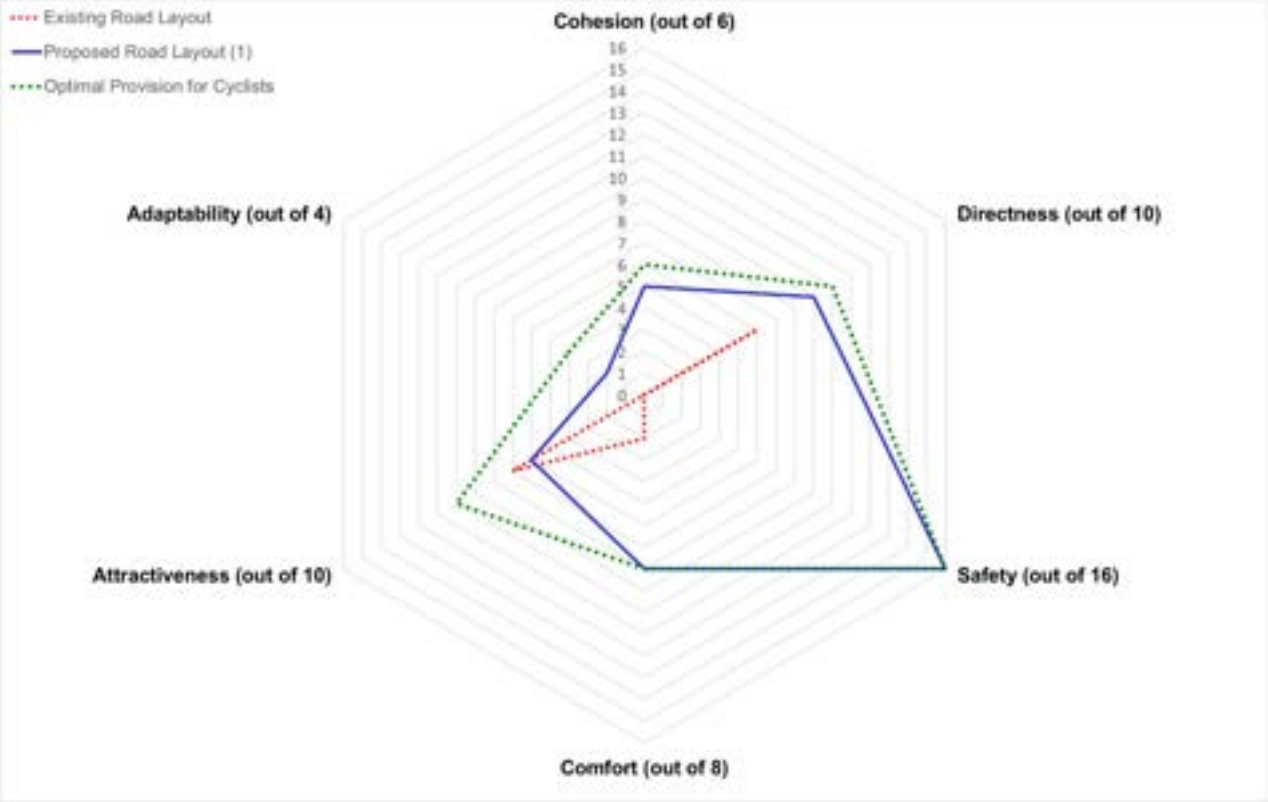


Figure 9: CLoS scoring - Link 5

[8] Safety indicators with Critical Fail scores included the speed of traffic through junctions, the volume and mix of traffic (HGV's/ buses) and lack of spaces for cyclists to pedal within these high volume/ high speed traffic flows.

Link 6 – Anderson Drive to Queen's Cross

Overview

Link 6 includes Queen's Road between the Anderson Drive and Queen's Cross roundabouts shown in Figure 1.

Existing Road Layout

The existing road layout can be summarised (west to east) as:

- Major multi-lane roundabout at Anderson Drive
- Wide single carriageway road with 30mph speed limit
- Relatively wide footways along both sides of the road
- Frequency vehicle cross-overs to access private driveways
- Streetlighting along extent
- No cycle route provision
- On-street parking restricted to bays
- Frequent bus stops
- Four Puffin and one informal (with traffic islands) crossing
- Multi-lane roundabout at Forest Road junction
- Most side roads and accesses do not have formal crossing provisions
- Major 6-arm multi-lane roundabout at Fountainhall Road junction (Queen's Cross).

For the purposes of the CLoS assessment the cycle route within the existing road layout is on-road and mixed with traffic as there are no shared-use or cycle lane provision.

Proposed Road Layout

The proposed road layout for Link 6 is shown on Drawing Numbers 5516 and 5517 (Appendix B) and can be summarised as follows.

- Cyclists negotiate the Anderson Drive roundabout using new 4 metre wide shared-use paths before transitioning to/ from the segregated one-way cycle tracks
- Upgraded and new 4 metre wide Toucan crossings on eastern and western arms of the Anderson Drive roundabout and parallel signal controlled crossings on northern and southern arms
- 1.5 - 2.0 metre wide segregated one-way cycle tracks with 0.2 – 0.5 metre buffers along both sides of the road requiring a narrowing of the road carriageway
- Continuous footways introduced at minor side road junctions
- On-street parking removed where required
- Signal controlled crossing facility to the east of Bayview Road to replace informal crossing
- Bus stop by-passes using shared-use areas with dropped kerbs to exit and enter the cycle tracks
- Forest Road roundabout to be removed and replaced with a signal controlled cross-roads including ASL's and cycle 'early release'
- At the Queen's Cross junction, a protected cycle track roundabout layout or 'Dutch style arrangement' is introduced providing a segregated route for cyclists on the perimeter of the roundabout using a combination of one-way cycle tracks and parallel Zebra crossings

CLoS Scoring

A summary of the CLoS scoring for Link 6 (existing and proposed road layouts) is shown in Table 9.

Table 9: CLoS scoring - Link 6

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	0	0%	5	83%
Directness (out of 10)	3	30%	9	90%
Safety (out of 16)	X	X	14	88%
Comfort (out of 8)	2	25%	8	100%

Design Principles	Existing Road Layout		Proposed Road Layout	
Attractiveness (out of 10)	7	70%	6	60%
Adaptability (out of 4)	N/A	N/A	3	75%
Total	12	24%	45	83%

This link has an existing provision for cyclists is on-road and mixed with traffic which is a poor provision given the speed and flow of motor traffic. On-street parking bays create a road with a non-uniform width making it difficult for cyclists to take up a safe position within the traffic lane. Parking activity also increase the risk of collision from parking bay entry and exit maneuvers and car occupants opening doors with the path of cyclists. This results in Critical Fail scores for some indicators that define Safety[9] and an overall CLoS score of 12 (24%) which suggests the existing provisions is inadequate for confident and existing cyclists.

The continuous one-way cycle tracks on each side of the road combined with side road treatments provide cyclists a protected route. Bus stop bypasses allow cyclists a safe route around stopped buses although they rely on shared-use areas which increase the pedestrian collision risk although this is deemed to be small. The combined impact of these measures is to increase the CLoS score to 45 (83%) which represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 10. There is a substantial improvement in Safety which goes from a Critical Fail score of 14 (88%) and Comfort which achieves a maximum score (of 8). The only area the proposed road layout could be improved is in Attractiveness (6 out of 10) and focused on reducing shared-use areas at bus stops or at the Anderson Drive junction to reduce the impact on pedestrian movements. It should be noted the Attractiveness score gets worse in the proposed road layout because of the increased in shared-use areas but there may be scope to change this with the introduction of cycle parking provision within the businesses, hotels and schools along this section of Queen's Road.

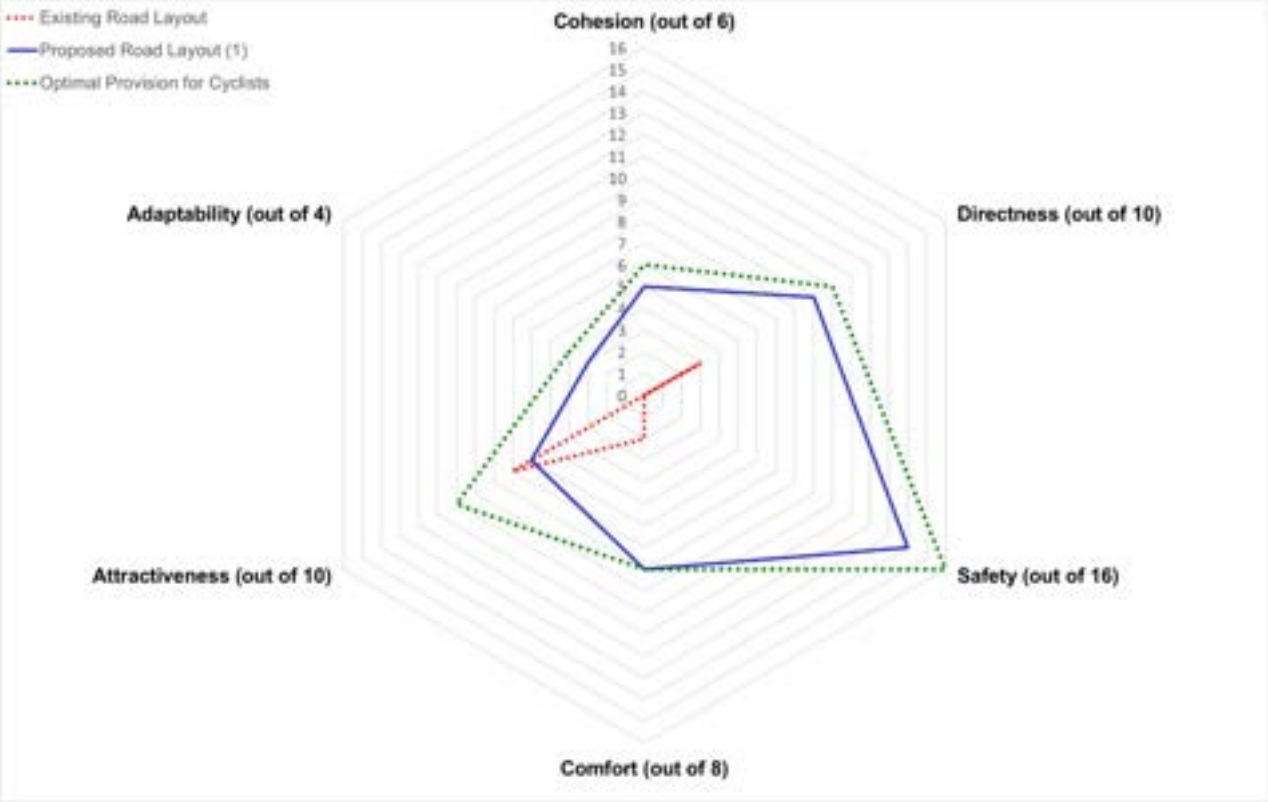


Figure 10: CLoS scoring - Link 6

[9] Safety indicators with Critical Fail scores included the speed of traffic through junctions, the volume and mix of traffic (HGV's/ buses) and lack of spaces for cyclists to pedal within these high volume/ high speed traffic flows.

Link 7 – Queen's Cross to Schoolhill



Figure 11: Carden Place where one-way cycle tracks are proposed on each side of the road

Overview

Link 7 includes Carden Place, Skene Street and part of Rosemount Viaduct and is located between the Queen's Cross roundabout and the junction of Blackfriars Street with Schoolhill shown in Figure 1.

Existing Road Layout

The existing road layout can be summarised (west to east) as:

- Wide single carriageway road with 30mph speed limit
- Relatively wide footways along both sides of the road
- Trees located at the front of the footway frequently spaced
- Frequent vehicle cross-overs to access private driveways
- Streetlighting along extent
- Four signal controlled junctions at Albert Street, Rose Street, Rosemount Viaduct and Union Terrace of which two have multi-lane approaches
- No cycle provision along section although cycle ASL's provided at the signal controlled junctions
- On-street parking restricted to bays
- No bus services operate along this link so there are no bus stops

For the purposes of the CLoS assessment the cycle route within the existing road layout is on-road and mixed with traffic.

Proposed Road Layout

The proposed road layout for Link 7 is shown on Drawing Numbers 5518, 5519 and 5520 (Appendix B) and can be summarised as follows.

- At the Queen's Cross junction, a protected cycle track roundabout layout or 'Dutch style arrangement' is introduced providing a segregated route for cyclists on the perimeter of the roundabout using a combination of one-way cycle tracks and parallel Zebra crossings
- Access from the Queen's Cross roundabout to Albyn Place is restricted for general traffic – a new bus only access road is provided between Carden Place and Albyn Place to retained existing routes for bus services
- Segregated one-way cycle lanes are provided on both sides of the road – the width of the cycle track ranges from 1.5 to 2.0 metres and the segregation buffer from 0.2 to 0.5 metres
- The cycle tracks require the narrowing of the road carriageway to 6.5 metres (approx.), removal of on-street parking on both sides of the road and some localised footway narrowing
- West of Blenheim Place junction, a parallel crossing with shared footway access will be implemented providing access to potential Parallel Routes
- Cycle 'early release' at Albert Street, Rose Street, Rosemount Viaduct and Union Terrace junctions
- Continuous footways introduced at minor side road junctions
- Rosemount Viaduct junction to be altered to improve safety for cyclists
- Taxi rank outside His Majesty's Theatre relocated.

CLoS Scoring

A summary of the CLoS scoring for Link 7 (existing and proposed road layouts) is shown in Table 10.

Table 10: CLoS scoring - Link 7

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	1	17%	5	83%
Directness (out of 10)	3	30%	7	70%
Safety (out of 16)	X	X	15	94%
Comfort (out of 8)	2	25%	8	100%
Attractiveness (out of 10)	7	70%	8	80%
Adaptability (out of 4)	N/A	N/A	1	25%
Total	13	26%	44	81%

This link has an existing provision for cyclists that is on-road and mixed with traffic which is a poor provision given the speed and flow of motor traffic along Carden Place, Skene Street and Rosemount Viaduct. On-street parking bays create a road with a non-uniform width making it difficult for cyclists to take up a safe position within the traffic lane. Parking activity also increase the risk of collision from parking bay entry and exit maneuvers and car occupants opening doors into the path of cyclists. There are frequent untreated side roads and driveway accesses with the associated vehicle turning movements increasing the collision risk for cyclists. This results in a zero score for Cohesion and Critical Fail scores for some indicators that define Safety. The overall CLoS score of 12 (24%) suggests the existing provision is inadequate even for confident cyclists.

The continuous one-way cycle tracks on each side of the road combined with side road treatments provide cyclists a protected route that increases the CLoS score to 44 (81%) and represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 12. There is a substantial improvement in Safety which goes from a Critical Fail score to 15 (80%) and Comfort which achieves a maximum score (of 8). The only area the proposed road layout could be improved is in Directness which includes indicators that measure delay at junctions. To do this the traffic signal off-set timings between junctions should be updated to give cyclists (not general traffic) a green wave through junctions.

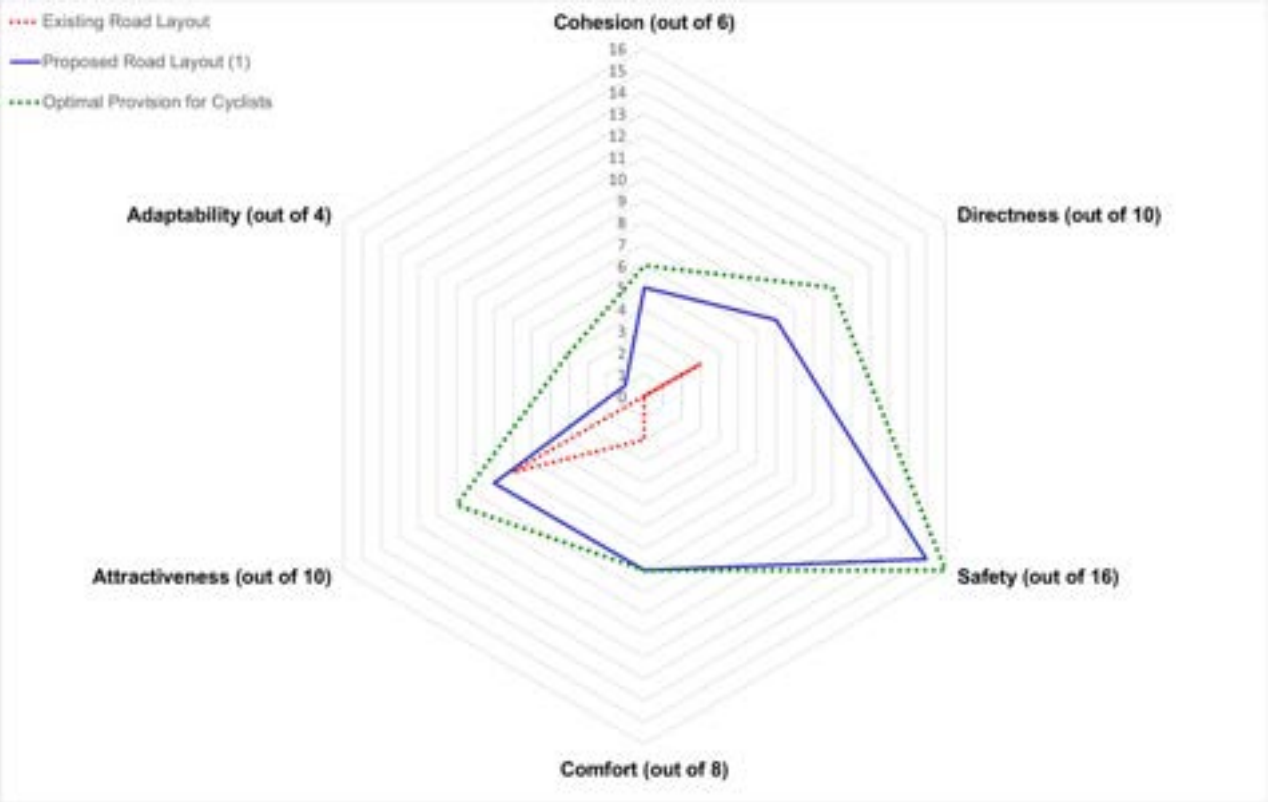


Figure 12: CLoS scoring - Link 7

Link 8 – King's Gate to Anderson Drive



Figure 13: Stronsay Drive j/w King's Gate where an upgraded shared-use crossing supports the proposed cycle track

Overview

Link 8 includes King's Gate (part), King's Cross Terrace and King's Cross Road (part) between the Queen's Road and Anderson Drive shown in Figure 2.

Existing Road Layout

The existing road layout can be summarised (west to east) as:

- Wide single carriageway road with the cycle provision within a mixed traffic environment
- Footways are off-set from the road on both sides between Queen's Road and Stronsay Drive and on the southern side between Stronsay Drive and Ord Street
- No formal crossing facilities between Queen's Road and Stronsay Drive although the Stronsay Drive junction has signal controlled crossings on two of the three arms
- Two informal crossing points (with traffic islands) are located close to the Stronsay Drive and Summerhill Road junctions
- No crossing facilities at the Summerhill Road junction
- Minor side roads and accesses have poor crossing provisions
- The Stronsay Drive junction has cycle ASL's on all three approaches
- Advisory cycle lanes between Summerhill Road and Anderson Drive junctions but with substandard widths
- There are no bus stops between Queen's Road and Summerhill Road junctions
- Streetlighting along extent
- King's Cross Terrace and King's Cross Road are residential streets with on-street parking although most properties have access to driveways

For the purposes of the CLoS assessment the cycle route within the existing road layout is on-road and mixed with traffic along King's Gate between Queen's Road and Anderson Drive. The proposed route was developed to bypass the Anderson Drive roundabout so this junction is excluded from the CLoS assessment of the existing road layout.

Proposed Road Layout

The proposed road layout for Link 8 is shown on Drawing Numbers 5521 and 5522 (Appendix B) and can be summarised as follows.

- A 3 metre wide segregated cycleway, 2 metre wide footway, and 1 metre wide verge on northern side from King's Gate roundabout to King's Gate/ King's Cross Terrace junction requiring a narrowing of the road carriageway
- Continuous footways at side road junctions along the northern side of Kings Gate to emphasis pedestrian and cycle priority over turning traffic
- Improved pedestrian crossing facilities at side road junctions along the southern side of King's Gate including tightened corner radii to reduce crossing distances and wider dropped kerbs with tractile paving
- Shared-use crossing at Stronsay Drive
- Signal controlled parallel crossing located to the west of the Summerhill Road junction providing a link between the cycle track and King's Cross Terrace
- Mixed traffic street along King's Cross Terrace defined by road markings, signage and junction treatments (traffic calming features) at each end of the road
- A 3 metre wide segregated cycle track along the southern side of King's Cross Road between King's Cross Terrace and Anderson Drive
- King's Cross Road access to Anderson Drive to be closed to accommodate new parallel signal controlled crossing on Anderson Drive
- Anderson Drive at the junctions with King's Cross Road and Carnegie Crescent realigned to accommodate a central island for the parallel signal controlled crossing
- All property accesses to be retained.

CLoS Scoring

A summary of the CLoS scoring for Link 8 (existing and proposed road layouts) is shown in Table 11.

Table 11: CLoS scoring - Link 8

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	0	0%	4	67%
Directness (out of 10)	4	40%	7	70%
Safety (out of 16)	X	X	16	100%
Comfort (out of 8)	4	50%	8	100%
Attractiveness (out of 10)	7	70%	7	70%
Adaptability (out of 4)	N/A	N/A	2	50%
Total	15	30%	44	81%

This link has an existing provision for cyclists is on-road and mixed with traffic which is a poor provision given the speed (30 mph limit) and flow of traffic along King's Gate. Side roads are wide, increasing the risk of 'left hook' collisions, the advisory cycle lanes are too narrow which increases cycling risk and there is no wider cycle route network to connect to. This results in a zero score for Cohesion and Critical Fail scores for some indicators that define Safety. The overall CLoS score of 15 (30%) indicating the existing provision is not suitable for even confident cyclists.

The continuous two-way cycle track on the northern side of the road combined with side road treatments provide cyclists a protected route that increases the CLoS score to 44 (81%) and represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 14. There is a substantial improvement in Safety which goes from a Critical Fail score to a score of 16 (100%) with Comfort also achieving a maximum score (of 8). The improved score from Cohesion is based on the potential to improve the wider cycle route network particularly with links to north, connecting to local schools and employment zones in Mastrick.

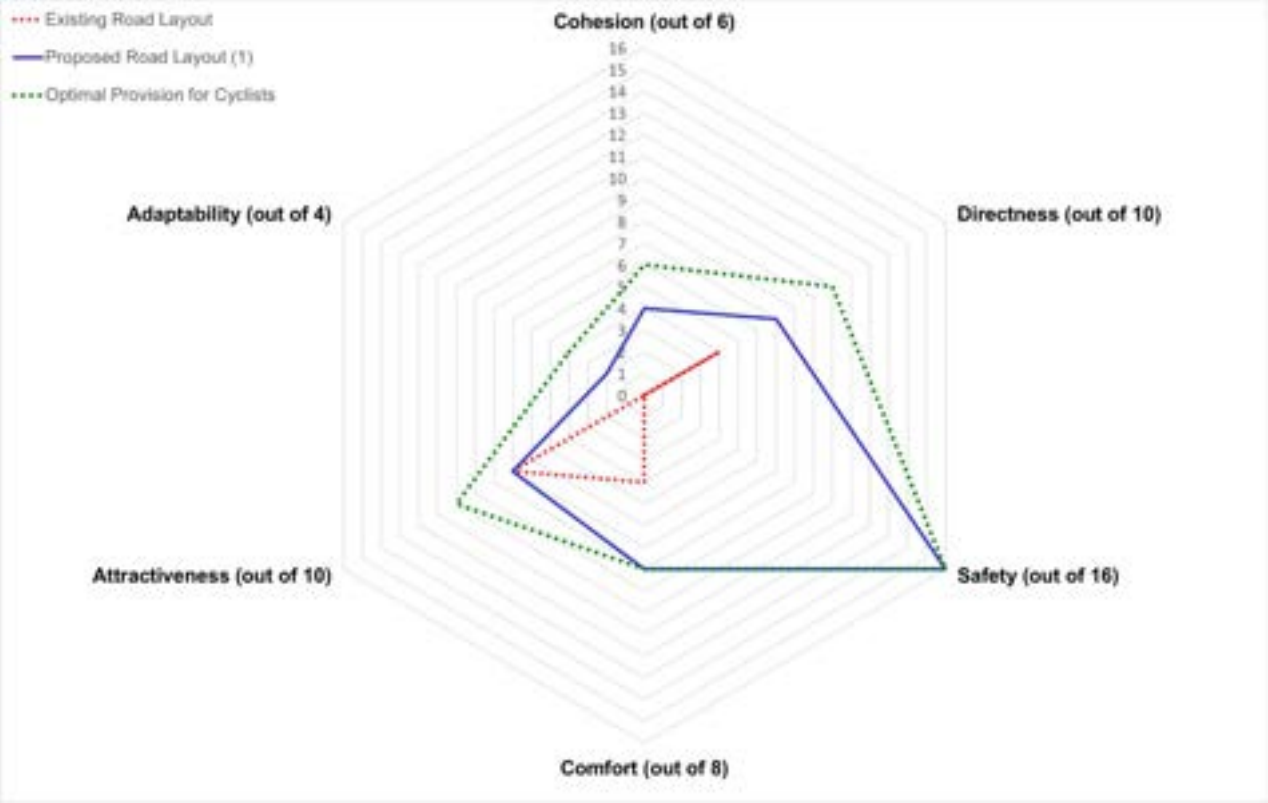


Figure 14: CLoS scoring - Link 8

Link 9 – Anderson Drive to Carden Place (via Rubislaw Den North)



Figure 15: Fountainhall Road where cycle tracks are proposed on each side of the road

Overview

Link 9 includes Carnegie Crescent, Moray Place (part), Rubislaw Den North, Forest Road (part), Desswood Lane, Fountainhall Road (part), Albert Lane (part), Blenheim Place (part) between the King's Cross Road junction with Anderson Drive and the Blenheim Place junction with Carden Place shown in Figure 2.

Existing Road Layout

The existing road layout can be summarised (west to east) as:

- On-road cycling mixed with traffic along extents
- Single carriageway residential roads except along Albert Lane which is a narrow lane with frequent vehicle accesses and no footway
- Controlled on-street parking on most roads
- Standard footway widths except along Albert Lane
- Side roads are untreated (i.e. do not include enhanced safety measures for pedestrians and cyclists)
- Bus services operate along Fountainhall Road with associated bus stops
- Section on one-way road at the southern end of Blenheim Place
- Streetlighting levels are potentially reduced by trees along Rubislaw Den North and Forest Road

For the purposes of the CLoS assessment the cycle route within the existing road layout is on-road and mixed with traffic. Although these are predominantly quite residential roads and 'Lanes' the section of Fountainhall Road is a busy street with a mixed frontage of retail, employment and community buildings.

Proposed Road Layout (Option 1 – Cycle Track and Option 2 – Cycle Street)

The proposed road layout for Link 9 is shown on Drawing Numbers 5522, 5523, 5524 and 5525 (Appendix B) but it should be noted that there are two road layout options for Moray Place and Rubislaw Den North. Drawing Number 5523-CT and 5524- CT shows the cycle route provided using a two-way cycle track on the southern side of the road (Option 1) while 5523-CS and 5524-CS show the cycle route as a mixed traffic street delivered using cycle street principles (Option 2).

- Vehicle exit from Carnegie Crescent to Anderson Drive to be closed (entry only)
- Segregated two-way cycle track (3 metre wide) and buffer to replace on-street parking along Carnegie Crescent
- Segregated two-way cycle track (3 metre wide) and buffer to replace on-street parking along Moray Place and Rubislaw Den North with (Option 1)
- Mixed traffic route using cycle street principles with some on-street parking retained along Moray Place and Rubislaw Den North (Option 2)
- Parallel crossing on Forest Road and short section of two-way cycle track on Desswood Place (Option 1)
- Zebra crossing on Forest Road with mixed traffic street on Forest Road and Desswood Place between Rubislaw Den North and Desswood Lane (Option 2)
- Signage and road markings along the Desswood Lane to support the cycle route within a mixed traffic street
- Segregated one-way cycle tracks (1.5 – 2.0 metre wide) on Fountainhall Road between Desswood Lane and Albert Lane requiring the removal of on-street parking and modification to the signal controlled crossing
- Signage, road markings and resurfacing along Albert Lane to support the cycle route within a mixed traffic street
- Segregated one-way cycle tracks (1.5 – 2.0 metre wide) on Blenheim Place requiring the removal of on-street parking – the northbound cycle track is in contra-flow
- Continuous footways at minor side road junctions and all property accesses retained with dropped kerbs.

CLoS Scoring

A summary of the CLoS scoring for Link 9 (existing and proposed road layouts) is shown in Table 12.

Table 12: CLoS scoring - Link 9

Design Principles	Existing Road Layout		Proposed Road Layout (Option 1)		Proposed Road Layout (Option 2)	
Cohesion (out of 6)	1	17%	4	67%	4	67%
Directness (out of 10)	4	40%	5	50%	5	50%
Safety (out of 16)	6	38%	12	75%	14	88%
Comfort (out of 8)	1	13%	8	100%	8	100%
Attractiveness (out of 10)	4	40%	5	50%	6	60%
Adaptability (out of 4)	N/A	N/A	3	75%	4	100%
Total	16	32%	37	69%	41	76%

This link has an existing provision for cyclists which is on-road and mixed with traffic. These streets are predominantly residential with relatively low traffic flows, suggesting the provision should be adequate for cyclists. The overall CLoS score of 16 (32%) is not much better than other mixed traffic streets with higher vehicle flows and speeds (i.e. Link 8) but this can be explained by the following:

- Link 8 has a Critical Fail score for Safety whereas Link 9 does not
- Link 9 scores poorly for Comfort given the condition of the road surfacing along Albert Lane
- Link 9 scores poorly for Attractiveness given the more secluded sections of route along Desswood Lane and Albert Lane

In Option 1 where a continuation of the two-way cycle track is used, the CLoS score increases to 37 (69%) while for Option 2 that makes greater use of cycle streets the score improves to 41 (76%). Both options provide

a high LoS as defined by CbD with the scoring suggesting the cycle street layout has a slight advantage over the cycle track. The reason for this can be explained by Figure 16 which shows the extent to which the CLoS score changes across the six core design principles with cycle street layout (Option 2) is slightly more Adaptable and Safer than the cycle track layout (Option 1). It should however be noted that both options have a mix of cycle tracks and cycle streets, so the assessment is not making a direct comparison between a cycle street and a cycle track but road layouts that have more of one than the other.

Both options have a reduced score for Attractiveness due to the limited levels of natural surveillance along Desswood Lane and Albert Lane which contribute to increased personal safety concerns particularly during the hours of darkness. The improvement in the Attractiveness score from the existing provision is due to the proposed improved lighting along these 'Lanes'.

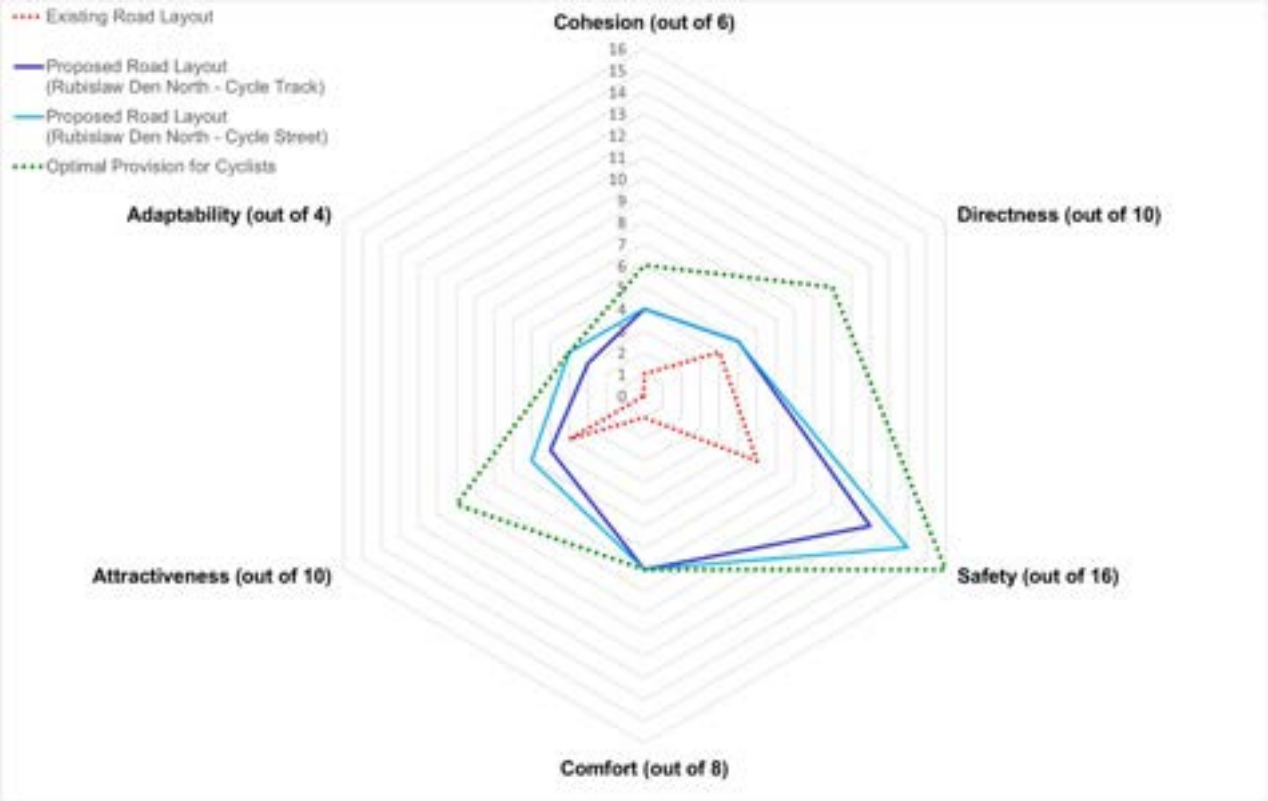


Figure 16: CLoS scoring - Link 9

Link 10 – Carnegie Crescent to Rubislaw Den South (via Anderson Drive)



Figure 17: Anderson Drive j/w King's Cross Road and Carnegie Crescent where a new signal controlled crossing is proposed

Overview

Link 10 includes part of Anderson Drive between its junctions with Carnegie Crescent and Rubislaw Den South shown in Figure 2.

Existing Road Layout

The existing road layout can be summarised (west to east) as:

- Dual carriageway road with a 40 mph speed limit and narrow central reservation
- Minimum width footways on both sides of the road with a wide verge separation that included trees
- Streetlighting along extent with lighting columns located within the verge.
- Large signal controlled junction at Hill of Rubislaw with segregated right turn from Anderson Drive
- No crossing facilities along the link which creates a severance to pedestrian movement
- The Hill of Rubislaw junction has signal controlled crossings on two of the three arms
- One northbound bus stop which is located within a layby

For the purposes of the CLoS assessment the cycle route within the existing road layout is on-road mixed with traffic although given the 40 mph speed limit any cycling along Anderson Drive is likely to be on the footways.

Proposed Road Layout

The proposed road layout for Link 10 is shown on Drawing Numbers 5526 (Appendix B) and can be summarised as follows:

- 2.5 metre wide two-way cycle track with 0.5 metre wide buffer on eastern side of Anderson Drive
- Removal of section of central reservation on Anderson Drive to realign carriageway and provide room for cycle track without impacting trees
- Priority crossing at Rubislaw Den Gardens
- Section on low trafficked on-road route at the western end of Rubislaw Den South which has a cobblestone paving surfacing

CLoS Scoring

A summary of the CLoS scoring for Link 10 (existing and proposed road layouts) is shown in Table 13.

Table 13: CLoS scoring - Link 10

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	0	0%	4	67%
Directness (out of 10)	4	40%	6	60%
Safety (out of 16)	X	X	15	94%
Comfort (out of 8)	3	38%	6	75%
Attractiveness (out of 10)	4	40%	6	60%
Adaptability (out of 4)	N/A	N/A	3	75%
Total	11	22%	40	74%

This link has an existing provision for cyclists that is on-road and mixed with traffic along a dual carriageway road with a 40 mph speed limit and high traffic flows. As such the provision is unsuitable for all cyclists. This is reflected in the overall CLoS score of 11 (22%) which includes a Critical Fail score for Safety and a zero score for Comfort and is likely to result in cyclists using the narrow footways on each side of the road.

The continuous two-way cycle track on the eastern side of the road provides cyclists with a level of protection that increases the CLoS score to 40 (74%) which represents a high LoS as defined by CbD.

The extent to which the CLoS score changes across the six core design principles is shown in Figure 18. There is a substantial improvement in Safety which goes from a Critical Fail to a score of 15 (94%). There is little scope of improving the CLoS score further given the nature of the road (busy dual carriageway), highway constraints (trees) and the need to retain the cobblestone paving at the western end of Rubislaw Den North.

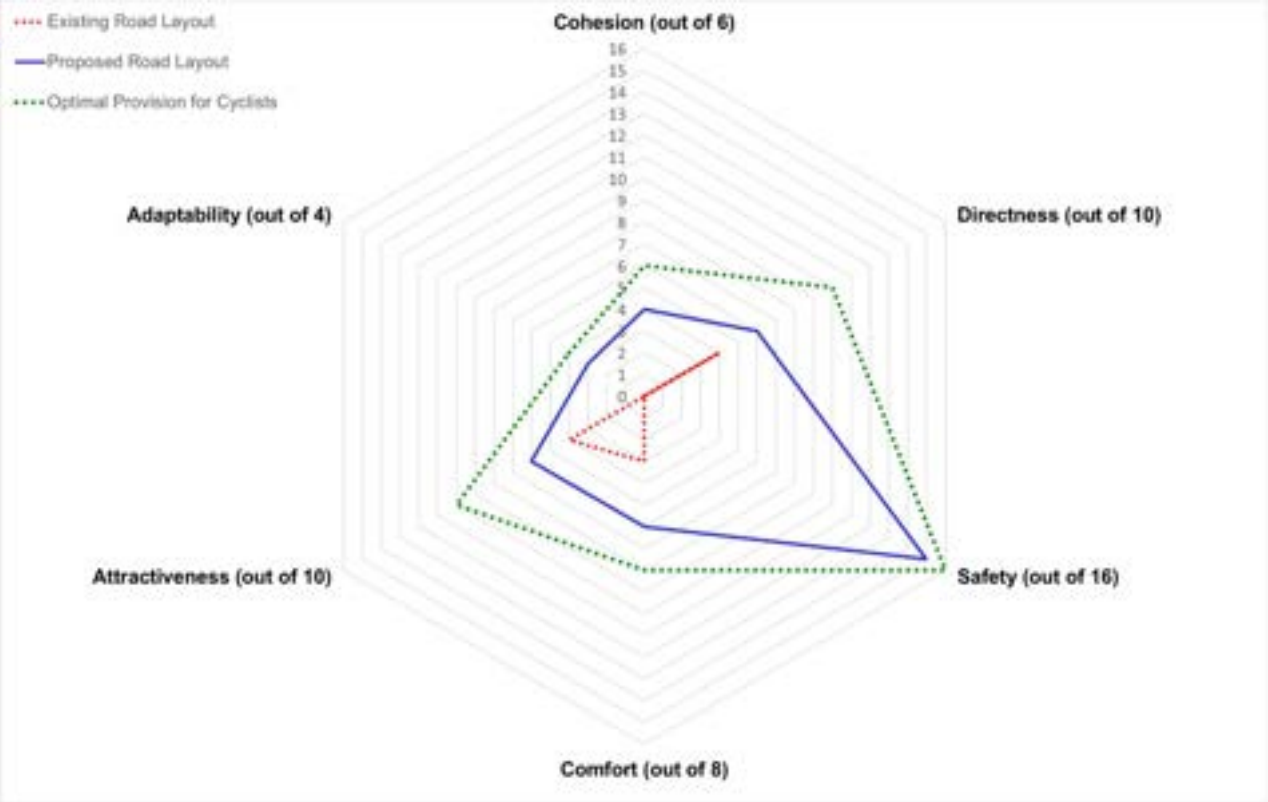


Figure 18: CLoS scoring - Link 10

Link 11 – Anderson Drive to Carden Place (via Rubislaw Den South)



Figure 19: Albert Lane which is part of Link 9 and Link 11 and a proposed mixed traffic route requiring road surfacing

Overview

Link 11 includes Rubislaw Den South, Forest Road (part), Queen's Lane North, Albert Lane (part) and Blenheim Place (part) between the Anderson Drive junction with Rubislaw Den South and the Blenheim Place junction with Carden Place shown in Figure 2.

Existing Road Layout

The existing road layout can be summarised (west to east) as:

- On-road cycling provision along extent
- The western end of Rubislaw Den South is a dead-end providing access to private driveways and has a cobblestone paved surface
- Single carriageway residential roads except along Queen's Lane North and Albert Lane which are narrow lanes with frequent vehicle accesses and no footway
- Section of one-way road at the western end of Queen's Lane North and southern end of Blenheim Place
- Controlled on-street parking on most roads
- Standard footway widths except along Queen's Lane North and Albert Lane where there no provision
- Side roads are untreated i.e. do not include enhanced safety measures for pedestrians and cyclists
- Streetlighting levels are potentially reduced by trees along Rubislaw Den South

For the purposes of the CLoS assessment the cycle route within the existing road layout is on-road and mixed with traffic.

Proposed Road Layout (Option 1 – Cycle Track and Option 2 – Cycle Street)

The proposed road layout for Link 11 is shown on Drawing Numbers 5526, 5527 and 5528 (Appendix B) but it should be noted that there are two road layout options for Rubislaw Den South. Drawing Number 5526-CT and 5527- CT shows the cycle route with a two-way cycle track on the northern side of the road (Option 1) while 5526-CS and 5527-CS shows the cycle route on-road and mixed with traffic but delivered using cycle street principles (Option 2).

- Cobblestone paved lightly trafficked section of on-road cycling at the western end of Rubislaw Den South
- Two-way cycle track (2.8 metres wide with 0.2 metre wide separation buffer) on the northern side of Rubislaw Den South requiring a narrowing of the road and removal of on-street parking (Option 1)
- Cycle street with narrow traffic lanes (2.5 metre wide), a central cobblestone paved reservation to discourage motor vehicles overtaking cyclists and off-set parking bays which will result in some loss of parking capacity (Option 2)
- Short section of 1.5 metre wide one-way cycle lane on each side of Forest Road between Rubislaw Den South and Queen's Lane North requiring a limited removal of on-street parking
- Mixed traffic street along Queen's Lane North with westbound cyclists permitted to use the one-way section
- Queen's Lane North will be resurfaced where required, street lighting improved, and signage/ road markings introduced to highlight the road as part of a strategic cycle route
- Improvements made to the Fountainhall Road junction with Queen's Lane North and Albert Lane to ensure cyclists can cross Fountainhall Road safely – consider changing give way priorities or signalising the junction
- Albert Lane will be resurfaced and measures introduced (signage/ road markings) to improve driver awareness of cyclists
- 2 metre wide one-way cycle tracks on both sides of Blenheim Place, replacing the on-street parking – the northbound cycle track will be in contra-flow
- Along the extents of the link all driveway accesses will be retained
- Along the extents of the link all side road crossings will be made fully accessible using a range measures including wider dropped kerbs, shorter and more direct cross distances or the introduction of continuous footways

CLoS Scoring

A summary of the CLoS scoring for Link 11 (existing and proposed road layouts) is shown in Table 14.

Table 14: CLoS scoring - Link 11

Design Principles	Existing Road Layout		Proposed Road Layout (Option 1)		Proposed Road Layout (Option 2)	
Cohesion (out of 6)	1	17%	5	83%	5	83%
Directness (out of 10)	5	50%	5	50%	5	50%
Safety (out of 16)	6	38%	12	75%	14	88%
Comfort (out of 8)	1	13%	8	100%	8	100%
Attractiveness (out of 10)	2	20%	5	50%	6	60%
Adaptability (out of 4)	N/A	N/A	3	75%	4	100%
Total	15	30%	38	70%	42	78%

This link has an existing on-road provision for cyclists mixed with traffic. These streets are predominantly residential with relatively low traffic flows, suggesting the provision should be adequate for cyclists. The overall CLoS score of 15 (30%) is not much better than other on-road mixed traffic streets with higher vehicle flows and speeds (i.e. Link 8) so it should be noted:

- Link 8 has a critical 'Fail' for Safety which Link 11 does not
- Link 11 scores poorly for Comfort given the condition of the road surfacing along Queen's Lane North and Albert Lane

- Link 11 scores poorly for Attractiveness given the more secluded sections of route along Queen's Lane North and Albert Lane

In Option 1 that uses a continuation of the two-way cycle track, the CLoS score increases to 38 (70%) while for Option 2 that makes greater use of cycle street layouts the score improves to 42 (78%). Both options provide a high LoS with the scoring suggesting the cycle street layout along Rubislaw Den South provides a slight advantage over the cycle track. The reason for this can be explained by Figure 20 which shows the extent to which the CLoS score changes across the six core design principles. The cycle street layout (Option 2) can be seen to be slightly more Adaptable and Safer than the cycle track layout (Option 1). It should however be noted that both options have a mix of cycle tracks and cycle streets, so the assessment is not making a direct comparison between a cycle street and a cycle track but road layouts that have more of one than the other.

Both options have a reduced score for Attractiveness due to the reduced levels of natural surveillance along Queen's Lane North and Albert Lane which increase personal safety concerns particularly during the hours of darkness. The improvement in the Attractiveness score from the existing provision is due to the proposed improved lighting along these 'Lanes'.

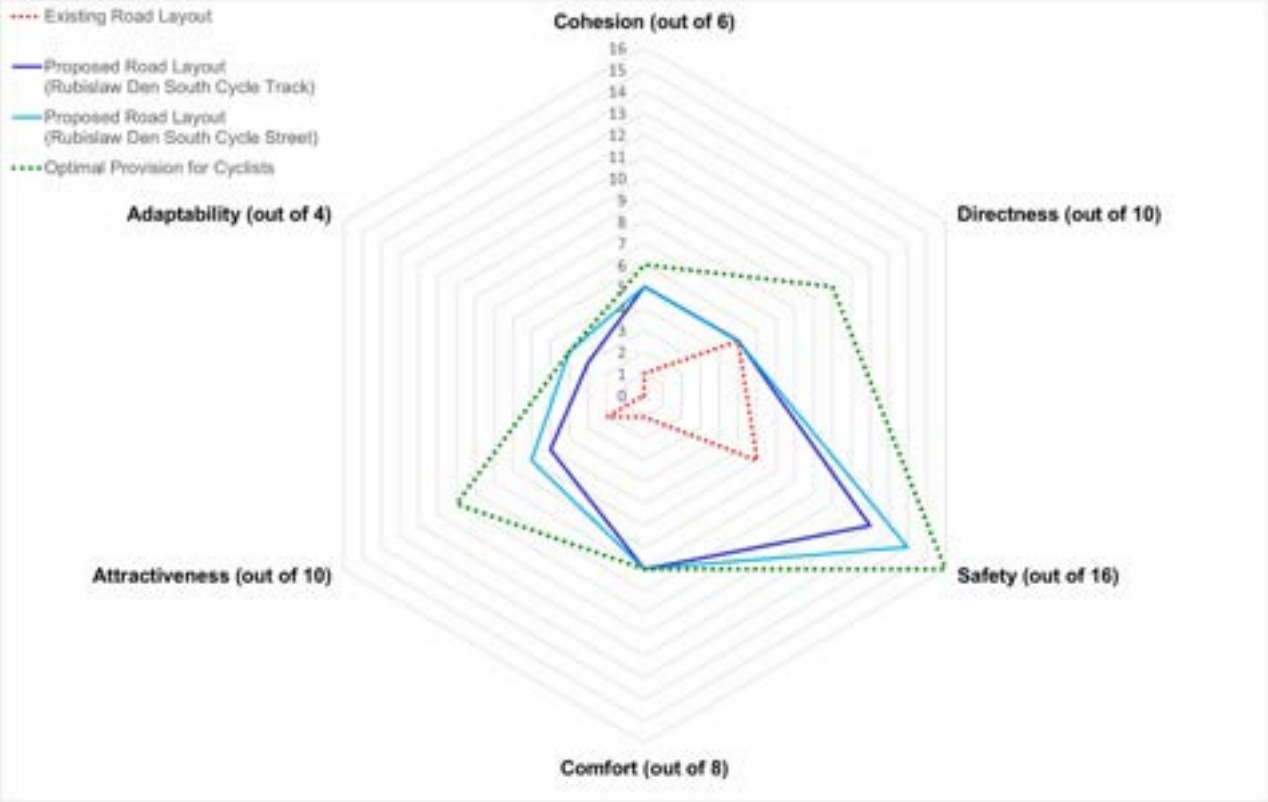


Figure 20: CLoS scoring - Link 11

Alternative Route via Queen's Road (Links 5 and 6)

Overview

This route along Queen's Road between the King's Gate and Queen's Cross roundabouts has two alternative routes (Parallel Route A and Parallel Route B). The route is defined in this CLoS assessment by combining Links 5 and 6 as shown in Figure 2.

Existing Road Layout

The existing road layout is described above for Links 5 and 6. This section of Queen's Road can be summarised as a heavily trafficked road with a 30 mph speed limit that accommodates frequent bus services and includes major junctions at King's Gate, Springfield Road, Anderson Drive, Forest Road and Queen's Cross.

Proposed Road Layout

The proposed road layout for this section of Queen's Road is described above for Links 5 and 6 and shown on Drawing Numbers 5514, 5515, 5516 and 5517 (Appendix B).

CLoS Scoring

The CLoS score for this section of Main Route has been calculated by averaging the CLoS scores across the indicators for Link 5 and Link 6[10]. A summary of these scores for the existing and proposed road layouts across the section of the Main Route is shown in Table 15.

Table 15: CLoS scoring – Main Route (Links 5 & 6)

Design Principles	Existing Road Layout		Proposed Road Layout	
Cohesion (out of 6)	0	0%	5	83%
Directness (out of 10)	3	30%	9	90%
Safety (out of 16)	X	X	15	94%
Comfort (out of 8)	2	25%	8	100%
Attractiveness (out of 10)	7	70%	6	60%
Adaptability (out of 4)	N/A	N/A	2.5	63%
Total	12	24%	46	84%

Links 5 and 6 have the same CLoS score (24 percent) reflecting the similar existing road layouts. Both links have cyclists effectively on-road and mixed with traffic as the advisory cycle lanes on Link 5 offers cyclists little protection. With cyclists mixed with heavy traffic flows and having to negotiate busy high speed junctions it is not surprising there were three Critical Fail scores for indicators that define Safety that included the speed of traffic through junctions; the volume and mix of traffic (HGV's/ buses); and lack of space for cyclists to pedal within these high volume/ high speed traffic flows. As such this section of Queen's Road is unsuitable for cyclists even confident existing users.

The proposed segregated one-way cycle tracks and major changes to junction improve the CLoS scores significantly. The extent to which the CLoS score changes across the six core design principles is shown in Figure 21 but with this overall score increasing to 84 percent the proposed road layout represents a high LoS as defined by CbD.

[10] The only exception to the average score calculation was to the Deviation Factor and Gradient indicators which were re-estimated using google earth between the start of Link 5 and end of Link 6.

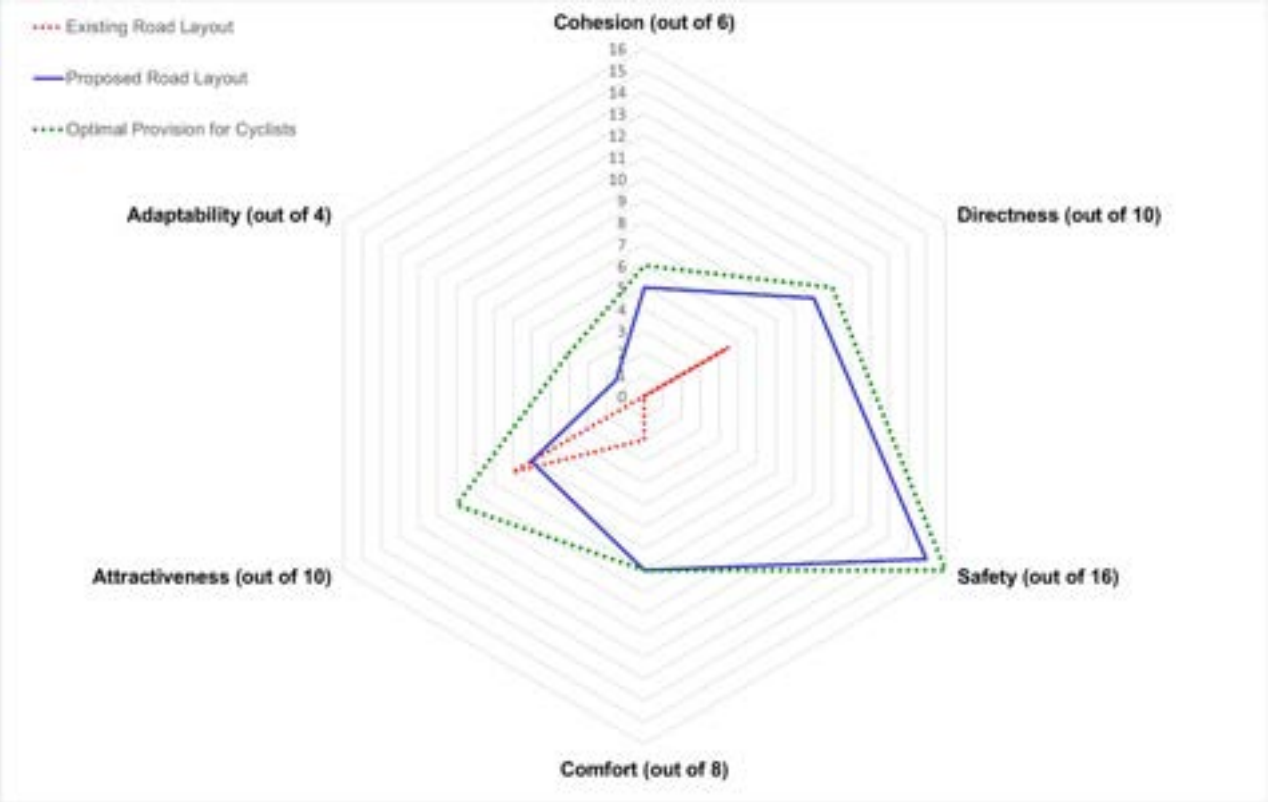


Figure 21: CLoS scoring - Main Route (Links 5 & 6)

Parallel Route A (Links 8 and 9)

Overview

This route using King's Gate and Rubislaw Den North offers and alternative route to Queen's Road between the King's Gate and Queen's Cross roundabouts. It is referred to as Parallel Route A and is defined within this CLoS assessment by combining Links 8 and 9 as shown in Figure 2.

Existing Road Layout

The existing road layout is described above in sections for Links 8 and 9. The routes uses King's Gate, Anderson Drive/ King's Cross Terrace, Carnegie Crescent, Moray Place, Rubislaw Den North, Forest Road, Desswood Place, Desswood Lane, Fountainhall Road, Albert Lane and Blenheim Place which is a combination of residential quiet streets and busier main roads.

Proposed Road Layout

The proposed road layout for the above roads is described above for the sections for Links 8 and 9 and shown on Drawing Numbers 5521, 5522, 5523, 5524 and 5525 (Appendix B). The key proposal that makes this route viable as a cycle route is the new signal controlled parallel crossing on Anderson Drive that allows cyclists and pedestrians to bypass the King's Gate/ Anderson Drive roundabout which is a major barrier to active travel.

CLoS Scoring

The CLoS score for Parallel Route A has been calculated by averaging the CLoS scores across the indicators for Links 8 and 9[11]. A summary of these scores for the existing and proposed road layouts is shown in Table 16. With a two-way cycle track (Option 1) or cycle street (Option 2) proposal for Rubislaw Den North two CLoS scores are given for the proposed road layout.

Table 16: CLoS scoring – Parallel Route A (Links 8 & 9)

Design Principles	Existing Road Layout		Proposed Road Layout (Option 1)		Proposed Road Layout (Option 2)	
Cohesion (out of 6)	0.5	8%	4	67%	4	67%
Directness (out of 10)	3	30%	5	50%	5	50%
Safety (out of 16)	X	X	14	88%	15	94%
Comfort (out of 8)	2.5	31%	8	100%	8	100%
Attractiveness (out of 10)	5.5	55%	6	60%	6.5	65%
Adaptability (out of 4)	N/A	N/A	2.5	63%	3	75%
Total	12	23%	40	73%	42	77%

The existing route requires cyclists to be on-road and mixed with traffic along the roads listed above. Most of these roads are quiet residential roads but the on-road environment along King's Gate and Fountainhall Road is much less suitable for cycling. The route between King's Gate and Carnegie Crescent currently requires cyclists to negotiate the Anderson Drive roundabout which is unsuitable for all cyclists. The combination of on-road cycling along busy 30 mph roads (King's Gate and Fountainhall Road) and junctions which are dangerous to cycle through, results in a CLoS score of 12 (23%). This indicates a low LoS as defined by CbD but with two Critical Fail scores for Safety this route for cycling cannot be recommended.

The proposed one and two - way cycle tracks, cycle streets, new crossings and junction layout changes provide a route for cyclists that has an overall CLoS score that ranges between 40 (73%) and 42 (77%) depending on whether a cycle track or cycle street is introduced on Rubislaw Den North.

Both the cycle track and cycle street provide a high LoS as defined by CbD with the scoring suggesting the cycle street layout has a slight advantage over the cycle track when considering proposals for Rubislaw Den North. The reason for this is explained in the description of the Link 9 CLoS Scoring.

[11] The only exception to the average score calculation was to the Deviation Factor and Gradient indicators which were re-estimated using google earth between the start of Link 8 and end of Link 9.

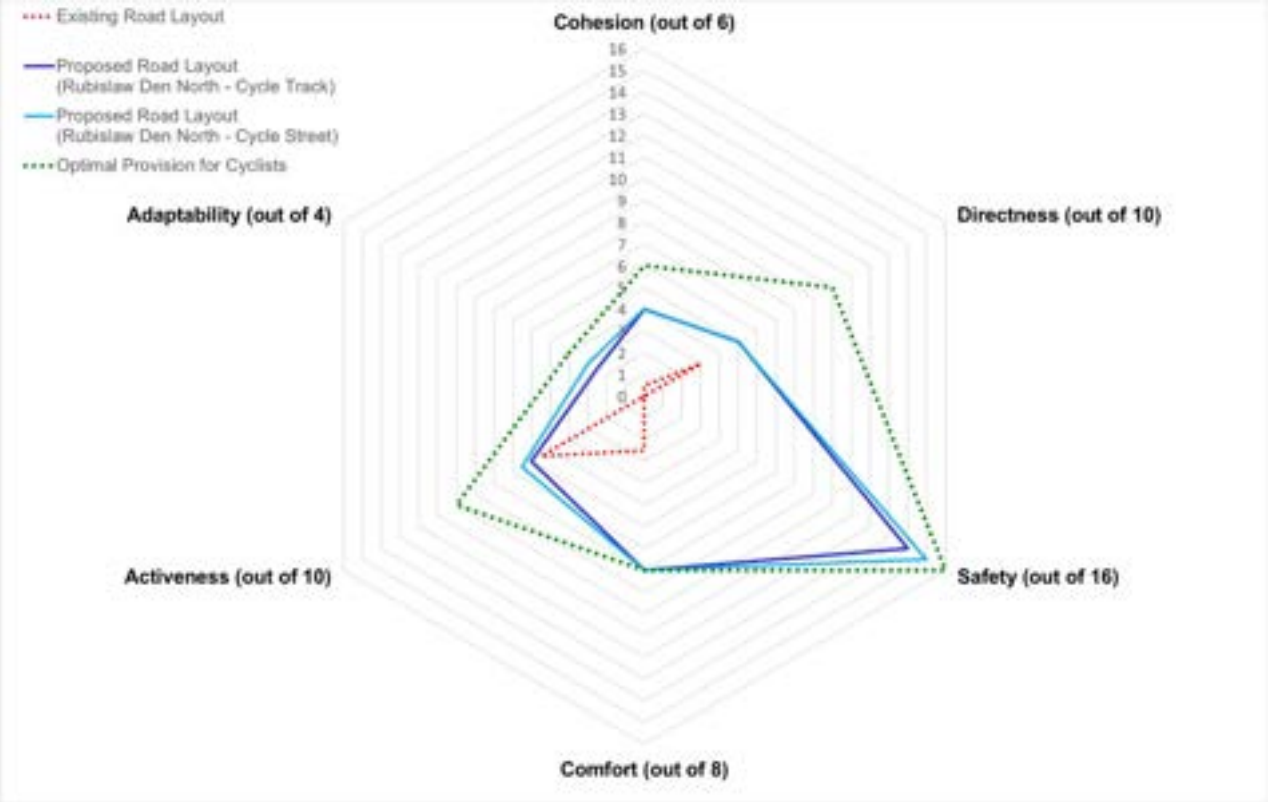


Figure 22: CLoS scoring - Parallel Route A (Links 8 & 9)

Parallel Route B (Links 8, 10 & 11)

Overview

This route using King's Gate and Rubislaw Den South offers and alternative route to Queen's Road between the King's Gate and Queen's Cross roundabouts. It is referred to as Parallel Route B and is defined within this CLoS assessment by combining Links 8, 10 and 11 as shown in Figure 2.

Existing Road Layout

The existing road layout is described above in sections for Links 8, 10 and 11. The routes uses King's Gate, King's Cross Terrace, King's Cross Road, Anderson Drive, Rubislaw Den South, Forest Road, Queen's Lane North, Albert Lane and Blenheim Place which is a combination of residential quiet streets, busier main roads and distributor roads.

Proposed Road Layout

The proposed road layout for the above roads is described above for the sections for Links 8, 10 and 11 and shown on Drawing Numbers 5521, 5522, 5526 and 5527 (Appendix B). The key proposal that makes this route viable as a cycle route is the new signal controlled parallel crossing on Anderson Drive that allows cyclists and pedestrians to bypass the King's Gate/ Anderson Drive roundabout which is a major barrier to active travel. Additionally, Anderson Drive between this crossing and Rubislaw Den South is significantly modified to accommodate a two-way cycle track.

CLoS Scoring

The CLoS score for Parallel Route A has been calculated by averaging the CLoS scores across the indicators for Links 8, 10 and 11[12]. A summary of these scores for the existing and proposed road layouts is shown in Table 17. With a two-way cycle track (Option 1) or cycle street (Option 2) proposal for Rubislaw Den North two CLoS scores are given for the proposed road layout.

Table 17: CLoS scoring – Parallel Route B (Links 8, 10 & 11)

Design Principles	Existing Road Layout		Proposed Road Layout (Option 1)		Proposed Road Layout (Option 2)	
Cohesion (out of 6)	0.3	6%	4.3	72%	4.5	75%
Directness (out of 10)	4.7	47%	6.3	63%	6.5	65%
Safety (out of 16)	X	X	14.3	90%	15.0	94%
Comfort (out of 8)	2.7	33%	7.3	92%	8.0	100%
Attractiveness (out of 10)	4.3	43%	6.0	60%	6.5	65%
Adaptability (out of 4)	N/A	N/A	2.7	67%	3.0	75%
Total	12	24%	41	76%	44	81%

The existing route requires cyclists to be on-road and mixed with traffic along the roads listed above. Most of these roads are quiet residential roads but the on-road environment along King's Gate and more importantly Anderson Drive including the Anderson Drive junction with King's Gate is unsuitable for cycling. The combination of on-road cycling along busy 30 and 40 mph roads and junctions which are dangerous to cycle through, results in a CLoS score of 12 (24%). This indicates a low LoS as defined by CbD but with three Critical Fail scores for Safety this route for cycling cannot be recommended.

The proposed two - way cycle tracks, cycle streets, new crossings and junction layout changes provide a route for cyclists that has an overall CLoS score that ranges between 41 (76%) and 44 (81%) depending on whether a cycle track or cycle street is introduced on Rubislaw Den South.

Both the cycle track and cycle street provide a high LoS as defined by CbD with the scoring suggesting the cycle street layout has a slight advantage over the cycle track when considering proposals for Rubislaw Den South. The reason for this is explained in the description of the Link 10 CLoS Scoring.

[12] The only exception to the average score calculation was to the Deviation Factor and Gradient indicators which were re-estimated using google earth between the start of Link 8 and end of Link 11.

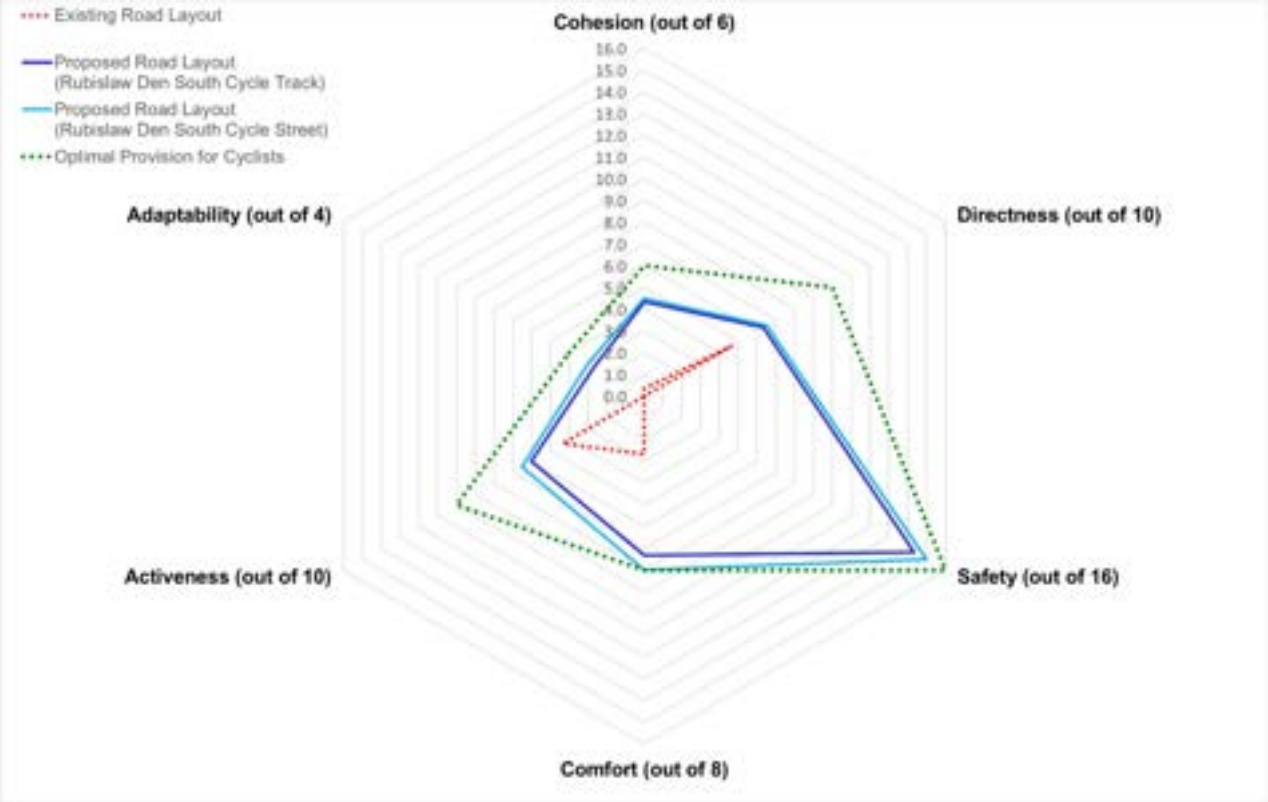


Figure 23: CLoS scoring - Parallel Route B (Links 8, 10 & 11)

Appendix E: Junction Assessment

Contents

The following qualitative assessment has been undertaken at 12 key junctions along the study corridor. It is based on four core design principles of Safety, Directness, Coherence and Attractiveness using the following indicators which are described above along with the scoring used.

- Conflicting movements – motor traffic (Safety)*
- Motor Traffic Speed Risk (Safety)*
- Delay (Directness)*
- Ability to join and leave the route (Coherence)
- Conflicting movements – pedestrians (Attractiveness)

Those indicators with an asterisk only consider the movements cyclists need to take to progress along the study corridor.

Westhill Drive j/w A944

Description

This medium-sized high-speed priority roundabout has two lane entry and exits on each of the four arms. The signal controlled crossing is a staggered shared-used facility on the western arm (Straik Road). There are informal crossings on the northern (Westhill Drive) and southern (Endeavour Drive) but no crossing provision on the eastern arm (A944). It is unclear whether these narrow footways are shared-use, but blue directional signage suggests they can be used for cycling. The proposed junction layout is shown in Drawing Number: 5502 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: From the southern footway/ shared-use path cyclists cross Straik Road using the staggered Toucan crossing and Westhill Drive at an uncontrolled crossing where pedestrians and cyclists must seek gaps in the flow of traffic to access the northern side of the A944 east of the junction
- **Proposed route for cyclists**: From the shared-use path on the southern side of Straik Road cyclists cross at an upgraded Toucan crossing (staggered route removed) to a widened shared-use path on the north-west corner of the junction. Cyclists cross Westhill Drive to access the two-way cycle track via a new Toucan crossing.

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic)*	Existing	Uncontrolled crossing of Westhill Drive with cyclists at risk of collision with traffic entering and exiting the roundabout on Westhill Drive	●	●●
	Proposed	Controlled straight-across shared-use crossing on Westhill Drive		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction are high. Cyclists are off-road but must cross Straik Road (under signal-control) and Westhill Drive (seeking gaps between traffic)	●	●●
	Proposed	Vehicle speeds on the approach, through and exit to the junction remain high. Cyclists remain off-road and needing to cross Straik Road (under signal-control) and Westhill Drive (under signal-control). Traffic speeds on Westhill Drive likely to reduce slightly with new signal controlled crossing		
Delay*	Existing	Cyclists use an off-set staggered crossing on Straik Road and must wait for gaps in traffic to cross Westhill Drive	●	●
	Proposed	The upgraded crossing on Straik Road removes the staggered route and new single stage shared-use crossing on Westhill Drive provided		
Ability to Join and Leave Route	Existing	Crossing facilities at the junctions on the Westhill Drive, A944 and Endeavour Drive are poor	●	●
	Proposed	Crossing provision on A944 and Endeavour Drive remain poor		
Conflicting Movements (pedestrians)*	Existing	Cyclists share the signal controlled staggered crossing of Straik Road and paths at the roundabout	●	●
	Proposed	No change, cyclists continue to use existing and new share-use facilities crossings and paths at the roundabout		

A9119 j/w A944

Description

This a four-armed signal controlled junction with the northern arm a minor access road associated with the Mayfield, Cherry Grove and Crommie Cottage residential properties. The only signal controlled crossing is a staggered shared-use facility on the western side of the junction. The proposed junction layout is shown in Drawing Number: 5503 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists bypass the junction by using the shared-use path and mixed traffic route via the residential access road that runs to the north of Crommie Cottage and adjacent residential properties
- **Proposed route for cyclists**: The proposals retain the existing route but with improved road markings and signage for wayfinding. The alternative option introduces a new signal controlled share-use crossing on the residential access road, but this is not the preferred option

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	Potential conflict with vehicles entering and exiting the residential access road but flows and risk of collision considered low	●●	●●
	Proposed	No change to existing provision		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction are high but cyclists are off-road and do not need to cross traffic lanes at the junction	●●	●●
	Proposed	Vehicle speeds on the approach, through and exit to the junction remain high and cyclists do not need to cross traffic lanes		
Delay*	Existing	Cyclists must give-way to traffic exiting the junction but traffic flows and therefore frequency of give-ways considered to be low	●●●	●●●
	Proposed	No change to existing provision		
Ability to Join and Leave Route	Existing	There is a signal controlled shared-use crossing on the A944 (E) arm but no crossing facilities on the A9119 approach although it does have an ASL. Cycle demand for the A9119 is likely to be low given nearby land uses	●	●
	Proposed	No change to existing provision		
Conflicting Movements (pedestrians)*	Existing	Shared-use paths and crossing widths considered adequate given the low footfall levels	●●	●●
	Proposed	No significant change to pedestrian comfort levels forecast		

A90 AWPR j/w A944 (roundabout - signal controlled)

Description

The junction is a grade-separated roundabout which is part signal controlled. There are seven exits and seven entries to the roundabout of which four of the entries are signal controlled. The proposed junction layout is shown in Drawing Numbers: 5505 and 5506 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists use an off-road route on the approach, through and exit to the junction using two signal controlled and two informal crossing facilities along a shared-use path that runs along the northern perimeter of the roundabout
- **Proposed route for cyclists**: Cyclists use an off-road route on the approach, through and exit to the junction using a two signal controlled crossing facilities to access a cycle track that runs along the northern perimeter of the roundabout island

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	Potential conflict with vehicles entering and exiting Borrowstone Road and Old Borrowstone Road particularly on the exits to the roundabout when vehicles speeds are likely to be high	●	●●
	Proposed	The new signal controlled parallel crossings on the circulatory lanes reduce the number of time cyclists have to cross traffic lanes at the junction		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction are high. Cyclists are off-road but need to cross at 4 locations (2 signal controlled and 2 informal crossing)	●●	●●
	Proposed	No change to vehicle speeds at the junction but cyclists only need to cross the road at 2 locations and both under signal control		
Delay*	Existing	Cyclist route crosses four arms to the roundabout (2 signal controlled and 2 informal crossings)	●	●●
	Proposed	New signal controlled parallel crossings on the circulatory lanes and cycle track along the northern perimeter of the roundabout island provide a more direct route through the junction for cyclists and pedestrians		
Ability to Join and Leave Route	Existing	There is limited opportunity to join or leave the route with the most likely being via Borrowstone Road and Old Borrowstone Road	●●	●●
	Proposed	No change to existing provision		
Conflicting Movements (pedestrians)*	Existing	Shared-use paths and crossing widths considered adequate given the low footfall levels	●●	●●
	Proposed	Segregated pedestrian and cycle route on the approach, through and exit to the junction. No significant change to pedestrian comfort levels forecast		

Kingswells Causeway j/w A944 (signal controlled)

Description

This is a large, signal controlled T-junction with three approach lanes on the western arm (A944), two on the northern arm (Kingswells Causeway) and four lanes on the eastern arm (A944). The only signal controlled crossing is a staggered facility on Kingswells Causeway. The proposed junction layout is shown in Drawing Number: 5507 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists use an off-road route on the approach, through and exit to the junction using a staggered shared-use signal controlled crossing on Kingswells Causeway
- **Proposed route for cyclists**: Cyclists use an off-road route on the approach, through and exit to the junction using a parallel signal controlled single stage crossing of Kingswells Causeway

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	The conflicting movements when crossing Kingswells Causeway are signal controlled	●●	●●
	Proposed	The conflicting movements when crossing Kingswells Causeway remain signal controlled but cyclists are now able to cross in a single stage		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction are high. Cyclists use an off-road route to the north of the junction where the only interaction with traffic is when crossing Kingswells Causeway in two stages under signal control	●●	●●
	Proposed	Vehicle speeds on the approach, through and exit to the junction remain high. Cyclists remain off-road and cross Kingswell Causeway in a single stage under signal-control		
Delay*	Existing	Cyclists use an off-set staggered shared use signal controlled crossing of Kingswells Causeway	●	●●
	Proposed	Cyclists use an off-set parallel signal controlled crossing with traffic signal timings and cycle detection optimised to minimise the delay crossing Kingswells Causeway		
Ability to Join and Leave Route	Existing	Kingswells Causeway has shared-use paths on both sides of the road approaching the junction	●●	●●
	Proposed	No change to existing provision		
Conflicting Movements (pedestrians)*	Existing	Cyclists use a cycle track on the approach and exit to the junction and a staggered shared-use signal controlled crossing at the junction	●●	●●
	Proposed	Cyclists use a cycle track on the approach and exit to the junction and a parallel signal controlled crossing at the junction. No significant change to pedestrian comfort levels forecast		

Fairley Road j/w A944 (roundabout - signal controlled)

Description

The Fairley Road roundabout is a large high speed junction with three lane approaches on each of the four arms. The only signal controlled crossing is a staggered facility on Fairley Road. The proposed junction layout is shown in Drawing Number: 5508 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists use an off-road route (north of the A944) on the approach, through and exit to the junction using a signal controlled staggered shared-use crossing on Fairley Road
- **Proposed route for cyclists**: Cyclists use an off-road route (north of the A944) on the approach, through and exit to the junction using a signal controlled parallel single stage crossing of Fairley Road

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	Conflicting movements when crossing Fairley Road are signal controlled	●●	●●
	Proposed	Conflicting movements when crossing Fairley Road remain signal controlled but cyclists are now able to cross in a single stage		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction is high, particularly on Fairley Road due to the roundabout geometry. Cyclists use an off-road route to the north of the junction where the only interaction with traffic is when crossing Fairley Road in two stages under signal-control	●●	●●
	Proposed	Vehicle speeds on the approach, through and exit to the junction remain. Cyclists remain off-road and cross Fairley Road in a single stage under signal-control		
Delay*	Existing	Cyclists use an off-set staggered shared-use signal controlled crossing of Fairley Road	●	●●
	Proposed	Cyclists use an off-set parallel signal controlled crossing with traffic signal timings and cycle detection optimised to minimise the delay crossing Fairley Road		
Ability to Join and Leave Route	Existing	There are no safe routes to join and leave the route	●	●
	Proposed	No change to existing provision		
Conflicting Movements (pedestrians)*	Existing	Pedestrians and cyclists use narrow shared-use paths and a staggered share-use crossing	●	●●
	Proposed	Pedestrians and cyclists have an enhanced shared-use path approach and exit to the junction and use a parallel crossing on Fairley Road		

A944 j/w Skene Road or 'Jessiefield roundabout' (roundabout – part signal controlled)

Description

The Jessiefield roundabout is a three-arm, part signal controlled junction with a westbound bypass lane between Skene Road and the A944. Two of the three entry lanes are signal controlled. The only signal controlled crossing is a staggered facility on northern A944 arm. The proposed junction layout is shown in Drawing Number: 5510 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists off-road route on the approach, through and exit to the junction via a shared-use staggered signal controlled crossing on the northern arm (Lang Stracht) of the roundabout
- **Proposed route for cyclists**: Cyclists use an off-road route on the approach, through and exit to the junction via a signal controlled parallel crossing on the northern arm (Lang Stracht) of the roundabout

CLoS Scoring

Anecdotal evidence from cycle campaign groups and during site visits suggest there is a compliance issue with the signal controlled crossing on the northern arm (Lang Stracht) of Jessiefield Road roundabout. Drivers have been observed running the red light which raises significant road safety risks for pedestrians and cyclists using this crossing.

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	Conflicting movements when crossing Fairley Road are signal controlled but anecdotal evidence from cycle campaign groups and site visits suggests there is a compliance issue with the signal controlled crossing on Lang Stracht with drivers observed running the red light. This raises significant road safety risks for pedestrians and cyclists	🔴	🔵🔵
	Proposed	The crossing Lang Stracht is moved away from the junction to improve driver visibility of the signal heads		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction is high. This includes Lang Stracht and the approaches to the crossing	🔵	🔵
	Proposed	Vehicle speeds on the approach, through and exit to the junction remain high. While the location of the crossing is changed to improve driver visibility of the signal heads the speed of traffic approaching the crossing on Lang Stracht also unlikely to change		
Delay*	Existing	Cyclists use an off-set staggered shared-use signal controlled crossing of Lang Stracht	🔵	🔵🔵
	Proposed	Cyclists use an off-set parallel signal controlled crossing with traffic signal timings and cycle detection optimised to minimise the delay crossing Lang Stracht		
Ability to Join and Leave Route	Existing	There are no safe routes to join and leave the route. There is an off-line route away from the junction that connects Lang Stracht with Skene Road to the east of the junction	🔵	🔵
	Proposed	No change to existing provision		
Conflicting Movements (pedestrians)*	Existing	Pedestrians and cyclists use narrow shared-use paths and narrow staggered share-use crossing	🔵	🔵🔵
	Proposed	Pedestrians and cyclists have a segregated approach and exit to the junction and the crossing provides a parallel crossing on Lang Stracht		

King's Gate j/w Queen's Road (roundabout)

Description

The King's Gate roundabout is four-arm junction with two entry lanes on each approach. The roundabout is a priority junction, and all crossing facilities are uncontrolled using narrow pedestrian islands. The proposed junction layout is shown in Drawing Number: 5514 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists on-road route on the approach, through and exit to the junction
- **Proposed route for cyclists (Main Route)**: Cyclists use a shared-use area on the approach, through and exit to the junction. Crossing King's Gate and Queen's Road is provided parallel Zebra crossings
- **Proposed route for cyclists (Parallel Route)**: Cyclists use a shared-use area on the approach, through and exit to the roundabout

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	The multi approach and circulatory lanes put cyclists at high risk of collision from vehicles at the roundabout	🔴	
	Proposed (Main)	Shared-use path and parallel Zebra crossings allow cyclists to bypass the roundabout but there is a residual risk associated with using the parallel Zebra crossings		🟢🟢
	Proposed (Parallel)	Shared-use path allows cyclists to bypass the roundabout removing all conflicting movements		🔵🔵🔵
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction is high	🔴	
	Proposed (Main)	Geometry changes will reduce vehicle speeds on the approach, through and exit to the junction. The cycle route is off-road on shared-use paths where the only interaction with traffic is at the parallel Zebra crossings on King's Gate and Queen's Road		🟢🟢
	Proposed (Parallel)	Roundabout geometry changes will reduce the vehicle speeds on the approach, through and exit to the junction. The cycle route is off-road on shared-use paths removing all interactions with motor traffic		🔵🔵🔵
Delay*	Existing	Cyclists can bypass queues on the approach to the roundabout (via the cycle track and share-use areas) but to cross King's Gate and Queen's Road need to use the off-set parallel Zebra crossings	🟢🟢	
	Proposed (Main)	Cyclists can bypass traffic on the approach to the roundabout (via the cycle track and share-use areas) located on the north-west perimeter of the roundabout		🔵
	Proposed (Parallel)	The on-road provision via the roundabout makes it difficult for cyclists leave and join the route		🟢🟢
Ability to Join and Leave Route	Existing	The on-road provision via the roundabout makes it difficult for cyclists leave and join the route	🔵	
	Proposed (Main)	The shared-use paths and crossings make it easier to join and leave the roundabout from King's Gate but not Hazlehead Avenue		🟢🟢
	Proposed (Parallel)	There is little improvement to joining the route from Queen's Road or Hazlehead Avenue		🔵

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (pedestrians)*	Existing	Cyclists are on-road so no impact on pedestrian comfort levels	●●●	
	Proposed (Main)	Pedestrians share the footway with cyclists and these shared-use areas only meet minimum standard widths. There is a nearby school. The proposals do however widen pedestrian refuge islands on all approaches to the roundabout and include parallel Zebra crossing that reduce the negative impacts of the proposals		●
	Proposed (Parallel)	Pedestrians share part of the footway with cyclists and these shared-use areas (at locations) only meet minimum standard widths. There is a nearby school		●

Springfield Road j/w Queen's Road (T-junction - signal controlled)

Description

This three-armed signal controlled junction has two approach lanes on the western (Queen's Road) and southern (Springfield Road) arms. There are signal controlled crossings and ASL's on each arm of the junction. The proposed junction layout is shown in Drawing Number: 5514 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists on-road mixed with traffic on the approach, through and exit to the junction
- **Proposed route for cyclists**: Cyclists on-road at the junction but where cyclists are in cycle tracks on the approach and exit to the junction and have advisory cycle lane markings within the junction

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	Cyclists at risk from left-turn hook, heavy opposing flows (when cyclists turning right) and drivers seeking gaps when turning right. The ASL's provide cyclists some protection from conflicting movements but only when the approach is on a RED signal	●	●●
	Proposed	Cycle tracks extend up to junction stop lines and cyclists provided an 'early release' at the stop line. Advisory cycle lane markings extended through junction to raise driver awareness of cycle movements		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction is considered high given the size and location of the junction and with respect to cycling that is on-road and mixed with traffic	●	●●
	Proposed	Vehicle speeds on the approach, through and exit to the junction is likely to reduce. Traffic lanes are narrowed and the space within the junction for right-turners reduced. Road markings will highlight the presence of cyclists		
Delay*	Existing	Cyclists are on-road on the approach, through and exit to the junction experiencing no significant additional delay compared to motor traffic	●●	●●
	Proposed	Cyclists can use the cycle tracks to bypass traffic queues on the approaches to the junction while cyclists given an 'early release' at stop lines. Safer but no significant change to cycle journey times expected		
Ability to Join and Leave route	Existing	Cycle access to and from Springfield Road achievable within existing method of signal control with cyclists exposed to the above conflicting movements	●	●●
	Proposed	New shared-use crossing to make cycle right turns safer		
Conflicting Movements (pedestrians)*	Existing	Cyclists are on-road so no impact on pedestrian comfort levels	●●	●●
	Proposed	Cyclists remain on-road. Shared-use crossing introduced to make turning movements safer and widened to mitigate impact on pedestrian comfort levels		

Anderson Drive j/w Queen's Road (Roundabout - priority)

Description

The Anderson Drive roundabout is a large four arm junction with three lane approaches on the western (Queen's Road) and southern (Anderson Drive) arms. The only signal controlled crossings are the southern (Anderson Drive) and eastern (Queens Road) arms and both off-set from the junction. The proposed junction layout is shown in Drawing Number: 5516 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists on-road but given the high speed/ flow traffic and vehicle movements at the junction it is expected most cyclists will use the footways
- **Proposed route for cyclists**: Cyclists on-road using cycle tracks on the approach and exit to the roundabout. Cyclists are off-road at the junction using shared-use areas and signal controlled parallel crossings on Anderson Drive

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	The multi- approach and circulatory lanes put cyclists at very high risk of collision from vehicles entering and existing the roundabout	🔴	🟢🟢
	Proposed	Majority of conflicting movements removed as cyclists use an off-road provision via shared-use areas and signal controlled parallel crossings on Anderson Drive. Given the speed of traffic there remains some residual risk of conflict at the signal controlled parallel crossings		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction is high	🔴	🔵🔵🔵
	Proposed	Vehicle speeds on the approach, through and exit to the junction remains high but cyclists segregated from traffic and under signal-control when crossing Anderson Drive		
Delay*	Existing	Cyclists are on-road on the approach, through and exit to the junction experiencing no significant additional delay compared to motor traffic	🟢🟢	🔵
	Proposed	Cyclists are off-road using a combination of shared-use areas and signal controlled parallel crossings to cross Anderson Drive. These crossing facilities are off-set from the junction and cyclists must cross under signal controls		
Ability to Join and Leave route	Existing	There are no suitable cycle routes along Anderson Drive	🔵	🔵
	Proposed	There remains no suitable cycle routes along Anderson Drive but the new crossing facilities provide an opportunity to develop improved links in future		
Conflicting Movements (pedestrians)*	Existing	Cyclists are on-road so no impact on pedestrian comfort levels. Given the risk to cyclists at this junction it is likely most cycling will occur on the narrow footways that surround the roundabout	🔵	🟢🟢
	Proposed	Cyclists are off-road using areas of shared-use to access the crossings on Anderson Drive. The footways have been widened to facilitate shared-use and the crossings have a parallel provision for cyclists		

Forest Road j/w Queen's Road (roundabout) or 'Forest Road roundabout'

Description

The Forest Road roundabout is a small four arm junction which has single lane approaches and off-set signal controlled crossings on all arms. The proposed junction layout is shown in Drawing Number: 5517 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists on-road on the approach, through and exit to the roundabout
- **Proposed route for cyclists**: Cyclists on-road using cycle tracks on the approach and exit to the signal controlled junction. Advisory cycle lanes provided within the junction with two-stage right turns.

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	The multi- approach and circulatory lanes put cyclists at high risk of collision from vehicles entering and existing the roundabout	🔴	🟢🟢
	Proposed	Cycle movements through junction under signal control although still shared with motor traffic. ASL's and cycle 'early release' reduce ahead and right-turn conflicts. Two-stage right-turns proposed		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the junction is high relative to the size and location of the junction and with respect to on-road cycling mixed with traffic	🔴	🟢🟢
	Proposed	Replacing the roundabout with a signal controlled cross-roads and introducing cycle tracks on the approaches and exits and advisory cycle lanes through the junction is likely to reduce vehicle speeds		
Delay*	Existing	Cyclists are on-road and mixed with traffic on the approach, through and exit to the junction suggesting no additional delay when compared to motor traffic	🟢🟢	🟢🟢
	Proposed	Cyclists can use the cycle tracks to bypass traffic queues on the approaches to the junction while cyclists given an 'early release' at stop lines. Safer but no significant change to cycle journey times expected		
Ability to Join and Leave route	Existing	The on-road provision at the roundabout makes it difficult for cyclists leave/ join the route	🔵	🟢🟢
	Proposed	The signal controlled junction with integrated cycle tracks and lanes on all approaches		
Conflicting Movements (pedestrians)*	Existing	Cyclists on-road so no impact on pedestrian comfort levels at the junction but the risks to cyclists at the junction suggest some cycling will be on the narrow footways	🔵	🔵🔵🔵
	Proposed	Cyclists remain on-road but within a segregated provision so no impact on pedestrian comfort levels at the junction		

Queen's Road j/w Fountainhall Road, Carden Place & Albyn Place (Roundabout - priority)

Description

The Queen's Cross roundabout is a five-arm junction with two-lane entries and limit deflection for straight through traffic. There are signal controlled crossings on each arm. This roundabout poses and significant risk to cyclists given the speed and volume of traffic using it. The proposed junction layout is shown in Drawing Number: 5517 (Appendix B) and introduces a protected cycle track roundabout layout or 'Dutch style arrangement'. This provides segregated cycle tracks on the perimeter of the roundabout and parallel Zebra crossings on each arm to provide a segregated route for cyclist and pedestrians. The arrangement requires changes to the Albyn Place arm that removes general traffic entering Albyn Place from the roundabout

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists assumed to be on-road but with the risks associated with the speed and movement of traffic at the roundabout it is expected most cyclists will use the narrow footways
- **Proposed route for cyclists**: Cyclists use the protected track on the perimeter of the roundabout and parallel Zebra crossings on the roundabout arms

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	The multi- approach and circulatory lanes put cyclists at very high risk of collision from vehicles entering and existing the roundabout	●	●●
	Proposed	A segregated cycle route on the perimeter of the roundabout with parallel Zebra crossings on all arms to the junctions reduces the frequency and risk of conflicting movements. There remains some potential for collision at the parallel Zebra crossings but this should reduce as drivers become more familiar with the layout and operation of the junction		
Motor Traffic Speed Risk*	Existing	Vehicle speeds on the approach, through and exit to the roundabout is high relative to the size of the junction	●	●●●
	Proposed	Vehicle speeds will be slow due to the reduced space for general traffic, the Zebra controlled crossings and tighter turning radii on the approach, through and on the exit to the roundabout		
Delay*	Existing	Cyclists are on-road and mixed with traffic on the approach, through and exit to the junction suggesting no additional delay when compared to motor traffic	●●	●●●
	Proposed	Cycle track allows cyclists to bypass traffic on the approach to the roundabout and the parallel Zebra crossings give cyclists priority over motor traffic through the junction		
Ability to Join and Leave route	Existing	The on-road provision at the roundabout makes it difficult for cyclists leave or join the route	●	●●●
	Proposed	The protected cycle track roundabout layout makes it easy for cyclists to join and leave the route		
Conflicting Movements (pedestrians)*	Existing	Cyclists are on-road but the risks to cyclists at the junction suggests most cycling will be on the narrow footways and so will have a negative impact on pedestrian comfort levels	●	●●●
	Proposed	The cycle tracks, footways and parallel Zebra crossings give cyclists and pedestrians a separate provision and so will improve pedestrian comfort levels at the junction		

Skene Street j/w Rosemount Viaduct (signal controlled)

Description

This four-arm signal controlled cross-roads has signal controlled crossings and ASL's on all arms/ approaches. The western arm (Skene Street) has a separately controlled left turn lane. The proposed junction layout is shown in Drawing Number: 5520 (Appendix B).

The existing and proposed routes for cyclists at this junction can be summarised as:

- **Existing route for cyclists**: Cyclists on-road with cyclists travelling inbound needing to turn right from Skene Street to Rosemount Viaduct and outbound cyclists turning left from Rosemount Viaduct
- **Proposed route for cyclists**: As existing but with advisory cycle lanes within the junction. Early-release and two-stage right turns provided.

CLoS Scoring

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (motor traffic) *	Existing	The inbound right turn from Skene Street is opposed by traffic in the opposite direction requiring cyclists to wait within the junction and seek gaps with traffic passing each side. The outbound left turn has a pinch point on the exit to the junction (Skene Street) created by a traffic island and requiring cyclists to maintain a primary riding position to remain safe		
	Proposed	Inbound cyclists are provided a two-stage right turn and the traffic island is removed on the Skene Street (W) eliminating the pinch point. The proposed cycle lanes on the approach, through and within the junction will raise driver perceptions of cycle movements at the junction and so help reduce conflicts		
Motor Traffic Speed Risk*	Existing	The junction is located on the edge of the city centre 20 mph zone and is signal controlled with pedestrian crossing facilities on all arms which will moderate vehicle speeds at the junction. The area of the junction is however relatively constrained so there are banned right turns on Rosemount Viaduct (in both directions) and Skene Street (E) which will increase traffic speeds along Rosemount Viaduct. Overall traffic speeds through the junction are considered moderate to high with respect to on-road cycling that is mixed with traffic		
	Proposed	The cycle lane proposals on the approach, through and on the exit to the junction narrows traffic lanes and so is likely to reduce vehicle speeds compared to existing conditions		
Delay*	Existing	Cyclists are on-road and mixed with traffic on the approach, through and exit to the junction suggesting no significant additional delay compared to motor traffic		
	Proposed	Cyclists can use the cycle tracks to bypass traffic queues on the approaches to the junctions while cyclists given an 'early release' at stop lines. Safer but no significant change to cycle journey times expected		
Ability to Join and Leave route	Existing	Cyclists are banned from making right turns from Rosemount Viaduct (in both directions) and from Skene Street (E)		
	Proposed	Two-stage right turns are introduced that allow cyclists to make all turning movements at the junction. It is proposed to retain the existing banned turns for motor traffic		

Indicator	Layout	Analysis	Score	
			Existing	Proposed
Conflicting Movements (pedestrians)*	Existing	Cyclists on-road so no impact on pedestrian comfort levels	●●	●●
	Proposed	Cyclists remain on-road and all pedestrians crossing facilities retained/ improved so no impact on pedestrian comfort levels		

Westhill to Aberdeen – Walking, Wheeling and Cycling Proposals

Public Engagement Outcomes Summary

On behalf of **Aberdeen City Council**

Project Ref: 332611654 | Date: August 2024

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Revision	Date	Description	Prepared	Reviewed	Approved

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1 Introduction

1.1 Overview

1.1.1 Proposals to improve walking, wheeling and cycling infrastructure between Westhill and Aberdeen were first developed as part of the **A944 / A9119 Multi-modal Corridor Study.** The Study identified options for delivering transformational change to sustainable transport provision (both bus and walking, wheeling and cycling) on the A944 (Lang Stracht / Westburn Road) and A9119 (Queen's Road / Carden Place) western road approaches to Aberdeen. The active travel aspects of this project were subsequently progressed separately through the Westhill to Aberdeen Active Travel Study and an online consultation exercise undertaken to gain views and opinions from the public on the proposals.

1.1.2 The online public survey was open for viewing and providing feedback between 5th July and 18th August 2024, with a wide range of stakeholders emailed to inform them that the survey was live. Aberdeen City Council promoted the opportunity to the wider public via a press release and social media posts.

1.1.3 The survey was embedded within an ArcGIS StoryMap which included background information on the project along with a description of the proposals, and high-level indicative plans. Further links within the StoryMap enabled the proposals to be viewed in greater detail.

1.1.4 This report provides an overview of the responses received to the consultation exercise and includes feedback received through the survey and directly to both the Council and Stantec project team from stakeholders.

2 Survey Responses

2.1 Overview

2.1.1 A total of 1007 responses were received to the survey over the six-week period. Of these 98% (n=982) stated that they were a member of the public and the remaining 2% (n=25) represented an organisation, including:

- A B Robb Investments Ltd
- Rosemount and Mile End Community Council
- Scottish Ambulance Service
- North East Sensory Services (NESS)
- Federation of Small Businesses
- Imajica Brand Evolution
- Infinity Partnership
- Azets
- KF
- Space Solutions
- Hutcheon Mearns Limited
- Various companies
- Shortday Limited
- Queens Cross and Harlaw Community Council
- Aberdeen Civic Society
- Strategic Offshore Research Ltd
- ACC
- Blackwood Partners LLP
- Care At Home Service
- Piper Sandler
- Hamish Munro
- West End Traders
- Countesswells Community Group
- Aberdeen Volks Centre ltd

- JR Webb Antiques

2.1.2 All the respondents were asked if they use the route between Westhill and Aberdeen city centre at any point on their journey. Of all 1007 respondents, 99% (n=997) noted that they do use the route and the remaining 1% (n=10) do not use the route. Those who do not use the route did not respond to the next question regarding how they travel on the route.

2.1.3 The 997 who do use the route were then asked how they typically travel along the route and were presented with a list of modes of travel. The respondents were able to select all the modes which apply to them. The responses are shown in Figure 2:1.

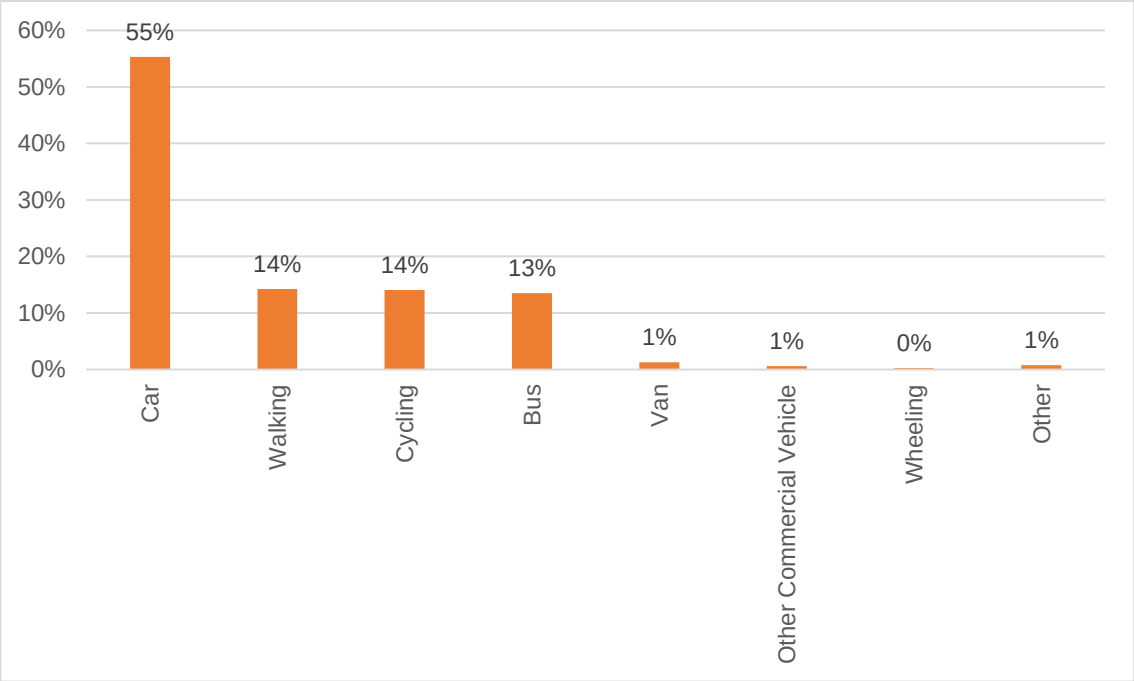


Figure 2:1: How do you typically make these journeys?

2.1.4 Over half of the respondents, 57%, indicated that they travel along the route by car, van or other commercial vehicle (Car: 55%, n=926; Van: 1%, n = 21; Other Commercial Vehicle: 1%, n = 10). Levels of noted walking (14%, n=239) and cycling (14%, n= 236) were similar. A further 13% (n=226) stated that they travel by bus, with the final 1% stating they travel by other modes (n=13).

2.1.5 The 'Other' responses included running (n=6), motorcycle/motorbike (n=4), taxi (n=1), motorhome (n=1) and working in the affected area (n=1).

2.1.6 All the respondents were then asked which area best describes where they live, or where their business is based. The responses are shown in Figure 2:2 below.

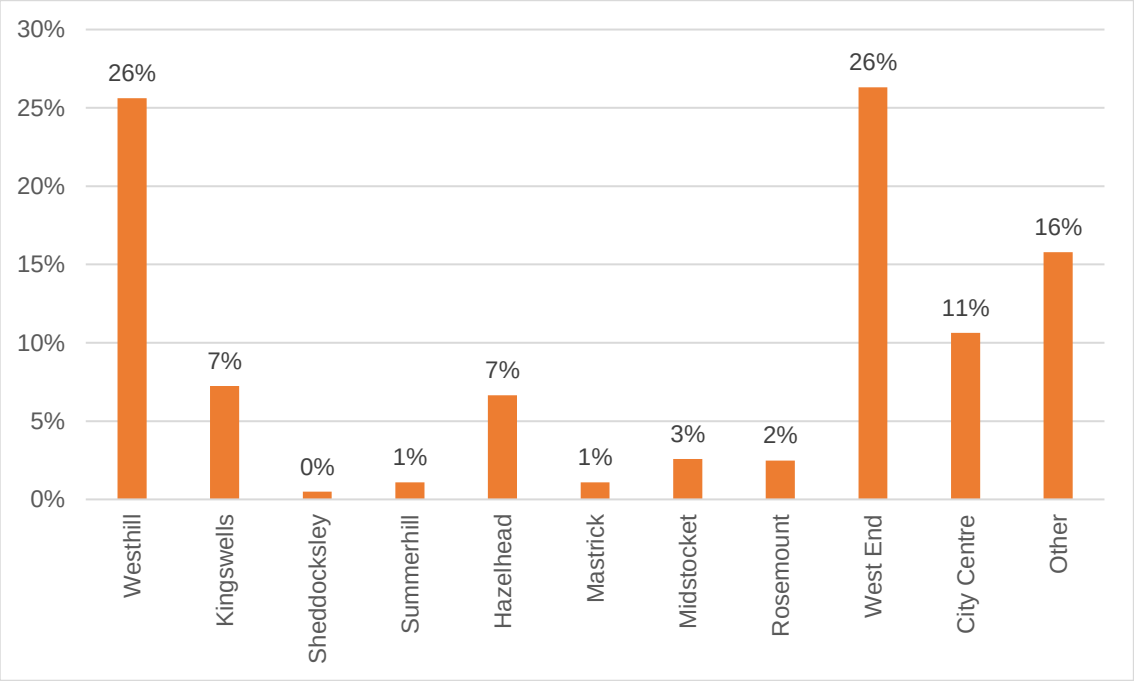


Figure 2:2: How do you typically makes these journeys?

2.1.7 More than half of all respondents noted they live in either the West End (26%, n=265) of the city or Westhill (26%, n=258). The city centre accounted for 11% (n=107) of all responses while 7% of responses were received from both those living in Kingswells (n=73) and those living in Hazelhead (n=67). A total of 3% (n=26) said they live in Midstocket and a further 2% (n=25) live in Rosemount. The same number of respondents live in Summerhill and Mastrick (1%, n=11) and only five people noted they live in Sheddocksley.

2.1.8 16% (n=159) of respondents selected 'Other' and entered their own location. The locations which were listed more than once include:

- Aberdeen City (n=2)
- Aberdeenshire (n=9)
- Balmedie (n=2)
- Banchory (n=2)
- Bridge of Don (n=17)
- Bucksburn (n=4)
- Countesswells (n=11)
- Cove (n=6)
- Craigiebuckler (n=4)
- Cults (n=8)
- Danestone (n=2)

- Dyce (n=2)
- Hilton (n=3)
- Inverurie (n=2)
- Kincorth (n=3)
- Newmachar (n=3)
- Old Aberdeen (n=2)
- Other (n=3)
- Peterculter (n=9)
- Portlethen (n=2)
- Skene (n=3)
- Stonehaven (n=2)

2.2 The Proposals

2.2.1 Respondents were asked if they think that walking, wheeling and cycling connectivity and infrastructure needs improving along the route. The overall responses are shown in Figure 2:3 below.

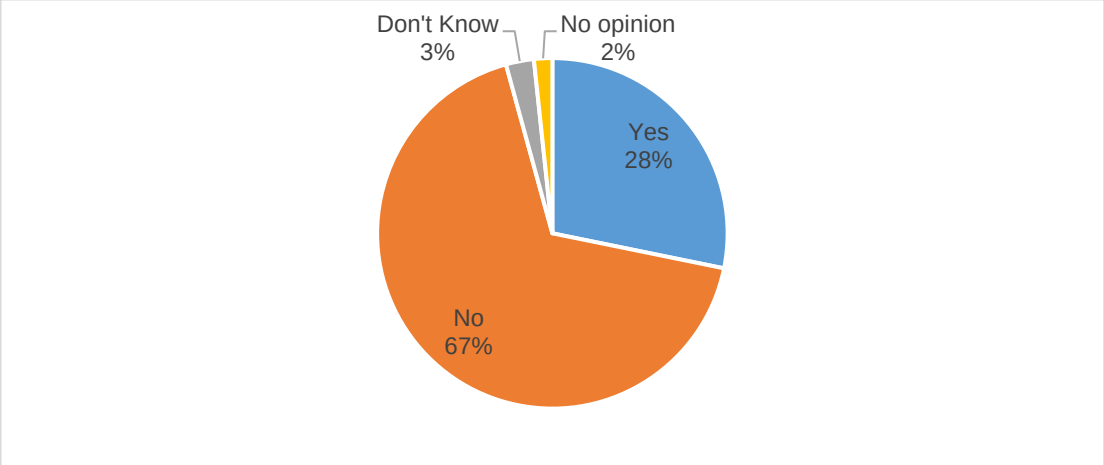


Figure 2:3: Do you think that walking, wheeling and cycling connectivity and infrastructure needs improving along the route(s) between Westhill and Aberdeen?

2.2.2 The majority of respondents (67%, n= 680) noted they do not think that active travel infrastructure and connectivity needs improving along the route between Westhill and Aberdeen. A further 28% (n= 284) stated that it does need improvement. A total of 5% (n=43) noted that they either do not know or have no opinion on whether improvements are needed.

2.2.3 stThe above responses have also been split out based where the respondent noted they live, or where their business is based, as shown in Figure 2:4 below.

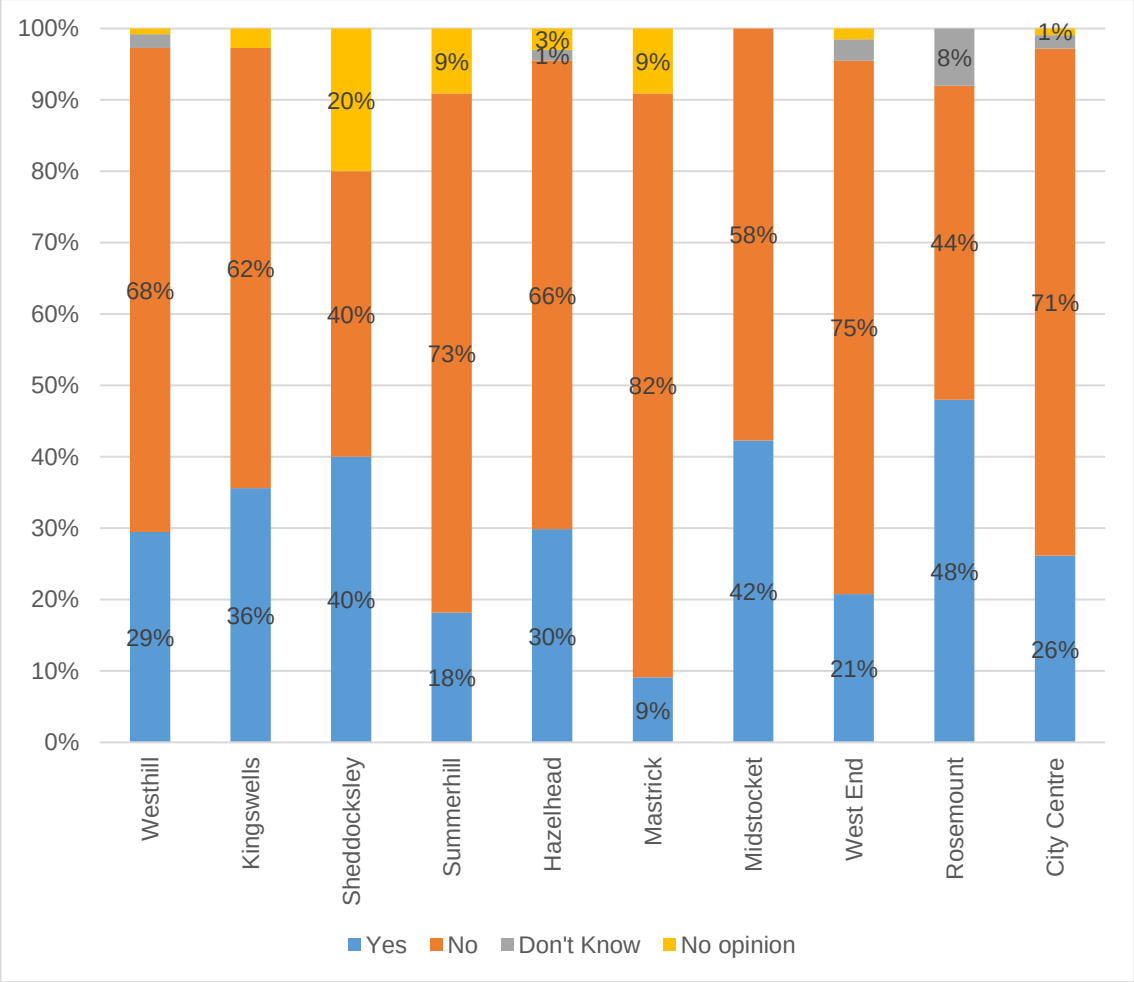
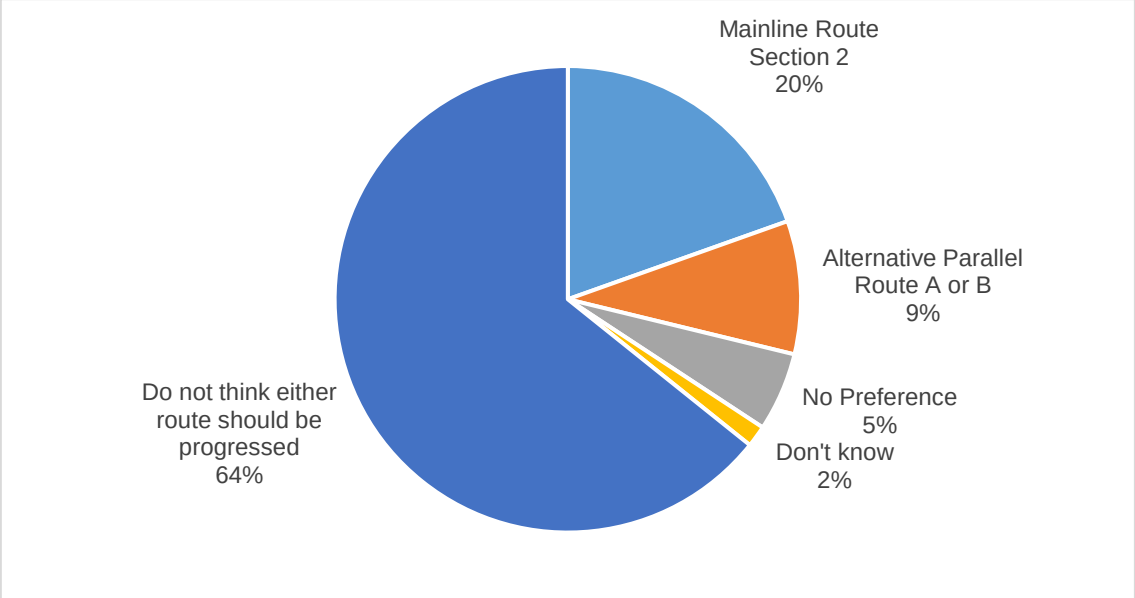


Figure 2:4: Do you think that walking, wheeling and cycling connectivity and infrastructure needs improving along the route(s) 2between Westhill and Aberdeen? By location

2.2.4 As shown in Figure 2:4, the area which has the greatest proportion of respondents who disagree with the need to improve the active travel infrastructure is Mastrick with 82% (n=9), followed by those from the West End with 75% (n=198) and Summerhill 73% (n=8). A total of 71% (n=76) of respondents who live in the city centre also disagree with the need for improvement and just over two-thirds (68%, n=175) of respondents from Westhill.

2.2.5 A greater proportion of respondents from Rosemount support the need to improve walking, wheeling and cycling infrastructure and connectivity, with 48% (n=12) supporting it and 44% (n=11) disagreeing. There is an equal split in opinion from respondents from Sheddocksley with 40% (n=2) in support and the same number in disagreement, although the very small sample size is noted.

2.2.6 All respondents were asked to indicate their preference, between a main road active travel route and potential alternative parallel routes, between King's Gate and Carden Place. The



results are shown in Figure 2:5 below.Figure 2:5: Please state your preference for the route between King's Gate and the city centre

2.2.7 From the responses, 64% (n=647) do not think that either a mainline or alternative parallel active travel route should be progressed. 20% (n=197) stated that the mainline route should be progressed and 9% (n=93) considered that an alternative parallel route should be progressed. A further 5% (n=55) have no preference and 2% (n=15) do not know.

2.2.8 Respondents who selected a preference for either a mainline or alternative route, don't know or no preference to the previous question (n = 360) were then asked to give their opinion on either the use of Rubislaw Den North or Rubislaw Den South for the routing of the alternative parallel route. The results are shown in Figure 2:6 below.

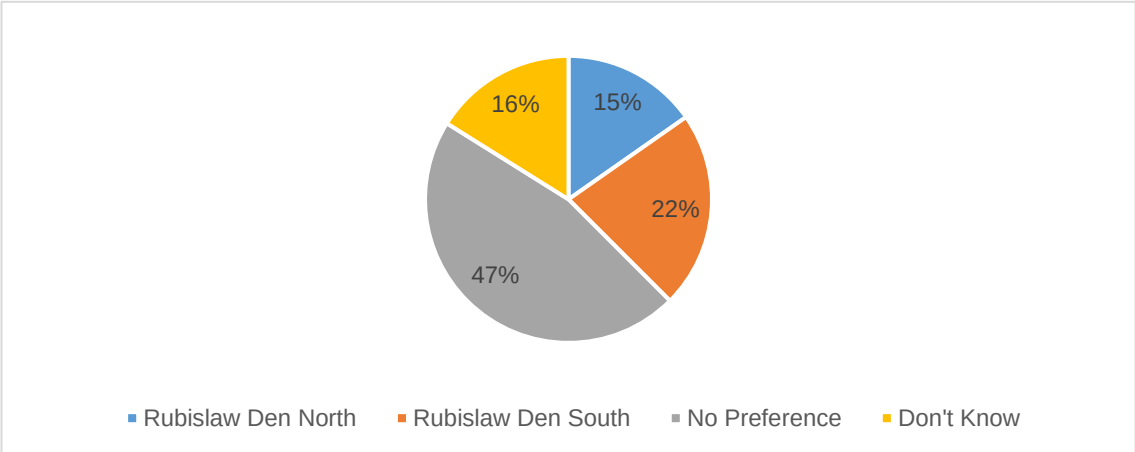


Figure 2:6: If either Alternative Parallel Route A or B were progressed (as opposed to the preferred mainline route on Queen's Road) would your preference be for the route to be via Rubislaw Den North or Rubislaw Den South?

2.2.9 The majority of respondents (47%, n=167) stated that they have no preference whether the route uses Rubislaw Den North or South. One quarter of respondents (22%, n=80) would prefer the cycle route to go down Rubislaw Den South while 15% (n=55) would prefer to be routed down Rubislaw Den North. The remaining 16% (n=58) did not know.

2.2.10 Respondents were provided with an opportunity to explain their choice to the question above. A total of 205 respondents chose to leave a comment and a summary of these responses is provided below:

Mainline Route

- Several respondents highlighted that the main route on Queen's Road is the most direct route and therefore cyclists would prefer to use this than the alternative parallel routes proposed

Parallel Routes

- There were several responses generally objecting to the proposals for the alternative parallel routes citing they were not practical and would further restrict access to travelling in Aberdeen
- Many respondents highlighted that both the parallel routes are not appropriate and therefore would not be used
- There were several comments suggesting that the parallel routes would have a positive impact as it removes cyclists from the main roads
- Several comments were made about the poor quality of the road surface on both Rubislaw Den North and Rubislaw Den South
- There were several comments from respondents who were unsupportive of cycle routes being on residential streets in general
- A couple comments were made regarding the loss of on street parking and the negative impact this would have on residents of the affected streets

Walking

- There were some comments about the need to ensure safe walking routes along the routes

Rubislaw Den North

- A few respondents noted that Rubislaw Den North appears to be less steep than Rubislaw Den South
- Several comments were left which highlighted that the routeing down Rubislaw Den North results in less time being spent on Anderson Drive which improves safety for cyclists
- A few respondents highlighted that there are fewer properties on Rubislaw Den North and they all appear to have off-street parking / driveways

Rubislaw Den South

- Many of the respondents identified Rubislaw Den South as the more direct route which is preferable for cyclists
- Many noted that there are fewer turns in the route along Rubislaw Den South and is easier to navigate

- A few respondents highlighted that this route is less steep compared to Rubislaw Den North
- It was highlighted that this route provides better access to local services
- It was indicated by several respondents that Rubislaw Den South is the safer of the two alternative parallel routes as the crossing on Anderson Drive is at the existing crossing and it is generally a quieter street
- There were a couple of comments regarding the loss of on street parking as not all the properties on the road have a driveway

Alternative Options

- It was suggested that pavements could be widened to create shared use paths
- Another suggestion was to improve green time to help improve traffic flow at roundabouts

2.2.11 These respondents were also asked whether they would prefer a two way segregated cycle track or a cycle street for the Rubislaw Den North or South sections of the alternative parallel routes. The responses are shown in Figure 2:7 below.

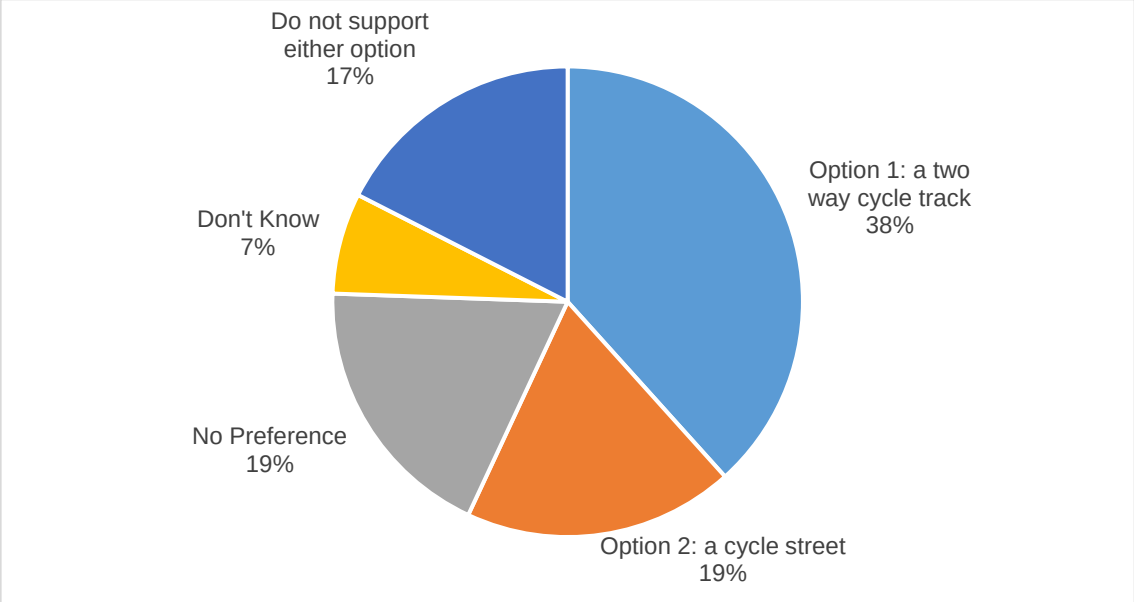


Figure 2:7: Preference for a two way segregated cycle track or a cycle street for the Rubislaw Den North or South sections of the alternative parallel routes

2.2.12 A total of 38% (n=138) stated a preference for a two way cycle track, while 19% (n=67) would rather have a cycle street. A further 19% (n=67) noted that they have no preference and 7% (n=25) stated that they did not know. The remaining 17% (n=63) stated they did not support either option for Rubislaw Den North or South.

2.2.13 All 1007 survey respondents were asked if walking, wheeling or cycling infrastructure was improved whether it would change the way they travel. The responses are shown in Figure 2:8.

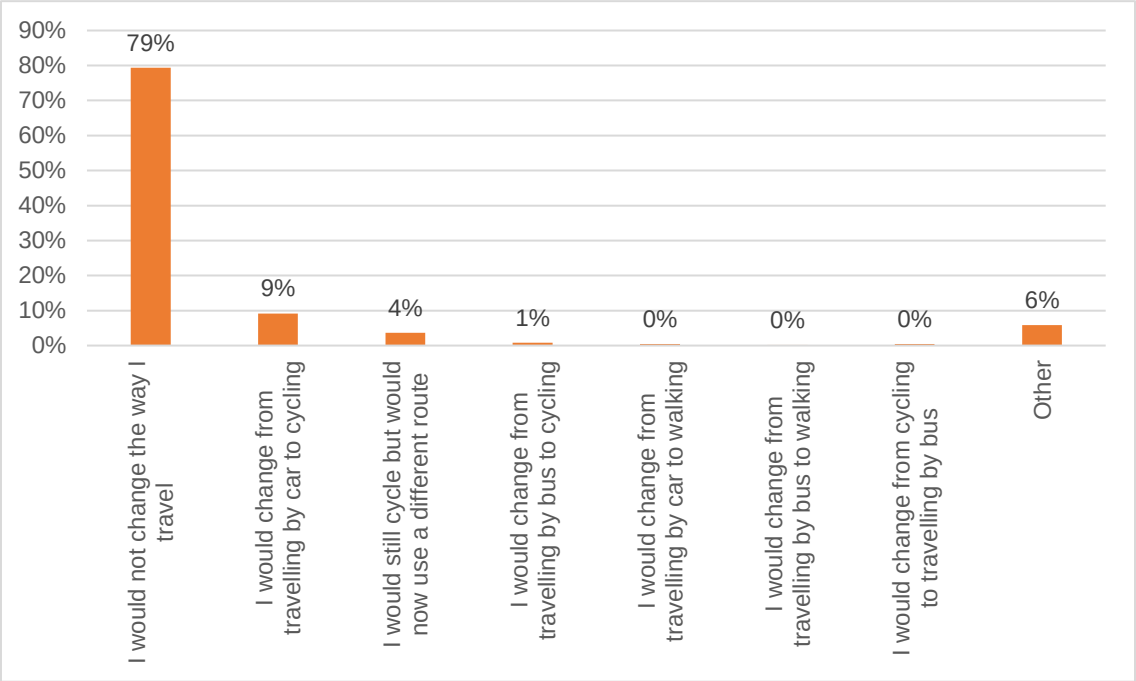


Figure 2:8: If walking, wheeling and cycling infrastructure were improved between Westhill and Aberdeen, would this change your travel behaviour, and if so how?

2.2.14 The majority of respondents noted that they would not change the way they travel (79%, n=799) while 9% (n=92) said they would change from travelling by car to cycling and an additional 4% (n=37) would continue to cycle but change their route. A total of 1% (n=8) stated they would change from travelling by bus to cycling. The remaining changes all accounted for 0% of the total and received five or less responses. No one said they would change from cycling to walking.

2.2.15 A total of 6% (n=59) selected 'Other' and these responses included:

- Would continue to cycle / cycle more (n=28)
- Would avoid Aberdeen / City Centre (n=9)
- Would drive but it would increase journey times (n=8)
- Would continue to walk (n=3)

2.2.16 All respondents were provided with an opportunity to leave any other comments on the proposals. A total of 761 comments were provided. A summary of these responses is outlined under the themes below.

Cycling Infrastructure

- **Shared Paths:** Concerns about the safety of shared paths for cyclists and pedestrians are prevalent among the responses received. Some respondents suggest that current paths are already underused or unsafe, and that new paths might not be any better.
- **Safety:** Some respondents suggested improvements to create safer cycling and walking routes, including better maintenance and clearer signage. Respondents also noted that improving safety would encourage more people to cycle and walk.

- **Weather:** Many people highlighted that the local climate makes cycling impractical for many, especially for commuting or shopping trips. Respondents also highlighted that the harsh weather conditions in Aberdeen are a significant deterrent to cycling.

- **Distance from Westhill to Aberdeen city centre:** It was noted by some respondents that the distance between Westhill and Aberdeen city centre is impractical to cycle for many, especially when commuting to and from work.

- **Existing Infrastructure:** Some respondents felt that existing cycle paths are adequate, and that further investment should focus on improving road conditions instead. Conversely, several respondents noted that the existing cycle paths are not adequate and need upgrading.

- **Roundabouts and junctions:** Several respondents noted that junctions and roundabouts need to be improved by giving priority to cyclists over general traffic to make it safer. Examples include:

    - Five Mile Garage
    - AWPR
    - Queens Cross Roundabout
    - Anderson Drive

- **Traffic Congestion:** Several respondents highlighted that introducing cycle infrastructure on the main road will only increase congestion and increase carbon emissions from cars and buses.

- **Use of main roads:** A few respondents indicated that they would still use the main roads when travelling by bike as it is quicker and more direct.

- **Improving Existing Routes:** Some respondents suggested enhancing existing routes and infrastructure rather than creating new ones and that upgrading current paths and roads would be more beneficial.

Environmental and Practical Concerns

- **Emission Reduction:** While there is general support for reducing emissions, many respondents said that the proposed changes are impractical and will not achieve the desired environmental benefits. It was noted that the proposals may not lead to a reduction in car usage as people prefer to drive.

- **Alternative Solutions:** Several alternative solutions were suggested:

    - investing in park-and-ride
    - improving existing roads
    - enhancing public transport
    - use the Deeside railway line

    Respondents stated that these alternatives would be more effective in reducing emissions.

- **Environmental and Aesthetic Impact**: Several respondents made comments on the environmental and aesthetic impact of the proposed removal of trees and green spaces along the route. Some respondents emphasised the importance of preserving the city's natural beauty.

- **Vegetation Removal**: Some respondents highlighted that there is a need to remove some vegetation by widening paths, maintaining trees and improving lines of sight – e.g. Five Mile Garage.

Impact on Local Businesses / City Centre

- **Economic Impact:** Many respondents highlighted their concerns that the proposals will negatively impact local businesses and city centre businesses by reducing accessibility for car users. Respondents emphasised that these proposals would result in fewer people visiting the city centre.

- **Impact on City Centre**: Some respondents mentioned that the proposals will further discourage people from visiting the city centre, exacerbating existing issues caused by bus gates and the Low Emission Zone (LEZ). They also emphasised the potential long-term impact on the city's economy and vibrancy as a result.

- **Parking Issues**: There were many comments raising concern about the removal of on-street parking and its impact on local businesses. Respondents highlighted specific examples of how the loss of parking would create significant inconvenience such as accessing banks and the local church on Albyn Place.

- **Low Emissions Zone**: Many respondents highlighted that the introduction of the LEZ in the city centre has had a negative impact on businesses.

Impact on Residents

- **Parking Issues:** Many of the respondents raised concerns about the removal of on-street parking and its negative impact on residents. Respondents highlighted specific examples of how the loss of parking would create significant inconvenience for workers and visitors to their homes. (e.g. Carden Place, Albyn Place).

- **Resident Needs:** The on-street parking needs of specific groups was highlighted, such as the elderly and disabled, and families with young children, who rely on cars for mobility and cannot easily switch to cycling or walking.

- **House Prices:** A few respondents noted that the loss of on street parking would have a negative impact on the value of their home.

- **Impact on Daily Life:** Examples were highlighted by a few respondents of how the proposed changes would negatively affect daily life, such as difficulties for parents dropping off children at school or residents accessing their homes.

- **Community Engagement:** Many respondents noted that there was a need for more community engagement and consideration of local needs in planning decisions. Respondents noted they wanted the council to involve the community more in the decision-making process.

Economic Concerns

- **Economic Viability:** Questions were raised about the economic viability of the proposals, with some respondents doubting that the benefits would justify the costs. A

more detailed cost-benefit analysis and evidence of demand for the proposals was requested.

- **Spend:** Many respondents noted that they felt this is not an appropriate way of spending money in Aberdeen and that it should be spent elsewhere where it would be of benefit to the majority of people rather than the minority.

Public Transport Issues

- There were many comments requesting better public transport options, including more frequent and direct bus routes. Respondents noted that improving the overall public transport network would be more beneficial than focusing solely on cycling infrastructure.

- **Traffic Congestion**: Many respondents believe that converting lanes to bus lanes will worsen traffic congestion, especially during peak hours. They argue that this will lead to longer travel times and increased frustration for drivers.

- **Ineffectiveness**: Several respondents highlighted that bus lanes would not significantly increase bus usage due to the current low frequency and high cost of bus services. Respondents also noted that without addressing these underlying issues, bus lanes alone will not be effective

General Sentiment

- **Distrust in Council:** There is a general distrust in the council's understanding of local needs and priorities, with many respondents indicating that the proposals are out of touch with reality. Many respondents expressed frustration with what they see as the council's lack of practical solutions.

- **Call for Practicality:** Many respondents noted that they want the council to focus on practical, cost-effective solutions that address the immediate needs of the majority rather than idealistic projects. Respondents highlighted that they want the council to prioritise realistic and achievable improvements to the city.

- **Cycle Demand:** It was noted by several respondents that there are low numbers of cyclists using the current infrastructure and due to low demand, it is not logical to invest in new cycle infrastructure.

- **Car Use:** Several respondents highlighted that the Council is making it increasingly difficult to drive a car in Aberdeen.

2.3 Demographics

2.3.1 Respondents were asked a number of demographic questions but these were not mandatory. As such, the total number of responses to these questions varies from question to question.

2.3.2 Respondents were asked to provide the first four digits of their postcode, with the map below highlighting the areas from which responses were received.

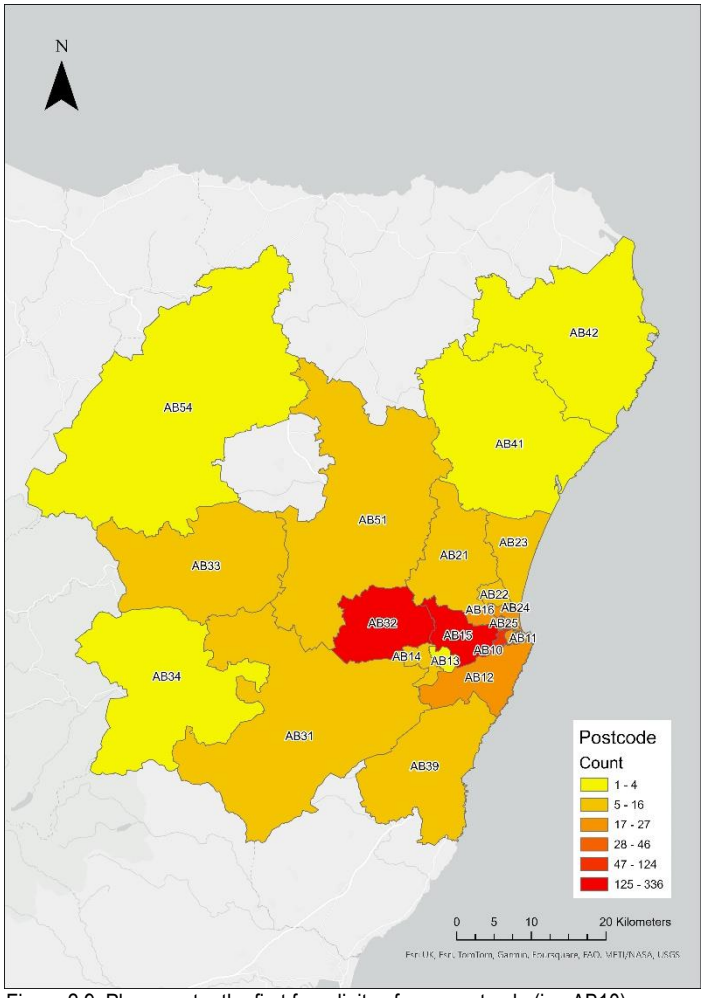


Figure 2:9: Please enter the first four digits of your postcode (i,e, AB10)

2.3.3 From this, the majority of people who responded are from AB10, AB15 and AB32 which is where the majority of the walking, wheeling and cycling proposals are focussed. These areas include Westhill, West End and the City Centre which account for a total of 63% (n=630) of the total responses to the survey.

2.3.4 Respondents were asked which gender they identify with, with responses as shown in Figure 2:10 below.

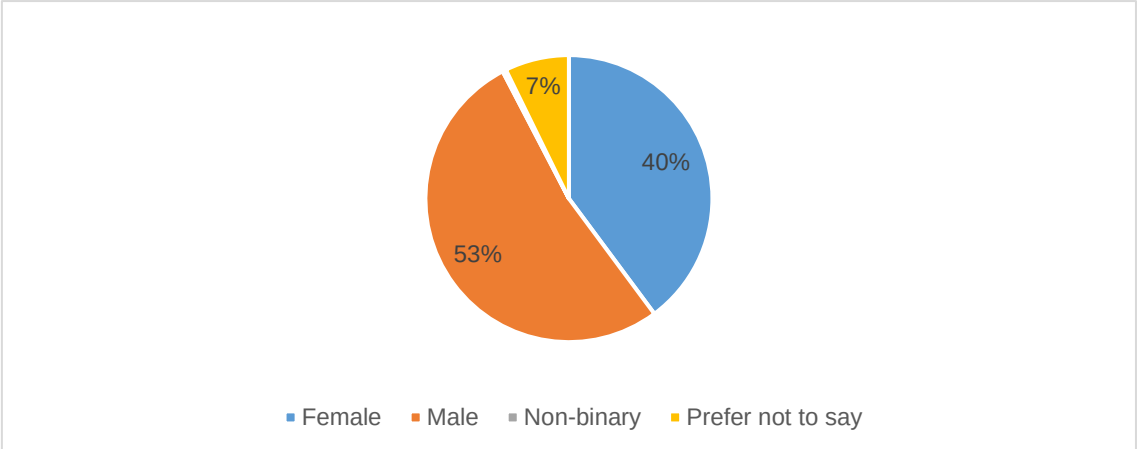


Figure 2:10: Which gender do you identify with?

2.3.5 Just over half (53%, n=522) stated that they identify as male, while 40% (n=396) identify as female. A total of 7% (n=72) selected 'Prefer not to say' and four people indicated they identify as non-binary.

2.3.6 Respondents were also asked to indicate which age group they fall within. The results of which are shown in Figure 2:11 below.

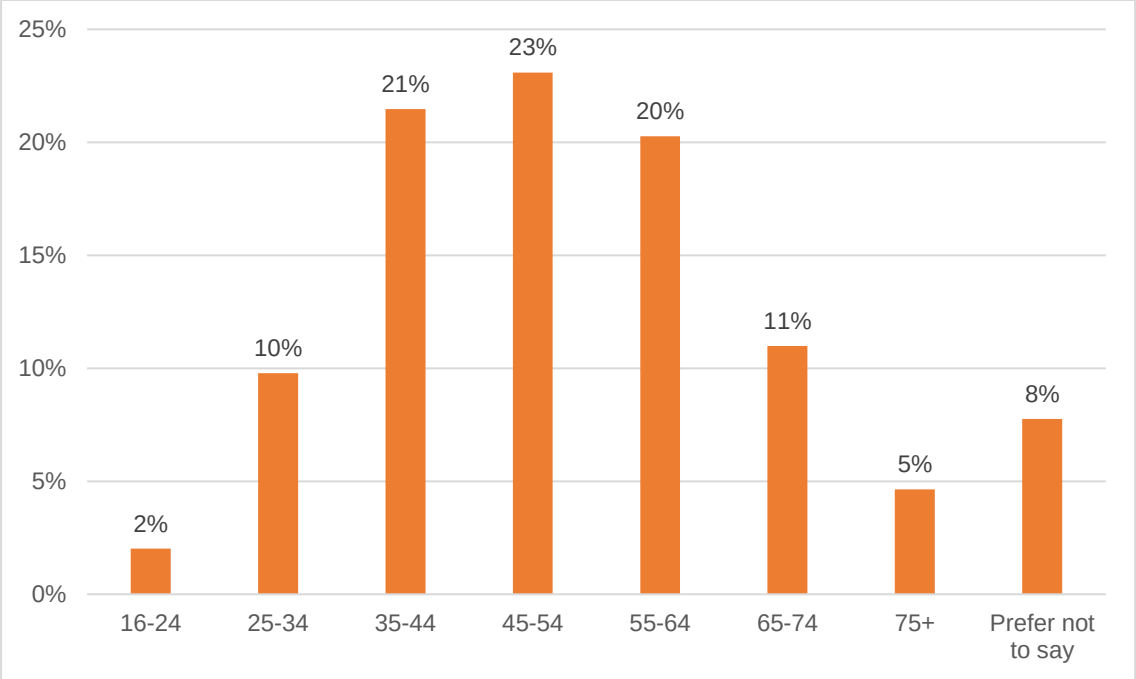


Figure 2:11: What is your age?

2.3.7 The majority of respondents fall within the 45-54 age bracket (23%, n=229), while 21% (n=213) are within the 34-44 age group and 20% (n=201) are aged 55-64. A total of 11% (n=109) are aged between 65 and 75 with a further 5% (n=46) being aged 75 or older. At the younger age range, 2% (n=20) fall within the 16-24 age bracket and 10% (n=97) are aged 25-34. A total of 8% (n=77) opted to select 'Prefer not to say'.

2.3.8 All respondents were also asked what their employment status is, with the results shown in Figure 2:12

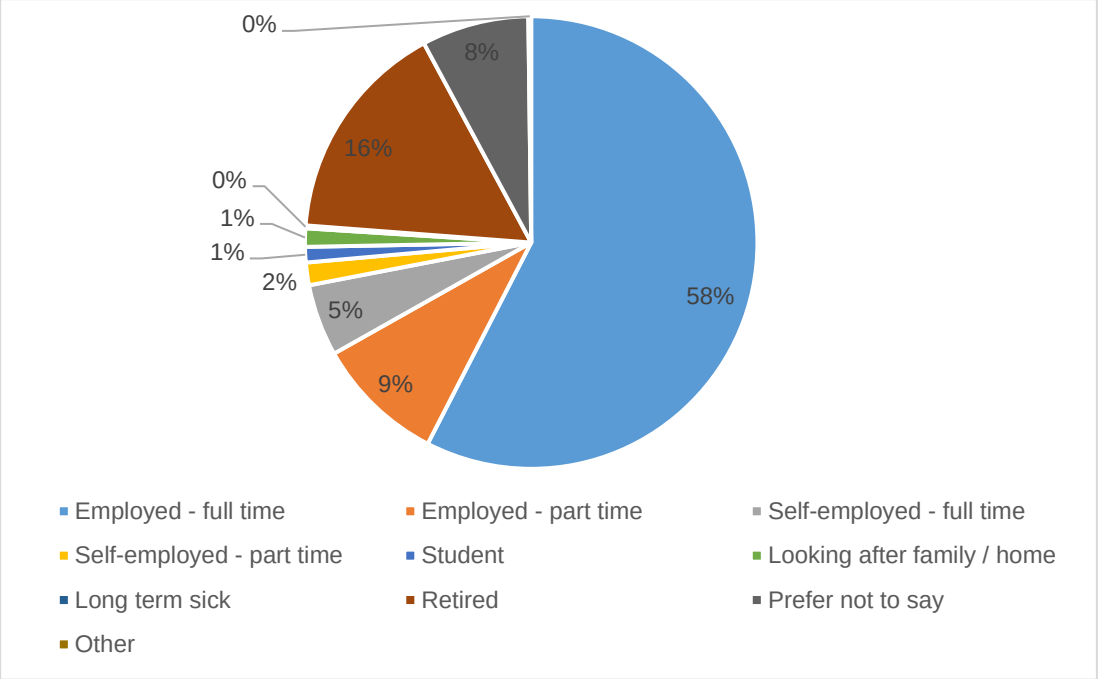


Figure 2:12: What is your employment status?

2.3.9 Over half (58%, n=571) of respondents noted that they are employed full time with 9% (n=92) being employed part time. A total of 5% (n=51) stated that they are self-employed full time and a further 2% (n=16) are self-employed part time. Of the respondents, being a student (n=11) and looking after family / home (n=13) account for 1% each, while 16% (n=158) state that they are retired. Only two people noted that they are long-term sick and a further two people selected 'Other' and wrote their own responses of being semi-retired and holding volunteer positions.

2.3.10 All respondents were asked whether they have a health condition or illness which affects their personal mobility, with the responses shown in Figure 2:13 below.

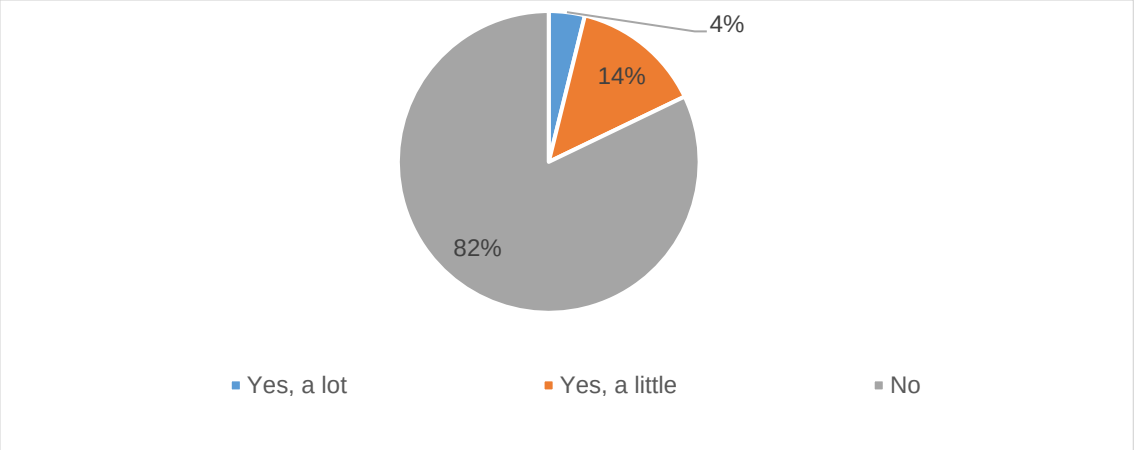


Figure 2:13: Do you have a health condition or illness which affects your personal mobility?

2.3.11 The majority of respondents noted that they do not have a health condition or illness that affects their personal mobility (82%, n=809). A total of 14% (n=138) stated that they have a health condition or illness, but it only affects them a little, while 4% (n=38) noted it affects them a lot.

2.3.12 Those who indicated they have a health condition or illness which affects their personal mobility (n = 176), they were then asked whether it affects their ability to use public transport. The responses are shown in Figure 2:14.

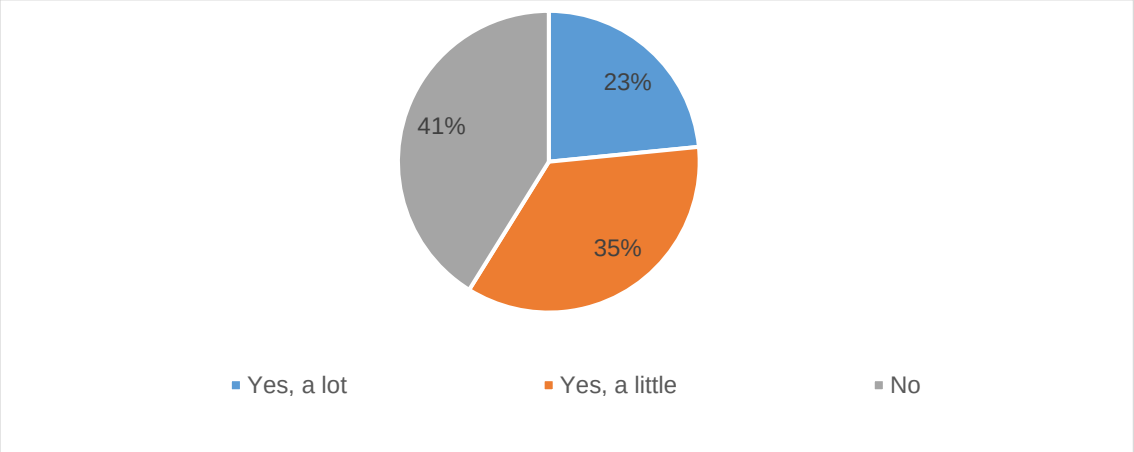


Figure 2:14: Does your condition or illness affect your ability to use public transport?

2.3.13 Of those who have a health condition or illness, 41% (n=72) said it does not impact their ability to use public transport. A total of 35% (n=62) noted that it affects them a little, while 23% (n=41) stated that it affects them a lot.

2.3.14 Finally, all the respondents were asked which income bracket best describes their annual household income. The results are shown in Figure 2:15.

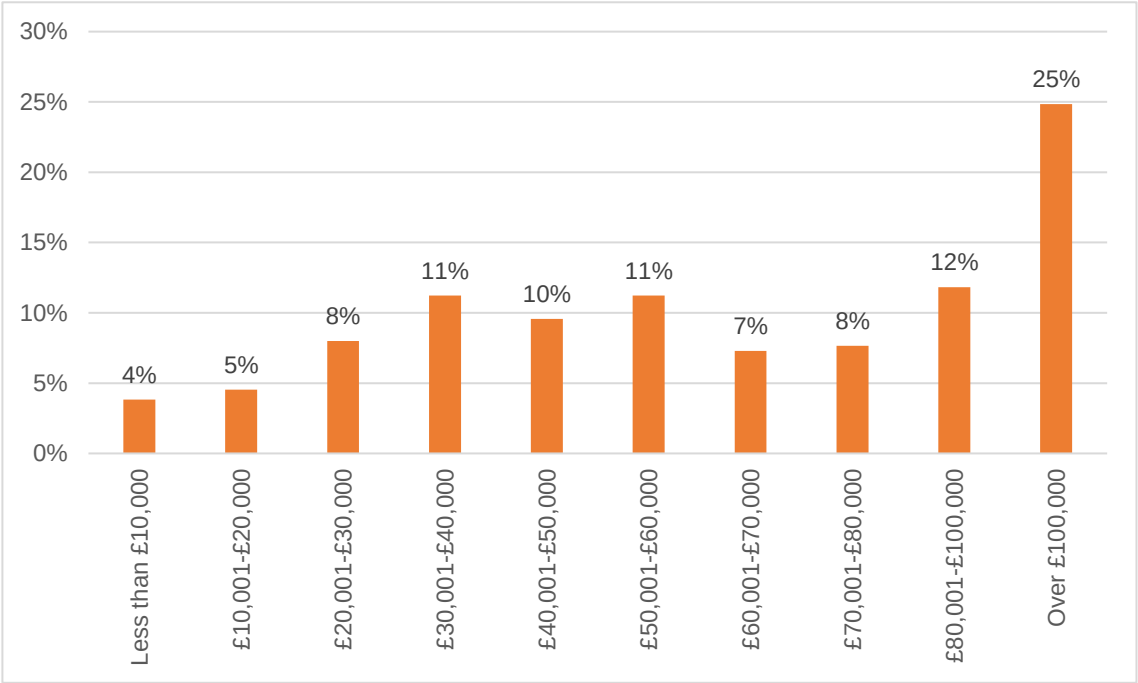


Figure 2:15: Which of the following best describes the annual income of your household (before tax)?

2.3.15 One quarter (25%, n=208) stated that their annual household income is over £100,000. A total of 12% of the respondents earn between £80,001-£100,000 (n=99) per annum, while 11% either earn between £30,001 - £40,000 (n=94) or £50,001-£60,000 (n=94). A further 10% (n=80) earn between £40,001 - £50,000. There is an even proportion of respondents who earn between £20,001 - £30,000 (8%, n=67) and between £70,001 - £80,000 (8%, n=64) with a further 7% (n=61) earning between £60,001 - £70,000. A total of 5% (n=38) earn £10,001-£20,000, with a further 4% (n=32) earning less than £10,000 a year.

2.4 Letter / Email Comments

2.4.1 Several submissions were received from businesses / organisations through Aberdeen City Council, and these have been summarised below:

- **Historic Environment Scotland** responded noting that they do not have any comments at this stage of the project.
- **Aberdeen Cycle Forum** responded to note that they agree with the corridor approach and agree that the mainline route on Queen's Road should be the preferred route. Their response also included the following comments:
  - The cycle track in the centre of the Aberdeen Western Peripheral Road junction may feel isolating and therefore unsafe for some
  - Concerns around priority at the Five Mile garage
  - Concern around the design on Skene Road as it was unconventional and unlikely to be successful
  - Cyclists prefer signal controlled junctions which should be applied to the roundabout on Anderson Drive, Forest Road, Esslemont Avenue and Albert Street
- **Residents of the slip road of Queens Road** submitted a written response to voice their concerns and objection against the proposals citing:
  - An increase in congestion at King's Gate roundabout because of making the road one way
  - The loss of on-street parking as not all houses have a driveway and there are a high number of elderly and disabled people on the street
  - Alternative suggestions to the proposal were noted, including:
    - Changing the pavement to a shared use path
    - Diverting cyclists along Woodend Crescent / Woodend Place
    - Building on the strip of grass and trees on Queens Road

ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero, Environment and Transport
DATE	3 September 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	A947 Bucksburn Roundabout to Parkhill Junction Multi-modal Corridor Study Detailed Appraisal
REPORT NUMBER	CR&E/24/257
EXECUTIVE DIRECTOR	Gale Beattie
CHIEF OFFICER	David Dunne
REPORT AUTHOR	Tony Maric
TERMS OF REFERENCE	7,8

1. PURPOSE OF REPORT

1.1 To update Members on a preferred package of active travel improvements as part of the Multi-Modal Transport Corridor Study for the A947 Bucksburn Roundabout to Parkhill Junction corridor, and seek approval for next steps.

2. RECOMMENDATIONS

That the Committee:-

2.1 Notes the outcomes of the Detailed Appraisal (Appendix 1) undertaken for the A947 Multi-Modal Transport Corridor Study.

2.2 Agrees that the measures described in paragraph 3.7 of this report as relevant to the Aberdeen City area, form a preferred package of active travel improvements on the A947 Bucksburn Roundabout to Parkhill Junction corridor; and

2.3 Instructs the Chief Officer – Strategic Place Planning to report an Outline Business Case for the elements of the preferred package within the city boundary to the Finance and Resources Committee at the earliest opportunity.

3. CURRENT SITUATION

3.1 A Preliminary Appraisal for the A947 Multi Modal Corridor was reported to the former City Growth and Resources Committee in September 2022. A map of the corridor is shown in Figure 1 below. This Preliminary Appraisal noted a requirement for improved active travel facilities along the route, and identified a long list of options that were recommended to be taken forward to detailed appraisal. Members of the City Growth and Resources Committee agreed that further appraisal work should be taken forward, and instructed the Chief Officer – Strategic Place Planning to report a Detailed Appraisal and Outline Business Case (OBC) to the Net Zero, Environment and Transport Committee once completed.

3.2 The City Growth & Resources Committee also instructed that a number of immediate ("quick win") interventions falling out of the Preliminary Appraisal on this corridor be implemented as soon as appropriate funding could be sourced.

3.3 Figure 1 Map of A947 Corridor



3.4 Aberdeen City Council (ACC), in partnership with Aberdeenshire Council and Nestrans, subsequently commissioned AECOM to carry out a Scottish Transport Appraisal Guidance (STAG) based detailed appraisal on the A947 Bucksburn Roundabout (junction with A96) to Parkhill Junction (junction with AWPR) corridor.

3.5 Work then commenced on developing the Detailed Appraisal (Appendix 1). Again working with Aberdeenshire Council and Nestrans, this involved developing the options generated at Preliminary Appraisal into the list of options shown in the table in Paragraph 3.7 below, subjecting these to qualitative appraisal against the project objectives and STAG criteria (Environment;

Climate Change; Health, Safety and Wellbeing; Economy; Equality and Accessibility), and undertaking public and stakeholder engagement on the options.

3.6 Work on progressing the Detailed Appraisal (Appendix 1) identified a number of options that were recommended to be taken forward to an Outline Business Case (OBC) and these are shown in the table below:

3.7

Options to Progress to Outline Business Case	
AT4	Active Travel Priority Crossing on Riverview Drive across Burnside Drive.
AT13	Toucan crossing north of A947 / Riverview Drive roundabout.
AT14	Toucan crossing on Riverview Drive to link two sections of existing shared use path.
AT16	Toucan crossings on all arms of the Riverview Drive / Stoneywood Road roundabout to link existing and proposed cycle routes. New-improved shared pedestrian and cycle routes on crossing approaches.
AT17	Formal pedestrian crossing at Tesco on Victoria Street.
AT32	Add missing section of footway on Pitmedden Road.
AT59	Widen existing section of shared use path north of Riverview Drive / A947 roundabout
AT60	Add missing link on shared pedestrian and cycle route on the west side of Riverview Drive
O15	Introduce placemaking and gateway features on Victoria Street
AT35a	Traffic calming measures (give way chicane) on Greenburn Road around Stoneywood School. Active travel priority crossings on Bankhead Road (Crossgates, Station Road and Millhill Brae junctions). Footway widening and carriageway narrowing on Bankhead Road and Millhill Brae. New signalised pedestrian crossing on Bankhead Road.
AT41a	New shared use path between Old Meldrum Road crossing and Lidl/McDonalds entrance, to tie in with existing provision.
AT41b	New segregated 2-way cycleway between Old Meldrum Road crossing and Lidl/McDonalds entrance, to tie in with existing provision .
O10	Crossing improvement and footway widening around the A947/McDonalds access road junction.
AT31	Pedestrian crossing improvement of Riverview Drive at Todlaw Walk junction. New path between Riverview Drive and the River Don path (opposite Todlaw Walk) to formalise an obvious desire line.
AT33	Introduction of a one-way system on Station Road, Merrivale and Skene Place. Contra-flow cycle lane along Station Road.
O2	Review the layout of the Victoria Street/Skene Place Junction
AT61a	Shared use footway between Victoria Street / Riverview Roundabout and Farburn Terrace. Speed limit reduction between Farburn Terrace and Pitmedden Road. Shared use footway between Pitmedden Road and the A947/Riverview Drive roundabout.
AT51	New segregated cycle facilities on Oldmeldrum Road.
O7	Splitter island and increased junction radii to prevent illegal manoeuvres at the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer.
O8	Carriageway narrowing and tightening of the A947/Stoneywood Brae Junction radii to reduce speeds.

AT48a	New / improved shared use and new segregated cycle facilities along the length of the A947 to create a continuous cycle route.
AT58	Completion of missing section of shared pedestrian and cycle route on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport.

3.8 The rationale for the inclusion of these options in the Outline Business Case, together with indicative option designs and indicative costings are shown in appendices 1-7 (attached). Appendices 1-7 show indictive option designs in more detail and provide explanations of how the indicative costings were arrived at. An Active Mode Appraisal Toolkit (AMAT) Assessment was also conducted on appropriate options and the results are shown in appendix 8 (attached). The AMAT assessment provides more details on the benefits and disbenefits of options linked to walking, cycling, and wheeling.

3. 9 Public and stakeholder consultation on the designs and option variants took place during May and June 2024. This consisted of an online consultation and survey, together with an in-person event at the Craighaar Hotel on 6 June 2024.

3.10 In order that the views of children and young people were also taken into account, an interactive session was held with pupils at Stoneywood Primary School on 8 May 2024. This highlighted the role of a transport planner and initiated high-level group discussions around the key problems and opportunities relating to transport in the study area.

3.11 The feedback on the consultation concluded that in general, the public and stakeholders agreed with the overall strategy, but that there was disagreement between different stakeholders as to the value of the individual options. Given that the options are not mutually exclusive and that there is some overlap on the options, then this is perhaps to be expected.

3.12 In terms of next steps, Members of this Committee are asked to note the outcomes of the Detailed Appraisal exercise, and agree that the measures described in paragraph 3.7 above go forward to Outline Business Case. This Outline Business Case would then be reported to the Council's Finance & Resources Committee for consideration in line with the currently approved Committee Terms of Reference.

4. FINANCIAL IMPLICATIONS

4.1 Funding has been provided by Nestrans to undertake design work, consultation and to develop the Outline Business Case (OBC) during 2023/24 and 2024/25. Costs associated with implementing the preferred option will be quantified as part of the Outline Business Case. There is currently no identified budget to proceed beyond Outline Business Case stage, therefore any progress beyond that stage would be dependent on the sourcing of continued external funding from Nestrans or any other appropriate external funding source.

5. LEGAL IMPLICATIONS

5.1 There are no direct legal implications arising from the recommendations of this report.

6. ENVIRONMENTAL IMPLICATIONS

6.1 The proposals aim to encourage and enable more walking, wheeling, and cycling in Dyce to main transport hubs such as Dyce Railway Station and Aberdeen International Airport. The proposals will also encourage more walking, wheeling, and cycling trips between Dyce and major employment areas such as the Kirkhill Industrial Estate and major trip attractors such as TECA. Should this encourage more people to use active travel in preference to the private car, this will have benefits in terms of carbon emissions and air quality, supporting the Council's Net Zero and air quality obligations. Transport is also a key social determinant of health that can have significant impacts on both physical and mental health, overall wellbeing on people and communities.

6.2 It should be noted that Environmental considerations are part of the STAG criteria which has influenced the recommendations of this report in terms of the preferred options to be taken forward. Any subsequent design stages will consider whether an Environmental Impact Assessment is required to inform any environmental implications of the project.

7. RISK

7.1 The assessment of risk contained within the table below is considered to be consistent with the Council's Risk Appetite Statement.

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic Risk	The Council has a number of objectives relating to transport, health, and the environment that the delivery of the recommended improvements could contribute to.	Progress recommended package to Outline Business Case (OBC).	L	Yes

	Failure to deliver the proposals could therefore put the Council's ability to fully achieve such objectives at risk.			
Compliance	The project may require land acquisition.	Assess and quantify requirements as part of OBC.	M	Yes
Operational	There may be operational risks associated with the maintenance of new infrastructure.	Assess and mitigate risk as part of OBC.	M	Yes
Financial	There is currently no funding allocated to the project beyond OBC.	Identify and seek to take advantage of external funding sources before progressing beyond OBC.	M	Yes
Reputational	Failing to progress identified improvements risks undermining the Council's commitment to sustainable travel and net zero carbon.	Progress recommended package to OBC	M	Yes
Environment / Climate	There are environmental risks associated with not providing safe and attractive alternatives to private car use, in terms of achieving net zero	Progress recommended package to OBC	M	Yes

	carbon and air quality obligations.			

8. OUTCOMES

Council Delivery Plan 2024	
	Impact of Report
Aberdeen City Council Policy Statement **Working in Partnership for Aberdeen**	The proposals within this report support the delivery of the following aspects of the policy statement: • We seek to invest in our road and pavement network, ensuring active and green travel is at the forefront of any new projects and a review of existing transport infrastructure is progressed taking account of the need to expand the city cycle network; • Reviewing our cycle and active transport network, and work with Aberdeen Cycle Forum to deliver our shared vision of making Aberdeen a cyclist friendly city and provide covered secure cycle storage in suitable locations across Aberdeen; and • Improving cycle and active transport infrastructure, including by seeking to integrate safe, physically segregated cycle lanes in new road building projects and taking steps to ensure any proposal for resurfacing or other long-term investments consider options to improve cycle and active transport infrastructure.
Local Outcome Improvement Plan	
Prosperous People Stretch Outcomes	The proposals within this report support the delivery of LOIP Stretch Outcome 11 – Healthy life expectancy is five years longer by 2026, in that the proposed improvements should encourage more walking, wheeling, and cycling. Increasing physical activity is linked with increasing life expectancy.
Prosperous Place Stretch Outcomes	The proposals support the delivery of LOIP Stretch Outcomes 13 - *Addressing climate change by reducing Aberdeen's carbon emissions by at least 61% by 2026 and adapting to the impacts of our changing climate,* and 14 - *Increase sustainable travel: 38% of people walking and 5% of people cycling as main mode of travel by 2026*, in that they should encourage a shift from motorised to active and sustainable forms of transport with associated emissions reduction.
Regional and City Strategies	The proposals support delivery of the Nestrans Regional Transport Strategy, specifically the aim of

	Increasing the number of people travelling actively for health and the environment, and the following key priority: Safe and segregated active travel connections within and connecting to Aberdeen City Centre from the main commuter towns, in line with and to complement the objectives of the Aberdeen City Centre Masterplan. Wherever possible routes should be segregated, and road space reallocation should also be considered to allow cyclists, pedestrians, and wheelers (especially those less confident and able) sufficient space. The A947 corridor is specifically mentioned as a priority corridor. The proposals support the emerging Local Transport Strategy, with its focus on prioritising clean and healthy transport. Proposals also support the Net Zero Mobility Strategy Strategic Aim, We will reduce travel demand, play a key role in enabling a transition to low / zero emission vehicles and facilitate more walking, wheeling and use of public transport to reduce emissions while increasing the safety of road users, and Strategic Objective, Extend and improve active travel networks for healthy, safer, and sustainable choices.

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	New Integrated Impact Assessment has been completed
Data Protection Impact Assessment	Not required
Other	The appraisal process had considered the impacts of the preferred option on the Environment; Climate Change; Accessibility and Social Inclusion; Economy; Health and Wellbeing; Deliverability; and Public Acceptability.

10. BACKGROUND PAPERS

10.1 Preliminary Appraisal

11. APPENDICES

11.1 Appendix 1 Detailed Appraisal Report

11.2 Appendix 2 (A) - Rationale for Table 2 Option Sifting

11.3 Appendix 3 (B) - Table 1 Design Technical Note

11.4 Appendix 4 (C) - Table 2 Preliminary Design Option Development Technical Note

11.5 Appendix 5 (D) – Table 2 Design Technical Note

11.6 Appendix 6 (E) – Table 2 Option Designs

11.7 Appendix 7 (F) - Detailed Table 2 Option Cost Breakdown

11.8 Appendix 8(G) - Environmental Constraints Mapping

11.9 Appendix 9(H) - Active Mode Appraisal Toolkit (AMAT) Assessment

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A947 Multi-Modal Study - STAG-Based Appraisal

Final Report

Aberdeen City Council

Project number: 60667436

September 2022

Delivering a better world

Quality information

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1. Introduction

1.1 Introduction

AECOM has been commissioned by Aberdeen City Council (ACC) to develop a Scottish Transport Appraisal Guidance (STAG)-based appraisal of options for improving transport connections (particularly public transport and active travel connections) along the A947 corridor between the Aberdeen Western Peripheral Route (AWPR) Parkhill Junction and the A96/A947 Junction.

The study is being guided by a Project Steering Group led by ACC and supported by Aberdeenshire Council, Nestrans and Sustrans.

1.2 Study Area

The study area is the north-south corridor between the AWPR Parkhill Junction and the A96/A947 Junction to the south of Dyce. The study corridor is four miles (6km) long and includes Stoneywood Road, Victoria Street and Riverview Drive. The study area is shown in **Figure 1.1**.



Figure 1.1: Study Area

1.3 Structure of Report

Following this introduction, the remainder of the report is structured as follows:

- Chapter 2 – Context Setting;
- Chapter 3 – Public and Stakeholder Engagement;
- Chapter 4 – Problems and Opportunities;
- Chapter 5 – Transport Planning Objectives;
- Chapter 6 – Option Generation, Sifting and Development;
- Chapter 7 – Option Appraisal Approach;
- Chapter 8 – Option Appraisal; and
- Chapter 9 – Summary and Next Steps.

A separate appendices document has been provided to complement this report. It includes:

- Appendix A – Problems, Issues, Constraints and Opportunities Technical Note;
- Appendix B – Transport Planning Objectives Technical Note;
- Appendix C – Option Generation, Sifting and Development Technical Note;
- Appendix D – Individual Option Appraisal; and
- Appendix E – Part 2 Consultation Outcomes.

2. Context Setting

2.1 Introduction

This chapter sets out the background context of the study, including the policy, geographic, socio-economic, transport, development, and environmental context for the work. It should be noted that full detail is provided in the *Problems, Issues, Constraints and Opportunities Technical Note* included in **Appendix A**.

2.2 Policy Context

This section provides an overview of national, regional and local strategies of relevance to this study.

2.2.1 National

At a national level, Scotland's second **National Transport Strategy (NTS2) (2020)**[1] provides the national transport policy framework, setting out a clear vision of a sustainable, inclusive, safe and accessible transport system which helps deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. It sets out four key priorities to support this vision: reducing inequalities; taking climate action; helping to deliver inclusive economic growth; and improving health and wellbeing. In addition to these priorities, the NTS2 supports the adoption of a Sustainable Travel Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use. It also supports the adoption of a Sustainable Investment Hierarchy, which prioritises investment aimed at reducing the need to travel unsustainably and maintaining and safely operating existing assets ahead of new infrastructure investment.

Delivery of the NTS2 will be supported by accompanying NTS Delivery Plans, the **Climate Change Action Plan**[2] and the second **Strategic Transport Projects Review (STPR2)**[3]. In the NTS Delivery Plan and The Climate Change Plan 2018-2032 Update, the Scottish Government sets out a commitment to develop and implement a coordinated package of policy interventions to support the reduction of car kilometres by 20% by 2030. In January 2022, the Scottish Government published its route map[4] outlining steps needed to achieve this reduction. It sets out a range of sustainable travel behaviours grouped into the four categories of travel less, stay local, switch mode and combine a journey. STPR2 involves a whole-Scotland, evidence-based review of the performance of the strategic transport network across all transport modes and made draft recommendations in January 2022 for potential transport investments for Scottish Ministers to consider as national investment priorities in an updated 20-year (2022-2042) Infrastructure Investment Plan for Scotland. It is anticipated to conclude later in 2022. The work undertaken to develop Nestrans' Regional Transport Strategy 2040 (RTS2040) has fed into the development of STPR2, thus ensuring key issues for the North East are represented at a national level. The Scottish Government's **Programme for Scotland 2020-2021**[5] also outlines the commitment towards delivering on health, economic and environment goals by investing £500m over the next five years in active travel infrastructure, access to bikes and behaviour change schemes to promote walking, wheeling and cycling. It also outlines a reaffirmed commitment to a £500m Bus Partnership Fund (BPF) to support authorities' ambitions around tackling congestion so that bus journeys are quicker and more reliable, and more people make the choice to take the bus. The BPF was officially launched in November 2020, with funding awarded to eight partnerships in June 2021, including £12m for the North East Bus Alliance. The **Programme for Scotland 2021-2022**[6] continues to support this focus under its action to 'Support a net zero nation'.

In addition to the above, the UK Government announced in March 2021 that the phase out date for the sale of new petrol and diesel cars and vans will be brought forward to 2030 and from 2035, all new cars and vans must be fully zero emission at the tailpipe[7]. In November 2021, the UK Government subsequently announced that all heavy goods vehicles in the UK will be zero-emission by 2040[8].

A wider range of national policy and guidance, covering active travel and bus, provide direction on national aspirations for increasing the share of healthier, cleaner travel choices. This includes the **Cycling Action Plan for Scotland**[9] and the national Walking Strategy: **Let's Get Scotland Walking**[10], which aim to increase the levels of walking and cycling as part of everyday journeys and promote the development of well-designed places and

[1] https://www.transport.gov.scot/media/47052/national-transport-strategy.pdf
[2] https://sp-bpr-en-prod-cdnep.azureedge.net/published/2021/1/12/afbd2373-a14f-4a78-af9c-4fc5c775b23d/SB%2021-01.pdf
[3] https://www.transport.gov.scot/our-approach/strategy/strategic-transport-projects-review-2/
[4] https://www.transport.gov.scot/publication/a-route-map-to-achieve-a-20-per-cent-reduction-in-car-kilometres-by-2030/
[5] https://www.gov.scot/publications/protecting-scotland-renewing-scotland-governments-programme-scotland-2020-2021/
[6] https://www.gov.scot/publications/fairer-greener-scotland-programme-government-2021-22/documents/
[7] https://www.gov.uk/government/consultations/consulting-on-ending-the-sale-of-new-petrol-diesel-and-hybrid-cars-and-vans
[8] https://www.gov.uk/government/news/uk-confirms-pledge-for-zero-emission-hgvs-by-2040-and-unveils-new-chargepoint-design
[9] https://www.transport.gov.scot/media/10311/transport-scotland-policy-cycling-action-plan-for-scotland-january-2017.pdf
[10] https://www.gov.scot/binaries/content/documents/govscot/publications/strategy-plan/2014/06/lets-scotland-walking-national-walking-strategy/documents/00452622-pdf/00452622-pdf/govscot%3Adocument/00452622.pdf

infrastructure to encourage walking and cycling. The passing of the **Transport Scotland Act (2019)**[11] also signals the intent at a national level to promote sustainable transport. The Act enables local authorities to introduce Workplace Parking Levies and supports authorities with options to influence and improve bus services in their area.

2.2.2 Regional

At a regional level, the Nestrans **Regional Transport Strategy (RTS) 2040**[12] sets the long-term vision and direction for transport in the North East for the next 20 years. The key transport priorities within the RTS are linked to the priorities in the NTS2 and include improving journey efficiencies to enhance connectivity; reducing carbon emissions to support net zero targets; and creating a step change in public transport and active travel allowing for a 50:50 mode spilt. The RTS identifies a range of associated polices and actions including increasing the number of people travelling actively for health and the environment; improving the region's bus network; reducing emissions from transport; and planning and designing places for people, all of which are relevant in the context of this corridor study.

The **Regional Economic Strategy (2018-2023)**[13] includes objectives associated with the promotion of modal shift and helping to maximise the benefits of improved transport infrastructure. Both the **Aberdeenshire Proposed Local Development Plan (LDP) (2020)**[14] and the **Aberdeen City Proposed LDP (2020)**[15] identify opportunities for significant development within the study area. Within Aberdeen City, there are allocations for up to 1,000 new homes within the study area, with an additional 8,500 homes, business and employment land allocations on land adjacent to the study corridor. The Aberdeenshire LDP indicates up to 2,000 homes are planned on the A947 corridor as well as business and employment land. The **Nestrans Active Travel Action Plan (2014-2035)**[16] identifies the Formartine and Buchan Way (F&B Way) as an already established active travel corridor in the study area, noting the presence of National Cycle Network Route 1 (NCN1). The Plan refers to aspirations for further development of this route including improved surfacing and signage.

Recently, there has also been renewed impetus given to the improvement of bus services in the region following the establishment of a new **North East Scotland Bus Alliance**[17] (building on work of the former Local Authority Bus Operators Forum). The Bus Alliance was formed in 2018 as a voluntary partnership of Nestrans, ACC, Aberdeenshire Council, First Bus Aberdeen, Stagecoach, and Bain's Coaches. The overarching objectives of the Alliance are to:

- Arrest the decline in bus patronage in the North East of Scotland by 2022; and
- Achieve year on year growth in bus patronage to 2025.

Sub-objectives exist around increasing modal share of bus patronage, improving operational performance and customer satisfaction, reducing bus emissions, and improving service accessibility. In April 2020, the Bus Alliance published a new **Bus Action Plan**[18] setting out the priority actions of the partners over the next five years. The A947 corridor is identified to be one of four corridors to be completed following conclusion of the initial priority corridors.

2.2.3 Local

Locally, both the **Aberdeenshire Local Transport Strategy (LTS) (2012)**[19] and **Aberdeen City LTS (2016-2021)**[20] aim to reduce non-sustainable journeys, increase the modal share of public transport and active travel, and make travel more effective. ACC is currently going through the process of updating its LTS. The 'Main Issues Consultation' took place in October and November 2021 and the analysis of problems and opportunities has now been undertaken which will inform the strategy. A draft LTS is anticipated to be published in 2023, and, following consultation on this, a final version will be developed. The **Sustainable Urban Mobility Plan (SUMP) (2019)**[21] identifies the need to improve connectivity both within and to the city of Aberdeen, as well as improving the public transport experience, particularly in terms of improving journey times and reliability for passengers. These objectives are aimed at locking in the benefits of the AWPR and preventing the erosion of these benefits, as would be anticipated should traffic be allowed to continue to grow to fill the additional road capacity that has been created.

[11] https://www.legislation.gov.uk/asp/2019/17/enacted
[12] https://www.nestrans.org.uk/wp-content/uploads/2021/03/Nestrans-RTS-Final-Submitted.pdf
[13] https://investaberdeen.co.uk/images/uploads/RES%20Action%20Plan%202018-2023%20FINAL.pdf
[14] https://www.arcgis.com/apps/MapJournal/index.html?appid=0b6df3fd06024c798c89138dce7a6a7e
[15] https://www.aberdeencity.gov.uk/sites/default/files/2020-05/Proposed%20Aberdeen%20Local%20Development%20Plan%202020.pdf
[16] https://www.nestrans.org.uk/wp-content/uploads/2017/02/AcTrAP_FINAL.pdf
[17] https://www.nestrans.org.uk/wp-content/uploads/2017/09/5b_App-A-Region-Wide-QP-Agreement.pdf
[18] https://www.nestrans.org.uk/wp-content/uploads/2020/04/Bus-Action-Plan-Published_April-2020.pdf
[19] https://www.aberdeenshire.gov.uk/media/2374/2012finallts.pdf
[20] https://www.aberdeencity.gov.uk/sites/default/files/Local%20Transport%20Strategy%20%282016-2021%29.pdf
[21] https://consultation.aberdeencity.gov.uk/planning/sump/supporting_documents/Draft%20Sustainable%20Urban%20Mobility%20Plan.pdf

The **Aberdeen City Centre Masterplan (CCMP) (2015)**[22] aims to create a vibrant city centre, identifying 49 development and infrastructure projects to support this. A new **Roads Hierarchy for the North East**[23] was agreed in 2019 following a study to develop options to provide a system that reflects the new role of the city centre (as a destination) and makes the most effective use of the AWPR for distributing traffic around the city to the most appropriate radial route to reduce the extent of cross-city traffic movements. In April 2020, ACC set out its net zero vision for Aberdeen in **A Climate-Positive City at the Heart of the Global Energy Transition**[24] and in March 2021, ACC published its **Climate Change Plan 2021-2025**[25] to outline its ambitions and support progress with public sector climate duties. Additionally, ACC introduced a **Low Emission Zone**[26] (LEZ) in May 2022, where only certain vehicles can enter based on their emissions standard. It has been introduced with a two year 'grace' period meaning that between 2022 and May 2024, drivers will not be fined for entering the LEZ with a non-compliant vehicle. The LEZ area is shown in the diagram below[27]. An updated **Active Travel Action Plan** for 2021-2026[28] was approved at ACC's City Growth and Resources Committee in February 2021.

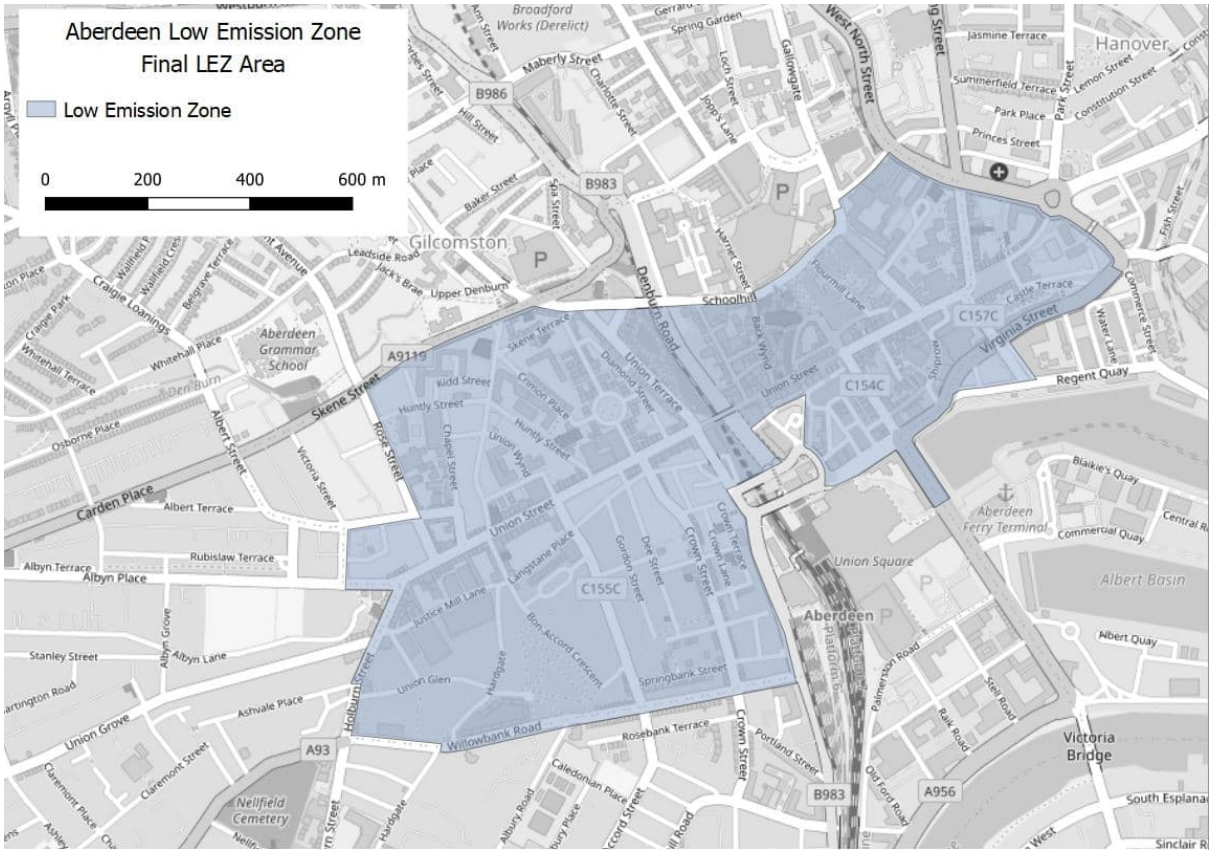


Figure 2.1: Aberdeen's LEZ Area

The policy review presented above enables several themes to be identified, including support for more trips to be undertaken using sustainable modes of travel and the requirement to meet net zero commitments being outlined at national, regional, and local policy levels. As such, the key focus of this study on developing options for improving public transport and active travel connections along the A947 corridor strongly aligns with the national, regional and local policy context.

2.3 Geographic Context

The study area encompasses the north-south corridor between the AWPR Parkhill Junction and the A96/A947 Junction to the south of Dyce. Whilst the study corridor only covers a distance of approximately four miles (6km) from north to south, it has varied characteristics including urban sections along Victoria Street and more rural sections to the north of the River Don.

[22] https://www.aberdeencity.gov.uk/sites/default/files/2018-06/Aberdeen%20City%20Centre%20Masterplan%20and%20Delivery%20Programme.pdf
[23] https://www.nestrans.org.uk/wp-content/uploads/2019/06/North-East-Scotland-Roads-Hierarchy-Study-2019.pdf
[24] https://committees.aberdeencity.gov.uk/documents/s109162/Appendix%201%20-%20Aberdeen%20Energy%20Transition%20Vision.pdf
[25] https://data.climateemergency.uk/media/data/plans/aberdeen-city-council-23971ac.pdf
[26] https://www.aberdeencity.gov.uk/sites/default/files/2021-06/Proposal%20to%20make%20a%20LEZ%20Scheme.pdf
[27] https://www.aberdeencity.gov.uk/services/roads-transport-and-parking/low-emission-zone
[28] https://consultation.aberdeencity.gov.uk/place/draft-active-travel-action-plan-consultation/

The study area encompasses the settlement of Dyce, which has a population of 6,190[29] and is located in the north-west of Aberdeen City, approximately five miles (8km) from the city centre[30]. The area consists of a diverse selection of land uses, including residential, industry, business, transport and education. The residential areas are generally located in the east of Dyce, between Victoria Street and Riverview Drive. Aberdeen International Airport is located in the west of Dyce. Industrial and business land is mostly congregated around Aberdeen International Airport, including many industrial estates and business parks. Dyce Primary School (~379 pupils[31]) and Dyce Academy (~538 pupils) provide education within Dyce. There are additionally two schools within close proximity of the study area to the south of the A96 – Brimmond Primary School (~457 pupils) and Bucksburn Academy (~803 pupils).

The A947 is the primary road link through Dyce, providing a connection between Aberdeenshire and the A96. Dyce Drive forms a key route to the west of the area, forming part of a loop around Aberdeen International Airport and connecting to various industrial estates and business parks. Wellheads Drive provides a connection from the centre of Dyce to Dyce Drive and performs a key role in connecting Dyce to nearby industrial estates and business parks.

Dyce is served by Dyce Rail Station, which is located on Station Road, to the west of the centre of Dyce. The station is located on the Aberdeen to Inverness line which is currently undergoing a programme of improvements to shorten journey times between the two cities. The station is located between Aberdeen and Inverurie which formed Phase 1 of this work, involving redoubling of the track. This was completed in 2019[32]. Aberdeen International Airport is a key regional transport hub for the North East. It serves destinations throughout the UK and Europe and also serves as the main heliport for the North Sea oil and gas industry. Although the primary route to the airport is via the A96, the A947 provides a key access route to the eastern helicopter terminal buildings.

The study area has been defined based on data zones from Dyce, Bucksburn North and Bucksburn South. The data zones making up these areas are illustrated in **Figure 2.2**, along with key transport hubs within the study area.

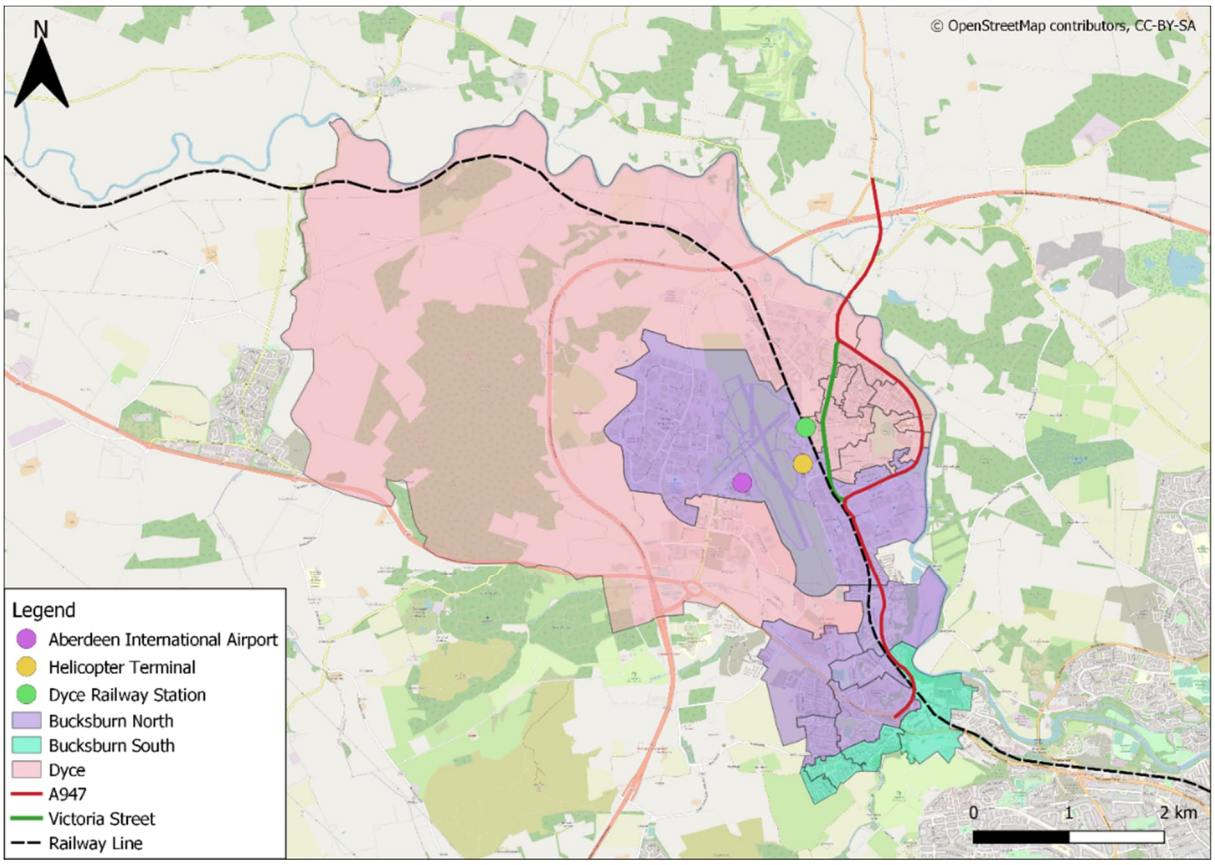


Figure 2.2: Geographic Context of Study Corridor

[29] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/small-area-population-estimates-2011-data-zone-based/mid-2020
[30] Measured from the Victoria Street/Farburn Terrace Junction to Union Street.
[31] School rolls are based on ACC 2022 forecasts: https://www.aberdeencity.gov.uk/services/education-and-childcare/schools-and-education/schools-pupil-roll-forecasts
[32] https://www.transport.gov.scot/projects/aberdeen-to-inverness-rail-improvements/aberdeen-to-inverness-rail-improvements/

2.4 Socio-Economic Context

The key findings from a detailed review of the socio-economic context for the study are presented below.

Table 2.1: Socio-Economic Context Summary

	Key Findings
Population	• There has been a 9% increase in the population of the study area between 2001 and 2020, which is broadly in line with the population growth across Aberdeen City (8%). • Population growth in Aberdeen City has been in line with the national average (8%), whilst the rate of growth in Aberdeenshire has been significantly above the national average (15%).
Age Profile	• There is an older population in the study area relative to the Aberdeen City, Aberdeenshire and Scotland averages for those aged 65 and over, with 22% of people in the study area within this category compared to 16% for Aberdeen City, 20% for Aberdeenshire and 19% for Scotland. • The percentage of the population in the '15 and under' age group is in line with Aberdeen City as a whole (16%) but is lower than the averages for Aberdeenshire (19%) and Scotland (17%). • In terms of the working age population, the study area (62%) is broadly in line with the averages for Aberdeenshire (61%) and Scotland (64%). The proportion of those of working age in the study area, however, is notably less than the average for Aberdeen City (68%).
Employment	• The unemployment rate is low within the study area (3%) and is in line with the unemployment rates of Aberdeen City (4%) and Aberdeenshire (3%). • The unemployment rate across the region as well as in the study area is significantly lower than the national average of 7%.
Car/Van Availability	• There is a high car/van availability within the study area. The data shows that 79% of adults within the study area have access to a car or van, which is higher than the averages for Aberdeen City (69%) and Scotland (69%).
Distance Travelled to Work	• The most common travel to work destination is within the A947 study area itself (33%), with an additional 8% who work from home. • A total of 41% travel to work elsewhere in Aberdeen, including Aberdeen North (13%), the city centre (12%), Aberdeen West (9%) and Aberdeen South (7%). • 8% of people travelling to work from the A947 study area travel to somewhere in Aberdeenshire.
Transport Poverty	• 65% of the data zones in the study area are identified to be at medium risk of transport poverty. • 24% of the data zones in the study area are identified to be at high risk of transport poverty. These data zones are located in the north-west of the study area and around the northern section of Riverview Drive. • 12% of the data zones in the study area are identified to be at low risk of transport poverty. These data zones are located in the south-east of the study area in proximity to the A947/A96 roundabout.
SIMD	• There are no data zones in the study area within the 20% most deprived in Scotland according to the 2020 SIMD figures. The most deprived areas within the study area are located in the south-west and are within the 40% most deprived areas in Scotland. • The SIMD 2020 figures note that 77% of the data zones within the study area are located in the top 50% least deprived areas in Scotland.
Health & Physical Activity	• General health is shown to be good in the study area, with 83% reporting very good or good health. This is slightly lower than the average for Aberdeen City (85%) and the average for Aberdeenshire (86%), however it is higher than the average for Scotland (82%).

2.5 Transport Context

The key findings from a detailed review of the transport context for the study are presented below.

2.5.1 Active Travel

National Cycle Network

As shown in **Figure 2.3** below, the NCN1 features prominently in the area. NCN1 joins the study corridor in the south at Mugiemoss Road, routeing along Stoneywood Road, Riverview Drive and joining the F&B Way in the north of the study area. The route is mostly formed of traffic-free sections throughout the study area, with small sections of on-road provision.

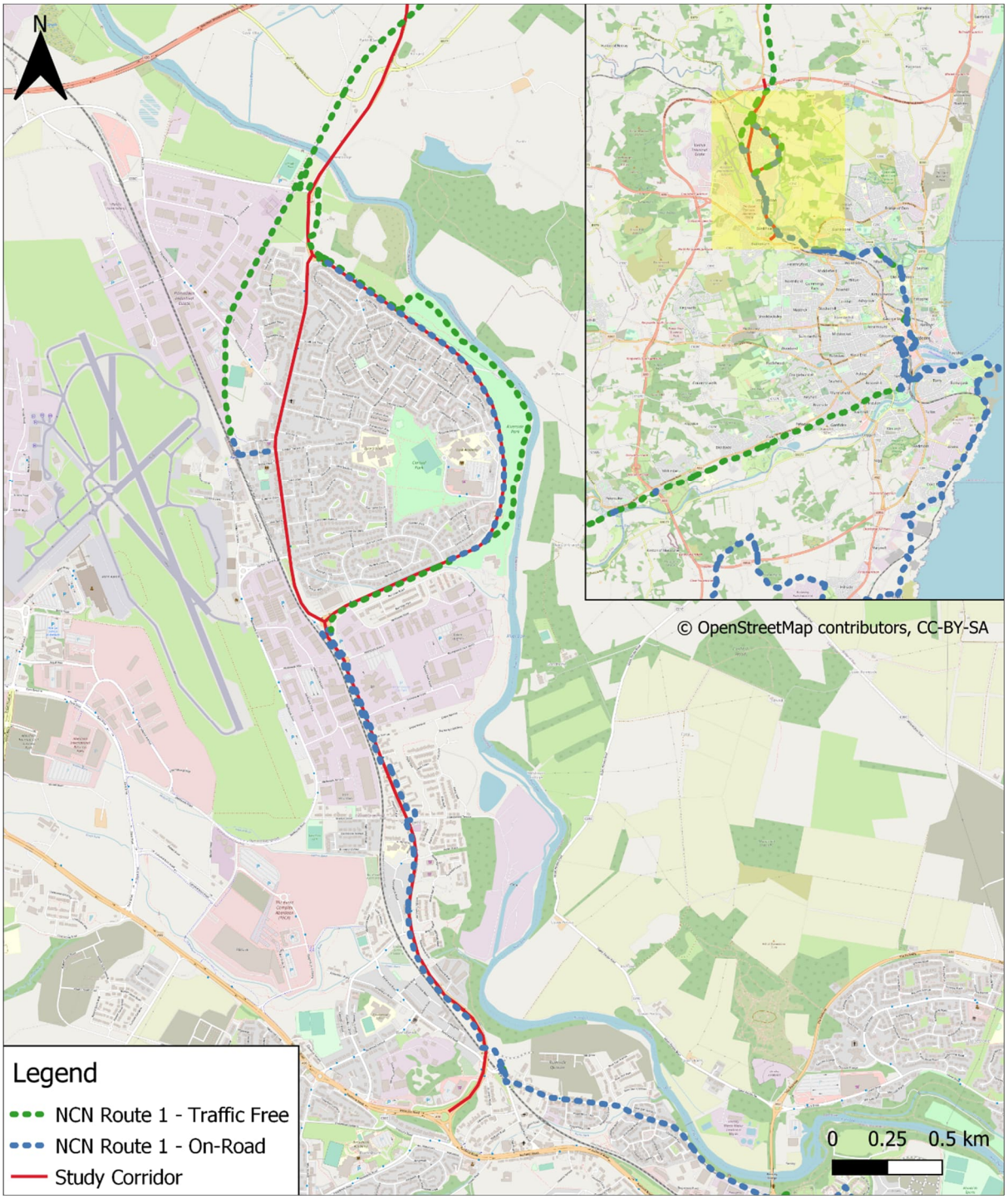


Figure 2.3: National Cycle Network

Active Travel Infrastructure

The existing active travel infrastructure within the study area is shown below.

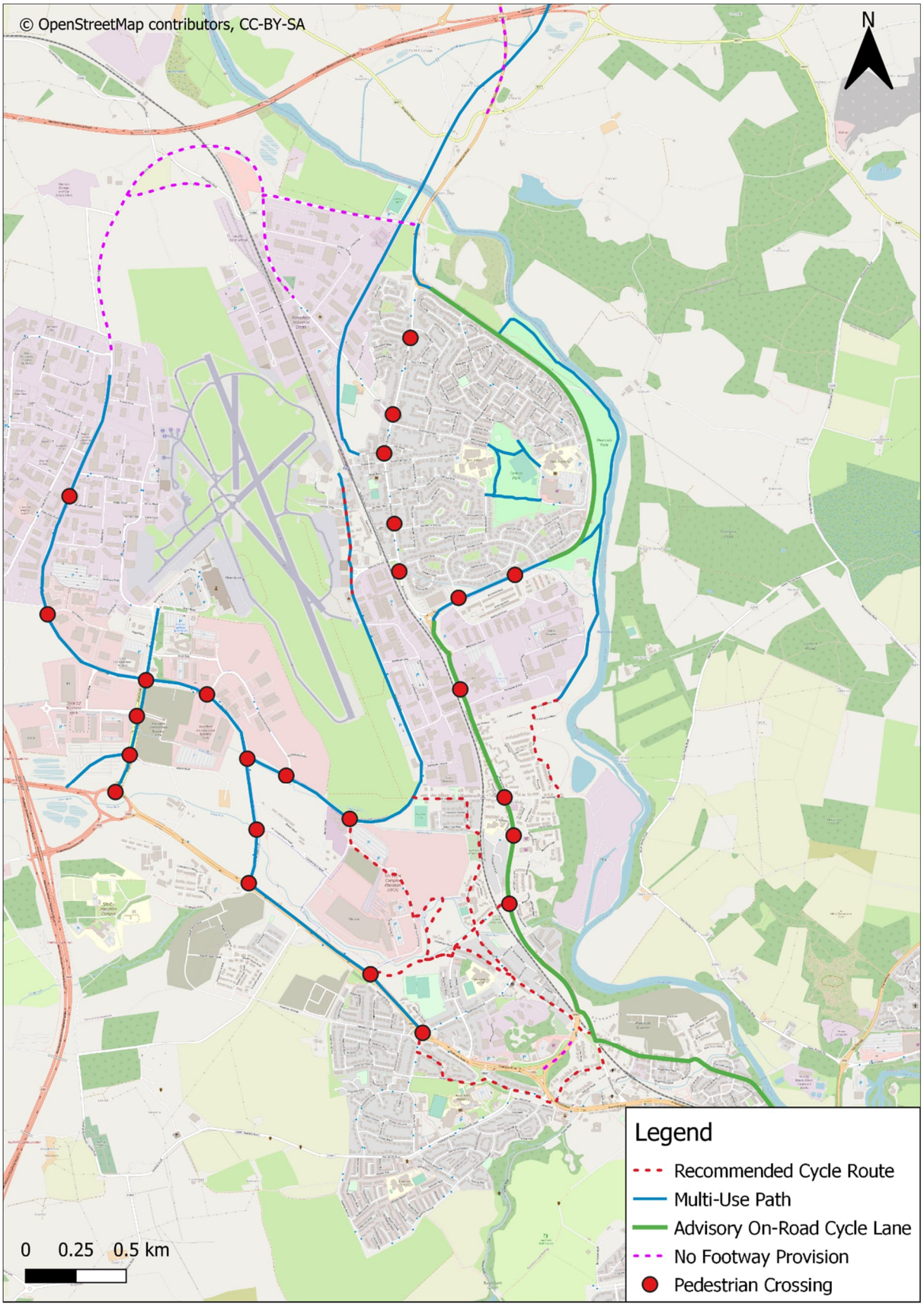


Figure 2.4: Active Travel Infrastructure within the Study Area

As shown, there are a number of active travel routes within the study area, including both on-road and off-road routes. The F&B Way and Riverside Path provide key links for pedestrians and cyclists in the north-west and east

of the study area respectively. On-road advisory cycle lanes connect Mugiemoss Road in the south-east of the study corridor to the north of the study corridor via Stoneywood Road and Riverview Drive. As shown, there are few pedestrian crossing points on Stoneywood Road or Riverview Drive to facilitate active travel movements.

Active Travel Counts

There are five active travel counters located in close proximity to the study corridor as shown in **Figure 2.5**. Analysis of the active travel counters has been undertaken, with key results presented below. There is a degree of variability across some of the counters, reflecting issues with the count technology in some instances. Average daily pedestrian and cycle counts have been used for the analysis, with a snapshot of average daily counts from 2019 illustrated in the diagram below.

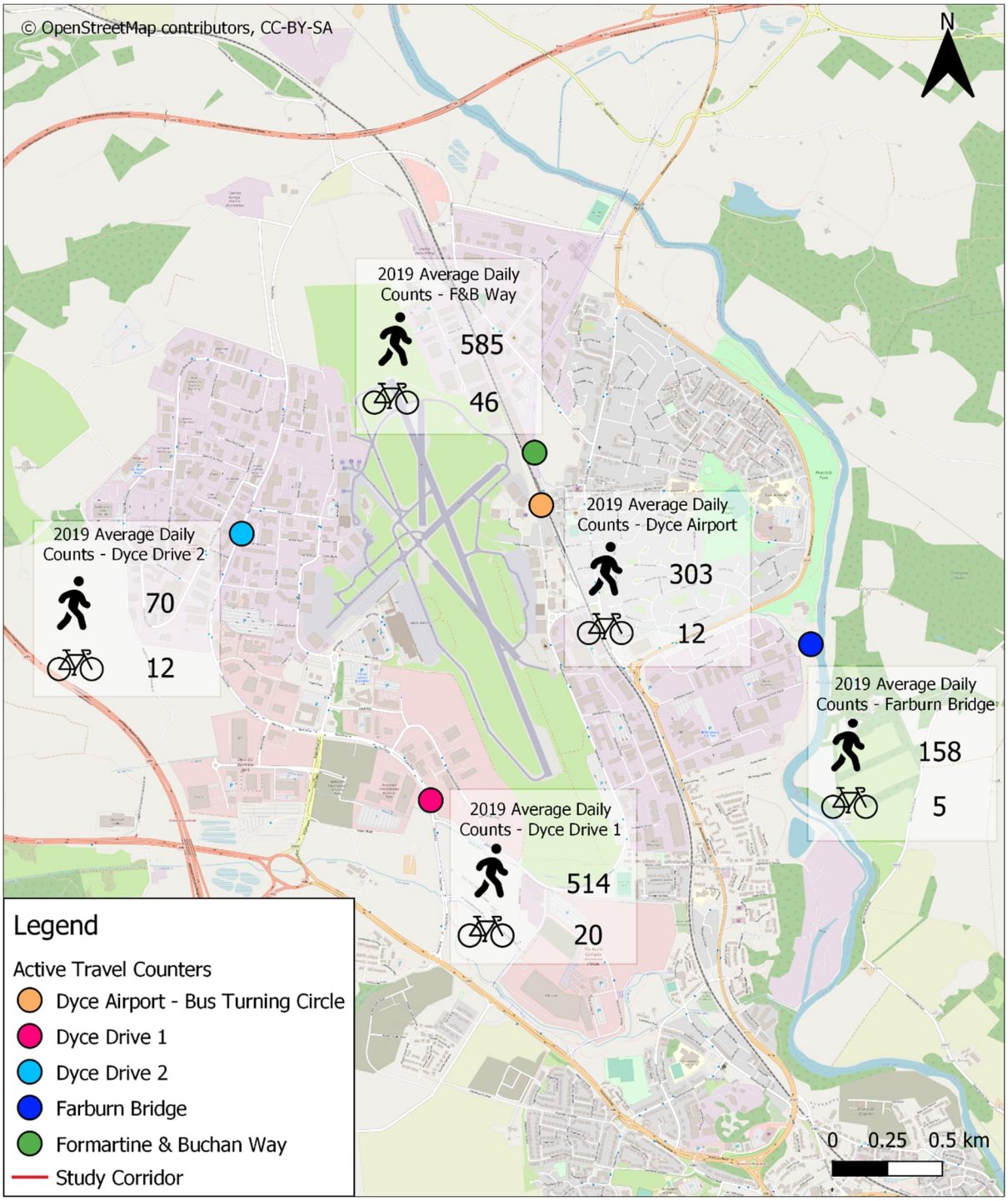


Figure 2.5: Active Travel Counters

2.5.3 Public Transport

Bus Priority Infrastructure

There is no bus priority infrastructure on the A947 corridor within the study area. Buses utilise Stoneywood Road, Victoria Street and Riverview Drive but are not given priority over general traffic on any of these routes.

Bus Patronage

In recent years, there has been a trend of ongoing decline in bus use in Scotland, a trend also evident in the North East, albeit not to the same extent as in some other parts of the country. To provide a baseline of bus patronage along the corridor that can be monitored in future years to assess the impact of any interventions that are implemented, data was provided by the two main bus operators that service the A947 corridor. Given commercial sensitivities, numbers have been presented as an index. FY2019/20 has been taken as the base year, as shown in **Table 2.2**.

Table 2.2: Index of Year Patronage on A947 Corridor (19/20-21/22)

Financial Year	Index of Year Patronage on A947 Corridor	
	First Bus	Stagecoach
2019/20 (Base Year)	100	100
2020/21	38.4	35.7
2021/22	70.3	66.8

The significant decline in patronage in 2020/21 on the 2019/20 base year is attributed to the COVID-19 pandemic which placed significant restrictions on movement and discouraged use of public transport; consequently, contributing to a large decline in bus use. As shown in the table, bus use has recovered to an extent during 2021/22 although it remains significantly below that recorded during the 2019/20 base year.

Bus Journey Time Variability

A high-level analysis of bus stop reliability (delay and dwell times) has been conducted across ten stops serving First Bus services along the A947 corridor. **Figure 2.6** illustrates the location of these stops with the average recorded delay at each. **Table 2.3** shows a summary of the average length of delay as well as the dwell times at each stop.

It should be noted that:

- All times are in seconds;
- The data is for March to June 2019 (inclusive) and the data presents both delay and dwell times as day averages, therefore the average delay/dwell figures have been calculated subsequent to this across all months;
- There are eight bus services recorded as serving the stops (Service 17, 17A, 17B, N17, 18, 18A, 117 and 172) – the analysis has not been split by service number;
- A negative delay value at a stop is assumed to indicate that previously delayed services are generally (i.e. on average) able to recoup time at that stop;
- Victoria Street at McIntosh Crescent (ATCO639004751) is associated only with service #N17, a night only service and Stoneywood Road at Riverview Drive (ATCO639004702) is associated only with service #117, an airport service; and
- Services 17B, N17, 18A and 117 were subsequently cancelled or suspended as a result of COVID-19.

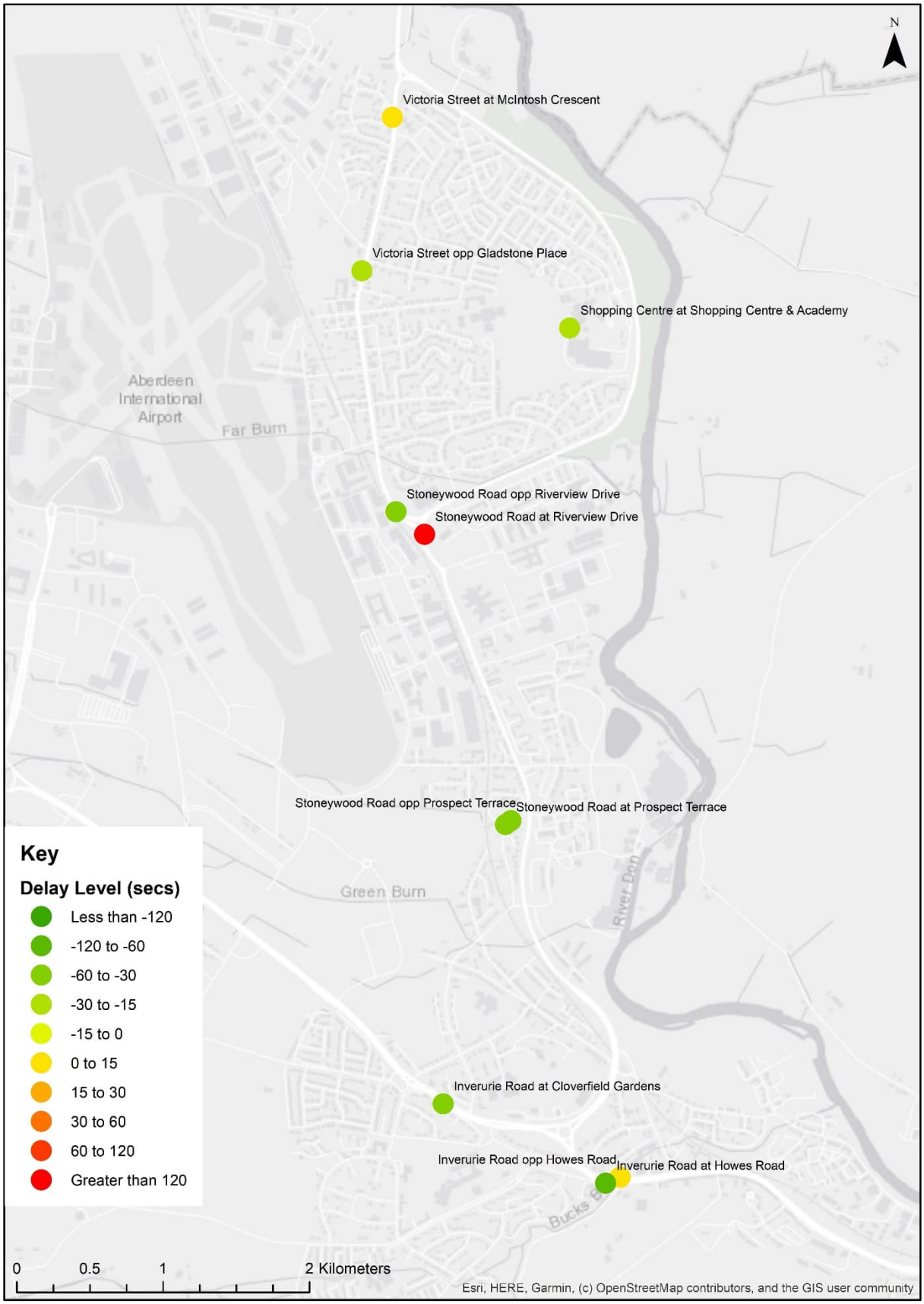


Figure 2.6: Average Delay at Bus Stops on A947 Corridor

Table 2.3: Average Length of Delay and Dwell Time at Bus Stops on A947 Corridor

Stop Name / Location	Delay		Dwell	
	Direction(s)	Average Delay (seconds)	Direction(s)	Average Dwell (seconds)
Inverurie Road opp Howes Road	Inbound	6	Inbound	16
Inverurie Road at Howes Road	Both	-83	Both	32
Inverurie Road at Cloverfield Gardens	Outbound	-46	Outbound	0
Stoneywood Road at Prospect Terrace	Outbound	-41	Outbound	27
Stoneywood Road opp Prospect Terrace	Inbound	-56	Inbound	26
Stoneywood Road opp Riverview Drive	Inbound	-57	Both	20
Stoneywood Road at Riverview Drive[33]	Inbound	170	Inbound	21
Victoria Street opp Gladstone Place	Outbound	-29	Outbound	29
Victoria Street at McIntosh Crescent[34]	Inbound	1	Both	17
Shopping Centre & Academy	Inbound	-22	Inbound	102

Stoneywood Road at Riverview Drive (located on the southbound carriageway of Stoneywood Road) is recorded as having the most significant delays on average across the bus stops. This stop serves only Service 117, routeing from the airport via Wellheads Drive – Farburn Terrace – A947 Victoria Street. The level of delay at this location could therefore be an indicator of frequent congested traffic southbound along Victoria Street or it might be indicative of a more general pattern of delays coming from the airport. The dwell time at this location is broadly average across the stops.

Inverurie Road at Howes Road (located on the westbound carriageway of the A96) is recorded as having the least delays across the stops. This could be an indicator that time is generally able to be recouped at this location due to the relatively higher traffic flows along the dualled A96 westbound. The dwell time at this location is very slightly higher than the average across the stops. There is no correlation between the length of delay at each stop and the dwell time at that stop.

The variance in delay times between the months ranges from five seconds at the Shopping Centre & Academy to 42 seconds at Stoneywood Road opposite Riverview Drive. The variance in dwell times ranges from two seconds at Inverurie Road opposite Howes Road to 10 seconds at Victoria Street at McIntosh Crescent.

Rail Services

Within the study area, Dyce Rail Station is located on the Aberdeen to Inverness line. Dyce is a stop on the Aberdeen to Inverness service, Montrose to Inverurie service and services further south can be accessed via Aberdeen. The table below shows the approximate frequency of each of these services.

Table 2.4: Frequency of Services from Dyce Rail Station (Source: National Rail)

Destination	Frequency
Aberdeen	Approximately 40 services daily
Inverness	Approximately 10 services daily
Inverurie	Approximately 35 services daily
Montrose	Approximately 30 services daily

[33] Airport service #117 only – now withdrawn
[34] Night only service #N17 only – now withdrawn

2.5.4 Road Network

The A947 study corridor between the AWPR Parkhill Junction and the A96/A947 Junction is comprised of three key road links, as shown in **Figure 2.7** below.

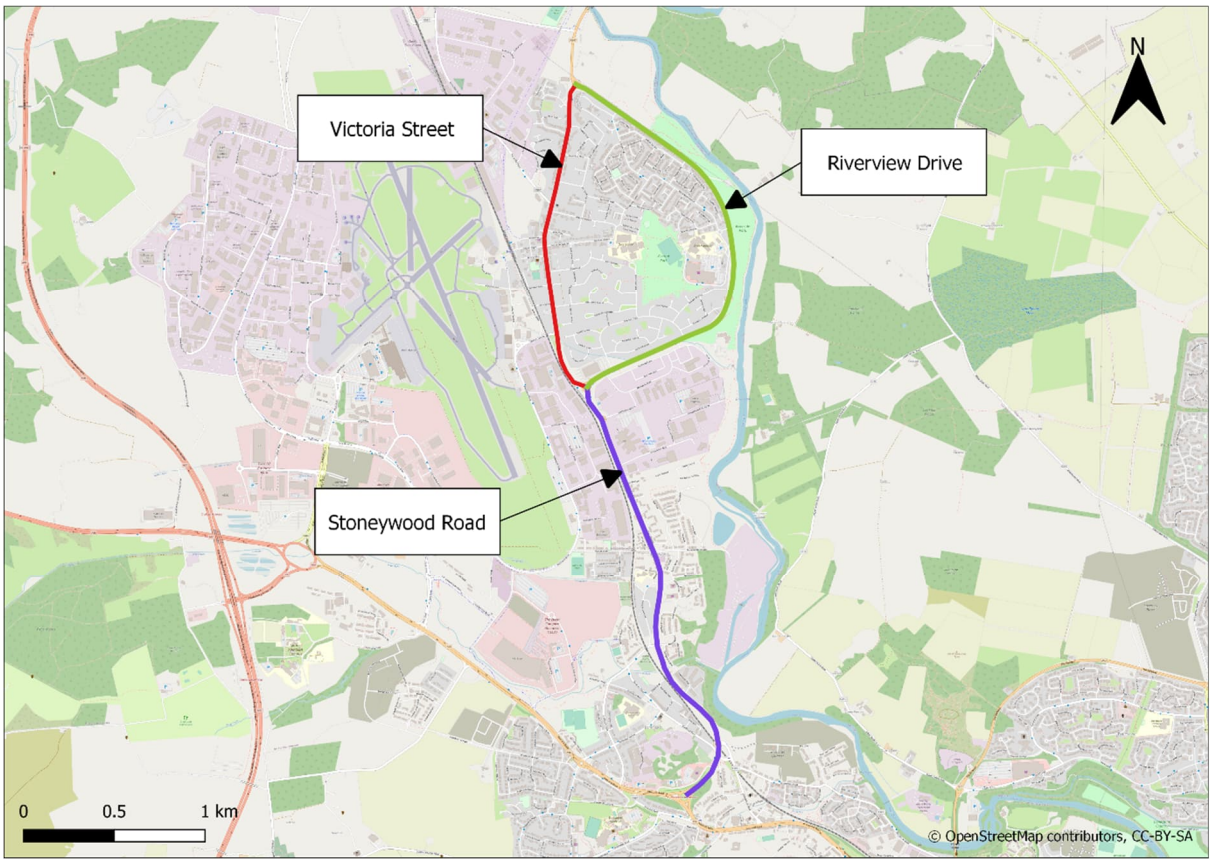


Figure 2.7: A947 Study Corridor Road Network

Stoneywood Road comprises the section of the corridor between the A96/A947 Junction and the Stoneywood Road/Riverview Drive roundabout. This section is approximately 2.5km long and is a two-lane single carriageway for the majority, with the exception of a short dual carriageway section at its southern end. This section has a speed limit of 40mph at its southern end which changes to 30mph approximately 500m north of the A96/A947 roundabout. This section provides access to the residential areas in the south of Dyce, as well as retail space and offices, including the Dyce headquarters of BP.

Riverview Drive is a two-lane single carriageway section of the study corridor which forms a loop around the east of Dyce, bypassing Victoria Street. It has a speed limit of 40mph and, as well as serving as a bypass of Dyce, provides access to Dyce Shopping Centre and to the residential areas in the east of Dyce. Riverside Park, a popular area for leisure activities, is also accessed from Riverview Drive. The road was redesignated as the A947 in the update to the ACC roads hierarchy in 2020.

Victoria Street forms the main thoroughfare through Dyce, containing a mix of retail units, restaurants and residential properties fronting onto the street. It is a two-lane single carriageway with a speed limit of 30mph and provides access to a number of key destinations in the area including Dyce Rail Station, the F&B Way and Aberdeen Heliport. Additionally, this section connects to Pitmedden Road and Wellheads Drive both of which facilitate movements to the business parks and industrial estates to the west of Dyce. Victoria Street was declassified from an A-class route (i.e. the A947) in the update to the ACC roads hierarchy and is now a tertiary route.

Traffic Volumes

There is an automatic traffic counter (ATC) located on Stoneywood Road. The table below provides a monthly summary from the counter for 2019, 2020 and 2021. The effects of the COVID-19 pandemic on traffic movements are evident, particularly throughout 2020.

Table 2.5: Traffic Count Data from Stoneywood Road (Source: ACC)

Month	Average Daily Traffic Flows in Both Directions				
	2019	2020	2021	% Change (2020-2021)	% Change (2019-2021)
January	14,707	14,068	8,977	**-36%**	**-39%**
February	15,434	14,578	10,026	**-31%**	**-35%**
March	15,081	11,709	11,345	**-3%**	**-25%**
April	14,894	6,153	12,045	**96%**	**-19%**
May	15,001	7,596	12,489	**64%**	**-17%**
June	15,001 (est.)	9,983	12,883	**29%**	**-14%**
July	15,001 (est.)	11,112	12,198	**10%**	**-19%**
August	14,886	10,814	12,652	**17%**	**-15%**
September	14,825	11,941	12,750 (est.)	**7%**	**-14%**
October	14,484	12,039	12,167 (est.)	**1%**	**-16%**
November	15,079	12,172	12,968 (est.)	**7%**	**-14%**
December	13,934	11,768	12,123 (est.)	**3%**	**-13%**

Road Safety

The table below shows the number of slight, serious and fatal road incidents involving pedestrians, pedal cycles, and buses as well as all vehicles between 2016 and 2020 along the study corridor.

Table 2.6: Road Safety Incidents along Study Corridor (2016-2020)[35]

	Pedestrians			Pedal Cycles			Buses			All Vehicles		
	Slight	Serious	Fatal	Slight	Serious	Fatal	Slight	Serious	Fatal	Slight	Serious	Fatal
2016	0	0	0	0	0	0	0	0	0	0	0	0
2017	1	0	1	0	0	0	0	0	0	2	0	1
2018	0	0	0	1	1	0	0	0	0	1	1	0
2019	0	0	0	0	1	0	0	0	0	2	1	0
2020	0	2	0	0	0	0	0	0	0	0	2	0

One fatal incident occurred during the 2016-2020 time period which involved a pedestrian in 2017. The incident occurred just north of the A96/A947 Junction. Seven incidents were recorded and marked as “slight” in nature and four were marked as “serious” in nature over the five-year period.

[35] Created using information from CrashMap - https://www.crashmap.co.uk/

2.5.6 Freight

Freight Routes

The diagram below provides an overview of the freight routes on the study corridor. There are multiple industrial estates which are a key origin and destination for freight including Kirkhill Industrial Estate to the north-west and Wellheads Industrial Estate to the west of the study corridor. There are restrictions in place on Victoria Street, banning vehicles over 7.5 tonnes in weight. There are height restrictions on Farburn Terrace caused by a low bridge, which prevents vehicles over 4.7m high from using the route.

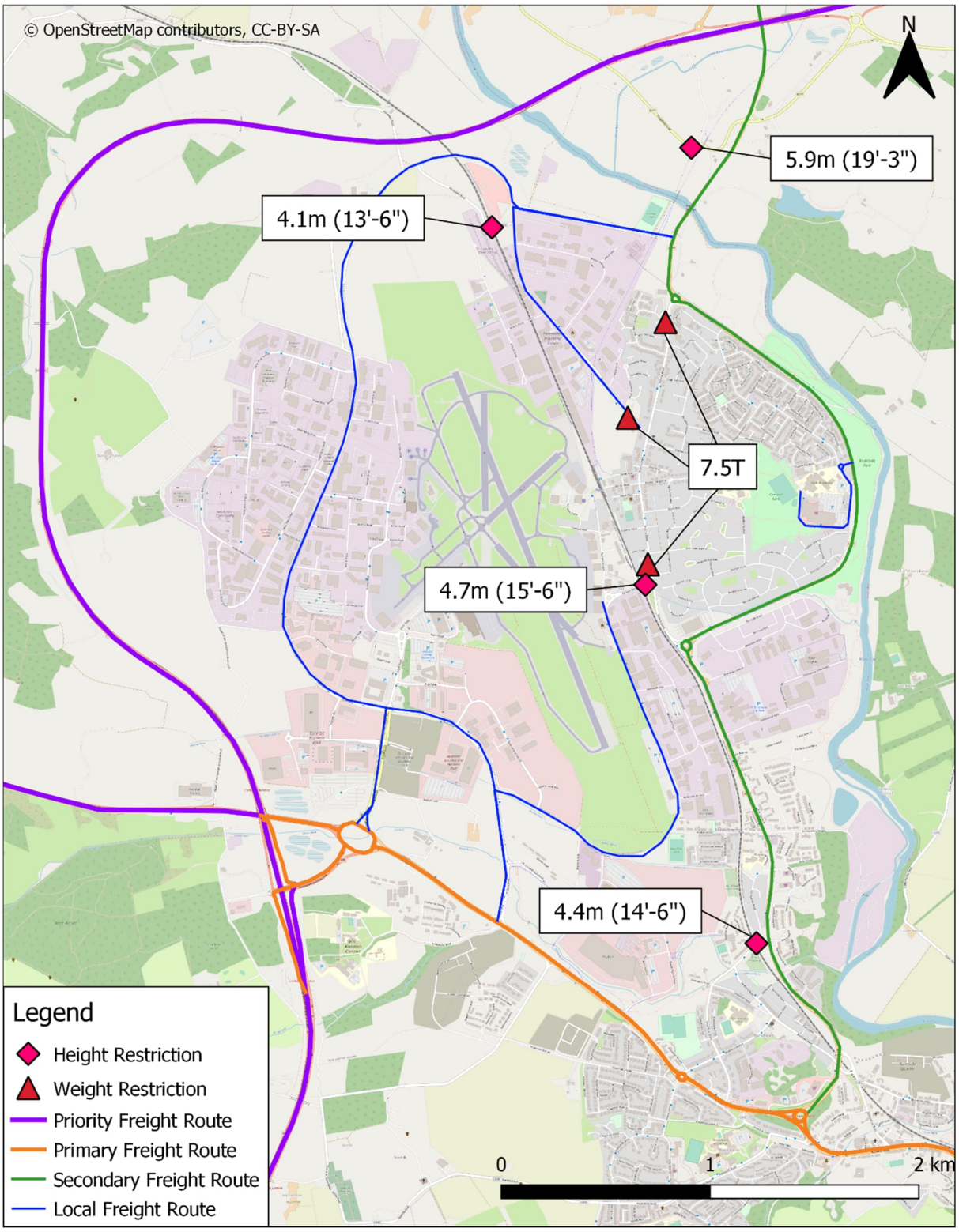


Figure 2.8: Freight Routes

Freight Counts

Data has been obtained from ACC on two-way HGV movements from the automatic traffic counter on Stoneywood Road between March 2020 and September 2021. **Figure 2.9** below shows freight movement trends through this period.

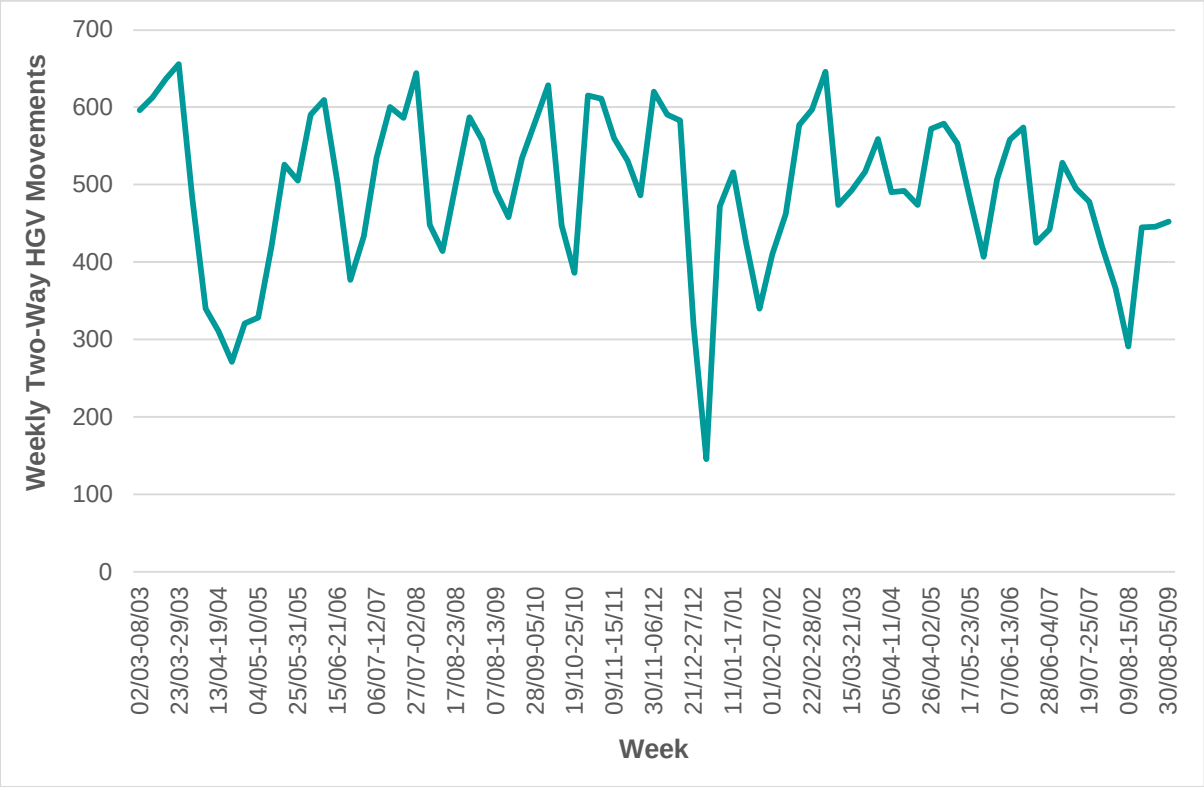


Figure 2.9: Freight Counts

The data is slightly limited given it is only available between 2020 and 2021 meaning that the majority of the data is from during the COVID-19 pandemic. It can be seen that there was a significant decline in HGV traffic immediately after COVID-19 restrictions were introduced in March 2020, however this recovered relatively quickly.

Other than the period immediately following the introduction of COVID-19 restrictions, the HGV numbers follow a pattern of relatively consistent peaks and troughs throughout the year other than a large decrease during the week of Christmas.

2.5.7 Electric Vehicles

The diagram below shows the location of EV charging infrastructure in relation to the study corridor and ACC area based on ChargePlace Scotland data.

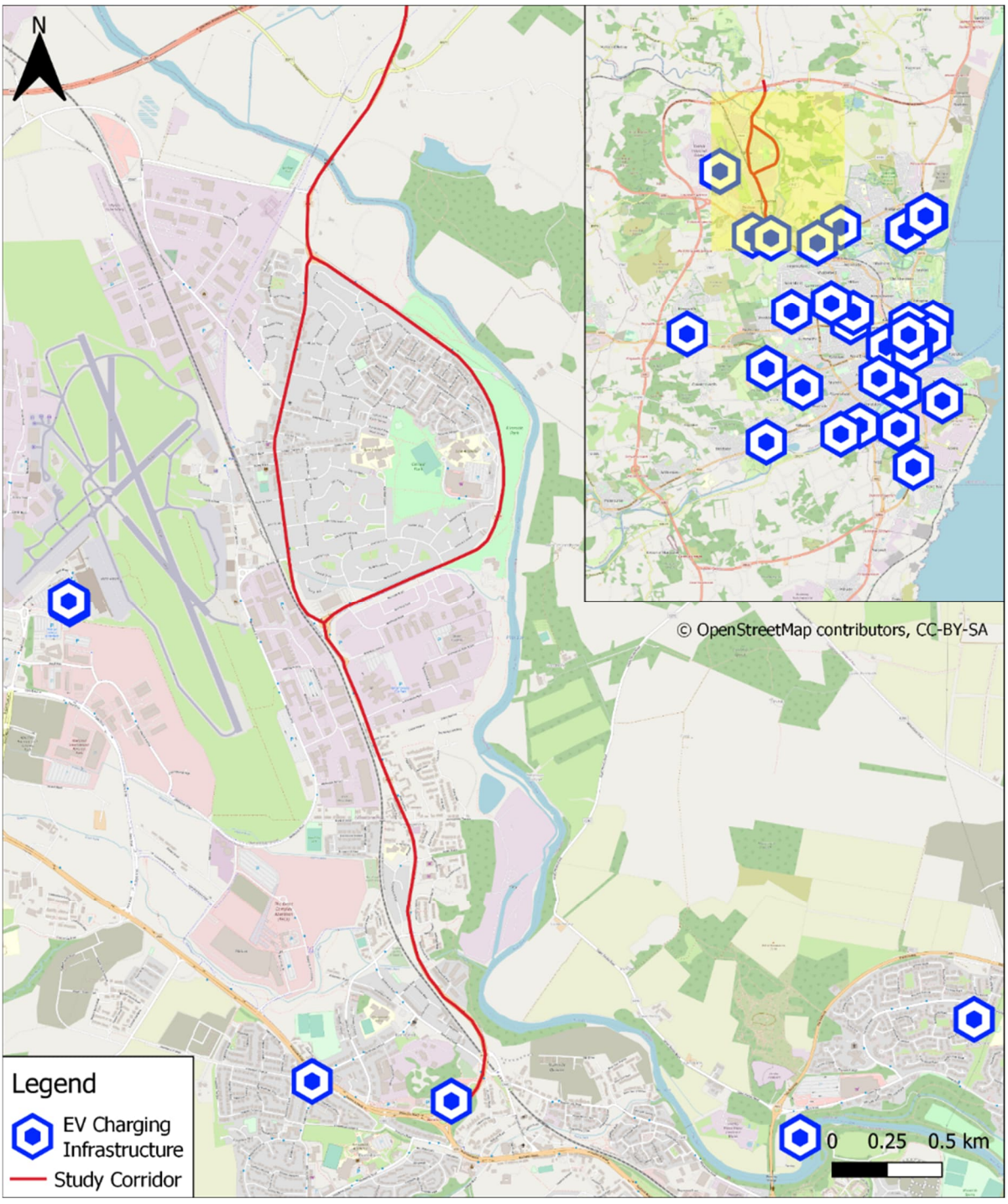


Figure 2.10: EV Charging Infrastructure

As shown, there is limited EV charging infrastructure on the study corridor. There are EV charging points in the south of the study corridor, close to its junction with the A96 and at Aberdeen International Airport. It is noted that in January 2022, the Scottish Government published a new draft vision statement for public electric vehicle charging in Scotland. This notes a *"new public electric vehicle charging fund will be launched in Scotland which seeks to attract investment from the private sector. This fund will provide up to £60 million to local authorities over the next four years with approximately half of this funding anticipated to be invested from the private sector. This step has the potential to double the size of the public charging network in Scotland."*[36]

[36] A new vision for electric vehicle charging infrastructure in Scotland | Transport Scotland

2.6 Planning Context

The review of the planning context included a review of the Proposed Local Development Plans (LDPs) of ACC and Aberdeenshire Council and a review of relevant planning applications along the corridor. This section provides a summary of the key findings from this review, with full details provided as part of **Appendix A**.

2.6.1 Development in Aberdeenshire

The Proposed LDP includes housing allocations for a number of settlements to the north of the study area within Aberdeenshire, including in Newmachar (505 homes), Oldmeldrum (413 homes), Turriff (784 homes), Banff (600 homes) and Macduff (22 homes). There are two relevant planning applications within the vicinity of the study corridor in Aberdeenshire as follows:

- APP/2012/3943 – This application refers to the OP1 allocation in Newmachar within the Proposed LDP 2020. It is for a residential development, primary education provision and associated infrastructure. The application was approved in 2015 for 140 houses; however, there has been no build out at the site to date.
- APP/2021/2089 – This application refers to the erection of 34 houses and associated infrastructure on the land of Meldrum House, Oldmeldrum. The application was submitted in September 2021 and approved in July 2022.

2.6.2 Development in Aberdeen City

Within the ACC local authority area, there are 13 allocations within the Proposed LDP 2020 which are of relevance to the A947 Multi-Modal Corridor Study. The most significant allocation for housing in the area is OP9 at Grandhome, with plans for 4,700 homes. Overall, the Proposed LDP 2020 includes allocations for 9,345 homes and 101ha employment land within the vicinity of the A947 corridor.

There are two relevant planning applications within the Aberdeen City section of the study corridor as follows:

- 181050/DPP – This application refers to a residential development comprising 283 flats over five storeys, associated infrastructure, access roads and landscaping to the east of Stoneywood Road south of Riverview Drive.
- 210665/DPP – This application refers to the erection of an energy storage facility with associated works to the west of Victoria Street north of Farburn Terrace. The application was approved in September 2021.

2.7 Environmental Context

The *Problems, Issues, Constraints and Opportunities Technical Note* included in **Appendix A** includes a detailed overview of the environmental considerations which are present along and in the vicinity of the A947 corridor and is supported by Environmental Constraints Mapping. The review provides consideration of the following:

- Ecology and Biodiversity – identifying designated ecological interests within the study area;
- Landscape Character – describing the landscape character within the study area;
- Land Use – providing an overview of the existing use of the land within the study area;
- Cultural Heritage and Archaeology – identifying designated heritage and archaeological interests within the study area;
- Water Resources and Flood Risk – identifying key waterbodies/quality and the risk of flooding within the study area;
- Outdoor Access and Recreation – identifying outdoor recreational resources within the study area; and
- Air Quality – identifying any Air Quality Management Areas (AQMAs) within the study area.

The key points emerging from the review of the environmental context include:

- There are segments of the A947 with a high likelihood of river flooding where they cross the River Don and its tributaries, and along the course of the river which runs adjacent to the study corridor;
- There are no environmental or landscape designations within the study area;
- There are listed buildings within the study area but no other designations for cultural heritage or archaeology; and
- There are several core paths which intersect or share the A947.

3. Public and Stakeholder Engagement

3.1 Introduction

This chapter provides an overview of the public and stakeholder engagement exercises that were undertaken as part of this study. Further detail on the first phase of engagement is provided in the *Problems, Issues, Constraints and Opportunities Technical Note* included in **Appendix A** and further detail on the second phase of engagement is provided in the *Part 2 Consultation Outcomes* included in **Appendix E**.

3.2 Part 1 (Autumn 2021)

The purpose of the initial stage of engagement, undertaken in Autumn 2021, was to determine the problems, issues, constraints and opportunities along the study corridor. A number of steps were involved in delivering the first stage of the engagement process, as outlined below.

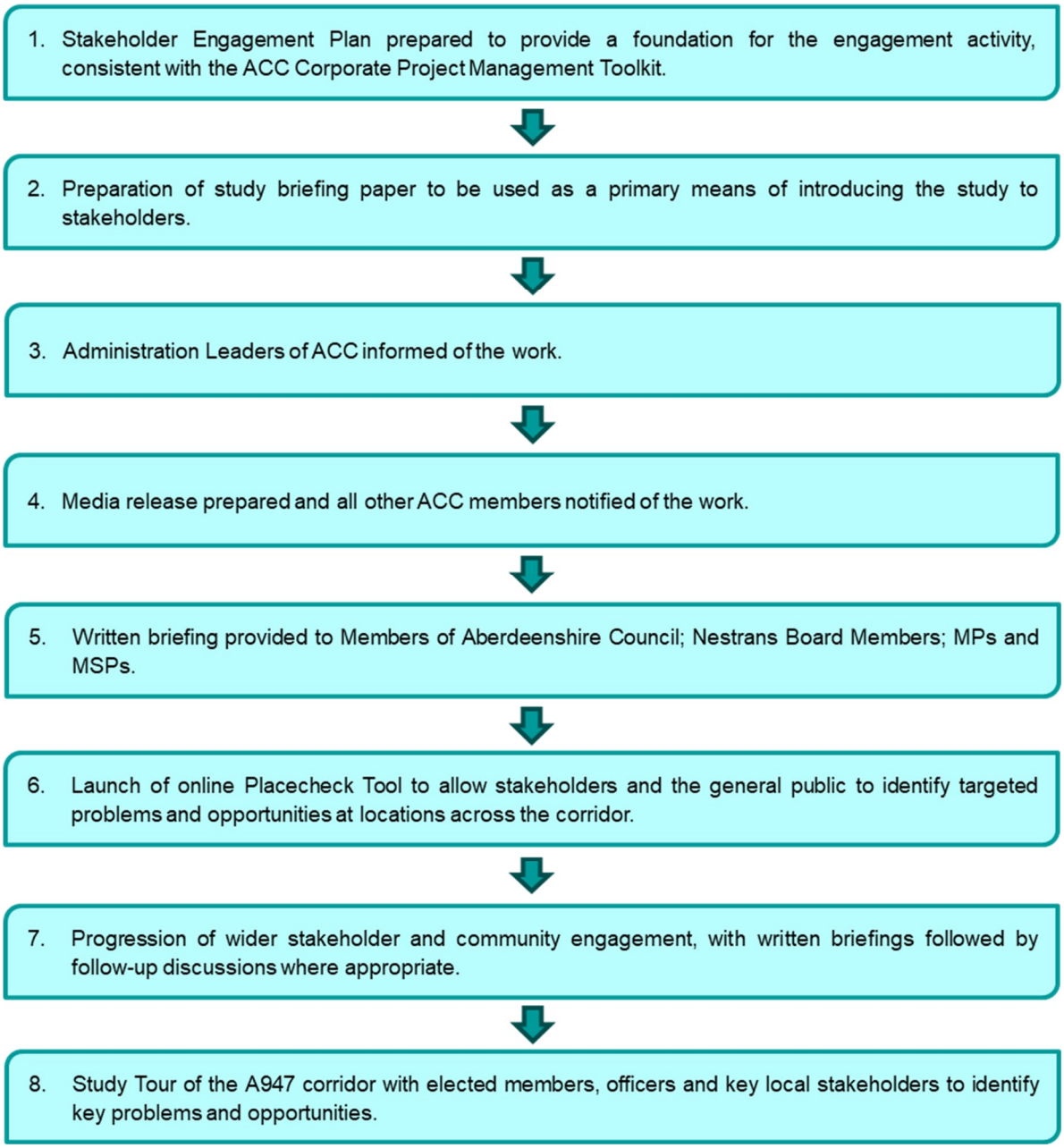


Figure 3.1: Part 1 Engagement Activities

3.2.1 Stakeholder Discussions

The table below presents the key findings from this phase of stakeholder engagement.

Table 3.1: Key Outcomes from Part 1 Stakeholder Engagement

Stakeholder	Key Findings
Aberdeen Cycle Forum	• There is a general lack of wayfinding signage for cyclists on the study corridor. • It was noted that access controls are not suitable for all bike types e.g. adapted bikes, cargo bikes, bikes with trailers etc. • There is a lack of cycle lane lead-ins ahead of advanced stop lines at box junctions.
ACC, AC and Nestrans Officers	• Options on the Riverside Path are constrained by ownership and wildlife habitats. • There is an opportunity to influence drivers to use Riverview Drive rather than Victoria Street. • There is variable quality of infrastructure for active travel on Victoria Street. • There are limited crossing opportunities on Victoria Street, and few dropped kerbs for those with mobility issues. • The rail service is good but access to the station is difficult for all users, particularly active travel users. • Issues noted with overspill at the Dyce Rail Station car park. • It was noted that congestion issues affecting car users and public transport on the corridor have been alleviated through the opening of the AWPR and the majority of issues on the corridor are now relating to active travel. • There are opportunities to improve east to west connectivity on the study corridor.
Aberdeen International Airport	• It was noted that car travel is the dominant mode of travel to the airport, despite staff often living in close proximity. • There are issues for accessing the airport sustainably as shift times are often outwith the operation times of public transport and weather and darkness creates the perception of being unsafe for active travel. • There is an opportunity for a direct bus service between Dyce Rail Station and the airport, which could also integrate with TECA. • It was noted that there is potential for improved active travel links between the study corridor and the airport.
First Aberdeen	• The COVID-19 pandemic has had a particularly significant impact on bus service use within the study area, partly due to much lower demand for travel to Aberdeen International Airport. • The width of Victoria Street was noted as a constraint on the route. • Increased use of Riverview Drive for private car journeys would better facilitate bus movements on Victoria Street. • On-street parking on Mugiemoss Road can cause delays for buses.
Newmachar Community Council	• Introducing lighting between the AWPR Parkhill junction and the Victoria Street/ Riverview Drive Roundabout could improve safety and pedestrian comfort and improve consistency of lighting for drivers.
Scottish Enterprise	• Scottish Enterprise support a focus on sustainable options which contribute to the transition to a net zero economy in the North East. They are actively engaged with regional partners to deliver transformational economic projects in the North East and sustainable transport could have a positive impact on promoting these projects.

3.2.2 Study Tours

To aid identification of problems and opportunities along the study corridor, AECOM led a Study Tour which representatives from ACC, Nestrans and other key stakeholders attended. An additional Study Tour was held with elected members. A summary of the key findings is presented in the table below.

Table 3.2: Key Findings from A947 Study Tours

Location	Problems/Opportunities
Dyce Rail Station	**Problems**
	• Lack of wayfinding signage for active travel users.

Location	Problems/Opportunities
	• Route to access the F&B Way from the rail station is through the car park. • Station access is poor for active travel.
	Opportunities
	• Potential to create active travel route through car park. • Potential to formalise link between Dyce Rail Station and Union Row.
A947/Dyce Drive Junction	**Problems**
	• No direct cycling provision (alternative route via underpass is convoluted – underpass to connect to F&B Way requires cyclists to dismount and there are perceived personal security issues due to a lack of lighting). • Lack of wayfinding signage for equestrian users. • Overgrown vegetation on approach to F&B Way.
	Opportunities
	• Opportunity to improve wayfinding signage. • Potential to create a direct active travel link between Dyce Drive and Riverview Drive.
Victoria Street/Pitmedden Road Junction	**Problems**
	• Width of junction encourages increased vehicle speeds. • Guardrails present safety issues for cyclists and affect placemaking opportunities.
	Opportunities
	• Wide junction has potential to be reduced in footprint. • Opportunity to reconnect Dyce Parish Church and Dyce Church Hall via improved crossings.
Victoria Street	**Problems**
	• Bus laybys cause difficulties for buses rejoining carriageway. • Footway surfacing is poor. • History of issues at the zebra crossing near Tesco including conflicts relating to parking and cash machine use.
	Opportunities
	• Opportunity to improve placemaking on the route. • Opportunity to widen footways. • Potential to introduce restrictions on traffic movement. • Potential to introduce segregated cycle lanes. • Potential to reduce access widths to improve facilities for pedestrians. • Opportunity to prevent through traffic movements on Victoria Street.
Victoria Street/Station Road/Gordon Terrace	**Problems**
	• Lack of cohesion at junction and space is severed by the main road. • Lack of crossing facilities. • Lack of infrastructure to connect the station to community facilities and green space near Dyce Primary and Central Park.
	Opportunities
	• Opportunity to create quieter streets through traffic management and enhance placemaking. • Opportunity for greater placemaking around the war memorial which currently acts as a mini roundabout.
Riverview Drive	**Problems**
	• Discontinuous footway provision and lack of crossing points. • Variable surfacing on Riverside Path as well as narrowing of the path. • Limited linkages between the Riverside Path and housing developments.
	Opportunities
	• Opportunity to provide segregated cycle facilities as part of NCN1. • Potential to narrow some junctions to reduce vehicle speeds.

Location	Problems/Opportunities
	• Further enhancements could be made to the Riverside Path. • Potential for a formalised crossing point at the northern end of Riverview Drive.
Stoneywood Road	**Problems**
	• Inconsistent advisory cycle lanes. • Pinch point at Stoneywood Terrace/Stoneywood Road junction resulting in a break in footway provision.
	Opportunities
	• Potential for segregated cycle facilities on Stoneywood Road. • Opportunity to review movements on Stoneywood Road and reduce junction radii where possible to reallocate space for active travel. • Opportunity to increase footway provision to match pedestrian desire lines.
General	**Problems**
	• Limited provision for horse riders. • Bus routes are limited by width of some roads. • Long bus journey times to the city centre. • Speed of general traffic off-putting to cyclists. • Some issues with drainage meaning paths can be flooded. • Instances of rat-running through areas of Dyce such as the Dandara Scheme in Stoneywood.
	Opportunities
	• Provide wayfinding signage for the F&B Way. • Provide more consistent bus stop provision. • Potential to reconfigure existing bus routes to include the new housing development on Mugiemoss Road. • Potential to adopt the 20-minute neighbourhood concept in Dyce.

3.2.3 Placecheck

To allow stakeholders and the general public to identify targeted problems and opportunities at locations throughout the corridor, an online 'Placecheck' was available from Wednesday 17th November 2021 until Tuesday 11th January 2022. Placecheck is an online map-based exercise that allows the user to highlight the location of specific issues/problems by placing a point at the location and adding the detail of the problem. Placecheck asks three questions: what do we like about a place; what do we dislike about a place; and what do we need to work on?

A total of 121 comments were received from 28 different participants, with the split across response categories shown below.

Table 3.3: Split of Responses to the Online Placecheck

Category	Number	Percentage
Things I like	13	11%
Things I don't like	60	50%
Things to work on	48	40%

An initial cleaning of responses was undertaken to identify any comments that did not require further analysis. 24 comments were identified as not requiring further analysis. Common reasons included positive statements about the study corridor (8), issues being considered as part of other ongoing studies (6), comments relating to areas outwith the study area (5), repeated comments from the same user (3), and lack of clarity regarding the content of the comment (2).

The remaining 97 comments were categorised into themes to determine the key problems and opportunities emerging from this element of the consultation exercise. The table below provides a summary of the themes raised. It should be noted that comments could cover a number of themes and therefore numbers do not total 97.

Table 3.4: Description of Themes Emerging from Placecheck Exercise

Theme	Description	No. of Times Raised
Cycling Infrastructure	Comments relating to lacking infrastructure (21) particularly dropped kerbs, opportunities for new cycling infrastructure (8), poor quality of existing advisory lanes (4), opportunities for new cycling infrastructure along the River Don (5), opportunities for upgrades to existing cycling infrastructure (3) and opportunities for realignment of NCN1 route along the River Don (3).	44
Pedestrian Infrastructure	Comments relating to lacking pedestrian infrastructure (7), upgrades to existing paths to enhance pedestrian connectivity (6) and opportunities for new footpaths along the River Don (6).	19
Maintenance	Comments relating to maintenance of overgrown trees (6), maintenance of cycle infrastructure on Riverview Drive (2), maintenance of footways along Victoria Street (1), maintenance of road surface on Stoneywood Road (1) and maintenance of the underpass at Millhill Brae (1).	11
Driver Behaviour	Comments relating to vehicles travelling in excess of the speed limit (3), vehicles ignoring cycle provision (3), vehicles flouting 'no entry' signs (2), vehicles ignoring double yellow line restrictions (1) and vehicles failing to stop at informal crossing points (1).	10
General Traffic	Comments relating to volume of traffic (4), safety concerns when vehicles reverse onto Victoria Street (2), congestion at car parks (2) and high volume of through-traffic on Victoria Street (1). One comment proposed opening barriers on Market Street during times when Farburn Terrace is temporarily closed.	10
Active Travel Priority	Comments relating to priority for active travel modes at junctions (3), traffic light sensitivity to oncoming cyclists (2), early release for cyclists at traffic lights (1), enhanced priority for sustainable modes on Victoria Street (1) and access for cyclists through barriers on Market Street (1).	8
Surfacing	Comments relating to poor quality of surface for cycling (4), poor quality of footways (2) and poor quality of surface along the F&B Way (2).	8
Accessibility	Comments relating to issues with accessing the F&B Way (3), barriers blocking access for recumbent cycles and cargo bikes (2) and steps preventing access by cycle (1).	6
Crossing Facilities	Comments include locations that are considered dangerous for crossing (2), locations where new active travel crossing facilities would be beneficial (1), issues with existing crossing facilities (1) and the potential for upgrade of existing crossing facilities (1).	5
Junction Layout	Junction locations along the corridor that are problematic and would benefit from review include the B977 slip road (1), Skene Place (1), Netherview Avenue (1), Bankhead Avenue (1) and the access road to McDonald's (1).	5
Signage and Information	Comments relating to lack of consistent wayfinding signage for active travel users to path facilities along River Don (2) and Stoneywood Drive (1), lack of information signage regarding other users (1) and lack of directional signage at key junctions for vehicle drivers (1).	5
Lighting	Comments relating to the lack of lighting provision increasing security concerns (2), lighting being obstructed by overgrown trees and vegetation due to its location (1) and opportunity to increase the use of the F&B Way through an increase in lighting provision (1).	4
Width	Comments relating to narrow path on the F&B Way (1), at the access to Dyce Rail Station (1) and on the footway along Stoneywood Road (1). Further comment relating to the narrow width of Mugiemoss Road for larger vehicles and buses (1).	4

Theme	Description	No. of Times Raised
Parking	Comment relating to on-street parking on Victoria Street creating a dangerous environment for pedestrians and a comment regarding parked cars impeding visibility for pedestrians when crossing the road.	2
Conflict Between Users	Problem relating to conflict between users on footway designated as shared use.	1
Environment	Problem relating to sections of footways prone to flooding.	1

3.2.4 A947 Corridor – School Engagement

A workshop session was carried out on 20th May 2022 with one Primary 7 class at Stoneywood School. Pupils were given a presentation on the role of a Transport Planner and then were asked to think about what they like and don't like with the transport network in their local area using large maps and sticky notes. Approximately 25 pupils took part in the workshop, allowing them to consider how the transport network in Dyce could be improved.

The table below provides a summary of the key points of feedback from the workshop with pupils.

Table 3.5: Key Findings from School Engagement Workshop

Things I like	Things I don't like	Things to work on
• Riverside Path • The underpass of the A96 providing access to TECA • The paths around TECA provide good access to this facility	• Pot holes that make it hard to cycle • Vehicles travelling too fast • Vehicles parking on double yellow lines at the school • Noise concerns due to the volume of traffic • Not enough safe crossing facilities	• Provision of additional crossing facilities • Addition of scooter facilities on the corridor

3.3 Part 2 (Summer 2022)

The second stage of consultation was undertaken in Summer 2022 and focused on gaining public and stakeholder feedback on the six devised option packages for the corridor as outlined in **Section 6.8.2**. The feedback received will help to inform the appraisal of each option package in terms of public acceptability. The consultation period lasted four weeks between 22nd July 2022 and 19th August 2022.

3.3.1 Virtual Consultation Room

Consultees accessed study information through the AECOM-hosted Virtual Consultation Room which was linked through the ACC website. This interactive platform, as shown in **Figure 3.2**, displayed materials related to the study Transport Planning Objectives (TPOs), problems, issues, constraints and opportunities and option packages showing indicative layouts, benefits, design considerations and precedent images. The online feedback form was also linked through this platform.



Figure 3.2: Virtual Consultation Room

3.3.2 Feedback Form

A feedback form was developed to collate responses to inform the appraisal. It sought views on:

- Current use of the A947 corridor;
- Option concepts, including anticipated future behaviour;
- Prioritisation of option packages, in form of a ranking; and
- The accessibility of the consultation process, to inform the planning of future consultations.

Respondents were additionally asked a series of 'About You' questions to assess the representativeness of the sample.

Two versions of the questionnaire were available depending if the respondent was a member of the public or responding on behalf of an organisation. The questionnaire structure and topics were consistent but while the public version asked about potential changes to mode choice as a result of the implementation of option packages, the organisation version asked about potential impacts on the operation of the organisation.

The questionnaire was hosted on the Microsoft Forms platform and directly linked to the online consultation room. Printed versions of the questionnaire were available for those attending the in-person drop-in events to submit their responses.

3.3.3 Public Drop-In Events

The second phase of consultation also included both an in-person drop-in event and online live Q&A sessions (hosted through the Virtual Consultation Room). The drop-in event took place in Dyce Church Hall on Wednesday 27th July between 16:00-20:00 and the online live Q&A sessions took place on Wednesday 10th August and Wednesday 17th August, both from 19:00-20:00.



Figure 3.3: Public Drop-In Event at Dyce Church Hall

During the in-person event, attendees were provided with the opportunity to look at hard copies of the consultation materials available online and discuss the study in greater depth with members of the project team. The overall feedback for the option packages was positive, with a summary of the key points of feedback as follows:

- A member of a cycling group supported the plans to introduce segregated cycling facilities throughout Dyce, especially along Victoria Street due to their past experiences cycling along this route.
- Local residents welcomed the proposed placemaking improvements along Gordon Terrace at the existing war memorial as this would improve the aesthetics of their local area.
- Current vehicle speeds throughout large parts of Dyce were thought to be currently too high and not observed by the majority of road users. One member of the public raised Riverview Drive as a specific section where vehicle speeds are a problem.

3.3.4 Consultation Promotion

In order to inform people about the consultation, several methods were used to promote the Virtual Consultation Room, public drop-in event and online Q&A including:

- Social media posts from ACC and Nestrans;
- Emails direct to key stakeholders; and
- Emails direct to Community Councils.

Local Elected Members, MSPs and MPs were also contacted to raise awareness of the consultation and support its promotion.

3.3.5 Responses

Table 3.6 below provides a summary of the responses received at this stage of the consultation.

Table 3.6: Type of Respondent by Response Mechanism

	Online Questionnaire	Online Q&A	Direct Email	Total	%
General Public	17	1	0	18	95%
Organisations	0	0	0	0	0%
Elected Members	0	0	1	1	5%
Total	17	1	1	19	100%

Detailed findings from the consultation are presented in *Part 2 Consultation Outcomes* (**Appendix E**) and relevant feedback has been incorporated within the Public Acceptability section of the Deliverability Appraisal of each option package in **Chapter 8**.

4. Problems and Opportunities

4.1 Introduction

This chapter identifies actual and perceived PICOs within the study area. Within STAG, PICOs are described as follows:

- **Problem:** existing and future problems within the transport and land use system;
- **Issues:** uncertainty that the study may not be in a position to resolve, but must work within the context of;
- **Constraints:** representing the bounds within which a study is being undertaken;
- **Opportunity:** changes to improve the transport and land use system to realise opportunities.

Throughout this chapter, localised PICOs are presented along various sections of the corridor before consideration is given to non-location specific issues and wider issues that should be borne in mind as the study progresses. The key below is used across the PICO diagrams in the following sections.

Problem
Issue
Constraint
Opportunity
Other

4.2 Localised Corridor Review

4.2.1 AWPR to Dyce Drive (North)

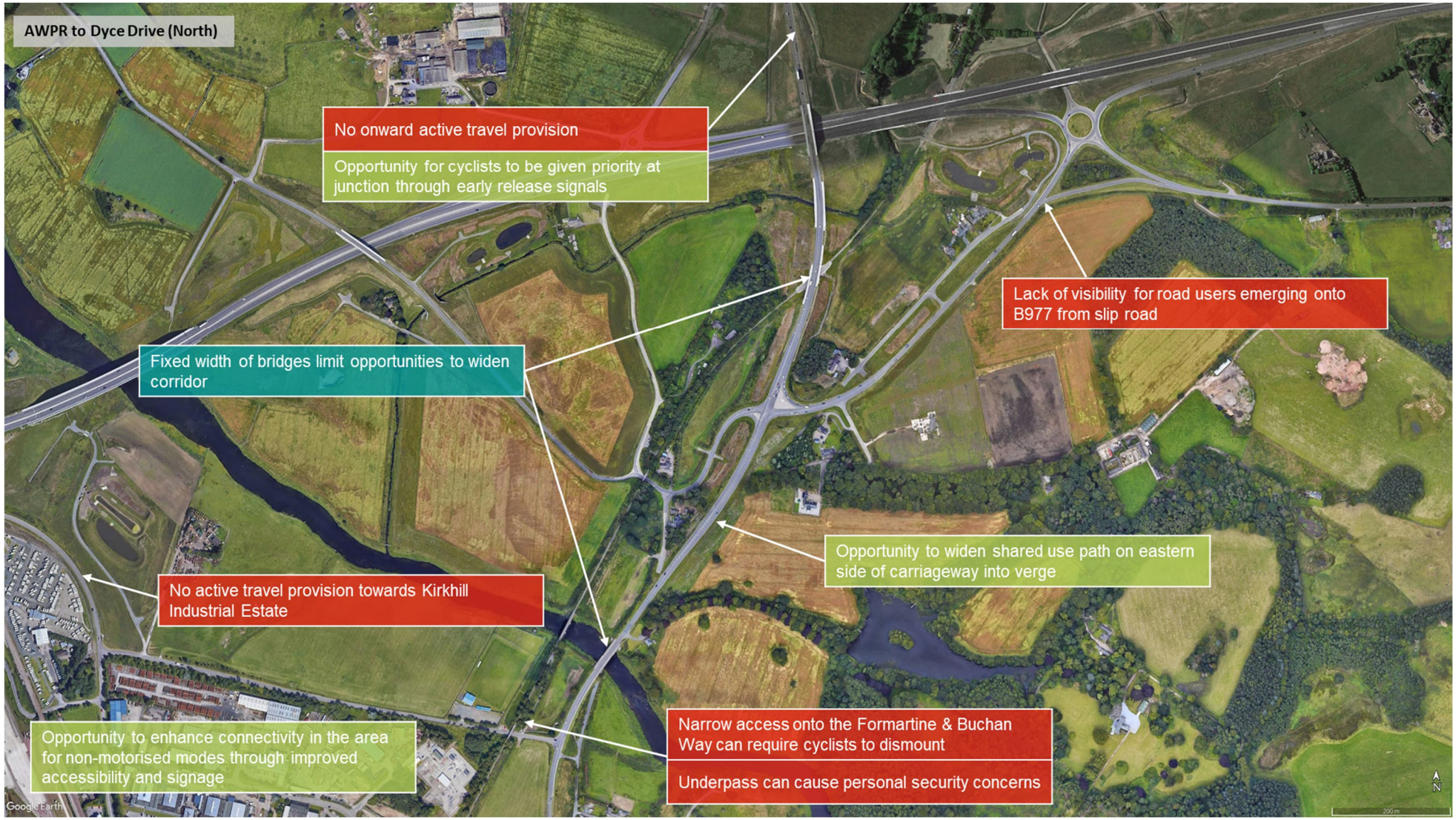


Figure 4.1: Location-Specific Issues between the AWPR and Dyce Drive (North) (Image Source: Google Earth)

4.2.2 Riverview Roundabout (North)



Figure 4.2: Location-Specific Issues at Riverview Roundabout (North) (Image Source: Google Earth)

4.2.3 Riverview Drive (North)



Figure 4.3: Location-Specific Issues on Riverview Drive (North) (Image Source: Google Earth)

4.2.4 Riverview Drive (South)



Figure 4.4: Location-Specific Issues on Riverview Drive (South) (Image Source: Google Earth)

4.2.5 Victoria Street (North)



Figure 4.5: Location-Specific Issues on Victoria Street (North) (Image Source: Google Earth)

4.2.6 Pitmedden Road Junction



Figure 4.6: Location-Specific Issues at the Pitmedden Road Junction (Image Source: Google Earth)

4.2.7 Victoria Street (South)



Figure 4.7: Location-Specific Issues on Victoria Street (South) (Image Source: Google Earth)

4.2.8 Riverview Roundabout (South)

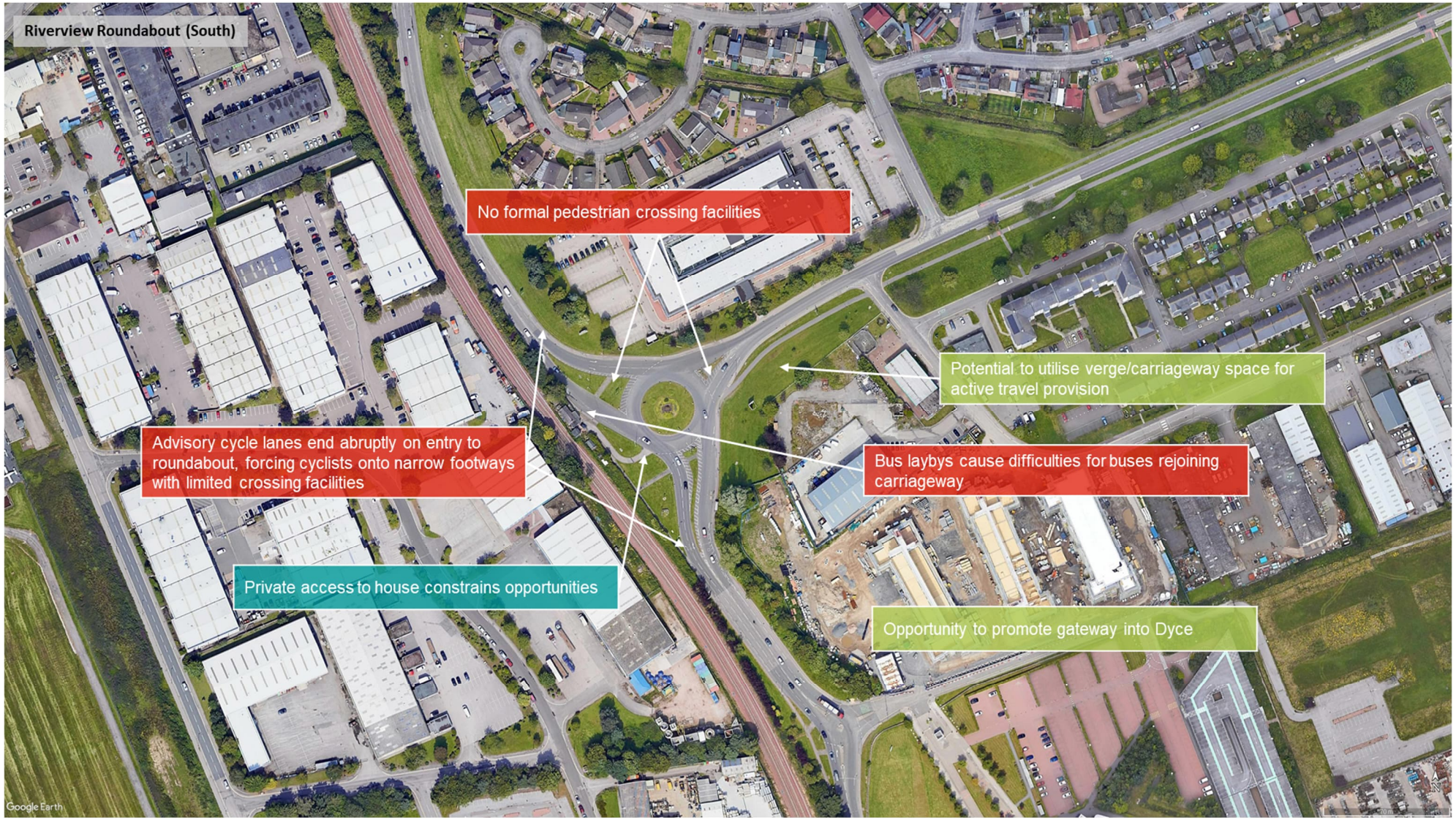


Figure 4.8: Location-Specific Issues at Riverview Roundabout (South) (Image Source: Google Earth)

4.2.9 Stoneywood Road (North)

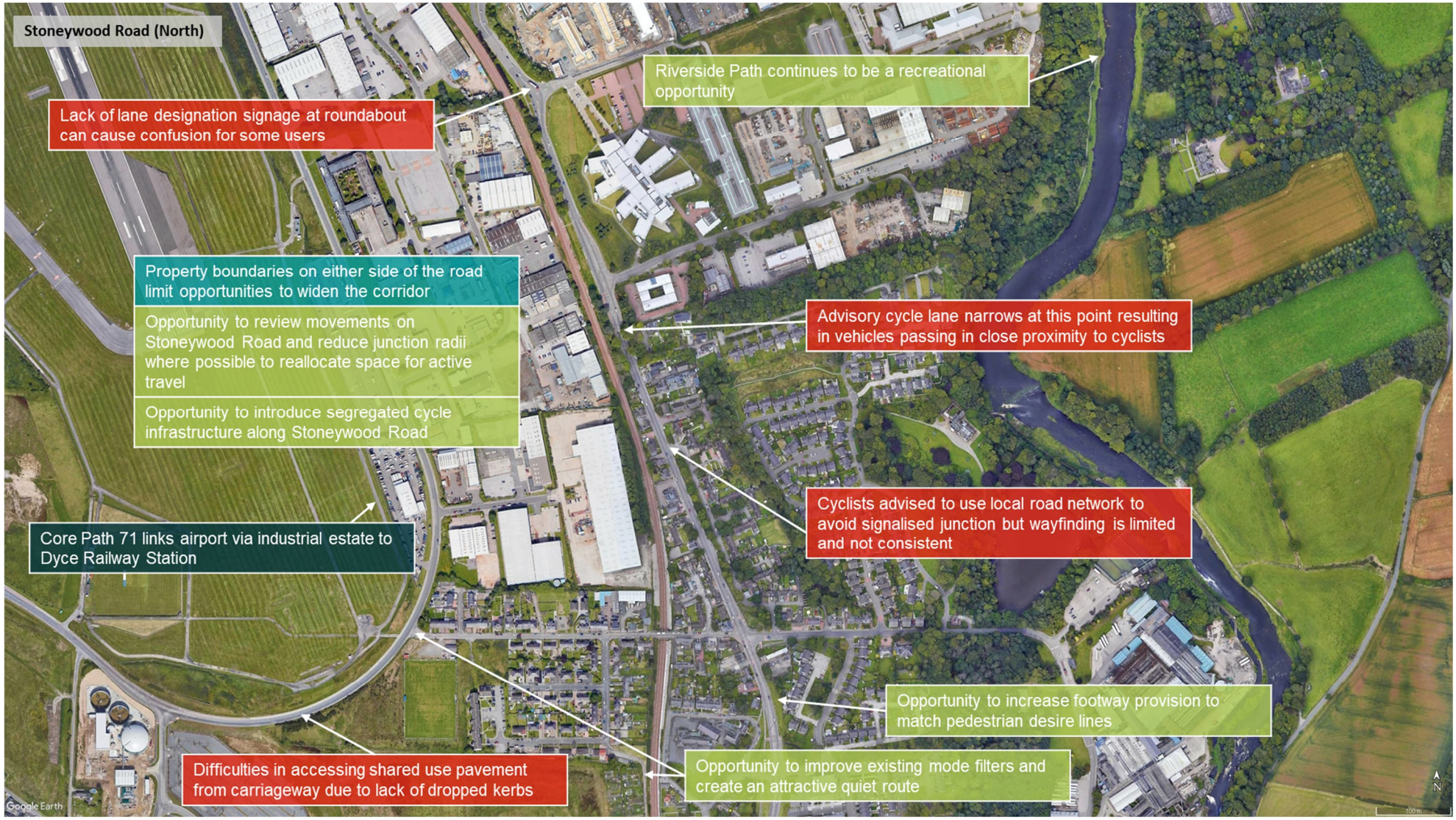


Figure 4.9: Location-Specific Issues on Stoneywood Road (North) (Image Source: Google Earth)

4.2.10 Stoneywood Road (South)



Figure 4.10: Location-Specific Issues on Stoneywood Road (South) (Image Source: Google Earth)

4.3 Strategic Corridor Review

In addition to the localised PICOs set out in the preceding sections, consideration has been given to strategic issues that will be important to consider as the study progresses.

4.3.1 Problems

The strategic problems identified along the study corridor include:

- **F&B Way:** the PICOs work has identified a number of problems along this route:
  - **Maintenance** – there is a lack of maintenance, evidenced by encroaching vegetation.
  - **Signage** – there is generally a lack of signage associated with the route.
  - **Accessibility** – many access points along the F&B Way are not accessible due to gates and barriers.
- **Declining Bus Patronage:** Declining bus patronage in the region in recent years has been exacerbated by the COVID-19 pandemic. The consultation exercise highlighted a number of barriers to increased bus usage for people living along the study corridor:
  - **Journey times** – the consultation exercise highlighted that bus users feel journey times are long given the distance to the city centre from Dyce.
  - **Frequency/Timetabling** – difficulties accessing the airport by bus as shift patterns are outwith bus operation times.
- **Active Travel Infrastructure:** Whilst there is generally good provision of pedestrian infrastructure within the study area, the PICOs work has identified a number of areas where there is a lack of footway provision to match pedestrian desire lines. Further problems identified included advisory cycle lanes being narrow and inconsistent and a limited number of appropriate crossings for pedestrians and cyclists throughout the study area.
- **Driver behaviour:** Outcomes of the consultation highlighted anecdotal evidence of driver behaviour issues including vehicles travelling in excess of speed limits, ignoring cycling provision, flouting 'no entry' signs and parking on double yellow lines. This can impact on the safety and perceptions of safety for other road users, particularly cyclists.
- **Maintenance of Active Travel Infrastructure:** As highlighted from Placecheck feedback, there is a lack of maintenance of active travel infrastructure including the surfaces of advisory cycle lanes, footways and the underpass at Millhill Brae. The Riverside Path was highlighted as a particular problem area in terms of maintenance.
- **Signage:** There is generally a lack of active travel signage along the corridor.
- **Monitoring:** There appears to be issues with the active travel counters in the study area. Counter validation may support further understanding of active travel movements on the corridor. It is understood that this is under consideration by ACC as part of a separate workstream.

4.3.2 Opportunities

The strategic opportunities identified along the study corridor include:

- **Locking in the Benefits of the AWPR:** The opening of the AWPR has significantly changed travel patterns and journey times, reducing delays in many areas throughout the network. There is therefore an opportunity to incentivise public transport use along the corridor, locking in the benefits of reduced congestion and journey time savings.
- **Policy Context:** The study aims strongly align with the national, regional and local policy context, including support for more trips to be undertaken using sustainable modes of travel.
- **Bus Service Partnerships:** The Transport (Scotland) Act 2019 has provided new powers for Councils to enable greater control and operation of local bus services as well as enhanced partnership working arrangements under Bus Service Improvement Partnerships (BSIPs). A Quality Partnership Agreement was signed by parties in the region in 2018 to form the North East Bus Alliance, providing renewed impetus to the identification of measures that can enhance the attractiveness of bus services in the region.
- **Funding:** In 2020, The Scottish Government announced funding for active travel and bus priority. The 2020/21 Programme for Government outlines a commitment towards delivering on health, economic and environment goals by investing £500m over the next five years in active travel infrastructure, access to bikes and behaviour

change schemes to promote walking, wheeling and cycling. It also outlines a reaffirmed commitment to a £500m BPF to support authorities' ambitions around tackling congestion so that bus journeys are quicker and more reliable, and more people make the choice to take the bus. The BPF was officially launched in November 2020, with funding awarded to eight partnerships in June 2021, including £12m for the North East Bus Alliance.

- **Distances to Work:** The vast majority of those living within the study area travel less than 10km for work. This presents opportunities to encourage active travel use for journeys to work from these settlements.
- **20-minute Neighbourhood:** potential to adopt the 20-minute neighbourhood concept in Dyce, capitalising on its walkability.

4.3.3 Issues

The strategic issues identified along the study corridor include:

- **Future Attitudes to Travel and Travel Behaviour:** There are significant uncertainties regarding future attitudes to travel and travel behaviour given the unprecedented times brought about by the COVID-19 pandemic. Significant changes were observed in the short-term, with a shift to working from home and flexible working, a reduction in overall travel demand and an increased uptake of active travel. While it has been shown that there is evidence of travel demand returning to pre-2020 patterns, it is unclear whether some of the observed changes will be short-term or result in a structural change in how society operates.
- **Climate Change:** In May 2019, the Scottish Government declared a 'Climate Emergency'. The Climate Change (Scotland) Act 2019 sets a legally binding net zero target for all greenhouse gases by 2045. It is likely that climate change will have an increasing impact on the region in future years, bringing rising sea levels and a potential increase in extreme weather events.
- **Technology:** There is uncertainty about the impact that advances in EV technology and autonomous vehicle technology will have on travel behaviour and vehicle ownership. There is a risk that advances in EV technology and improved affordability/availability of EVs could result in an increase in single occupancy car use. Advances in autonomous vehicle technology could result in an increase in travel demand, due to more usable travel time. However, it could encourage other changes in travel behaviour such as increased car sharing or reduced car ownership/increased use of Mobility as a Service (MaaS).
- **Policy:** Demand management measures in the city centre could result in a shift away from private car to public transport and active travel for journeys to the city centre. This could also have longer term implications for land use, shifting to a denser population in the city centre and around major public transport nodes.
- **High Car Usage:** Car mode share for travel to work along the corridor is high, with the study area recording rates of driving to work above the national average. This has implications in terms of national, regional and local objectives to reduce carbon emissions, meet air quality objectives and deliver reliable bus services.

4.3.4 Constraints

The strategic constraints identified along the study corridor include:

- **Political Will:** Due to the historic prevalence of private car travel in much of the study area, measures focused on enhancing walking, wheeling, cycling and public transport use may not be supported by the public, which could reduce political support for such measures.
- **Funding:** While the availability of increased funding at a national level provides an opportunity for investment in sustainable modes, funding streams will be competitive. Furthermore, a 2019 report by Audit Scotland found that Scottish Government revenue funding to local authorities has been increasingly constrained in recent years, with national policy initiatives making up an increasing proportion of Council budgets, which limits flexibility for local authorities to plan how to allocate funds.
- **Environment:** There are a number of environmental constraints that will require consideration as the study develops. There are segments of the A947 with a high likelihood of river flooding where they cross the River Don and its tributaries, and along the course of the river which runs adjacent to the study corridor. Options along the River Don are also constrained by wildlife habitats.
- **Trunk Road Contracts (AWPR/B-T):** The AWPR operator Aberdeen Roads Limited have a design, build and operate contract for the AWPR. Therefore, any design changes at AWPR junctions may be more complex to bring forward than at other locations on the corridor and any alteration to infrastructure may require consideration of contractual arrangement at these locations, in consultation with Aberdeen Roads Limited, Transport Scotland and the Local Roads Authorities.

5. Transport Planning Objectives

5.1 Introduction

This chapter presents the TPOs that have been developed for the A947 Multi-Modal Corridor Study. Central to the appraisal of options using STAG is that the process should be objective-led rather than solution-led. A number of TPOs have been developed to reflect the identified problems, issues, constraints, and opportunities within the study area. The TPOs reflect the outcomes sought from the study and will play an integral role in the appraisal process when assessing the performance of each option.

5.2 Approach

As outlined in the recently published STAG Managers Guide[37], the analysis of problems and opportunities is crucial in supporting the setting of robust TPOs. The objective must express the change sought in the study area without indicating potential solutions. A bottom-up, top-down approach has been taken to the development of TPOs for the A947 Multi-Modal Corridor Study, using the 'Theory of Change' concept to demonstrate how problems and opportunities inform the TPOs and how the TPOs developed align with the national, regional and local policy and strategy framework.

The objectives included within relevant policy and strategy documents were collated and those of direct relevance to the study were themed. The draft TPOs that were developed were mapped against the finalised list of problems and opportunities for each section of the study corridor. The results of these reviews are presented in the *Transport Planning Objectives Technical Note* included in **Appendix B**.

5.3 Final Transport Planning Objectives

The TPOs developed for the A947 Multi-Modal Corridor Study are presented in the table below. For each TPO, an accompanying design-focused objective has been developed to assist a focused option development approach as recommended by design guidance, such as Cycling by Design.

Table 5.1: A947 Multi-Modal Corridor Study TPOs

Ref	Transport Planning Objective	Design-Focused Objective
TPO1	Increase the modal share of walking on the A947 corridor for all journey types	Improve the level of service for walking and wheeling on the A947 corridor to complement and enhance the existing strategic active travel network
TPO2	Increase the modal share of cycling on the A947 corridor for all journey types	Improve the level of service for cycling on the A947 corridor to complement and enhance the existing strategic active travel network
TPO3	Increase the modal share of public transport on the A947 corridor for all journey types	Improve the attractiveness of bus services along the A947 corridor
TPO4	Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	Improve active travel network access to local facilities in Dyce, with enhanced opportunities to access and cross the A947 corridor by walking, wheeling and cycling with an improved level of service
TPO5	Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	Improve the level of service for non-motorised users to the key transport hubs and key destinations in Dyce
TPO6	Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy	Improve the distribution of movements by all modes to routes appropriate to their Roads Hierarchy classification, including motorised vehicles travelling through or outwith Dyce.

[37] https://www.transport.gov.scot/media/50895/scottish-transport-appraisal-guidance-managers-guide.pdf

5.4 SMART Objectives

STAG notes that TPOs should be developed with 'SMART' principles in mind, which will enable the TPOs to be sharpened and refined as the study progresses and more information becomes available. A SMART objective is:

- **Specific** – it says in precise terms what is sought;
- **Measurable** – there exists means to establish to stakeholders' satisfaction whether or not the objective has been achieved;
- **Attainable** – there is general agreement that the objectives set can be reached;
- **Relevant** – the objective is a sensible indicator or proxy for the change which is sought; and
- **Timed** – the objective is associated with an agreed future point by which it will have been met.

The table below highlights how the developed TPOs relate to the SMART principles.

Table 5.2: A947 Multi-Modal Corridor Study SMART Objectives

TPO	Specific	Measurable	Attainable	Relevant	Timed
TPO1: Increase the modal share of walking on the A947 corridor for all journey types	TPO identifies the need to facilitate improvements for pedestrians along the study corridor.	Surveys (such as Census or Scottish Household Survey) to measure proportion of walking trips for journeys to work and education and for leisure journeys. Citizens Panel surveys to assess changing perceptions. Pedestrian counts along the corridor can monitor changes in those travelling actively.	Delivery of TPO will require further feasibility work to assess locations and implementability of potential options for improving infrastructure.	TPO is consistent with the overall aim of the A947 Multi-Modal Corridor Study. Consultation highlighted a lack of consistent footway provision in the study area. Study tour identified sections of study area with substandard footways, limited crossing points and lack of provision to meet desire lines. The study area has a higher mode share for private car for travel to work than the national average.	Within the next 5 years.

TPO	Specific	Measurable	Attainable	Relevant	Timed
TPO2: Increase the modal share of cycling on the A947 corridor for all journey types	TPO identifies the need to facilities improvements for cyclists along the study corridor.	Surveys (such as Census or Scottish Household Survey) to measure proportion of cycling trips for journeys to work and education and for leisure journeys. Citizens Panel surveys to assess changing perceptions. Cycle counts along the corridor can monitor changes in those travelling actively.	Delivery of TPO will require further feasibility work to assess locations and implementability of potential options for improving infrastructure.	TPO is consistent with the overall aim of the A947 Multi-Modal Corridor Study. Consultation raised issues such as narrow and poorly maintained cycle lanes. The study area has a higher mode share for private car for travel to work than the national average.	Within the next 5 years.
TPO3: Increase the modal share of public transport on the A947 corridor for all journey types	TPO identifies the need to make public transport more attractive through service and infrastructure improvements.	Surveys (such as Census or Scottish Household Survey) to measure proportion of public transport trips for journeys to work and education and for leisure journeys. Citizens Panel surveys to assess changing perceptions. Satisfaction of bus passengers. Scottish Access to Bus Index (SABI) can be monitored to assess changes in accessibility to bus services. TRACC accessibility tool can be used to measure changes in connectivity. Fares can be monitored in line with rates of inflation and real cost of living and can be benchmarked against other areas and the costs of city centre parking.	Delivery of TPO may require collaboration between ACC, partners and bus operators.	TPO is consistent with the overall aim of the A947 Multi-Modal Corridor Study. Consultation highlighted perceived issues with bus service journey times and bus stop infrastructure which reduces the attractiveness of public transport as mode choice along the corridor. The study area has a higher mode share for private car for travel to work than the national average.	Within the next 5 years.

TPO	Specific	Measurable	Attainable	Relevant	Timed
TPO4: Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	TPO identifies the need to provide placemaking interventions on Victoria Street and build on opportunities of 20 minute neighbourhoods to enhance the walkability of Dyce.	Surveys (such as Census or Scottish Household Survey) to measure proportion of active travel trips for short journeys. Citizens Panel surveys and targeted community engagement (e.g. community councils) to assess changing perceptions.	Delivery of TPO will require further feasibility work to assess locations and implementability of potential options for improving infrastructure.	TPO is consistent with the overall aim of the A947 Multi-Modal Corridor Study. Problems and opportunities analysis highlighted issues associated with on-street parking and narrow footways. Victoria Street has been identified as having the potential for placemaking interventions.	Within the next 5 years.
TPO5: Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	TPO identifies the need to facilitate improvements to connections to transport interchanges and key destinations in the study area by sustainable travel.	Surveys (such as Census or Scottish Household Survey) to measure proportion of active travel trips and public transport for journeys to work and education and for leisure journeys. Citizens Panel surveys to assess changing perceptions. Accessibility improvements can be gauged by user feedback e.g. via local community groups, Grampian Cycle Partnership and Aberdeen Cycle Forum. Scottish Access to Bus Index (SABI) can be monitored to assess changes in accessibility to bus services.	Delivery of TPO will require further feasibility work to assess locations and implementability of potential options for improving infrastructure.	TPO is consistent with the overall aim of the A947 Multi-Modal Corridor Study. Problems and opportunities analysis highlighted the potential to enhance access to transport hubs and key destinations in the vicinity of the study corridor by active travel and public transport. Key issues have been identified regarding lack of infrastructure around Dyce rail station to support active travel access.	Within the next 5 years.
TPO6: Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy	TPO identifies the need to distribute trips by all modes to their most appropriate route within the revised Roads Hierarchy.	Pedestrian counts along the corridor can monitor changes in those travelling actively. Cycle counts along the corridor can monitor changes in those travelling actively. Junction turning counts and/or models or Automatic Number Plate Recognition (ANPR) counts and traffic counters along the corridor can monitor changes in travel patterns for vehicles.	Delivery of TPO will require further feasibility work to assess potential interventions that can assist in the distribution of journeys to appropriate routes more effectively.	TPO is consistent with the overall aim of the A947 Multi-Modal Corridor Study. TPO is consistent with local and regional transport policy objectives.	Within the next 5 years.

6. Option Generation, Sifting and Development

6.1 Introduction

This chapter presents an overview of the option generation, sifting and development process that has been undertaken to arrive at a set of options for appraisal for the A947 Multi-Modal Corridor Study. The aim is to identify a set of options that could potentially deliver the TPOs and in turn, help to address the problems, issues and constraints identified while helping to realise the opportunities on the corridor. Further detail is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**.

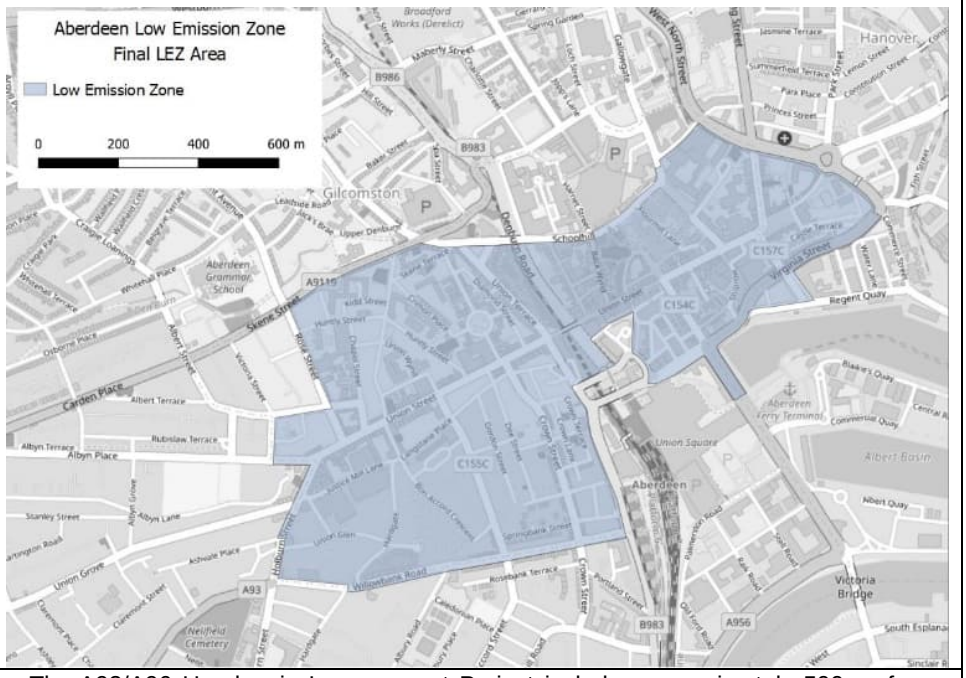
6.2 Do-Minimum Scenario

In line with Scottish Transport Appraisal Guidance (STAG), all generated options must be appraised against a Do-Minimum scenario. Transport Scotland define the Do-Minimum in STAG as:

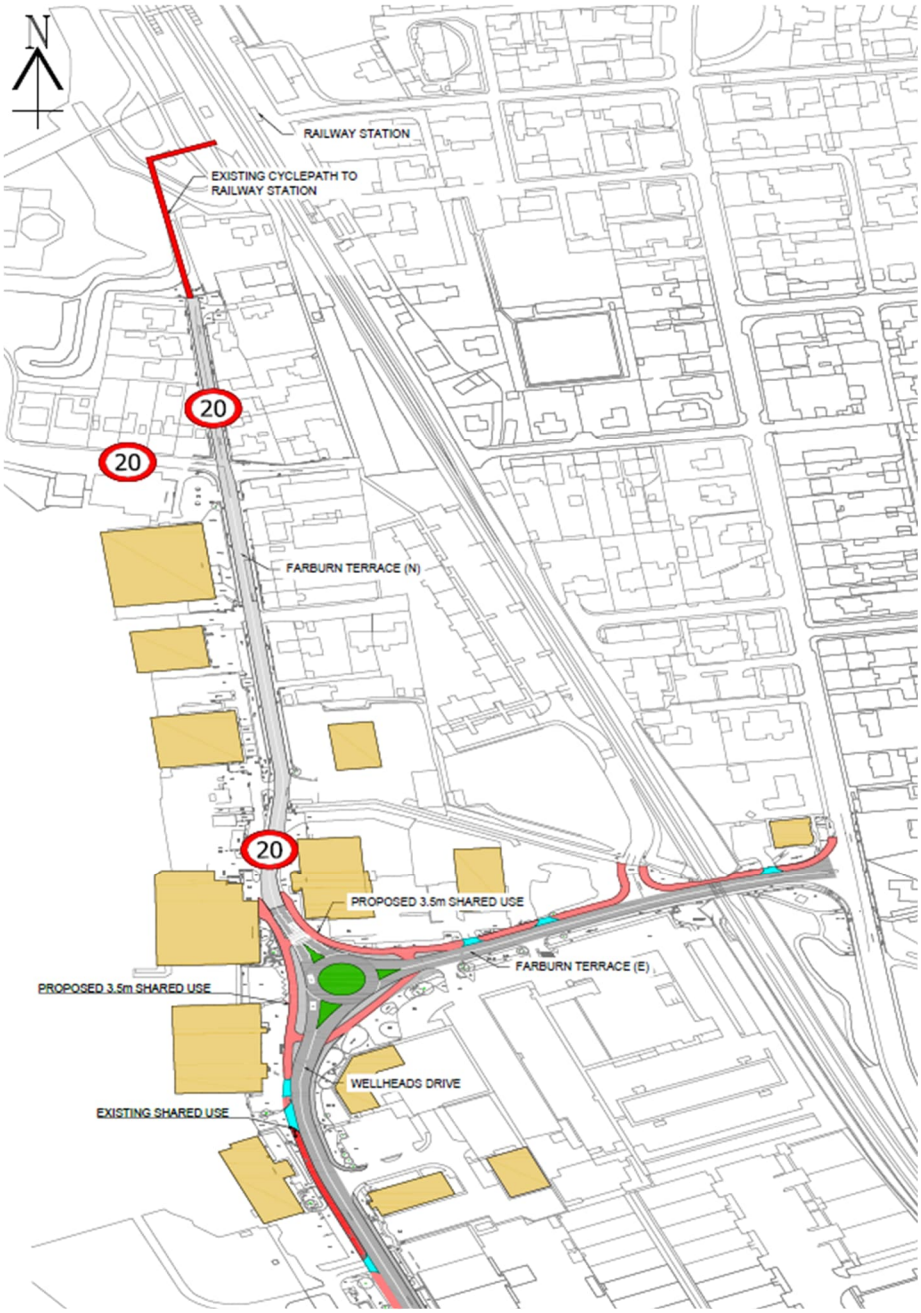
'the most likely transport situation over the course of the appraisal period if no intervention were to occur…The do-minimum should also include minor changes which can be expected to be carried out as conditions deteriorate, should the proposed interventions not go ahead. These improvements should not be significant, with any significant changes considered as an option in their own right as part of Option Generation, Sifting and Development.'[38]

The Do-Minimum for the A947 Multi-Modal Corridor Study assumes the interventions presented in the table below are in place.

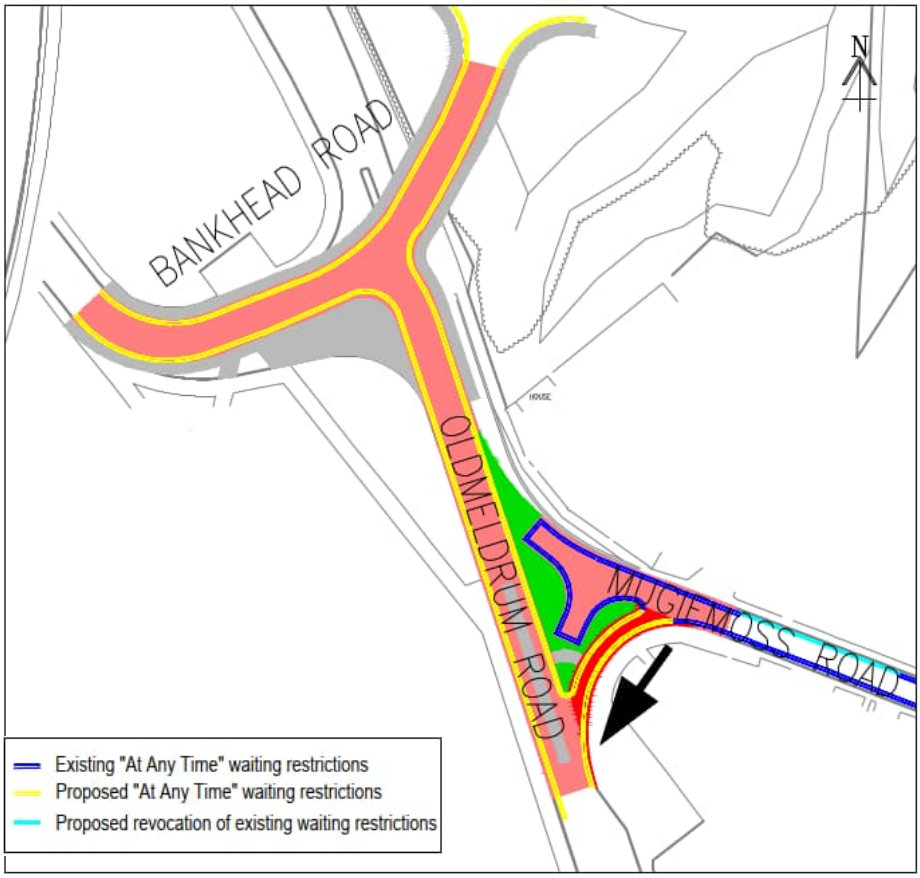
Table 6.1: Committed Transport Projects included within the A947 Multi-Modal Corridor Study

Scheme	Description
Low Emission Zone (LEZ)	• ACC introduced an LEZ in May 2022, where only certain vehicles can enter based on their emissions standards. It has been introduced with a two year 'grace' period meaning that between 2022 and May 2024, drivers will not be fined for entering the LEZ with a non-compliant vehicle. The LEZ will then come into full effect in June 2024. • The LEZ area[39] is shown in the diagram below. 
A92/A96 Haudagain Improvement	• The A92/A96 Haudagain Improvement Project includes approximately 500m of new dual carriageway connecting the A92 North Anderson Drive and the A96 Auchmill Road to assist in reducing traffic congestion and improving journey time reliability. • The Haudagain Junction is located approximately 2km east of the southern extent of the A947 corridor and therefore may affect travel patterns within the study area. • The Haudagain Improvement Project was formally opened by the Transport Minister in May 2022.

[38] https://www.transport.gov.scot/publication/stag-technical-database/section-2/#s23
[39] https://www.aberdeencity.gov.uk/services/roads-transport-and-parking/low-emission-zone

Scheme	Description
Farburn Terrace Cycle and Pedestrian Improvements	• As part of ACC's Active Travel Action Plan, ACC is progressing improvements in accessibility for pedestrians and cyclists to and from Dyce Rail Station, Aberdeen International Airport and the surrounding business and residential areas of Dyce. • Farburn Terrace and in particular its roundabout with Wellheads Drive, have been identified as a missing link for active travel between the existing cycleway on Wellheads Drive and Dyce Rail Station. • ACC has secured funding from Sustrans and Nestrans to develop a detailed design for shared use cycleways along Wellheads Drive, around the existing roundabout and along Farburn Terrace to Victoria Street. • It is understood that land acquisition is now underway and due to be concluded within 2022. Construction is anticipated to start in 2023, subject to appropriate funding. • An overview plan of the scheme is shown below[40]. 
Oldmeldrum Road/Mugiemoss Road Junction	• A planning application (110786) for 900 residences, business and community facilities and associated infrastructure to the north of Mugiemoss Road was approved in December 2011. • One of the conditions of the development stated that, subsequent to the completion of the 375th residential property, no subsequently completed residential property shall be occupied unless restricted movements at the Mugiemoss Road/Oldmeldrum Road

[40] Farburn Terrace Proposed Cyclist & Pedestrian Improvements - Aberdeen City Council - Citizen Space

Scheme	Description
	junction or the A947 junction and associated spine road are implemented. A modification to this condition was applied for in 2018 and approved conditionally in March 2021 to increase this threshold to 470 units. • The intervention will make the western end of Mugiemoss Road one-way westbound and prohibit right-turning movements from Mugiemoss Road to Oldmeldrum Road. It will also revoke the ban on right-turning movements from Bankhead Road to Oldmeldrum Road. This is shown in the diagram below. 

6.3 City Centre Masterplan

The Aberdeen City Centre Masterplan (CCMP) is a regeneration blueprint that is transforming the city centre whilst conserving its proud heritage. The goal is greater prosperity and a better quality of life for all. The Masterplan was shaped following extensive public consultation and unanimously approved by ACC in June 2015.

Eight objectives feed through the Masterplan as follows:

- Changing perceptions;
- Growing the city centre employment base;
- A metropolitan outlook;
- A living city for everyone;
- Made in Aberdeen;
- Revealing waterfronts;
- Technologically advanced and environmentally responsible; and
- Culturally distinctive.

A review of the CCMP was undertaken during 2021, with a number of changes for the city centre agreed at ACC's City Growth and Resources Committee in August 2021. Further changes were agreed at ACC's City Growth and Resources Committee in November 2021 for the city centre, former market and beach front area. The Draft

Beachfront Development Framework was approved at Full Council on 29th June 2022, with a key focus on improving active travel provision within the central beach area and active travel linkage through to the city centre.

6.4 Formartine and Buchan Way

It has been agreed with the Client Group that the A947 Multi-Modal Study will not generate options for the F&B Way due to other studies being progressed on the route – the F&B Way Health Check and the Core Path Network Survey. Whilst options for the route itself will not be developed as part of this study, options focused on connections to the F&B Way and access onto the route will be included.

The F&B Way Health Check was undertaken to survey the sections of the F&B Way within the Aberdeenshire Council boundary and to identify recommendations for future maintenance and improvement. The survey was undertaken on foot and by cycling in December 2021. The recommendations emerging from the study focus on addressing health and safety issues, drainage, barrier removal, signage and waymarking, surfacing, vegetation control, information and interpretation and improvements to the southern terminus of the route.

The Core Path Network Survey was undertaken to carry out condition surveys of ACC's core paths network, identify options for improvements and develop and apply a prioritisation framework for these options. It is understood that this will include options for the F&B Way within Aberdeen City.

6.5 Other Ongoing Studies

6.5.1 A96 Multi-Modal Study

ACC is currently undertaking a STAG-based appraisal of options for improving transport connections (particularly active travel and public transport) on the A96 between Inverurie and Aberdeen. The study area for this study overlaps with the A947 study area at the A947/A96 roundabout at Bucksburn. The A96 study has recently completed initial option appraisal – and as the A947 study progresses, close liaison with the ACC client teams will ensure options developed in the study are complementary of those being promoted for the A96.

6.5.2 Cross-City Connections

ACC is currently undertaking a review of the STAG Part 2 appraisal for Cross-City Connections. The study aims to identify priority schemes for development along with a programme of delivery that considers development build out, connections with the internal links of development sites as well as the general feasibility and affordability of each option.

There were three routes developed as part of the Cross-City Connections Study that are of relevance for the A947 corridor and the review recommended that all are progressed to the concept design stage:

- Route 7:
  - Provide a new connection between Grandhome and Stoneywood, including a new bridge crossing over the River Don; and
  - Provide a new connection between new bridge of the River Don and Stoneywood Terrace.
- Route 8:
  - Upgrade and extend CP101 to meet new bridge (Route 7) and Stoneywood development.
- Route 9
  - Stop up Millhill Brae on western side of A947 before the underpass and prior to the residential property and allow residential access only;
  - Upgrade section of CP4 through park; and
  - Upgrade on-road section of CP4 on Waterton Road.

Due to the ongoing work on the Cross-City Connections Study, such options have not been included within the remit of the A947 Multi-Modal Study. However, given the interaction with the A947 corridor, options developed as part of the Cross-City Connections Study will be kept under review and referenced appropriately as the study progresses.

6.5.3 A96 Corridor Review

In August 2021, the Scottish Government and Scottish Green Party Parliamentary Group agreed a Cooperation Agreement and a shared policy programme. As part of this shared policy programme, various agreed principles regarding investment in the transport network were set out. In relation to the A96, the Scottish Government committed to take forward a transport enhancements programme on the A96 corridor that will improve connectivity between surrounding towns, tackle congestion and address safety and environmental issues. This includes reviewing the A96 corridor with a view to implementing appropriate bus priority measures.

The A96 Corridor Review covers the transport corridor from Raigmore Interchange at Inverness to Craibstone Junction at Aberdeen. The review findings will be used to test current plans for dualling outwith the Inverness to Nairn scheme. The review is considering transport problems and opportunities, the changing policy context and other key considerations, such as development and growth aims for the corridor and surrounding area. This review is being carried out in line with STAG and is considering all relevant transport modes within the A96 corridor, including road, rail, public transport and active travel.

6.6 Option Generation

6.6.1 Approach

A long list of options has been developed based on a number of sources including:

- Consultation with ACC, Aberdeenshire Council and Nestrans officers, stakeholders, Community Council groups and members of the public;
- A review of previous studies to identify historical proposals that remain viable options;
- A review of statutory planning and policy documents; and
- Outputs from the evidence-led process followed by the team undertaking the appraisal.

6.6.2 Active Travel Options

The active travel options that have been generated are presented in the table below.

Table 6.2: Active Travel Options

Ref	Title	Source
AT1	Provide protected junction for active travel users at the A947/A90 slip road junction	Study Team
AT2	Improve visibility for cyclists at the B977/A90 slip road roundabout	Study Team
AT3	Review layout of Victoria Street/Pitmedden Road junction for pedestrians	Consultation, Study Team
AT4	Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive	Consultation
AT5	Increase pedestrian phasing at the Market Street/Stoneywood Terrace Junction	Consultation
AT6	Implement early release signals for cyclists at the Market Street/Stoneywood Terrace Junction	Consultation
AT7	Review signals at Forrit Burn Road bus gate to allow cyclists access	Consultation
AT8	Reconfigure the Auchmill Road/Oldmeldrum Road junction to improve connections for pedestrians and cyclists	Consultation
AT9	Conduct a maintenance review of existing cycling infrastructure within the study area	Consultation
AT10	Widen on-road advisory cycle lane on Riverview Drive	Consultation
AT11	Implement missing sections of on-road advisory cycle lane on Riverview Drive	Consultation
AT12	Widen on-road advisory cycle lane on Stoneywood Road at Stoneywood Park junction	Consultation
AT13	Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the F&B Way	Study Team
AT14	Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout	Study Team
AT15	Remove one of the two signalised pedestrian crossing points in the south of Riverview Drive	Study Team
AT16	Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout	Study Team
AT17	Implement signalised crossing facility on Victoria Street adjacent to Tesco	Consultation

Ref	Title	Source
AT18	Implement a pedestrian crossing facility on Dyce Avenue	Previous Work
AT19	Implement pedestrian crossing facilities at the Oldmeldrum Road/Mugiemoss Road Junction	Study Team
AT20	Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways	Consultation
AT21	Implement cycle parking at key trip attractors in the study area	Consultation
AT22	Promote Craibstone Park & Ride as a Park & Pedal facility	Previous Work
AT23	Implement a bike hire scheme within Dyce	Previous Work
AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport	Consultation, Study Team
AT25	Improve active travel connectivity between the A947 study area and Craibstone Park & Ride	Consultation, Study Team
AT26	Improve active travel connectivity between the A947 study area and TECA	Consultation, Study Team
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate	Consultation, Study Team
AT28	Implement dropped kerbs for cyclists to transfer between the carriageway and pavement at the northbound bus stop on the A947, north of the River Don	Consultation
AT29	Improve the underpass between the shared use path to the east of the A947 and the F&B Way access	Consultation, Study Team
AT30	Provide direct active travel link between Dyce Drive and Riverview Drive	Study Team
AT31	Improve active travel links between the Riverside Path and housing within Dyce	Study Team
AT32	Implement footways on the south side of the carriageway on Pitmedden Road	Consultation
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	Consultation, Study Team
AT34	Implement an active travel bridge over the railway line	Consultation, Study Team
AT35	Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station	Consultation, Study Team
AT36	Improve active travel connections between Wellheads Drive and the A947	Previous Work
AT37	Implement dropped kerbs between Wellheads Drive shared use path and the carriageway	Consultation
AT38	Review access restrictions on Market Street to allow for cargo bikes and recumbent cycles	Consultation
AT39	Remove access controls on off-road path between Waterton Road and Ruthriehill Road	Consultation
AT40	Improve drainage at underpass between Millhill Brae and Stoneywood Brae	Consultation
AT41	Improve active travel access to the retail park at the Bucksburn Roundabout	Consultation
AT42	Review access to the F&B Way from within Dyce	Consultation, Study Team
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	Consultation
AT44	Develop path connections from Dyce to east of the River Don towards Seaton Park and Donmouth, through implementation of aspirational Core Path AP6	Consultation, Previous work
AT45	Upgrade the Riverside Path to a high quality active travel route, including improvements to the surfacing of the route	Consultation, Study Team
AT46	Implement lighting on the Riverside Path	Consultation

Ref	Title	Source
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	Consultation, Study Team
AT48	Implement two-way segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	Consultation, Study Team
AT49	Implement with-flow segregated cycleway on Victoria Street	Consultation, Study Team
AT50	Implement two-way segregated cycleway on Victoria Street	Consultation, Study Team
AT51	Implement with-flow segregated cycleway on Oldmeldrum Road	Consultation
AT52	Implement two-way segregated cycleway on Oldmeldrum Road	Consultation
AT53	Implement with-flow segregated cycleway on Mugiemoss Road	Consultation
AT54	Implement two-way segregated cycleway on Mugiemoss Road	Consultation
AT55	Implement with-flow segregated cycleway on Gilbert Road	Consultation
AT56	Implement two-way segregated cycleway on Gilbert Road	Consultation
AT57	Implement shared use path on the A947 between AWPR Junction and A947/A96 Junction	Consultation, Study Team
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	Consultation
AT59	Widen the shared use path on the east side of the A947 to the north of Riverview Drive	Study Team
AT60	Provide continuous footways on Riverview Drive for the duration of the route	Study Team
AT61	Implement shared use path on Victoria Street	Consultation, Study Team
AT62	Widen the shared use path on the east side of the A947 between the A96 and Beech Manor	Consultation
AT63	Review alignment of the A947 shared use path to the north of the Oldmeldrum Road Junction where the safety barrier constrains the width of the path	Consultation
AT64	Implement shared use path on Oldmeldrum Road	Consultation
AT65	Implement shared use path on Mugiemoss Road	Consultation
AT66	Implement shared use path on Gilbert Road	Consultation
AT67	Widen the shared use path on the west side of Howe Moss Drive	Previous Work
AT68	Conduct a review of wayfinding signage throughout the study area	Consultation

6.6.3 Public Transport Options

The public transport options that have been generated are presented in the table below.

Table 6.3: Public Transport Options

Ref	Title	Source
PT1	Implement Aberdeen Rapid Transit along the study corridor	Consultation
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	Study Team

Ref	Title	Source
PT3	Introduce bus priority on the southbound approach to the A96 between Stoneywood Brae and the Bucksburn Roundabout	Consultation
PT4	Conduct a route wide review of bus stop provision and infrastructure	Study Team
PT5	Implement real time passenger information at key bus stops along the study corridor	Previous Work
PT6	Implement bus lay by at northbound stop on Victoria Street outside Aberdein Considine	Consultation
PT7	Undertake a review of fares on public transport	Consultation
PT8	Conduct a marketing campaign with the aim of increasing public transport awareness and use	Consultation
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport	Consultation, Study Team
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride	Consultation, Study Team
PT11	Improve public transport connectivity between the A947 study area and TECA	Consultation, Study Team
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate	Consultation, Study Team
PT13	Provide integrated ticketing between bus and rail	Consultation
PT14	Review the layout of the Oldmeldrum Road/Mugiemoss Road Junction for bus manoeuvrability	Consultation

6.6.4 Other

The other options that have been generated are presented in the table below.

Table 6.4: Other Options

Ref	Title	Source
O1	Increase enforcement of stopping restrictions on Victoria Street, specifically adjacent to Tesco	Consultation, Study Team
O2	Review the layout of the Victoria Street/Skene Place Junction	Consultation
O3	Review the layout of the Riverview Drive/Balloch Way Junction	Study Team
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	Study Team
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	Consultation
O6	Improve clarity of lane designation at the Stoneywood Road/Wellheads Avenue Junction	Consultation
O7	Review the layout of the A947/Stoneywood Junction at Co-Op/M&S	Consultation
O8	Review the layout of the A947/Stoneywood Brae Junction	Consultation
O9	Review the layout of the Bankhead Road/Oldmeldrum Road Junction	Consultation
O10	Review layout of the A947/McDonalds access road junction	Consultation
O11	Undertake a review of parking arrangements on Victoria Street	Consultation
O12	Implement signage to encourage reverse parking at the shops on Victoria Street	Consultation

Ref	Title	Source
O13	Reassess the feasibility of expanding car parking provision at Dyce Rail Station to provide additional opportunities for multi-modal journeys involving rail on the A947 corridor	Consultation, Previous Work
O14	Review parking arrangements on Mugiemoss Road	Consultation
O15	Introduce placemaking and gateway features on Victoria Street	Study Team
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	Study Team
O17	Reduce the speed limit along the A947 to support active travel improvements	Consultation
O18	Consider options to reduce vehicle speeds on Bankhead Road	Consultation
O19	Upgrade Riverview Drive to a dual carriageway	Consultation
O20	Review the layout of the access road into Asda car park	Consultation
O21	Reopen Market Street to vehicles	Consultation
O22	Widen carriageway at the western extent of Mugiemoss Road where narrow carriageway causes delay for buses	Consultation
O23	Promote car sharing schemes within Dyce	Previous Work
O24	Implement electric vehicle charging points at key locations within Dyce	Previous Work
O25	Implement access only restrictions for general traffic on Victoria Street	Study Team
O26	Implement one-way restrictions for general traffic on Victoria Street	Study Team
O27	Restrict access on Mugiemoss Road to resident access only	Consultation

6.7 Option Sifting

STAG states that: *"The Option Sifting process should be undertaken when an unmanageably large number of options have been generated or where there is general consensus that a particular option or options generated will clearly not achieve the intended objectives or meet the identified problems and/or opportunities."* The guidance also highlights that: *"There are a number of ways in which options can be sifted and practitioners should agree the approach with stakeholders (and, where appropriate, decision makers)."*

A multi-criteria approach has been adopted in agreement with the Client Group which sifts options based on their high-level performance against TPOs, Deliverability Criteria, Position in the Sustainable Investment Hierarchy and Identified Problems and Opportunities in the study area. Based on the high-level performance of options against these criteria, it is recommended that the options presented in the table below are sifted from further consideration at this stage.

Table 6.5: Options to be Sifted from Further Consideration

Ref	Title	Rationale
AT5	Increase pedestrian phasing at the Market Street/Stoneywood Terrace Junction	The Market Street/Stoneywood Terrace Junction is being considered through the ongoing Cross City Connections work and measures have been recommended for progression. Therefore, whilst this option does not require further consideration as part of the A947 Multi-Modal Study, it will continue to be referenced as appropriate throughout the study.

Ref	Title	Rationale
AT6	Implement early release signals for cyclists at the Market Street/Stoneywood Terrace Junction	The Market Street/Stoneywood Terrace Junction is being considered through the ongoing Cross City Connections work and measures have been recommended for progression. Therefore, whilst this option does not require further consideration as part of the A947 Multi-Modal Study, it will continue to be referenced as appropriate throughout the study.
AT9	Conduct a maintenance review of existing cycling infrastructure within the study area	Option is unlikely to have any significant impact on the study TPOs and could be considered "business as usual" for ACC.
AT15	Remove one of the two signalised pedestrian crossing points in the south of Riverview Drive	Option should not be progressed on the basis that this would have negative impacts on pedestrians and walkability within Dyce. However, it would allow Riverview Drive to function as per role in the revised Roads Hierarchy. Crossing rationalisation will be considered by ACC Committee in Autumn 2022.
AT18	Implement a pedestrian crossing facility on Dyce Avenue	Option is not required as there is an existing crossing at the junction with Dyce Drive.
AT19	Implement pedestrian crossing facilities at the Oldmeldrum Road/Mugiemoss Road Junction	There is a temporary crossing facility located just to the north of the Oldmeldrum Road/Mugiemoss Road Junction which has been on-site since 2018. It is understood that a permanent facility is due to be provided at this location as part of the works associated with the adjacent housing development on the Davidsons Mill site.
AT29	Improve the underpass between the shared use path to the east of the A947 and the F&B Way access	Option should not be progressed due to significant deliverability risks. Option AT13 may provide an alternative and more deliverable solution to address a similar problem. It is also understood that ACC have funding committed to improve the lighting in the underpass.
AT34	Implement an active travel bridge over the railway line	Option should not be progressed due to significant deliverability risks.
AT36	Improve active travel connections between Wellheads Drive and the A947	Option is covered by AT24, AT35 and AT38.
AT40	Improve drainage at underpass between Millhill Brae and Stoneywood Brae	Option is unlikely to have any significant impact on the study TPOs and could be considered "business as usual" for ACC.
AT44	Develop path connections from Dyce to east of the River Don towards Seaton Park and Donmouth, through implementation of aspirational core path AP6	While contributing to TPO1 and TPO2, this option is outwith the scope / sphere of influence of the A947 corridor study. However, it should be reserved for ACC to consider within other workstreams.
AT49	Implement with-flow segregated cycleway on Victoria Street	Option should not be progressed due to significant deliverability risks. Other solutions are available using the hierarchy of provision which looks at removing or calming traffic to permit people to use the carriageway with people driving. In addition, this could be combined with placemaking solutions.
AT50	Implement two-way segregated cycleway on Victoria Street	Option should not be progressed due to significant deliverability risks. Other solutions are available using the hierarchy of provision which looks at removing or calming traffic to permit people to use the carriageway with people driving. In addition, this could be combined with placemaking solutions.
AT53	Implement with-flow segregated cycleway on Mugiemoss Road	Option is not achievable without land take due to the narrow width of Mugiemoss Road.
AT54	Implement two-way segregated cycleway on Mugiemoss Road	Option is not achievable without land take due to the narrow width of Mugiemoss Road.

Ref	Title	Rationale
PT1	Implement Aberdeen Rapid Transit along the study corridor	While contributing to TPO3 and TPO5, this option is outwith the scope of the A947 corridor study. However, as ART is developed (including on the A96 corridor), cognisance should be given to how the A947 corridor can directly benefit from associated interventions.
PT3	Introduce bus priority on the southbound approach to the A96 between Stoneywood Brae and the Bucksburn Roundabout	Option should not be progressed on the basis that it would not address identified problems and opportunities on the A947 corridor.
PT4	Conduct a route wide review of bus stop provision and infrastructure	Option is unlikely to have any significant impact on the study TPOs and could be considered "business as usual" for ACC.
PT6	Implement bus lay by at northbound stop on Victoria Street outside Aberdein Considine	Option has the potential to have a (minor) negative impact on the flow of buses along Victoria Street, therefore, on this basis, it should be sifted out from further consideration.
PT7	Undertake a review of fares on public transport	Option is unlikely to have any significant impact on the study TPOs. However, fares reviews could be considered as part of strategic discussions relating to bus service delivery in the North East, which is within the remit of the North East Bus Alliance.
PT8	Conduct a marketing campaign with the aim of increasing public transport awareness and use	Option has limited impacts on the TPOs developed for this study. Option should be considered on a region-wide basis through initiatives such as Smarter Choices Smarter Places and Getabout - which has a forthcoming new campaign.
PT13	Provide integrated ticketing between bus and rail	Option is unlikely to have any significant impact on the study TPOs. However, integrated ticketing could be considered as part of strategic discussions relating to transport integration in the North East, which could be facilitated by Nestrans and ACC. PlusBus ticketing is also available and it is understood that integrated ticketing is being considered nationally.
PT14	Review the layout of the Oldmeldrum Road/Mugiemoss Road Junction for bus manoeuvrability.	Option is superseded by planned changes at the Oldmeldrum Road/Mugiemoss Road Junction associated with the development to the north of Mugiemoss Road.
O6	Improve clarity of lane designation at the Stoneywood Road/Wellheads Avenue Junction	Option is unlikely to have any significant impact on the study TPOs and could be considered "business as usual" for ACC.
O9	Review the layout of the Bankhead Road/Oldmeldrum Road Junction.	Option is superseded by planned changes at the Oldmeldrum Road/Mugiemoss Road Junction associated with the development to the north of Mugiemoss Road.
O13	Reassess the feasibility of expanding car parking provision at Dyce Rail Station to provide additional opportunities for multi-modal journeys involving rail on the A947 corridor	Option is likely to have negative impacts across the majority of the TPOs given the key focus of the study on active travel and bus travel. However, it is recognised that providing further opportunities to access Dyce Rail Station by car will enable an increase in (rail) modal share along the corridor. On this basis, this option should be considered by Nestrans/ACC outwith the scope of the A947 Multi-Modal Study.
O19	Upgrade Riverview Drive to a dual carriageway	Option is likely to have negative impacts across the majority of the TPOs. Therefore, on this basis, it should be sifted out from further consideration.
O20	Review the layout of the access road into Asda car park	Option is unlikely to have any significant impact on the study TPOs. Therefore, on this basis, it should be sifted out from further consideration.
O21	Reopen Market Street to vehicles	Option is likely to have negative impacts across the majority of the TPOs. Therefore, on this basis, it should be sifted out from further consideration.
O22	Widen carriageway at the western extent of Mugiemoss Road where narrow carriageway causes delay for buses	Option should not be progressed due to significant deliverability risks.
O27	Restrict access on Mugiemoss Road to resident access only.	Option is superseded by planned changes at the Oldmeldrum Road/Mugiemoss Road Junction associated with the development to the north of Mugiemoss Road.

6.8 Option Development and Packaging

6.8.1 Option Development

For the purposes of Option Development, the remaining options were grouped into categories as outlined in the table below.

Table 6.6: Grouping of Remaining Options

Active Travel Groupings
Active Travel Provision at Junctions
Advisory Cycling Infrastructure
Crossing Facilities (outwith junctions)
Dyce Permeability
Other Connections
Segregated Cycling Infrastructure
Shared Use Path Infrastructure
Signage
Public Transport Groupings
Bus Priority Infrastructure
Bus Stop Review
Public Transport Connectivity
Junction Reviews
Other Groupings
Enforcement
Junction Reviews
Parking Reviews
Placemaking
Reduced Speeds
Sustainable Transport Initiatives
Vehicle Restrictions

An extensive Option Development process was undertaken, with full detail provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**.

6.8.2 Option Packaging

Following the option development process, options were grouped into six packages for the purposes of appraisal as follows:

- Active Travel – Strategic Routes;
- Active Travel – Leisure Route;
- Active Travel – Quiet Route Measures;
- Public Transport – Priority Interventions;
- Placemaking – Living Streets; and
- Placemaking – Complementary Measures.

The options included within each package are detailed in the following sections.

Active Travel – Strategic Routes

Table 6.7: Active Travel – Strategic Routes Options

Ref	Description
AT1	Provide protected junction for active travel users at the A947/A90 slip road junction
AT2	Improve visibility for cyclists at the B977/A90 slip road roundabout
AT4	Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive
AT8	Reconfigure the Auchmill Road/Oldmeldrum Road junction to improve connections for pedestrians and cyclists
AT10	Widen on-road advisory cycle lane on Riverview Drive
AT11	Implement missing sections of on-road advisory cycle lane on Riverview Drive
AT12	Widen on-road advisory cycle lane on Stoneywood Road at Stoneywood Park junction
AT13	Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the F&B Way
AT14	Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout
AT16	Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout
AT20	Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways
AT28	Implement dropped kerbs for cyclists to transfer between the carriageway and pavement at the northbound bus stop on the A947, north of the River Don
AT30	Provide direct active travel link between Dyce Drive and Riverview Drive
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction
AT48	Implement two-way segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction
AT51	Implement with-flow segregated cycleway on Oldmeldrum Road
AT52	Implement two-way segregated cycleway on Oldmeldrum Road
AT55	Implement with-flow segregated cycleway on Gilbert Road
AT56	Implement two-way segregated cycleway on Gilbert Road
AT57	Implement shared use path on the A947 between AWPR Junction and A947/A96 Junction
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport
AT59	Widen the shared use path on the east side of the A947 to the north of Riverview Drive
AT60	Provide continuous footways on Riverview Drive for the duration of the route
AT62	Widen the shared use path on the east side of the A947 between the A96 and Beech Manor
AT63	Review alignment of the A947 shared use path to the north of the Oldmeldrum Road Junction where the safety barrier constrains the width of the path
AT64	Implement shared use path on Oldmeldrum Road
AT66	Implement shared use path on Gilbert Road
O3	Review the layout of the Riverview Drive/Balloch Way Junction
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction
O7	Review the layout of the A947/Stoneywood Junction at Co-Op/M&S
O8	Review the layout of the A947/Stoneywood Brae Junction
O10	Review layout of the A947/McDonalds access road junction
O17	Reduce the speed limit along the A947 to support active travel improvements

Active Travel – Leisure Route

Table 6.8: Active Travel – Leisure Route Options

Ref	Description
AT31	Improve active travel links between the Riverside Path and housing within Dyce
AT45	Upgrade the Riverside Path to a high quality active travel route, including improvements to the surfacing of the route
AT46	Implement lighting on the Riverside Path

Active Travel – Quiet Route Measures

Table 6.9: Active Travel – Quiet Route Measures Options

Ref	Description
AT7	Review signals at Forrit Burn Road bus gate to allow cyclists access
AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport
AT25	Improve active travel connectivity between the A947 study area and Craibstone Park & Ride
AT26	Improve active travel connectivity between the A947 study area and TECA
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate
AT32	Implement footways on the south side of the carriageway on Pitmedden Road
AT35	Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station
AT37	Implement dropped kerbs between Wellheads Drive shared use path and the carriageway
AT38	Review access restrictions on Market Street to allow for cargo bikes and recumbent cycles
AT39	Remove access controls on off-road path between Waterton Road and Ruthriehill Road
AT41	Improve active travel access to the retail park at the Bucksburn Roundabout
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road
AT67	Widen the shared use path on the west side of Howe Moss Drive
O14	Review parking arrangements on Mugiemoss Road
O18	Consider options to reduce vehicle speeds on Bankhead Road

Public Transport – Priority Interventions

Table 6.10: Public Transport – Priority Interventions Options

Ref	Description
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor
PT5	Implement real time passenger information at key bus stops along the study corridor
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride
PT11	Improve public transport connectivity between the A947 study area and TECA
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate
AT22	Promote Craibstone Park & Ride as a Park & Pedal facility

Placemaking – Living Streets

Table 6.11: Placemaking – Living Streets Options

Ref	Description
AT3	Review layout of Victoria Street/Pitmedden Road junction for pedestrians
AT17	Implement signalised crossing facility on Victoria Street adjacent to Tesco
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road
AT61	Implement shared use path on Victoria Street
O1	Increase enforcement of stopping restrictions on Victoria Street, specifically adjacent to Tesco
O2	Review the layout of the Victoria Street/Skene Place Junction
O11	Undertake a review of parking arrangements on Victoria Street
O12	Implement signage to encourage reverse parking at the shops on Victoria Street
O15	Introduce placemaking and gateway features on Victoria Street
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce
O25	Implement access only restrictions for general traffic on Victoria Street
O26	Implement one-way restrictions for general traffic on Victoria Street

Placemaking – Complementary Measures

Table 6.12: Placemaking – Complementary Measures Options

Ref	Description
AT21	Implement cycle parking at key trip attractors in the study area
AT23	Implement a bike hire scheme within Dyce
AT42	Review access to the F&B Way from within Dyce
AT68	Conduct a review of wayfinding signage throughout the study area
O24	Implement electric vehicle charging points at key locations within Dyce

7. Option Appraisal Approach

7.1 Scale of Impacts

In line with STAG, a seven-point scale assessment has been undertaken for each option against the TPOs and STAG Criteria. This considers the relative size and scale of the likely impacts, in qualitative terms.

Table 7.1: STAG Seven-Point Scale

Impact	Description
Major positive impact (+3)	These are positive impacts which, depending on the severity of impact, should be a principal consideration when assessing an option.
Moderate positive impact (+2)	The option is anticipated to have a moderate positive impact which, when taken in isolation may not determine the appraisal of an option but would form a key consideration when considered alongside other factors.
Minor beneficial impact (+1)	The option is anticipated to have a minor positive impact. Minor positive impacts are those which are worth noting but are not likely to contribute materially to determining whether an option is taken forward.
Neutral impact (0)	The option is anticipated to have a neutral impact.
Minor negative impact (-1)	The option is anticipated to have a small negative impact. Small impacts are those which are worth noting but are not likely to contribute materially to determining whether an option is taken forward.
Moderate negative impact (-2)	The option is anticipated to have a moderate negative impact which, when taken in isolation may not determine the appraisal of an option but would form a key consideration when considered alongside other factors.
Major negative impact (-3)	There are negative impacts which, depending on the severity of impact, should be a principal consideration when assessing an option.

7.2 Transport Planning Objectives

Each option will be subject to a qualitative appraisal against each of the TPOs.

Table 7.2: TPOs

TPO	Description
TPO1	Increase the modal share of walking on the A947 corridor for all journey types
TPO2	Increase the modal share of cycling on the A947 corridor for all journey types
TPO3	Increase the modal share of public transport on the A947 corridor for all journey types
TPO4	Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements
TPO5	Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes
TPO6	Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy.

7.3 STAG Criteria

Each option will be subject to a qualitative appraisal against each of the STAG Criteria.

Table 7.3: STAG Criteria

STAG Criteria	Description
Environment	The Environment Criterion includes eight sub-criteria, although some may not be relevant to the study area or the options proposed. The Environment sub-criteria are biodiversity and habitats; geology and soils; land use (including agriculture and forestry); water, drainage and flooding; air quality; historic environment; landscape; and noise and vibration.
Climate Change	The Climate Change Criterion comprises three sub criteria: greenhouse gas emissions; vulnerability to the effects of climate change; and potential to adapt to the effects of climate change.
Health, Safety & Wellbeing	The Health, Safety and Wellbeing Criterion comprises five sub-criteria: accidents; security; health outcomes; access to health and wellbeing infrastructure; and visual amenity.

STAG Criteria	Description
Economy	The Economy Criterion comprises two sub-criteria: Transport Economic Efficiency (TEE) and Wider Economic Impacts (WEIs). TEE covers the benefits ordinarily captured by standard cost-benefit analysis including traffic volumes, journey times, driver frustration, travel time reliability etc. WEIs refer to any economic impacts which are additional to transport user benefits.
Equality & Accessibility	The Equality and Accessibility Criterion comprises five sub-criteria: public transport network coverage; active travel network coverage; comparative access by people group; comparative access by geographic location; and affordability.

7.4 Implementability Criteria

Options will also be assessed in terms of their implementability, covering Feasibility, Affordability and Public Acceptability. The Implementability Criteria have been assessed based on the extent of risk (low, medium and high). Affordability takes account of the anticipated cost of the option; whilst high-level cost estimates have been provided as part of the option appraisal, further work will be required to develop costs during further stages of option development.

STAG Criteria	Description
Feasibility	The feasibility of construction or implementation and operation of an option and the status of its technology (e.g. proven, prototype, in development, etc.) as well as any cost, timescale or deliverability risks associated with the construction or operation of the option, including consideration of the need for any departure from design standards that may be required.
Affordability	The scale of the financing burden on the promoting authority and other possible funding organisations and the risks associated with these. The level of risk associated with an option's ongoing operating or maintenance costs and its likely operating revenues (if applicable).
Public Acceptability	An assessment of the likely public response to an option, including consideration of the outcomes of consultation.

8. Option Appraisal

8.1 Introduction

This chapter outlines the findings of the appraisal of option packages. A high-level appraisal of individual options has also been carried out and the findings of this exercise are presented in *Individual Option Appraisal* included in **Appendix D**.

As set out in **Section 6.8.2**, six option packages were developed for the purposes of appraisal as follows:

- Active Travel – Strategic Routes;
- Active Travel – Leisure Route;
- Active Travel – Quiet Route Measures;
- Public Transport – Priority Interventions;
- Placemaking – Living Streets; and
- Placemaking – Complementary Measures.

The options included within each package are detailed within the tables in the following sections.

8.2 Active Travel – Strategic Routes

8.2.1 Overview

Table 8.1: Active Travel – Strategic Routes Overview

Active Travel – Strategic Routes Package	
Package Description	Segregated cycling infrastructure along the A947 between the AWPR Junction and Bucksburn Roundabout (A947/A96 Junction). This would provide a safer cycling environment on the main route through Dyce to help encourage cycling for everyday journeys.
Package Components	The Active Travel – Strategic Routes package comprises a series of potential improvements, as set out below: • AT1: Provide protected junction for active travel users at the A947/A90 slip road junction • AT2: Improve visibility for cyclists at the B977/A90 slip road roundabout • AT4: Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive • AT8: Reconfigure the Auchmill Road/Oldmeldrum Road junction to improve connections for pedestrians and cyclists • AT10: Widen on-road advisory cycle lane on Riverview Drive • AT11: Implement missing sections of on-road advisory cycle lane on Riverview Drive • AT12: Widen on-road advisory cycle lane on Stoneywood Road at Stoneywood Park junction • AT13: Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the F&B Way • AT14: Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout • AT16: Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout • AT20: Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways • AT28: Implement dropped kerbs for cyclists to transfer between the carriageway and pavement at the northbound bus stop on the A947, north of the River Don • AT30: Provide direct active travel link between Dyce Drive and Riverview Drive • AT47: Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction • AT48: Implement two-way segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction • AT51: Implement with-flow segregated cycleway on Oldmeldrum Road • AT52: Implement two-way segregated cycleway on Oldmeldrum Road • AT55: Implement with-flow segregated cycleway on Gilbert Road

Active Travel – Strategic Routes Package	
	• AT56: Implement two-way segregated cycleway on Gilbert Road • AT57: Implement shared use path on the A947 between AWPR Junction and A947/A96 Junction • AT58: Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport • AT59: Widen the shared use path on the east side of the A947 to the north of Riverview Drive • AT60: Provide continuous footways on Riverview Drive for the duration of the route • AT62: Widen the shared use path on the east side of the A947 between the A96 and Beech Manor • AT63: Review alignment of the A947 shared use path to the north of the Oldmeldrum Road Junction where the safety barrier constrains the width of the path • AT64: Implement shared use path on Oldmeldrum Road • AT66: Implement shared use path on Gilbert Road • O3: Review the layout of the Riverview Drive/Balloch Way Junction • O4: Review the layout of the Riverview Drive/Todlaw Walk Junction • O5: Review the layout of the Riverview Drive/Netherview Avenue Junction • O7: Review the layout of the A947/Stoneywood Junction at Co-Op/M&S • O8: Review the layout of the A947/Stoneywood Brae Junction • O10: Review layout of the A947/McDonalds access road junction • O17: Reduce the speed limit along the A947 to support active travel improvements
Cost Band	Cost estimates for each of the individual options included in this package have not been carried out at the current stage of the study. As a result, cost bands have been created to offer a preliminary range for the options within the package. Further costing work on each of the individual options will be carried out during a later stage of the study which will then provide an overall costing for the package. The cost bands are as follows: • **Low cost =** <£250,000; • **Medium cost =** £250,000 - £2,000,000; and • **High cost =** £2,000,000+. The cost of delivering each of the individual options within the Active Travel – Strategic Routes package ranges between the three cost bands outlined above due to the variety of different options which have been included.

8.2.2 Context

Table 8.2: Active Travel – Strategic Routes Context

Context:	
Problems & Opportunities	This package could help to address the following problem and opportunity themes identified at the Case for Change stage of the study (see **Chapter 4**): • **Active Travel Infrastructure** – Sections where footway provision is lacking and cycle infrastructure consists of advisory cycle lanes that are narrow and inconsistent. There is also a lack of pedestrian crossings in the study area. • **Maintenance of Active Travel Infrastructure** – There is a lack of maintenance of active travel infrastructure including the surfaces of advisory cycle lanes, footways, the underpass at Millhill Brae and the Riverside Path. • **Distances to Work** – The vast majority of those living within the study area travel less than 10km for work, presenting opportunities to encourage active travel use for journeys to work. • **Policy Context** – Aligns with national, regional and local transport policy to support more trips to be undertaken by sustainable modes of travel. • **Funding** – Opportunity to take advantage of Scottish Government funding for active travel infrastructure.
Interdependencies	This package has potential overlap with other option packages being considered through this study, most notably the 'Active Travel – Leisure Route' and 'Active Travel – Quiet Route Measures' packages which both contain measures to support a significantly improved environment for active travel users on the corridor.

8.2.3 Transport Planning Objectives

Table 8.3: Active Travel – Strategic Routes TPO Appraisal

Transport Planning Objectives:		
TPO1: Increase the modal share of walking on the A947 corridor for all journey types	+1	It would be anticipated that this option package would provide a minor positive impact in terms of TPO1, by providing measures supporting an increase in the modal share of walking. Some of the options contained within the package segregate cyclists from pedestrians as well as vehicular traffic, improving their safety and minimising conflict between modes, potentially increasing the mode share of walking as a result.
TPO2: Increase the modal share of cycling on the A947 corridor for all journey types	+3	It is considered that this package would provide a major positive impact in terms of TPO2, as dedicated infrastructure would overcome a key barrier to the uptake of cycling – the lack of infrastructure and safety concerns of having to share road space with vehicles. The package of measures largely includes on-line provision and would therefore be anticipated to increase the modal share of cycling for commuting purposes in particular.
TPO3: Increase the modal share of public transport on the A947 corridor for all journey types	0	It would not be anticipated that this package would impact the mode share of public transport in the study area and therefore this package has been assessed to have a neutral impact on TPO3.
TPO4: Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	+1	It would be expected that this package would have a minor positive impact against TPO4. The package promotes accessibility improvements across the study area. This improved accessibility would be expected to enhance the ability of residents to undertake local movements more sustainably.
TPO5: Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	+1	Whilst this package does not include any options to directly provide access to key transport hubs, it contains options which will improve interchange for cyclists between the A947 and A96, therefore improving access to TECA and Aberdeen Airport relative to existing provision and connections.
TPO6: Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy	+1	This package will support a revision in the function of the main routes in the study area in accordance with the revised Roads Hierarchy by providing segregated cycling infrastructure on the main A947 priority route, with the reallocation of Victoria Street as a tertiary route opening up opportunities to provide space for active travel.

8.2.4 STAG Criteria

Table 8.4: Active Travel – Strategic Routes STAG Criteria Appraisal

STAG Criteria:		
Environment	-1	Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the Active Travel – Strategic Routes package will have both positive and negative impacts on the Environment Criterion. The creation of a bound shared use path in existing grass verge space on the east side of the A947 to the north of Riverview Drive for example may negatively impact biodiversity and habitats. Drainage and water run-off may also negatively impact the existing environment, with the area currently prone to high likelihood of flooding (10%). In addition to a detailed environmental assessment at any subsequent appraisal stage, careful design considerations that are sensitive to the natural environment will be required to mitigate any potential negative impacts.

STAG Criteria:		
Climate Change	0	**Greenhouse Gas Emissions** – It is considered that the options contained within this package, if implemented in combination, would generate significant modal shift towards active travel and, as a result, would lead to a reduction in greenhouse gas emissions. On this basis, the Active Travel – Strategic Routes package has been assessed as providing a minor positive impact against the Greenhouse Gas Emissions sub-criterion. **Vulnerability to the Effects of Climate Change** – There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947 namely Goval Burn, Far Burn and Green Burn, which measures in this package lie in the vicinity of. The proposed options also cross the point of the River Don (Parkhill Bridge) which is susceptible to flood risk. Elements of the proposals within the Active Travel – Strategic Routes package are therefore vulnerable to the effects of climate change in respect of increased flood risk. **Potential to Adapt to the Effects of Climate Change** – The measures proposed within the Active Travel – Strategic Routes package are anticipated to have a neutral impact on the Potential to Adapt to the Effects of Climate Change sub-criterion.
Health, Safety and Wellbeing	+2	**Accidents** – It would be anticipated that the options included within the Active Travel – Strategic Routes package would result in reduced accident risk, particularly for non-motorised users. This is due to the package including active travel infrastructure enhancements such as segregated facilities, reduced crossing widths / tightened corner radii, formal crossing facilities, and shared use facilities and speed limit reductions. By encouraging and facilitating more active travel trips to be undertaken, safety benefits would also be anticipated due to the 'safety in numbers' effect. This principle suggests an inverse relationship between the number of active travel trips and rate of accidents i.e. more pedestrians and cyclists results in safer walking and cycling. **Security** – By encouraging and facilitating more active travel trips to be undertaken, natural surveillance will increase; this would have a minor positive impact on personal security. **Health Outcomes** – The Aberdeen City – North: Locality Plan 2021-26 includes the priority to improve the physical health and wellbeing of people. Within this priority are the aims to: • Increase % of people who walk as one mode of travel by 10% by 2023; and • Increase % of people who cycle as one mode of travel by 2% by 2023. The measures contained within the Active Travel – Strategic Routes package which have a focus on enabling and facilitating active travel are anticipated to contribute significantly to the above Physical Health aims for the Aberdeen North area. Therefore, it is anticipated that this package will result in a moderate positive impact on Health Outcomes. **Access to Health and Wellbeing Infrastructure** – It would be anticipated that the options included within the Active Travel – Strategic Routes package would result in improved access to health and wellbeing infrastructure. This would be enabled through enhancements to direct access such as to the Riverside Park area and adjacent Dyce Health Centre.

STAG Criteria:		
		Visual Amenity – By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although this would not be to any significant extent.
Economy	+2	**Transport Economic Efficiency** – Active travel schemes which provide enhanced infrastructure have the potential to yield high economic benefits and return good value for money. Serving multiple trip and destination types including local retail and services, local key employment at Kirkhill and Wellheads Industrial Estates, and linking to A947 north and the A96, the measures contained in the Active Travel – Strategic Routes package would be anticipated to generate economic benefits including, but not limited to improved journey ambience; reduced greenhouse gas emissions; reduced risk of premature death; and reduced work absenteeism. Therefore, this package is anticipated to have a major positive impact on the TEE sub-criterion. **Wider Economic Impacts** – Research shows that people who walk, wheel or cycle to shops spend more money. Connecting to Dyce Shopping Centre and Co-op / M&S, the measures contained in the Active Travel – Strategic Routes package would be anticipated to enable and facilitate active travel journeys to local shops and services. The measures also include improved access to the long-distance F&B Way route which would be anticipated to result in increased recreational use and in turn increased spending at local retailers / services from recreational users. Therefore, it is anticipated that this package would have a minor positive impact on the WEI sub-criterion.
Equality and Accessibility	+2	**Public Transport Network Coverage** – The measures proposed in the Active Travel – Strategic Routes package do not directly impact public transport network coverage. On this basis, this package is anticipated to have a neutral impact on this sub-criterion. **Active Travel Network Coverage** – The measures included in the Active Travel – Strategic Routes package including the implementation of shared use facilities between the A947 and Kirkhill Industrial Estate and segregated cycleway on the A947 between the AWPR junction and A947/A96 junction, are anticipated to provide a major positive impact in terms of Active Travel Network Coverage. **Comparative Access by People Group** – The population profile of the study area has a lower proportion of working age people (62%) compared to Aberdeen City (64%), and a higher proportion of people aged 65 and over (22% and 16% respectively). For the working age majority of the local population, the measures contained within the Active Travel – Strategic Routes package will enable improved active travel accessibility to major local employment opportunities within locations such as Kirkhill and Wellheads Industrial Estates. For the over 65 population, measures will enhance accessibility of key local services including Dyce Shopping Centre. School aged children will also benefit from the measures including continuous footways on Riverview Drive and shared use path on the A947 between A947 junction and A947/A96 junction which will result in improved access to Dyce Academy, Stoneywood Primary and Bucksburn Academy. It is anticipated therefore that this package would provide a major positive impact in terms of Comparative Access by People Group. **Comparative Access by Geographic Location** – A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. The measures contained in the Active Travel - Strategic Routes package which have a focus on enabling and facilitating active travel would be anticipated to provide suitable

STAG Criteria:		
		active travel options for predominantly short to middle distance trips, as an alternative to motorised transport. It is anticipated therefore that this package would provide a moderate positive impact in terms of Comparative Access by Geographic Location. **Affordability** – With no cost payable by the individual, walking and wheeling are the most equitable forms of transport. The cost barrier to cycling is also significantly lower than for private motor vehicles. The measures contained within the Active Travel – Strategic Routes package which have a focus on enabling and facilitating active travel are therefore anticipated to result in a moderate positive impact in terms of Affordability.

8.2.5 Established Policy Objectives

Table 8.5: Active Travel – Strategic Routes Established Policy Objectives

Established Policy Objectives
This package aligns with the following areas of local, regional and national policy: • **Local Transport Strategies** – the Aberdeenshire Local Transport Strategy (2012) and Aberdeen City Local Transport Strategy (2016-2021) aim to reduce non-sustainable journeys, increase the modal share of active travel and make travel more effective. • **Nestrans Regional Transport Strategy 2040** – supports a number of the key priorities contained in the RTS 2040 including reduced carbon emissions to support net zero; a step change in public transport and active travel enabling a 50:50 mode split; air quality that is cleaner than World Health Organisation standards for emissions from transport; and zero fatalities on the road network. • **National Transport Strategy –** supports the vision of the NTS2 of a sustainable, inclusive, safe and accessible transport system which helps to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. The NTS2 also supports the adoption of a Sustainable Travel Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use. Furthermore, the NTS Delivery Plan sets out a commitment to develop and implement a coordinated package of policy interventions to support the reduction of car kilometres by 20% by 2030.

8.2.6 Deliverability

Table 8.6: Active Travel – Strategic Routes Deliverability Criteria Appraisal

Deliverability		
Feasibility	Medium risk	The feasibility of the improvements outlined in the Active Travel – Strategic Routes package has been assessed to identify any potential risks to deliverability. The majority of options within this package have been appraised to have low deliverability risk and are considered to be achievable as part of the study, assisting in the improvement of active travel links throughout the study area. Options considered to have high risk in terms of the Implementability Criteria were some of the corridor-wide active travel improvements within the Active Travel – Strategic Routes package. Assessment of these options highlighted that any improvements over the full length would not be achievable due to physical constraints at various points throughout the route. Further work will be needed to determine the scope of interventions at specific pinch-points. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of feasibility to be undertaken.

Deliverability		
Affordability	Medium risk	The affordability of the options within this package were also assessed on the extent of their affordability risk. With the large number of options included in this package, the extent of risk varied between low, medium, and high. Options were assessed to have a higher risk in terms of affordability due to factors such as acquisition of third-party land, major earthworks and large infrastructure works. Options which were evaluated as low risk involved minimal works such as updating road markings, vegetation management and new kerbing layouts. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further
Public Acceptability	Low risk	Overall, consultation comments were generally supportive of this option concept with many welcoming the proposals to segregate cyclists and vehicles and make it easier for cyclists to navigate existing bottlenecks such as roundabouts and Victoria Street. Emphasis was placed on 'hard' segregation measures with many noting that advisory cycle lanes would not make them feel any safer or encourage modal change. Negative comments received were generally in relation to the cost of implementing the infrastructure.

8.2.7 Appraisal Summary and Recommendations

Table 8.7: Active Travel – Strategic Routes Appraisal Summary and Recommendations

Appraisal Summary and Recommendations:	
Summary:	• This package would provide positive impacts across the majority of the TPOs, particularly in terms of increasing the modal share of cycling on the A947 corridor for all journey types and ensuring the main routes through the study area function in accordance with their role in the revised Roads Hierarchy. • In terms of the STAG criteria, this package would promote overall moderate positive impacts in terms of Health, Safety and Wellbeing, Economy and Equality and Accessibility. Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the package will have both positive and negative impacts on the Environment Criterion. The package would have a minor positive impact in terms of supporting greenhouse gas emissions reductions, but elements of the proposals within the package would be vulnerable to the effects of climate change in respect of increased flood risk. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040 and NTS2. • The majority of options within this package have been appraised to have low deliverability risk and are considered to be achievable as part of the study, assisting in the improvement of active travel links throughout the study area. The options classified to create a high risk to the Implementability Criteria were some of the corridor-wide active travel improvements within the package. Assessment of these options highlighted that any improvements over the full length would not be achievable due to physical constraints at various points throughout the route. • Options were assessed to have a higher risk in terms of affordability due to factors such as acquisition of third-party land, major earthworks and large infrastructure works. Options which were evaluated as low risk involved minimal works such as updating road markings, vegetation management and new kerbing layouts. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken.

Appraisal Summary and Recommendations:	
	• Overall, consultation comments were generally supportive of this option concept with many welcoming the proposals to segregate cyclists and vehicles and make it easier for cyclists to navigate existing bottlenecks such as roundabouts and Victoria Street. Emphasis was placed on 'hard' segregation measures with many noting that advisory cycle lanes would not make them feel any safer or encourage modal change. Negative comments received were generally in relation to the cost of implementing the infrastructure.
Recommendations:	A full breakdown of the options under consideration as part of this package, including the rationale for any specific options recommended to be removed from consideration at this stage of the appraisal is presented below: Select for further consideration • AT1: Provide protected junction for active travel users at the A947/A90 slip road junction • AT2: Improve visibility for cyclists at the B977/A90 slip road roundabout • AT4: Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive • AT8: Reconfigure the Auchmill Road/Oldmeldrum Road junction to improve connections for pedestrians and cyclists • AT13: Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the F&B Way • AT14: Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout • AT16: Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout • AT20: Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways • AT28: Implement dropped kerbs for cyclists to transfer between the carriageway and pavement at the northbound bus stop on the A947, north of the River Don • AT30: Provide direct active travel link between Dyce Drive and Riverview Drive • AT47: Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction • AT48: Implement two-way segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction • AT51: Implement with-flow segregated cycleway on Oldmeldrum Road • AT52: Implement two-way segregated cycleway on Oldmeldrum Road • AT55: Implement with-flow segregated cycleway on Gilbert Road • AT56: Implement two-way segregated cycleway on Gilbert Road • AT58: Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport • AT59: Widen the shared use path on the east side of the A947 to the north of Riverview Drive • AT60: Provide continuous footways on Riverview Drive for the duration of the route • AT64: Implement shared use path on Oldmeldrum Road • AT66: Implement shared use path on Gilbert Road • O3: Review the layout of the Riverview Drive/Balloch Way Junction • O4: Review the layout of the Riverview Drive/Todlaw Walk Junction • O5: Review the layout of the Riverview Drive/Netherview Avenue Junction • O7: Review the layout of the A947/Stoneywood Junction at Co-Op/M&S • O8: Review the layout of the A947/Stoneywood Brae Junction • O10: Review layout of the A947/McDonalds access road junction Remove from consideration • AT10: Widen on-road advisory cycle lane on Riverview Drive – see Section 8.8. • AT11: Implement missing sections of on-road advisory cycle lane on Riverview Drive – see Section 8.8. • AT12: Widen on-road advisory cycle lane on Stoneywood Road at Stoneywood Park junction – see Section 8.8.

Appraisal Summary and Recommendations:	
	• AT57: Implement shared use path on the A947 between AWPR Junction and A947/A96 Junction – it is considered that segregated cycling infrastructure should be promoted as part of this study. • AT62: Widen the shared use path on the east side of the A947 between the A96 and Beech Manor – it is considered that segregated cycling infrastructure should be promoted as part of this study. • AT63: Review alignment of the A947 shared use path to the north of the Oldmeldrum Road Junction where the safety barrier constrains the width of the path – it is considered that segregated cycling infrastructure should be promoted as part of this study. • O17: Reduce the speed limit along the A947 to support active travel improvements – it is not considered appropriate to reduce the speed limit on a priority route in accordance with the Roads Hierarchy.

8.3 Active Travel – Leisure Route Appraisal

8.3.1 Overview

Table 8.8: Active Travel – Leisure Route Overview

Active Travel – Leisure Route Package	
Package Description	The Active Travel – Leisure Route Package is formed of three active travel options with the aim of creating a quality active travel route along the existing Riverside Path which runs close to the River Don.
Package Components	The Active Travel – Leisure Route package comprises a series of potential improvements, as set out below: • AT31: Improve active travel links between the Riverside Path and housing within Dyce • AT45: Upgrade the Riverside Path to a high quality active travel route, including improvements to the surfacing of the route • AT46: Implement lighting on the Riverside Path
Cost Band	Cost estimates for each of the individual options included in this package have not been carried out at the current stage of the study. As a result, cost bands have been created to offer a preliminary range for the options within the package. Further costing work on each of the individual options will be carried out during a later stage of the study which will then provide an overall costing for the package. The cost bands are as follows: • **Low cost =** <£250,000; • **Medium cost =** £250,000 - £2,000,000; and • **High cost =** £2,000,000+. The three active travel improvement options which form the Active Travel – Leisure Route package have been initially categorised between the low and medium cost bands outlined above. The large-scale improvements to the Riverside Path and its links to the local area will require substantial work to be carried out. Further design and costing work during a later stage of the study may result in the classification being moved to the high-cost band.

8.3.2 Context

Table 8.9: Active Travel – Leisure Route Context

Context:	
Problems & Opportunities	This package could help to address the following problem and opportunity themes identified at the Case for Change stage of the study (see **Chapter 4**): • **Active Travel Infrastructure** – Providing missing links between the Riverside Path and potentially crossing facilities will address gaps identified by the study. • **Maintenance of Active Travel Infrastructure** – There is a lack of maintenance of active travel infrastructure including the surfaces of advisory cycle lanes, footways, the underpass at Millhill Brae and the Riverside Path. • **Policy Context** – Aligns with national, regional and local transport policy to support more trips to be undertaken by sustainable modes of travel.

Context:	
	• **Funding** – Opportunity to take advantage of Scottish Government funding for active travel infrastructure.
Interdependencies	This package has potential overlap with other option packages being considered through this study, most notably the 'Active Travel – Strategic Routes' and 'Active Travel – Quiet Route Measures' packages which both contain measures to support a significantly improved environment for active travel users on the corridor.

8.3.3 Transport Planning Objectives

Table 8.10: Active Travel – Leisure Route TPO Appraisal

Transport Planning Objectives:		
TPO1: Increase the modal share of walking on the A947 corridor for all journey types	+1	It would be anticipated that this option package would provide a minor positive impact in terms of TPO1. Given the location of the route and the options proposed, this route would likely see increased use as a leisure route. The path also provides onward connections to Seaton Park and Aberdeen City Centre via NCN1 and therefore could see an uptake in walking.
TPO2: Increase the modal share of cycling on the A947 corridor for all journey types	+1	It would be anticipated that this option package would provide a minor positive impact in terms of TPO2. Given the location of the route and the options proposed, this route would likely see increased use as a leisure route. The path also provides onward connections to Seaton Park and Aberdeen City Centre via NCN1 and therefore could see an uptake in cycling.
TPO3: Increase the modal share of public transport on the A947 corridor for all journey types	0	It would not be anticipated that this package would impact the mode share of public transport in the study area and therefore this package has been assessed to have a neutral impact on TPO3.
TPO4: Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	+1	This option package is considered to have a minor positive impact against TPO4. Although the package largely concerns the north to south route of the Riverside Path, Option AT31 within the package connects the path to housing areas in Dyce which would enhance east to west connectivity and potentially connect these housing areas to active travel infrastructure.
TPO5: Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	0	It would not be anticipated that this package would directly improve accessibility to key transport hubs and key destinations by non-car modes and therefore this package has been assessed to have a neutral impact on TPO5.
TPO6: Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy	0	This option package consists of largely off-road active travel routes and therefore there will be a neutral impact on route function in the context of the revised Roads Hierarchy.

8.3.4 STAG Criteria

Table 8.11: Active Travel – Leisure Route STAG Criteria Appraisal

STAG Criteria:		
Environment	-1	Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the Active Travel – Leisure Route package will have both positive and negative impacts on the Environment Criterion. The creation of a bound surface route may negatively impact biodiversity and

STAG Criteria:		
		habitats, as may the implementation of lighting. Drainage and water run-off may also negatively impact the existing environment, with the area currently prone to high likelihood of flooding (10%). In addition to a subsequent detailed environmental assessment at any subsequent appraisal stage, careful design considerations that are sensitive to the natural environment will be required to mitigate any potential negative impacts.
Climate Change	0	**Greenhouse Gas Emissions** – It is considered that the options contained within this package, if implemented in combination, would generate significant modal shift towards active travel and as a result, would lead to a reduction in greenhouse gas emissions. On this basis, the Active Travel – Leisure Route package has been assessed as providing a minor positive impact against the Greenhouse Gas Emissions sub-criterion. **Vulnerability to the Effects of Climate Change** – There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947 namely Goval Burn, Far Burn and Green Burn, which measures in this package lie in the vicinity of. The measures would also lie adjacent to the banks of the River Don, some points of which are susceptible to flood risk. Elements of the proposals within the Active Travel – Leisure Route package are therefore highly vulnerable to the effects of climate change in respect of increased flood risk. **Potential to Adapt to the Effects of Climate Change** – The measures proposed within the Active Travel – Leisure Route package are anticipated to have a neutral impact on the Potential to Adapt to the Effects of Climate Change sub-criterion.
Health, Safety and Wellbeing	+2	**Accidents** – It would be anticipated that the options included within the Active Travel – Leisure Route package would result in reduced accident risk, particularly for non-motorised users. This is due to the implementation of a continuous, lit, 4m width, bound surface path, which would reduce trip hazards and risks of cyclists coming off their bikes. By encouraging and facilitating more active travel trips to be undertaken, safety benefits would also be anticipated due to the 'safety in numbers' effect. This principle suggests an inverse relationship between the number of active travel trips and rate of accidents i.e. more pedestrians and cyclists results in safer walking and cycling. **Security** – It would be anticipated that the options included within the Active Travel – Leisure Route package would result in a positive impact on security due to the implementation of lighting along the route. Additionally, by encouraging and facilitating more active travel trips to be undertaken, natural surveillance will increase; this would have a minor positive impact on personal security. **Health Outcomes** – The Aberdeen City – North: Locality Plan 2021-26 includes the priority to improve the physical health and wellbeing of people. Within this priority are the aims to: • Increase % of people who walk as one mode of travel by 10% by 2023; and • Increase % of people who cycle as one mode of travel by 2% by 2023. The measures contained within the Active Travel – Leisure Route package which have a focus on enabling and facilitating active travel are anticipated to contribute significantly to the above Physical Health aims

STAG Criteria:		
		for the Aberdeen North area. Therefore, it is anticipated that this package will result in a moderate positive impact on Health Outcomes. **Access to Health and Wellbeing Infrastructure** – It would be anticipated that the options included within the Active Travel – Leisure Route package would result in improved access to health and wellbeing infrastructure. This would be enabled through enhancements to the Riverside Park area, River Don path network and adjacent Dyce Health Centre. **Visual Amenity** – It would be anticipated that the options included within the Active Travel – Leisure Route package would result in improved visual amenity. This would be enabled through sensitive design and choice of materials to ensure Riverside Path infrastructure is in keeping with the natural environment, enhancing it where possible. Users would also be anticipated to consider a continuous path of consistent width and material to be more visually appealing than a path of visibly mixed standard, material and width. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent.
Economy	0	**Transport Economic Efficiency** – In isolation, the relatively short-distance Active Travel – Leisure route package, with a focus on leisure trips, would be anticipated to have a neutral impact on the TEE sub-criterion. **Wider Economic Impacts** – Tourism is a vital part of the Scottish economy. Within this, 'cycle tourism' is a growing sector. The measures contained in the Active Travel – Leisure Route package which centre on improved access to and along the Riverside Path would be anticipated to result in increased recreational use and, in turn, potentially increased spending at local retailers / services from recreational users. However, these WEIs would not be expected to be significant.
Equality and Accessibility	+2	**Public Transport Network Coverage** – The measures proposed in the Active Travel – Leisure Route package do not directly impact public transport network coverage. On this basis, this package is anticipated to have a neutral impact on this sub-criterion. **Active Travel Network Coverage** – The measures included in the Active Travel – Leisure Route package are designed to improve access to and along the Riverside Path. Therefore this package is anticipated to result in a moderate positive impact on Active Travel Network Coverage. **Comparative Access by People Group** – The population profile of the study area has a lower proportion of working age people (62%) compared to Aberdeen City (64%), and a higher proportion of people aged 65 and over (22% and 16% respectively). The primary purpose of the Active Travel – Leisure Route package is to improve access to and along the Riverside Path leisure route. All people groups would be anticipated to benefit equally at the individual level, with the package anticipated to provide a moderate positive impact in terms of Comparative Access by People Group. **Comparative Access by Geographic Location** – A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. This package would support access to onward connections to Seaton Park and Aberdeen City Centre via NCN1, and, on this basis, would provide a minor positive impact in terms of Comparative Access by Geographic Location.

STAG Criteria:		
		Affordability – With no cost payable by the individual, walking and wheeling are the most equitable forms of transport. The cost barrier to cycling is also significantly lower than for private motor vehicles. The measures contained within the Active Travel – Leisure Route package which have a focus on enabling and facilitating active travel for recreation are therefore anticipated to result in a minor positive impact in terms of Affordability.

8.3.5 Established Policy Objectives

Table 8.12: Active Travel – Leisure Route Established Policy Objectives

Established Policy Objectives
This package aligns with the following areas of local, regional and national policy: • **Local Transport Strategies** – the Aberdeenshire Local Transport Strategy (2012) and Aberdeen City Local Transport Strategy (2016-2021) aim to reduce non-sustainable journeys, increase the modal share of active travel and make travel more effective. • **Nestrans Regional Transport Strategy 2040** – supports a number of the key priorities contained in the RTS 2040 including reduced carbon emissions to support net zero; a step change in public transport and active travel enabling a 50:50 mode split; air quality that is cleaner than World Health Organisation standards for emissions from transport; and zero fatalities on the road network. • **National Transport Strategy** – supports the vision of the NTS2 of a sustainable, inclusive, safe and accessible transport system which helps to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. The NTS2 also supports the adoption of a Sustainable Travel Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use. Furthermore, the NTS Delivery Plan sets out a commitment to develop and implement a coordinated package of policy interventions to support the reduction of car kilometres by 20% by 2030.

8.3.6 Deliverability

Table 8.13: Active Travel – Leisure Route Deliverability Criteria Appraisal

Deliverability		
Feasibility	Medium risk	The three active travel improvements included in this package have been assessed in terms of their feasibility to identify what impact this would have on implementability. Creating an active travel link between the leisure route and nearby housing within Dyce is considered a medium feasibility risk. This is due to the work required and environmental impact caused by formalising existing trails or creating new links along the Riverside Path. The other options within this package focus on upgrades to the surface and lighting of the existing Riverside Path – both are considered feasible. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of feasibility to be undertaken.
Affordability	Medium – High risk	The extent of affordability risk was also considered for the three options within the Active Travel – Leisure Route package. The active travel improvements were evaluated to have medium to high risk in terms of affordability. The potential volume and complexity of the work involved to deliver the options within this package resulted in this evaluation. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further

Deliverability		
Public Acceptability	Low risk	Overall, there was strong support for this option concept during consultation, with widespread support for improved surfacing of the Riverside Path and support for better leisure routes in the wider area. Improving connections from Dyce to the Riverside Path were also welcomed through new crossings on Riverview Drive. However, some environmental concerns were raised regarding lighting provision on the Riverside Path.

8.3.7 Appraisal Summary and Recommendations

Table 8.14: Active Travel – Leisure Route Appraisal Summary and Recommendations

Appraisal Summary and Recommendations:	
Summary:	• This package would provide positive impacts across some of the TPOs, with minor positive impacts in terms of increasing the modal share of walking and cycling, and on promoting improved accessibility for local movements. • In terms of the STAG criteria, this package would promote overall moderate positive impacts in terms of Health, Safety and Wellbeing and Equality and Accessibility. Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the package will have both positive and negative impacts on the Environment Criterion. The package would have a minor positive impact in terms of supporting greenhouse gas emissions reductions, but elements of the proposals within the package would be vulnerable to the effects of climate change in respect of increased flood risk. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040 and NTS2. • Creating an active travel link between the leisure route and nearby housing within Dyce is considered a medium feasibility risk. This is due to the work required and environmental impact caused by formalising existing trails or creating new links along the Riverside Path. The other options within this package focus on upgrades to the surface and lighting of the existing Riverside Path – both are considered feasible. • The active travel improvements were evaluated to have medium to high risk in terms of affordability. The potential volume and complexity of the work involved to deliver the options within this package resulted in this evaluation. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Overall, there was strong support for this option concept during consultation, with widespread support for improved surfacing of the Riverside Path and support for better leisure routes in the wider area. Some environmental concerns were raised regarding lighting provision on the Riverside Path.
Recommendations:	It is recommended that all options under consideration as part of this package are progressed for further assessment.

8.4 Active Travel – Quiet Route Measures Appraisal

8.4.1 Overview

Table 8.15: Active Travel – Quiet Route Measures Overview

Active Travel – Quiet Route Measures Package	
Package Description	The Quiet Route Measures Package is a package of options aimed at active travel improvements on routes away from the main A947 and Victoria Street routes around Dyce. The focus of this package is to improve active travel provision on routes away from large volumes of traffic and provide quiet routes which may be more suitable for leisure walking and cycling or cyclists who are less confident to travel adjacent to vehicular traffic.
Package Components	The Active Travel – Quiet Route Measures package comprises a series of potential improvements, as set out below: • AT7: Review signals at Forrit Burn Road bus gate to allow cyclists access • AT24: Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport • AT25: Improve active travel connectivity between the A947 study area and Craibstone Park & Ride • AT26: Improve active travel connectivity between the A947 study area and TECA • AT27: Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate • AT32: Implement footways on the south side of the carriageway on Pitmedden Road • AT35: Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station • AT37: Implement dropped kerbs between Wellheads Drive shared use path and the carriageway • AT38: Review access restrictions on Market Street to allow for cargo bikes and recumbent cycles • AT39: Remove access controls on off-road path between Waterton Road and Ruthriehill Road • AT41: Improve active travel access to the retail park at the Bucksburn Roundabout • AT43: Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR) • AT65: Implement streetscape improvements and widened pavements along Mugiemoss Road • AT67: Widen the shared use path on the west side of Howe Moss Drive • O14: Review parking arrangements on Mugiemoss Road • O18: Consider options to reduce vehicle speeds on Bankhead Road
Cost Band	Cost estimates for each of the individual options included in this package have not been carried out at the current stage of the study. As a result, cost bands have been created to offer a preliminary range for the options within the package. Further costing work on each of the individual options will be carried out during a later stage of the study which will then provide an overall costing for the package. The cost bands are as follows: • **Low cost =** <£250,000; • **Medium cost =** £250,000 - £2,000,000; and • **High cost =** £2,000,000+. Following an initial assessment of the active travel improvements within this package, the individual options included would vary between the low and medium cost bands to deliver.

8.4.2 Context

Table 8.16: Active Travel – Quiet Route Measures Context

Context:	
Problems & Opportunities	This package could help to address the following problem and opportunity themes identified at the Case for Change stage of the study (see **Chapter 4**): • **Active Travel Infrastructure** – Whilst there is generally good provision of pedestrian infrastructure within the study area, the PICOs work identified a number of areas

Context:	
	where there is a lack of footway provision to match pedestrian desire lines. The PICOs work additionally identified a limited number of appropriate crossings for pedestrians and cyclists throughout the study area. • **Driver Behaviour** – anecdotal evidence of driver behaviour issues including vehicles travelling in excess of speed limits, ignoring cycling provision, flouting 'no entry' signs and parking on double yellow lines. • **Policy Context** – Aligns with national, regional and local transport policy to support more trips to be undertaken by sustainable modes of travel. • **Funding** – Opportunity to take advantage of Scottish Government funding for active travel infrastructure.
Interdependencies	This package has potential overlap with other option packages being considered through this study, most notably the 'Active Travel – Strategic Routes' and 'Active Travel – Leisure Route' packages which both contain measures to support a significantly improved environment for active travel users on the corridor.

8.4.3 Transport Planning Objectives

Table 8.17: Active Travel – Quiet Route Measures TPO Appraisal

Transport Planning Objectives:		
TPO1: Increase the modal share of walking on the A947 corridor for all journey types	+2	Measures included within this package would be anticipated to increase trips made by walking. The package would improve access by walking to key destinations including Aberdeen Airport, Craibstone Park and Ride, TECA, Kirkhill Industrial Estate and the retail park. Measures such as widening of pavements and increased crossing facilities are also designed to improve the experience for pedestrians and provide ease of access.
TPO2: Increase the modal share of cycling on the A947 corridor for all journey types	+2	Measures included within this package would be anticipated to increase trips made by cycling. By improving connectivity by active travel to key destinations including Aberdeen Airport, Craibstone Park and Ride, TECA, Kirkhill Industrial Estate and the retail park, the modal share of cycling could increase by connecting residential areas to places of employment and leisure.
TPO3: Increase the modal share of public transport on the A947 corridor for all journey types	0	It would not be anticipated that this package would impact the mode share of public transport in the study area and therefore this package has been assessed to have a neutral impact on TPO3.
TPO4: Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	+1	This option package is considered to have a minor positive impact against TPO4. Although the package largely concerns Quiet Route measures north to south, some options promote improved east-west connectivity, with the package overall promoting improved accessibility for local movements.
TPO5: Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	+1	It is anticipated that this package would have a minor positive impact against TPO5 as measures are included within the package to improve access to Dyce Rail Station via Bankhead Road, Wellheads Drive and Farburn Terrace by active travel. Additionally, improvements on these routes are likely to improve the accessibility of Aberdeen International Airport by active travel modes.
TPO6: Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy	0	The routes considered in this package are located away from the main A947 and Victoria Street routes and therefore would have little impact on their revised role in the new Roads Hierarchy.

8.4.4 STAG Criteria

Table 8.18: Active Travel – Quiet Route Measures STAG Criteria Appraisal

STAG Criteria:		
Environment	-1	Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the Active Travel – Quiet Route Measures package will have both positive and negative impacts on the Environment Criterion. The creation of a bound footway in existing grass verge space on the south side of the carriageway on Pitmedden Road for example may negatively impact biodiversity and habitats. Drainage and water run-off may also negatively impact the existing environment. Other measures in this package also lie in the vicinity of areas of high likelihood of flooding (10%). In addition to a subsequent detailed environmental assessment at any subsequent appraisal stage, careful design considerations that are sensitive to the natural environment will be required to mitigate any potential negative impacts.
Climate Change	0	**Greenhouse Gas Emissions** – It is considered that the options contained within this package, if implemented in combination, would generate significant modal shift towards active travel and, as a result, would lead to a reduction in greenhouse gas emissions. On this basis, the Active Travel – Quiet Route Measures package has been assessed as providing a minor positive impact against the Greenhouse Gas Emissions sub-criterion. **Vulnerability to the Effects of Climate Change** – There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947 namely Goval Burn, Far Burn and Green Burn, which measures in this package lie in the vicinity of. The measures also lie in the vicinity of the point of the River Don (Parkhill Bridge) which is susceptible to flood risk. Elements of the proposals within the Active Travel – Quiet Route Measures package are therefore highly vulnerable to the effects of climate change in respect of increased flood risk. **Potential to Adapt to the Effects of Climate Change** – The measures proposed within the Active Travel – Quiet Route Measures package are anticipated to have a neutral impact on the Potential to Adapt to the Effects of Climate Change sub-criterion.
Health, Safety and Wellbeing	+2	**Accidents** – It would be anticipated that the options included within the Active Travel – Quiet Route Measures package would result in reduced accident risk, particularly for non-motorised users. By encouraging and facilitating more active travel trips to be undertaken, safety benefits would also be anticipated due to the 'safety in numbers' effect. This principle suggests an inverse relationship between the number of active travel trips and rate of accidents i.e. more pedestrians and cyclists results in safer walking and cycling. **Security** – By encouraging and facilitating more active travel trips to be undertaken, natural surveillance will increase; this would have a minor positive impact on personal security. **Health Outcomes** – The Aberdeen City – North: Locality Plan 2021-26 includes the priority to improve the physical health and wellbeing of people. Within this priority are the aims to: • Increase % of people who walk as one mode of travel by 10% by 2023; and • Increase % of people who cycle as one mode of travel by 2% by 2023.

STAG Criteria:		
		The measures contained within the Active Travel – Quiet Route Measures package which have a focus on enabling and facilitating active travel are anticipated to contribute significantly to the above Physical Health aims for the Aberdeen North area. Therefore, it is anticipated that this package will result in a moderate positive impact on Health Outcomes. **Access to Health and Wellbeing Infrastructure** – It would be anticipated that the options included within the Active Travel – Quiet Route Measures package would result in improved access to health and wellbeing infrastructure. This would be enabled through enhancements to direct access to locations such as the Stoneywood Dyce Cricket Club, Dyce Scout Hut and Dyce Boys Club football pitches and indirect access to facilities further afield via Craibstone Park & Ride and Aberdeen International Airport. **Visual Amenity** – It would be anticipated that the options included within the Active Travel – Quiet Route Measures package would result in improved visual amenity. This would be enabled through streetscape improvements along Mugiemoss Road. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent.
Economy	+2	**Transport Economic Efficiency** – Active travel schemes which provide enhanced infrastructure have the potential to yield high economic benefits and return good value for money. Serving multiple trip and destination types including local retail and services, local key employment at Kirkhill and Wellheads Industrial Estates, and linking to A947 north and the A96, the measures contained in the Active Travel – Quiet Route Measures package would be anticipated to generate economic benefits including, but not limited to: improved journey ambience; reduced greenhouse gas emissions; reduced risk of premature death; and reduced work absenteeism. Therefore, this package is anticipated to have a major positive impact on the TEE sub-criterion. **Wider Economic Impacts** – Research shows that people who walk, wheel or cycle to shops spend more money. Connecting to the Bucksburn Roundabout retail park, the measures contained in the Active Travel – Quiet Route Measures package would be anticipated to enable and facilitate active travel journeys to local shops and services. The package also includes measures to improve active travel connectivity to the wider area through improved links to Craibstone Park & Ride and Aberdeen International Airport, thus also providing economic benefit to these connected areas. Therefore, it is anticipated that this package would have a minor positive impact on the WEI sub-criterion.
Equality and Accessibility	+2	**Public Transport Network Coverage** – Whilst the measures proposed in the Active Travel – Quiet Route Measures package include enhanced accessibility to Aberdeen International Airport and Craibstone Park & Ride, they do not directly impact network coverage. On this basis, this package is anticipated to have a neutral impact on Public Transport Network Coverage. **Active Travel Network Coverage** – The measures included in the Active Travel – Quiet Route Measures package are designed to remove existing active travel access barriers and improve facilities at various locations. Therefore, this package is anticipated to provide a moderate positive impact in terms of Active Travel Network Coverage. **Comparative Access by People Group** – The population profile of the study area has a lower proportion of working age people (62%)

STAG Criteria:		
		compared to Aberdeen City (64%), and a higher proportion of people aged 65 and over (22% and 16% respectively). For the working age majority of the local population, the measures contained within the Active Travel – Quiet Route Measures package will enable improved active travel accessibility to major local employment opportunities within locations such as Kirkhill and Wellheads Industrial Estates and Aberdeen International Airport. For the over 65 population, measures will enhance accessibility of key local services including Bucksburn Roundabout retail park. Younger people will also benefit from improved access to Dyce Scout Hut and Dyce Boys Club football pitches. It is anticipated therefore that this package will provide a moderate positive impact on Comparative Access by People Group. **Comparative Access by Geographic Location** – A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. The measures contained in the Active Travel – Quiet Route Measures package which have a focus on enabling and facilitating active travel would be anticipated to provide suitable active travel options for predominantly short to middle distance trips, as an alternative to motorised transport. This package is therefore anticipated to have a minor positive impact on Comparative Access by Geographic Location. **Affordability** – With no cost payable by the individual, walking and wheeling are the most equitable forms of transport. The cost barrier to cycling is also significantly lower than for private motor vehicles. The measures contained within the Active Travel – Quiet Route Measures package which have a focus on enabling and facilitating active travel are therefore anticipated to result in a moderate positive impact in terms of Affordability.

8.4.5 Established Policy Objectives

Table 8.19: Active Travel – Quiet Route Measures Established Policy Objectives

Established Policy Objectives
This package aligns with the following areas of local, regional and national policy: • **Local Transport Strategies** – the Aberdeenshire Local Transport Strategy (2012) and Aberdeen City Local Transport Strategy (2016-2021) aim to reduce non-sustainable journeys, increase the modal share of active travel and make travel more effective. • **Nestrans Regional Transport Strategy 2040** – supports a number of the key priorities contained in the RTS 2040 including reduced carbon emissions to support net zero; a step change in public transport and active travel enabling a 50:50 mode split; air quality that is cleaner than World Health Organisation standards for emissions from transport; and zero fatalities on the road network. • **National Transport Strategy** – supports the vision of the NTS2 of a sustainable, inclusive, safe and accessible transport system which helps to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. The NTS2 also supports the adoption of a Sustainable Travel Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use. Furthermore, the NTS Delivery Plan sets out a commitment to develop and implement a coordinated package of policy interventions to support the reduction of car kilometres by 20% by 2030.

8.4.6 Deliverability

Table 8.20: Active Travel – Quiet Route Measures Deliverability Criteria Appraisal

Deliverability		
Feasibility	Low risk	Within this package it is anticipated that the majority of the options included would have a low feasibility risk in terms of their overall implementability. The active travel improvements within the package which present a higher risk are achievable, however, they would require substantial infrastructure interventions. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of feasibility to be undertaken.
Affordability	Medium risk	The extent of affordability risk for the options in the Active Travel – Quiet Route Measures package ranges between low, medium, and high risk. Many of the active travel improvements which are proposed have a low risk in terms of affordability as they require little financial burden to implement across the study area. However, some of the broader options would require larger scale improvements across the study area and represent potential financial risk as a result. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of affordability to be undertaken.
Public Acceptability	Low risk	Overall, this option concept received strong public support during consultation, with many considering it to be a good alternative to Stoneywood Road for cyclists of all abilities and providing a safer route for children. There was general support for making use of existing infrastructure and this was noted to be more cost effective than installing new infrastructure. Concerns were raised around the impact traffic calming measures could have on commercial vehicles, particularly delivery vehicles.

8.4.7 Appraisal Summary and Recommendations

Table 8.21: Active Travel – Quiet Route Measures Appraisal Summary and Recommendations

Appraisal Summary and Recommendations:	
Summary:	• This package would provide positive impacts across most of the TPOs, particularly in terms of increasing the modal share of walking and cycling. • In terms of the STAG criteria, this package would promote overall moderate positive impacts in terms of Health, Safety and Wellbeing, Economy and Equality and Accessibility. Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the package will have both positive and negative impacts on the Environment Criterion. The package would have a minor positive impact in terms of supporting greenhouse gas emissions reductions, but elements of the proposals within the package would be vulnerable to the effects of climate change in respect of increased flood risk. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040 and NTS2. • Within this package it is anticipated that the majority of the options included would have a low feasibility risk in terms of their overall implementability. The active travel improvements within the package which present a higher risk are achievable, however, they would require substantial infrastructure interventions.

Appraisal Summary and Recommendations:	
	• Many of the active travel improvements which are proposed have a low risk in terms of affordability as they require little financial burden to implement across the study area. However, some of the broader options would require larger scale improvements across the study area and represent potential financial risk as a result. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Overall, this option concept received strong public support during consultation, with many considering it to be a good alternative to Stoneywood Road for cyclists of all abilities and providing a safer route for children. There was general support for making use of existing infrastructure and this was noted to be more cost effective than installing new infrastructure. Concerns were raised around the impact traffic calming measures could have on commercial vehicles, particularly delivery vehicles.
Recommendations:	A full breakdown of the options under consideration as part of this package, including the rationale for any specific options recommended to be removed from consideration at this stage of the appraisal is presented below: Select for further consideration • AT7: Review signals at Forrit Burn Road bus gate to allow cyclists access • AT24: Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport • AT25: Improve active travel connectivity between the A947 study area and Craibstone Park & Ride • AT26: Improve active travel connectivity between the A947 study area and TECA • AT27: Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate • AT32: Implement footways on the south side of the carriageway on Pitmedden Road • AT35: Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station • AT37: Implement dropped kerbs between Wellheads Drive shared use path and the carriageway • AT38: Review access restrictions on Market Street to allow for cargo bikes and recumbent cycles • AT39: Remove access controls on off-road path between Waterton Road and Ruthriehill Road • AT41: Improve active travel access to the retail park at the Bucksburn Roundabout • AT43: Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR) • AT65: Implement streetscape improvements and widened pavements along Mugiemoss Road • O18: Consider options to reduce vehicle speeds on Bankhead Road Remove from consideration • AT67: Widen the shared use path on the west side of Howe Moss Drive – option has limited impact against the TPOs and STAG Criteria. • O14: Review parking arrangements on Mugiemoss Road – option will be incorporated as part of Option AT65.

8.5 Public Transport – Priority Interventions Appraisal

8.5.1 Overview

Table 8.22: Public Transport – Priority Interventions Overview

Public Transport – Priority Interventions Package	
Package Description	The Public Transport – Priority Interventions Package contains seven options specifically aimed to increase public transport use within the study area. The package contains options to increase connectivity between the study area and transport hubs and key destinations as well as some options to provide bus priority.
Package Components	The Public Transport – Priority Interventions package comprises a series of potential improvements, as set out below: • PT2: Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor • PT5: Implement real time passenger information at key bus stops along the study corridor • PT9: Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport • PT10: Improve public transport connectivity between the A947 study area and Craibstone Park & Ride • PT11: Improve public transport connectivity between the A947 study area and TECA • PT12: Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate • AT22: Promote Craibstone Park & Ride as a Park & Pedal facility
Cost Band	Cost estimates for each of the individual options included in this package have not been carried out at the current stage of the study. As a result, cost bands have been created to offer a preliminary range for the options within the package. Further costing work on each of the individual options will be carried out during a later stage of the study which will then provide an overall costing for the package. The cost bands are as follows: • **Low cost =** <£250,000; • **Medium cost =** £250,000 - £2,000,000; and • **High cost =** £2,000,000+. Each of the public transport improvements would be classified in the medium cost band, prior to any design work being conducted to understand the feasibility of delivering the options.

8.5.2 Context

Table 8.23: Public Transport – Priority Interventions Context

Context:	
Problems & Opportunities	This package could help to address the following problem and opportunity themes identified at the Case for Change stage of the study (see **Chapter 4**): • **Declining Bus Patronage** – The package seeks to address the root causes of declining bus patronage by improving journey times and the difficulty in accessing destinations such as Aberdeen International Airport. • **Policy Context** – Aligns with national, regional and local transport policy to support more trips to be undertaken by sustainable modes of travel. • **Funding** – Opportunity to take advantage of Scottish Government funding for bus priority infrastructure including the £500m Bus Partnership Fund. • **Bus Service Partnerships** – Take advantage of new powers for Councils to enable greater control on the operation of bus services and enhanced partnership working arrangements under BSIPs.
Interdependencies	It is possible that options in the Public Transport – Priority interventions package cannot be implemented in combination with certain active travel or placemaking options due to physical constraints on the A947 corridor and on Victoria Street.

8.5.3 Transport Planning Objectives

Table 8.24: Public Transport – Priority Interventions TPO Appraisal

Transport Planning Objectives:		
TPO1: Increase the modal share of walking on the A947 corridor for all journey types	0	The interventions which form this package would be expected to have a neutral impact on increasing the modal share of walking.
TPO2: Increase the modal share of cycling on the A947 corridor for all journey types	0	The interventions which form this package would be expected to have a neutral impact on increasing the modal share of cycling.
TPO3: Increase the modal share of public transport on the A947 corridor for all journey types	+2	It would be expected that this option package would provide a moderate positive impact in terms of TPO3 as it contains a series of measures to connect public transport to key destinations. This would encourage more people to travel by public transport and consequently would support an increase in public transport mode share.
TPO4: Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	0	This package would be expected to have a neutral impact on improving east-west connectivity within Dyce.
TPO5: Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	+3	This package is considered to have a major positive impact against TPO5. This is due to the measures contained within the package which seek to directly implement public transport connectivity improvements between the study area and the key destinations which surround it. This will provide an alternative to private car use and thus would provide significant support for this objective.
TPO6: Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy	0	This package is considered to have a neutral impact against TPO6 overall, although may provide some minor positive impact where public transport opportunities are introduced on the tertiary route of Victoria Street, for example.

8.5.4 STAG Criteria

Table 8.25: Public Transport – Priority Interventions STAG Criteria Appraisal

STAG Criteria:		
Environment	0	Overall, it is not anticipated that the options contained within this package would have a significant impact against the Environment Criterion.
Climate Change	+1	**Greenhouse Gas Emissions** – It is considered that the options contained within this package, if implemented in combination, would generate significant modal shift towards public transport and, as a result, would lead to a reduction in greenhouse gas emissions. On this basis, the Public Transport – Priority Interventions package has been assessed as providing a minor positive impact against the Greenhouse Gas Emissions sub-criterion. **Vulnerability to the Effects of Climate Change** – Bus-based public transport is considered to be highly resilient to the effects of climate change, therefore this package is anticipated to have a minor positive impact on the Vulnerability to the Effects of Climate Change sub-criterion. **Potential to Adapt to the Effects of Climate Change** – The measures proposed within the Public Transport – Priority Interventions package are anticipated to have a neutral impact on the Potential to Adapt to the Effects of Climate Change sub-criterion.

STAG Criteria:		
Health, Safety and Wellbeing	+1	**Accidents** – It would be anticipated that the options included within the Public Transport – Priority Interventions package would result in a minor reduction in accident risk. This is due to the anticipation that measures would encourage and facilitate more public transport trips to be undertaken. Evidence suggests that public transport trips are inherently safer than private car trips. **Security** – It would be anticipated that the options included within the Public Transport – Priority Interventions package would result in a neutral impact on security. **Health Outcomes** – The Aberdeen City – North: Locality Plan 2021-26 includes the priority to improve the physical health and wellbeing of people. Within this priority are the aims to: • Increase % of people who walk as one mode of travel by 10% by 2023; and • Increase % of people who cycle as one mode of travel by 2% by 2023. Whilst the main focus of the measures contained within the Public Transport – Priority Interventions package is on promoting increased public transport use, there may be associated health benefits associated, with, for example, increased walking or cycling to access bus services. This package is therefore anticipated to have a minor positive impact on Health Outcomes. **Access to Health and Wellbeing Infrastructure** – Improved links to key transport hubs will enable improved access to health and wellbeing infrastructure outwith the study area. **Visual Amenity** – There would be no significant impacts on visual amenity associated with the interventions within the Public Transport – Priority Interventions package.
Economy	+1	**Transport Economic Efficiency** – The measures contained within the Public Transport – Priority Interventions package are anticipated to result in journey time savings for public transport users. These measures may also be anticipated to result in minor delays for private motorised trips, although further work would be needed to gauge the extent of this. Therefore, this package is anticipated to have a minor positive impact on the TEE sub-criterion overall. **Wider Economic Impacts** – The measures contained within the Public Transport – Priority Interventions package which include improved connectivity to TECA and transport hubs at Craibstone Park & Ride and Aberdeen International Airport are anticipated to encourage and enable public transport journeys for a range of trip purposes. Therefore this package is anticipated to have a minor positive impact on the WEI sub-criterion.
Equality and Accessibility	+1	**Public Transport Network Coverage** – With a focus on improving public transport connectivity between the A947 study area and key destinations, this package would have a major positive impact on Public Transport Network Coverage. **Active Travel Network Coverage** – This package is anticipated to provide a neutral impact on Active Travel Network Coverage overall, though some measures, such as real time passenger information at key bus stops, could support increased walking or cycling to access bus services but network coverage will not be enhanced to any significant degree. **Comparative Access by People Group** – The population profile of the study area has a lower proportion of working age people (62%) compared to Aberdeen City (64%), and a higher proportion of people

STAG Criteria:		
		aged 65 and over (22% and 16% respectively). For the working age majority of the local population, the measures contained within the Public Transport – Priority Interventions package will enable improved public transport accessibility to major local employment opportunities within locations such as Kirkhill and Wellheads Industrial Estates. For the over 65 population, measures will directly enhance accessibility of key facilities such as TECA. It is anticipated therefore that this package would have a moderate positive impact in terms of Comparative Access by People Group. **Comparative Access by Geographic Location** – A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. Improving public transport connectivity to and from the A947 study area would therefore be anticipated to provide a moderate positive impact in terms of Comparative Access by Geographic Location. **Affordability** – This package would have no direct impact on affordability for users – however, there may be examples of cost savings for individuals who switch from private motorised transport to public transport as a result of the interventions.

8.5.5 Established Policy Objectives

Table 8.26: Public Transport – Priority Interventions Established Policy Objectives

Established Policy Objectives
This package aligns with the following areas of local, regional and national policy: • **Local Transport Strategies** – the Aberdeenshire Local Transport Strategy (2012) and Aberdeen City Local Transport Strategy (2016-2021) aim to reduce non-sustainable journeys, increase the modal share of public transport and make travel more effective. • **Nestrans Regional Transport Strategy 2040** – supports a number of the key priorities contained in the RTS 2040 including reduced carbon emissions to support net zero; a step change in public transport and active travel enabling a 50:50 mode split; air quality that is cleaner than World Health Organisation standards for emissions from transport; and improved journey efficiencies to enhance connectivity. • **North East Bus Alliance** – the North East Bus Alliance was formed in 2018 as a voluntary partnership of Nestrans, ACC, Aberdeenshire Council, First Bus Aberdeen, Stagecoach, and Bains Coaches. The overarching aims of the Alliance are to arrest the decline in bus patronage in the North East of Scotland by 2022 and to achieve year on year growth in bus patronage to 2025. Sub-objectives also exist around increasing modal share of bus patronage, improving operational performance and customer satisfaction, reducing bus emissions, and improving service accessibility. • **National Transport Strategy** – supports the vision of the NTS2 of a sustainable, inclusive, safe and accessible transport system which helps to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. The NTS2 also supports the adoption of a Sustainable Travel Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use. Furthermore, the NTS Delivery Plan sets out a commitment to develop and implement a coordinated package of policy interventions to support the reduction of car kilometres by 20% by 2030.

8.5.6 Deliverability

Table 8.27: Public Transport – Priority Interventions Deliverability Criteria Appraisal

Deliverability		
Feasibility	High risk	The feasibility of the options within this package have been assessed to understand any potential risks which may impact their deliverability. The feasibility of five of the package components have been assessed as high risk, creating concerns about their implementability. These are considered as high risk due to the requirement for wider stakeholder consultation to be carried out and potentially having to be delivered in partnership with public transport operators. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further
Affordability	Medium risk	All of the improvements included in this package have been identified as a medium risk in terms of affordability as part of the implementability criteria. The options outlined involve extensive reviews and improvements of existing public transport throughout various sections of the study area and may present a financial burden in order to deliver each of the options. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of feasibility to be undertaken.
Public Acceptability	Low risk	Consultation highlighted existing poor public transport connections between Dyce and Aberdeen International Airport, TECA and Danestone and some respondents stated they would welcome and directly benefit from better public transport links between Dyce, the airport and TECA. Some respondents felt active travel measures should be prioritised over public transport.

8.5.7 Appraisal Summary and Recommendations

Table 8.28: Public Transport - Priority Interventions Appraisal Summary and Recommendations

Appraisal Summary and Recommendations:	
Summary:	• With regards the TPOs, this package would provide positive impacts in terms of increasing public transport modal share and improving accessibility to key transport hubs and key destinations. • In terms of the STAG criteria, this package would promote minor positive impacts across the majority of the criteria. Within the Equality and Accessibility Criterion, this package would have a major positive impact on Public Transport Network Coverage. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040, NTS2 and the overarching aims of the North East Bus Alliance. • The feasibility of five of the package components have been assessed as high risk, creating concerns about their implementability. These are considered as high risk due to the requirement for wider stakeholder consultation to be carried out and potentially having to be delivered in partnership with public transport operators. • All of the improvements included in this package have been identified as a medium risk in terms of affordability as part of the implementability criteria. The options outlined involve extensive reviews and improvements of existing public transport throughout various sections of the study area and may present a financial burden in order to deliver each of the options.

Appraisal Summary and Recommendations:	
	• More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Consultation highlighted existing poor public transport connections between Dyce and Aberdeen International Airport, TECA and Danestone and some respondents stated they would welcome and directly benefit from better public transport links between Dyce, the airport and TECA. Some respondents felt active travel measures should be prioritised over public transport.
Recommendations:	It is recommended that all options under consideration as part of this package are progressed for further assessment.

8.6 Placemaking – Living Streets Appraisal

8.6.1 Overview

Table 8.29: Placemaking – Living Streets Overview

Placemaking – Living Streets Package	
Package Description	The Placemaking – Living Streets package is formed of 12 options from the active travel and other categories. The focus of this package is to enhance the sense of place within the study area by providing a better environment for active travel, providing better access to key locations by non-car modes and reducing the prominence of private cars in certain places within the study area. This package has a particular focus on Victoria Street given its revised position within the new Roads Hierarchy.
Package Components	The Placemaking – Living Streets package comprises a series of potential improvements, as set out below: • AT3: Review layout of Victoria Street/Pitmedden Road junction for pedestrians • AT17: Implement signalised crossing facility on Victoria Street adjacent to Tesco • AT33: Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road • AT61: Implement shared use path on Victoria Street • O1: Increase enforcement of stopping restrictions on Victoria Street, specifically adjacent to Tesco • O2: Review the layout of the Victoria Street/Skene Place Junction • O11: Undertake a review of parking arrangements on Victoria Street • O12: Implement signage to encourage reverse parking at the shops on Victoria Street • O15: Introduce placemaking and gateway features on Victoria Street • O16: Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce • O25: Implement access only restrictions for general traffic on Victoria Street • O26: Implement one-way restrictions for general traffic on Victoria Street
Cost Band	Cost estimates for each of the individual options included in this package have not been carried out at the current stage of the study. As a result, cost bands have been created to offer a preliminary range for the options within the package. Further costing work on each of the individual options will be carried out during a later stage of the study which will then provide an overall costing for the package. The cost bands are as follows: • **Low cost =** <£250,000; • **Medium cost =** £250,000 - £2,000,000; and • **High cost =** £2,000,000+. The options within this package range between the low, medium, and high cost bands. The cost of implementing a shared use path along the full length of Victoria Street is considered in the high cost band due to the number of practical challenges which are recognised in delivering this option.

8.6.2 Context

Table 8.30: Placemaking – Living Streets Context

Context:	
Problems & Opportunities	This package could help to address the following problem and opportunity themes identified at the Case for Change stage of the study (see **Chapter 4**): • **Active Travel Infrastructure** – Options contained within this package address the inconsistent pedestrian infrastructure in parts of the study area and add crossing facilities. They also seek to address the lack of quality cycling infrastructure. • **Policy Context** – Aligns with national, regional and local transport policy to support more trips to be undertaken by sustainable modes of travel. • **Funding** – Opportunity to take advantage of Scottish Government funding for active travel infrastructure. • **20-minute Neighbourhood** – Package would apply placemaking principles associated with '20-minute Neighbourhoods' to capitalise on the walkability of Dyce.
Interdependencies	This package has potential overlap with other option packages being considered through this study, most notably the 'Placemaking – Complementary Measures' package. There is also significant crossover between this package and the three Active Travel packages as all packages aim to improve active travel provision and facilitate modal shift to active travel.

8.6.3 Transport Planning Objectives

Table 8.31: Placemaking – Living Streets TPO Appraisal

Transport Planning Objectives:		
TPO1: Increase the modal share of walking on the A947 corridor for all journey types	+2	This package would be anticipated to provide a moderate positive impact against TPO1 as it proposes infrastructure upgrades to the walking infrastructure around Victoria Street including shared use paths and improved crossing facilities. Furthermore, the options to reduce the dominance of vehicles on Victoria Street would create a more pleasant environment for encouraging walking trips.
TPO2: Increase the modal share of cycling on the A947 corridor for all journey types	+2	This package would be anticipated to provide a moderate positive impact against TPO2. The package provides improved infrastructure for active travel including improved paths and crossing facilities and restrictions on vehicle movements would create a more pleasant environment for active travel. Connections to Dyce Rail Station would help to facilitate multi-modal trips, including those involving cycling.
TPO3: Increase the modal share of public transport on the A947 corridor for all journey types	0	It would not be anticipated that this package would impact the mode share of public transport in the study area and therefore this package has been assessed to have a neutral impact on TPO3.
TPO4: Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	+2	This package would be anticipated to provide a moderate positive impact against TPO4. Options included within the package such as improved crossing points on Victoria Street, connections between Dyce Rail Station and the A947 and the implementation of 20-neighbourhoods all enhance east to west connectivity within the area and promote improved accessibility within Dyce.
TPO5: Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	+1	This package would be anticipated to provide a minor positive impact against TPO5 due to the improvement in links between the rest of Dyce and Dyce Rail Station by non-car modes. As the placemaking interventions are largely focused around Dyce itself, particularly around Victoria Street, the package would not be anticipated to bring significant enhancements in access to other key transport hubs and key destinations.
TPO6: Ensure the main routes through the Study Area function in accordance	+3	This package is considered to provide a major positive impact against TPO6. Victoria Street has a revised role in the new Roads Hierarchy and placemaking interventions on Victoria Street would promote greater active travel use in the area, with the package components typically

Transport Planning Objectives:		
with their role in the revised Roads Hierarchy		reflective of interventions that may be expected on a tertiary route in the revised hierarchy.

8.6.4 STAG Criteria

Table 8.32: Placemaking – Living Streets STAG Criteria Appraisal

STAG Criteria:		
Environment	0	Overall, it is not anticipated that the options contained within this package would have a significant impact against the Environment Criterion, though there may be some local air quality benefits associated with the removal of vehicular traffic from the Victoria Street area.
Climate Change	0	**Greenhouse Gas Emissions** – It is considered that the options contained within this package, if implemented in combination, would generate significant modal shift towards active travel and as a result, lead to a reduction in greenhouse gas emissions. On this basis, the Placemaking – Living Streets package has been assessed as providing a minor positive impact against the Greenhouse Gas Emissions sub-criterion. **Vulnerability to the Effects of Climate Change** – There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947 namely Far Burn, which is centrally located and runs west-east crossing Victoria Street. Elements of the proposals within the Placemaking – Living Streets package are therefore vulnerable to the effects of climate change in respect of increased flood risk. **Potential to Adapt to the Effects of Climate Change** – The measures proposed within the Placemaking – Living Streets package are anticipated to have a neutral impact on the Potential to Adapt to the Effects of Climate Change sub-criterion.
Health, Safety and Wellbeing	+2	**Accidents** – It would be anticipated that the options included within the Placemaking – Living Streets package would result in reduced accident risk, particularly for non-motorised users. This is due to the package including active travel infrastructure enhancements such as reduced crossing widths / tightened corner radii, formal crossing facilities and shared use facilities. Traffic management elements such as access restrictions and signage to encourage reverse parking on Victoria Street would further be anticipated to reduce accident risk. By encouraging and facilitating more active travel trips to be undertaken, safety benefits would also be anticipated due to the 'safety in numbers' effect. This principle suggests an inverse relationship between the number of active travel trips and rate of accidents i.e. more pedestrians and cyclists results in safer walking and cycling. **Security** – By encouraging and facilitating more active travel trips to be undertaken, natural surveillance will increase; this would have a minor positive impact on personal security. **Health Outcomes** – The Aberdeen City – North: Locality Plan 2021-26 includes the priority to improve the physical health and wellbeing of people. Within this priority are the aims to: • Increase % of people who walk as one mode of travel by 10% by 2023; and • Increase % of people who cycle as one mode of travel by 2% by 2023. The measures contained within the Placemaking – Living Streets package which have a focus on enabling and facilitating active travel are anticipated to contribute significantly to the above Physical Health aims for the Aberdeen North area. Therefore, it is anticipated that this package will result in a moderate positive impact on Health Outcomes.

STAG Criteria:		
		Access to Health and Wellbeing Infrastructure – It would be anticipated that the options included within the Placemaking – Living Streets package would result in improved access to health and wellbeing infrastructure. Improved links to Dyce Rail Station would enable access to health and wellbeing infrastructure outwith the study area, as well as enabling access to assets such as the F&B Way for users travelling from outwith the study area. **Visual Amenity** – It would be anticipated that the options included within the Placemaking – Living Streets package would have a moderate positive impact on visual amenity, specifically through introduction of placemaking and gateway features on Victoria Street. In addition, by encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent.
Economy	+2	**Transport Economic Efficiency** – Active travel schemes which provide enhanced infrastructure have the potential to yield high economic benefits and return good value for money. The measures contained in the Placemaking – Living Streets package would be anticipated to generate economic benefits including, but not limited to, improved journey ambience, reduced greenhouse gas emissions, reduced risk of premature death and reduced work absenteeism. Therefore, this package is anticipated to have a moderate positive impact on the TEE sub-criterion. **Wider Economic Impacts** – Research shows that people who walk, wheel or cycle to shops spend more money. Centred around Victoria Street which represents the high street in Dyce, the measures contained in the Placemaking – Living Streets package would be anticipated to enable and facilitate active travel journeys to local shops and services. Therefore, it is anticipated that this package would have a minor positive impact on the WEI sub-criterion.
Equality and Accessibility	+2	**Public Transport Network Coverage** – Whilst the measures proposed in the Placemaking – Living Streets package include enhanced accessibility of Dyce Rail Station, they do not directly impact on network coverage. On this basis, this package is anticipated to have a neutral impact on Public Transport Network Coverage. **Active Travel Network Coverage** – The 20-minute neighbourhood concept allows people to meet most of their everyday needs by a short, convenient, and pleasant 20-minute return walk or cycle from their home. The aim is to reduce the volume and speed of traffic and improve accessibility for local people to walk, wheel and spend time outdoors in their community. This is to be achieved within a 20-minute walk (approximately 800m). In combination with the new and enhanced active travel infrastructure proposed as part of the Placemaking – Living Streets package, this package is anticipated to result in a major positive impact on Active Travel Network Coverage. **Comparative Access by People Group** – The population profile of the study area has a lower proportion of working age people (62%) compared to Aberdeen City (64%), and a higher proportion of people aged 65 and over (22% and 16% respectively). For the working age majority of the local population, the measures contained within the Placemaking – Living Streets package will enable improved active travel accessibility to both local employment opportunities within Dyce and those further afield via improved links to Dyce Rail Station. For the over 65 population, the measures will enhance accessibility of key local services and those further afield via rail. Primary school aged children

STAG Criteria:		
		will also benefit from the measures including improved active travel links between Dyce Rail Station and the eastern section of Dyce which will result in improved access to Dyce Primary School. It is anticipated therefore that this package will result in a moderate positive impact on Comparative Access by People Group. **Comparative Access by Geographic Location** – A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. The measures contained in the Placemaking – Living Streets package which have a focus on enabling and facilitating active travel would be anticipated to provide suitable active travel options for predominantly local trips, as an alternative to motorised transport. This package is therefore anticipated to have a minor positive impact on Comparative Access by Geographic Location. **Affordability** – With no cost payable by the individual, walking and wheeling are the most equitable forms of transport. The cost barrier to cycling is also significantly lower than for private motor vehicles. The measures contained within the Placemaking – Living Streets package which have a focus on enabling and facilitating active travel are therefore anticipated to result in a moderate positive impact in terms of Affordability.

8.6.5 Established Policy Objectives

Table 8.33: Placemaking – Living Streets Established Policy Objectives

Established Policy Objectives
This package aligns with the following areas of local, regional and national policy: • **Local Transport Strategies** – the Aberdeenshire Local Transport Strategy (2012) and Aberdeen City Local Transport Strategy (2016-2021) aim to reduce non-sustainable journeys, increase the modal share of active travel and make travel more effective. • **Nestrans Regional Transport Strategy 2040** – supports a number of the key priorities contained in the RTS 2040 including reduced carbon emissions to support net zero; a step change in public transport and active travel enabling a 50:50 mode split; air quality that is cleaner than World Health Organisation standards for emissions from transport; and zero fatalities on the road network. • **National Transport Strategy** – supports the vision of the NTS2 of a sustainable, inclusive, safe and accessible transport system which helps to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. The NTS2 also supports the adoption of a Sustainable Travel Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use. Furthermore, the NTS Delivery Plan sets out a commitment to develop and implement a coordinated package of policy interventions to support the reduction of car kilometres by 20% by 2030. • **National Planning Framework** – strongly aligns with the draft NPF4, which promotes the concept of 20-minute neighbourhoods and the adoption of the Place Principle.

8.6.6 Deliverability

Table 8.34: Placemaking – Living Streets Deliverability Criteria Appraisal

Deliverability		
Feasibility	Medium risk	The extent of feasibility risk for options in the Placemaking – Living Streets package ranges between low and medium. Options have been classified as a medium risk for a number of factors such as cross-sectional width constraints and impacts they would have for different road users. Options classified as having a low risk to overall implementability have minor impacts such as upgrading existing features within the study area. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of feasibility to be undertaken.
Affordability	Medium risk	The affordability risks associated with the options within this package vary between low, medium, and high. The highest risk has been identified as the proposal to implement a shared use path along Victoria Street. Despite being assessed as feasible, the variability of the existing road corridor along Victoria Street presents a number of constraints which may present a financial burden. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of affordability to be undertaken.
Public Acceptability	Low risk	Overall, this option concept received a mixed response with some welcoming improvements in the centre of Dyce, which could make it more attractive, helping encourage active travel and fostering greater community spirit. However, there were concerns raised about access to properties, impact on cross-Dyce journeys and a lack of clarity on what the option concept would entail.

8.6.7 Appraisal Summary and Recommendations

Table 8.35: Placemaking – Living Streets Appraisal Summary and Recommendations

Appraisal Summary and Recommendations:	
Summary:	• This package would provide positive impacts across the majority of the TPOs. In particular, it would provide a major positive impact in terms of ensuring the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy. • In terms of the STAG criteria, this package would promote moderate positive impacts in terms of Health, Safety and Wellbeing, Economy and Equality and Accessibility. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040, NTS2 and the draft NPF4. • The extent of feasibility risk for options in the Placemaking – Living Streets package range between low and medium. Options have been classified as a medium risk for a number of factors such as cross-sectional width constraints and impacts they would have for different road users. Options classified as having a low risk to overall implementability have minor impacts such as upgrading existing features within the study area. • The affordability risks associated with the options within this package vary between low, medium, and high. The highest risk has been identified as the proposal to implement a shared use path along Victoria Street. Despite being assessed as feasible, the variability of the existing road corridor along Victoria Street presents a number of constraints which may present a financial burden.

Appraisal Summary and Recommendations:	
	• More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Overall, this option concept received a mixed response with some welcoming improvements in the centre of Dyce, which could make it more attractive, helping encourage active travel and fostering greater community spirit. However, there were concerns raised about access to properties, impact on cross-Dyce journeys and a lack of clarity on what the option concept would entail.
Recommendations:	It is recommended that all options under consideration as part of this package are progressed for further assessment.

8.7 Placemaking – Complementary Measures Appraisal

8.7.1 Overview

Table 8.36: Placemaking – Complementary Measures Overview

Placemaking – Complementary Measures Package	
Package Description	A series of supporting placemaking measures such as village greens, landmarks and gateway signage within Dyce could help to recognise the area as a community by encouraging a reduction of vehicle speeds, providing areas for residents to socialise and highlighting local areas of significance.
Package Components	The Placemaking – Complementary Measures package comprises a series of potential improvements, as set out below: • AT21: Implement cycle parking at key trip attractors in the study area • AT23: Implement a bike hire scheme within Dyce • AT42: Review access to the F&B Way from within Dyce • AT68: Conduct a review of wayfinding signage throughout the study area • O24: Implement electric vehicle charging points at key locations within Dyce
Cost Band	Cost estimates for each of the individual options included in this package have not been carried out at the current stage of the study. As a result, cost bands have been created to offer a preliminary range for the options within the package. Further costing work on each of the individual options will be carried out during a later stage of the study which will then provide an overall costing for the package. The cost bands are as follows: • **Low cost =** <£250,000; • **Medium cost =** £250,000 - £2,000,000; and • **High cost =** £2,000,000+. The cost of delivering the options in this package ranges between the low and medium cost bands. The highest costing option is the proposal to introduce electric vehicle charging points at key locations throughout Dyce. Further stakeholder engagement will identify the quantity of charging points to be installed, allowing a more precise cost estimate to be obtained at a later stage.

8.7.2 Context

Table 8.37: Placemaking – Complementary Measures Context

Context:	
Problems & Opportunities	This package could help to address the following problem and opportunity themes identified at the Case for Change stage of the study (see **Chapter 4**): • **Active Travel Infrastructure –** Options contained within this package include those to address the lack of quality supporting cycling infrastructure. • **Policy Context –** Aligns with national, regional and local transport policy to support more trips to be undertaken by sustainable modes of travel. • **Funding –** Opportunity to take advantage of Scottish Government funding for active travel infrastructure.

Context:	
	• **20-minute Neighbourhood** – Package would apply placemaking principle associated with '20-minute Neighbourhoods' to capitalise on the walkability of Dyce.
Interdependencies	This package has potential overlap with other option packages being considered through this study, most notably the 'Placemaking – Living Streets' package. There is also significant crossover between this package and the three Active Travel package as all packages aim to improve active travel provision and facilitate modal shift to active travel.

8.7.3 Transport Planning Objectives

Table 8.38: Placemaking – Complementary Measures TPO Appraisal

Transport Planning Objectives:		
TPO1: Increase the modal share of walking on the A947 corridor for all journey types	+1	It would be anticipated that this package would have a minor positive impact against TPO1. Improving access to the F&B Way has the potential to increase walking trips for a variety of journey types.
TPO2: Increase the modal share of cycling on the A947 corridor for all journey types	+2	It would be anticipated that this package would have a moderate positive impact against TPO2. The package proposes measures to increase accessibility of cycling such as cycle parking and a bike hire scheme as well as reviewing access to the F&B Way and wayfinding signage in the study area.
TPO3: Increase the modal share of public transport on the A947 corridor for all journey types	0	It would not be anticipated that this package would impact the mode share of public transport in the study area and therefore this package has been assessed to have a neutral impact on TPO3.
TPO4: Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	+1	This package would be anticipated to have a minor positive impact against TPO4. The implementation of wayfinding signage would promote improved accessibility for local movements. The implementation of cycle parking and a bike hire scheme would also provide greater incentives for those who live in Dyce to access local facilities by cycling.
TPO5: Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	+2	This package would be anticipated to have a moderate positive impact against TPO5. It would provide cycle parking at key trip attractors, improving the accessibility of the sites for cyclists. Wayfinding signage will also aid accessibility to key destinations close to the study area. Electric vehicle charging points will also encourage more sustainable vehicular access to these sites.
TPO6: Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy	0	The options proposed in this package would have a limited impact on this TPO overall but may complement aspects of the Placemaking – Living Streets package, which performs strongly against this objective.

8.7.4 STAG Criteria

Table 8.39: Placemaking – Complementary Measures STAG Criteria Appraisal

STAG Criteria:		
Environment	0	Overall, it is not anticipated that the options contained within this package would have a significant impact against the Environment Criterion.
Climate Change	0	**Greenhouse Gas Emissions** – It is considered that the options contained within this package, if implemented in combination, could generate modal shift towards active travel and, as a result, would lead to a minor reduction in greenhouse gas emissions. EV charging facilities at key locations within Dyce would also enable journeys to be shifted from fossil fuel powered private cars, to battery powered electric. On this basis, the Placemaking – Complementary Measures package has been

STAG Criteria:		
		assessed as providing a minor positive impact against the Greenhouse Gas Emissions sub-criterion. **Vulnerability to the Effects of Climate Change** – There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947 namely Far Burn, which is centrally located and runs west-east crossing Victoria Street. Elements of the proposals within the Placemaking – Complementary Measures package are therefore vulnerable to the effects of climate change in respect of increased flood risk. **Potential to Adapt to the Effects of Climate Change** – The measures proposed within the Placemaking – Complementary Measures package are anticipated to have a neutral impact on the Potential to Adapt to the Effects of Climate Change sub-criterion.
Health, Safety and Wellbeing	+2	**Accidents** – By encouraging and facilitating more active travel trips to be undertaken, safety benefits would be anticipated due to the 'safety in numbers' effect. This principle suggests an inverse relationship between the number of active travel trips and rate of accidents i.e. more pedestrians and cyclists results in safer walking and cycling. **Security** – It would be anticipated that the options included within the Placemaking – Complementary Measures package would result in a minor positive impact on security, due to the implementation of cycle parking facilities at key trip attractors. Additionally, by encouraging and facilitating more active travel trips to be undertaken, natural surveillance will increase; this would have a minor positive impact on personal security. **Health Outcomes** – The Aberdeen City – North: Locality Plan 2021-26 includes the priority to improve the physical health and wellbeing of people. Within this priority are the aims to: • Increase % of people who walk as one mode of travel by 10% by 2023; and • Increase % of people who cycle as one mode of travel by 2% by 2023. The measures contained within the Placemaking – Complementary Measures package which have a focus on enabling and facilitating active travel are anticipated to contribute significantly to the above Physical Health aims for the Aberdeen North area. Therefore, it is anticipated that this package will result in a moderate positive impact on Health Outcomes. **Access to Health and Wellbeing Infrastructure** – It would be anticipated that the options included within the Placemaking – Complementary Measures package would result in improved access to health and wellbeing infrastructure. This would be enabled through reviewing access to assets such as the long-distance F&B Way. **Visual Amenity** – By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent.
Economy	+1	**Transport Economic Efficiency** – Active travel schemes which provide enhanced infrastructure have the potential to yield high economic benefits and return good value for money. The measures contained in the Placemaking – Complementary Measures package would be anticipated to generate economic benefits including, but not limited to, improved journey ambience, potentially reduced greenhouse gas emissions, reduced risk of premature death and reduced work absenteeism.

STAG Criteria:		
		Therefore, this package is anticipated to have a minor positive impact on the TEE sub-criterion. **Wider Economic Impacts** – Tourism is a vital part of the Scottish economy. Within this, 'cycle tourism' is a growing sector. The measures contained in the Placemaking – Complementary Measures package, which include reviewing access to the long-distance F&B Way, would be anticipated to result in increased recreational use and in turn increased spending at local retailers / services from recreational users. Therefore, this package is anticipated to have a minor positive impact on the WEI sub-criterion.
Equality and Accessibility	+2	**Public Transport Network Coverage** – The measures proposed in the Placemaking – Complementary Measures package do not directly impact public transport network coverage. On this basis, this package is anticipated to have a neutral impact on this sub-criterion. **Active Travel Network Coverage** – The measures included in the Placemaking – Complementary Measures package including the implementation of cycle parking facilities at key trip attractors in the study area and a bike hire scheme within Dyce are anticipated to result in a moderate positive impact on Active Travel Network Coverage. **Comparative Access by People Group** – The population profile of the study area has a lower proportion of working age people (62%) compared to Aberdeen City (64%), and a higher proportion of people aged 65 and over (22% and 16% respectively). For the working age majority of the local population, the measures contained within the Placemaking – Complementary Measures package will enable improved active travel accessibility to local employment opportunities within Dyce. For the over 65 population, the measures will enhance accessibility of key local services. It is anticipated therefore that this package would provide a moderate positive impact in terms of Comparative Access by Geographic Location. **Comparative Access by Geographic Location** – A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. The measures contained in the Placemaking – Complementary Measures package which have a focus on enabling and facilitating active travel would be anticipated to provide suitable active travel options for predominantly local trips, as an alternative to motorised transport. This package is therefore anticipated to have a minor positive impact on Comparative Access by Geographic Location. **Affordability** – With no cost payable by the individual, walking and wheeling are the most equitable forms of transport. The cost barrier to cycling is also significantly lower than for private motor vehicles. The measures contained within the Placemaking – Complementary Measures package which have a focus on enabling and facilitating active travel are therefore anticipated to result in a minor positive impact in terms of Affordability.

8.7.5 Established Policy Objectives

Table 8.40: Placemaking – Complementary Measures Established Policy Objectives

Established Policy Objectives
This package aligns with the following areas of local, regional and national policy: • **Local Transport Strategies** – the Aberdeenshire Local Transport Strategy (2012) and Aberdeen City Local Transport Strategy (2016-2021) aim to reduce non-sustainable journeys, increase the modal share of active travel and make travel more effective.

Established Policy Objectives
• **Nestrans Regional Transport Strategy 2040** – supports a number of the key priorities contained in the RTS 2040 including reduced carbon emissions to support net zero; a step change in public transport and active travel enabling a 50:50 mode split; air quality that is cleaner than World Health Organisation standards for emissions from transport; and zero fatalities on the road network. • **National Transport Strategy** – supports the vision of the NTS2 of a sustainable, inclusive, safe and accessible transport system which helps to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. The NTS2 also supports the adoption of a Sustainable Travel Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use. Furthermore, the NTS Delivery Plan sets out a commitment to develop and implement a coordinated package of policy interventions to support the reduction of car kilometres by 20% by 2030. • **National Planning Framework** – strongly aligns with the draft NPF4, which promotes the concept of 20-minute neighbourhoods and the adoption of the Place Principle.

8.7.6 Deliverability

Table 8.41: Placemaking – Complementary Measures Deliverability Criteria Appraisal

Deliverability		
Feasibility	Medium risk	The extent of feasibility risk for the options in the Placemaking – Complementary Measures package is low to medium. The low-risk options involve improvements to existing features within the study area which are considered achievable. The medium-risk options focus on the implementation of new schemes and infrastructure throughout the A947 study area. The risk to delivering these options is higher due to the wider stakeholder engagement required to deliver them. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of feasibility to be undertaken.
Affordability	Medium risk	The extent of affordability risk in this package varies from low to medium. Similar to feasibility, the options with a low affordability risk involve upgrades to existing locations/features within Dyce. Classification of the medium-risk options is due to the introduction of new infrastructure or schemes. Further detail on individual options is provided in the *Option Generation, Sifting & Development Technical Note* included in **Appendix C**. In addition, more detailed appraisal will enable further assessment of affordability to be undertaken.
Public Acceptability	Low risk	There was support for better cycle parking at key trip attractors during consultation. As noted in the Placemaking – Living Streets package appraisal, there was generally strong support for making the centre of Dyce more attractive and easier to access by active travel, which the measures in this package would support.

8.7.7 Appraisal Summary and Recommendations

Table 8.42: Placemaking – Complementary Measures Appraisal Summary and Recommendations

Appraisal Summary and Recommendations:	
Summary:	• This package would provide positive impacts across the majority of the TPOs. In particular, it would provide a moderate positive impact on increasing the modal share of cycling and improving accessibility to key transport hubs and key destinations by non-car modes.

Appraisal Summary and Recommendations:	
	• In terms of the STAG criteria, this package would promote moderate positive impacts in terms of Health, Safety and Wellbeing and Equality and Accessibility. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040, NTS2 and the draft NPF4. • The extent of feasibility risk for the options in the Placemaking – Complementary Measures package is low to medium. The low-risk options involve improvements to existing features within the study area which are considered achievable. The medium-risk options focus on the implementation of new schemes and infrastructure throughout the A947 study area. The risk to delivering these options is higher due to the wider stakeholder engagement required to deliver them. • The extent of affordability risk in this package varies from low to medium. Similar to feasibility, the options with a low affordability risk involve upgrades to existing locations/features within Dyce. Classification of the medium-risk options is due to the introduction of new infrastructure or schemes. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • There was support for better cycle parking at key trip attractors during consultation. As noted in the Placemaking – Living Streets package appraisal, there was generally strong support for making the centre of Dyce more attractive and easier to access by active travel.
Recommendations:	It is recommended that all options under consideration as part of this package are progressed for further assessment.

8.8 Identification of 'Quick Wins'

As study options have been developed, and packages assembled, it has become clear that there are several options which, if brought forward for early implementation, could offer ACC 'quick win' opportunities on the corridor that complement the overall aims and objectives of the study. These options are shown in the table below.

Table 8.43: 'Quick Win' Opportunities on the Corridor

Active Travel – Strategic Routes	
AT1	Provide protected junction for active travel users at the A947/A90 slip road junction
AT2	Improve visibility for cyclists at the B977/A90 slip road roundabout
AT10	Widen on-road advisory cycle lane on Riverview Drive
AT11	Implement missing sections of on-road advisory cycle lane on Riverview Drive
AT12	Widen on-road advisory cycle lane on Stoneywood Road at Stoneywood Park junction
AT28	Implement dropped kerbs for cyclists to transfer between the carriageway and pavement at the northbound bus stop on the A947, north of the River Don
Active Travel – Quiet Route Measures	
AT7	Review signals at Forrit Burn Road bus gate to allow cyclists access
AT37	Implement dropped kerbs between Wellheads Drive shared use path and the carriageway
AT38	Review access restrictions on Market Street to allow for cargo bikes and recumbent cycles
AT39	Remove access controls on off-road path between Waterton Road and Ruthriehill Road
Public Transport – Priority Interventions	
AT22	Promote Craibstone Park & Ride as a Park & Pedal facility
Placemaking – Living Streets	
O1	Increase enforcement of stopping restrictions on Victoria Street, specifically adjacent to Tesco
O12	Implement signage to encourage reverse parking at the shops on Victoria Street
Placemaking – Complementary Measures	
AT21	Implement cycle parking at key trip attractors in the study area

While Options AT10, AT11 and AT12 could be delivered as 'quick wins', on-road cycling infrastructure is not shown to influence modal shift and therefore it is considered that segregated cycling infrastructure should be promoted as

part of this study. However, these options may provide interim opportunities to improve on-road cycling infrastructure in advance of further consideration of segregation in the study area.

A full assessment of the remaining ‘quick win’ options has not been undertaken in the context of the appraisal criteria. However, each of these options would provide support for the TPOs, and, taking into consideration the scope of each of these options, it is considered that there are early opportunities for ACC to progress these measures to delivery. These measures can be progressed in isolation of any more detailed option development beyond this appraisal. However, in due course, these measures would themselves complement any packages or options ultimately delivered following more detailed work.

9. Summary and Next Steps

9.1 Introduction

This study has set out a Scottish Transport Appraisal Guidance (STAG)-based appraisal of options for improving transport connections (particularly public transport and active travel connections) along the A947 corridor between the Aberdeen Western Peripheral Route (AWPR) Parkhill Junction and the A96/A947 Junction. This report has:

- Set out the background context of the study, including the policy, geographic, socio-economic, transport, development, and environmental context for the work;
- Provided an overview of the public and stakeholder engagement exercises that were undertaken as part of this study in Autumn 2021 and Summer 2022;
- Confirmed the problems, issues, constraints and opportunities providing focus for the study;
- Established the TPOs directing the appraisal;
- Set out the process of option generation, sifting, and development; and
- Appraised the developed packages of options in accordance with the TPOs, established policy objectives and STAG and deliverability criteria.

9.2 Appraisal Outcomes: Active Travel – Strategic Routes

The Active Travel – Strategic Routes package includes segregated cycling infrastructure along the A947 between the AWPR Junction and Bucksburn Roundabout (A947/A96 Junction). This would provide a safer cycling environment on the main route through Dyce to help encourage cycling for everyday journeys.

The Active Travel – Strategic Routes appraisal outcomes are as follows:

Table 9.1: Active Travel – Strategic Routes Appraisal Summary

Appraisal Summary: Active Travel – Strategic Routes	
Summary:	• This package would provide positive impacts across the majority of the TPOs, particularly in terms of increasing the modal share of cycling on the A947 corridor for all journey types and ensuring the main routes through the study area function in accordance with their role in the revised Roads Hierarchy. • In terms of the STAG criteria, this package would promote overall moderate positive impacts in terms of Health, Safety and Wellbeing, Economy and Equality and Accessibility. Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the package will have both positive and negative impacts on the Environment Criterion. The package would have a minor positive impact in terms of supporting greenhouse gas emissions reductions, but elements of the proposals within the package would be vulnerable to the effects of climate change in respect of increased flood risk. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040 and NTS2. • The majority of options within this package have been appraised to have low deliverability risk and are considered to be achievable as part of the study, assisting in the improvement of active travel links throughout the study area. The options classified to create a high risk to the Implementability Criteria were some of the corridor-wide active travel improvements within the package. Assessment of these options highlighted that any improvements over the full length would not be achievable due to physical constraints at various points throughout the route. • Options were assessed to have a higher risk in terms of affordability due to factors such as acquisition of third-party land, major earthworks and large infrastructure works. Options which were evaluated as low risk involved minimal works such as updating road markings, vegetation management and new kerbing layouts. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken.

Appraisal Summary: Active Travel – Strategic Routes	
	• Overall, consultation comments were generally supportive of this option concept with many welcoming the proposals to segregate cyclists and vehicles and make it easier for cyclists to navigate existing bottlenecks such as roundabouts and Victoria Street. Emphasis was placed on 'hard' segregation measures with many noting that advisory cycle lanes would not make them feel any safer or encourage modal change. Negative comments received were generally in relation to the cost of implementing the infrastructure.

9.3 Appraisal Outcomes: Active Travel – Leisure Route

The Active Travel – Leisure Route Package is formed of three active travel options with the aim of creating a quality active travel route along the existing Riverside Path which runs close to the River Don.

The Active Travel – Leisure Route appraisal outcomes are as follows:

Table 9.2: Active Travel – Leisure Route Appraisal Summary

Appraisal Summary: Active Travel – Leisure Route	
Summary:	• This package would provide positive impacts across some of the TPOs, with minor positive impacts in terms of increasing the modal share of walking and cycling, and on promoting improved accessibility for local movements. • In terms of the STAG criteria, this package would promote overall moderate positive impacts in terms of Health, Safety and Wellbeing and Equality and Accessibility. Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the package will have both positive and negative impacts on the Environment Criterion. The package would have a minor positive impact in terms of supporting greenhouse gas emissions reductions, but elements of the proposals within the package would be vulnerable to the effects of climate change in respect of increased flood risk. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040 and NTS2. • Creating an active travel link between the leisure route and nearby housing within Dyce is considered a medium feasibility risk. This is due to the work required and environmental impact caused by formalising existing trails or creating new links along the Riverside Path. The other options within this package focus on upgrades to the surface and lighting of the existing Riverside Path – both are considered feasible. • The active travel improvements were evaluated to have medium to high risk in terms of affordability. The potential volume and complexity of the work involved to deliver the options within this package resulted in this evaluation. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Overall, there was strong support for this option concept during consultation, with widespread support for improved surfacing of the Riverside Path and support for better leisure routes in the wider area. Some environmental concerns were raised regarding lighting provision on the Riverside Path.

It is recommended that all options under consideration as part of this package are progressed for further assessment.

9.4 Appraisal Outcomes: Active Travel – Quiet Route Measures

The Quiet Route Measures Package is a package of options aimed at active travel improvements on routes away from the main A947 and Victoria Street routes around Dyce. The focus of this package is to improve active travel provision on routes away from large volumes of traffic and provide quiet routes which may be more suitable for leisure walking and cycling or cyclists who are less confident to travel adjacent to vehicular traffic.

The Active Travel – Quiet Route Measures appraisal outcomes are as follows:

Table 9.3: Active Travel – Quiet Route Measures Appraisal Summary

Appraisal Summary: Active Travel – Quiet Route Measures	
Summary:	• This package would provide positive impacts across most of the TPOs, particularly in terms of increasing the modal share of walking and cycling. • In terms of the STAG criteria, this package would promote overall moderate positive impacts in terms of Health, Safety and Wellbeing, Economy and Equality and Accessibility. Whilst a detailed environmental assessment – forming part of a subsequent detailed STAG-based appraisal of options – would be necessary to gauge the extent of environmental impacts, it is considered that elements of the package will have both positive and negative impacts on the Environment Criterion. The package would have a minor positive impact in terms of supporting greenhouse gas emissions reductions, but elements of the proposals within the package would be vulnerable to the effects of climate change in respect of increased flood risk. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040 and NTS2. • Within this package it is anticipated that the majority of the options included would have a low feasibility risk in terms of their overall implementability. The active travel improvements within the package which present a higher risk are achievable, however, they would require substantial infrastructure interventions. • Many of the active travel improvements which are proposed have a low risk in terms of affordability as they require little financial burden to implement across the study area. However, some of the broader options would require larger scale improvements across the study area and represent potential financial risk as a result. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Overall, this option concept received strong public support during consultation, with many considering it to be a good alternative to Stoneywood Road for cyclists of all abilities and providing a safer route for children. There was general support for making use of existing infrastructure and this was noted to be more cost effective than installing new infrastructure. Concerns were raised around the impact traffic calming measures could have on commercial vehicles, particularly delivery vehicles.

9.5 Appraisal Outcomes: Public Transport – Priority Interventions

The Public Transport – Priority Interventions package contains seven options specifically aimed to increase public transport use within the study area. The package contains options to increase connectivity between the study area and transport hubs and key destinations as well as some options to provide bus priority.

The Active Travel – Public Transport – Priority Interventions appraisal outcomes are as follows:

Table 9.4: Public Transport – Priority Interventions Appraisal Summary

Appraisal Summary: Public Transport – Priority Interventions	
Summary:	• With regards the TPOs, this package would provide positive impacts in terms of increasing public transport modal share and improving accessibility to key transport hubs and key destinations. • In terms of the STAG criteria, this package would promote minor positive impacts across the majority of the criteria. Within the Equality and Accessibility Criterion, this package would have a major positive impact on Public Transport Network Coverage. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040, NTS2 and the overarching aims of the North East Bus Alliance. • The feasibility of five of the package components have been assessed as high risk, creating concerns about their implementability. These are considered as high risk due to the requirement for wider stakeholder consultation to be carried out and potentially having to be delivered in partnership with public transport operators.

Appraisal Summary: Public Transport – Priority Interventions	
	• All of the improvements included in this package have been identified as a medium risk in terms of affordability as part of the implementability criteria. The options outlined involve extensive reviews and improvements of existing public transport throughout various sections of the study area and may present a financial burden in order to deliver each of the options. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Consultation highlighted existing poor public transport connections between Dyce and Aberdeen International Airport, TECA and Danestone and some respondents stated they would welcome and directly benefit from better public transport links between Dyce, the airport and TECA. Some respondents felt active travel measures should be prioritised over public transport.

It is recommended that all options under consideration as part of this package are progressed for further assessment.

9.6 Appraisal Outcomes: Placemaking – Living Streets

The Placemaking – Living Streets package is formed of 12 options from the active travel and other categories. The focus of this package is to enhance the sense of place within the study area by providing a better environment for active travel, providing better access to key locations by non-car modes and reducing the prominence of private cars in certain places within the study area. This package has a particular focus on Victoria Street given its revised position within the new Roads Hierarchy.

The Placemaking – Living Streets appraisal outcomes are as follows:

Table 9.5: Placemaking – Living Streets Appraisal Summary

Appraisal Summary: Placemaking – Living Streets	
Summary:	• This package would provide positive impacts across the majority of the TPOs. In particular, it would provide a major positive impact in terms of ensuring the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy. • In terms of the STAG criteria, this package would promote moderate positive impacts in terms of Health, Safety and Wellbeing, Economy and Equality and Accessibility. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040, NTS2 and the draft NPF4. • The extent of feasibility risk for options in the Placemaking – Living Streets package range between low and medium. Options have been classified as a medium risk for a number of factors such as cross-sectional width constraints and impacts they would have for different road users. Options classified as having a low risk to overall implementability have minor impacts such as upgrading existing features within the study area. • The affordability risks associated with the options within this package vary between low, medium, and high. The highest risk has been identified as the proposal to implement a shared use path along Victoria Street. Despite being assessed as feasible, the variability of the existing road corridor along Victoria Street presents a number of constraints which may present a financial burden. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • Overall, this option concept received a mixed response with some welcoming improvements in the centre of Dyce, which could make it more attractive, helping encourage active travel and fostering greater community spirit. However, there were concerns raised about access to properties, impact on cross-Dyce journeys and a lack of clarity on what the option concept would entail.

It is recommended that all options under consideration as part of this package are progressed for further assessment.

9.7 Appraisal Outcomes: Placemaking – Complementary Measures

The Placemaking – Complementary Measures package contains a series of supporting placemaking measures such as village greens, landmarks and gateway signage within Dyce that could help to recognise the area as a community by encouraging a reduction of vehicle speeds, providing areas for residents to socialise and highlighting local areas of significance.

The Placemaking – Complementary Measures appraisal outcomes are as follows:

Table 9.6: Placemaking – Complementary Measures Appraisal Summary

Appraisal Summary: Placemaking – Complementary Measures	
Summary:	• This package would provide positive impacts across the majority of the TPOs. In particular, it would provide a moderate positive impact on increasing the modal share of cycling and improving accessibility to key transport hubs and key destinations by non-car modes. • In terms of the STAG criteria, this package would promote moderate positive impacts in terms of Health, Safety and Wellbeing and Equality and Accessibility. • The package aligns with the aims of the Aberdeenshire and Aberdeen City Local Transport Strategies, the Nestrans RTS 2040, NTS2 and the draft NPF4. • The extent of feasibility risk for the options in the Placemaking – Complementary Measures package is low to medium. The low-risk options involve improvements to existing features within the study area which are considered achievable. The medium-risk options focus on the implementation of new schemes and infrastructure throughout the A947 study area. The risk to delivering these options is higher due to the wider stakeholder engagement required to deliver them. • The extent of affordability risk in this package varies from low to medium. Similar to feasibility, the options with a low affordability risk involve upgrades to existing locations/features within Dyce. Classification of the medium-risk options is due to the introduction of new infrastructure or schemes. • More detailed appraisal will enable further assessment of feasibility and affordability to be undertaken. • There was support for better cycle parking at key trip attractors during consultation. As noted in the Placemaking – Living Streets package appraisal, there was generally strong support for making the centre of Dyce more attractive and easier to access by active travel.

It is recommended that all options under consideration as part of this package are progressed for further assessment.

9.8 Options Sifted from Further Consideration

Following the appraisal, there are a number of options which are not recommended to progress to more detailed appraisal. The rationale for sifting these options at this stage are as follows:

Active Travel – Strategic Routes Package:

- AT10: Widen on-road advisory cycle lane on Riverview Drive – could form part of a ‘quick win’ opportunity for ACC. Further detail on this option is set out in **Section 8.8**.
- AT11: Implement missing sections of on-road advisory cycle lane on Riverview Drive – could form part of a ‘quick win’ opportunity for ACC. Further detail on this option is set out in **Section 8.8**.
- AT12: Widen on-road advisory cycle lane on Stoneywood Road at Stoneywood Park junction – could form part of a ‘quick win’ opportunity for ACC. Further detail on this option is set out in **Section 8.8**.
- AT57: Implement shared use path on the A947 between AWPR Junction and A947/A96 Junction – it is considered that segregated cycling infrastructure should be promoted as part of this study.
- AT62: Widen the shared use path on the east side of the A947 between the A96 and Beech Manor – it is considered that segregated cycling infrastructure should be promoted as part of this study.
- AT63: Review alignment of the A947 shared use path to the north of the Oldmeldrum Road Junction where the safety barrier constrains the width of the path – it is considered that segregated cycling infrastructure should be promoted as part of this study.

- O17: Reduce the speed limit along the A947 to support active travel improvements – it is not considered appropriate to reduce the speed limit on a priority route in accordance with the Roads Hierarchy.

Active Travel – Quiet Route Measures Package:

- AT67: Widen the shared use path on the west side of Howe Moss Drive – option has limited impact against the TPOs and STAG Criteria.
- O14: Review parking arrangements on Mugiemoss Road – option will be incorporated as part of Option AT65 (Implement streetscape improvements and widened pavements along Mugiemoss Road).

9.9 Next Steps

Going forward, it is noted that the 'quick wins' identified in **Section 8.8** provide early opportunities for ACC to progress these measures to delivery. These measures can be progressed in isolation of any more detailed option development beyond this appraisal. However, in due course, these measures would themselves complement any packages or options ultimately delivered following more detailed work.

In this regard, in order to fully determine those packages (and options within packages) which have the potential for delivery along the corridor, detailed STAG-based appraisal is required, including more detailed design work, to confirm the package(s) that would move forward into an Outline Business Case (OBC) for delivery.

The work undertaken to date provides the foundation for ACC to take the outcomes of this study forward to further level of study. This will ensure a continued consistency in terms of route corridor appraisal in the city, with the Ellon P&R-Garthdee study now moving to OBC stage, with the A96 corridor to follow. In the case of the latter, there will be a need to ensure a consistent approach is taken to OBC preparation in the context of the A947 corridor, mindful of the interrelationship between these two corridors.

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A947 Multi-Modal Corridor Study

Detailed Appraisal Report

Project number: 60709527

August 2024

Delivering a better world

Quality information

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1. Introduction

1.1 Background

Aberdeen City Council (ACC) has commissioned AECOM to further consider options to improve transport connections for users of the A947 corridor between the Aberdeen Western Peripheral Route (AWPR) and the A96 (at the Bucksburn Roundabout). The study, which is being funded by Nestrans, is being taken forward in accordance with Scottish Transport Appraisal Guidance (STAG) and builds on initial work completed by AECOM in 2022 to identify and appraise options to improve active travel and public transport opportunities along this corridor.

This stage of the study further develops the remaining options under consideration and identifies those that should be progressed in an Outline Business Case (OBC) for intervention on the study corridor. The OBC has been provided to ACC under separate cover and forms the next stage of the process following the completion of the Detailed Appraisal. This report presents the findings of the appraisal and includes:

- Updated context setting;
- Further option development;
- Assessment of the options against Transport Planning Objectives (TPOs), STAG Criteria, Cost to Government, and Deliverability Criteria noting key risks and uncertainties; and
- Consultation and engagement, informing Public Acceptability of the options subject to Detailed Appraisal.

The study is being guided by a Project Steering Group led by ACC and supported by Aberdeenshire Council and Nestrans.

The A947 Multi-Modal Corridor Study is one of several simultaneous corridor studies being progressed by ACC in light of the changes to travel patterns associated with the opening of the AWPR, as well as other recent developments and changes to behaviour following the COVID-19 pandemic.

1.2 STAG Appraisal

As outlined above, this study is being taken forward in accordance with STAG. STAG is the appraisal framework developed by the Scottish Government to aid transport planners and decision-makers in the development of transport policies, plans, programmes and projects in Scotland. It is a requirement that all transport projects are appraised in accordance with STAG where Scottish Government support or approval is required.

There are four parts to the STAG process as follows:

- Initial Appraisal (Case for Change) – an analysis of present and future problems and opportunities and setting of TPOs in order to establish the Case for Change;
- Preliminary Appraisal – option generation, sifting and development followed by a largely qualitative appraisal of impacts, designed to decide whether a proposal should proceed, subject to meeting the planning objectives and fitting with relevant policies;
- Detailed Appraisal – Detailed Appraisal of the options taken forward from the Preliminary Appraisal with specific consideration given to the TPOs, STAG Criteria (Environment; Climate Change; Health, Safety and Wellbeing; Economy; and Equality and Accessibility), Cost to Government, Implementability (Deliverability), and Risk and Uncertainty; and
- Post-Appraisal – development of a monitoring and evaluation plan to set out how the preferred option(s) will be assessed against the original appraisal once investment is committed and following implementation.

1.3 Study Area

The study area is the north-south transport corridor between the A90 AWPR in the north and Bucksburn Roundabout joining the A96 in the south, as shown in **Figure 1-1**. The corridor provides access to a range of communities and key destinations, including Dyce and The Event Complex Aberdeen (TECA). The A947 route marked in red bypasses the central Dyce area while Victoria Street, marked in green, connects the north and south of Riverview Drive.



Figure 1-1: Study Area

1.4 Roads Hierarchy

It should be noted that ACC and partners carried out a review of the roads hierarchy within Aberdeen City in 2019. This was undertaken to develop options for a system that reflects the new role of the city centre as a destination and makes the most effective use of the AWPR for distributing traffic around the city to the most appropriate radial route to reduce the extent of cross-city traffic movements.

In terms of the A947 study corridor, the study, and subsequent review by ACC, resulted in the following changes to the classification of Victoria Street and Riverview Drive:

- Victoria Street changed from an A-class priority route (A947) to a C-class tertiary route; and
- Riverview Drive changed from an unclassified route to an A-class priority route (A947).

The Roads Hierarchy Study defines priority routes as the main movement corridors linking the AWPR to key destinations and notes that they should be considered for the provision of bus lanes and segregated cycleways where possible, with bus and cycle priority through junctions. The change in classification of Riverview Drive means that the A947 now routes via Riverview Drive instead of Victoria Street.

The Roads Hierarchy Study defines tertiary routes as local access roads with little strategic function, and as such are unsuitable for large volumes of traffic. The redesignation of Victoria Street therefore provides enhanced opportunities to implement improvements for public transport and active travel and this principle has guided the A947 study since the Preliminary Appraisal.

1.5 Report Structure

Following this introductory Chapter, the remainder of the report is structured as follows:

- Chapter 2 – Updates to Study Context;
- Chapter 3 – Previous Work;
- Chapter 4 – Preparation for Detailed Appraisal Stage;
- Chapter 5 – Transport Planning Objectives;
- Chapter 6 – Consultation and Engagement;
- Chapter 7 – Approach to Appraisal;
- Chapter 8 – Detailed Options Appraisal – TPOs;
- Chapter 9 – Detailed Options Appraisal – STAG Criteria;
- Chapter 10 – Detailed Options Appraisal – Deliverability Criteria;
- Chapter 11 – Detailed Options Appraisal – Statutory Impact Assessment Criteria;
- Chapter 12 – Cost to Government;
- Chapter 13 – Risk and Uncertainty;
- Chapter 14 – Monitoring and Evaluation; and
- Chapter 15 – Next Steps – OBC Package Development.

The following Appendices support the Detailed Appraisal:

- Appendix A – Rationale for Table 2 Option Sifting;
- Appendix B – Table 1 Design Technical Note;
- Appendix C – Table 2 Preliminary Option Development Technical Note;
- Appendix D – Table 2 Design Technical Note;
- Appendix E – Table 2 Option Designs;
- Appendix F – Detailed Table 2 Option Cost Breakdown;
- Appendix G – Environmental Constraints Mapping;
- Appendix H – Active Mode Appraisal Toolkit (AMAT) Assessment; and
- Appendix I – Consultation Results Outputs.

2. Updates to Study Context

2.1 Introduction

This Chapter will provide a brief overview of updates to the study context that have emerged since the Preliminary Appraisal was concluded in September 2022. This will include updates to the policy, development and transport context.

2.2 Policy Context

2.2.1 National

National Transport Strategy (NTS): Third Annual Delivery Plan (2023-24)

In December 2023, Transport Scotland published the Scottish Government's third National Transport Strategy (NTS) Delivery Plan[1]. The Delivery Plan highlights the new projects and policies being developed that align with the vision and priorities set out in the NTS2 (2020-2040). The report focuses on the four priorities set out in NTS2 and the projects that are progressing across Scotland to help meet these priorities and in doing so achieve the national vision for the transport system.

The Delivery Plan highlights a few projects that have made or are making progress in the North East region including bus prioritisation in Aberdeen City Centre, the enhancements programme on the A96 corridor and delivery of the Low Emission Zone (LEZ) in Aberdeen City Centre.

Second Strategic Transport Projects Review (STPR2) (2022)

STPR2 was taken forward to inform the Scottish Government's transport investment programme in Scotland over the next 20 years (2022-2042) in order to help deliver the vision, priorities and outcomes for transport set out in the Second National Transport Strategy (NTS2). The outcomes will aim to enhance accessibility across Scotland for residents, visitors and businesses; create better connectivity with sustainable, smart and cleaner transport options; and highlight the vital contribution that transport investment can play in enabling and sustaining Scotland's economic growth. A number of recommendations were published in December 2022 which included two specific to the North East region; these included Recommendation #13 – Aberdeen Rapid Transit and Recommendation #16 – Perth-Dundee-Aberdeen rail corridor enhancements.

A number of other recommendations were noted as being of particular benefit to the North East region including:

- Recommendation #2 – Active freeways and cycle parking hubs;
- Recommendation #18 – Supporting integrated journeys at ferry terminals;
- Recommendation #24 – Ferry vessel renewal and replacement and progressive decarbonisation;
- Recommendation #42 – Investment in port infrastructure to support vessel renewal and replacement and progressive decarbonisation; and
- Recommendation #44 – Rail freight terminals and facilities.

A further 28 recommendations were considered to provide benefits for individuals, families, communities and businesses across most parts of Scotland. Of particular relevance to the A947 corridor are the recommendations around improving the safety and resilience of the strategic transport network, specifically in relation to climate change adaptation and resilience.

Climate Change Route Map (2022)

In January 2022 the Scottish Government and the Convention of Scottish Local Authorities (COSLA) developed a Route Map to deliver the shift in travel behaviours required to meet the 20% reduction target set out in the Climate Change Plan, recognising the need for ongoing collaboration and partnership working between national, regional and local Government as well as public, private and third sector partners.

The behavioural changes identified in the Route Map are centred around: reducing the need to travel; living well locally; switching modes; and combining or sharing car trips.

[1] National Transport Strategy – Third Scottish Government Delivery Plan

Successful implementation of the actions set out in the Route Map are expected to enable statutory climate change targets to be met, whilst at the same time creating better ways of living, improved health and wellbeing and the associated social and economic benefits of a society less dominated by private cars.

National Planning Framework 4 (2023)

National Planning Framework 4 (NPF4) was approved by Scottish Government in February 2023. It sets out a long-term spatial strategy for development and infrastructure in Scotland. NPF4 sets out a need to "embrace and deliver radical change to tackle and adapt to climate change, restore biodiversity loss, improve health and wellbeing, build a wellbeing economy and create great places." In this context, NPF4 recognises that places need to be planned in a way that reduces the need to travel and is hence also aligned to the Sustainable Investment Hierarchy and policies for cleaner air and climate change action.

Scotland's National Strategy for Economic Transformation (2022)

Scotland's National Strategy for Economic Transformation (NSET), published by the Scottish Government in March 2022, sets out the priorities for Scotland's economy over the ten-year period to 2032. It sets out a vision to create a wellbeing economy: a society that is thriving across economic, social and environmental dimensions, and that delivers prosperity for all Scotland's people and places, whilst respecting environmental limits, including climate and nature targets. It aims to deliver economic growth that significantly outperforms the last decade, so that the Scottish economy is more prosperous, more productive and more internationally competitive, and recognises that improved accessibility, better connectivity and transport investment are vital factors in ensuring economic transformation for Scotland.

Cycling Framework and Delivery Plan for Active Travel in Scotland 2022 – 2030

The Cycling Framework and Delivery Plan for Active Travel in Scotland builds on the progress made through the last three iterations of the Cycling Action Plan for Scotland between 2010 and 2020. The Cycling Framework for Active Travel sets out the strategic priorities and shared actions to maximise cycling's contribution in realising the Scottish Government's long term Vision for Active Travel in Scotland: That Scotland's communities are shaped around people, with walking and cycling the most popular choice for everyday short journeys.

Cycling Framework for Active Travel – A Plan for Everyday Cycling (2023)

The Cycling Framework for Active Travel[2] was published by Transport Scotland in April 2023. The Plan is structured around six themes:

- Safe cycling infrastructure – high quality, suitable and accessible for all;
- Effective resourcing – long-term funding for the delivery of infrastructure and supporting access, training and facilities programmes;
- Fair access – increased equity of access to cycling, ensuring that adapted and non-standard cycles, e-bikes and cargo bikes are supported;
- Training and education – ensuring infrastructure is supported by wrap around promotional programmes, training and complementary initiatives;
- Network planning – prioritise investment based on local active travel strategies, mapping existing and planned networks to improve consistency; and
- Monitoring – ensuring robust processes are in place to capture insight which will help to inform future network planning, including local and national alignment of routes and facilities.

Cycling Scotland Strategy 2023-28 (2023)

Cycling Scotland is a national charity set up to represent cycling interests and to increase levels of cycling and is one of the Scottish Government's core active travel delivery partners. In July 2023, Cycling Scotland updated their strategy for the period from 2023 to 2028. The vision remains 'a sustainable, inclusive and healthy Scotland where anyone, anywhere, can enjoy all the benefits of cycling'.

Cycling Scotland has set six strategic aims which will underpin their work and approach:

- Leading and facilitating the design and delivery of high quality projects;
- Tackling barriers to enable and encourage increased cycling levels across Scotland;
- Connecting a range of voices to drive the case for cycling;

[2] https://www.transport.gov.scot/publication/cycling-framework-for-active-travel-a-plan-for-everyday-cycling/

- Ensuring cycling helps address health, economic and social inequalities;
- Serving as an influential centre of knowledge and best practice for Scotland; and
- Being a strong, sustainable and effective charitable organisation.

The Strategy notes that Cycling Scotland will assess progress by the sector through the following measures:

- The number of people cycling;
- The accessibility of cycling;
- The level and range of funding for cycling;
- The profile of and attitudes towards cycling;
- Casualty rate per 100 million km for people killed or seriously injured while cycling; and
- Percentage of different population groups who ever cycle.

2.2.2 Regional

Regional Transport Strategy 2040

The Nestrans Regional Transport Strategy (RTS) 2040 was adopted in November 2021 and is the long-term strategy for Aberdeen City and Aberdeenshire, setting the vision and direction for transport in the region for the next 20 years. The RTS sets a vision to provide a "safer, cleaner, more inclusive, accessible and more resilient transport system" which supports the natural and built environment and prosperous communities. This is supported by the following 'pillars' which set out the policy objectives for transport in the North East: Promoting equality; Reducing our impact on climate change and protecting the environment; Help deliver inclusive economic growth and; Improving health, safety and wellbeing. In developing these further, the strategy sets out six key priorities which act as aims to set the tone and direction of the strategy. These are displayed in **Figure 2-1**, below:



Figure 2-1: RTS Key Priorities

The RTS sets out actions intended to meet the above objectives and priorities, one being AT1 to upgrade existing active travel routes.

Draft Regional Economic Strategy 2023

The Draft Regional Economic Strategy[3] sets out a long-term plan of investment for North East Scotland to transform its economy over the next decade and beyond. The 2023 Strategy outlines the current challenges facing the region, the key policy developments and ultimately the implications for North East Scotland. The vision outlined in the Strategy is *"for a regional economy that enables us to thrive. It is leading a just energy transition, diversifying our economy, enabling entrepreneurship and innovation, and delivering a wellbeing economy for our people – a post fossil-fuel future"*. It outlines the following objectives that respond to the priorities, opportunities and challenges for the regional economy and will support delivery of the long-term vision to 2035:

- To establish the North East as a pioneer of the energy transition, by delivering an 80% reduction in carbon emissions per head;
- To maintain regional GVA as a share of Scotland's overall GVA while increasing the share of regional GVA from region's growth sectors;
- To maintain a healthy, sustainable, working age population through increasing economic participation rates;
- To become a Real Living Wage region with 95% of overall employment offering a real living wage or higher; and
- To protect and enhance the natural capital of the region by aligning to national ambitions to manage 30% of the region for people and nature by 2030.

2.2.3 Local

Aberdeenshire Local Development Plan 2023 and Aberdeen Local Development Plan 2023

Both the Aberdeenshire LDP 2023 and Aberdeen LDP 2023 were adopted by their respective councils in the first half of 2023 and cover the period of 2023 – 2028. Both of the LDPs take cognisance of each other whilst also incorporating aspects of the Aberdeen City and Shire Strategic Development Plan 2020 which sets the direction of growth for the City Region.

The allocations outlined in the Proposed LDPs and reported in the Preliminary Appraisal are predominantly still accurate, with only one change to a housing allocation in Turriff (north of the study area within Aberdeenshire along the A947 corridor) with the removal for an allocation for 40 homes. Within Aberdeen City, there are allocations for a few hundred new homes within the study area, with an additional several thousand homes (including developments OP9 of 2,300 homes and OP20 with 4,400 homes), business and employment land allocations on land adjacent to the study corridor. Within Aberdeenshire, there are an additional few thousand homes planned and business and employment land.

ACC Local Transport Strategy

ACC is currently in the process of refreshing the Local Transport Strategy (LTS) for Aberdeen City. The Draft Aberdeen Local Transport Strategy (2023-2030) was reported to the Net Zero, Environment and Transport Committee on 29th August 2023. It was subject to an eight week period of public consultation[4] concluding in January 2024, following which a final LTS will be produced and reported to committee in 2025.

Aberdeenshire Local Transport Strategy

Aberdeenshire Council is also in the process of updating its Local Transport Strategy. Public engagement on the main issues was undertaken between May and September 2023, with residents and stakeholders asked to consider a number of transportation themes and share their views on the main opportunities and challenges facing transport across Aberdeenshire. Feedback from this consultation is being used to help shape the draft LTS which will be developed with a view to going out for a further period of public consultation on the draft document in 2024 with final publication in 2024/2025.

2.2.4 Ongoing Studies

Aberdeen Rapid Transit Business Case

Nestrans commissioned Stantec in September 2021 to undertake the Aberdeen Rapid Transit (ART) Options Appraisal. This involves a STAG-based appraisal and business case preparation considering the future development of Aberdeen's bus-based public transport network, inclusive of links into Aberdeenshire. It is being undertaken in the context of a vision to develop an ART network.

[3] https://committees.aberdeencity.gov.uk/documents/s144408/RES%20Appx1%20-%20RES%202035%20Final%20Draft.pdf
[4] https://consultation.aberdeencity.gov.uk/planning/lts/

The Case for Change for ART was reported in March 2022 and presented the problems and opportunities identified, the rationale for the development of ART, and set out associated TPOs developed for the study. The Case for Change also defined a set of success factors for ART and presented a review of planned, under construction and operational Bus Rapid Transit (BRT) schemes across the UK and Europe.

The Preliminary Appraisal for ART was reported in June 2022 and detailed the option development process and the, mainly qualitative, appraisal of these options in line with STAG. The Detailed Appraisal was reported in April 2023. Based on the findings of the appraisal, two options were recommended to be worthy of further development and consideration:

- Option 3A – This option looks at improvement to existing services on the ART corridors to provide the ART network and in addition considering wider stop spacing, and benefits from new ART 'platforms' as well as ART branded vehicles, significantly improving the quality of travel by public transport and differentiating ART from the existing bus network. The option also identifies the need to integrate the underlying bus network with ART, to avoid duplication of service on ART corridors and to create a coherent and robust city-wide public transport network. The report concludes that this option could be delivered through a BSIP arrangement with local bus operators.
- Option 5 – This option includes the introduction of new bespoke cross-city ART services and the integration of the wider bus network into the ART network. This option has the potential to provide Aberdeen with a world-class public transport option but comes with potentially significant additional cost and risk to the public sector. The report concludes that this option would be most effectively delivered through a franchise arrangement.

The Nestrans Board approved the recommendation to progress the study to Outline Business Case (OBC), giving further consideration to the options outlined above. In June 2024, the ART routeing recommendations were approved by Aberdeen City Council, Aberdeenshire Council and the Nestrans Board – ART will comprise a 'Red Line' from Blackdog to Westhill and a 'Purple Line' from Craibstone Park & Ride to Portlethen.

The cross-city network of ART corridors connects key destinations across Aberdeen and the wider region taking people to the key places they want to go to including education, employment, healthcare, retail and leisure destinations, the airport and rail station, as well as the city centre. The ART cross-city route map (approved in June 2024) is outlined in **Figure 2.2**.

Although the A947 study corridor is not an identified ART corridor, the A96 which routes to the south of the study area and connects to the A947 at Bucksburn Roundabout, is one of the identified ART corridors and therefore this study must take cognisance of ART to ensure that emerging public transport options as part of this study complement the ART ambitions along the A96 corridor.



Figure 2.2: ART Route Map

Regional Active Travel Network Study

Nestrans are developing a Regional Active Travel Network (RATN) which is currently published in draft form for public consultation. When completed the study will identify aspirations for a high-quality, cohesive network of walking, wheeling and cycling routes in the North East of Scotland. The network is formed of important routes in built-up areas, and of regional connectors which link the region's communities, however does not include improvements to neighbourhood links and local streets and paths. The network is to be made up of different categories of route including Primary Streets, Secondary Streets, Traffic Free Paths, Shared Use Paths, Mixed Traffic Roads and Quiet Roads.

The study sets out the prioritisation of some routes, with the key corridor linking Aberdeen City to Dyce and the Airport highlighted as a short term priority, with other links in the A947 study area considered long-term priorities.

Within the A947 study area the following roads have been designated as Primary Streets. A Primary Street would involve having footways, cycle tracks and vehicular traffic all separated from one another, with pedestrians and cyclists given priority at signalised junctions and side roads. Space for active travel is increased so new and less confident users can use the infrastructure. The network plan notes that some on-street parking/loading may need to be moved to make space for new infrastructure:

- A947 between Bucksburn Roundabout and A947/Riverview Drive roundabout, through Victoria Street;
- Riverview Drive; and
- Corsehill Burn Road, Forrit Burn Road, and Gough Burn Crescent, around TECA.

Within the A947 study area the following roads have been designated as Secondary Streets. A Secondary Street would involve footways separated from cycleways, with cycleways mostly separated from vehicular traffic but these may have to mix where there is limited space. As with Primary Routes the network plan notes that some on-street parking/loading may need to be moved to make space for new infrastructure:

- Bankhead Road, Bankhead Avenue, Greenburn Road and Greenburn Drive;
- Wellheads Drive and Farburn Terrace;
- Old Meldrum Road;
- Mugiemoss Road;
- Market Street and Stoneywood Terrace;
- Stoneywood Park and Stoneywood Park North;
- Station Road;
- Various streets between Victoria Street and Riverview Drive such as Overton Circle, Gordon Terrace, Netherview Avenue and Balloch Way;
- Pitmedden Road;
- Dyce Drive[5]; and
- A947 between Riverview Drive roundabout and Dyce Drive junction.

The following routes listed are traffic free paths within built up areas away from roads – and where footways are separated from cycle tracks:

- Riverside Park;
- Paths through Central Park; and
- A link between Waterton Road and Gough Burn Crescent.

Going forward, ACC will need to work with Nestrans to ensure that the outcomes of this corridor study complement the adopted prioritisation of routes coming forward in the RATN.

A96 Corridor Review

The Scottish Government has committed to take forward a programme of transport enhancements on the A96 corridor to improve connectivity between surrounding towns, tackle congestion and address safety and environmental issues. This includes reviewing the A96 corridor in accordance with Scottish Transport Appraisal Guidance (STAG).

[5] A section of Dyce Drive is a Primary Route.

The review covers the transport corridor from Raigmore Interchange at Inverness to Craibstone Junction at Aberdeen. The Initial Appraisal: Case for Change has now concluded which considered transport problems and opportunities, the changing policy context and other key considerations, such as development and growth aims for the corridor and surrounding areas. It has also considered the impact of the global climate emergency and the COVID-19 pandemic on how people work and travel within the corridor. Sixteen options considering all relevant transport modes within the A96 corridor, including road, rail, public transport and active travel have been taken forward for the next stage of STAG appraisal.

Subsequent phases of the STAG process, the Preliminary and Detailed Appraisal phases, involve more detailed appraisal work, considering the feasibility and performance of options to address the identified transport related problems and opportunities and will be developed as the process moves forward.

A96 Multi-Modal Study

ACC completed a STAG-based appraisal of options for improving transport connections (particularly active travel and public transport) on the A96 between Inverurie and Aberdeen. The study area for this study overlaps with the A947 study area at the A947/A96 roundabout at Bucksburn.

The recommended options were presented to the City Growth and Resources Committee on 21 June 2022. These included:

Inverurie to Craibstone (Section I)

Active Travel

- *Upgrade the shared use path existing along the A96 between Inverurie and Kintore.*
- *A new shared use path parallel to the A96 between Kintore and Craibstone.*

Bus

- *A standalone junction improvement (left turn split lane) between Port Elphinstone Road and the A96 eastbound carriageway to enable buses easily exit Inverurie onto the A96.*

Craibstone to Printfield Walk (Section II)

Active Travel

- *One-way segregated (with-flow) cycle tracks [on both sides of carriageway] or*
- *Two-way segregated cycle track [one side of the carriageway], as well as footway and junction improvements to improve the pedestrian environment.*

Bus

- *Continuous Standard bus lanes or Enhanced bus lanes in both direction of the carriageway.*

Printfield Walk to Mounthooly Roundabout (Section III)

Active Travel

Continuous from the previous section

- *One-way segregated (with-flow) cycle tracks [on both sides of the carriageway] or*
- *Two-way segregated cycle track [one side of the carriageway], as well as footway and junction improvements to improve the pedestrian environment.*

Bus

- *Continuous Standard bus lanes or Enhanced bus lanes along sections of the route in both direction of the carriageway.*

Takes account of the committed Berryden Corridor Improvement Project (BCIP) which crosses the A96 at Clifton Road and extends to St Machar Drive. Also considers the potential for road widening at key constrained sections of the route to Mounthooly roundabout.

The committee recommended that work to further develop the options presented above be progressed to a more Detailed Appraisal and an Outline Business Case.

Cross-City Connections Study

ACC undertook a review of the STAG Part 2 appraisal for Cross City Connections. The study aims to identify priority schemes for development along with a programme of delivery that considers development build out, connections with the internal links of development sites as well as the general feasibility and affordability of each option.

The recommended options were presented to the Net Zero, Environment and Transport Committee on 07 March 2023. The committee recommended that active travel options 7, 8, 9, 11 and 20 should proceed to further development work and full Outline Business Case.

The recommended options proceeding to further development and Outline Business Case which are of relevance to the A947 Study include:

Route Option 7

- *Provide a new connection between Grandhome and Stoneywood – provide a new bridge crossing over River Don.*
- *Provide a new connection between new bridge over the River Don and Stoneywood Terrace.*

Route Option 8

- *Upgrade and extend Core Path 101 to meet new bridge (see Option 7) and Stoneywood development.*

Route Option 9

- *Stop up Millhill Brae on western side of A944 before the underpass and prior to the residential property and allow residential access only.*
- *Upgrade section of Core Path 4 through park.*
- *Upgrade on road section of Core Path 4 on Waterton Road.*

2.3 Development Context

2.3.1 Planning Applications

Figure 2-3 provides an overview of Planning Application DPP/221232 for the erection of 91 homes including associated infrastructure, open space and landscaping.

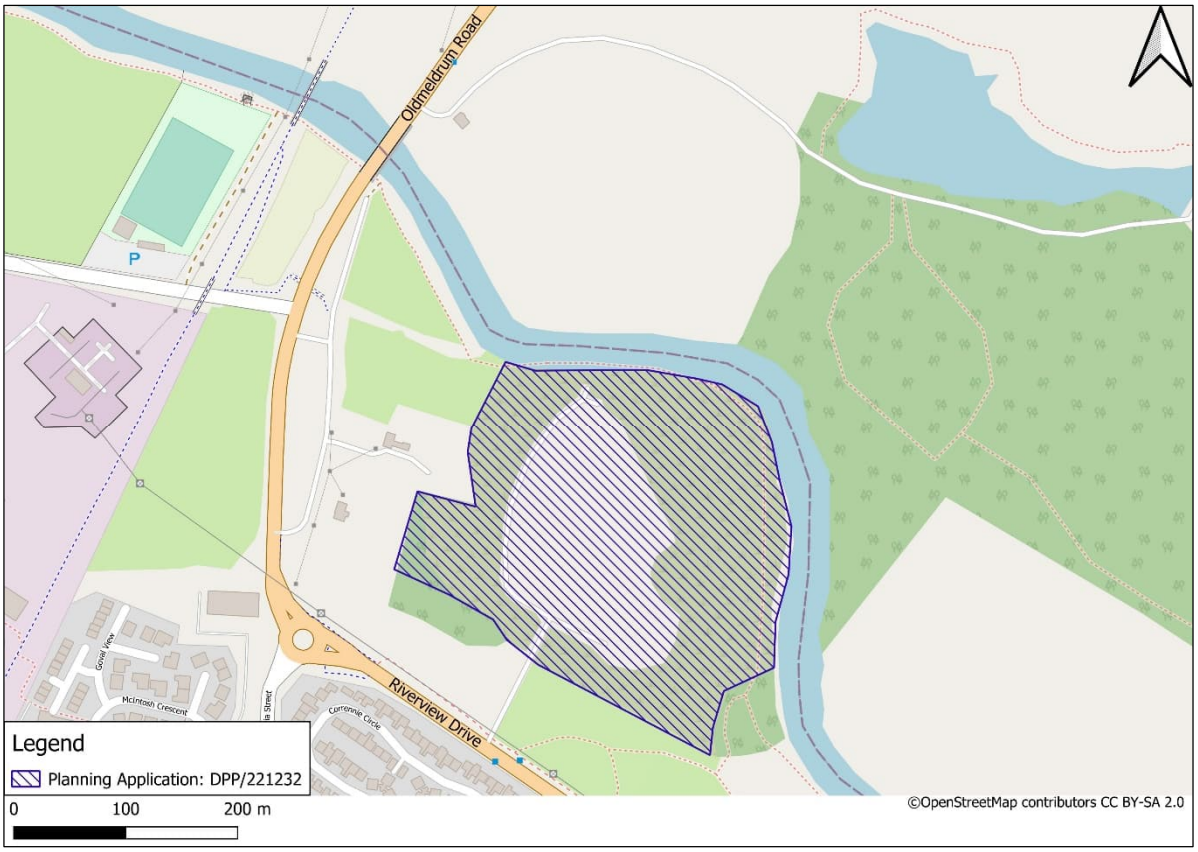


Figure 2-3: Planning Application DPP/221232

As of August 2023, this application has now been approved conditionally subject to Legal Agreement.

2.4 Summary

This Chapter has provided a brief overview of updates to the study context that have emerged since the writing of the Final Preliminary Appraisal Report in September 2022. The following Chapter summarises the outcomes of the previous work undertaken in 2021/2022.

3. Previous Work

3.1 Introduction

This Chapter provides an overview of the work undertaken at the previous stage of the study, incorporating the Initial Appraisal and Preliminary Appraisal.

3.2 Initial and Preliminary Appraisal Summary

The previous stage of the study was published in September 2022 and included the identification of key problems, issues, constraints and opportunities (PICOs) on the corridor; development of TPOs for the study; generation of a long list of options; and Preliminary Appraisal.

3.2.1 Problems, Issues, Constraints and Opportunities

A localised and strategic review was undertaken to determine the PICOs along the study corridor. A summary of the strategic PICOs identified along the A947 corridor are outlined below.

Problems

- **Formartine & Buchan (F&B) Way:** lack of maintenance, limited signage and inaccessible gates and barriers.
- **Declining Bus Patronage:** long bus journey times considering (relatively short) distance to City Centre and frequency/timetabling issues particularly when accessing Aberdeen International Airport for shift patterns outwith bus operation times.
- **Active Travel Infrastructure:** lack of footway provision to match pedestrian desire lines and advisory cycle lanes are inconsistent and narrow.
- **Driver Behaviour:** anecdotal evidence of vehicles traveling at excessive speeds, ignoring cycling provision and flouting ‘no entry signs’
- **Maintenance of Active Travel Infrastructure:** lack of maintenance of active travel infrastructure has led to the poor condition of surfaces of advisory cycle lanes, footways and the underpass at Millhill Brae.
- **Signage:** lack of active travel signage along the corridor.
- **Monitoring:** issues with active travel counters, leading to a lack of counter validation to better understand active travel movements.

Opportunities

- **Locking in the Benefits of the AWPR:** opportunity to incentivise public transport along the corridor, locking in the benefits of reduced congestion and journey time savings.
- **Policy Context:** the study aims strongly align with the national, regional and local policy context.
- **Bus Service Partnerships:** a Quality Partnership Agreement was signed by parties in the region in 2018 to form the North East Bus Alliance, providing renewed impetus to the identification of measures that can enhance the attractiveness of bus services in the region.
- **Funding:** the Scottish Government has outlined increased funding for sustainable transport interventions.
- **Distances to Work:** the majority of those living in the A947 study area travel less than 10km to work, providing opportunities to encourage active travel use.
- **20-minute Neighbourhood:** there is potential to implement the ‘20-minute neighbourhood’ concept in Dyce.

Issues

- **Future Attitudes to Travel and Travel Behaviour:** following the COVID-19 pandemic, there are uncertainties if the changes observed will be short-term or result in a structural change in how society operates.
- **Climate Change:** is it likely climate change will have an increasing impact on the North East region, bringing rising sea levels and potential extreme weather events.
- **Technology:** there is uncertainty how advances in Electric Vehicle (EV) technology and autonomous vehicle technology will affect travel behaviour and ownership.
- **Policy:** demand management measures in the city centre could result in a shift away from private car to public transport and active travel for journeys to the city centre
- **High Car Use:** car mode share in the area is high; driving to work rate is higher than the national average.

Constraints

- **Funding:** Scottish Government revenue funding to local authorities has been increasingly constrained.
- **Environment:** the corridor has a number of environmental constraints including river flooding and wildlife habitats.
- **Trunk Road Contracts (AWPR/B-T):** Aberdeen Roads Limited have a design, build and operate contract for the AWPR. Therefore, any design changes at AWPR junctions may be more complex to bring forward than at other locations on the corridor and any alteration to infrastructure may require consideration of contractual arrangement at these locations, in consultation with Aberdeen Roads Limited, Transport Scotland and the Local Roads Authorities.

3.2.2 Transport Planning Objectives

In line with STAG, development of TPOs was driven by an understanding of the evidence-based problems and opportunities identified along the study corridor. The TPOs agreed at the previous stage of study were as follows:

- **TPO1:** Increase the modal share of walking on the A947 corridor for all journey types
- **TPO2:** Increase the modal share of cycling on the A947 corridor for all journey types
- **TPO3:** Increase the modal share of public transport on the A947 corridor for all journey types
- **TPO4:** Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements
- **TPO5:** Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes
- **TPO6:** Ensure the main routes through the Study Area function in accordance with their role in the revised Roads Hierarchy.

3.2.3 Option Generation and Sifting

A long list of options was developed at the Initial Appraisal stage, based on a number of sources, including consultation with Local Authority officers, stakeholders and Community Council groups; a review of previous studies to identify historical proposals that remain viable options; a review of statutory planning and policy documents; and outputs from the evidence-led process followed by the team undertaking the appraisal. This resulted in the development of 68 active travel options, 14 public transport options and 27 ‘other’ options.

Based on the high level performance of options against the TPOs, Deliverability Criteria, Position in the Sustainable Investment Hierarchy (as set out in Scotland’s National Transport Strategy) and Identified Problems

and Opportunities in the study area, it was recommended that 31 options were sifted from further consideration, including 15 active travel options, 8 public transport options and 8 'other' options.

The remaining 78 options (53 active travel, 6 public transport and 19 'other' options) were retained and considered within the Preliminary Appraisal.

3.2.4 Option Packaging

Following option development on those options identified to be retained for further consideration, options were grouped into six packages of the purposes of appraisal:

- Active Travel – Strategic Routes;
- Active Travel – Leisure Route;
- Active Travel – Quiet Route Measures;
- Public Transport – Priority Interventions;
- Placemaking – Living Streets; and
- Placemaking – Complementary Measures.

3.2.5 Option Appraisal

In line with STAG, a high-level appraisal of the option packages against the TPOs, STAG Criteria (Environment; Climate Change; Health, Safety & Wellbeing; Economy; and Equality & Accessibility) and Implementability Criteria (Feasibility, Affordability and Public Acceptability) was undertaken. This was supported by a high-level appraisal of individual options.

The option appraisal also resulted in the identification of a number of 'quick win' options that could provide early opportunities for ACC to progress measures to delivery. These measures were identified as options that could progress in isolation of any more detailed option development beyond the Preliminary Appraisal. These are detailed further in Chapter 4.

3.2.6 City Growth and Resources Committee

The outcomes of the study were reported to ACC's City Growth and Resources Committee on 21 September 2022. The Committee agreed:

(i) That work to further develop the options be progressed to Detailed Appraisal and Outline Business Case (OBC);

(ii) Instruct the Chief Officer – Strategic Place Planning to proceed to Detailed Appraisal and OBC, subject to appropriate funding being sourced;

(iii) Instruct the Chief Officer – Strategic Place Planning to implement the 'quick win' options identified, subject to appropriate funding being sources; and

(iv) Subject to recommendation ii, instruct the Chief Officer – Strategic Place Planning to report the Detailed Appraisal and Outline Business Case and next steps to the Net Zero, Environment and Transport Committee when complete.

3.3 Summary

This Chapter has provided an overview of the work undertaken at the previous stages of the study. The following Chapter sets out the process of preparing for the Detailed Appraisal stage.

4. Preparation for Detailed Appraisal Stage

4.1 Introduction

In preparation for the Detailed Appraisal stage, ACC undertook a review of the individual options remaining following the Preliminary Appraisal stage and separated these into four discrete tables as follows:

- Table 1 – in which all options included should be progressed directly to detailed design and OBC (with no further appraisal required);
- Table 2 – in which each option should be subject to further development, appraisal (in line with STAG) and design, with a view to potential inclusion in the OBC at the end of this process;
- Table 3 – in which all options included are to be reserved for internal appraisal by ACC; and
- Table 4 – in which all options included are to be progressed by ACC as 'quick wins'.

4.2 Table 1 Options

The following options comprise Table 1.

Table 4-1: A947 Multi-Modal Corridor Study – Table 1 Options

AT4	Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive
AT8	Reconfigure the Auchmill Road/Old Meldrum Road junction to improve connections for pedestrians and cyclists
AT13	Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the Formartine and Buchan Way
AT14	Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout
AT16	Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout
AT17	Implement signalised crossing facility on Victoria Street adjacent to Tesco
AT19	Implement pedestrian crossing facilities at the Old Meldrum Road/Mugiemoss Road Junction
AT20	Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways
AT30	Provide direct active travel link between Dyce Drive and Riverview Drive
AT32	Implement footways on the south side of the carriageway on Pitmedden Road
AT59	Widen the shared use path on the east side of the A947 to the north of Riverview Drive
AT60	Provide continuous footways on Riverview Drive for the duration of the route
AT68	Conduct a review of wayfinding signage throughout the study area
O11	Undertake a review of parking arrangements on Victoria Street
O15	Introduce placemaking and gateway features on Victoria Street

4.3 Table 2 Options

The following options comprise Table 2.

Table 4-2: A947 Multi-Modal Corridor Study – Table 2 Options

AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport
AT26	Improve active travel connectivity between the A947 study area and TECA
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate
AT31	Improve active travel links between the Riverside Path and housing within Dyce
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce,

	particularly along Station Road
AT35	Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station
AT41	Improve active travel access to the retail park at the Bucksburn Roundabout
AT42	Review access to the Formartine and Buchan Way from within Dyce
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction
AT48	Implement two-way segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction
AT51	Implement with-flow segregated cycleway on Old Meldrum Road
AT52	Implement two-way segregated cycleway on Old Meldrum Road
AT55	Implement with-flow segregated cycleway on Gilbert Road
AT56	Implement two-way segregated cycleway on Gilbert Road
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport
AT61	Implement shared use path on Victoria Street
AT64	Implement shared use path on Old Meldrum Road
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road
AT66	Implement shared use path on Gilbert Road
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride
PT11	Improve public transport connectivity between the A947 study area and TECA
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate
O2	Review the layout of the Victoria Street/Skene Place Junction
O3	Review the layout of the Riverview Drive/Balloch Way Junction
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer
O8	Review the layout of the A947/Stoneywood Brae Junction
O10	Review layout of the A947/McDonalds access road junction
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce
O25	Implement access only restrictions for general traffic on Victoria Street
O26	Implement one-way restrictions for general traffic on Victoria Street

4.4 Table 3 Options

The following options comprise Table 3.

Table 4-3: A947 Multi-Modal Corridor Study – Table 3 Options

AT3	Review the layout of Victoria Street/Pitmedden Road for pedestrians
AT23	Implement a bike hire scheme within Dyce.
AT45	Upgrade the Riverside Path to a high quality active travel route, including improvements to the surfacing of the route
PT5	Implement real time passenger information at key bus stops along the study corridor
O18	Consider options to reduce vehicle speeds on Bankhead Road
O24	Implement electric vehicle charging points at key locations within Dyce
AT46	Implement lighting on the Riverside Path

As the study developed, it was agreed with ACC that Option O18 – Consider options to reduce vehicle speeds on Bankhead Road – would no longer form part of the options to be considered by ACC in Table 3. Transport Scotland has now released further details regarding the proposed widespread implementation of 20mph speed limits in urban areas. The intentions of the 20mph strategy will be to identify a number of outcomes to assist in the further delivery of 20mph zones and limits on those roads where it is appropriate to do so. It seeks to reduce perceptions of road danger, encourage people to walk, wheel and cycle, and create more pleasant streets and neighbourhoods by providing a more equitable balance between different road users, thereby promoting inclusivity. Funding has been provided to review all city streets against set criteria to determine whether a reduced speed limit is appropriate. It is expected that further guidance will be provided on the instances when traffic calming might be required to support the reduced speed limits. Any future measures on Bankhead Road will therefore be considered on this basis.

4.5 Table 4 Options

The following options comprise Table 4.

Table 4-4: A947 Multi-Modal Corridor Study – Table 4 Options

AT1	Review the junction for active travel users at the A947/A90 slip road junction
AT2	Review visibility for cyclists at the B977/A90 slip road roundabout
AT7	Review signals at Forrit Burn Road bus gate to allow cyclists access
AT10	Widen on-road advisory cycle lane on Riverview Drive
AT11	Implement missing sections of on-road advisory cycle lane on Riverview Drive
AT12	Widen on-road advisory cycle lane on Stoneywood Road at Stoneywood Park junction
AT21	Implement cycle parking at key trip attractors in the study area
AT22	Promote Craibstone Park & Ride as a Park & Pedal facility
AT28	Implement dropped kerbs for cyclists to transfer between the carriageway and pavement at the northbound bus stop on the A947, north of the River Don
AT37	Implement dropped kerbs between Wellheads Drive shared use path and the carriageway
AT38	Review access restrictions on Market Street to allow for cargo bikes and recumbent cycles
AT39	Review access controls on off-road path between Waterton Road and Ruthriehill Road
O1	Increase enforcement of zigzag lines at zebra crossing on Victoria Street, specifically adjacent to Tesco
O12	Implement signage to encourage reverse parking at the shops on Victoria Street

The Preliminary Appraisal report noted that while Options AT10, AT11 and AT12 could be delivered as ‘quick wins’, on-road cycling infrastructure is not shown to influence modal shift and therefore it is considered that segregated cycling infrastructure should be promoted as part of this study. However, these options may provide interim opportunities to improve on-road cycling infrastructure in advance of further consideration of segregation in the study area. The continuing role of these options is considered later in this report.

4.6 Finalising Options for Detailed Appraisal

In advance of undertaking the Detailed Appraisal, the Table 2 options were subject to further review to identify any changes requiring consideration since the completion of the Preliminary Appraisal and the selection of these options by ACC for further development, appraisal and design.

4.6.1 Table 2 Option Sifting

This included an exercise to determine whether any options should be sifted prior to Detailed Appraisal. This considered specific aspects of deliverability for each of the options, to assess whether they should be subsequently considered as part of the appraisal. The exercise sought to establish if there are any deliverability barriers taking into account design requirements and existing conditions. It also sought to identify conflicting proposals or solutions which are dependent on each other.

Appendix C sets out in detail the process of preliminary option development for the Table 2 options, with **Table 4-5** below setting out the overall results of the Table 2 options review.

Table 4-5: Table 2 Options Review

Option Ref	Description	Retain for Detailed Appraisal/Sift
AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport	SIFT
AT26	Improve active travel connectivity between the A947 study area and TECA	RETAIN
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate	SIFT
AT31	Improve active travel links between the Riverside Path and housing within Dyce	RETAIN
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	RETAIN
AT35	Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station	RETAIN
AT41	Improve active travel access to the retail park at the Bucksburn Roundabout	RETAIN
AT42	Review access to the Formartine and Buchan Way from within Dyce	SIFT
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	RETAIN
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	SIFT
AT48	Implement two-way segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	RETAIN
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	RETAIN
AT52	Implement two-way segregated cycleway on Old Meldrum Road	RETAIN
AT55	Implement with-flow segregated cycleway on Gilbert Road	SIFT
AT56	Implement two-way segregated cycleway on Gilbert Road	SIFT

Option Ref	Description	Retain for Detailed Appraisal/Sift
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	RETAIN
AT61	Implement shared use path on Victoria Street	RETAIN
AT64	Implement shared use path on Old Meldrum Road	SIFT
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	RETAIN
AT66	Implement shared use path on Gilbert Road	SIFT
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	RETAIN
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport	SIFT
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride	SIFT
PT11	Improve public transport connectivity between the A947 study area and TECA	SIFT
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate	SIFT
O2	Review the layout of the Victoria Street/Skene Place Junction	RETAIN
O3	Review the layout of the Riverview Drive/Balloch Way Junction	RETAIN
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	RETAIN
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	RETAIN
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	RETAIN
O8	Review the layout of the A947/Stoneywood Brae Junction	RETAIN
O10	Review layout of the A947/McDonalds access road junction	RETAIN
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	RETAIN
O25	Implement access only restrictions for general traffic on Victoria Street	RETAIN
O26	Implement one-way restrictions for general traffic on Victoria Street	RETAIN

The rationale for the sifting of the options identified above is shown below. Further detail on the design rationale for the sifting of these options is provided within **Appendix A**.

Table 4-6: Table 2 Options Review – Option Sifting Rationale

Option Ref	Description	Rationale for Sifting
AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport	It was agreed with ACC during the sifting exercise that Option AT24 should be reassigned to Table 4 (Quick Wins) on the basis that the measures associated with the option are already well defined; supporting progression as a quick win, without the need for further appraisal.
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate	This option promotes similar outcomes to Options AT24, AT26 and AT58 which are more targeted and specific.
AT42	Review access to the Formartine and Buchan Way from within Dyce	Improvement in access facilitated to F&B Way facilitated by multiple other Table 1 and 2 options.
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	Section specific options which broadly cover extent of the route are available across Tables 1-4 and are considered more deliverable when considered individually.
AT55	Implement with-flow segregated cycleway on Gilbert Road	Not feasible to achieve Cycling by Design absolute minimum segregation along route without removal of parking. Low moving traffic volumes and speeds would suggest mixed traffic street measures could be more effective here.
AT56	Implement two-way segregated cycleway on Gilbert Road	
AT64	Implement shared use path on Old Meldrum Road	Segregated facilities along Old Meldrum Road (Options AT51 and AT52) offer a higher Level of Service to cyclists and therefore will be retained over Option AT64.
AT66	Implement shared use path on Gilbert Road	Not feasible to achieve Cycling by Design absolute minimum shared use without removal of parking on one side. Low moving traffic volumes and speeds would suggest mixed traffic street measures could be more effective here.
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport	Following engagement with the client group, it was agreed that these standalone public transport options could be sifted. The Roads Hierarchy places greater emphasis on active travel and by delivering traffic calming and active travel improvements as captured under retained Table 1 and 2 options, benefits in terms of public transport attractiveness and journey time reliability will be realised. It is also noted that public transport improvements are reliant on commitment and buy-in from private operators.
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride	
PT11	Improve public transport connectivity between the A947 study area and TECA	
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate	

4.6.2 Final Options for Detailed Appraisal

In the process of preparing for the Detailed Appraisal and design of the remaining Table 2 options, some further minor modifications were made to some options to better reflect the opportunities they present for change on the A947 corridor. The table below sets out the final options – including rescoped options – that will be subject to Detailed Appraisal later in this report.

Table 4-7: Table 2 Options Review – Final Options For Detailed Appraisal

Option Ref	Description	Option Rescope
AT26	Improve active travel connectivity between the A947 study area and TECA	N/A
AT31	Improve active travel links between the Riverside Path and housing within Dyce	N/A
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	N/A
AT35a	Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	Following a review of Option AT35, the wording of the option was redefined to broaden the scope from focusing on quiet route measures to active travel improvements. The option reference was updated to AT35a to reflect this change. In addition, with existing committed works being progressed separately by ACC, introduction of any new active travel measures on Farburn Terrace and Wellheads Drive will not be considered further as part of this study.
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout	Two variants are to be considered for this option in the appraisal and design. Option AT41a assumes the existing dual carriageway layout is retained and the existing northbound footway is upgraded to a shared use facility between the A947 crossing and the retail park. Option AT41b would involve A947 carriageway width reduction to one lane to facilitate a segregated two-way cycleway.
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	N/A
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	In order to capture sections along the A947 which are not considered under other targeted active travel options and to promote an overall coherent and connected network, AT48 has been reworded to incorporate the evaluation of solutions which offer a high level of service between the Bucksburn Roundabout and Riverview Drive Roundabout North, through the implementation of new shared use and segregated cycleway facilities. This would enable active travel improvements along the entirety of Riverview Drive. The option reference has now been updated to AT48a to reflect this change.
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	N/A
AT52	Implement two-way segregated cycleway on Old Meldrum Road	N/A
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	N/A

Option Ref	Description	Option Rescope
AT61a	Implement package of active travel measures on Victoria Street	As the urban centre of Dyce, implementation of a shared use path would bring a higher risk of conflict between users. Therefore, shared use is not considered appropriate on the primary residential and commercial section of Victoria Street. As a result of the recent reprioritisation of the A947 along Riverview Drive as part of the Roads Hierarchy revision, it is anticipated that there will be reduced traffic levels along Victoria Street with route reclassification. Despite the implementation of a shared use path being discounted, it is important to continue developing other active travel measures along Victoria Street to improve accessibility and active travel opportunities in the 'heart' of Dyce. AT61 has been reworded to capture a broader range of options for active travel improvements along Victoria Street. The option reference has now been updated to AT61a to reflect this change.
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	N/A
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	N/A
O2	Review the layout of the Victoria Street/Skene Place Junction	N/A
O3	Review the layout of the Riverview Drive/Balloch Way Junction	N/A
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	N/A
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	N/A
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	N/A
O8	Review the layout of the A947/Stoneywood Brae Junction	N/A
O10	Review layout of the A947/McDonalds access road junction	N/A
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	N/A
O25	Implement access only restrictions for general traffic on Victoria Street	N/A
O26	Implement one-way restrictions for general traffic on Victoria Street	N/A

4.7 Table 1 Option Development

Development of the Table 1 options focused on the production of general arrangement (GA) drawings to outline the proposed layout. These GA drawings were produced against an OS base map and were developed in accordance with current design standards and best practice guidance. A high level of service and desirable minimum parameters were targeted as far as feasible in line with guidance including Cycling by Design (CbD) and the Design Manual for Roads and Bridges (DMRB). Where significant constraints were recognised, alternative solutions were considered and some localised relaxation of standards to absolute minimum parameters was adopted.

The options within Table 1 which focused on a review of current conditions along the A947 corridor were assessed by conducting site walkovers where data was collected using GIS tools. The data was analysed with a technical note produced for each option to summarise observations and recommendations.

A high-level costing exercise was undertaken to establish outline construction costs for the options developed. Optimism bias at 44% was included in the estimate to reflect the early stage of option development and account for risk and contingency.

The key design features, proposed risks and outline cost estimates for these options are detailed in a detailed Table 1 Design Technical Note, presented as **Appendix B**.

4.8 Options within Aberdeenshire Council area

In May 2024, ACC agreed with Aberdeenshire Council that no options traversing the local authority boundary would be subject to public and stakeholder consultation. This led to the following options being excluded from the consultation exercise discussed in Chapter 6:

- AT59 (Table 1) – Widen the shared use path on the east side of the A947 to the north of Riverview Drive; and
- AT43 (Table 2) – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR).

While Option AT59 is located within the Aberdeen City boundary, the supporting design drawings produced demonstrate the linkage between this option and Option AT43 (which crosses into Aberdeenshire), so it was agreed that this option (while not subject to Detailed Appraisal on account of being in Table 1) would not be shown in the overall package of information for the consultation. While the AT43/AT59 tie-in was not highlighted during consultation, the existing National Cycle Route shared use path follows this alignment so there was still a tangible connection (for public context) between the improvements in Dyce and Dyce Drive.

With the approach taken above, consultation has therefore not informed the appraisal of Option AT43, but professional judgment has been employed to gauge the likely level of impact of this option (in terms of public acceptability) in Chapter 10.

4.9 Summary

This Chapter has summarised the review of the options that emerged from the Preliminary Appraisal stage and has confirmed the options that will be subject to Detailed Appraisal at this stage of the study.

Chapter 5 sets out the study Transport Planning Objectives.

5. Transport Planning Objectives

5.1 Introduction

This Chapter sets out the review of the study TPOs that has been undertaken in preparation for Detailed Appraisal.

At the previous stage of the study, six TPOs were initially developed using a bottom-up approach that focussed on developing objectives to address the identified problems, constraints and opportunities in the study area. The TPOs were also informed by way of a top-down assessment of their alignment with the national, regional and local transport policy and strategy framework.

The six TPOs were as follows:

- **TPO1** – Increase the modal share of walking on the A947 corridor for all journey types;
- **TPO2** – Increase the modal share of public transport on the A947 corridor for all journey types;
- **TPO3** – Increase the modal share of cycling on the A947 corridor for all journey types;
- **TPO4** – Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements;
- **TPO5** – Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes; and
- **TPO6** – Ensure the main routes through the study area function in accordance with their role in the revised Roads Hierarchy.

As set out in STAG, TPOs should be refined as the appraisal progresses and more information becomes available. It notes that in advance of the Detailed Options Appraisal, TPOs should be finalised and, where appropriate, include a target which captures the nature and scale of the change.

The TPOs have been reviewed taking account of Transport Scotland guidance on the development of SMART TPOs.

5.2 Problems and Opportunities Review

Based on the PICOs analysis undertaken in 2022 at the previous stage of the study, a number of strategic problems and opportunities were identified within the study area. A commentary against each to evaluate continued applicability at the current (Detailed Appraisal) stage of the study is provided in the table below.

Table 5-1: Problems and Opportunities Review

Problem	Applicable (Y/N)	Commentary
F&B Way, including a lack of maintenance, a lack of signage and a number of access points not being accessible due to gates and barriers.	N	It was agreed with the Client Group at the previous stage of the study that options would not be generated for the F&B Way due to other studies being progressed on the route.
Declining bus patronage, with consultation findings suggesting barriers to increased public transport use including perceived long journey times to the city centre and the frequency and timetabling of services not being accessible for those working shift patterns.	N	Discussions with bus operators regarding other corridors in the region has indicated that patronage has recovered well from the COVID-19 pandemic, with recorded numbers above 2019 levels on some services. Data has been requested from the bus operators to determine trends for the A947 specifically. Whilst consultation findings indicated that there are perceived long journey times to the city centre from the study area, the evidence available indicates that bus journey times have been decreasing in recent years. Furthermore, journey times to the city centre are more significantly impacted by transport conditions on the A96 which is the subject of a separate study being progressed in parallel. It is also anticipated that the A96 will form one of the routes comprising the proposed Aberdeen Rapid Transit (ART) network.

Problem	Applicable (Y/N)	Commentary
		It was agreed with the Client Group that this study has limited influence on public transport connectivity as this would require commitment and buy-in from private operators. Furthermore, a new circular bus route has been introduced by Premier Coaches since the PICOs analysis was undertaken, which links Aberdeen International Airport with hotels within a two-mile radius and to the P&J Live arena (TECA), which is considered to address the identified problem to an extent. On this basis, the Detailed Appraisal stage of the study allows for a refocus on how any interventions to support public transport movements in the study area are articulated.
Active travel infrastructure – a lack of footway provision to match pedestrian desire lines; advisory cycle lanes being narrow and inconsistent and a limited number of appropriate crossings for pedestrians and cyclists throughout the study area.	Y	It is considered that issues with active travel infrastructure continue to be relevant in the context of the current study.
Driver behaviour – speeding, ignoring cycle provision, flouting 'no entry' signs and parking on double yellow lines.	N	It is considered that this is largely an enforcement issue. However, through improving the level of service for active travel users, the effects of driver behaviour on these groups would be reduced.
Maintenance of active travel infrastructure – including the surfaces of advisory cycle lanes, footways and the underpass at Millhill Brae and the Riverside Path.	N	It is considered that this is largely a maintenance issue that ACC will address as part of 'business as usual' activities.
Signage – lack of active travel signage along the corridor.	Y	It is considered that issues with active travel signage continue to be relevant in the context of the current study.
Monitoring – issues with active travel counters in the study area.	N	Whilst this is not a problem for the current study to address, accurate count data will be required in order to measure the performance of options against the TPOs and monitoring and evaluation proposals will be set out as part of the appraisal and OBC.
Opportunity	**Applicable (Y/N)**	**Commentary**
Locking in the benefits of the AWPR	Y	The opening of the AWPR allowed for the review of the roads hierarchy in Aberdeen. This led to the reclassification of the A947 within Dyce whereby the primary route is now via Riverview Drive rather than Victoria Street, creating increased opportunities for prioritising active travel modes on Victoria Street.
Policy context	Y	It is considered that the study continues to align with the national, regional and locally policy context, including support for more trips to be undertaken using sustainable modes of travel. Further synergy is provided between the corridor study and the emerging ACC LTS, which is currently subject to public consultation.
Bus service partnerships	N	No significant issues were identified at the previous stage of the study in terms of public transport operations on the study corridor.
Funding - £500m over the next five years for active travel infrastructure and £500m Bus Partnership Fund (BPF).	Y	It is considered that there is an opportunity to capitalise on the funding for active travel infrastructure that is available at a national level. In terms of the BPF, £12m was awarded to the North East Bus Alliance in June 2021 to progress the case for Aberdeen Rapid Transit (ART) in the region, however, the A947 has not been identified as an ART corridor. Nevertheless, establishment of the A96 as an ART route may provide wider benefits for public transport journeys on the A947 corridor, with these benefits potentially extending to the trips of users from Aberdeenshire, beyond the study area boundary at the AWPR junction.
Distances to work – the vast majority living within the study area travel less	Y	It is considered that there continues to be opportunities to encourage active travel use for journeys to work for those living

Problem	Applicable (Y/N)	Commentary
than 10km for work.		within the study area.
20-minute neighbourhood	Y	It is considered that there remains potential to adopt the 20-minute neighbourhood concept in Dyce.

5.3 TPO Review

The table below sets out a set of revised TPOs that are proposed based on the problems and opportunities review detailed above and the requirement to 'SMARTen' the TPOs prior to undertaking Detailed Appraisal.

Table 5-2: Revised Study TPOs

Preliminary Appraisal TPO	Revised TPO	Commentary/Rationale
TPO1 – Increase the modal share of walking on the A947 corridor for all journey types	**TPO1** – Increase the number of walking and wheeling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline)	• 20% target based on information available from automatic pedestrian and cycle counters in the study area in 2019, this would mean approximately 118,900 additional annual pedestrian trips in the study area. • 2024 baseline to be established. • Discussion required for baseline wheeling trips and monitoring of wheeling trips. • 5 years considered enough time for interventions to have contributed towards modal shift in the study area.
TPO2 – Increase the modal share of public transport on the A947 corridor for all journey types	**Remove**	• Declining bus patronage was identified as a problem due to journey times to the city centre from Dyce and due to difficulties accessing the airport and other key destinations in the west of Dyce from the east of Dyce. • Solutions for improving bus journey times to the city centre are considered to be focussed on the A96 route rather than the A947 as no significant operational problems were identified on the A947 corridor during the PICOs analysis. • It was agreed with the Client Group that this study has limited influence on public transport connectivity as this would require commitment and buy-in from private operators. Furthermore, a new circular bus route has been introduced by Premier Coaches since the PICOs analysis was undertaken, which links Aberdeen International Airport with hotels within a two-mile radius and to the P&J Live arena, which is considered to address the identified problem to an extent.
TPO3 – Increase the modal share of cycling on the A947	**TPO2** – Increase the number of cycling trips in the study	• 20% target based on information available from

Preliminary Appraisal TPO	Revised TPO	Commentary/Rationale
corridor for all journey types	area by 20% within 5 years of project delivery (against a 2024 baseline)	automatic pedestrian and cycle counters in the study area in 2019, this would mean approximately 6,935 additional annual cycle trips in the study area. • 2024 baseline to be established. • 5 years considered enough time for interventions to have contributed towards modal shift in the study area.
TPO4 – Improve east-west connectivity within Dyce to enhance walkability within the local area and promote improved accessibility for local movements	**Remove**	• Improving east-west connectivity is a way in which TPO1 and TPO2 will be delivered (i.e. improving east-west connectivity for active modes would be anticipated to increase the number of trips undertaken by walking, wheeling and cycling). • Proposals to SMARTen the TPO included incorporation of a time element (e.g. to achieve local trips to key destinations within a 20-minute walk or wheel time). The PICOs analysis highlighted that local trips to key destinations were already within a 20-minute cycle. Furthermore, achieving 20-minute walking trips to key destinations is not considered to be realistic in many cases due to the distances involved.
TPO5 – Improve accessibility to the key transport hubs of Dyce Rail Station, Aberdeen Airport and Craibstone Park and Ride and key destinations including TECA by non-car modes	**Remove**	• Aberdeen Airport – walking and cycling to the airport with luggage is unlikely and frequent JET 727 service is already in place, which provides good access by bus. • Dyce Rail Station, Craibstone Park and Ride and TECA – improving access to these destinations will be considered through the option development, appraisal and design process as a way of achieving increased walking, wheeling and cycling trips in the study area.

Preliminary Appraisal TPO	Revised TPO	Commentary/Rationale
TPO6 – Ensure the main routes through the study area function in accordance with their role in the revised Roads Hierarchy	**Remove**	• The A947 Multi-Modal Corridor Study – and the parallel studies being progressed by ACC on other corridors in the city – are being progressed in cognisance of the changes to priority routes introduced by the revision of the Roads Hierarchy in 2019. This reclassification led to the A947 now routeing via Riverview Drive, as opposed to directly through the centre of Dyce along Victoria Street. • The remaining 'Table 1' and 'Table 2' options under consideration at this stage of the study were previously assessed against this objective at the Preliminary Appraisal stage. Any options contravening the Roads Hierarchy principles would therefore not have been recommended for progression to the Detailed Appraisal and OBC stage of the study. With the study offering opportunity for practical implementation of options to capitalise on the changes introduced by the Roads Hierarchy, it is considered that no significant added value to the appraisal exercise would be brought by appraising the remaining options against an objective relating to safeguarding route function at this stage. On this basis, it is recommended that this TPO is no longer required to ensure robust appraisal of the remaining options. Any options ultimately making the OBC stage of the study will, by their scope, ensure that the A947 and Victoria Street function in accordance with their respective roles in the Roads Hierarchy.

5.4 SMART TPOs

The table below demonstrates how the revised study TPOs relate to the SMART principles.

Table 5-3: SMART TPOs

TPO	Specific	Measurable	Achievable	Realistic	Time Bound
TPO1 – Increase the number of walking and wheeling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline)	TPO relates to increasing the number of walking and wheeling trips within the settlement of Dyce for all journey purposes. Objective is specific in terms of geographic area and scale of change desired.	Issues with count technology were identified during the PICOs analysis. It has been agreed with ACC that a 2024 baseline should be sought as a basis for monitoring this TPO going forward. Monitoring information to be recorded yearly from the same source. The total number of walking trips could be recorded for a range of frequencies, including daily, monthly and on an annual basis. Discussion required for baseline wheeling trips and monitoring of wheeling trips.	There is strong support from governance at a local, regional and national level to increase the number of trips undertaken by active modes. Active mode provision is within the remit of ACC; control over delivery subject to factors such as land ownership and access permissions.	TPO is consistent with the overall aim of the A947 Multi-Modal Study. Problems and opportunities analysis highlighted that there is inadequate active travel infrastructure, high levels of car ownership and usage and lack of sustainable access to employment, education and key services and facilities in the study area.	Within 5 years of project delivery
TPO2 – Increase the number of cycling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline)	TPO relates to increasing the number of cycling trips within the settlement of Dyce for all journey purposes. Objective is specific in terms of geographic area and scale of change desired.	Issues with count technology were identified during the PICOs analysis. It has been agreed with ACC that a 2024 baseline should be sought as a basis for monitoring this TPO going forward. Monitoring information to be recorded yearly from the same source. The total number of cycling trips could be recorded for a range of frequencies, including daily, monthly and on an annual basis.	There is strong support from governance at a local, regional and national level to increase the number of trips undertaken by active modes. Active mode provision is within the remit of ACC; control over delivery subject to factors such as land ownership and access permissions.	TPO is consistent with the overall aim of the A947 Multi-Modal Study. Problems and opportunities analysis highlighted that there is inadequate active travel infrastructure, high levels of car ownership and usage and lack of sustainable access to employment, education and key services and facilities in the study area.	Within 5 years of project delivery

5.5 Summary

This Chapter has outlined the final TPOs for the study. It has demonstrated how the TPOs are SMART and this will support ACC in the future monitoring and evaluation of the TPOs. The following Chapter details the process of consultation and engagement.

6. Consultation and Engagement

6.1 Introduction

STAG notes that consultation and engagement are key elements of an appraisal and that this should ensure that the interests of stakeholders are considered in an inclusive, open, transparent and appropriate manner.

Involving and engaging people can have a range of benefits including:

- Building confidence in the study or process;
- Making people feel part of the decision-making process; and
- Achieving widespread support for proposals.

This Chapter provides an overview of the public and stakeholder engagement exercise that was undertaken as part of the Detailed Appraisal and outlines the key findings from the engagement. The engagement undertaken at this stage builds upon and supplements that undertaken at earlier stages of the study. The consultation exercise ran for four weeks between 17th May 2024 and 14th June 2024 and involved an online survey and a public drop-in event.

The *Consultation Results Outputs* located in **Appendix I** provides the full outputs from the online survey for responses by members of the public and organisations. The raw data has also been provided to ACC under separate cover.

6.2 Methodology

6.2.1 Online Consultation

Consultees accessed study information and the online survey through the Citizen Space page hosted on the ACC website. The consultation boards had information on the background to the study, work completed to date and an overview of the key features of the option packages being consulted upon. GIS maps were used to present the location of each option within a package and allowed for representation of how the different options interact with one another. CAD drawings were also available for certain options to provide more detail and aid a response.

Details of the in-person consultation event were also included on the page and an email address was provided for those who wished to contact the project team directly.

6.2.2 Survey

The platform also hosted the online survey which was used by consultees to provide feedback on the option packages (detailed below). The survey was hosted on Microsoft Forms.

The feedback form was developed to collate responses to inform the Detailed Appraisal. It sought views on:

- Agreement with the aims of the packages;
- Likelihood of the packages to increase sustainable travel;
- Any comments specifically on the individual options contained within the packages; and
- Any general comments on the packages as a whole.

Respondents were also asked a series of ‘About You’ questions to assess the representativeness of the sample.

Two versions of the survey were available depending if the respondent was a member of the public or responding on behalf of an organisation. The survey structure and topics were consistent but whilst the public version asked how the proposed packages would impact themselves, the organisation version asked how the proposed packages would impact on the operation of the organisation.

Printed versions of the surveys were available for those attending the in-person drop-in event.

6.2.3 Public Drop-In Event

An in-person public drop-in event was hosted at the Craighaar Hotel on Thursday 6 June 2024 between 16:00 and 20:00.



Figure 6-1: Public Consultation, Craighaar Hotel

The event was attended by representatives from AECOM and ACC. During the event, attendees were provided with the opportunity to look at hard copies of the consultation materials available online and discuss the study in greater depth with members of the project team. There were 14 attendees across the session.

As noted above, there were printed copies of the feedback form available for attendees to complete, and they were also directed to the online form (accessed via QR code) if they wished to give feedback outwith the event. While no attendees wished to complete a paper copy of the feedback form during the event, views expressed during the session have been captured in the analysis of the options, in terms of public acceptability (Chapter 10).

6.2.4 School Engagement

An interactive session was held with pupils at Stoneywood Primary School on Wednesday 8 May 2024. This highlighted the role of a transport planner and initiated high-level group discussions around the key problems and opportunities relating to transport in the study area.

6.2.5 Consultation Promotion

In order to inform people about the consultation, several methods were used to promote the online survey and public drop-in event including:

- Social media posts from ACC and Nestrans;
- Emails direct to key stakeholders; and
- Emails direct to Community Councils on the study corridor (Dyce & Stoneywood, Bucksburn & Newhills and Danestone).

Local Elected Members (ACC Councillors), MSPs and MPs were also contacted to notify them about the consultation.

6.2.6 Packages for Consultation

For the purposes of consultation, five option packages were created to support interpretation of the options in which feedback was being sought. These were:

1. A947 (West) Package.
2. Riverview Drive Package.
3. Victoria Street Package.
4. Targeted Local Improvements Package.
5. Strategic Corridor Improvements Package.

The description of each of the options progressing to detailed appraisal (as set out in Chapter 4) within the packages being consulted on was updated to make the scope of the option clearer and thus more consumable for the consultees.

Table 6-1: Option Descriptions for Consultation

Option Ref	Description	Updated Description for Consultation Purposes	Consultation Package
AT26	Improve active travel connectivity between the A947 study area and TECA	Introduce wayfinding signage and resurface and widen the existing core path network at The Event Complex Aberdeen (TECA)	A947 (West) Package
AT31	Improve active travel links between the Riverside Path and housing within Dyce	Implement a new footpath to connect the Riverside Path and housing in Dyce at Todlaw Walk junction	Riverview Drive Package
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	Implement a contra-flow cycle lane along Station Road to improve active travel connectivity with Dyce Rail Station	Victoria Street Package
AT35a	Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	A947 (West) Package
AT41a	Improve active travel access to the retail park at the Bucksburn Roundabout	Widen the existing shared use footway to the west of the A947 near the retail park at Bucksburn Roundabout	A947 (West) Package
AT41b	Improve active travel access to the retail park at the Bucksburn Roundabout	Implement a two-way segregated cycle track to the west of the A947 near the retail park at Bucksburn Roundabout	A947 (West) Package

Option Ref	Description	Updated Description for Consultation Purposes	Consultation Package
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	Implement new shared use and segregated cycle track facilities on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	Strategic Corridor Improvements Package
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	Implement with-flow segregated cycleway on Old Meldrum Road	Targeted Local Improvements Package
AT52	Implement two-way segregated cycleway on Old Meldrum Road	Implement two-way segregated cycleway on Old Meldrum Road	Targeted Local Improvements Package
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	Implement shared use footway on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	Strategic Corridor Improvements Package
AT61a	Implement package of active travel measures on Victoria Street	Implement shared use footways and mixed traffic street measures on Victoria Street	Victoria Street Package
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	Implement widened footways along Mugiemoss Road	Targeted Local Improvements Package
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	Strategic Corridor Improvements Package
O2	Review the layout of the Victoria Street/Skene Place Junction	Implement a one-way system along Station Road and the adjacent streets	Victoria Street Package
O3	Review the layout of the Riverview Drive/Balloch Way Junction	Increase the kerb radii at the Riverview Drive/Balloch Way Junction to improve pedestrian accessibility	Riverview Drive Package
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	Increase the kerb radii at the Riverview Drive/Todlaw Walk Junction to improve pedestrian accessibility	Riverview Drive Package
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	Increase the kerb radii at the Riverview Drive/Netherview Avenue Junction to improve pedestrian accessibility	Riverview Drive Package
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	Implement a splitter island at the A947/Stoneywood Road Junction at Co-op/Marks and Spencer to prevent illegal turning manoeuvres	Targeted Local Improvements Package
O8	Review the layout of the A947/Stoneywood Brae Junction	Increase the existing taper at the A947/Stoneywood Brae Junction to reduce vehicle speeds	Targeted Local Improvements Package
O10	Review layout of the A947/McDonalds access road junction	Review layout of the A947/McDonalds access road junction	A947 (West) Package
O16	Implement package of measures to support implementation of a 20-minute	Implement package of measures to support implementation of a 20-minute	Strategic Corridor Improvements Package

Option Ref	Description	Updated Description for Consultation Purposes	Consultation Package
	neighbourhood in Dyce	neighbourhood in Dyce	
O25	Implement access only restrictions for general traffic on Victoria Street	Implement access only restrictions for general traffic on Victoria Street	Victoria Street Package
O26	Implement one-way restrictions for general traffic on Victoria Street	Implement one-way restrictions for general traffic on Victoria Street	Victoria Street Package

6.3 Key Findings

6.3.1 Public Drop-In Event

As noted above, 14 people attended the public drop-in event at the Craighaar Hotel. A summary of the key points of feedback are as follows:

- General support for the principles of the study and the rationale behind the composition of the option packages.
- Concern about parking on residential streets by offshore workers for prolonged periods of time.
- Business representation identified a significant concern relating to the options involving restriction on access to Victoria Street – previous traffic management work in the area was cited as having adversely affected trade.
- Concern about impact on surrounding residential streets in the event Victoria Street was made one-way or access only.
- Concern about articulated HGVs turning off Riverview Drive into Burnside Drive, a residential street, to access Farburn Industrial Estate. It was suggested that this is due to the position of the current wayfinding signage on Riverview Drive.

6.3.2 Online Survey

6.3.2.1 Introduction

The following sections present the results of the online survey. The results have been separated for responses from members of the public and from organisations.

A total of 54 responses were received from members of the public, with seven organisations responding to the consultation. The extent of support for the options from organisations in particular should therefore be treated with caution.

6.3.2.2 A947 (West) Package

The table below outlines respondents' level of support for the options that make up the A947 (West) Package.

Table 6-2: A947 (West) Package Consultation Feedback

Option	Type of Respondent	Strongly Agree	Agree	Disagree	Strongly Disagree	Neutral
Introduce wayfinding signage and resurface and widen the existing core path network at The Event Complex Aberdeen (TECA)	Members of Public	21.2%	32.7%	17.3%	17.3%	11.5%
	Organisations	28.6%	28.6%	0%	14.3%	28.6%
Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	Members of Public	20.8%	26.4%	20.8%	24.5%	7.5%
	Organisations	0%	14.3%	0%	42.9%	42.9%
Widen the existing shared use footway to the west of the A947 near the retail park at Bucksburn Roundabout	Members of Public	25.0%	28.8%	15.4%	17.3%	13.5%
	Organisations	0%	0%	14.3%	57.1%	28.6%
Implement a two-way segregated cycle track to the west of the A947 near the retail park at Bucksburn Roundabout	Members of Public	32.1%	18.9%	15.1%	30.2%	3.8%
	Organisations	0%	0%	14.3%	57.1%	28.6%
Review layout of the A947/McDonalds access road junction	Members of Public	36.5%	19.2%	17.3%	17.3%	9.6%
	Organisations	0%	0%	14.3%	42.9%	42.9%

- Members of the public were largely in agreement with the options contained within this package. The option to review the layout at the A947/McDonalds access road junction received the greatest support with 55.7% of respondents agreeing in total. Implementation of a two-way segregated cycle track (to the west of the A947) received mixed views by members of the public as while 32.1% of respondents stated they strongly agreed with this option, a similar proportion of respondents (30.2%) stated they strongly disagreed with the option.
- Organisations largely disagreed with the options contained within this package. Introducing improvements to the active travel network at TECA was the most positively received option with 57.2% of organisations stating they strongly agreed or agreed with the option. Over half of organisation respondents strongly disagreed with options relating to widening of the existing shared use footway to the west of the A947 and implementation of a two-way segregated cycle track to the west of the A947.

Additional comments on the individual options that make up the A947 (West) Package are summarised and outlined below.

- Support for measures which seek to make the environment safer for active travel users as high vehicle volumes within the Dyce area can make walking, wheeling and cycling feel unsafe.

- Concerns were cited that existing active travel infrastructure is underutilised and the relative low number of users does not warrant further investment.
- Suggestions that additional infrastructure should be included such as the planting of trees to further segregate active travel users from the main carriageway. There was also support for increased wayfinding signage.

6.3.2.3 Riverview Drive Package

The table below outlines respondents' level of support for the options that make up the Riverview Drive Package.

Table 6-3: Riverview Drive Package Consultation Feedback

Option	Type of Respondent	Strongly Agree	Agree	Disagree	Strongly Disagree	Neutral
Implement a new footpath to connect the Riverside Path and housing in Dyce at Todlaw Walk junction	Members of Public	30.8%	32.7%	23.1%	7.7%	5.8%
	Organisations	14.3%	28.6%	14.3%	28.6%	14.3%
Increase the kerb radii at the Riverview Drive/Balloch Way Junction to improve pedestrian accessibility	Members of Public	26.4%	30.2%	17.0%	15.1%	11.3%
	Organisations	0%	0%	14.3%	42.9%	42.9%
Increase the kerb radii at the Riverview Drive/Todlaw Walk Junction to improve pedestrian accessibility	Members of Public	26.9%	30.8%	17.3%	15.4%	9.6%
	Organisations	0%	0%	14.3%	42.9%	42.9%
Increase the kerb radii at the Riverview Drive/Netherview Avenue Junction to improve pedestrian accessibility	Members of Public	28.8%	28.8%	17.3%	17.3%	7.7%
	Organisations	0%	0%	14.3%	42.9%	42.9%

- Members of the public were largely in agreement with the options contained within this package. Implementation of a new footpath to connect the Riverside Path to Dyce housing was the most positively received option with 63.5% agreeing in total.
- Organisations largely disagreed with the options contained within this package. The only option positively received by organisations was implementation of the new footpath to connect the Riverside Path to Dyce housing, with 42.9% agreeing overall . There was no support expressed for the remaining options within the package.

Additional comments on the individual options that make up the Riverview Drive Package are summarised and outlined below.

- Opportunities to make the built environment more accessible through implementation of dropped kerbs and widening of walkways to allow wheelchairs, prams and mobility scooters with improved access is welcomed.
- Demand for further crossing opportunities over Riverview Drive.
- Suggestion that Riverview Drive retains its 40mph speed limit in order to support its function as a key road within Dyce, particularly if other roads are being restricted as per other proposed options.
- One comment noted concerns that a reduction of junction radii would cause increased problems for delivery vehicles travelling along the route.

6.3.2.4 Victoria Street Package

The table below outlines respondents' level of support for the options that make up the Victoria Street Package.

Table 6-4: Victoria Street Package Consultation Feedback

Option	Type of Respondent	Strongly Agree	Agree	Disagree	Strongly Disagree	Neutral
Implement a contra-flow cycle lane along Station Road to improve active travel connectivity with Dyce Rail Station	Members of Public	22.6%	17.0%	11.3%	47.2%	1.9%
	Organisations	0%	0%	0%	71.4%	28.6%
Implement shared use footways and mixed traffic street measures on Victoria Street	Members of Public	22.6%	11.3%	15.1%	43.4%	7.5%
	Organisations	0%	0%	0%	71.4%	28.6%
Implement a one-way system along Station Road and the adjacent streets	Members of Public	24.5%	15.1%	13.2%	43.4%	3.8%
	Organisations	0%	0%	0%	71.4%	28.6%
Implement access only restrictions for general traffic on Victoria Street	Members of Public	21.2%	9.6%	13.5%	51.9%	3.8%
	Organisations	0%	0%	0%	71.4%	28.6%
Implement one-way restrictions for general traffic on Victoria Street	Members of Public	18.9%	11.3%	9.4%	56.6%	3.8%
	Organisations	0%	0%	0%	71.4%	28.6%

- For each option in this package, more than half of responses from members of the public expressed disagreement. Implementation of a one-way system on Victoria Street received the lowest level of public support, with 56.6% of responses strongly disagreeing with this option.
- Organisations overwhelmingly (strongly) disagreed with the options contained within this package, with no support expressed for any of the proposed interventions.

Additional comments on the individual options that make up the Victoria Street Package are summarised and outlined below.

- Significant concerns from organisations and members of the public that the proposed one-way restriction along Victoria Street would negatively impact local businesses and services as a result of lost footfall.
- Concerns that vehicle restrictions along Victoria Street may displace vehicles onto other nearby roads which may not be suitable for an increase in traffic volume. Also concern this may also lead to safety concerns near schools.
- Suggestions that reduced vehicle speeds and increased enforcement to address illegal parking – and generally more parking restrictions – would create a better environment for active travel users along Victoria Street.

6.3.2.5 Targeted Local Improvements Package

The table below outlines respondents' level of support for the options that make up the Targeted Local Improvements Package.

Table 6-5: Targeted Local Improvements Package Consultation Feedback

Option	Type of Respondent	Strongly Agree	Agree	Disagree	Strongly Disagree	Neutral
Implement with-flow segregated cycleway on Old Meldrum Road	Members of Public	26.0%	22.0%	26.0%	20.0%	6.0%
	Organisations	0%	0%	0%	71.4%	28.6%
Implement two-way segregated cycleway on Old Meldrum Road	Members of Public	25.0%	19.2%	19.2%	23.1%	13.5%
	Organisations	0%	0%	0%	57.1%	42.9%
Implement widened footways along Mugiemoss Road	Members of Public	25.0%	26.9%	21.2%	17.3%	9.6%
	Organisations	0%	0%	0%	57.1%	42.9%
Implement a splitter island at the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer to prevent illegal turning manoeuvres	Members of Public	36.0%	30.0%	8.0%	14.0%	12.0%
	Organisations	0%	0%	0%	57.1%	42.9%
Increase the existing taper at the A947/Stoneywood Brae Junction to reduce vehicle speeds	Members of Public	25.0%	15.4%	25.0%	21.2%	13.5%
	Organisations	0%	0%	0%	57.1%	42.9%

- There was generally a variation in opinion amongst members of the public for the options in this package, though around two-thirds of respondents expressed support for the option seeking to prevent illegal turning manoeuvres at the A947/Stoneywood Road Junction at the shops.
- Organisations overwhelmingly (strongly) disagreed with the options contained within this package, with no support expressed for any of the proposed interventions. The with-flow segregated cycleway on Old Meldrum Road demonstrated a particular lack of support.

Additional comments on the individual options that make up the Targeted Local Improvements Package are summarised and outlined below.

- It was suggested that improved vehicle speed management would encourage greater active travel use, particularly for cyclists who are less confident.
- Concerns were cited that existing active travel infrastructure is underutilised and the relative low number of users does not warrant further investment.

6.3.2.6 Strategic Corridor Improvements Package

The table below outlines respondents' level of support for the options that make up the Strategic Corridor Improvements Package.

Table 6-6: Strategic Corridor Improvements Package Consultation Feedback

Option	Type of Respondent	Strongly Agree	Agree	Disagree	Strongly Disagree	Neutral
Implement new shared use and segregated cycle track facilities on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	Members of Public	32.7%	17.3%	23.1%	19.2%	7.7%
	Organisations	14.3%	0%	0%	57.1%	28.6%
Implement shared use footway on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	Members of Public	29.4%	31.4%	13.7%	17.6%	7.8%
	Organisations	14.3%	14.2%	0%	42.9%	28.6%
Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	Members of Public	27.5%	15.7%	25.5%	23.5%	7.8%
	Organisations	14.3%	0%	0%	57.1%	28.6%
Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	Members of Public	30.8%	9.6%	17.3%	26.9%	15.4%
	Organisations	14.3%	0%	0%	57.1%	28.6%

- There was generally a variation in opinion amongst members of the public for the options in this package, though the option to implement a shared use footway on Dyce Drive was positively received. There was notably less support for the implementation of measures to support establishment of a 20-minute neighbourhood in Dyce.
- Organisations largely disagreed with the options contained within this package, though there was a level of support expressed for the option to implement the shared use footway on Dyce Drive. Organisations otherwise overwhelmingly (strongly) disagreed with the other options contained within this package.

Additional comments on the individual options that make up the Strategic Corridor Improvements Package are summarised and outlined below.

- Some comments supported improved access to Kirkhill Industrial Estate and Aberdeen International Airport, however a similar number of comments stated that active travel connections to this area were sufficient and did not warrant further investment.
- One comment supported the implementation of a 20-minute neighbourhood concept in Dyce, noting that the area was relatively self-contained so would be ideally suited. It was suggested that Dyce could be a case study for further 20-minute neighbourhoods within the wider North East region.

6.3.2.7 Overall Agreement with Proposed Packages

The table below outlines respondents' views on the overall transport strategy for the A947 corridor.

Table 6-7: Views on Overall A947 Transport Strategy

	Strongly Agree	Agree	Disagree	Strongly Disagree	Neutral	Other
Members of Public	28.8%	19.2%	13.5%	30.8%	5.8%	1.9%
Organisations	0%	0%	0%	71.4%	28.6%	0%

- Just under half (48.0%) of those responding as a member of the public strongly agree (28.8%) or agree (19.2%) with the overall transport strategy for the A947 corridor. Almost one-third (30.8%) strongly disagree with the overall strategy with a further 13.5% disagreeing.
- Organisations were notably against the overall strategy for the A947 corridor as 71.4% of organisations stated they strongly disagree. No organisations strongly agreed or agreed with the strategy, though the low sample size should continue to be borne in mind when drawing these conclusions.

Comments on the overall transport strategy for the A947 are summarised and outlined below.

- There was support for an improved environment for making walking, wheeling and cycling safer and easier to do. In particular further segregation of pedestrians and cyclists is welcomed to reduce possible collisions. One further comment noted that active travel proposals need to be joined up.
- Significant concerns from organisations and members of the public that the proposed one-way restriction along Victoria Street would negatively impact local businesses and services as a result of lost footfall.
- Concerns were cited that existing active travel infrastructure is underutilised and the relative low number of users does not warrant further investment.
- One comment noted the importance of ensuring equestrians and their specific needs are included in any further design work. Recently published data highlighted that a lack of accessible paths suitable for equestrians was a key reason for the reduction in horse ownership.

6.4 Dyce & Stoneywood Community Council

A written response was received by Dyce & Stoneywood Community Council (DSCC) following the conclusion of the public consultation.

DSCC confirmed that, overall, they agreed with the overall transport strategy for the A947 corridor and provided the following feedback on the consultation packages. No specific comments were provided on the A947 (West) Package.

Riverview Drive Package

- There was strong agreement for implementing a new footpath to connect the Riverside Path and housing in Dyce at the Todlaw Walk junction – it was thought that this would greatly enhance pedestrian access to the River Don path.
- There was agreement for increasing kerb radii at the Riverview Drive junctions with Balloch Way, Todlaw Walk and Netherview Avenue, but it was thought that these should be lower priority options if funding is an issue.

Victoria Street Package

- DSCC stated that they disagreed with the option to implement a contra-flow cycle lane along Station Road to improve active travel connectivity with Dyce Rail Station because the road is too narrow with the current parking arrangements.

- There was disagreement expressed for the option to implement a one-way system along Station Road and the adjacent streets because it was felt too much traffic will be diverted to Skene Place and the unnamed road by the Spider's Web pub – this was said to be too narrow with poor visibility at the junction with Station Road.
- It was stated that more information was needed to fully gauge the effect of mixed traffic street measures on Victoria Street.

Targeted Local Improvements Package

- There was strong agreement for the option to implement a splitter island at the A947/Stoneywood Road Junction at Co-op/Marks and Spencer to prevent illegal turning manoeuvres – it was felt that there are currently too many dangerous and irresponsible drivers making illegal right turns in this location at present.

Strategic Corridor Improvements Package

- While there was agreement for the option to implement new shared use and segregated cycleway facilities on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North, it was stated that this does not appear to be a feasible option without considerable expense.
- There was disagreement on the need to conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor, with DSCC stating that the density of buses on this section of road does not justify this as an option (unlike in the city centre).
- It was stated that more information was needed to fully understand the potential for a 20-minute neighbourhood in Dyce.

Additional comments provided included:

- Tension between pedestrians and cyclists on shared use paths.
- Cyclists who travel to/from their places of work tend to travel at high speeds so this would exacerbate the risk of collisions with pedestrians (adults and children). The consequences of such collisions could be major where roads run alongside these footways.
- DSCC observed that a shared use footway already exists to the west of Mill Park Crescent in Stoneywood, however this has rarely been used by cyclists. This portion of footway also contains a bus stop so there is a risk of cyclists colliding with pedestrians (adults and children) in the process of them boarding and alighting buses.
- A further concern cited related to junctions of footpaths and shared use footways – DSCC queried how such junctions would be managed so that collisions between pedestrians (adults and children) and cyclists already on the footways are avoided.

A number of other comments were provided by DSCC on the other options not subject to direct consultation to inform the Table 2 option appraisal – these have been provided to ACC under separate cover.

6.5 Aberdeen Cycle Forum

Aberdeen Cycle Forum (ACF) submitted a written response to the consultation on 30 June 2024. ACF stated that they welcomed the study objectives to increase active travel (walking, wheeling and cycling) and offered the following feedback:

- **A947 (West) Package:** *"we welcome the majority of measures. We question whether resurfacing and widening of paths around TECA would represent value for money and would rather see resources directed to improvements to provide separation from traffic. If existing paths at TECA are below the usual standard width, it is also unlikely that levels of usage are particularly high or capacity is an issue."*
- **Riverview Drive Package:** *"we welcome the proposed measures to increase (should that be decrease?) kerb radii at certain junctions to better serve pedestrians and change priority in favour of active travel at others."*
- **Victoria Street Package:** *"we note the proposal for a mixed traffic street (in combination with shared-use at either end). Significant reductions in the speed and volume of traffic would be required to make*

this a suitable location for a mixed traffic street. Also while two different solutions are offered (mixed traffic street in the centre changing to shared-use at either end), consistency of approach would be ideal."

- **Targeted Local Improvements Package:** *"Stoneywood (M&S, Co-op) junction. We previously raised safety concerns about the road layout here and would welcome improvements, keeping in mind that some cyclists will remain on the carriageway here even if an off-road alternative is provided, and so pinch-points should be avoided."*
- **Strategic Corridor Improvements Package:** *"we welcome most of what is presented, except to note that someone cycling the full length of the corridor as shown here would transition between shared-use and cycle-track nine times."*
- *"Under 'other options being considered' we note that a bike hire scheme within Dyce is listed. This seems ambitious in a relatively small community and we are unsure how a scheme might operate or be financially viable."*

6.6 Summary

This Chapter has provided an overview of the public and stakeholder engagement exercise that was undertaken as part of the Detailed Appraisal, including the methodology adopted and the key findings. This will be used to assess the performance of the options in terms of Public Acceptability in Chapter 10. The following Chapter discusses the approach to the Detailed STAG-Based Appraisal of options.

7. Approach to Appraisal

7.1 Introduction

This Chapter outlines the approach to the Detailed STAG-based Appraisal. As set out in Chapter 4, a revised list of options from Table 2 were identified – and subsequently further developed – for the purposes of Detailed Appraisal.

7.2 Do Minimum

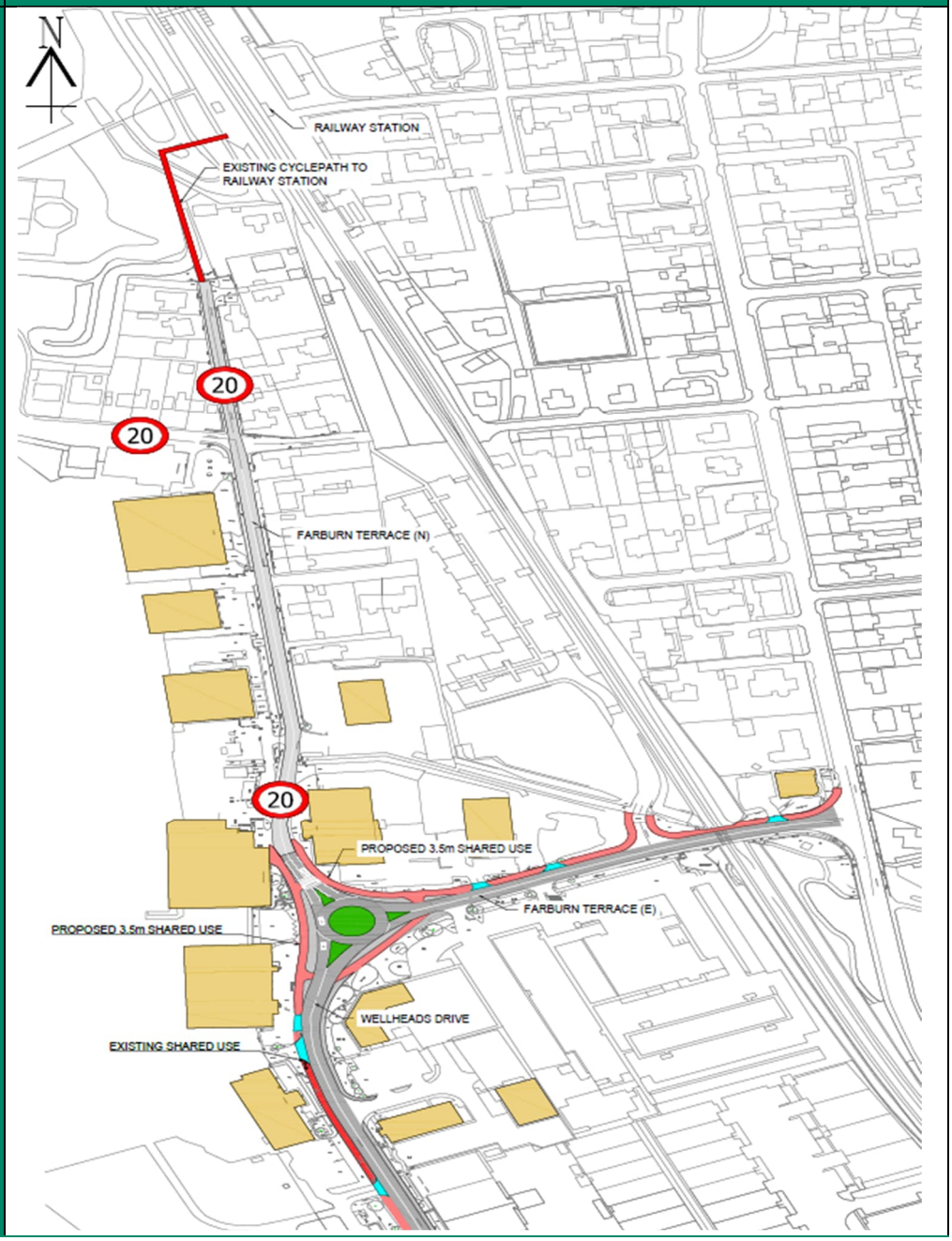
In line with STAG, all generated options must be appraised against a Do-Minimum scenario. Transport Scotland defines the Do Minimum in STAG as:

"the most likely transport situation over the course of the appraisal period if no intervention were to occur…The do-minimum should also include minor changes which can be expected to be carried out as conditions deteriorate, should the proposed interventions not go ahead. These improvements should not be significant, with any significant changes considered as an option in their own right as part of Option Generation, Sifting and Development."

The Do Minimum for this study assumes the interventions presented below are in place.

Table 7-1: Committed Transport Projects Relevant to the Study

Scheme	Description
Farburn Terrace Cycle and Pedestrian Improvement	• As part of ACC's Active Travel Action Plan, ACC is progressing improvements in accessibility for pedestrians and cyclists to and from Dyce Rail Station, Aberdeen International Airport and the surrounding business and residential areas of Dyce. • Farburn Terrace and in particular its roundabout with Wellheads Drive, have been identified as a missing link for active travel between the existing cycleway on Wellheads Drive and Dyce Rail Station. • ACC has secured funding from Sustrans and Nestrans to develop a detailed design for shared use cycleways along Wellheads Drive, around the existing roundabout and along Farburn Terrace to Victoria Street. • It is understood that work to deliver this project is ongoing. • An overview plan of the scheme is shown below.

Scheme	Description
	

7.3 Appraisal Overview

The Detailed Appraisal stage considers appraisal of the options against:

- TPOs;
- STAG Criteria (Environment; Climate Change; Health, Safety and Wellbeing; Economy; and Equality and Accessibility);
- Deliverability Criteria; and
- Cost to Government.

In addition, consideration has also been given to Statutory Impact Assessment (SIA) criteria.

The Detailed Appraisal appraises each option using the seven-point assessment scale, scoring the options from Major Positive Impact to Major Negative Impact. The seven-point scale of scoring is set out in the table below

and has been used to assess the option performance against the study TPOs, STAG Criteria and SIAs. Deliverability has been assessed on the basis of low, medium or high risk.

Table 7-2: STAG Seven-Point Scoring Summary

Impact	Description
Major positive impact (+3)	These are benefits or positive impacts which, depending on the scale of benefit or severity of impact, should be a principal consideration when assessing an option's eligibility for funding.
Moderate positive impact (+2)	The option is anticipated to have only a moderate benefit or positive impact. Moderate benefits and impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together could do so.
Minor positive impact (+1)	The option is anticipated to have only a small benefit or positive impact. Small benefits or impacts are those which are worth noting but are not likely to contribute materially to determining whether an option is funded or otherwise.
Neutral impact (0)	The option is anticipated to have no or negligible benefit or negative impact.
Minor negative impact (-1)	The option is anticipated to have only a minor cost or negative impact. Minor costs/negative impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together could do so.
Moderate negative impact (-2)	The option is anticipated to have only a moderate cost or negative impact. Moderate costs/negative impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together could do so.
Major negative impact (-3)	These are costs or negative impacts which, depending on the scale of cost or severity of impact, should be a principal consideration when assessing an option's eligibility for funding.

7.4 TPOs

Each of the remaining options in Table 2 has been assessed in terms of their performance against the study TPOs set out in Chapter 5.

7.5 STAG Criteria

7.5.1 Environment

A high-level qualitative review of each of the sub-criteria within the Environment criterion has been undertaken for each option and the potential environment implications that could arise from the construction and operation of the options has been noted.

The Environment appraisal is limited to a high-level desk-based review of the options, a review of aerial mapping and online free commercially available data and a review of published character assessments (landscape). No site surveys have been undertaken. The Environment appraisal broadly follows the structure of the latest STAG, taking into consideration the requirements set out within the January 2022 Managers' Guide document. It should be noted, however, that the Technical Database has not yet been updated to reflect the changes as set out within the Managers' Guide document and, as such, the scope and method has been adapted to the study, whilst remaining proportionate to the type and scale of measures proposed. Existing conditions are set out within **Appendix G**.

The Environment appraisal has involved the following key steps:

- Analysis of the site and context, definition of the extent of the study, and identification and description of the receptors that have the potential to be affected by the options proposed;
- Appreciation of the nature of the proposed options;
- Appraisal of the potential changes and implications to the existing environmental receptors; and
- Development of next steps and opportunities to consider in the design evolution in parallel with an environmental assessment process.

The Environment sub-criteria is outlined in the table below alongside a brief description of the approach adopted.

Table 7-3: Environmental Sub-Criteria at Detailed Appraisal Stage

Sub-Criteria	Description
Biodiversity and Habitats	Simple, qualitative appraisal of biodiversity, by identifying the presence of designated sites in the study area – Special Areas of Conservation (SAC), Special Protection Areas (SPA), Local Nature Reserves (LNR) and Sites of Special Scientific Interest (SSSI) – and identifying the potential for significant effects on these sites or the species they support.
Geology and Soils	Identification of any sites of particular geological importance and a qualitative assessment of the degree to which the option may affect such sites. A qualitative assessment of the likely impact on soils, including any displacement of soils within agricultural areas.
Land Use	A qualitative assessment of potential changes in land use within the study area, including to agricultural or forestry land.
Water Quality, Drainage and Flooding	A qualitative assessment of the sensitivity of the water environment within the study area.
Air Quality	Qualitative assessment considering potential changes in local emissions (CO_2 and PM_{10}) arising from the delivery of each option. Full quantification of air quality impacts will be undertaken to determine effect at a later stage in the design process. However, benefits arising from improved air quality as a result of increased rates of walking and cycling is quantified in the appraisal using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). A full AMAT assessment is included as Appendix H.
Historic Environment	Identification of the relevant historic designations in the study area and a qualitative assessment of the likely impact of each option on the importance and integrity of historic environment resources and their setting.
Landscape	A qualitative assessment of both the landscape character and quality, and any specific designations noted.
Noise and Vibration	Qualitative assessment considering potential increases or decreases in noise levels arising from the delivery of each option. Full quantification of noise impacts will be undertaken to determine effect on specific sensitivity receptors at a later stage in the design process. However, benefits arising from reduced noise as a result of increased rates of walking and cycling is quantified in the appraisal using AMAT.

Whilst much of the environmental consideration is still qualitative in nature where a quantitative assessment is not feasible, the assessment is more detailed at the Detailed Appraisal stage. It is, however, important to note that a full impact assessment of environmental aspects has not been undertaken.

7.5.2 Climate Change

The assessment of Climate Change considers the performance of the options against the three Climate Change sub-criteria: Greenhouse Gas Emissions, Vulnerability to the Effects of Climate Change and Potential to Adapt to the Effects of Climate Change.

Whilst a qualitative approach has largely been adopted for the assessment of Greenhouse Gas Emissions and the potential change in CO_2 emissions for each option, benefits arising from reduced greenhouse emissions as a result of increased rates of active travel have been quantified in the appraisal using AMAT. A full AMAT assessment included as **Appendix H**.

7.5.3 Health, Safety and Wellbeing

The assessment of Health, Safety and Wellbeing considers the performance of the options against the five Health, Safety and Wellbeing sub-criteria as defined in the table below.

Table 7-4: Health, Safety and Wellbeing Sub-Criteria at Detailed Appraisal Stage

Sub-Criteria	Description
Accidents	Consideration is given as to whether each option would have any measurable impact on the number of transport-related accidents and/or the severity of transport-related accidents. AMAT is used to quantify the accident benefits from increased use of walking and cycling.
Security	Consideration is given to the impacts of each option on pedestrians, cyclists (and stored/secured cycles) and public transport users. The impact of each option on vulnerable sections of the community is taken into account, including children, the elderly or women travelling alone. The adopted approach to assess security is largely qualitative.

Sub-Criteria	Description
Health Outcomes	Consideration is given as to whether each option would have any impact on health outcomes. The adopted approach to assess health outcomes is largely qualitative. In order to capture some of the benefits specific to active travel schemes, AMAT is used to quantify health benefits from increased use of walking and cycling.
Access to Health and Wellbeing Infrastructure	Consideration is given to changes in accessibility and connectivity to health and medical centres, parks and outdoor recreational spaces. The adopted approach to assess access to health and wellbeing infrastructure is qualitative.
Visual Amenity	Consideration is given to the impact of each option on visual amenity. The adopted approach is largely qualitative in the absence of any robust and feasible tool to quantify results.

7.5.4 Economy

The assessment of Economy considers the performance of the options against the two Economy sub-criteria: Transport Economic Efficiency (TEE) and Wider Economic Impacts (WEIs). AMAT is used to establish the monetised value of benefits relating to journey ambience, congestion benefits and indirect taxation.

7.5.5 Equality and Accessibility

The assessment of Equality and Accessibility considers the performance of the options against the five Equality and Accessibility sub-criteria: Public Transport Network Coverage, Active Travel Network Coverage, Comparative Access by People Group, Comparative Access by Geographic Location and Affordability.

These aspects have been appraised qualitatively. Consideration has been given to the distributional impacts associated with each option, such as car availability and accessibility of different demographic groups in terms of accessibility to key destinations (such as employment and healthcare).

Additional consideration is given to the impacts of transport changes on particular societal groups through the high-level Statutory Impact Assessment (SIA) review for each option.

7.6 Deliverability Criteria

Building on the option development work undertaken in respect of the Table 2 options (as detailed in Chapter 6), the options are also assessed in terms of Feasibility and Affordability. The appraisal of Public Acceptability is informed by the outcomes of public and stakeholder consultation (as detailed in Chapter 7).

7.7 Statutory and Duty Impact Assessments

The impacts of the options have also been captured through high-level consideration of statutory and duty impact assessment requirements, including Equalities Impact Assessment (EqIA), Children's Rights and Wellbeing Impact Assessment (CRWIA), Health Inequalities Impact Assessment (HIIA) and Fairer Scotland Duty Assessment (FSDA). Further detail on the scope of these assessments is provided in Chapter 12.

7.8 Cost to Government

The approximate cost of each option has been assessed from a public spending perspective. In developing the indicative costs, consideration has been given to aspects including construction costs, Optimism Bias (risk and contingency) and an allowance for design, placemaking and landscaping, site supervision and project management, traffic management, and monitoring and evaluation.

7.9 Summary

This Chapter provides an overview of the approach to the Detailed STAG-based Appraisal, including a description of the STAG criteria and summary of the seven-point scale of scoring. The following Chapter sets out the appraisal of the remaining Table 2 options against the study TPOs.

8. Detailed Options Appraisal – TPOs

8.1 Introduction

This Chapter sets out the appraisal of the remaining Table 2 options against the study TPOs:

- TPO1: Increase the number of walking and wheeling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline)
- TPO2: Increase the number of cycling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline)

8.2 TPO Appraisal

AT26: Improve active travel connectivity between the A947 study area and TECA		
TPO1	+1	This option would involve upgrading the existing path surface south and west of TECA to a bound surface and providing improved wayfinding. It would be expected to provide some support for an increase in the number of walking and wheeling trips to this key destination, by improving accessibility between the study area and TECA (and also key trip attractors to the west, for example Aberdeen Airport) by these non-car modes. Overall, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+1	This option would involve upgrading the existing path surface south and west of TECA to a bound surface and providing improved wayfinding. It would be expected to provide some support for an increase in the number of cycling trips to this key destination, by improving accessibility between the study area and TECA (and also key trip attractors to the west, for example Aberdeen Airport) by this non-car mode, similar to TPO1. Overall, this option would be expected to have a **minor positive impact** on TPO2.

AT31: Improve active travel links between the Riverside Path and housing within Dyce		
TPO1	+1	This option provides the opportunity to improve active travel access in the east of the study area between large residential areas in the centre of Dyce and the Riverside Path. The measures proposed as part of this option, including a new bound surface, dropped kerbs and tactile paving, would be expected to enhance the active travel environment in this area, therefore providing some support for an increase in the number of walking and wheeling trips to and from the recreational asset of the Riverside Path. Given the geographic location and extent of the option, it is expected that the improvements would mainly support leisure trips. There could also be indirect support for onward journeys to Seaton Park and the centre of Aberdeen via NCN1, therefore the measures could also contribute to increased walking and wheeling for recreational trips outwith the study area. However, given that this option largely relates to the formalisation of an existing active travel desire line, its overall impact would be limited. Overall, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+1	This option provides the opportunity to improve active travel access in the east of the study area between large residential areas in the centre of Dyce and the Riverside Path. The measures proposed as part of this option, including a new bound surface, dropped kerbs and tactile paving, would be expected to enhance the active travel environment in this area, therefore providing some support for an increase in the number of cycling trips to and from the recreational asset of the Riverside Path. Given the geographic location and extent of the option, it is expected that the improvements would mainly support leisure trips. There could also be indirect support for onward journeys to Seaton Park and the centre of Aberdeen via NCN1, therefore the measures could also contribute to increased cycling for recreational trips outwith the study area. However, given that this option largely relates to the formalisation of an existing active travel desire line, its overall impact would be limited. Overall, this option would be expected to have a **minor positive impact** on TPO2.

AT33: Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road		
TPO1	+1	This option provides the opportunity to improve active travel connectivity between Dyce Rail Station and the A947 and the eastern section of Dyce. Introduction of a one-way system on Station Road and adjacent streets would be expected to have some support for the creation of a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. This could facilitate an increase in the number of walking and wheeling trips in this part of the study area. Implementation of improved active travel infrastructure may make it easier for people walking and wheeling to access rail services in Dyce, therefore improving overall accessibility and enabling more seamless connectivity with areas outwith the study area, including Aberdeen city centre and Inverurie. Overall, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+2	This option provides the opportunity to improve active travel connectivity between Dyce Rail Station and the A947 and the eastern section of Dyce. Introduction of a one-way system on Station Road and adjacent streets, along with a contra-flow cycle lane, would be expected to support the creation of a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. The provision of the contra-flow cycle lane could facilitate an increase in the number of cycling trips in this part of the study area. Implementation of improved active travel infrastructure may make it easier for people cycling to access rail services in Dyce, therefore improving overall accessibility and enabling more seamless connectivity with areas outwith the study area, including Aberdeen city centre and Inverurie. Overall, this option would be expected to have a **moderate positive impact** on TPO2.

AT35a: Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae		
TPO1	+1	This option provides the opportunity for improved active travel facilities on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae. This could facilitate an increase in the number of walking and wheeling trips in this part of the study area, particularly with this route acting as one of the main access points for pedestrians to Stoneywood School. Measures to promote increased walking and wheeling to school will provide support for the delivery of this objective. Overall, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+1	This option provides the opportunity for improved active travel facilities on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae. This could facilitate an increase in the number of cycling trips in this part of the study area, particularly with this route acting as one of the main access points to Stoneywood School. Measures to promote increased cycling to school will provide support for the delivery of this objective. Overall, this option would be expected to have a **minor positive impact** on TPO2.

AT41a/b: Improve active travel access to the retail park at Bucksburn Roundabout[6]		
TPO1	+1	This option provides the opportunity for improved active travel access to the retail park at the Bucksburn Roundabout (and indirectly to the local area to the west of the A947) through the creation of either a shared use facility between the A947 crossing and the retail park, or carriageway width reduction to facilitate a segregated two-way cycleway. Either facility would be expected to enhance the active travel environment in this area, with the shared use facility variant of this option potentially providing some support for an increase in the number of walking and wheeling trips to and from the retail park, particularly from the Bucksburn area. Overall, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+1	This option provides the opportunity for improved active travel access to the retail park at the Bucksburn Roundabout (and indirectly to the local area to the west of the A947) through the creation of either a shared use facility between the A947 crossing and the retail park or carriageway width reduction to facilitate a segregated two-way cycleway. Either facility would be expected to enhance the active travel environment in this area, with the segregated two-way cycleway variant of this option likely to provide support for an increase in the number of cycling trips to and from the retail park, particularly from the Bucksburn area, and potentially from elsewhere in the study area. Overall, this option would be expected to have a **minor positive impact** on TPO2, however, provision of a segregated facility could have a moderate positive impact on the number of cycling trips undertaken in this part of the study area if progressed.

AT43: Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)		
TPO1	0	This option would upgrade an existing path between the old and new A947, including widening and providing a bound surface. It additionally considers a proposed new crossing point (to be explored at the next design stage) to improve access between the northbound and southbound bus stops, as well as the widened shared use path being progressed under Option AT58. With the geographic extent of this option limiting its overall impact, it would not be expected to provide significant support for an increase in the number of walking and wheeling trips in the study area. Overall, considering the scale of impact, this option would be expected to have a **neutral impact** on TPO1.
TPO2	0	This option would upgrade an existing path between the old and new A947, including widening and providing a bound surface. It additionally considers a proposed new crossing point (to be explored at the next design stage) to improve access between the northbound and southbound bus stops, as well as the widened shared use path being progressed under Option AT58. With the geographic extent of this option limiting its overall impact, it would not be expected to provide significant support for an increase in the number of cycling trips in the study area. Overall, considering the scale of impact, this option would be expected to have a **neutral impact** on TPO2.

[6] Option AT41a assumes the existing dual carriageway layout is retained and the existing northbound footway is upgraded to a shared use facility between the A947 crossing and the retail park. Option AT41b would involve A947 carriageway width reduction to one lane to facilitate a segregated two-way cycleway.

AT48a: Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North		
TPO1	+1	This option provides the opportunity for improved active travel connectivity along the A947 corridor through the implementation of new shared use and segregated cycleway facilities, between the Bucksburn Roundabout and Riverview Drive Roundabout North. Through the promotion of an overall coherent and connected network, this option could facilitate an increase in the number of walking and wheeling trips in the study area. Overall, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+2	This option provides the opportunity for improved active travel connectivity along the A947 corridor through the implementation of new shared use and segregated cycleway facilities, between the Bucksburn Roundabout and Riverview Drive Roundabout North. Through the promotion of an overall coherent and connected network, this option could facilitate an increase in the number of cycling trips in the study area. Overall, this option would be expected to have a **moderate positive impact** on TPO2.

AT51: Implement with-flow segregated cycleway on Old Meldrum Road		
TPO1	0	This option provides the opportunity for improved active travel connectivity by implementing a with-flow segregated cycleway on Old Meldrum Road. On this basis, it is not expected that this option would have a significant impact on increasing the number of walking and wheeling trips in this part of the study area. This option would be expected to have a **neutral impact** on TPO1.
TPO2	+2	This option provides the opportunity for improved active travel connectivity by implementing a with-flow segregated cycleway on Old Meldrum Road. On this basis, this option would be expected to facilitate an increase in the number of cycling trips in this part of the study area. This option would be expected to have a **moderate positive impact** on TPO2.

AT52: Implement two-way segregated cycleway on Old Meldrum Road		
TPO1	0	This option provides the opportunity for improved active travel connectivity by implementing a two-way segregated cycleway on Old Meldrum Road. On this basis, it is not expected that this option would have a significant impact on increasing the number of walking and wheeling trips in this part of the study area. This option would be expected to have a **neutral impact** on TPO1.
TPO2	+2	This option provides the opportunity for improved active travel connectivity by implementing a two-way segregated cycleway on Old Meldrum Road. On this basis, this option would be expected to facilitate an increase in the number of cycling trips in this part of the study area. This option would be expected to have a **moderate positive impact** on TPO2.

AT58: Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport		
TPO1	+2	This option provides the opportunity to promote active travel access towards key employment areas in the A947 study area. The implementation of a shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate, including a reduced speed limit and priority pedestrian crossings on the section of Dyce Drive between Pitmedden Road and the Industrial Estate, would be expected to provide support for an increase in the number of walking and wheeling trips to a key employment area, as well as facilitating trips between Kirkhill Industrial Estate and the Formartine & Buchan Way, by providing a new connection. Overall, this option would be expected to have a **moderate positive impact** on TPO1.
TPO2	+2	This option provides the opportunity to promote active travel access towards key employment areas in the A947 study area. The implementation of a shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate, including a reduced speed limit and priority pedestrian crossings on the section of Dyce Drive between Pitmedden Road and the Industrial Estate, would be expected to provide support for an increase in the number of cycling trips to a key employment area, as well as facilitating trips between Kirkhill Industrial Estate and the Formartine & Buchan Way, by providing a new connection. Overall, this option would be expected to have a **moderate positive impact** on TPO2.

AT61a: Implement package of active travel measures on Victoria Street[7]		
TPO1	+2	This option provides opportunity to improve accessibility and active travel opportunities in the 'heart' of Dyce. It is considered that the implementation of active travel measures along Victoria Street, including a reduced speed limit, removal of on-street parking and mixed traffic street measures could facilitate an increase in the number of walking and wheeling trips in the centre of the study area. The extent of the measures proposed in this option may therefore contribute to a more significant impact on walking and wheeling than options such as AT33, which is focussed on a smaller area. On this basis, this option would be expected to have a **moderate positive impact** on TPO1.
TPO2	+3	This option provides opportunity to improve accessibility and active travel opportunities in the 'heart' of Dyce. It is considered that the implementation of active travel measures along Victoria Street, including a reduced speed limit, removal of on-street parking, mixed traffic street measures and sections of segregated cycleway could facilitate an increase in the number of cycling trips in the centre of the study area. The extent of the measures proposed in this option may therefore contribute to a more significant impact on levels of cycling than options such as AT33, which is focussed on a smaller area. By providing sections of segregation, a high level of service will be available to cyclists in the Victoria Street area. On this basis, this option would be expected to have a **major positive impact** on TPO2.

[7] This option provides the opportunity to improve accessibility and active travel opportunities in the 'heart' of Dyce and has been considered in three sections: 1) Victoria Street/Riverview Drive South Roundabout to Farburn Terrace; 2) Farburn Terrace to Pitmedden Road; and 3) Pitmedden Road to Victoria Street/Riverview Drive North Roundabout. In Section 1, there is adequate space on the eastern side to develop a segregated cycleway connection by reallocating the existing advisory cycle lanes and utilising the existing verge space. In Section 2, there is limited scope to widen the existing footways or reduce the carriageway width due to bordering property boundaries. A reduction of the speed limit to 20mph and introduction of various measures would allow this section to be formalised as a mixed traffic street. Section 3 has three sub-improvement options, with varying volumes of works required. Option 3a involves the reduction of the road carriageway width to 6m, removal of on-street parking and speed limit reduction to 20mph. Option 3b – reduction of speed limit to 20mph and removal of on street parking would create opportunity to widen and reclassify existing footways on Eastern side to shared use desirable minimum width, with local sections of absolute minimum shared use width due to corridor constraints. Option 3c would continue the measures introduced as part of Option 3b with a reduced speed limit to formalise Section 3 as a mixed traffic street.

AT65: Implement streetscape improvements and widened pavements along Mugiemoss Road		
TPO1	+1	The implementation of streetscape improvements (including quiet route measures) and widened pavements along Mugiemoss Road would be expected to provide some support for increasing the number of walking and wheeling trips in this part of the study area. On this basis, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+1	The implementation of streetscape improvements (including quiet route measures) and widened pavements along Mugiemoss Road would be expected to provide some support for increasing the number of cycling trips in this part of the study area. On this basis, this option would be expected to have a **minor positive impact** on TPO2.

PT2: Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor		
TPO1	0	Given the focus of this option is on bus priority interventions, it is not expected to have a significant impact on increasing the number of walking and wheeling trips in the study area. On this basis, this option would be expected to have a **neutral impact** on TPO1.
TPO2	0	Given the focus of this option is on bus priority interventions, it is not expected to have a significant impact on increasing the number of cycling trips in the study area. On this basis, this option would be expected to have a **neutral impact** on TPO2.

O2: Review the layout of the Victoria Street/Skene Place Junction		
TPO1	+1	Option AT33 explores the improvement of active travel links between Dyce Rail Station and the A947 through the adoption of measures along Station Road and its side roads. Skene Place is linked to Station Road by Merrivale. Option O2 aims to simplify traffic movements to and from Victoria Street by introducing a one-way system using Station Road, Merrivale and Skene Place. Introduction of a one-way system on Station Road and adjacent streets would be expected to have some support for the creation of a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. This could facilitate an increase in the number of walking and wheeling trips in this part of the study area. Overall, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	+1	Option AT33 explores the improvement of active travel links between Dyce Rail Station and the A947 through the adoption of measures along Station Road and its side roads. Skene Place is linked to Station Road by Merrivale. Option O2 aims to simplify traffic movements to and from Victoria Street by introducing a one-way system using Station Road, Merrivale and Skene Place. Introduction of a one-way system on Station Road and adjacent streets, along with a contra-flow cycle lane (as part of Option AT33), would be expected to support the creation of a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. The improvements associated with Option O2 and provision of the contra-flow cycle lane could facilitate an increase in the number of cycling trips in this part of the study area. Overall, this option would be expected to have a **minor positive impact** on TPO2.

O3: Review the layout of the Riverview Drive/Balloch Way Junction		
TPO1	0	This option would involve a reduction in kerb radii to 6m and a narrowing of the existing junction to reduce the speed of traffic turning into Balloch Way from Riverview Drive. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of walking and wheeling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO1.
TPO2	0	This option would involve a reduction in kerb radii to 6m and a narrowing of the existing junction to reduce the speed of traffic turning into Balloch Way from Riverview Drive. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of cycling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO2.

O4: Review the layout of the Riverview Drive/Todlaw Walk Junction		
TPO1	0	This option would involve a reduction in kerb radii to 6m and a narrowing of the existing junction to reduce the speed of traffic turning into Todlaw Walk from Riverview Drive. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of walking and wheeling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO1.
TPO2	0	This option would involve a reduction in kerb radii to 6m and a narrowing of the existing junction to reduce the speed of traffic turning into Todlaw Walk from Riverview Drive. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of cycling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO2.

O5: Review the layout of the Riverview Drive/Netherview Avenue Junction		
TPO1	0	This option would involve a reduction in kerb radii to 10m and a narrowing of the existing junction to reduce the speed of traffic turning into Netherview Avenue from Riverview Drive. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of walking and wheeling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO1.
TPO2	0	This option would involve a reduction in kerb radii to 10m and a narrowing of the existing junction to reduce the speed of traffic turning into Netherview Avenue from Riverview Drive. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of cycling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO2.

O7: Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer		
TPO1	0	This option would introduce measures at the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer to address the high frequency of illegal turning manoeuvres occurring from vehicles continuing straight though the 'left only' exit from Stoneywood Road to the Co-op and Marks and Spencer retail access at Beech Manor. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of walking and wheeling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO1.
TPO2	0	This option would introduce measures at the A947/Stoneywood Road Junction at Co-Op / Marks and Spencer to address the high frequency of illegal turning manoeuvres occurring from vehicles continuing straight though the 'left only' exit from Stoneywood Road to the Co-op and Marks and Spencer retail access at Beech Manor. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of cycling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO2.

O8: Review the layout of the A947/Stoneywood Brae Junction		
TPO1	0	This option would introduce measures at the A947/Stoneywood Brae Junction to address concerns about vehicle acceleration as the carriageway transitions from single to dual carriageway. It is not expected that changes to this junction arrangement would have a significant impact on increasing the number of walking and wheeling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO1.
TPO2	+1	This option would introduce measures at the A947/Stoneywood Brae Junction to address concerns about vehicle acceleration as the carriageway transitions from single to dual carriageway. With this creating a safety risk for on-road cycle users, this option could provide some support for an increase in the number of cycling trips in this part of the study area that may currently be precluded due to safety concerns associated with the existing junction arrangement. On this basis, this option would be expected to have a **minor positive impact** on TPO2.

O10: Review the layout of the A947/McDonalds access road junction		
TPO1	+1	This option would involve narrowing or repositioning of the A947/McDonalds access road junction to further protect pedestrians using an at-grade crossing north of the access road. This option could provide some support for an increase in the number of walking and wheeling trips in this part of the study area, as a result. On this basis, this option would be expected to have a **minor positive impact** on TPO1.
TPO2	0	This option would involve narrowing or repositioning of the A947/McDonalds access road junction to further protect pedestrians using an at-grade crossing north of the access road. With the nature of these improvements, it is not expected that changes to this junction arrangement would have a significant impact on increasing the number of cycling trips in this part of the study area. On this basis, this option would be expected to have a **neutral impact** on TPO2.

O16: Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce		
TPO1	+3	While further assessment of the project area is required along with engagement with the local community to ensure implemented works best meet their needs within a 20-minute neighbourhood environment, it would be expected that this option would improve the active travel environment in Dyce, therefore providing significant support for an increase in the number of walking and wheeling trips in the study area. This option would be expected to have a **major positive impact** on TPO1.
TPO2	+3	While further assessment of the project area is required along with engagement with the local community to ensure implemented works best meet their needs within a 20-minute neighbourhood environment, it would be expected that this option would improve the active travel environment in Dyce, therefore providing significant support for an increase in the number of cycling trips in the study area. This option would be expected to have a **major positive impact** on TPO2.

O25: Implement access only restrictions for general traffic on Victoria Street		
TPO1	+3	The reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of access only restrictions for general traffic on Victoria Street. While further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers, particularly where access only restrictions place a constraint on accessibility for those who are not able to travel by active and sustainable modes of transport, this option would create a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. It would be expected that this option would improve the active travel environment in Dyce, therefore providing significant support for an increase in the number of walking and wheeling trips in the centre of the study area. This option would be expected to have a **major positive impact** on TPO1.
TPO2	+3	The reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of access only restrictions for general traffic on Victoria Street. While further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers, particularly where access only restrictions place a constraint on accessibility for those who are not able to travel by active and sustainable modes of transport, this option would create a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. It would be expected that this option would improve the active travel environment in Dyce, therefore providing significant support for an increase in the number of cycling trips in the centre of the study area. This option would be expected to have a **major positive impact** on TPO2.

O26: Implement one-way restrictions for general traffic on Victoria Street		
TPO1	+2	The reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of one-way restrictions for general traffic on Victoria Street. While further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers, this option would create a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. It would be expected that this option would improve the active travel environment in Dyce, therefore providing support for an increase in the number of walking and wheeling trips in the centre of the study area, although the level of impact would be lower than Option O25 which would introduce access only restrictions on Victoria Street. This option would be expected to have a **moderate positive impact** on TPO1.
TPO2	+2	The reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of one-way restrictions for general traffic on Victoria Street. While further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers, this option would create a space within the centre of Dyce which is more attractive to those not travelling in a vehicle. It would be expected that this option would improve the active travel environment in Dyce, therefore providing support for an increase in the number of cycling trips in the centre of the study area, although the level of impact would be lower than Option O25 which would introduce access only restrictions on Victoria Street. This option would be expected to have a **moderate positive impact** on TPO2.

8.3 Summary

This Chapter has set out the appraisal of the remaining Table 2 options against the study TPOs. The following Chapter presents the outcomes from the STAG-based detailed options appraisal, considering, in turn, each of STAG criteria of Environment; Climate Change; Health, Safety and Wellbeing; Economy; and Equality and Accessibility.

9. Detailed Options Appraisal – STAG Criteria

9.1 Introduction

The Sections below present the outcomes from the STAG detailed options appraisal and focus in turn on each of STAG criteria of Environment; Climate Change; Health, Safety and Wellbeing; Economy; and Equality and Accessibility.

9.2 Environment

9.2.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

Biodiversity and Habitats

- This option would involve upgrading existing paths to a bound surface to the south and west of TECA alongside small-scale wayfinding measures. Assuming that additional land-take would not be required for this option it is expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use and the changes will support the existing land use. The proposed measures, including the upgrading of existing paths to the south and west of TECA alongside small-scale wayfinding measures, are not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Whilst this option is located within an area of river and surface flooding and involves upgrading of the existing network of paths to the south and west of TECA to a bound surface, it does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once completed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on noise and vibration is expected to be negligible. Overall, given the geographic extent of this option and the upgrading of paths that already exist, the overall impact is expected to be **neutral**. (0)

9.2.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

Biodiversity and Habitats

- The formalisation of the worn section of verge is not anticipated to require additional land-take. If lighting is considered as part of the detailed design then it should be directed away from any neighbouring trees so as not to affect neighbouring habitats.. As this option involves formalisation of an existing worn section of verge, with no removal of existing trees or hedges, it is expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option involves formalisation of an existing worn section of verge and is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- This option is not anticipated to result in any perceptible change in land use. The proposed measures, including new bound surface, dropped kerbs and tactile paving, would occupy an existing worn verge and pavement space and are not anticipated to change the use of land from its existing baseline use. The Riverside Path is a designated Core Path, and the option would support the existing use of this route. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- While the option is located within an area of high likelihood of flooding associated with the River Don, this option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. The unknown ground and drainage conditions between the verge and trail towards the Riverside Path introduce risk to this option but overall the option is expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. The proposed measures, including new bound surface, dropped kerbs and tactile paving, would occupy an existing worn verge and pavement space and would

not change the overall impression of landscape character. The overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once completed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. However, as this option is limited to the formalisation of an existing pedestrian desire line the scale of change and overall impact on noise and vibration is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

9.2.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

Biodiversity and Habitats

- The introduction of measures including a one-way system, removal of on-road parking and potential new cycle lanes along Station Road would utilise the existing road carriageway and are not anticipated to require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use. The proposed measures, including a one-way system, removal of on-road parking and potential new cycle lanes along Station Road, are not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Whilst this option involves improving active travel links between Dyce Rail Station and the A947, it does not require changes to areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be negligible.

- Benefits arising from improved local air quality as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £10 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once completed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. However, as this option is limited to the formalisation of an existing pedestrian desire line the scale of change and overall impact on noise and vibration is expected to be negligible.

- Benefits arising from reduced noise as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £10 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H**. Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow.

- Overall, with the information available and given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

9.2.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Biodiversity and Habitats

- The introduction of this option is not anticipated to require additional land-take and would utilise the existing carriageway space. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use. The proposed measures would occupy existing road space and would not be anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. A drainage assessment will be required to ensure the addition of new drainage gullies do not have a negative impact on the existing system. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to

be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be both minor and temporary. Once completed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. The implementation of mixed-traffic street measures may have a minor positive impact on noise and vibration in locations where these measures are implemented. Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow.

  Overall, given the geographic extent of this option, the overall impact is expected to be **minor positive**. (+1)

9.2.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

Biodiversity and Habitats

- Shared use facility: Retainment of the A947 dual traffic lanes and upgrade of the existing footway west of the A947 to shared use would be expected to require some land-take and the removal of vegetation. There is the potential for impacts to roosting bats from noise, vibration and lighting during construction, however it is recommended that pre-construction surveys are undertaken by a suitably qualified ecologist. Detailed design should ensure items such as lighting are directed away from existing buildings and trees. Any trees requiring any lopping or removal would require to be surveyed for suitability for bats and breeding birds prior to any works commencing. At this stage, this option is expected to have a **minor negative impact** on biodiversity and habitats. (-1)

- Segregated two-way cycleway: The reduction of the northbound carriageway to one-lane and provision of a segregated two-way cycleway would use the existing road carriageway and therefore no additional land-take would be anticipated. Therefore, this option would be expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- Shared use facility: There are no geological designations within the study area. Whilst this option may involve some land-take to accommodate a shared use path, no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

- Segregated two-way cycleway: There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- Shared use facility: Retainment of the A947 dual traffic lanes and upgrade of the existing footway west of the A947 to shared use would be expected to require some land-take and the removal of vegetation. The extent of this would be limited to a small expansion into road verges and is not anticipated to result in any perceptible change in land use. Overall, this option is expected to have a **neutral impact** on land use. (0)

- Segregated two-way cycleway: The reduction of the northbound carriageway to one-lane and provision of a segregated two-way cycleway would use the existing road carriageway and therefore no additional land-take would be anticipated and there would be no change in baseline use. Overall, this option is expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Shared use facility: This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. A drainage assessment will be required to ensure the increased runoff and additional gullies do not exceed the network's capacity. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

- Segregated two-way cycleway: This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. A drainage assessment will be required to ensure the increased runoff and additional gullies do not exceed the network's capacity. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- Shared use facility: This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be neutral. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

- Segregated two-way cycleway: This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be **neutral**. The reduction of the northbound carriageway to one lane could result in slower-moving vehicular traffic with an associated negative impact on air quality, however, the impact of this would depend on the level of modal shift achieved through improvements to active travel provision. At this stage, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- Shared use facility: There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take beyond small expansion into existing road verges, the impact on Historic Environment is considered to be **neutral**. (0)

- Segregated two-way cycleway: There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take, the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- Shared use facility: There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the option is likely to result in no perceptible change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

- Segregated two-way cycleway: There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the

option is likely to result in no perceptible change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Shared use facility: Noise levels generated during the construction phase of measures proposed as part of this option, including the provision of a shared use path and the potential requirement to relocate lighting columns, signal posts and to remove vegetation have the potential to impact upon nearby noise sensitive receptors (NSRs) including a small number of residential and business properties adjacent to the A947 between Bucksburn Roundabout and the toucan crossing to the north of the Old Meldrum Road Junction. It is considered that these impacts whilst adverse would be temporary. Once completed and in operation, the option could potentially alter noise emissions due to changes in traffic experienced at these NSRs as a result of increased walking, wheeling and cycling as a proportion of modes of transport and a move away from private car use, which may have a minor positive impact on noise and vibration. Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow. Overall, there is anticipated to be a **minor positive impact** on noise and vibration at this stage. (+1)

- Segregated two-way cycleway: Noise levels generated during the construction phase of measures proposed as part of this option, including the provision of a segregated cycleway have the potential to impact upon nearby noise sensitive receptors (NSRs) including a small number of residential and business properties adjacent to the A947 between Bucksburn Roundabout and the toucan crossing to the north of the Old Meldrum Road Junction. It is considered that these impacts whilst adverse would be temporary.

  Once completed and in operation, the option could potentially alter noise emissions due to changes in traffic experienced at these NSRs as a result of increased walking, wheeling and cycling as a proportion of modes of transport and a move away from private car use, which may have a minor positive impact on noise and vibration. However, reduction of the northbound carriageway to one lane could result in changes to road traffic flow and speeds, which could alter the character of traffic noise in the vicinity of the NSRs.

  Overall, there is anticipated to be a **neutral impact** on noise and vibration. (0)

9.2.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

Biodiversity and Habitats

- The upgrade of the existing path between the old and new A947 would involve widening of the path using verge space alongside the existing unbound path. It is anticipated that expansion into verge space would be required for approximately 45m. Whilst this would involve the removal of vegetation, it is unlikely that there would be any removal of trees or hedges required to implement this option. If lighting is considered as part of the detailed design, then it should be directed away from any neighbouring trees so as not to affect neighbouring habitats. Pre-construction surveys are nonetheless recommended to be undertaken by a suitably qualified ecologist, however, at this stage the overall impact on biodiversity and habitats is expected to be **neutral**. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option involves improvements to an existing path and is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- This option is not anticipated to result in any perceptible change in land use. The proposed measures, including widening of the path and upgrading the surface to a bound surface would occupy the space of the existing path and adjacent verge and are not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Whilst the option is located within an area of high likelihood of flooding associated with the River Don, this option involves upgrading of the existing footpath between the old and new A947 to a bound surface and does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be neutral. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take beyond small expansion into existing road verges, the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. The proposed measures, including new bound surface, would occupy an existing road verge and would not change the overall impression of landscape character. The overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once completed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. However, as this option is limited to upgrading of an existing small section of active travel provision, the scale of change and overall impact on noise and vibration is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

9.2.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

Biodiversity and Habitats

- The implementation of active travel improvements, including a combination of shared use paths and two-way segregated cycleway, to support the promotion of an overall coherent and connected active travel network on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North, would use the existing road carriageway (with some expansion into the existing verge). Whilst some vegetation clearance would be required where planting is close to the back of the existing footway, it is unlikely that there would be any removal of trees or hedges required to implement this option. Pre-construction surveys along the route are recommended to be undertaken by a suitably qualified ecologist. The overall impact on biodiversity and habitats at this stage is expected to be **neutral**. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use. The proposed active travel improvements would occupy existing road space and are not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Changes to areas of hardstanding can result in changes to surface water run off direction, and risk of pollution incidents during both construction, through spillage of construction materials, and operation, through vehicle fuel or oil spillages for example. As such, there is a risk of run off and the potential of pollution affecting water quality of the River Don tributaries: Far Burn which is centrally located and runs west-east crossing Victoria Street south of Farburn Terrace, and Green Burn which is located in the vicinity of the A947 at Stoneywood. A scheme of protection measures would require to be implemented to ensure no pollution of watercourses during construction.

- To minimise the potential for adverse effects on water quality, all construction works, including enabling works, would be required to be undertaken in accordance with relevant and up to date good practice guidance, including SEPA Pollution Prevention Guidelines/Guidance for Pollution Prevention (PPGs/GPPs). There are not anticipated to be any changes to current potential risks to water quality or flooding during operation of this option. Assuming adequate mitigation measures are in place during the construction period (including a drainage assessment to ensure the increased runoff and additional gullies do not exceed the network's capacity), this option is expected to have an overall **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be neutral.

- Benefits arising from improved local air quality as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £740 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require additional land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any valuable landscape features associated with this option. It is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once constructed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. This may have a minor positive impact on noise and vibration along the A947 between the Bucksburn Roundabout and the Riverview Drive Roundabout North.

- Benefits arising from reduced noise as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the

toolkit indicate that there would be benefits of approximately £1,160 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H**. Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow.

- Overall, with the information available, the impact is expected to be **minor positive**. (+1)

9.2.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

Biodiversity and Habitats

- The introduction of with-flow segregated cycleway on Old Meldrum Road would require some localised footway narrowing to an absolute minimum width to facilitate retention of on-street parking at the northern end of Old Meldrum Road, and some removal of on-street parking at the southern end, but is not anticipated to require additional land-take and would utilise the existing road carriageway. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use. The proposed introduction of with-flow segregated cycleway would occupy existing road space and is not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. The new kerb line on the exterior of the cycleway will disrupt the existing drainage flow paths along Old Meldrum Road. It is anticipated that gaps would be left within the kerbed buffer to enable existing surface run-off to continue as is, and, with no intended increase in impermeable area, the drainage impact is considered to have a low risk impact. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be neutral.
- Benefits arising from improved local air quality as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £70 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once constructed and operational, this option could increase cycling as a proportion of modes of transport and encourage a move away from private car use. This may have a minor positive impact on noise and vibration along Old Meldrum Road.

- Benefits arising from reduced noise as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £110 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow.

- Overall, with the information available, the impact is expected to be **minor positive**. (+1)

9.2.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

Biodiversity and Habitats

- The introduction of two-way segregated cycleway on Old Meldrum Road would require some removal of on-street parking but is not anticipated to require additional land-take and would utilise the existing road carriageway. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use. The proposed introduction of two-way segregated cycleway would occupy existing road space and is not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. The new kerb line on the exterior of the cycleway will disrupt the existing drainage flow paths along Old Meldrum Road. It is anticipated that gaps would be left within the kerbed buffer to enable existing surface run-off to continue as is, and, with no intended increase in impermeable area, the drainage impact is considered to have a low risk impact This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be neutral.

- Benefits arising from improved local air quality as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results

from the toolkit indicate that there would be benefits of approximately £70 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once constructed and operational, this option could increase cycling as a proportion of modes of transport and encourage a move away from private car use. This may have a minor positive impact on noise and vibration along Old Meldrum Road.
- Benefits arising from reduced noise as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £110 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow.
- Overall, with the information available, the impact is expected to be **minor positive**. (+1)

9.2.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

Biodiversity and Habitats

- The introduction of a shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate would require land acquisition and the removal of vegetation adjacent to the carriageway along the eastern part of the link. There is the potential for impacts to roosting bats from noise, vibration and lighting during construction. Detailed design should ensure items such as lighting are directed away from existing buildings and trees. Any trees requiring lopping or removal would require to be surveyed for suitability for bats and breeding birds prior to any works commencing. Pre-construction surveys along the route are recommended to be undertaken by a suitably qualified ecologist. At this stage, this option is expected to have a **moderate negative impact** on biodiversity and habitats. (-2)

Geology and Soils

- There are no geological designations within the study area. This option would involve some land-take along the eastern part of the link to accommodate a shared use path, however no displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- Implementation of a shared use path on Dyce Drive would require some land-take and the removal of vegetation adjacent to the carriageway along the eastern part of the link. The existing pavement

adjacent to Dyce Drive is a designated Core Path, and the option would support the existing use of this route. The extent of this would be limited to a small expansion into road verges and is not anticipated to result in any perceptible change in land use. Engagement should be carried out with the relevant landowners during detailed design to ensure there is no impact on the adjacent land uses. Overall, this option is expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Changes to areas of hardstanding can result in changes to surface water run off direction, and risk of pollution incidents during both construction, through spillage of construction materials, and operation, through vehicle fuel or oil spillages for example. As such, there is a risk of run off and the potential of pollution affecting water quality of the River Don tributary located close to the eastern part of the link. A scheme of protection measures would require to be implemented to ensure no pollution of watercourses during construction. To minimise the potential for adverse effects on water quality, all construction works, including enabling works, would be required to be undertaken in accordance with relevant and up to date good practice guidance, including SEPA Pollution Prevention Guidelines/Guidance for Pollution Prevention (PPGs/GPPs). There are not anticipated to be any changes to current potential risks to water quality, drainage or flooding during operation of this option. Assuming adequate mitigation measures are in place during the construction period, this option is expected to have an overall **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be neutral.
- Benefits arising from improved local air quality as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £70 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. Whilst this option requires land-take adjacent to the carriageway along the eastern part of the link, this is limited to {length, breadth} and the overall impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. It is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once constructed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. This may have a minor positive impact on noise and vibration along Dyce Drive.
- Benefits arising from reduced noise as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £70 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** Further assessment would be required to estimate the change

in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow.

- Overall, with the information available, the impact is expected to be **minor positive**. (+1)

9.2.11 AT61a – Implement package of active travel measures on Victoria Street

Biodiversity and Habitats

- The implementation of a package of active travel measures on Victoria Street would include utilising existing verge space on the eastern side of the A947 between Farburn Terrace and Riverview Drive (south) in order to introduce a segregated cycling facility. It is anticipated that expansion into verge space would be required for approximately 300m, which would result in the loss of some areas of vegetation although it is unlikely that there would be any removal of trees or hedges required to implement this option. Pre-construction surveys are nonetheless recommended to be undertaken by a suitably qualified ecologist, however, at this stage the option is expected to have a **minor negative impact** on biodiversity and habitats. (-1)

Geology and Soils

- There are no geological designations within the study area. This option would involve some expansion into the verge along the eastern section between Farburn Terrace and Riverview Drive South Roundabout to accommodate a segregated cycleway, however no displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- Implementation of a segregated cycleway on the section between Riverview Drive South Roundabout and Farburn Terrace would require removal of vegetation adjacent to the carriageway. This would result in a change in land-use, however the extent of this would be limited to a small expansion into road verges and is not anticipated to result in any perceptible change in land use. North of Farburn Terrace, this option would use the existing road carriageway and there would be no change in baseline use. Overall, this option is expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Changes to areas of hardstanding can result in changes to surface water run off direction, and risk of pollution incidents during both construction, through spillage of construction materials, and operation, through vehicle fuel or oil spillages for example. As such, there is a risk of run off and the potential of pollution affecting water quality of the River Don tributary (Far Burn) which is centrally located and runs west-east crossing Victoria Street south of Farburn Terrace. A scheme of protection measures would require to be implemented to ensure no pollution of watercourses during construction.

- To minimise the potential for adverse effects on water quality, all construction works, including enabling works, would be required to be undertaken in accordance with relevant and up to date good practice guidance, including SEPA Pollution Prevention Guidelines/Guidance for Pollution Prevention (PPGs/GPPs). There are not anticipated to be any changes to current potential risks to water quality, or flooding during operation of this option. It is proposed that carriageway space is sacrificed to accommodate the widened footways for shared use therefore there is no anticipated increase in impermeable area. The existing gullies will require relocation in accordance with the revised kerb line, however the overall drainage impact is considered to have a low risk impact in terms of feasibility. Assuming adequate mitigation measures are in place during the construction period, this option is expected to have an overall **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, particularly as the removal of on-street parking may reduce the number of car trips in the area.

- Benefits arising from improved local air quality as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £100 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- However, given the geographic extent of this option, the overall impact on air quality is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. Whilst this option requires verge space adjacent to the carriageway along the section between Riverview Drive South Roundabout and Farburn Terrace, this is limited to {300m, breadth} and the overall impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- This option is expected to result in some change to the landscape character along Victoria Street to facilitate active travel measures. Verge space would be required for approximately 300m between Farburn Terrace and Riverview Drive (South). However, this would be negated through sympathetic design and landscaping by enhancing the sense of place, providing a better environment for active travel and removing on-street parking. There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. The overall impact is therefore considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of this option, including the removal of vegetation adjacent to the carriageway to create a segregated cycleway between Farburn Terrace and Riverview Drive South, have the potential to impact upon noise sensitive receptors (NSRs) along Victoria Street, including residential and business properties. It is considered that these impacts whilst adverse would be temporary.

  Once completed and in operation, the option could potentially alter noise emissions due to changes in traffic levels as a result of increased walking, wheeling and cycling as a proportion of modes of transport and a move away from private car use, which may have a minor positive impact on noise and vibration. Changes to road traffic flow and a reduction in the speed limit could alter the character of traffic noise along Victoria Street.

- Benefits arising from reduced noise as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £150 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow.

- Overall, with the information available, the impact is expected to be **minor positive**. (+1)

9.2.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

Biodiversity and Habitats

- The introduction of quiet route measures - including mixed traffic street measures on the section of Mugiemoss Road between the junctions with Old Meldrum Road and Mill Drive, and the reallocation of space from the road carriageway to create a widened northern footway for shared use beyond the Mill Drive junction - is not anticipated to require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use. The proposed measures, including the introduction of quiet route measures, mixed traffic street measures to protect active travel users, and widening of the existing north footway for shared use on the section of Mugiemoss Road beyond Mill Drive, would occupy existing road space and are not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. It is proposed that carriageway space is sacrificed to accommodate the widened footways therefore there is no anticipated increase in impermeable area. The existing gullies will require relocation in accordance with the revised kerb line, however the overall drainage impact is considered to have a low risk. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on air quality is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. Whilst there would be minor benefits attributable to streetscape improvements, it is considered that the option is likely to result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of measures proposed as part of the option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary.

  Once constructed and operational, this option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. The implementation of quiet route measures may have a minor positive impact on noise and vibration along Mugiemoss Road. Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow. Overall, given the geographic extent of this option, the overall impact is expected to be **minor positive**. (+1)

9.2.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

Biodiversity and Habitats

- The introduction of bus priority at all traffic signals along the A947 corridor would utilise the existing road carriageway and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to result in any perceptible change in land use. The proposed bus priority technology at traffic signals along the A947 would occupy existing road space and is not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option would improve traffic flow through signalised junctions for all users. It may lead to more reliable bus services as a result of increased bus priority at junctions which may, in turn, result in modal shift from private vehicles with resulting beneficial impacts on local air quality. Changes to air quality would vary along the road network depending on traffic flows and would be dependent on the level of modal shift that can be achieved. However, given the relatively low number of signalised junctions, this is unlikely to lead to significant improvements. Further detailed assessment would be required to calculate and model local air quality emissions alongside traffic flow data. At this stage, it is considered that this option would result in a **neutral** impact. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to the introduction of adaptive traffic signals and does not require land-take the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. As this option relates to the introduction of adaptive traffic signals within the existing road network, it is considered that it would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Once completed and in operation this option could potentially alter noise emissions due to changes in traffic experienced at noise sensitive receptors (NSRs) along the A947 corridor, and on the adjoining local road network. This potential change would relate to changes in road traffic flow and speeds as a result of the introduction of adaptive traffic signals. This option would be expected to improve traffic flow through junctions for all users and may result in fewer sounds associated with vehicles stopping and starting such as braking, engines running whilst stationary, and acceleration. However, given the relatively low number of signalised junctions, this is unlikely to lead to significant improvements. Further

assessment would be required to estimate the change in noise along the A947 by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow. Overall, at this stage, the overall impact is expected to be **minor positive**. (+1)

9.2.14 O2 – Review the layout of the Victoria Street/Skene Place Junction

Biodiversity and Habitats

- Alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets would utilise the existing road carriageway which would be re-designed and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to materially change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option is unlikely to deliver notable changes in air quality. Further detailed assessment would be required to calculate and model local air quality emissions alongside traffic flow data. At this stage, it is considered that this option would result in a **neutral impact**. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to alterations to the layout of the existing Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33), it does not require land-take and the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of this option have the potential to impact upon nearby noise sensitive receptors (NSRs). It is considered that these impacts whilst adverse would be temporary. Once constructed and operational, this option could potentially alter noise emissions due to alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of one-way traffic flow on Station Road and adjacent streets, which would be expected to result in lower levels of traffic and fewer sounds experienced at noise sensitive receptors (NSRs) associated with vehicles stopping and starting such as braking, engines running whilst stationary and acceleration.

Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow. Overall, at this stage, the overall impact is expected to be **minor positive**. (+1)

9.2.15 O3 – Review the layout of the Riverview Drive/Balloch Way Junction

Biodiversity and Habitats

- Reduction in kerb radii at the Riverview Drive/Balloch Way junction would involve re-design within the existing road carriageway and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- This option would not be anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option would not be anticipated to require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option would not be expected to deliver notable changes in air quality and it is therefore considered that it would result in a **neutral impact** against this sub-criterion. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to a reduction in existing kerb radii, it does not require land-take and the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of reducing kerb radii have the potential to impact upon nearby noise sensitive receptors (NSRs) in the form of adjacent residential properties. It is considered that these impacts whilst adverse would be temporary. During operation, this option would not be expected to alter noise emissions nor result in changes in frequency of sounds experienced at NSRs. The overall impact is expected to be **neutral**. (0)

9.2.16 O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction

Biodiversity and Habitats

- Reduction in kerb radii at the Riverview Drive/Todlaw Walk junction would involve re-design within the existing road carriageway and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option would not be anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option would not be anticipated to require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option would not be expected to deliver notable changes in air quality and it is therefore considered that it would result in a **neutral impact** against this sub-criterion. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to a reduction in existing kerb radii, it does not require land-take and the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of reducing kerb radii have the potential to impact upon nearby noise sensitive receptors (NSRs) in the form of adjacent residential properties. It is considered that these impacts whilst adverse would be temporary. During operation, this option would not be expected to alter noise emissions nor result in changes in frequency of sounds experienced at NSRs. The overall impact is expected to be **neutral**. (0)

9.2.17 O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

Biodiversity and Habitats

- Reduction in kerb radii at the Riverview Drive/Netherview Avenue junction would involve re-design within the existing road carriageway and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option would not be anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option would not be anticipated to require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. Carriageway space is reallocated to the footway as part of the proposal to reduce the junction kerb radii therefore there is no anticipated increase in impermeable area. The existing gullies will require relocation in relation to the new kerb line, however the overall drainage impact is considered to have a low risk. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option would not be expected to deliver notable changes in air quality and it is therefore considered that it would result in a **neutral impact** against this sub-criterion. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to a reduction in existing kerb radii, it does not require land-take and the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of reducing kerb radii have the potential to impact upon nearby noise sensitive receptors (NSRs) in the form of adjacent residential properties. It is considered that these impacts whilst adverse would be temporary. During operation, this option would not be expected to alter noise emissions nor result in changes in frequency of sounds experienced at NSRs. The overall impact is expected to be **neutral**. (0)

9.2.18 O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

Biodiversity and Habitats

- This option would involve increasing the existing splitter island radius at the Stoneywood Road junction in conjunction with the introduction of a tapered merge to further guide vehicles north on the A947 and/or the introduction of a physical island to replace the existing hatch road markings adjacent to the right turn filter lane on the A947. There is also potential for this option to involve revision of the Stoneywood Road/A947 junction layout to accommodate desired movements, with possible signalised interchange or roundabout. These measures would involve re-design within the existing road carriageway and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option would not deliver notable changes in air quality and it is therefore considered that it would result in a **neutral impact** against this sub-criterion. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to alterations to an existing junction, it does not require land-take and the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of alterations to the junction layout have the potential to impact upon nearby noise sensitive receptors (NSRs) in the form of nearby residential properties. It is considered that these impacts whilst adverse would be temporary. During operation, this option would not be expected to alter noise emissions nor result in changes in frequency of sounds experienced at NSRs. The overall impact is expected to be **neutral**. (0)

9.2.19 O8 – Review the layout of the A947/Stoneywood Brae Junction

Biodiversity and Habitats

- Alterations to meet the minimum single to dual-carriageway taper ratio at the A947/Stoneywood Brae junction would involve re-design within the existing road carriageway and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality or flooding during construction or operation of this option. Footway widening into existing verge space is proposed and will increase impermeable area and volume of surface water runoff. It is assumed that the existing carriageway drainage has capacity to manage increased volume. A drainage assessment will be required to ensure that the increased runoff does not exceed the network's capacity. This option is expected to have a **neutral impact** on Water, Drainage and Flooding overall. (0)

Air Quality

- This option would not deliver changes in air quality and it is therefore considered that it would result in a **neutral impact** against this sub-criterion. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to alterations to an existing junction, it does not require land-take and the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- This option would not be expected to alter noise emissions nor result in changes in frequency of sounds experienced at NSRs, neither during implementation nor during operation. The overall impact is expected to be **neutral**. (0)

9.2.20 O10 – Review layout of the A947/McDonalds access road junction

Biodiversity and Habitats

- This option would involve layout improvements at the A947/McDonalds access road junction to narrow or reposition the junction to further protect pedestrians using the at-grade crossing north of the access road. These measures would involve re-design within the existing road carriageway and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option would not deliver notable changes in air quality and it is therefore considered that it would result in a **neutral impact** against this sub-criterion. (0)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to alterations to an existing junction, it does not require land-take and the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option, would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of alterations to the junction layout have the potential to impact upon a small number of nearby noise sensitive receptors (NSRs) in the form of residential properties on the northern part of St John's Road. It is considered that any impacts whilst adverse would be temporary. During operation, this option would not be expected to alter noise emissions nor result in changes in frequency of sounds experienced at NSRs. The overall impact is expected to be **neutral**. (0)

9.2.21 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

Biodiversity and Habitats

- Where the introduction of measures to support the implementation of a 20-minute neighbourhood would require land-take and the removal of vegetation, there would be the potential for adverse impacts to local biodiversity from noise, vibration and lighting during construction. Detailed design should ensure items such as lighting are directed away from existing buildings and trees. Any trees requiring lopping or removal would require to be surveyed for suitability for bats and breeding birds prior to any works commencing. Pre-construction surveys are recommended to be undertaken by a suitably qualified ecologist. At this stage there is an uncertain relationship between the proposed option and biodiversity and habitats. This option has therefore been scored as having an overall **neutral impact** on biodiversity and habitats, but this is subject to review. Further assessment should be undertaken to identify any significant environmental effects once the exact location of measures to be taken forward is confirmed. (0)

Geology and Soils

- There are no geological designations within the study area. This option may involve some land-take to accommodate measures to implement a 20-minute neighbourhood, however no displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- Implementation of a package of measures to support implementation of a 20-minute neighbourhood in Dyce would be likely to require land-take and the removal of vegetation adjacent to sections of existing road carriageway in some locations. This would result in a change in land-use, however the extent of this would be expected to be limited to a small expansion into road verges and is not anticipated to result in any perceptible change in land use. It is expected that there would be no change in overall baseline use. Overall, this option is expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- Changes to areas of hardstanding can result in changes to surface water run-off direction, and risk of pollution incidents during both construction, through spillage of construction materials, and operation, through vehicle fuel or oil spillages for example. As such, there is a risk of run-off and the potential of pollution affecting water courses located within the study area - for example the River Don's tributaries which intersect with the A947 namely Goval Burn, Far Burn and Green Burn, and the River Don at Parkhill Bridge - depending on the location of measures implemented as part of this option. A scheme of protection measures may require to be implemented to ensure no pollution of watercourses during construction. To minimise the potential for adverse effects on water quality, all construction works, including enabling works, would be required to be undertaken in accordance with relevant and up to date good practice guidance, including SEPA Pollution Prevention Guidelines/Guidance for Pollution Prevention (PPGs/GPPs), where applicable. At this stage there is an uncertain relationship between the proposed option and Water, Drainage and Flooding. Assuming adequate mitigations are implemented

where necessary, this option has been scored as having an overall **neutral impact**, but this is subject to review. Further assessment should be undertaken to identify any significant environmental effects once the exact location of measures to be taken forward is confirmed. (0)

Air Quality

- This option would be expected to increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use. There may be some local air quality benefits associated with modal shift away from private car use. Further detailed assessment would be required to calculate and model local air quality emissions alongside traffic flow data. At this stage, given the geographic extent of this option, the overall impact is expected to be **minor positive**. (+1)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. Whilst this option may require land-take adjacent to the carriageway in some locations, this would be limited to a small expansion into road verges and the overall impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- This option is expected to result in some change to the landscape character within Dyce to facilitate active travel measures. It may require land-take in some locations but this would be expected to be limited to a small expansion into road verges. This would be negated through sympathetic design and landscaping by enhancing the sense of place and providing a better environment for active travel. There are no landscape designations within the study area and there is unlikely to be loss of any value landscape features associated with this option. The overall impact is therefore considered to be **neutral**. (0)

Noise and Vibration

- Noise levels generated during the construction phase of this option have the potential to impact upon noise sensitive receptors (NSRs), including residential and business properties, depending on the location of the measures implemented. It is considered that these impacts whilst adverse would be temporary.

  Once completed and in operation, the option could potentially alter noise emissions due to changes in traffic levels as a result of increased walking, wheeling and cycling as a proportion of modes of transport and a move away from private car use. Further assessment would be required to estimate the change in noise associated with this option by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow. Overall, at this stage, this option is expected to generate a **minor positive impact** on noise and vibration. (+1)

9.2.22 O25 – Implement access only restrictions for general traffic on Victoria Street

Biodiversity and Habitats

- The introduction of access only restrictions for general traffic would utilise the existing road carriageway which would be re-designed and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to materially change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option may result in local air quality benefits associated with the removal of vehicular traffic from the Victoria Street area. Further detailed assessment would be required to calculate and model local air quality emissions alongside traffic flow data. At this stage, it is considered that this option would result in a **moderate positive impact**. (+2)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to changes to the operation of the existing road network and does not require land-take, the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- During operation, this option could potentially alter noise emissions due to the removal of vehicular traffic from the Victoria Street area, which would be expected to result in fewer sounds experienced at noise sensitive receptors (NSRs) associated with vehicles stopping and starting such as braking, engines running whilst stationary, and acceleration. Further assessment would be required to estimate the change in noise in the Victoria Street area by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow. Overall, at this stage, the overall impact is expected to be **moderate positive**. (+2)

9.2.23 O26 – Implement one-way restrictions for general traffic on Victoria Street

Biodiversity and Habitats

- The introduction of one-way restrictions for general traffic on Victoria Street would utilise the existing road carriageway which would be re-designed and would not require additional land-take. This option is therefore expected to have a **neutral impact** on biodiversity and habitats. (0)

Geology and Soils

- There are no geological designations within the study area, and no land-take or displacement of soils is anticipated within agricultural areas. This option is therefore expected to have a **neutral impact** on geology and soils. (0)

Land Use

- The option is not anticipated to materially change the use of land from its existing baseline use. The option is therefore expected to have a **neutral impact** on land use. (0)

Water, Drainage and Flooding

- This option does not require changes to large areas of hardstanding nor heavy construction works. As such, there are no anticipated changes to water quality, drainage or flooding during construction or operation of this option. This option is therefore expected to have a **neutral impact** on Water, Drainage and Flooding. (0)

Air Quality

- This option may result in local air quality benefits associated with the implementation of one-way general traffic flow in the Victoria Street area and associated lower levels of general traffic. Further detailed assessment would be required to calculate and model local air quality emissions alongside traffic flow data. At this stage, it is considered that this option would result in a **minor positive impact**. (+1)

Historic Environment

- There are no listed buildings and no other designations for cultural heritage or archaeology within the vicinity of this option. With the historic environment there always remains the potential for previously unrecorded archaeological assets to be present within the study area. However, as this option relates to changes to the operation of the existing road network and does not require land-take, the impact on Historic Environment is considered to be **neutral**. (0)

Landscape

- There are no landscape designations within the study area and there would be no loss of value landscape features associated with this option. It is considered that this option would result in no change to the overall impression of landscape character and the overall impact is considered to be **neutral**. (0)

Noise and Vibration

- During operation, this option could potentially alter noise emissions due to the implementation of one-way traffic flow in the Victoria Street area, which would be expected to result in lower levels of traffic and fewer sounds experienced at noise sensitive receptors (NSRs) associated with vehicles stopping and starting such as braking, engines running whilst stationary, and acceleration. Further assessment would be required to estimate the change in noise in the Victoria Street area by using traffic data and traffic modelling to estimate traffic noise levels as a result of changes in flow. Overall, at this stage, the overall impact is expected to be **minor positive**. (+1)

9.3 Climate Change

9.3.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

Greenhouse Gas Emissions

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on greenhouse gas emissions is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- Whilst this option involves upgrading of the existing network of paths to the south and west of TECA to a bound surface, it does not require changes to large areas of hardstanding nor heavy construction works. Upgrading of existing paths south and west of TECA to bound surfacing may provide some protection to the effects of climate change and would be designed in such a way to adapt to the potential effects of climate change, and in accordance with relevant planning, design, engineering practice and codes. In particular, future flooding associated with the effects of climate change should be considered during the design development process. Given the geographic extent of this option the overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- Upgrading of existing paths south and west of TECA to bound surfacing may provide some protection to the effects of climate change. The active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. The overall impact is expected to be **minor positive**. (+1)

9.3.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

Greenhouse Gas Emissions

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on greenhouse gas emissions is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- Whilst this option involves upgrading of the existing worn section of verge to a bound surface, it does not require changes to large areas of hardstanding nor heavy construction works. Formalisation of the worn section of verge may provide some protection against vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures. In particular, the future flooding associated with the effects of climate change on the River Don should be considered during the design development process. However, given the geographic extent of this option the overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- Whilst this option involves upgrading of the existing worn section of verge to a bound surface, it does not require changes to large areas of hardstanding nor heavy construction works. Formalisation of the worn section of verge may provide some protection against vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures. However, given the geographic extent of this option the overall impact is expected to be **neutral**. (0)

9.3.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

Greenhouse Gas Emissions

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on greenhouse gas emissions is expected to be negligible.
- Benefits arising from reduced greenhouse emissions as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £50 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option includes a one-way system, removal of on-road parking and potential new cycle lanes along Station Road. There are no additional infrastructure measures associated with this option and the ability of this option to adapt to the effects of climate change is therefore limited. The overall impact is therefore expected to be **neutral**. (0)

9.3.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Greenhouse Gas Emissions

- By encouraging and facilitating mode shift from motorised modes of transport and implementing mixed-traffic street measures, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although not to any significant extent. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947, including Green Burn which measures in this option lie in the vicinity of. However, the vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option includes mixed-traffic street measures - there are no additional infrastructure measures associated with this option and the ability of this option to adapt to the effects of climate change is therefore limited. The overall impact is therefore expected to be **neutral**. (0)

9.3.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

Greenhouse Gas Emissions

- Shared use facility: By encouraging and facilitating mode shift from motorised modes of transport and implementing improved active travel links to the retail park at Bucksburn Roundabout, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although not to any significant extent. Overall, given the geographic extent of this option, at this stage the impact is expected to be **neutral**. (0)

- Segregated two-way cycleway: By encouraging and facilitating mode shift from motorised modes of transport and implementing improved active travel links to the retail park at Bucksburn Roundabout, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although not to any significant extent. However, the reduction of the northbound carriageway to one lane could result in slower-moving vehicular traffic with an associated negative impact on air quality, although the impact of this would depend on the level of modal shift achieved through improvements to active travel provision. Overall, given the geographic extent of this option, at this stage the impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- Shared use facility: Whilst this option may involve upgrading of a small section of road carriageway verge to a bound surface, it does not require changes to large areas of hardstanding nor heavy construction works. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is expected to be largely unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

- Segregated two-way cycleway: Whilst this option may involve upgrading of a small section of road carriageway verge to a bound surface, it does not require changes to large areas of hardstanding nor heavy construction works. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is

expected to be largely unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- Shared use facility: This option includes improvements to active travel access to the retail park at Bucksburn Roundabout, including upgrade of the existing footway to shared use on the west side of the A947. There are no additional infrastructure measures associated with this option and the ability of this option to adapt to the effects of climate change is therefore limited. The active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. The overall impact is therefore expected to be **minor positive**. (+1)

- Segregated two-way cycleway: This option includes improvements to active travel access to the retail park at Bucksburn Roundabout, including provision of a segregated two-way cycleway on the northbound carriageway of the A947. There are no additional infrastructure measures associated with this option and the ability of this option to adapt to the effects of climate change is therefore limited. The active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. The overall impact is therefore expected to be **minor positive**. (+1)

9.3.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

Greenhouse Gas Emissions

- This option could increase walking, wheeling and cycling as a proportion of modes of transport and encourage a move away from private car use, although the overall impact on greenhouse gas emissions is expected to be negligible. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- Whilst this option involves upgrading of an existing path (including expansion into a small section of roadside verge) to a bound surface, it does not require changes to large areas of hardstanding nor heavy construction works. Formalisation of the existing path may provide some protection against vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures. However, given the geographic extent of this option the overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- Upgrading of an existing path to bound surfacing may provide some protection to the effects of climate change. The active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. However, the future flooding associated with the effects of climate change on the River Don should be considered during the design development process. Overall, given the geographic extent of this option the overall impact is expected to be **minor positive**. (+1)

9.3.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

Greenhouse Gas Emissions

- By encouraging and facilitating mode shift from motorised modes of transport to walking, wheeling and cycling, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions.
- Benefits arising from reduced greenhouse emissions as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £7,080 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- The overall impact in terms of greenhouse gas emissions is therefore expected to be **minor positive**. (+1)

Vulnerability to Effects of Climate Change

- There is potential for the measures included within this option to be vulnerable to the effects of climate change. Existing paved surfaces/footways would be widened into the existing verge area throughout and localised road realignment would be required along Riverview Drive to enable the development of a segregated active travel route along the corridor. Paved surfaces may incur surface damage or be impacted by surface water flooding during periods of heavy rainfall. Parts of this option are located in the vicinity of the River Don tributaries Far Burn and Green Burn which have a high likelihood of flooding (10% chance of surface water flooding). Elements of this option are therefore potentially vulnerable to the effects of climate change in respect of increased flood risk. There is also an increased risk of thermal expansion and movement of paved surfaces due to increased summer temperatures, with associated deformation and cracking. Infrastructure may be inaccessible during extreme weather events. Longer-term, there is an expectation that average temperatures will increase, along with the severity and frequency of storm events. Longer vegetation growing seasons have the potential to lead to increased tree leaf coverage. An increase in magnitude and frequency of storm events and heavy rainfall could in turn result in an increase in incidence of fallen trees and other foliage on the route. The overall impact is expected to be **minor negative**. (-1)

Potential to Adapt to Effects of Climate Change

- The active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. The overall potential to adapt to the effects of climate change is therefore expected to be **minor positive**. (+1)

9.3.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

Greenhouse Gas Emissions

- By encouraging and facilitating mode shift from motorised modes of transport to cycling and reducing on-street parking provision at the southern end of Old Meldrum Road, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although this is unlikely to be to any significant extent.
- Benefits arising from reduced greenhouse emissions as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £660 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- The overall impact in terms of greenhouse gas emissions is therefore expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option includes reduction in on-street parking at the southern end of Old Meldrum Road and the implementation of with-flow segregated cycleway. There will be some localised footway narrowing to an absolute minimum width to facilitate retention of on-street parking at the northern end of Old Meldrum Road. There are no additional infrastructure measures associated with this option and the ability of this option to adapt to the effects of climate change is therefore limited. The overall impact is therefore expected to be **neutral**. (0)

9.3.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

Greenhouse Gas Emissions

- By encouraging and facilitating mode shift from motorised modes of transport to cycling and reducing on-street parking provision at the southern end of Old Meldrum Road, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although this is unlikely to be to any significant extent.

- Benefits arising from reduced greenhouse emissions as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £660 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact in terms of greenhouse gas emissions is therefore expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option includes reduction in on-street parking and the implementation of two-way segregated cycleway on Old Meldrum Road. There are no additional infrastructure measures associated with this option and the ability of this option to adapt to the effects of climate change is therefore limited. The overall impact is therefore expected to be **neutral**. (0)

9.3.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

Greenhouse Gas Emissions

- In the short-term, greenhouse gas emissions may occur due to construction activities undertaken to implement the shared use path, particularly where land acquisition is required. This may include indirect emissions from the manufacture and transportation of materials and emissions from the fuel combusted by construction plant and vehicles. However, in the longer-term, by encouraging and facilitating mode shift from motorised modes of transport and implementing improved active travel links between the A947 and Kirkhill Industrial Estate, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although the extent of this would depend on the level of modal shift that is achieved.

- Benefits arising from reduced greenhouse emissions as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £2,000 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- At this stage, the overall impact in terms of greenhouse gas emissions is therefore expected to be **minor positive**. (+1)

Vulnerability to Effects of Climate Change

- There is potential for the measures included within this option to be vulnerable to the effects of climate change. Paved surfaces created for the shared use path may incur surface damage or be impacted by surface water flooding during periods of heavy rainfall. Parts of this option are located in the vicinity of the point of the River Don (Parkhill Bridge) which is susceptible to flood risk and areas of Dyce Drive are also susceptible to surface water flooding. Elements of this option are therefore potentially vulnerable to the effects of climate change in respect of increased flood risk. There is also an increased risk of thermal expansion and movement of paved surfaces due to increased summer temperatures, with associated deformation and cracking. Infrastructure may be inaccessible during extreme weather events. Longer-term, there is an expectation that average temperatures would increase along with the severity and frequency of storm events. Longer vegetation growing seasons have the potential to lead to increased tree leaf coverage. An increase in magnitude and frequency of storm events and heavy rainfall could in turn result in an increase in incidence of fallen trees and other foliage on the route. The future flooding associated with the effects of climate change on the River Don should also be considered during the design development process. The overall impact is expected to be **minor negative**. (-1)

Potential to Adapt to Effects of Climate Change

- The active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. The overall potential to adapt to the effects of climate change is therefore expected to be **minor positive**. (+1)

9.3.11 AT61a – Implement package of active travel measures on Victoria Street

Greenhouse Gas Emissions

- In the short-term, greenhouse gas emissions may occur due to construction activities undertaken to implement the measures included within this option. This may include indirect emissions from the manufacture and transportation of materials and emissions from the fuel combusted by construction plant and vehicles. However, in the longer-term, by encouraging and facilitating mode shift from motorised modes of transport and implementing improved active travel links and reduced on-street parking along Victoria Street, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although not to any significant extent.

- Benefits arising from reduced greenhouse emissions as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £940 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The impact of this would depend on the level of modal shift achieved through improvements to active travel provision. Overall, at this stage the overall impact is expected to be **minor positive**. (+1)

Vulnerability to Effects of Climate Change

- There is potential for the measures included within this option to be vulnerable to the effects of climate change. Paved surfaces created along the section between Farburn Terrace and Riverview Drive South Roundabout to create a segregated cycleway may incur surface damage or be impacted by surface water flooding during periods of heavy rainfall. Parts of this option are located in the vicinity of the River Don tributary Far Burn, which has a high likelihood of flooding (10% chance of flooding). Elements of

this option are therefore potentially vulnerable to the effects of climate change in respect of increased flood risk. There is also an increased risk of thermal expansion and movement of paved surfaces due to increased summer temperatures, with associated deformation and cracking. Infrastructure may be inaccessible during extreme weather events. Longer-term, there is an expectation that average temperatures will increase, along with the severity and frequency of storm events. Longer vegetation growing seasons have the potential to lead to increased tree leaf coverage. An increase in magnitude and frequency of storm events and heavy rainfall could in turn result in an increase in incidence of fallen trees and other foliage on the route. The overall impact is expected to be **minor negative**. (-1)

Potential to Adapt to Effects of Climate Change

- The active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. The overall potential to adapt to the effects of climate change is therefore expected to be **minor positive**. (+1)

9.3.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

Greenhouse Gas Emissions

- By encouraging and facilitating mode shift from motorised modes of transport and implementing quiet route measures and measures to protect active travel users and remove existing modal conflicts, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although not to any significant extent. Overall, given the geographic extent of this option, the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947, however none of these are located within the vicinity of this option. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option includes quiet route measures, mixed traffic street measures to protect active travel users, and widening of the existing north footway for shared use on the section of Mugiemoss Road beyond Mill Drive. There are no additional infrastructure measures associated with this option and the ability of this option to adapt to the effects of climate change is therefore limited. The overall impact is therefore expected to be **neutral**. (0)

9.3.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

Greenhouse Gas Emissions

- The introduction of bus priority at all traffic signals along the A947 corridor could encourage a modal shift away from private car use with a slight decrease in the amount of carbon dioxide (CO2) released compared to the Do Minimum. However, this would be dependent on the level of modal shift which can be achieved. If the option does not adequately promote more sustainable travel, then it may result in no change to emissions. Bus priority measures could reduce pressures on operating costs, which could support greater levels of investment in new, lower emission vehicles. At this stage, the overall impact is expected to be **minor positive**. (+1)

Vulnerability to Effects of Climate Change

- This option would not require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve the introduction of adaptive traffic signals to improve traffic flow through junctions along the A947 corridor. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.14 O2 – Review the layout of the Victoria Street/Skene Place Junction

Greenhouse Gas Emissions

- Alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets could make the area more attractive for active travel and a marginal reduction in levels of general traffic and associated greenhouse gas emissions may occur. Overall, however, due to the limited geographic extent of this option the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. None of the River Don tributaries that are identified as being of high likelihood of flooding are located in the vicinity of this option. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, therefore, expected to be unchanged from the current situation. The overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.15 O3 – Review the layout of the Riverview Drive/Balloch Way Junction

Greenhouse Gas Emissions

- Alterations to the layout of the Riverview Drive/Balloch Way junction are not expected to impact on greenhouse gas emissions, and the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option would not be anticipated to require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, therefore, expected to be unchanged from the current situation. The overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve alterations to the layout of the Riverview Drive/Balloch Way junction. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.16 O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction

Greenhouse Gas Emissions

- Alterations to the layout of the Riverview Drive/Todlaw Walk junction are not expected to impact on greenhouse gas emissions, and the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option would not be anticipated to require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, therefore, expected to be unchanged from the current situation. The overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve alterations to the layout of the Riverview Drive/Todlaw Walk junction. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.17 O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

Greenhouse Gas Emissions

- Alterations to the layout of the Riverview Drive/Netherview Avenue junction are not expected to impact on greenhouse gas emissions, and the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option would not be anticipated to require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, therefore, expected to be unchanged from the current situation. The overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve alterations to the layout of the Riverview Drive/Netherview Avenue junction. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.18 O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

Greenhouse Gas Emissions

- Alterations to the layout of the A947/Stoneywood Road junction at the Co-op/Marks and Spencer are not expected to impact on greenhouse gas emissions, and the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option would not require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is therefore expected to be unchanged from the current situation. The overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve alterations to the layout of the A947/Stoneywood Road junction at the Co-op/Marks and Spencer. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.19 O8 – Review the layout of the A947/Stoneywood Brae Junction

Greenhouse Gas Emissions

- Alterations to the layout of the A947/Stoneywood Brae junction to meet the minimum single- to dual-carriageway taper ratio are not expected to impact on greenhouse gas emissions, and the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option would not require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, therefore, expected to be unchanged from the current situation. The overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- If this option is progressed, it would involve alterations to the layout of the A947/Stoneywood Brae junction to meet the minimum single- to dual-carriageway taper ratio. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.20 O10 – Review layout of the A947/McDonalds access road junction

Greenhouse Gas Emissions

- Alterations to the layout of the A947/McDonalds access road junction are not expected to impact on greenhouse gas emissions, and the overall impact is expected to be **neutral**. (0)

Vulnerability to Effects of Climate Change

- This option would not require changes to large areas of hardstanding and no new paved surfaces would be created. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, therefore, expected to be unchanged from the current situation. The overall impact is expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve alterations to the layout of the A947/McDonalds access road junction. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.21 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

Greenhouse Gas Emissions

- In the short-term, greenhouse gas emissions may occur due to construction activities undertaken to implement the measures included within this option, particularly where land acquisition is required. This may include indirect emissions from the manufacture and transportation of materials and emissions from the fuel combusted by construction plant and vehicles. However, in the longer-term, by encouraging and facilitating mode shift from motorised modes of transport and implementing improved active travel links for short- to medium-length journeys, the number of private car trips would be anticipated to reduce and so too would the negative impact on greenhouse gas emissions, although not to any significant extent. The impact of this would depend on the level of modal shift achieved through improvements to active

travel provision. Overall, at this stage there is expected to be a **minor positive impact** on greenhouse gas emissions. (+1)

Vulnerability to Effects of Climate Change

- There is potential for the measures included within this option to be vulnerable to the effects of climate change. Paved surfaces may incur surface damage or be impacted by surface water flooding during periods of heavy rainfall. Depending on the location of the measures implemented as part of this option, there is potential for these to be located in the vicinity of the River Don tributaries Far Burn, Goval Burn and Green Burn which have a high likelihood of flooding (10% chance of flooding), in addition to the point of the River Don (Parkhill Bridge) which is susceptible to flood risk. Elements of this option are therefore potentially vulnerable to the effects of climate change in respect of increased flood risk. There is also an increased risk of thermal expansion and movement of paved surfaces due to increased summer temperatures, with associated deformation and cracking. Infrastructure may be inaccessible during extreme weather events. Longer-term, there is an expectation that average temperatures would increase along with the severity and frequency of storm events. Longer vegetation growing seasons have the potential to lead to increased tree leaf coverage. An increase in magnitude and frequency of storm events and heavy rainfall could in turn result in an increase in incidence of fallen trees and other foliage on the measures within this option. At this stage there is an uncertain relationship between the proposed option and its vulnerability to effects of climate change. Further consideration should be given to the likely level of impact once the exact scope and location of measures to be taken forward is confirmed. At this stage, there is expected to be a **minor negative impact** in terms of vulnerability to the effects of climate change. (-1)

Potential to Adapt to Effects of Climate Change

- At this stage there is an uncertain relationship between the proposed option and its potential to adapt to the effects of climate change. Further consideration should be given to the likely level of impact once the exact scope and location of measures to be taken forward is confirmed. However, it is expected that the active travel infrastructure associated with this option would be designed in such a way to adapt to the potential effects of climate change, and designed in accordance with relevant planning, design, engineering practice and codes. A number of mitigation and adaptation measures would be considered at later design development stages to address potential risks. The overall potential to adapt to the effects of climate change is therefore expected to be **minor positive**. (+1)

9.3.22 O25 – Implement access only restrictions for general traffic on Victoria Street

Greenhouse Gas Emissions

- By removing vehicular traffic from the Victoria Street area and making the area more attractive for active travel, a reduction in greenhouse gas emissions would be expected. Overall, at this stage the overall impact is expected to be **minor positive**. (+1)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947 namely Far Burn, which is centrally located and runs west-east crossing Victoria Street. This option is therefore vulnerable to the effects of climate change in respect of increased flood risk. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, however, expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve the introduction of access only restrictions for general traffic on Victoria Street. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.3.23 O26 – Implement one-way restrictions for general traffic on Victoria Street

Greenhouse Gas Emissions

- By implementing one-way restrictions for traffic in the Victoria Street area and making the area more attractive for active travel, a reduction in levels of general traffic and associated greenhouse gas emissions would be expected. Overall, at this stage the overall impact is expected to be **minor positive**. (+1)

Vulnerability to Effects of Climate Change

- This option does not require changes to large areas of hardstanding and no new paved surfaces would be created. There is high likelihood of flooding (10% chance of flooding) along a number of the River Don's tributaries which intersect with the A947 namely Far Burn, which is centrally located and runs west-east crossing Victoria Street. This option is therefore vulnerable to the effects of climate change in respect of increased flood risk. The vulnerability to the effects of climate change - for example surface damage or surface water flooding during periods of heavy rainfall, and risk of thermal expansion and movement (with associated deformation and cracking) due to increased summer temperatures - is, however, expected to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

Potential to Adapt to Effects of Climate Change

- This option would involve the implementation of one-way restrictions for general traffic on Victoria Street. The ability of this option to adapt to the effects of climate change is likely to be unchanged from the current situation. The overall impact is therefore expected to be **neutral**. (0)

9.4 Health, Safety and Wellbeing

Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[8] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[9]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine. Each of the 'AT' options subject to appraisal in this section will support uptake of physical activity, as well as Options O16, O25 and O26, with associated positive impacts on Health.

9.4.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

Accidents

- Whilst the creation of a bound surface would reduce trip hazards and risks of cyclists coming off their bikes, it is considered that due to the small-scale nature of this option, the overall impact on the Accidents sub-criterion would be **neutral**. (0)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical

[8] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[9] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit the geographic extent of this option limits the potential for this. The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres, for example Bucksburn Medical Centre and Gilbert Road Medical Group, however the option on its own would not provide improved access directly to these facilities. Improved access to green spaces (for example Stoneyton Park and the Former Rowett Institute Trail (TECA Trail)) could also have a minor positive impact on health and wellbeing. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- It is considered that improved active travel connectivity between the A947 and TECA would have a **neutral impact** on the Visual Amenity sub-criterion. Proposed works include the implementation of wayfinding signage and upgrading existing paths west and south of TECA to create a bound surface, which would not be anticipated to result in any significant changes in terms of visual amenity. (0)

9.4.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

Accidents

- Whilst the creation of a new bound surface and provision of dropped kerbs and tactile paving would reduce trip hazards and risks of cyclists coming off their bikes, it is considered that due to the small-scale nature of this option, the overall impact on the Accidents sub-criterion would be **neutral**. (0)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit the geographic extent of this option limits the potential for this. The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling via the Riverside Path, such as to GP surgeries and health centres in the local area, however the option on its own would not provide improved access directly to these facilities. Improved access to blue and green spaces around the River Don, and via the Riverside Footpath in the vicinity of Central Park and the Dyce 3G Pitches, for example, could also have a minor

positive impact on health and wellbeing. This option could indirectly support access to onward connections to Seaton Park and Aberdeen City Centre via NCN1. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to active travel users and the small number of residential receptors that overlook the section of verge on Riverview Drive. Construction activities would temporarily diminish the existing levels of visual amenity, although these are expected to be relatively small-scale and for a short period of time. Once operational the option is anticipated to result in slight changes to views attributable to new bound surface, dropped kerbs and tactile paving, but the overall composition and focus of views would be unaltered. Sensitive design and choice of materials would ensure this option is developed in keeping with the natural environment. Overall, the impact is expected to be **neutral**. (0)

9.4.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

Accidents

- It is considered that improved active travel links between Dyce Rail Station and the A947/eastern section of Dyce would have a **minor positive impact** on the Accidents sub-criterion. Proposed works include the implementation of a one-way system along Station Road and adjacent streets, removal of on-road parking and potential for a new contra-flow cycle lane on Station Road. These measures would reduce the risk of accidents and collisions between active travel users and between active travel users and general traffic. This would be expected to improve safety conditions and perceptions, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people.
- Benefits arising from reduced accidents as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £120 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- The overall impact on Accidents is expected to be **minor positive**. (+1)

Security

- The implementation of this option is expected to make walking, wheeling and cycling between Dyce Rail Station and the A947/eastern section of Dyce more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit the geographic extent of this option limits the potential for this.
- The health benefits of increased rates of active travel as a result of the option have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). AMAT provides

assessments of the health and economic impacts of walking and cycling on premature mortality and on rates of absenteeism[10]. Outputs from the tool show that the measures implemented as part of this option could reduce premature deaths equating to benefits of up to £8,720 over a 20-year appraisal period. Additionally, AMAT indicates that there would be 1 less day of short-term sick leave per year, which equates to benefits of up to £1,500 over the same appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling between the east of Dyce and Dyce Rail Station. The option on its own would not provide improved access directly to these health and wellbeing facilities but could facilitate access to health and wellbeing infrastructure outwith the study area through improved links to Dyce Rail Station. This option would not provide direct access to blue or green spaces but may indirectly facilitate access to green spaces in the wider area (for example Central Park/Dyce 3G Pitches). The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to active travel users and the residential and business receptors that overlook Station Road. Construction activities would temporarily diminish the existing levels of visual amenity, although these are expected to be small-scale and for a short period of time. Once operational the option is anticipated to result in slight changes to views attributable to new cycle lane markings, one-way signage and the removal of on-road parking, but the overall composition and focus of views would be unaltered. As a result, the impact is expected to be neutral. By encouraging and facilitating mode shift from motorised modes of transport and implementing one-way flow of traffic, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **neutral**. (0)

9.4.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Accidents

It is considered that improved active travel links on the local road network to the west of the A947 would have a **minor positive impact** on the Accidents sub-criterion. Proposed works include the implementation of mixed-traffic street measures on Bankhead Road, Greenburn Road and Millhill Brae, which allows for safe, on-road cycling and which would reduce the risk of accidents and collisions between active travel users and between active travel users and general traffic. This would be expected to improve safety conditions and perceptions, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people. Given the geographic extent of this option, the overall impact is expected to be limited, however localised benefits are possible particularly in terms of a reduction in the perceived danger of road accidents and casualties as well as reduced personal road safety concerns as a result of the implementation of the measures, including on Greenburn Road, which acts as one of the main access points for pedestrians to Stoneywood School. (+1)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

[10] AMAT applies a number of assumptions based on the estimated number of walk and cycle trips as a result of the option. Further details are set out in **Appendix H.**

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit the geographic extent of this option limits the potential for this. The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area, however the option on its own would not provide improved access directly to these facilities. Improved access to green spaces (for example, Stoneyton Park and green spaces to the west of Greenburn Road) could also have a minor positive impact on health and wellbeing. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to active travel users and residential receptors that overlook Bankhead Road, Greenburn Road and Millhill Brae. Construction activities would temporarily diminish the existing levels of visual amenity, although these are expected to be small-scale and for a short period of time. Once operational, the option is anticipated to result in slight changes to views attributable to, for example, new signage, but overall composition and focus of views would be unaltered. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **neutral**. (0)

9.4.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

Accidents

- It is considered that improved active travel access to the retail park at the Bucksburn Roundabout could have a **minor positive impact** on the Accidents sub-criterion. Proposed works include the creation of either a shared use facility between the A947 crossing and the retail park or carriageway width reduction to facilitate a segregated two-way cycleway. Widening of the footway would reduce the risk of accidents and collisions between active travel users and general traffic. This would be expected to improve safety conditions and perceptions, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people. Similarly, provision of a segregated two-way cycleway would reduce the risk of accidents and collisions between active travel users and between active travel users and general traffic. Reduction of the A947 central reserve and reduced speed limit associated with the implementation of the segregated cycleway option (AT41b) would require further investigation and consultation to determine feasibility. (+1)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated

with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit the geographic extent of this option limits the potential for this. The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area (for example, the Inverurie Road Clinic), however the option on its own would not provide improved access directly to these facilities. Improved access to blue and green spaces (for example, the River Don) could also have a minor positive impact on health and wellbeing, particularly for employees of the retail park at the Bucksburn Roundabout. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to users of the A947 between the toucan crossing to the north of the Old Meldrum Road junction and the retail park at the Bucksburn Roundabout, and residential properties and businesses that overlook this section of the A947. Construction activities would temporarily diminish the existing levels of visual amenity, although these are expected to be small-scale and for a short period of time. Once operational the option is anticipated to result in slight changes to views attributable to, for example, new active travel provision and signage and, potentially, to enable the provision of a shared use facility, relocated lighting columns and removal of vegetation but overall composition and focus of views would be unaltered. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **neutral**. (0)

9.4.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

Accidents

- The creation of a bound surface would reduce trip hazards and risks of cyclists coming off their bikes, and the potential new crossing point (to be explored at the next design stage) could improve safety for those crossing between the northbound and southbound bus stops, as well as the widened shared use path being progressed under Option AT58. This would be expected to have a **minor positive impact** on the Accidents sub-criterion. (+1)

Security

- With the geographic extent of this option limiting its overall impact, it would not be expected to provide significant support for an increase in the number of walking, wheeling and cycling trips in the study area. There would therefore be limited impact on personal security. The overall impact on the Security sub-criterion is expected to be **neutral**. (0)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel (including as part of multi-modal journeys involving public transport). There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions

attributed to modal shift away from private vehicles, albeit the geographic extent of this option limits the potential for this. The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling to facilities such as to GP surgeries and health centres in the local area, however the option on its own would not provide improved access directly to these facilities. Improved access to green and blue spaces around the River Don could have a minor impact on health and wellbeing. This option provides a degree of connectivity with the nearby access to the Formartine and Buchan Way; however the opportunity for substantial connectivity improvement is limited by the existing constraints of the B977 corridor, specifically the restricted visibility and narrow cross section under the Formartine and Buchan overbridge which negates opportunity for allocation of a dedicated active travel space. It is anticipated that there would be few users joining or leaving the Formartine and Buchan Way at this point. Overall, the option relates to improvements to an existing path and the overall impact on Access to Health and Wellbeing Infrastructure associated with this option, in isolation, is expected to be **neutral**. (0)

Visual Amenity

- Potential visual effects would be limited to active travel users and the residential receptor that overlooks the existing path between the old and new A947. Construction activities would temporarily diminish the existing levels of visual amenity, although these are expected to be small-scale and for a short period of time. Once operational the option is anticipated to result in slight changes to views attributable to new bound surface, and potentially a new crossing point, but the overall composition and focus of views would be unaltered. Sensitive design and choice of materials would ensure this option is developed in keeping with the natural environment. Overall, the impact is expected to be **neutral**. (0)

9.4.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

Accidents

- This option provides the opportunity for improved active travel connectivity along the A947 corridor through the implementation of new shared use and segregated cycleway facilities, between the Bucksburn Roundabout and Riverview Drive Roundabout North. The promotion of an overall coherent and connected network afforded by this option would be expected to improve safety conditions and perceptions, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people.
- Benefits arising from reduced accidents as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £17,400 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- The overall impact on Accidents is expected to be **moderate positive**. (+2)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option, through enabling and facilitating active travel on this section of the A947 (supporting the promotion of an overall coherent and connected active travel network), would bring physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active

travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit this would be dependent on the level of modal shift achieved.

- The health benefits of increased rates of active travel as a result of the option have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). AMAT provides assessments of the health and economic impacts of walking and cycling on premature mortality and on rates of absenteeism[11]. Outputs from the tool show that the measures implemented as part of this option could reduce premature deaths equating to benefits of up to £1,210,020 over a 20-year appraisal period. Additionally, AMAT indicates that there would be 121 less days of short-term sick leave per year, which equates to benefits of up to £201,960 over the same appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact is expected to be **moderate positive**. (+2)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area (e.g. Gilbert Road Medical Group and the Inverurie Road Clinic), however the option on its own would not provide improved access directly to these facilities. This option could indirectly improve access to blue and green spaces in the vicinity of the River Don, which could have a minor positive impact on health and wellbeing. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to users of the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North and businesses and residential properties that overlook this section of the A947. Construction activities would temporarily diminish the existing levels of visual amenity. Once operational this option is anticipated to result in slight changes to views attributable to new active travel infrastructure provision. However, overall composition and focus of views would be largely unaltered. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **neutral**. (0)

9.4.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

Accidents

- It is considered that this option would have a **moderate positive impact** on the Accidents sub-criterion. Proposed works include the implementation of a with-flow segregated cycleway, which would require some localised footway narrowing to an absolute minimum width to facilitate retention of on-street parking at the northern end of Old Meldrum Road, and a reduction in on-street parking at the southern end. With-flow segregation provides a higher level of service for users and is a preferred solution in terms of safety, where there are vehicle crossovers and junctions as on Old Meldrum Road. This would be anticipated to reduce the risk of accidents and collisions between cyclists and general traffic, particularly at junctions. This would be expected to improve safety conditions and perceptions, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people.

- Benefits arising from reduced accidents as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £1,620 over a 20-year appraisal

[11] AMAT applies a number of assumptions based on the estimated number of walk and cycle trips as a result of the option. Further details are set out in **Appendix H.**

period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact on Accidents is expected to be **moderate positive**. (+2)

Security

- The implementation of this option is expected to make cycling more appealing to individuals and increase modal share. Increasing the number of people out and about cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to cycling. There are several physical and mental health benefits associated with cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through facilitating cycling, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, dependent on the level of modal shift that can be achieved.

- The health benefits of increased rates of active travel as a result of the option have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). AMAT provides assessments of the health and economic impacts of walking and cycling on premature mortality and on rates of absenteeism[12]. Outputs from the tool show that the measures implemented as part of this option could reduce premature deaths equating to benefits of up to £133,220 over a 20-year appraisal period. Additionally, AMAT indicates that there would be 15 less days of short-term sick leave per year, which equates to benefits of up to £25,660 over the same appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area (e.g. Gilbert Road Medical Group), however the option on its own would not provide improved access directly to these facilities. Improved access to green spaces (for example to the Auchmill Nature Walk on the north side of Auchmill Road) could also have a minor positive impact on health and wellbeing. There could also be wider benefits on access to green space to the south of Auchmill Road opposite the Old Meldrum Road Junction (outwith the study area). The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to active travel users, and residential and business receptors that overlook Old Meldrum Road. Construction activities would temporarily diminish the existing levels of visual amenity. Once operational the option is anticipated to result in slight changes to views attributable to the new section of segregated cycleway and some localised footway narrowing (at the northern end of Old Meldrum Road) and reduction in on-street parking (at the southern end of Old Meldrum Road), but overall composition and focus of views would be unaltered. By encouraging and facilitating mode shift from motorised modes of transport and reducing on-street parking, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **neutral**. (0)

[12] AMAT applies a number of assumptions based on the estimated number of walk and cycle trips as a result of the option. Further details are set out in **Appendix H.**

9.4.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

Accidents

- It is considered that this option would have a **minor positive impact** on the Accidents sub-criterion. Proposed works include the implementation of a two-way segregated cycleway, which would require a reduction in on-street parking at the southern end of Old Meldrum Road. This would be anticipated to reduce the risk of accidents and collisions between cyclists and general traffic. This would be expected to improve safety conditions and perceptions, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people, albeit to a lesser extent than Option AT51.
- Benefits arising from reduced accidents as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £1,620 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- The overall impact on Accidents is expected to be **minor positive**. (+1)

Security

- The implementation of this option is expected to make cycling more appealing to individuals and increase modal share. Increasing the number of people out and about cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to cycling. There are several physical and mental health benefits associated with cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through facilitating cycling, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, dependent on the level of modal shift that can be achieved.
- The health benefits of increased rates of active travel as a result of the option have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). AMAT provides assessments of the health and economic impacts of walking and cycling on premature mortality and on rates of absenteeism[13]. Outputs from the tool show that the measures implemented as part of this option could reduce premature deaths equating to benefits of up to £133,220 over a 20-year appraisal period. Additionally, AMAT indicates that there would be 15 less days of short-term sick leave per year, which equates to benefits of up to £25,660 over the same appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**
- The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area (e.g. Gilbert Road Medical Group), however the option on its own would not provide improved access directly to these facilities. Improved access to green spaces (for example to the Auchmill Nature Walk on the north side of Auchmill Road) could also have a minor positive impact on health and wellbeing. There could also be wider benefits on access to green space to the south of Auchmill Road opposite the Old

[13] AMAT applies a number of assumptions based on the estimated number of walk and cycle trips as a result of the option. Further details are set out in **Appendix H.**

Meldrum Road Junction (outwith the study area). The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to active travel users, and residential and business receptors that overlook Old Meldrum Road. Construction activities would temporarily diminish the existing levels of visual amenity. Once operational the option is anticipated to result in slight changes to views attributable to the new section of segregated cycleway and reduction in on-street parking (at the southern end of Old Meldrum Road), but overall composition and focus of views would be unaltered. By encouraging and facilitating mode shift from motorised modes of transport and reducing on-street parking, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **neutral**. (0)

9.4.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

Accidents

- It is considered that the implementation of a shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate, including a reduced speed limit and priority pedestrian crossings on the section of Dyce Drive between Pitmedden Road and the Industrial Estate, would have a **moderate positive impact** on the Accidents sub-criterion. These measures would reduce the risk and severity of accidents and collisions between active travel users and general traffic. Accident survival rates are higher when a pedestrian is hit by a car driving at 20mph, compared to 30mph[14,15]. This would be expected to improve safety conditions and perceptions, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people.

- Benefits arising from reduced accidents as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £1,290 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact on Accidents is expected to be **moderate positive**. (+2)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit this would be dependent on the level of modal shift achieved.

[14] Jones, S., Brunt, H., Twenty Miles Per Hour Speed Limits: A Sustainable Solution to Public Health Problems in Wales, 2017, quoted in https://gov.wales/sites/default/files/publications/2019-08/the-state-of-the-evidence-on-20mph-speed-limits-with-regards-to-road-safety-active-travel-and-air-pollution-impacts-august-2018.pdf

[15] The Royal Society for the Prevention of Accidents, Road Safety Factsheet: 20mph Zones and Speed Limits, September 2023, https://www.rospa.com/getmedia/bb8e6293-6255-4d39-9af9-78375f57d878/20mph-Zones-and-Speed-Limits-Factsheet-2023.pdf

- The health benefits of increased rates of active travel as a result of the option have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). AMAT provides assessments of the health and economic impacts of walking and cycling on premature mortality and on rates of absenteeism[16]. Outputs from the tool show that the measures implemented as part of this option could reduce premature deaths equating to benefits of up to £387,300 over a 20-year appraisal period. Additionally, AMAT indicates that there would be 39 less days of short-term sick leave per year, which equates to benefits of up to £65,200 over the same appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option would be limited in its ability to improve access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area, and would not provide improved linkages directly to these facilities. This option could indirectly improve access to blue and green spaces in the vicinity of the River Don, which could have a minor positive impact on health and wellbeing, particularly for employees of the business units located adjacent to Dyce Road and within Kirkhill Industrial Estate. It could also facilitate trips between Kirkhill Industrial Estate and the Formartine & Buchan Way. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to users of Dyce Drive between the A947 and Kirkhill Industrial Estate, and businesses that overlook this section of Dyce Drive. Construction activities would temporarily diminish the existing levels of visual amenity. Once operational this option is anticipated to result in slight changes to views attributable to new active travel provision and, along the eastern part of the link, the removal of vegetation and creation of a new section of shared use path. However, overall composition and focus of views would be largely unaltered. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **neutral**. (0)

9.4.11 AT61a – Implement package of active travel measures on Victoria Street

Accidents

- It is considered that the implementation of active travel measures along Victoria Street, including a reduced speed limit, removal of on-street parking, mixed traffic street measures and sections of segregated cycleway, would have a **moderate positive impact** on the Accidents sub-criterion. These measures would reduce the risk and severity of accidents and collisions between active travel users and between active travel users and general traffic. Accident survival rates are higher when a pedestrian is hit by a car driving at 20mph, compared to 30mph[17,18]. Safety conditions and perceptions would be expected to improve, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people.

- Benefits arising from reduced accidents as a result of increased rates of active travel have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). The results from the toolkit indicate that there would be benefits of approximately £2,300 over a 20-year appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

[16] AMAT applies a number of assumptions based on the estimated number of walk and cycle trips as a result of the option. Further details are set out in **Appendix H.**
[17] Jones, S., Brunt, H., Twenty Miles Per Hour Speed Limits: A Sustainable Solution to Public Health Problems in Wales, 2017, quoted in https://gov.wales/sites/default/files/publications/2019-08/the-state-of-the-evidence-on-20mph-speed-limits-with-regards-to-road-safety-active-travel-and-air-pollution-impacts-august-2018.pdf
[18] The Royal Society for the Prevention of Accidents, Road Safety Factsheet: 20mph Zones and Speed Limits, September 2023, https://www.rospa.com/getmedia/bb8e6293-6255-4d39-9af9-78375f57d878/20mph-Zones-and-Speed-Limits-Factsheet-2023.pdf

- The overall impact on Accidents is expected to be **moderate positive**. (+2)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring physical and mental health benefits to its users, particularly those who shift from car travel to active travel, through improving accessibility and active travel opportunities in the 'heart' of Dyce. This will be further supported by the continued redistribution of vehicular traffic to the A947 route via Riverview Drive, following the reclassification of the Roads Hierarchy. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel and enhancing the sense of place through the centre of Dyce, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit this would be dependent on the level of modal shift achieved.

- The health benefits of increased rates of active travel as a result of the option have been quantified using the Department for Transport (DfT) Active Mode Appraisal Toolkit (AMAT). AMAT provides assessments of the health and economic impacts of walking and cycling on premature mortality and on rates of absenteeism[19]. Outputs from the tool show that the measures implemented as part of this option could reduce premature deaths equating to benefits of up to £176,670 over a 20-year appraisal period. Additionally, AMAT indicates that there would be 19 less days of short-term sick leave per year, which equates to benefits of up to £32,280 over the same appraisal period. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

- The overall impact is expected to be **moderate positive**. (+2)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option would improve direct access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the centre of Dyce (for example New Dyce Medical Practice) for those living in proximity to Victoria Street, and indirectly via improved active travel links within relatively close proximity to Dyce Rail Station for onward links to facilities in the wider area. This option could improve access to green spaces, for example Dyce Boys & Girls Club, Dyce Bowling Club and play parks (and, to a lesser extent, Central Park, located to the east of the Victoria Street area), which could have a positive impact on health and wellbeing, particularly for local residents and employees of businesses located along Victoria Street. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **moderate positive**. (+2)

Visual Amenity

- Potential visual effects would be limited to users of Victoria Street and residents and businesses that overlook this route. Construction activities would temporarily diminish the existing levels of visual amenity, particularly between Riverview Drive South Roundabout and Farburn Terrace where verge space is required to create a segregated cycleway. Once operational, this option is anticipated to result in slight changes to views attributable to new active travel provision, the removal of on-street parking, and the removal of vegetation to create a segregated cycleway. However, overall composition and focus of views would be largely unaltered. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative

[19] AMAT applies a number of assumptions based on the estimated number of walk and cycle trips as a result of the option. Further details are set out in **Appendix H.**

impact on visual amenity. Overall, it is anticipated that the sense of place would be enhanced and the overall impact is expected to be **minor positive**. (+1)

9.4.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

Accidents

- It is considered that the implementation of quiet route measures would reduce road and personal safety concerns for active travel users, including children and disabled people. The implementation of active travel quiet routes which utilise quiet residential streets can be preferable to less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people than using busy main roads. By removing existing conflict to protect active travel users on the section of Mugiemoss Road between the junctions with Old Meldrum Road and Mill Drive, and reallocation of space from the road carriageway to create a widened northern footway for shared use beyond the Mill Drive junction, this option would be expected to have a **moderate positive impact** on the Accidents sub-criterion. These measures would reduce the risk of accidents and collisions between active travel users and between active travel users and general traffic. (+2)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit the geographic extent of this option limits the potential for this. The overall impact on Health is expected to be **minor positive** (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area, however the option on its own would not provide improved access directly to these facilities. Improved access to green and blue spaces (for example paths and trails alongside the River Don) could also have a minor positive impact on health and wellbeing. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to active travel users, residential and business receptors that overlook Mugiemoss Road. Construction activities could temporarily diminish the existing levels of visual amenity. Once operational the option is anticipated to result in minor positive changes to views attributable to improved streetscape. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity, although not to any significant extent. The overall impact is expected to be **minor positive**. (+1)

9.4.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

Accidents

- The introduction of bus priority at all traffic signals along the A947 corridor could encourage a modal shift away from private car use, with an associated reduction in accidents compared to the Do Minimum. Reduced vehicle kilometres travelled results in fewer interactions between road users and subsequently reduced opportunities for collisions to occur. However, this would be dependent on the level of modal shift that can be achieved. Given the relatively low number of signalised junctions, there is unlikely to be a significant improvement. The overall impact is expected to be **minor positive**. (+1)

Security

- The implementation of bus priority at all traffic signals along the A947 corridor would not have a direct impact on personal security. However, if this option results in increased levels of bus patronage, there could be benefits in terms of perceived security, such as for vulnerable people travelling alone. The overall impact on the Security sub-criterion is, on balance, expected to be **neutral**. (0)

Health

- Whilst the main focus of this option is on promoting increased use of bus through the introduction of bus priority at all traffic signals along the A947, there may be associated health benefits associated, with, for example, increased walking or cycling to access bus services. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles and improved traffic flow through junctions for all users, which in turn can make communities more attractive, with associated benefits on health and wellbeing. In addition, evidence shows that car commuters are more likely to suffer from strain and lack of concentration in comparison to those who use public transport. This is due to increased physical activity from walking, wheeling, or cycling to access public transport services, mental health benefits from relaxing, reading or socialising whilst riding on the service, and an increased level of social connection associated with travelling alongside other users of the service. However, given the relatively low number of signalised junctions, there are unlikely to be significant improvements. The overall impact on Health is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- Improved bus journey times could deliver minor benefits in terms of access to health and wellbeing infrastructure, such as GP surgeries and health centres along the A947 corridor, and via onward connections to health and wellbeing infrastructure outwith the study area. Improved access to blue spaces (for example the River Don) and green spaces (for example paths and trails alongside the River Don, Ian Mair Park, Dyce Boys & Girls Club, Dyce Bowling Club and play parks) could also have a positive impact on health and wellbeing, particularly for local residents and employees of businesses located along the corridor. However, given the relatively low number of signalised junctions, there are unlikely to be significant improvements. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- There would be no significant impacts on visual amenity associated with implementation of bus priority signals along the A947 corridor and therefore the overall impact is expected to be **neutral**. (0)

9.4.14 O2 – Review the layout of the Victoria Street/Skene Place Junction

Accidents

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). It is considered that this would result in a minor positive impact on the Accidents sub-criterion. This option would be expected to improve the attractiveness of active travel and support quiet route measures. Safety conditions and perceptions for active travel users would be expected to improve, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people. The overall impact is expected to be **minor positive**. (+1)

Security

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). This option would be expected to improve the attractiveness of active travel and support quiet route measures. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option is unlikely to have a direct impact on Health. It may bring indirect minor physical and mental health benefits to its users, through improving the attractiveness of active travel, supporting quiet route measures and thereby enhancing the sense of 'place' for these users. This may indirectly contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. However, the overall direct impact of alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33) on Health is expected to be **neutral**. (0)

Access to Health and Wellbeing Infrastructure

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). Whilst this option would be expected to help improve the attractiveness of active travel and support quiet route measures, with potential indirect benefits for access to health and wellbeing infrastructure, it would not directly enhance and facilitate access to health and wellbeing facilities (for example GP surgeries and health centres in the local area) nor would it directly impact on access to green and blue spaces. The overall impact on Access to Health and Wellbeing Infrastructure is therefore expected to be **neutral**. (0)

Visual Amenity

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). Potential visual effects associated with this option would be limited to users of, and properties overlooking Merrivale and the sections of Station Road and Skene Place east of Merrivale - through the introduction of a one-way system - and properties overlooking the Victoria Street/Skene Place junction. By introducing a one-way system, the attractiveness of active travel may be improved and the number of private car trips may reduce, with associated positive impacts on visual amenity. Overall, however, any impact is expected to be marginal and the overall composition and focus of views would be unaltered. The overall impact is therefore expected to be **neutral**. (0)

9.4.15 O3 – Review the layout of the Riverview Drive/Balloch Way Junction

Accidents

- This option would involve alterations to the layout of the Riverview Drive/Balloch Way junction to reduce the speed of traffic turning into Balloch Way. It is considered that this would result in a minor positive impact on reducing the risk of accidents and collisions at this junction. Whilst this may provide a marginal benefit to active travel users, due to the scope and geographic extent of this option, the overall impact on the Accidents sub-criterion is expected to be **neutral**. (0)

Security

- This option, in isolation, would be unlikely to materially impact on the personal security of users. The overall impact on Security is expected to be **neutral**. (0)

Health

- Alterations to the Riverview Drive/Balloch Way junction, in isolation, are unlikely to have a direct impact on Health. The overall impact is expected to be **neutral**. (0)

Access to Health and Wellbeing Infrastructure

- Alterations to the Riverview Drive/Balloch Way junction, in isolation, are unlikely to have a direct impact in terms of access to health and wellbeing facilities (for example GP surgeries and health centres in the local area) nor directly impact on access to green and blue spaces. The overall impact on Access to Health and Wellbeing Infrastructure is therefore expected to be **neutral**. (0)

Visual Amenity

- Potential visual effects associated with this option would be limited to users and residential properties overlooking the Riverview Drive/Balloch Way junction. Overall, however, any impact is expected to be marginal and the overall composition and focus of views would be unaltered. The overall impact is therefore expected to be **neutral**. (0)

9.4.16 O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction

Accidents

- This option would involve alterations to the layout of the Riverview Drive/Todlaw Walk junction to reduce the speed of traffic turning into Todlaw Walk. It is considered that this would result in a minor positive impact on reducing the risk of accidents and collisions at this junction. Whilst this may provide a marginal benefit to active travel users, due to the scope and geographic extent of this option, the overall impact on the Accidents sub-criterion is expected to be **neutral**. (0)

Security

- This option, in isolation, would be unlikely to materially impact on the personal security of users. The overall impact on Security is expected to be **neutral**. (0)

Health

- Alterations to the Riverview Drive/Todlaw Walk junction, in isolation, are unlikely to have a direct impact on Health. The overall impact is expected to be **neutral**. (0)

Access to Health and Wellbeing Infrastructure

- Alterations to the Riverview Drive/Todlaw Walk junction, in isolation, are unlikely to have a direct impact in terms of access to health and wellbeing facilities (for example GP surgeries and health centres in the local area) nor directly impact on access to green and blue spaces. The overall impact on Access to Health and Wellbeing Infrastructure is therefore expected to be **neutral**. (0)

Visual Amenity

- Potential visual effects associated with this option would be limited to users and residential properties overlooking the Riverview Drive/Todlaw Walk junction. Overall, however, any impact is expected to be marginal and the overall composition and focus of views would be unaltered. The overall impact is therefore expected to be **neutral**. (0)

9.4.17 O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

Accidents

- This option would involve alterations to the layout of the Riverview Drive/Netherview Avenue junction to reduce the speed of traffic turning into Netherview Avenue. It is considered that this would result in a minor positive impact on reducing the risk of accidents and collisions at this junction. This may provide a marginal benefit to active travel users, including children travelling to Dyce Academy by active modes, and, on this basis, the overall impact is expected to be **minor positive**. (+1)

Security

- This option, in isolation, would be unlikely to materially impact on the personal security of users. The overall impact on Security is expected to be **neutral**. (0)

Health

- Alterations to the Riverview Drive/Netherview Avenue junction, in isolation, are unlikely to have a direct impact on Health. The overall impact is expected to be **neutral**. (0)

Access to Health and Wellbeing Infrastructure

- Alterations to the Riverview Drive/Netherview Avenue junction, in isolation, are unlikely to have a direct impact in terms of access to health and wellbeing facilities (for example GP surgeries and health centres in the local area) nor directly impact on access to green and blue spaces. The overall impact on Access to Health and Wellbeing Infrastructure is therefore expected to be **neutral**. (0)

Visual Amenity

- Potential visual effects associated with this option would be limited to users and residential properties overlooking the Riverview Drive/Netherview Avenue junction. Overall, however, any impact is expected to be marginal and the overall composition and focus of views would be unaltered. The overall impact is therefore expected to be **neutral**. (0)

9.4.18 O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

Accidents

- This option would involve alterations to the layout of the A947/Stoneywood Road junction to reduce the frequency of illegal turning manoeuvres occurring from vehicles continuing straight though the 'left only' exit from Stoneywood Road to the Co-op and Marks and Spencer retail access at Beech Manor. It is considered that this would result in a minor positive impact on reducing the risk of accidents and collisions at this junction. This may provide a marginal benefit to all users and the overall impact is expected to be **minor positive**. (+1)

Security

- This option, in isolation, would be unlikely to materially impact on the personal security of users. The overall impact on Security is expected to be **neutral**. (0)

Health

- Alterations to the A947/Stoneywood Road junction at the Co-op/Marks and Spencer, in isolation, are unlikely to have a direct impact on Health. The overall impact is expected to be **neutral**. (0)

Access to Health and Wellbeing Infrastructure

- Alterations to the A947/Stoneywood Road junction at the Co-op/Marks and Spencer, in isolation, are unlikely to have a direct impact on access to health and wellbeing facilities (for example GP surgeries and health centres in the local area) nor directly impact on access to green and blue spaces. The overall impact on Access to Health and Wellbeing Infrastructure is therefore expected to be **neutral**. (0)

Visual Amenity

- Potential visual effects associated with this option would be limited to users and residential properties in the vicinity of the A947/Stoneywood Road junction at the Co-op/Marks and Spencer. Depending on the scale of alteration to the junction, construction activities could temporarily diminish the existing levels of visual amenity. Once operational, the option is anticipated to result in slight changes to views, but overall composition and focus of views would be unaltered. The overall impact is therefore expected to be **neutral**. (0)

9.4.19 O8 – Review the layout of the A947/Stoneywood Brae Junction

Accidents

- This option would involve alterations to the layout of the A947/Stoneywood Brae junction to meet the minimum single- to dual-carriageway taper ratio. It is considered that this would result in a minor positive impact on reducing the risk of accidents and collisions at this junction. This would be expected to improve safety for on-road cycle users in particular, and the overall impact is expected to be **minor positive**. (+1)

Security

- This option, in isolation, would be unlikely to materially impact on the personal security of users. The overall impact on Security is expected to be **neutral**. (0)

Health

- Alterations to the layout of the A947/Stoneywood Brae junction to meet the minimum single- to dual-carriageway taper ratio, in isolation, are unlikely to have a direct impact on Health. The overall impact is expected to be **neutral**. (0)

Access to Health and Wellbeing Infrastructure

- Alterations to the layout of the A947/Stoneywood Brae junction to meet the minimum single- to dual-carriageway taper ratio, in isolation, are unlikely to have a direct impact access to health and wellbeing facilities (for example GP surgeries and health centres in the local area) nor directly impact on access to green and blue spaces. The overall impact on Access to Health and Wellbeing Infrastructure is therefore expected to be **neutral**. (0)

Visual Amenity

- Potential visual effects associated with this option would be limited to users and residential properties overlooking the A947/Stoneywood Brae junction. Overall, however, any impact is expected to be marginal and the overall composition and focus of views would be unaltered. The overall impact is therefore expected to be **neutral**. (0)

9.4.20 O10 – Review layout of the A947/McDonalds access road junction

Accidents

- This option would involve alterations to the layout of the A947/McDonalds access road junction to narrow or reposition the junction to further protect pedestrians using the at-grade crossing north of the access road. It is considered that this would result in a minor positive impact on reducing the risk of accidents and collisions at this junction. This is likely to provide a benefit to pedestrians and the overall impact is expected to be **minor positive**. (+1)

Security

- This option, in isolation, would be unlikely to materially impact on the personal security of users. The overall impact on Security is expected to be **neutral**. (0)

Health

- Alterations to the A947/McDonalds access road junction, in isolation, are unlikely to have a direct impact on Health. The overall impact is expected to be **neutral**. (0)

Access to Health and Wellbeing Infrastructure

- Alterations to the A947/McDonalds access road junction, in isolation, are unlikely to have a direct impact on access to health and wellbeing facilities (for example GP surgeries and health centres in the local area) nor directly impact on access to green and blue spaces. The overall impact on Access to Health and Wellbeing Infrastructure is therefore expected to be **neutral**. (0)

Visual Amenity

- Potential visual effects associated with this option would be limited to users of the A947/McDonalds access road junction and, potentially, a small number of residential properties at the northern end of St John's Road that overlook the junction. Depending on the scale of alteration to the junction, construction activities could temporarily diminish the existing levels of visual amenity. Once operational, any impact is expected to be marginal and the overall composition and focus of views would be unaltered. The overall impact is therefore expected to be **neutral**. (0)

9.4.21 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

Accidents

- It is considered that the implementation of a package of measures to support implementation of a 20-minute neighbourhood in Dyce would have a positive impact on the Accidents sub-criterion. The measures would be expected to reduce the risk and severity of accidents and collisions between active travel users and between active travel users and general traffic. Safety conditions and perceptions would be expected to improve, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people. At this stage, the impact on Accidents is expected to be **minor positive** but further consideration should be given to the likely impact once the exact scope and location of measures to be taken forward is confirmed. (+1)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would bring physical and mental health benefits to its users, particularly those who shift from car travel to active travel. Walking, wheeling and cycling locally allows more people to feel connected with their local community and would improve public health. Improved public realm allows for people to gather and socialise. Studies have linked the quality of public spaces to people's perceptions of attractiveness of an area, contributing towards their quality of life. By creating more pleasant, accessible, safe communities, this option would help realise these outcomes, with particular benefits likely to be realised by some of those people often disadvantaged at present (including children and disabled people). There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel and enhancing the sense of place within Dyce, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles, albeit this would be dependent on the level of modal shift achieved. At this stage, there is expected to be a **moderate positive impact** on Health. (+2)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option would improve direct access to health and wellbeing facilities such as New Dyce Medical Practice for those walking, wheeling or cycling in the local area, and indirectly via improved active travel links to transport stops and hubs (for example Dyce Rail Station), for onward links to facilities in the wider area. This option could improve access to green and blue spaces, for example paths and trails alongside the River Don and to a range of recreational spaces across the study area, which could have a positive impact on health and wellbeing, particularly for local residents and employees of business within Dyce. The overall impact on Access to Health and Wellbeing Infrastructure is expected to be **moderate positive**. (+2)

Visual Amenity

- Potential visual effects would be limited to users of the measures associated with this option, and residents and businesses that overlook areas where measures are implemented. Construction activities would temporarily diminish the existing levels of visual amenity, particularly where land-take is required, for example to widen paths or create segregated cycleways. Once operational, this option is anticipated to result in slight changes to views attributable to new active travel provision, and, potentially, the removal of on-street parking and the removal of vegetation in some locations. However, this would be negated through sympathetic design and landscaping to provide a better environment for active travel. By encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity. Overall, it is anticipated that the sense of place would be enhanced and the overall impact is expected to be **moderate positive**. (+2)

9.4.22 O25 – Implement access only restrictions for general traffic on Victoria Street

Accidents

- It is considered that the implementation of access only restrictions for general traffic on Victoria Street would have a moderate positive impact on the Accidents sub-criterion. This option would significantly reduce the risk and severity of accidents and collisions between active travel users and between active travel users and general traffic. Safety conditions and perceptions would be expected to improve, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people. Overall, the impact on Accidents is expected to be **moderate positive**. (+2)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- This option would create a space within the centre of Dyce which is more attractive to those walking, wheeling and cycling, due to the removal of vehicular traffic. It would bring physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel and enhancing the sense of 'place' for these users, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality due to reduced emissions attributed to removing vehicular traffic from the Victoria Street area. The overall impact on Health is expected to be **moderate positive**. (+2)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option would enhance and facilitate access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the centre of Dyce for those living in proximity to Victoria Street, and indirectly via improved active travel links to Dyce Rail Station for onward links to facilities in the wider area. This option could enhance and facilitate access to green spaces by active modes, for example Dyce Boys & Girls Club, Dyce Bowling Club and play areas (and, to a lesser extent, Central Park located to the east of the Victoria Street area), which could have a positive impact on health and wellbeing, particularly for local residents and employees of businesses located along Victoria Street. However, access could be impeded for some users who are reliant on vehicular access. Further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers, particularly where access only restrictions place a constraint on accessibility for those who are not able to travel by active and

sustainable modes of transport. At this stage, the overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to users of Victoria Street and residents and businesses that overlook this section of the A947. By removing vehicular traffic from the Victoria Street area and encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity. Overall, it is anticipated that the sense of place would be enhanced and the overall impact is expected to be **moderate positive**. (+2)

9.4.23 O26 – Implement one-way restrictions for general traffic on Victoria Street

Accidents

- It is considered that the implementation of one-way restrictions for general traffic on Victoria Street would have a minor positive impact on the Accidents sub-criterion. This option would be expected to reduce levels of general traffic and reduce the risk and severity of accidents and collisions for active travel users. Safety conditions and perceptions would be expected to improve, particularly for less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people. Overall, the impact on Accidents is expected to be **minor positive**. (+1)

Security

- The implementation of this option is expected to make walking, wheeling and cycling more appealing to individuals and increase modal share of these modes. Increasing the number of people out and about walking, wheeling and cycling can have a positive impact on personal security due to increased natural surveillance. The overall impact on Security is expected to be **minor positive**. (+1)

Health

- Through creating a space within the centre of Dyce which is more attractive to those walking, wheeling and cycling this option would bring minor physical and mental health benefits to its users, particularly those who shift from car travel to active travel. There are several physical and mental health benefits associated with walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This option, through enabling and facilitating active travel and enhancing the sense of 'place' for these users, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City - North: Locality Plan 2021-26. Furthermore, there may be additional health benefits resulting from improved air quality due to reduced emissions attributed to reduced levels of general traffic on Victoria Street. The overall impact on Health is expected to be **minor positive**. (+1)

Access to Health and Wellbeing Infrastructure

- It is anticipated that this option would enhance and facilitate access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the centre of Dyce for those living in proximity to Victoria Street, and indirectly via improved active travel links to Dyce Rail Station for onward links to facilities in the wider area. By improving the sense of place, this option could enhance and facilitate access to green spaces by active modes, for example Dyce Boys & Girls Club, Dyce Bowling Club and play parks (and, to a lesser extent, Central Park, located to the east of the Victoria Street area), which could have a positive impact on health and wellbeing, particularly for local residents and employees of businesses located along Victoria Street. However, further assessment is required to better understand the impacts this option would have on access to health and wellbeing facilities. At this stage, the overall impact on Access to Health and Wellbeing Infrastructure is expected to be **minor positive**. (+1)

Visual Amenity

- Potential visual effects would be limited to users of Victoria Street and residents and businesses that overlook this section of the A947. By implementing one-way restrictions for general traffic on Victoria Street and encouraging and facilitating mode shift from motorised modes of transport, the number of private car trips would be anticipated to reduce and so too would the negative impact on visual amenity. Overall, it is anticipated that the sense of place would be enhanced and the overall impact is expected to be **minor positive**. (+1)

9.5 Economy

9.5.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option, in isolation, would not directly provide businesses with improved access to the labour market. However, there may be a minor improvement to journey quality. The overall impact on TEE is therefore expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- This option, in isolation, is not expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would be unlikely to have a material impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option formalises an existing pedestrian desire line and, in isolation, would also not directly provide businesses with improved access to the labour market. However, there may be a minor improvement to journey quality. The overall impact on TEE is therefore expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- This option, in isolation, is not expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would be unlikely to have a material impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option, in isolation, would also not directly provide businesses with improved access to the labour market. It may facilitate access to the labour market outwith the study area through improved links to Dyce Rail Station, but this would be an indirect impact. There may be a minor improvement to journey quality.

- The AMAT analysis has assessed the monetised value of benefits for this option. This indicates the following in terms of TEE, over the 20-year assessment period: journey ambience (£93,520), congestion benefits (£750) and indirect taxation (£0). More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** The

total monetised benefits associated with this option are included in the Present Value of Benefits which is set out within the Cost To Government section for those benefits that can be monetised in the assessment framework.

- The overall impact on TEE is expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- This option, in isolation, is not expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would be unlikely to have a material impact on productivity or on stimulating development. It may facilitate access to employment and training opportunities outwith the study area through improved links to Dyce Rail Station, but this would be an indirect impact. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion overall. (0)

9.5.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option, in isolation, would also not directly provide businesses with improved access to the labour market. However, there may be a minor improvement to journey quality. The impact on TEE is therefore expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- This option, in isolation, may provide indirect access to employment opportunities for residents to the west of the A947, however it would not provide users with a direct connection to employment and training opportunities, nor access to goods and services. It would be unlikely to have a material impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion overall. (0)

9.5.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. The reduction of the northbound carriageway to one lane – to enable the provision of a segregated two-way cycleway – may impact on traffic flow for general traffic, but due to the limited geographic extent of this option, this is not anticipated to have a notable impact on TEE. Improving non-vehicular access to the retail park (and indirectly to the local area to the west of the A947) may marginally increase access to employment, although this impact is not likely to be significant and this option would not directly provide businesses with notably improved access to the labour market. There may be a minor improvement to journey quality. The impact on TEE is therefore expected to be **minor positive** overall. (+1)

Wider Economic Impacts (WEI)

- Research shows that people who walk, wheel or cycle to shops and services spend more money. Connecting to the retail park, the measures contained in this option would be anticipated to enable and facilitate active travel journeys to local shops and services. This option is therefore expected to have a positive impact on the uptake of employment and training opportunities, and access to goods and services for residents in the Bankhead area. It would be unlikely to have a material impact on productivity or on stimulating development. Overall, it is anticipated that this option would have a **minor positive impact** on the WEI sub-criterion. (+1)

9.5.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option involves upgrading an existing path and additionally considers a proposed new crossing point (to be explored at the next design stage) to improve access between the northbound and southbound bus stops, as well as the widened shared use path being progressed under Option AT58. In isolation, this option would not directly provide businesses with improved access to the labour market. However, there may be a minor improvement to journey quality. The overall impact on TEE is expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- This option, in isolation, is not expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would be unlikely to have a material impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option provides the opportunity for improved active travel connectivity along the A947 corridor through the implementation of new shared use and segregated cycleway facilities, between the Bucksburn Roundabout and Riverview Drive Roundabout North. In isolation it would not directly provide businesses with improved access to the labour market. However, there may be a minor improvement to journey quality.

- The AMAT analysis has assessed the monetised value of benefits for this option. This indicates the following in terms of TEE, over the 20-year assessment period: journey ambience (£326,840), congestion benefits (£107,990) and indirect taxation (-£40). More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** The total monetised benefits associated with this option are included in the Present Value of Benefits which is set out within the Cost To Government section for those benefits that can be monetised in the assessment framework.

- The overall impact on TEE is expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- This option may provide access to employment and training opportunities in the vicinity of Stoneywood and Wellheads Avenue, however it would be unlikely to have a material impact on productivity or on stimulating development. Overall, it is anticipated that this option would have a **minor positive impact** on the WEI sub-criterion. (+1)

9.5.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. There may be a minor improvement to journey quality. Removal of on-street parking could have a detrimental impact on businesses with a frontage in the southern extents of Old Meldrum Road and consultation with business owners should be undertaken to better understand the potential impacts. It is noted that the Auchmill Road car park is located adjacent to Old Meldrum Road and has capacity for up to 37 vehicles and is free to use. Parking surveys would be required to understand the nature of vehicle parking on Old Meldrum Road currently.

- The AMAT analysis has assessed the monetised value of benefits for this option. This indicates the following in terms of TEE, over the 20-year assessment period: journey ambience (£261,430), congestion benefits (£10,070) and indirect taxation (£0). More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** The total monetised benefits associated with this option are included in the Present Value of Benefits which is set out within the Cost To Government section for those benefits that can be monetised in the assessment framework.

- At this stage, therefore, there is expected to be an overall **minor negative impact** on TEE as a result of the potentially detrimental impact that removal of on-street parking could have on nearby businesses. (-1)

Wider Economic Impacts (WEI)

- This option may provide access to a small number of employment opportunities for residents in the vicinity of Old Meldrum Road, however it would not provide users with a direct connection to wider employment and training opportunities. It would be unlikely to have a material impact on productivity or on stimulating development. Given the geographic extent of this option, the overall impact is anticipated to be **neutral**. (0)

9.5.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. There may be a minor improvement to journey quality. Removal of on-street parking could have a detrimental impact on businesses with a frontage in the southern extents of Old Meldrum Road and consultation with business owners should be undertaken to better understand the potential impacts. It is noted that the Auchmill Road car park is located adjacent to Old Meldrum Road, and has capacity for up to 37 vehicles and is free to use. Parking surveys would be required to understand the nature of vehicle parking on Old Meldrum Road currently.

- The AMAT analysis has assessed the monetised value of benefits for this option. This indicates the following in terms of TEE, over the 20-year assessment period: journey ambience (£261,430), congestion benefits (£10,070) and indirect taxation (£0). More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** The total monetised benefits associated with this option are included in the Present Value of Benefits which is set out within the Cost To Government section for those benefits that can be monetised in the assessment framework.

- At this stage, therefore, there is expected to be an overall **minor negative impact** on TEE as a result of the potentially detrimental impact that removal of on-street parking could have on nearby businesses. (-1)

Wider Economic Impacts (WEI)

- This option may provide access to a small number of employment opportunities for residents in the vicinity of Old Meldrum Road, however it would not provide users with a direct connection to wider employment and training opportunities. It would be unlikely to have a material impact on productivity or on stimulating development. Given the geographic extent of this option, the overall impact is anticipated to be **neutral**. (0)

9.5.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option, in isolation, does not provide direct linkage to residential areas and would therefore not directly provide businesses with improved access to the labour market. However, there may be a minor improvement to journey quality.

- The AMAT analysis has assessed the monetised value of benefits for this option. This indicates the following in terms of TEE, over the 20-year assessment period: journey ambience (£157,860), congestion benefits (£5,380) and indirect taxation (£100). More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** The total monetised benefits associated with this option are included in the Present Value of Benefits which is set out within the Cost To Government section for those benefits that can be monetised in the assessment framework.

- The overall impact on TEE is expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- This option, in isolation, does not provide direct linkage to residential areas and would therefore not be expected to improve access to employment and training opportunities, nor access to goods and services. It would be unlikely to have a material impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.11 AT61a – Implement package of active travel measures on Victoria Street

Transport Economic Efficiency (TEE)

- Whilst this option would provide better access to key locations for non-car modes and reduce the prominence of private cars, overall this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option would, however, provide businesses with marginally improved access to the local labour market through linkages between the primary residential and commercial section of Victoria Street. Removal of on-street parking could have a detrimental impact on businesses with a frontage on Victoria Street and consultation with business owners should be undertaken to better understand the potential impacts. Parking surveys would be required to understand the nature of vehicle parking on Victoria Street currently. There may be a minor improvement to journey quality.

- The AMAT analysis has assessed the monetised value of benefits for this option. This indicates the following in terms of TEE, over the 20-year assessment period: journey ambience (£99,340), congestion benefits (£14,290) and indirect taxation (-£10). More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.** The total monetised benefits associated with this option are included in the Present Value of Benefits which is set out within the Cost To Government section for those benefits that can be monetised in the assessment framework.

- At this stage, the overall impact on TEE is expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- Research shows that people who walk, wheel or cycle to shops and services spend more money. Through the package of improvements on Victoria Street, the measures contained in this option would be anticipated to enable and facilitate active travel journeys to local shops and services. The option should help to facilitate connections to the wider area through improved walking, wheeling and cycling links to nearby transport hubs along the route, including indirectly to Dyce Rail Station, thus also providing economic benefit to these connected areas. This option would also provide direct linkage between residential areas in the centre of Dyce and employment and training opportunities. Through enhancing the sense of place it may assist in stimulating development. Therefore, it is anticipated that this option would have a **moderate positive impact** on the WEI sub-criterion. (+2)

9.5.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

Transport Economic Efficiency (TEE)

- In isolation, this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option may provide a small improvement in access to employment opportunities on Mugiemoss Road for local residents, and provide businesses in

this area with improved access to the labour market. There may also be a minor improvement to journey quality. Given the geographic extent of this option and the existing route provision, the overall impact on TEE is expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- The proposed streetscape improvements and footway widening measures contained in this option would be anticipated to enable and facilitate more active travel journeys to local shops and services. This option may also provide a small improvement in access for local residents to employment opportunities on the section of Mugiemoss Road to the south of Mill Drive. However, it would be unlikely to have a material impact on productivity or on stimulating development. Overall, it is anticipated that this option would have a **minor positive impact** on the WEI sub-criterion. (+1)

9.5.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

Transport Economic Efficiency (TEE)

- This option would be expected to provide a degree of positive impact on journey time savings and enhanced access to markets and employment opportunities through improved traffic flow through junctions for all users. The bus priority at all traffic signals along the A947 could have a marginal impact on reducing pressures on vehicle operating costs for service operators. However, whilst there may be some minor benefits, given the relatively low number of signalised junctions, this option is unlikely to lead to significant improvements to bus journey times. In addition, adapting signals to improve bus priority with approach detection would only improve bus through-flow when buses are close to the front of queuing traffic and is unlikely to lead to significant improvements to bus journey times. There would be no direct impact on fares as a result of implementing this option. This option may provide businesses along the route with marginally improved access to the labour market. Traffic modelling would be required to determine the extent to which this option would improve traffic flow and reduce delay for users. Overall, this option would be expected to have a **minor positive impact** on TEE. (+1)

Wider Economic Impacts (WEI)

- Through implementing bus priority at all traffic signals along the A947 corridor, this option may deliver minor benefits in relation to reduced journey times and increased journey time reliability, with potential wider economic impacts in terms of enhanced social mobility, uptake of employment and training opportunities, and access to goods and services along the corridor attributable to improved accessibility by public transport (bus). However, given the relatively low number of signalised junctions, there are unlikely to be significant improvements to bus journey times and reliability. This option would be unlikely to have a material impact on productivity or on stimulating development. Overall, it is anticipated that this option would have a **minor positive impact** on the WEI sub-criterion. (+1)

9.5.14 O2 – Review the layout of the Victoria Street/Skene Place Junction

Transport Economic Efficiency (TEE)

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). In isolation, it would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares and would also not directly provide businesses with improved access to the labour market. The impact on TEE is therefore expected to be **neutral**. (0)

Wider Economic Impacts (WEI)

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). In isolation, it is not expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would be unlikely to have a material impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.15 O3 – Review the layout of the Riverview Drive/Balloch Way Junction

Transport Economic Efficiency (TEE)

- This option, in isolation, would be expected to have no impact on journey time savings for users, access to markets, vehicle operating costs or fares and would also not directly provide businesses with improved access to the labour market. The impact on TEE is therefore expected to be **neutral**. (0)

Wider Economic Impacts (WEI)

- This option, in isolation, would not be expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would not be expected to impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.16 O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction

Transport Economic Efficiency (TEE)

- This option, in isolation, would be expected to have no impact on journey time savings for users, access to markets, vehicle operating costs or fares and would also not directly provide businesses with improved access to the labour market. The impact on TEE is therefore expected to be **neutral**. (0)

Wider Economic Impacts (WEI)

- This option, in isolation, would not be expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would not be expected to impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.17 O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

Transport Economic Efficiency (TEE)

- This option, in isolation, would be expected to have no impact on journey time savings for users, access to markets, vehicle operating costs or fares and would also not directly provide businesses with improved access to the labour market. The impact on TEE is therefore expected to be **neutral**. (0)

Wider Economic Impacts (WEI)

- This option, in isolation, would not be expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would not be expected to impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.18 O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

Transport Economic Efficiency (TEE)

- This option, in isolation, would be expected to have no impact on journey time savings for users, access to markets, vehicle operating costs or fares and would also not directly provide businesses with improved access to the labour market. The impact on TEE is therefore expected to be **neutral**. (0)

Wider Economic Impacts (WEI)

- This option, in isolation, would not be expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would not be expected to impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.19 O8 – Review the layout of the A947/Stoneywood Brae Junction

Transport Economic Efficiency (TEE)

- This option, in isolation, would be expected to have no impact on journey time savings for users, access to markets, vehicle operating costs or fares and would also not directly provide businesses with improved access to the labour market. The impact on TEE is therefore expected to be **neutral**. (0)

Wider Economic Impacts (WEI)

- This option, in isolation, would not be expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would not be expected to impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.20 O10 – Review layout of the A947/McDonalds access road junction

Transport Economic Efficiency (TEE)

- This option, in isolation, would be expected to have no impact on journey time savings for users, access to markets, vehicle operating costs or fares and would also not directly provide businesses with improved access to the labour market. The impact on TEE is therefore expected to be **neutral**. (0)

Wider Economic Impacts (WEI)

- This option, in isolation, would not be expected to have a direct impact on the uptake of employment and training opportunities, nor access to goods and services. It would not be expected to impact on productivity or on stimulating development. Therefore, it is anticipated that this option would have a **neutral impact** on the WEI sub-criterion. (0)

9.5.21 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

Transport Economic Efficiency (TEE)

- Whilst this option would provide better access to key locations for non-car modes and reduce the prominence of private cars, overall this option would be expected to have no material impact on journey time savings for users, access to markets, vehicle operating costs or fares. This option would, however, provide businesses with marginally improved access to the local labour market through linkages between the primary residential and commercial areas of Dyce. The overall impact on TEE is therefore expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- Research shows that people who walk, wheel or cycle to shops and services spend more money. Through implementing a package of measures to support a 20-minute neighbourhood in Dyce, this option would be anticipated to enable and facilitate active travel journeys to local shops and services. The option would help to facilitate connections to the wider area through improved walking, wheeling and cycling links to nearby transport hubs in the study area, including Dyce Rail Station, thus also providing economic benefit to these connected areas. This option would also provide direct linkage between residential areas in the centre of Dyce and employment and training opportunities. Through enhancing the sense of place it may assist in stimulating development. Therefore, it is anticipated that this option would have a **moderate positive impact** on the WEI sub-criterion. (+2)

9.5.22 O25 – Implement access only restrictions for general traffic on Victoria Street

Transport Economic Efficiency (TEE)

- Whilst this option would provide better access to key locations for non-car modes and reduce the prominence of private cars, this option would be anticipated to impede existing access to key trip attractors in Dyce, Pitmedden Industrial Estate, Kirkhill Industrial Estate, Aberdeen International Airport/Heliport and Dyce Rail Station for vehicle users, with an associated impact on journey times,

access to markets and vehicle operating costs. Businesses would be expected to benefit from marginally improved access to the local labour market through linkages between the primary residential and commercial section of Victoria Street for active travel users, but these benefits could be negated by the restriction of access for vehicle users. Further assessment is required to determine the impact of this option. At this stage, the overall impact on TEE is expected to be **moderate negative**. (-2)

Wider Economic Impacts (WEI)

- Research shows that people who walk, wheel or cycle to shops and services spend more money. Through implementing access only restrictions for general traffic and hence improving placemaking on Victoria Street, this option would be anticipated to enable and facilitate active travel journeys to local shops, services and employment and training opportunities. Through enhancing the sense of place it may assist in stimulating development and investment. However, this option may also impact on passing trade undertaken using private vehicles. It would be challenging to implement this option on the southern half of Victoria Street without impacting access to public services and commercial units. Overall, it is anticipated that this option would have a **minor positive impact** on the WEI sub-criterion. (+1)

9.5.23 O26 – Implement one-way restrictions for general traffic on Victoria Street

Transport Economic Efficiency (TEE)

- This option would be expected to facilitate and enhance access to key locations for non-car modes and reduce the prominence of private cars in the Victoria Street area. However, the implementation of one-way restrictions for general traffic could marginally impact on journey times, access to markets and vehicle operating costs for vehicle users, including cars, buses and goods vehicles. Businesses would be expected to benefit from marginally improved access to the local labour market through linkages between the primary residential and commercial section of Victoria Street for active travel users. Further assessment is required to determine the impact of this option. At this stage, the overall impact on TEE is expected to be **minor positive**. (+1)

Wider Economic Impacts (WEI)

- Research shows that people who walk, wheel or cycle to shops and services spend more money. Through implementing one-way restrictions for general traffic and hence improving placemaking on Victoria Street, this option would be anticipated to enable and facilitate active travel journeys to local shops, services and employment and training opportunities. Through enhancing the sense of place it may assist in stimulating development and investment. However, this option may also impact on passing trade undertaken using private vehicles. Overall, it is anticipated that this option would have a **minor positive impact** on the WEI sub-criterion. (+1)

9.6 Equality and Accessibility

In Aberdeen City, around one-third (32%) of total households did not have access to a car in 2019, increasing to 57% and 52% for private renters and social renters respectively. In Aberdeenshire, around 15% of total households did not have access to a car in 2019, increasing to 48% for social renters.[20] Across Scotland as a whole in the 2011 Census, 25% of women did not have access to a car compared with only 20% of men. 46% of people whose day to day activity is limited a lot do not have access to a car. Access to a car also varies across ethnic groups, with 22% of those of White ethnicity not having access to a car, compared to 51% of those of African ethnicity and 39% of those of Caribbean or Black ethnicity not having access to a car.[21]

This Section sets out the appraisal of the options against the Equality and Accessibility sub-criteria.

9.6.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and increase connectivity to Aberdeen Airport/Heliport and TECA through upgrading paths in the vicinity of TECA. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to reduce car travel around TECA and Aberdeen Airport and promote modal shift to walking, wheeling and cycling. However, the geographic extent of this option limits its positive impact. Overall, it is anticipated that this option would have a **minor positive impact** on Active Travel Network Coverage. (+1)

Comparative Access by People Group

- It is considered that improved active travel connectivity between the A947 and TECA would have a **minor positive impact** on the Comparative Access by People Group sub-criterion. Proposed works include the implementation of wayfinding signage and upgrading existing paths west and south of TECA to create a bound surface, which could improve access within the vicinity of TECA for those on low incomes and without access to a car, and address mobility issues experienced by protected characteristic groups, especially disabled people and older people. However, the geographic extent of this option limits its positive impact. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. There is one data zone in the study area which is ranked within the fourth lowest Scottish Index of Multiple Deprivation (SIMD) decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. This option would be anticipated to provide improved active travel provision for short-distance trips between the A947 study area and TECA, as an alternative to motorised transport. This could improve accessibility to leisure activities (for example events at TECA) for those most in need. Whilst this option is expected to have a positive impact, its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be

[20] Scottish Household Survey, 2019, Topic 3 – Table 3.7d, https://scotland.shinyapps.io/sg-scottish-household-survey-data-explorer/
[21] Scotland's Census, 2011, Scotland's Census (scotlandscensus.gov.uk)

limited. Overall, it is anticipated that this option would have a **minor positive impact** on Affordability. (+1)

9.6.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and increase connectivity between Riverview Drive (south of the Todlaw Walk junction) and the Riverside Path. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to promote modal shift to walking, wheeling and cycling via the Riverside Path. However, the geographic extent of this option limits its positive impact. Overall, it is anticipated that this option would have a **minor positive impact** on Active Travel Network Coverage. (+1)

Comparative Access by People Group

- This option would formalise an existing pedestrian desire line. It would provide linkage to the Riverside Path which provides a route for active travel and which is important to many groups with protected characteristics. The provision of a bound surface, dropped kerbs and tactile paving associated with this option would assist in addressing mobility issues experienced by protected characteristic groups, especially disabled people and older people. However, the geographic extent of this option limits its overall impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including data zones at high risk of transport poverty within the vicinity of this option around the northern section of Riverview Drive. This option would provide an improved active travel link between the Riverside Path and housing in Dyce. However, its limited geographic extent limits the direct impact on Comparative Access by Geographic Location. In addition, this option formalises an existing, albeit informal, pedestrian desire line and does not provide new linkage. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited. Overall, it is anticipated that this option would have a **minor positive impact** on Affordability, through providing improved access to wider active travel opportunities via the Riverside Path. (+1)

9.6.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

Public Transport Network Coverage

- Whilst this option includes enhanced accessibility to Dyce Rail Station, it would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and increase links between Dyce Rail Station and the A947/eastern Dyce. This would provide a benefit for people with limited access to, or

without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to reduce car travel to Dyce Rail Station and promote modal shift to walking, wheeling and cycling. However, the geographic extent of this option limits its positive impact. Overall, it is anticipated that this option would have a **minor positive impact** on Active Travel Network Coverage. (+1)

Comparative Access by People Group

- It is considered that enhanced accessibility to Dyce Rail Station would have a minor positive impact on the Comparative Access by People Group sub-criterion. It may marginally improve comparative access for protected characteristic groups through indirectly increasing access to employment opportunities and key services via the rail network (Dyce Rail Station) for residents of eastern Dyce, and linkages to other active travel routes, which are important to many groups with protected characteristics. The implementation of a one-way system on Station Road and adjacent streets, a new contra-flow cycle lane and removal of parking on Station Road would reduce road and personal safety concerns for active travel users, including children. Primary school-aged children would also benefit from improved active travel links between Dyce Rail Station and the eastern section of Dyce which would indirectly result in improved access to Dyce Primary School. However, the geographic extent of this option limits its overall impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones at high risk of transport poverty towards the north of Victoria Street and medium risk of transport poverty on either side of Station Road. This option would be anticipated to provide improved active travel provision for short-distance trips between the A947/eastern Dyce and Dyce Rail Station, as an alternative to motorised transport. However, its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited. Overall, it is anticipated that this option would have a **minor positive impact** on Affordability. (+1)

9.6.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and improve active travel provision on the local road network to the west of the A947. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to reduce car travel to the southeast of TECA, and promote modal shift to walking, wheeling and cycling. Therefore, it is anticipated that this option would have a **minor positive impact** on the Active Travel Network Coverage sub-criterion, although the geographic extent of this option limits its positive impact. (+1)

Comparative Access by People Group

- It is considered that improved active travel connectivity on the local road network to the west of the A947 would have a minor positive impact on the Comparative Access by People Group sub-criterion. Proposed works include the implementation of mixed-traffic street measures (which allows for safe, on-road cycling) on Bankhead Road, Greenburn Road and Millhill Brae, which could marginally improve comparative access and transport inclusivity for protected characteristic groups through indirectly increasing access to employment opportunities in the local area to the west of the A947. This option could also reduce road and personal safety concerns for active travel users, including children, particularly in the vicinity of Stoneywood School. The implementation of active travel measures which utilise quiet residential streets can be preferable to less experienced cyclists and vulnerable and underrepresented groups including children, women and disabled people, than using busy main roads. However, the geographic extent of this option limits its overall impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option. There is one data zone in the study area which is ranked within the fourth lowest SIMD decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. The measures included within this option may enable this area to be better served by improved active travel provision for short-distance trips, as an alternative to motorised transport. Whilst this option is expected to have a positive impact, its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) for local trips to the west of the A947 and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited, and an overall **minor positive impact** would be anticipated. (+1)

9.6.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and improve active travel provision from the north of Old Meldrum Road to the retail park at Bucksburn Roundabout. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to reduce car travel around the retail park, and promote modal shift to walking, wheeling and cycling. The overall impact is anticipated to be **minor positive**. (+1)

Comparative Access by People Group

- It is considered that improved active travel connectivity to the retail park at Bucksburn Roundabout would have a minor positive impact on the Comparative Access by People Group sub-criterion. Proposed works include either upgrade of the existing footway to shared use, or provision of a segregated two-way cycleway on the west side of the A947, which could marginally improve comparative access and transport inclusivity for protected characteristic groups through indirectly increasing access to employment and retail opportunities in the local area to the west of the A947, and could reduce road and personal safety concerns for active travel users, including children. However, the

geographic extent of this option limits its overall impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. There is one data zone in the study area which is ranked within the fourth lowest SIMD decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. This option would be anticipated to provide improved active travel provision for short-distance trips between the A947 north of the Old Meldrum Road junction and the Bucksburn Retail Park, as an alternative to motorised transport. This could improve accessibility to key amenities at the retail park for those most in need. Whilst this option is expected to have a positive impact, its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) for local trips along the A947 to the retail park at Bucksburn Roundabout and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited, and an overall **minor positive impact** would be anticipated. (+1)

9.6.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and increase connectivity between the old and new A947. It additionally considers a proposed new crossing point (to be explored at the next design stage) to improve access between the northbound and southbound bus stops, as well as the widened shared use path being progressed under Option AT58. This would provide a benefit for people with limited access to, or without a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to promote modal shift to walking, wheeling and cycling and also to public transport as upgrading of the existing path would improve access to bus stops on the A947. However, the geographic extent of this option limits its positive impact. Overall, it is anticipated that this option would have a **minor positive impact** on Active Travel Network Coverage. (+1)

Comparative Access by People Group

- This option would upgrade an existing path between the old and new A947, including widening and providing a bound surface. It additionally considers a proposed new crossing point (to be explored at the next design stage) to improve access between the northbound and southbound bus stops, as well as the widened shared use path being progressed under Option AT58 and would provide linkage to onward active travel opportunities in the study area, including the Riverside Path which provides a route for active travel and which is important to many groups with protected characteristics. This would assist in addressing mobility issues experienced by protected characteristic groups, especially disabled people and older people. However, the geographic extent of this option limits its overall direct impact, and, in isolation, the overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones at high risk of transport poverty on either side of the A947 at this location in the study area. This option would provide

an improved active travel link for a small section between the old and new A947. However, its limited geographic extent and rural location limits the direct impact on Comparative Access by Geographic Location. In addition, this option provides an upgrade to an existing path but does not provide new linkage and therefore, the overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would improve active travel links (low-cost travel options) and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited. Overall, it is anticipated that this option would have a **minor positive impact** on Affordability, through providing improved onward access to active travel opportunities in the wider area (including as part of multi-modal journeys involving public transport). (+1)

9.6.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network by providing an overall coherent and connected network along the A947 through the implementation of new shared use and segregated cycleway facilities, between the Bucksburn Roundabout and Riverview Drive Roundabout North. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to reduce car travel and promote modal shift to cycling. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by People Group

- This option provides the opportunity for improved active travel connectivity along the A947 corridor through the implementation of new shared use and segregated cycleway facilities, between the Bucksburn Roundabout and Riverview Drive Roundabout North. Through the promotion of an overall coherent and connected network afforded by this option, there is an opportunity to marginally improve comparative access and transport inclusivity for protected characteristic groups, especially disabled people and older people through indirectly increasing access to employment opportunities in the local area. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. There is one data zone in the study area which is ranked within the fourth lowest SIMD decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. This option would provide improved active travel facilities supporting the promotion of an overall coherent and connected active travel network along the A947 corridor. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would improve active travel links (low-cost travel options) for local trips along the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North and hence have a positive impact on affordability. An overall **minor positive impact** would be anticipated. (+1)

9.6.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and improve cycle provision on Old Meldrum Road. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to reduce car travel and promote modal shift to cycling. However, the geographic extent of this option limits its positive impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting cycling and therefore would help enhance social inclusion and reduce inequality. This option may marginally improve comparative access and transport inclusivity for protected characteristic groups through indirectly increasing access to employment opportunities in the local area via Old Meldrum Road, and indirectly through linkages to other active travel routes, which are important to many groups with protected characteristics. However, the reduction of on-street parking at the southern end of Old Meldrum Road could affect those who rely on private cars as a mobility aid (disabled people). This group could be disproportionately impacted if they are not able to find suitable parking near services on Old Meldrum Road. The implementation of segregated cycle facilities would reduce road and personal safety concerns for users, including children. However, the geographic extent of this option limits its overall impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, although data zones in the vicinity of this option are generally identified to be at low risk of transport poverty. This option would be anticipated to provide improved active travel provision for short-distance trips on Old Meldrum Road, as an alternative to motorised transport. Whilst this option is expected to have some positive impact, its limited geographic extent limits its impact on Comparative Access by Geographic Location. On balance, the overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would improve active travel links (low-cost travel options) for local trips along Old Meldrum Road and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited. An overall **minor positive impact** would be anticipated. (+1)

9.6.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and improve cycle provision on Old Meldrum Road. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the

Active Travel Network may help to reduce car travel and promote modal shift to cycling. However, the geographic extent of this option limits its positive impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting cycling and therefore would help enhance social inclusion and reduce inequality. This option may marginally improve comparative access and transport inclusivity for protected characteristic groups through indirectly increasing access to employment opportunities in the local area via Old Meldrum Road, and indirectly through linkages to other active travel routes, which are important to many groups with protected characteristics. However, the reduction of on-street parking at the southern end of Old Meldrum Road could affect those who rely on private cars as a mobility aid (disabled people). This group could be disproportionately impacted if they are not able to find suitable parking near services on Old Meldrum Road. The implementation of segregated cycle facilities would reduce road and personal safety concerns for users, including children. The geographic extent of this option limits its overall impact. On balance, the overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, although data zones in the vicinity of this option are generally identified to be at low risk of transport poverty. This option would be anticipated to provide improved active travel provision for short-distance trips on Old Meldrum Road, as an alternative to motorised transport. Whilst this option is expected to have some positive impact, its limited geographic extent limits its impact on Comparative Access by Geographic Location. On balance, the overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would improve active travel links (low-cost travel options) for local trips along Old Meldrum Road and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited. An overall **minor positive impact** would be anticipated. (+1)

9.6.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to add to the existing active travel network and improve active travel provision from the A947 to the Kirkhill Industrial Estate, as well as facilitating trips between Kirkhill Industrial Estate and the Formartine & Buchan Way. This option would satisfy a gap in the network in the north of the study area and would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. This improvement to the Active Travel Network may help to reduce car travel to the Industrial Estate, and promote modal shift to walking, wheeling and cycling. The overall impact is anticipated to be **minor positive**. (+1)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled

cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting cycling and therefore would help enhance social inclusion and reduce inequality. This option may marginally improve comparative access and transport inclusivity for protected characteristic groups through indirectly increasing access to employment opportunities along Dyce Drive and at Kirkhill Industrial Estate, and indirectly through linkages to other active travel routes and employment opportunities in the wider area, which are important to many groups with protected characteristics. The implementation of shared use paths would reduce road and personal safety concerns for active travel users, including children. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at high risk of transport poverty in and around Dyce Drive. This option would be anticipated to provide improved active travel provision for trips on Dyce Drive between the A947 and Kirkhill Industrial Estate, as an alternative to motorised transport. This would satisfy a gap in the network in the north of the study area. This option is therefore expected to generate a **minor positive impact** in terms of Comparative Access by Geographic Location. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) for local trips along Dyce Drive to the Kirkhill Industrial Estate and hence have a positive impact on affordability. A **minor positive impact** would be anticipated overall. (+1)

9.6.11 AT61a – Implement package of active travel measures on Victoria Street

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to improve the existing active travel network at a local level, helping to make it easier to walk, wheel and cycle on Victoria Street and reduce conflicts with other transport modes. The option involves a variety of measures, including reduced vehicle speeds to 20mph, mixed traffic street measures, segregated cycleways and removal of on-street parking, therefore potentially making walking, wheeling and cycling more attractive and encouraging modal shift from private car. The overall impact is anticipated to be **moderate positive**. (+2)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting walking, wheeling and cycling and therefore would help enhance social inclusion and reduce inequality. This option would be anticipated to improve comparative access and transport inclusivity for protected characteristic groups through increasing access to employment opportunities along Victoria Street, and indirectly through linkages to other active travel routes and public transport services, for example Dyce Rail Station. These benefits are important to many groups with protected characteristics. The implementation of measures such as mixed traffic street measures and sections of segregated cycleways, removal of on-street parking and reduced speed limit to 20mph would reduce road and personal safety concerns for active travel users, including children. This option would benefit the primary residential and commercial section of Victoria Street. It could also have an indirect positive impact on trips to and from Dyce Primary School, which is located close to Victoria Street along Gordon Terrace. The overall impact is expected to be **moderate positive**. (+2)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty on either side of Victoria Street. This option includes the primary residential and commercial section of Victoria Street and would be anticipated to provide improved active travel provision for short- to medium-distance trips to leisure, education and employment opportunities in the local area, particularly for those without access to any other means of transport and would otherwise be unable to access key services, as an alternative to motorised transport. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) for local trips along Victoria Street and hence have a positive impact on affordability. An overall **moderate positive impact** would be anticipated. (+2)

9.6.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected improve the existing active travel network and remove existing active travel barriers at a local level, helping to make it easier to walk, wheel and cycle on Mugiemoss Road and reduce conflicts with other transport modes. The addition of streetscape improvements (including quiet route measures) and widened pavement is likely to facilitate walking, wheeling and cycling opportunities and encourage modal shift from private car. This would provide a benefit for people with limited access to, or without, a car, or for those wishing to switch to more active and sustainable modes of transport. However, this option is not expected to directly add to the existing network, and the geographic extent of this option limits its positive impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting walking, wheeling and cycling and therefore would help enhance social inclusion and reduce inequality. This option may marginally improve comparative access and transport inclusivity for protected characteristic groups through directly and indirectly increasing access to employment opportunities in the local area, and through linkages to other active travel routes, which are important to many groups with protected characteristics. The implementation of quiet route measures would reduce road and personal safety concerns for active travel users, including children. The implementation of active travel quiet routes which utilise quiet residential streets can be preferable to vulnerable and underrepresented cyclists than using busy main roads. However, the geographic extent of this option limits its overall impact. The overall impact is expected to be **minor positive**. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, although data zones within the vicinity of this option are generally identified to be at low risk of transport poverty. This option would be anticipated to provide improved active travel provision for short-distance trips along Mugiemoss Road, as an alternative to motorised transport. Whilst this option is expected to have some positive impact, its limited geographic extent limits its impact on Comparative Access by Geographic Location. On balance, the overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) for local trips along Mugiemoss Road and hence have a positive impact on affordability. However, due to the limited geographic extent of this option, in isolation its impact would be limited, and an overall **minor positive impact** would be anticipated. (+1)

9.6.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would not extend active travel network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Comparative Access by People Group

- The implementation of bus priority at all traffic signals along the A947 may deliver minor improvements to bus journey times and journey time reliability, which may benefit those without access to a private car who are more reliant on public transport networks, such as those on low incomes, disabled people and elderly people. This would be achieved through improving access to employment opportunities, shops and services along the A947 for these groups, and indirectly through linkages to other public transport and active travel routes for onward travel. However, given the relatively low number of signalised junctions, there are unlikely to be significant improvements to bus journey times and reliability. It is anticipated that this option would therefore provide a **minor positive impact** in terms of Comparative Access by People Group through facilitating access to employment opportunities for the working age local population and to key local services for the over-65 population. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. This option would be anticipated to deliver marginal improvements to bus journey times and journey time reliability for short-to medium-distance trips to leisure and employment opportunities in the local area, particularly for those without access to any other means of transport and who would otherwise be unable to access key services, as an alternative to private transport. This option provides linkage with the primary residential and commercial section of Dyce, in addition to the residential areas of Bankhead and Stoneywood. However, whilst there may be some minor benefits, given the relatively low number of signalised junctions, this is unlikely to lead to significant improvements to bus journey times and reliability. In addition, it does not provide any new transport services or increased network provision. Overall, this option would be expected to provide a **minor positive impact**. (+1)

Affordability

- This option would have no direct impact on affordability for users. There may be examples of cost savings for individuals who switch from private motorised transport to public transport as a result of the interventions, however the overall impact is expected to be **neutral**. (0)

9.6.14 O2 – Review the layout of the Victoria Street/Skene Place Junction

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). Whilst improving the attractiveness of active travel, this option would not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). It would be expected to help improve the attractiveness of active travel for users, including children, and would support quiet route measures. However, in isolation, its impact on improving comparative access and transport inclusivity for protected characteristic groups would be limited. This option would not directly facilitate nor enhance access to employment opportunities for the working age local population; to key local services for the over-65 population; nor to educational establishments for children. The overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty to the east and west of Victoria Street in this location. This option would involve alterations to the layout of the Victoria Street/Skene Place junction to facilitate the introduction of a one-way system on Station Road and adjacent streets (Option AT33). This option would be expected to improve the attractiveness of active travel and support quiet route measures. However, in isolation, the scope of this option and its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it may help improve the attractiveness of low-cost travel options (walking, wheeling, cycling) for local trips through facilitating the introduction of a one-way system on Station Road and adjacent streets (Option AT33). However, in isolation, the scope of this option and its limited geographic extent limits its impact. The overall impact on affordability is therefore expected to be **neutral**. (0)

9.6.15 O3 – Review the layout of the Riverview Drive/Balloch Way Junction

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. This option may reduce traffic speeds at this junction with a beneficial impact for active travel users, including children. However, in isolation, its impact on improving comparative

access and transport inclusivity for protected characteristic groups would be negligible. This option would not directly facilitate nor enhance access to employment opportunities for the working age local population; to key local services for the over-65 population; nor to educational establishments for children. The overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- The scope of this option and its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. This option would not impact on the affordability of public transport. Due to the scope of this option and its limited geographic extent, in isolation its ability to improve the attractiveness of low-cost travel options (walking, wheeling, cycling) for local trips is limited. The overall impact on affordability is therefore expected to be **neutral**. (0)

9.6.16 O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. This option may reduce traffic speeds at this junction with a beneficial impact for active travel users, including children. However, in isolation, its impact on improving comparative access and transport inclusivity for protected characteristic groups would be negligible. This option would not directly facilitate nor enhance access to employment opportunities for the working age local population; to key local services for the over-65 population; nor to educational establishments for children. The overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- The scope of this option and its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. This option would not impact on the affordability of public transport. Due to the scope of this option and its limited geographic extent, in isolation its ability to improve the attractiveness of low-cost travel options (walking, wheeling, cycling) for local trips is limited. The overall impact on affordability is therefore expected to be **neutral**. (0)

9.6.17 O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. This option may reduce traffic speeds at this junction with a beneficial impact for active travel users, including children travelling to Dyce Academy. However, in isolation, its impact on improving comparative access and transport inclusivity for protected characteristic groups would be negligible. This option would not directly facilitate nor enhance access to employment opportunities for the working age local population; nor to key local services for the over-65 population. The overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- The scope of this option and its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. This option would not impact on the affordability of public transport. Due to the scope of this option and its limited geographic extent, in isolation its ability to improve the attractiveness of low-cost travel options (walking, wheeling, cycling) for local trips is limited. The overall impact on affordability is therefore expected to be **neutral**. (0)

9.6.18 O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. This option may reduce the frequency of illegal turning manoeuvres at this junction with a beneficial impact for all users. However, in isolation, its impact on improving comparative access and transport inclusivity for protected characteristic groups would be negligible. This option would not directly facilitate nor enhance access to employment opportunities for the working age local population; to key local services for the over-65 population; nor to educational establishments for young people. The overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- The scope of this option and its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. This option would not impact on the affordability of public transport. Due to the scope of this option and its limited geographic extent, in isolation its ability to improve the attractiveness of low-cost travel options (walking, wheeling, cycling) for local trips is limited. The overall impact on affordability is therefore expected to be **neutral**. (0)

9.6.19 O8 – Review the layout of the A947/Stoneywood Brae Junction

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. This option may have a beneficial impact for on-road cyclists. However, in isolation, its impact on improving comparative access and transport inclusivity for protected characteristic groups would be negligible. This option would not directly facilitate nor enhance access to employment opportunities for the working age local population; to key local services for the over-65 population; nor to educational establishments for young people. The overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- The scope of this option and its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. This option would not impact on the affordability of public transport. Due to the scope of this option and its limited geographic extent, in isolation its ability to improve the attractiveness of low-cost travel options (walking, wheeling, cycling) for local trips is limited. The overall impact on affordability is therefore expected to be **neutral**. (0)

9.6.20 O10 – Review layout of the A947/McDonalds access road junction

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option would not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. This option would narrow or reposition the A947/McDonalds access road junction to further protect pedestrians using the at-grade crossing north of the access road. This would provide a beneficial impact for pedestrians. However, in isolation, its impact on improving comparative access and transport inclusivity for protected characteristic groups would be negligible. It would not notably facilitate nor enhance access to employment opportunities for the working age local population; nor to educational establishments for young people. It may provide a marginal improvement to accessing key local services (for example McDonalds and Lidl) which may be of particular benefit for the over-65 population. However, the overall impact is expected to be **neutral**. (0)

Comparative Access by Geographic Location

- The scope of this option and its limited geographic extent limits its impact on Comparative Access by Geographic Location. The overall impact is expected to be **neutral**. (0)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. This option would not impact on the affordability of public transport. Due to the scope of this option and its limited geographic extent, in isolation its ability to improve the attractiveness of low-cost travel options (walking, wheeling, cycling) for local trips is limited. The overall impact on affordability is therefore expected to be **neutral**. (0)

9.6.21 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

Public Transport Network Coverage

- This option would not extend public transport network coverage and therefore has a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected improve the existing active travel network at a local level, helping to make it easier to walk, wheel and cycle within Dyce and reduce conflicts with other transport modes. The option would involve a variety of measures to support implementation of a 20-minute neighbourhood, which may include reduced vehicle speeds to 20mph, mixed traffic street measures, segregated cycleways and removal of on-street parking, therefore potentially making walking, wheeling and cycling more attractive and encouraging modal shift from private car. The overall impact is anticipated to be **moderate positive**. (+2)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting walking, wheeling and cycling and therefore would help enhance social inclusion and reduce inequality. While further assessment of the project area is required, the implementation of measures to support a 20-minute neighbourhood is likely to improve conditions for local active travel and deliver social and community benefits including reduced road and personal safety concerns for active travel users, including those with protected characteristics. This option provides an opportunity to engender confidence in vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men. This option would be expected to facilitate and enhance access to employment opportunities for the working age local population; to key local services for the over-65 population; and to educational establishments for young people (including, for example, Dyce Primary School and Dyce Academy). This option would therefore be anticipated to improve comparative access and transport inclusivity for protected characteristic groups. The overall impact is expected to be **moderate positive**. (+2)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. This option would encompass the primary residential and commercial areas of Dyce and would provide improved active travel provision for short- to medium-distance trips to leisure, education and employment opportunities in the local area, including east-west trips, particularly for those without access to any other means of transport and would otherwise be unable to access key service as an alternative to motorised transport. The overall impact is expected to be **moderate positive**. (+2)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would provide low-cost travel options (walking, wheeling, cycling) for local trips within Dyce and hence have a positive impact on affordability. An overall **moderate positive impact** would be anticipated. (+2)

9.6.22 O25 – Implement access only restrictions for general traffic on Victoria Street

Public Transport Network Coverage

- Whilst it is assumed that public transport access itself would be maintained under this option, public transport network coverage would not be extended and there is therefore a **neutral impact** on this sub-criterion. (0)

Active Travel Network Coverage

- This option is expected to enhance the existing active travel network at a local level, helping to make it easier to walk, wheel and cycle on Victoria Street and reduce conflicts with other transport modes. However, this option does not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting walking, wheeling and cycling and therefore would help enhance social inclusion and reduce inequality. This option would be anticipated to improve comparative access and transport inclusivity for protected characteristic groups through facilitating and enhancing access to employment opportunities along Victoria Street, and indirectly through linkages to other active travel routes and public transport services, for example Dyce Rail Station. These benefits are important to many groups with protected characteristics. The removal of general traffic from the Victoria Street area would reduce road and personal safety concerns for active travel users, including children. Further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers, particularly where access only restrictions place a constraint on accessibility for those who are not able to travel by active and sustainable modes of transport. The overall impact at this stage is expected to be **minor positive**. Future consultation will need to engage people with protected characteristics to ensure their needs are represented. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty to the east and west of Victoria Street in this location. This option includes the primary residential and commercial section of Victoria Street and would be anticipated to facilitate and enhance active travel provision for short- to medium-distance trips to leisure, education and employment opportunities in the local area, particularly for those without access to any other means of transport and who would otherwise be unable to access key services, as an alternative to motorised transport. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would facilitate and enhance low-cost travel options (walking, wheeling, cycling) for local trips along Victoria Street and hence have a positive impact on affordability. An overall **minor positive impact** would be anticipated. (+1)

9.6.23 O26 – Implement one-way restrictions for general traffic on Victoria Street

Public Transport Network Coverage

- The implementation of one-way restrictions for general traffic on Victoria Street would impact on public transport network coverage in this location. However, it is expected that reprioritisation of the A947 along Riverview Drive would support the implementation of this option and provide an alternative route

for bus services in one direction. Overall, it is anticipated that there would be a **minor negative impact** on existing public transport network coverage along Victoria Street. (-1)

Active Travel Network Coverage

- This option is expected to improve the sense of place and enhance active travel network provision at a local level, helping to facilitate walking, wheeling and cycling on Victoria Street and reduce conflicts with other transport modes. However, this option does not extend active travel network coverage. The overall impact is therefore anticipated to be **neutral**. (0)

Comparative Access by People Group

- Perceived road danger is the biggest single barrier to active travel use, with children and older people particularly affected. Inaccessible cycle infrastructure is the single biggest difficulty faced by disabled cyclists in the UK and women are under-represented in cycling demographics. This option supports this by promoting walking, wheeling and cycling and therefore would help enhance social inclusion and reduce inequality. This option would be anticipated to improve comparative access and transport inclusivity for protected characteristic groups through facilitating and enhancing access to employment opportunities along Victoria Street, and indirectly through linkages to other active travel routes and public transport services, for example Dyce Rail Station. These benefits are important to many groups with protected characteristics. The implementation of one-way restrictions for general traffic on Victoria Street would be expected to reduce traffic levels and hence reduce road and personal safety concerns for active travel users, including children. However, this option would impact on access for some vehicle users (including bus users). Further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers. The overall impact at this stage is expected to be **minor positive**. Future consultation will need to engage people with protected characteristics to ensure their needs are represented. (+1)

Comparative Access by Geographic Location

- A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty to the east and west of Victoria Street in this location. This option includes the primary residential and commercial section of Victoria Street and would be anticipated to facilitate and enhance active travel provision for short- to medium-distance trips to leisure, education and employment opportunities in the local area, particularly for those without access to any other means of transport and who would otherwise be unable to access key services, as an alternative to motorised transport. However, this option would impact on access for some vehicle users (including bus users) who would be required to re-route via Riverview Drive to facilitate the one-way traffic flow along Victoria Street. The overall impact is expected to be **minor positive**. (+1)

Affordability

- The biggest transport-related barrier for people on low incomes is the cost of transport, particularly the cost of public transport. Whilst this option would not impact on the affordability of public transport, it would facilitate and enhance low-cost travel options (walking, wheeling, cycling) for local trips along Victoria Street and hence have a positive impact on affordability. An overall **minor positive impact** would be anticipated. (+1)

9.7 Summary

This Chapter has presented the outcomes from the STAG-based detailed options appraisal, focusing on each of the five STAG criteria. The following Chapter considers the performance of the options in terms of Deliverability.

10. Detailed Options Appraisal – Deliverability Criteria

10.1 Introduction

This chapter sets out the assessment of feasibility, affordability and public acceptability. With regards the latter, the number of responses provided (as detailed in Chapter 6) should be referred to when gauging the anticipated level of risk assigned to public acceptability. Percentages provided in the public acceptability sections are based on the proportion of those responding to the questions in the online survey.

A detailed Table 2 Design Technical Note is presented as **Appendix D** with option designs shown in **Appendix E**. A detailed cost breakdown of the Table 2 options is provided in **Appendix F.**

10.2 AT26 – Improve active travel connectivity between the A947 study area and TECA

- Feasibility

This option is considered to have **low risk** in terms of feasibility. The widening works proposed are not intended to impact the existing footway gradients, however, a review is recommended to be carried out once topographical information is obtained to ensure the upgraded footway gradients are compliant with Cycling by Design guidance. Any deviations from the standards will require the proposed design to be evaluated to maintain accessibility and user safety.

- Affordability

This option is considered to have **low risk** in terms of affordability. With the proposed footway widening, earthworks may be required in areas to accommodate tie-in between new and existing footway makeups. The number of areas anticipated to require earthworks is low and there is therefore minimal risk to the affordability of this option.

- Public Acceptability

This option is considered to have relatively **low risk** in terms of public acceptability. For members of the public, more than half of respondents (53.9%) expressed support for the option. Similarly, responses from organisations showed that 57.2% of respondents agreed with the option.

Additional comments provided by respondents supported the inclusion of increased wayfinding and widening of active travel routes.

Aberdeen Cycle Forum questioned whether resurfacing and widening of paths around TECA would represent value for money and stated that they would rather see resources directed to improvements to provide separation from traffic. They added that if existing paths at TECA are below the usual standard width, it is also unlikely that levels of usage are particularly high or capacity is an issue.

10.3 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. Current ground and drainage conditions in the verge space where the footpath will be implemented are currently unknown. Once further information is obtained about the area, discovery of poor ground and drainage conditions may impact option feasibility. However, the risk of this is considered to be low. Progression of Option AT48a introduces a risk to the feasibility of the current option design. As part of the proposed two-way segregated cycleway along Riverview Drive, the pedestrian refuge island would require removal. An approximate 10m uncontrolled crossing is within a recommended maximum length for which a continuous crossing can be considered as per LTN2/95 Section 5.2.3. Further design work would be required to further establish the feasibility of implementing a continuous uncontrolled crossing on a key strategic route alongside the delivery of Option AT48a.

- Affordability

This option is considered to have **low risk** in terms of affordability. The unknown ground and drainage conditions between the verge and trail towards the Riverside Path introduces a low risk to this option based on the affordability criterion. Discovery of unsuitable conditions may increase the capital cost of the option based on the required ground improvements and drainage works. However, requirement for significant works is anticipated to be low as no major issues were identified during a previous site walkover.

- Public Acceptability

This option is considered to have relatively **low risk** in terms of public acceptability. For members of the public, nearly two-thirds of respondents (63.5%) expressed support for the option. The level of agreement and disagreement regarding this option was broadly the same for organisation responses.

Additional comments provided by respondents requested additional pedestrian crossings across Riverview Drive to support increased pedestrian movement.

There was strong agreement from Dyce & Stoneywood Community Council during consultation for implementing a new footpath to connect the Riverside Path and housing in Dyce at the Todlaw Walk junction – it was thought that this would greatly enhance pedestrian access to the River Don path.

10.4 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. The reallocation of corridor space along Station Road would require the removal of all on-street parking.

This option is to be delivered in conjunction with a new road layout in the area which promotes one-way streets along Station Road, Merrivale and Skene Place. The contraflow cycle lane outlined in Option AT33 is dependent on these restrictions to traffic direction being implemented. Initial Swept Path Analysis (SPA) has been carried out and has identified that emergency vehicles can manoeuvre round the one-way system, however, further engagement with local emergency services will be required. The requirement for further third-party engagement presents a medium risk to this option's feasibility.

A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry[22] for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **high risk** in terms of public acceptability. For members of the public, more than half of respondents (58.5%) stated that they disagreed with the option. No support for the option was expressed by organisations, with 71.4% strongly disagreeing.

Additional comments provided by respondents suggested that there were existing active travel routes that were sufficient for both pedestrians and cyclists, however these would benefit from improved wayfinding.

Dyce & Stoneywood Community Council stated during consultation that they disagreed with this option because the road is too narrow with the current parking arrangements.

[22] Manual of Contract Documents for Highway Works Vol. 6. New Roads and Streets Act 1991 – Diversionary Works: https://www.standardsforhighways.co.uk/tses/attachments/5743f8c2-0c25-4de0-989f-f7b3bf3c3e57?inline=true

Furthermore, despite the majority of residents having off-street parking alternatives, acceptability of new parking restrictions on this residential street may impact the option's feasibility.

10.5 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

At locations where raised tables are being introduced across existing junctions, new drainage gullies will be required at the base of the table's ramp due to the new construction disrupting existing flow paths. A drainage assessment will be required to ensure the addition of new drainage gullies do not have a negative impact on the existing system. Any concerns or requirements to upgrade the system will introduce risk to this option's feasibility.

The new signalised crossing and associated footway widening requires the removal of the lay-by which is located in front of the Bankhead Inn. Further engagement with the business is required to understand the impact this will have on their servicing and loading. The requirement for further third-party engagement presents a medium risk to this option's feasibility.

The reallocation of corridor space along Bankhead Road requires the removal of all on-street parking.

- Affordability

This option is considered to have **medium risk** in terms of affordability, due to the addition of raised tables as part of the option. It is anticipated that additional drainage gullies will be required at the base of the ramps as these will block the existing flow paths along Bankhead Road, Crossgates and Millhill Brae. It is estimated that the raised tables will require 12 new drainage gullies. The current drainage conditions and impact to the existing surface runoff are currently unknown due to a lack of topographical information. These unknowns are considered to present a medium risk in relation to affordability.

A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. The level of agreement and disagreement regarding this option was broadly the same for responses from members of the public. Limited support for the option was expressed by organisations, with 42.9% strongly disagreeing.

Additional comments provided by respondents suggested that there were existing active travel routes that were sufficient for both pedestrians and cyclists, however these would benefit from improved wayfinding.

Furthermore, despite the majority of residents having off-street parking alternatives, acceptability of new parking restrictions on this residential street may impact the option's feasibility.

10.6 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

- Feasibility

This option is considered to have **low to medium risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

The widened footways for this option will create an increased volume of surface water runoff. This will be captured by the existing drainage system which serves the A947 carriageway. In addition, where raised tables are being introduced across junctions, new drainage gullies will be required at the base of the table's ramp due to the new construction disrupting existing flow paths. A drainage assessment will be required to ensure the increased runoff and additional gullies do not exceed the network's capacity. The risk of this is considered to be low, however, any requirement to upgrade the drainage network will impact on this option's feasibility.

For Option AT41b, the operational impact on the A947 due to the reduction to one lane requires analysis and may impact the feasibility of this option. The operational impact on traffic on the strategic A947 corridor, particularly public transport, would present a risk to the feasibility of delivering Option AT41b.

The overall impact on feasibility is considered to present a **low risk** for Option AT41a and a **medium risk** for Option AT41b.

- Affordability

This option is considered to have **medium to high risk** in terms of affordability. Following the footway widening as part of Option AT41a, there will be an increased volume of surface water runoff entering the existing drainage system along the A947.

Further analysis is required for Option AT41b to identify the impact that reducing the A947 to one lane at this location would have on the operation of the corridor. Significant operational impact may require further consideration of the allocation of space over the road corridor as a whole with significant escalation in cost, presenting a high risk to affordability.

Due to the addition of raised tables at the retail park, it is anticipated that additional drainage gullies will be required at the base of the ramps as these will block water run off following the existing flow paths. For Option AT41b it is proposed that there will be breaks implemented in the cycleway buffer to allow run off flow paths to remain as existing. For both Option AT41a and AT41b, a drainage assessment will be required to ensure that this increased runoff and increased number of gullies do not exceed the existing system's capability. Any requirement to upgrade the existing carriageway drainage system along this section of the A947 introduces a medium risk to the affordability criterion.

A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works for both Option AT41a and AT41b are at-grade making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase capital costs.

The overall impact on affordability is considered to present a **medium risk** for Option AT41a and a **high risk** for Option AT41b.

- Public Acceptability

These options are considered to have **low to medium risk** in terms of public acceptability. There was slightly more support for Option AT41a than Option AT41b in responses from members of the public, with a higher level of disagreement with the segregated cycleway variant (AT41b). No support for the options was expressed by organisations, with more than half of these responses disagreeing with each.

Additional comments provided by respondents highlighted concerns that the volume and speed of traffic at Bucksburn Roundabout would still deter active travel users from travelling in this area.

10.7 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

- Feasibility

This option is considered to have **low risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

While no consultation was undertaken on this option, it is considered that due to the nature and location of the improvements, there would be **low risk** in terms of public acceptability.

10.8 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

- Feasibility

This option is considered to have **high risk** in terms of feasibility. As part of the sections of footway widening, various additional works will be required that introduce a level of risk to the work's delivery. The location of available verge space will require the remove of existing vegetation, including impacts on established trees. A number of verges may also require minor earthworks to regrade them where new construction is proposed. These works are not anticipated to negatively impact the feasibility of this option.

A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

As part of the works, a number of existing road signs and lighting columns will need to be relocated to the rear or front in relation to the new footway/cycleway design. Signs which have built-in lighting will be more challenging to reposition due to their associated wiring. Despite this, the relocation of road signs and lighting columns are not considered to impact the feasibility of this option.

The widened footways for this option will create an increased volume of surface water runoff. This will be captured by the existing drainage system which serves the A947 carriageway. In addition, where the raised tables are being introduced across junctions, new drainage gullies will be required at the base of the table's ramp due to the new construction disrupting existing flow paths. A drainage assessment will be required to ensure the increased runoff and additional gullies do not exceed the network's capacity. The risk of this is considered to be low, however, any requirement to upgrade the drainage network will impact on feasibility.

The biggest risk to the delivery of this option is its dependency on other active travel improvement options from Tables 1 and 2, in order to create a coherent active travel route between the Riverside Drive North roundabout and Bucksburn Roundabout. A number of options are proposed which connect the various sections of AT48a. For example, the new section of segregated cycleway to the south of Riverview Drive is located between the improvements to the south roundabout (AT16) and the improved crossing at Burnside Drive (AT4). Additionally, localised fixed constraints in the road corridor would result in the need for short sections of shared use provision with an absolute minimum width, partially reducing the attractiveness of the network for users. The cumulative impact of risk factors and dependency of other options presents a high risk to this option's feasibility.

- Affordability

This option is considered to have **medium risk** in terms of affordability due to the cumulative impact of a number of factors.

There are multiple sections within this option which may require localised earthworks to accommodate sections of new footway or cycleway construction. However, the anticipated cost associated with these works is considered to be low.

There are a number of existing footways which are proposed to be widened into A947 carriageway space. Where there are existing drainage gullies at these locations, these will require relocation to the edge of the new kerb

line, however the extent of reconfiguration over the whole route corridor will be better informed by detailed survey information.

A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. The level of agreement and disagreement regarding this option was broadly the same for responses from members of the public. Limited support for the option was expressed by organisations, with more than half (57.1%) strongly disagreeing.

While there was agreement for this option expressed by Dyce & Stoneywood Community Council during consultation, the community council stated that this does not appear to be a feasible option without considerable expense.

Aberdeen Cycle Forum confirmed support for the majority of what was presented during consultation (in the Strategic Corridor Improvements Package) but noted that someone cycling the full length of the corridor would transition between shared use and cycleway nine times.

10.9 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. The new kerb line on the exterior of the cycleway will disrupt the existing drainage flow paths along Old Meldrum Road. It is anticipated that gaps would be left within the kerbed buffer to enable existing surface run-off to continue as is, and, with no intended increase in impermeable area, the drainage impact is considered to have a low risk impact in terms of feasibility.

A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

In order to implement a segregated cycleway within the Old Meldrum Road corridor, the removal of on-street parking is required in the middle and southern sections. Engagement with local residents and businesses will be required to understand the impact this change will have to them. A medium risk to the option's feasibility based on the removal of on-street parking is recognised.

- Affordability

This option is considered to have **low risk** in terms of affordability. The northern extents of the segregated cycling facility are considered indicative due to the recent Barratt Homes development. At the time of the design work being carried out, OS mapping had not yet captured the realignment of Bankhead Road, Mill Drive and Mugiemoss Road. The works were carried out using photographs captured on site by AECOM staff. Once up to date mapping or a topographical survey is obtained, changes to the current design are likely to be required. Furthermore, the southern extents of the current design pledge to tie in the segregated facilities with any junction improvements as part of the parallel A96 study. These planned future updates to the design will alter the current estimated capital cost of the option but present a low risk to the reliability of the affordability appraisal due to tie-ins being flexible to accommodate.

A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

The new segregated facility will require alterations to the existing drainage along Old Meldrum Road in conjunction with realigned kerb lines and introduction of ramps along the cycleway. It is anticipated that gaps would be left within the kerbed buffer to enable existing surface run-off to continue as is, and, with no intended increase in impermeable area, the drainage impact is considered to present a low risk to the affordability of this option.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. The level of agreement and disagreement regarding this option was broadly the same for responses from members of the public. No support for the option was expressed by organisations, with 71.4% strongly disagreeing.

Additional comments provided by respondents raised concerns that there is not sufficient demand to warrant the implementation of this option as cyclists typically use the carriageway anyway.

10.10 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. The new kerb line on the exterior of the cycleway will disrupt the existing drainage flow paths along Old Meldrum Road. It is anticipated that gaps would be left within the kerbed buffer to enable existing surface run-off to continue as is, and, with no intended increase in impermeable area, the drainage impact is considered to have a low risk impact in terms of feasibility.

A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

In order to implement a segregated cycleway within the Old Meldrum Road corridor, the removal of on-street parking is required in the middle and southern sections. Engagement with local residents and businesses will be required to understand the impact this change will have to them. A medium risk to the option's feasibility based on the removal of on-street parking is recognised.

- Affordability

This option is considered to have **low risk** in terms of affordability. The northern extents of the segregated cycling facility are considered indicative due to the recent Barratt Homes development. At the time of the design work being carried out, OS mapping had not yet captured the realignment of Bankhead Road, Mill Drive and Mugiemoss Road. The works were carried out using photographs captured on site by AECOM staff. Once up to date mapping or a topographical survey is obtained, changes to the current design are likely to be required. Furthermore, the southern extents of the current design pledge to tie in the segregated facilities with any junction improvements as part of the parallel A96 study. These planned future updates to the design will alter the current estimated capital cost of the option but present a low risk to the reliability of the affordability appraisal due to tie-ins being flexible to accommodate.

A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

The new segregated facility will require alterations to the existing drainage along Old Meldrum Road in conjunction with realigned kerb lines and introduction of ramps along the cycleway. It is anticipated that gaps would be left within the kerbed buffer to enable existing surface run-off to continue as is, and, with no intended increase in impermeable area, the drainage impact is considered to present a low risk to the affordability of this option.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. The level of agreement and disagreement regarding this option was broadly the same for responses from members of the public. No support for the option was expressed by organisations, with 57.1% strongly disagreeing.

Additional comments provided by respondents raised concerns that there is not sufficient demand to warrant the implementation of this option as cyclists typically use the carriageway anyway.

10.11 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

- Feasibility

This option is considered to have **high risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed new construction works create a risk of utility impact and the requirement for diversion. C3/4 enquiries will be carried out at a future stage, along with engagement with utility providers, and will provide a better understanding of any potential impact the works will have. The potential need for diversion works presents a medium risk to this option's feasibility.

In order to implement a shared use facility that meets Cycling by Design guidance in the eastern section, acquisition of third-party land is necessary. Discussions with landowners would be required to understand the feasibility for implementation of this option.

Implementation of a reduced speed limit on Dyce Drive would also be required to facilitate the introduction of signalised crossings for active travel user safety. The reliance on third-party land and statutory engagement for delivery of this intervention presents a high risk to this option's feasibility.

- Affordability

This option is considered to have **high risk** in terms of affordability. The requirement for third-party land may increase the overall capital cost requirements of this option. The third-party land requirement is focused on the eastern extents of this option, where the boundary fence for farmland is observed. The proposed location of the shared use facility in the northern and western extents is estimated to be within the land boundary of the carriageway and therefore assumed to be owned by ACC, however landowner checks will be required to verify this. The reliance on third-party land for delivery of this option presents a high risk to affordability until further development and engagement is undertaken.

A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **low risk** in terms of public acceptability overall. For members of the public, 60.8% of respondents expressed support for the option. Responses from organisations also showed some level of support for the option.

Additional comments provided by respondents suggested that the existing Formartine & Buchan Way provides a sufficient active travel route to and from the industrial estate.

10.12 AT61a – Implement package of active travel measures on Victoria Street

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

It is proposed that carriageway space is sacrificed to accommodate the widened footways for shared use therefore there is no anticipated increase in impermeable area. The existing gullies will require relocation in accordance with the revised kerb line, however the overall drainage impact is considered to have a low risk impact in terms of feasibility.

In the northern section of Victoria Street, the proposed footway widening would require the removal of all on-street parking between Pitmedden Road and the northern Riverview Drive roundabout. A medium risk to the option's feasibility based on the removal of on-street parking is recognised.

The feasibility of an effective mixed traffic street through the central part of Victoria Street is also dependant on traffic conditions aligning with the recommended criteria to make this attractive.

- Affordability

This option is considered to have **medium risk** in terms of affordability. Options O25 and O26 focus on implementing restrictions to the access of vehicles along sections of Victoria Street. The current design of Option AT61a is based on the current access for vehicles. If an option is taken forward which introduces restrictions to Victoria Street, there would be an opportunity to improve on the current proposals for active travel improvements, presenting some escalation in cost and an increased risk to affordability.

A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **high risk** in terms of public acceptability. For members of the public, more than half of respondents (58.5%) stated that they disagreed with the option. No support for the option was expressed by organisations, with 71.4% strongly disagreeing.

Additional comments provided by respondents showed some support for improvements to make cycling more attractive along Victoria Street. It was suggested that reduced vehicle speeds would complement efforts to improve the environment for active travel users.

Dyce & Stoneywood Community Council stated during consultation that more information was needed to fully gauge the effect of mixed traffic street measures on Victoria Street.

Aberdeen Cycle Forum noted during consultation that significant reductions in the speed and volume of traffic would be required to make this a suitable location for a mixed traffic street. They added that while two different solutions are offered (mixed traffic street in the centre changing to shared use at either end), consistency of approach would be welcomed.

10.13 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

- Feasibility

This option is considered to have **low risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

It is proposed that carriageway space is sacrificed to accommodate the widened footways therefore there is no anticipated increase in impermeable area. The existing gullies will require relocation in accordance with the revised kerb line, however the overall drainage impact is considered to have a low risk in terms of feasibility.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. While 51.9% of responses from members of the public expressed support for the option, 38.5% were in disagreement. No support for the option was expressed by organisations, with 57.1% strongly disagreeing.

10.14 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. A key factor in the progression of dedicated public transport improvements across the study area would be alignment with ACC's overarching strategy for bus prioritisation, traffic signals and intelligent transport systems. Implementing localised signal improvements in isolation is anticipated to have only minor benefit and therefore there is a recognised risk to feasibility until further engagement is undertaken.

Acceptance from the bus operators on the A947 would also be a considerable factor and engagement would be required to inform effective changes and feasibility of measures.

An assessment of the proposed measures in terms of impact on other modes would also be required to better inform the feasibility of delivery of signal changes and to understand the impact this will have on active travel users throughout the study area. Any detrimental impact to these users will impact on the feasibility of the option as defined by the current scope.

- Affordability

This option is considered to have **medium risk** in terms of affordability. Proposed works to implement this option would focus on an upgrade to existing signals within the study area to improve bus prioritisation. For the purpose of the option development, it has been assumed that the costs associated with implementation are in relation to signals only.

Should a traffic assessment determine wider network improvements are required to deliver holistically for all modes, or if specialist intelligent and connected signal systems were identified for implementation based on ACC strategy, it is anticipated that this would lead to inflated costs and therefore a medium risk to affordability exists for this option.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. The level of agreement and disagreement regarding this option was broadly the same for responses from members of the public. Limited support for the option was expressed by organisations, with more than half (57.1%) strongly disagreeing.

There was feedback from Dyce & Stoneywood Community Council during consultation on the need to conduct a traffic signal review to consider bus priority, with the community council stating that the density of buses on this section of road does not justify this as an option (unlike in the city centre).

10.15 O2 – Review the layout of the Victoria Street/Skene Place Junction

- Feasibility

This option is considered to have **low risk** in terms of feasibility. Initial Swept Path Analysis (SPA) has been carried out and has identified that emergency vehicles can manoeuvre round the one-way system, however further engagement with local emergency services will be required. The requirement for further third-party engagement presents a residual risk to this option's feasibility.

A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **high risk** in terms of public acceptability. For members of the public, more than half of respondents (56.6%) stated that they disagreed with the option. No support for the option was expressed by organisations, with 71.4% strongly disagreeing.

There was disagreement expressed for this option by Dyce & Stoneywood Community Council during consultation because it was felt too much traffic will be diverted to Skene Place and the unnamed road by the Spider's Web pub – this was said to be too narrow with poor visibility at the junction with Station Road.

10.16 O3 – Review the layout of the Riverview Drive/Balloch Way Junction

- Feasibility

This option is considered to have **low risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **low risk** in terms of public acceptability. For members of the public, 56.6% of respondents expressed support for the option. No support for the option was expressed by organisations, with 57.2% disagreeing overall. However, given the nature of the option, it is considered that the overall risk to public acceptability is low.

Additional comments provided by respondents requested additional pedestrian crossings along this section of Riverview Drive. An additional comment suggested that the current carriageway width was sufficient for both cyclists and vehicles to use.

There was agreement from Dyce & Stoneywood Community Council during consultation for increasing kerb radii at this junction, but it was thought that this should be a lower priority option if funding is an issue.

Aberdeen Cycle Forum also expressed support for this option during consultation.

10.17 O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction

- Feasibility

This option is considered to have **low risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **low risk** in terms of public acceptability. For members of the public, 57.7% of respondents expressed support for the option. No support for the option was expressed by organisations, with 57.2% disagreeing overall. However, given the nature of the option, it is considered that the overall risk to public acceptability is low.

Additional comments provided by respondents requested additional pedestrian crossings along this section of Riverview Drive. An additional comment suggested that the current carriageway width was sufficient for both cyclists and vehicles to use.

There was agreement from Dyce & Stoneywood Community Council during consultation for increasing kerb radii at this junction, but it was thought that this should be a lower priority option if funding is an issue.

Aberdeen Cycle Forum also expressed support for this option during consultation.

10.18 O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

- Feasibility

This option is considered to have **low risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

Carriageway space is reallocated to the footway as part of the proposal to reduce the junction kerb radii therefore there is no anticipated increase in impermeable area. The existing gullies will require relocation in relation to the new kerb line, however the overall drainage impact is considered to have a low risk in terms of feasibility.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

- Public Acceptability

This option is considered to have **low risk** in terms of public acceptability. For members of the public, 57.6% of respondents expressed support for the option. No support for the option was expressed by organisations, with 57.2% disagreeing overall. However, given the nature of the option, it is considered that the overall risk to public acceptability is low.

Additional comments provided by respondents requested additional pedestrian crossings along this section of Riverview Drive. An additional comment suggested that the current carriageway width was sufficient for both cyclists and vehicles to use.

There was agreement from Dyce & Stoneywood Community Council during consultation for increasing kerb radii at this junction, but it was thought that this should be a lower priority option if funding is an issue.

Aberdeen Cycle Forum also expressed support for this option during consultation.

10.19 O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

- Feasibility

This option is considered to have **low risk** in terms of feasibility. A C2 preliminary enquiry has been carried out for this area and identified apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and the requirement for diversion low. However, any diversion works required will introduce risk to the option's feasibility.

As part of the works, a number of existing road signs will require to be relocated within the remaining verge space. The sign which has built-in lighting will be more challenging to reposition due to its associated wiring. Despite this, the relocation of road signs and lighting columns are not considered to impact the feasibility of this option.

- Affordability

This option is considered to have **low risk** in terms of affordability. A C2 preliminary enquiry for this area located apparatus which may be affected for a number of utility providers. The proposed works are at-grade, making the risk of utility impact and requirement for diversion low. However, any diversion works required will increase the capital costs of this option.

Adjusting the corner radii of the A947/Stoneywood Road junction will require the relocation of a sign, with associated lighting. These works are not anticipated to introduce any significant risk to the delivery cost of this option.

- Public Acceptability

This option is considered to have **low risk** in terms of public acceptability. For members of the public, two-thirds of respondents expressed support for the option. No support for the option was expressed by organisations, with 57.1% strongly disagreeing. However, given the nature of the option, it is considered that the overall risk to public acceptability is low.

There was also strong agreement from Dyce & Stoneywood Community Council for this option during consultation – it was felt that there are currently too many dangerous and irresponsible drivers making illegal right turns in this location at present.

Aberdeen Cycle Forum noted during consultation that they had previously raised safety concerns about the road layout at this location and confirmed they would welcome improvements. They added that it should be noted that some cyclists will remain on the carriageway here even if an off-road alternative is provided, and so pinch-points should be avoided.

10.20 O8 – Review the layout of the A947/Stoneywood Brae Junction

- Feasibility

This option is considered to have **low risk** in terms of feasibility. Footway widening into existing verge space is proposed and will increase impermeable area and volume of surface water runoff. It is assumed that the existing carriageway drainage has capacity to manage increased volume. A drainage assessment will be required to ensure that the increased runoff does not exceed the network's capacity. The risk is considered to be low, however, any requirement to upgrade the drainage network will impact on the feasibility of this option.

- Affordability

This option is considered to have **low risk** in terms of affordability. The radii alterations at the Stoneywood Brae junction will require the relocation of existing gullies. A drainage assessment will be required to ensure that the increased runoff from the widened footways does not exceed the existing system's capability. Any requirement to upgrade the existing carriageway drainage system along this section of the A947 introduces a low risk to the affordability criterion for this option.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. The level of agreement and disagreement regarding this option was broadly the same for responses from members of the public. No support for the option was expressed by organisations, with 57.1% strongly disagreeing.

10.21 O10 – Review layout of the A947/McDonalds access road junction

- Feasibility

This option is considered to have **low risk** in terms of feasibility. The feasibility of this option is dependent on the progression of Options AT41a and AT41b. Improvements to the A947/McDonalds access road junction will only be required if the A947 carriageway at this location is reduced to one lane. If AT41a is progressed, the existing junction layout will remain due to its compliance with DMRB standards.

- Affordability

This option is considered to have **low risk** in terms of affordability. The affordability of this option is dependent on the progression of Options AT41a and AT41b. The concept of improving the A947/ McDonalds access road junction will only be progressed alongside AT41b which requires a reduction in A947 carriageway lanes. If AT41a is progressed, no changes to the existing McDonalds access road junction will take place. The affordability risk associated with the works directly related to this option is therefore considered low.

- Public Acceptability

This option is considered to have **low risk** in terms of public acceptability. For members of the public, more than half of respondents (55.7%) expressed support for the option. No support for the option was expressed by organisations, with 57.2% disagreeing overall. However, given the nature of the option, it is considered that the overall risk to public acceptability is low.

10.22 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. This option requires further assessment and engagement with the local community (beyond this stage of work) to determine what measures can be implemented alongside the various active travel measures proposed in Dyce.

- Affordability

This option is considered to have **medium risk** in terms of affordability. Further development of the 20-minute neighbourhood concept is required through engagement with the local community. This will assess their needs and help to identify measures which can help improve accessibility to nearby amenities. Due to the unknown works associated with this option, there is a medium risk of scope and cost fluctuation affecting its affordability.

- Public Acceptability

This option is considered to have **medium risk** in terms of public acceptability. The level of agreement and disagreement regarding this option was broadly the same for responses from members of the public. Limited support for the option was expressed by organisations, with more than half (57.1%) strongly disagreeing.

Additional comments provided by respondents supported the implementation of measures to make Dyce a 20-minute neighbourhood. One comment suggested that the size of the Dyce area would suit a 20-minute neighbourhood and could be used as a case study for future implementation in other areas within the region.

Dyce & Stoneywood Community Council stated during consultation that more information was needed to fully understand the potential for a 20-minute neighbourhood in Dyce.

10.23 O25 – Implement access only restrictions for general traffic on Victoria Street

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. This option requires further engagement with the local community, business owners and other key stakeholders to determine the impact that access only restrictions would have on them. Following this, detailed traffic analysis would be carried out to predict the changes this would make to traffic flow along Victoria Street, Riverview Drive and other roads.

- Affordability

This option is considered to have **low risk** in terms of affordability. The proposed restrictions to Victoria Street will be delivered through the installation of road signs at locations where these restrictions will be implemented. The existing road corridor layout will remain unchanged under this option and no major engineering works will be required. There is considered to be a low risk of cost fluctuation in the materials and labour required to implement O25 which have not already been accounted for.

- Public Acceptability

This option is considered to have **high risk** in terms of public acceptability. For members of the public, nearly two-thirds of respondents (65.4%) stated that they disagreed with the option. No support for the option was expressed by organisations, with 71.4% strongly disagreeing.

Additional comments provided by respondents suggested that businesses along Victoria Street would be significantly impacted by a loss of trade as a result of restricted vehicle access (and the impact of this on footfall). At the public drop-in event, it was also suggested that previous traffic management work in the area adversely affected trade.

10.24 O26 – Implement one-way restrictions for general traffic on Victoria Street

- Feasibility

This option is considered to have **medium risk** in terms of feasibility. This option requires further engagement with the local community, business owners and other key stakeholders to determine the impact that one-way restrictions would have on them. Following this, detailed traffic analysis would be carried out to predict the changes this would make to traffic flow along Victoria Street, Riverview Drive and other roads.

- Affordability

This option is considered to have **low risk** in terms of affordability. The proposed restrictions to Victoria Street will be delivered through the installation of road signs at locations where these restrictions will be implemented. The existing road corridor layout will remain unchanged under this option and no major engineering works will be required. There is considered to be a low risk of cost fluctuation in the materials and labour required to implement O26 which have not already been accounted for.

- Public Acceptability

This option is considered to have **high risk** in terms of public acceptability. For members of the public, two-thirds of respondents stated that they disagreed with the option. No support for the option was expressed by organisations, with 71.4% strongly disagreeing.

Additional comments provided by respondents suggested that businesses along Victoria Street would be significantly impacted by a loss of trade as a result of restricted vehicle access (and the impact of this on footfall). At the public drop-in event, it was also suggested that previous traffic management work in the area adversely affected trade.

Furthermore, respondents raised significant concerns regarding the effects caused by displacement of traffic as a result of the potential one-way system. In particular, comments highlighted potential safety issues resulting from an increase in traffic outside schools.

10.25 Summary

This Chapter has considered the performance of the options in terms of feasibility, affordability and likely public acceptability.

The following Chapter sets out the outcomes of a series of impact assessments undertaken to inform the Detailed Appraisal.

11. Detailed Options Appraisal – Statutory Impact Assessment Criteria

11.1 Introduction

A series of impact assessments have been undertaken as part of the Detailed Appraisal of the A947 Multi-Modal Corridor Study options. These include:

- **Equality Impact Assessment (EqIA)**: As a public body, ACC has a legal responsibility when creating new plans and policies to pay due regard to the Public Sector Equality Duty (PSED) included within the Equality Act 2010.[23] The PSED aims to eliminate unlawful discrimination, promote equality and cohesion between different groups and advance equality of opportunity. The EqIA has been prepared to determine if the options being considered as part of the Multi-Modal Corridor Study might lead to any potential impacts on groups with protected characteristics.

- **Children's Rights and Wellbeing Impact Assessment (CRWIA)**: As a public body, ACC has a legal responsibility when creating new plans and policies to pay due regard to children and young people, as per the Children and Young People (Scotland) Act 2014.[24] The CRWIA has been prepared to determine if the options being considered as part of the Multi-Modal Corridor Study might lead to any potential impacts on children and young people.

- **Health Inequalities Impact Assessment (HIIA)**: The HIIA exceeds ACC's legal duty in relation to the Equality Act 2010 by going on to consider the distribution of potential impacts on health inequalities, human rights, socio-economic circumstances and people with protected characteristics. The HIIA has been prepared to determine if the options being considered as part of the Multi-Modal Corridor Study might lead to any potential impacts on health inequalities. With around 27% of men and 35% of women in Scotland not meeting recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week)[25] and 29% of children not meeting the guideline (at least 60 minutes of activity on average per day)[26], the HIIA assesses where the study options can support reduction in health inequalities.

- **Fairer Scotland Duty Assessment (FSDA)**: As a public body, ACC has a legal responsibility when creating new plans and policies to pay due regard to the Fairer Scotland Duty, set out in Part 1 of the Equality Act 2010.[27] The FSDA has been prepared to determine if the options being considered as part of the Multi-Modal Corridor Study might lead to any potential impacts on socio-economically disadvantaged groups and help to reduce inequalities of outcome resulting from socio-economic disadvantage.

The following sections provide a high-level assessment of the potential impacts of the options that are being considered as part of the Multi-Modal Corridor Study.

The assessment is based on the scoring criteria set out in Chapter 8 and takes into account key evidence and issues on protected characteristic groups and other vulnerable groups from publicly available datasets and research studies.

The following options all involve a review of junction layouts/configuration:

- O2 – Review the layout of the Victoria Street/Skene Place Junction;

- O3 – Review the layout of the Riverview Drive/Balloch Way Junction;

- O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction;

[23] Legislation.gov.uk (2010). Equality Act 2010. Available at: Equality Act 2010 (legislation.gov.uk)
[24] Legislation.gov.uk (2014). Children and Young People (Scotland) Act 2014. Available at: Children and Young People (Scotland) Act (legislation.gov.uk)
[25] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[26] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[27] Legislation.gov.uk (2010). Equality Act 2010: Part 1 Socio-Economic Inequalities. Available at: Equality Act 2010 (legislation.gov.uk)

- O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction;
- O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer;
- O8 – Review the layout of the A947/Stoneywood Brae Junction; and
- O10 – Review layout of the A947/McDonalds access road junction.

These include assessing options to simplify traffic movements, reduce kerb radii, address illegal turning manoeuvres and address safety concerns.

In isolation, these options are considered to have overall **neutral impact**s across the suite of Statutory Impact Assessment criteria. The impacts in terms of EqIA, CRWIA, HIIA and FSDA are less tangible and less able to be qualified than the options with specific schemes subject to appraisal.

However, it is noted that in the case of Option O5 (Review the layout of the Riverview Drive/Netherview Avenue Junction), junction improvement could lead to reduced traffic speeds at this junction and a beneficial impact on active travel users, including children travelling to Dyce Academy. At a high level, any junction reconfiguration which improves accessibility for non-motorised users is likely to complement the various active travel options under assessment.

Overall, it is considered that more detailed commentary in terms of EqIA, CRWIA, HIIA and FSDA is not required for these options.

11.2 Equalities Impact Assessment (EqIA)

11.2.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

This option provides the opportunity for improved active travel access between the A947 study area and The Event Complex Aberdeen (TECA), and key trip attractors to the west, including Aberdeen International Airport and any education, employment and leisure facilities. This could enable equality of opportunity for groups with protected characteristics, particularly those on low incomes and without access to a car.

Through the upgrading of the existing path surface to the south and west of TECA to a bound surface and improved wayfinding, there is an opportunity to address mobility issues experienced by protected characteristic groups, especially disabled people and older people.

An uptake in active travel between the A947 study area and TECA (and the other key trip attractors to the west, including Aberdeen International Airport) provides the opportunity to improve physical health and mental wellbeing outcomes. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.[28]

The construction activities associated with the option may result in negative impacts for local communities during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[29] However, it is considered that these impacts would be temporary and limited, particularly given the scope of Option AT26.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

This option provides the opportunity for improved active travel access in the east of the study area between large residential areas in the centre of Dyce and the Riverside Path. Through the provision of a new bound surface, dropped kerbs and tactile paving, there is an opportunity to address mobility issues experienced by protected characteristic groups, namely disabled people and older people.

An uptake in active travel to the Riverside Path from large residential areas provides the opportunity to improve

[28] Halonen, J (2015). Road traffic noise is associated with increased cardiovascular morbidity and mortality and all–cause mortality in London. Available at: Road traffic noise is associated with increased cardiovascular morbidity and mortality and all-cause mortality in London | European Heart Journal | Oxford Academic (oup.com); Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34; and Leiser. C, Hanson. H, Sawyer, K, Steenblik, J, Al-Dulaimi, R, Madsen, T, Gibbins, K, Hotaling, J, Oluseye Ibrahim, Y, VanDerslice, J & Fuller, M (2019) Acute effects of air pollutants on spontaneous pregnancy loss: a case crossover study, Fertility and Sterility, Volume 111, Issue 2, 2019, Pages 341- 347.

[29] Ibid6

physical health and mental wellbeing outcomes. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.[30]

The construction activities associated with the option may result in negative impacts for local communities during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[31] However, it is considered that these impacts would be temporary and limited, particularly given the scope of Option AT31.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

This option provides the opportunity for improved active travel connectivity between Dyce Rail Station and the A947 and the eastern section of Dyce. Introduction of a one-way system on Station Road and adjacent streets provides the opportunity for a contra-flow cycle lane to be adopted. This could increase the safety of cycling by offering alternative routes to busy roads and therefore the attractiveness of cycling for vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men, would be increased.[32]

In addition, despite this option having no direct impact on public transport services and network coverage, the implementation of improved active travel infrastructure may make it easier for people to access rail services in Dyce, especially those on low incomes and without access to a car. Further, women may particularly benefit from improved active travel connections at transport interchanges because they are more likely to make multi-stop journeys by different modes of transport.[33]

An uptake in active travel between Dyce Rail Station and eastern parts of the study area, together with linkages to other active travel networks, provides the opportunity to improve physical health and mental wellbeing outcomes. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit this option is only likely to impact short local journeys and the geographic extent limits the potential for this.

However, the physical constraint imposed by the narrow corridor width would require the retention of the existing 1.5m wide footways. These are considered to provide an absolute minimum acceptable width in line with Roads for All and Inclusive Mobility guidance and should enable a wheelchair user and pedestrian to pass each other.[34,35]

The construction activities associated with the option may result in negative impacts for local communities during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[36] However, it is considered that these impacts would be temporary.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion.

[30] Ibid6
[31] Ibid6
[32] Sustrans (2018). “Are we nearly three yet?” Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[33] Sustrans (2018). “Are we nearly three yet?” Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[34] Transport Scotland, Roads for All: Good Practice Guide for Roads (2013) notes that: “In existing constrained environments and where obstacles are unavoidable, an absolute minimum width of 1500 millimetres may be used without the requirement of a Departure from Standard.” https://www.transport.gov.scot/media/43830/roads-for-all-good-practice-guide-for-roads-july-2013.pdf (Section 4.1.10).
[35] Department for Transport, Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure (2021) notes: “Footways and footpaths should be made as wide as is practicable, but under normal circumstances, a width of 2000mm is the minimum that should be provided, as this allows enough space for two wheelchair users to pass, even if they are using larger electric mobility scooters. If this is not feasible due to physical constraints, then a minimum width of 1500mm could be regarded as the minimum acceptable under most circumstances, as this should enable a wheelchair user and a walker to pass each other.” Whilst Inclusive Mobility is published by the DfT and not directly applicable to Scotland, it can be proposed as best practice. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1044542/inclusive-mobility-a-guide-to-best-practice-on-access-to-pedestrian-and-transport-infrastructure.pdf
[36] Ibid6

11.2.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

This option provides the opportunity for improved active travel facilities on the local road network to the west of the A947 along Bankhead Road, Greenburn Road and Millhill Brae. The implementation of active travel improvements provides an opportunity to address mobility issues experienced by protected characteristic groups, such as disabled people and older people, should option AT35a consider widening pavements to facilitate wheelchair use and cycle paths inclusive of adapted bicycles.[37] Moreover, this option provides an opportunity to engender confidence in underrepresented groups. The implementation of active travel measures which utilise quiet residential streets can be preferable to underrepresented groups than cycling on busy main roads. This would provide further benefit to groups with protected characteristics.

Active travel improvements west of the A947 provide the opportunity to improve physical health and mental wellbeing outcomes. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.

The construction activities associated with the option may result in negative impacts for local communities during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[38] However, it is considered that these impacts would be minor and temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

This option provides the opportunity for improved active travel access to the retail park at the Bucksburn Roundabout through the creation of either a shared use facility between the A947 crossing and the retail park or carriageway width reduction to facilitate a segregated two-way cycleway.

Transport policy has been recognised as providing a key role in helping to tackle inequality and improving opportunities.[39] In particular, this option could offer improved access to key services for those on low incomes and without access to a car. This includes improved access to employment and retail services, with an improved active travel network enabling equality of opportunity for groups with protected characteristics who may otherwise be excluded from access.

Either intervention would also promote an opportunity to address mobility issues experienced by protected characteristic groups, such as disabled people and older people, through the provision of cycle paths inclusive of adapted bicycles and widening footways to benefit wheelchair users. However, the level of direct impact will be dependent on the further design work on the proposed active travel links. Moreover, this option provides an opportunity to engender confidence in cycling amongst vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men.[40]

Noise levels generated during the construction phase of measures proposed as part of this option, including the provision of a shared use path or segregated cycleway, have the potential to impact upon nearby noise sensitive receptors (NSRs) including a small number of residential and business properties adjacent to the A947 between Bucksburn Roundabout and the toucan crossing to the north of the Old Meldrum Road Junction. While this could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women, it is considered that these impacts whilst adverse would be temporary. [41]

An uptake in active travel to the retail park provides the opportunity to improve physical health and mental wellbeing outcomes. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

[37] https://wheelsforwellbeing.org.uk/types-of-cycles/
[38] Ibid
[39] Department for Transport, 2019. Transport and inequality: An evidence review for the Department for Transport, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/953951/Transport_and_inequality_report_document.pdf
[40] Sustrans (2018). "Are we nearly three yet?" Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[41] Ibid

11.2.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

This option would upgrade an existing path between the old and new A947, including widening and providing a bound surface. It additionally considers a proposed new crossing point (to be explored at the next design stage) to improve access between the northbound and southbound bus stops, as well as the widened shared use path being progressed under Option AT58 and would provide linkage to onward active travel opportunities in the study area. These measures provide an opportunity to address mobility issues experienced by protected characteristic groups, especially disabled people and older people.

Moreover, this option provides an opportunity to engender confidence in vulnerable and underrepresented groups, including younger people and vulnerable groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men.[42] However, the geographic extent of this option limits its overall impact when compared to other options, given the focused nature of the improvement.

An uptake in active travel in this area (including as part of multi-modal journeys involving public transport) provides the opportunity to improve physical health and mental wellbeing outcomes. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.

With the geographic extent of this option limiting its overall impact, no significant construction-related impacts would be expected on those with protected characteristics.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

This option provides the opportunity for improved active travel connectivity along the A947 corridor, between the Bucksburn Roundabout and Riverview Drive Roundabout North. Through the promotion of an overall coherent and connected network afforded by this option, there is an opportunity (through the provision of improved active travel infrastructure) to address mobility issues experienced by protected characteristic groups, such as disabled people and older people. Moreover, this option provides an opportunity to engender confidence in vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men.[43] This would provide further benefit to groups with protected characteristics.

An uptake in active travel on this section of the A947 corridor (supporting the promotion of an overall coherent and connected active travel network) provides the opportunity to improve physical health and mental wellbeing outcomes. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people.

The construction activities associated with this option may result in negative impacts for local communities during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[44] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

This option provides the opportunity for improved active travel connectivity by implementing a with-flow segregated cycleway on Old Meldrum Road. Through the introduction of this infrastructure, there is an opportunity to increase the inclusivity of travel in this part of the study area by making it easier for individuals without a car to travel on Old Meldrum Road and address issues experienced by protected characteristic groups. Moreover, this option provides an opportunity to engender confidence in vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men.[45]

Transport policy has been recognised as providing a key role in helping to tackle inequality and improving

[42] Sustrans (2018). “Are we nearly three yet?” Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[43] Sustrans (2018), “Are we nearly three yet?” Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[44] Ibid6
[45] Sustrans (2018). “Are we nearly three yet?” Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf

opportunities.[46] In particular, this option could offer improved access to key services such as employment opportunities in the local area via Old Meldrum Road and linkages to other active travel routes. Therefore, the improved active travel network enables equality of opportunity for groups with protected characteristics who may otherwise be excluded from opportunities.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved. It is anticipated that increased opportunity to travel actively in this part of the study area will have positive impacts on physical health and mental wellbeing.

However, the reduction of on-street parking at the southern end of Old Meldrum Road could affect those who rely on private cars as a mobility aid (disabled people). This group could be disproportionately impacted if they are not able to find suitable parking near services on Old Meldrum Road.

The construction activities associated with this option may result in localised negative impacts on Old Meldrum Road during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[47] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

This option provides the opportunity for improved active travel connectivity by implementing a two-way segregated cycleway on Old Meldrum Road. Through the introduction of this infrastructure, there is an opportunity to increase the inclusivity of travel in this part of the study area by making it easier for individuals to travel without a car on Old Meldrum Road and address issues experienced by protected characteristic groups. Moreover, this option provides an opportunity to engender confidence in groups of people, including younger people and vulnerable groups, who currently do not travel actively due to a lack of sufficient facilities.

Transport policy has been recognised as providing a key role in helping to tackle inequality and improving opportunities.[48] In particular, this option could offer improved access to key services such as employment opportunities in the local area via Old Meldrum Road and linkages to other active travel routes. Therefore, the improved active travel network enables equality of opportunity for groups with protected characteristics who may otherwise be excluded from opportunities.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved. It is anticipated that increased opportunity to travel actively in this part of the study area will have positive impacts on physical health and mental wellbeing.

However, the reduction of on-street parking at the southern end of Old Meldrum Road could affect those who rely on private cars as a mobility aid (disabled people). This group could be disproportionately impacted if they are not able to find suitable parking near services on Old Meldrum Road.

The construction activities associated with this option may result in localised negative impacts on Old Meldrum Road during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[49] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion

11.2.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

Transport policy has been recognised as providing a key role in helping to tackle inequality and improving opportunities.[50] This option provides the opportunity for improved active travel access towards key employment

[46] Department for Transport, 2019. Transport and inequality: An evidence review for the Department for Transport, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/953951/Transport_and_inequality_report_document.pdf
[47] Ibid6
[48] Department for Transport, 2019. Transport and inequality: An evidence review for the Department for Transport, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/953951/Transport_and_inequality_report_document.pdf
[49] Ibid6
[50] Department for Transport, 2019. Transport and inequality: An evidence review for the Department for Transport, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/953951/Transport_and_inequality_report_document.pdf

areas along Dyce Drive and at Kirkhill Industrial Estate. Therefore, the improved active travel network enables equality of opportunity for groups with protected characteristics who may otherwise be excluded from opportunities.

Through the implementation of a shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate, including a reduced speed limit and priority pedestrian crossings on the section of Dyce Drive between Pitmedden Road and the Industrial Estate, there is an opportunity to address mobility issues experienced by protected characteristic groups, especially disabled and elderly people.

Moreover, this option provides an opportunity to engender confidence in vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men.[51]

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including older people and disabled people, dependent on the level of modal shift that can be achieved. It is also anticipated that increased opportunity to travel actively in this area will have positive impacts on physical health and mental wellbeing where use of the shared use path forms part of active journeys to work along Dyce Drive and at Kirkhill Industrial Estate.

With the location of this option being relatively far from Dyce communities, no significant construction-related impacts would be expected on those with protected characteristics.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.11 AT61a – Implement package of active travel measures on Victoria Street

This option provides opportunity to improve accessibility and active travel opportunities in the 'heart' of Dyce, along Victoria Street. Through the implementation of measures such as segregated cycleways and mixed traffic street measures (for example, widening of footways to shared use), there is an opportunity to address mobility issues experienced by protected characteristic groups, such as disabled people and older people. Moreover, this option provides an opportunity to engender confidence in vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men.[52]

This option could offer particular benefits to groups with protected characteristics by enhancing comparative access and transport inclusivity, enabling access to the facilities and amenities that are located along this main route through the centre of Dyce, as well as providing improved connectivity (indirectly) to Dyce Rail Station by active travel. Consideration would need to be given to mitigating any impacts resulting from the sharing of space between vulnerable pedestrians and cyclists.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved. Increased opportunity to travel actively along Victoria Street will also have positive impacts on physical health and mental wellbeing. This will be further supported by the continued redistribution of vehicular traffic to the A947 route via Riverview Drive, following the reclassification of the Roads Hierarchy.

The construction activities associated with the option may result in negative impacts in the centre of Dyce. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[53] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **moderate positive impact** on this criterion.

11.2.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

This option provides the opportunity for streetscape improvements and widened pavements on Mugiemoss Road. The implementation of quiet route' measures would reduce road and personal safety concerns for active travel users, including children. Further, the implementation of active travel quiet routes which utilise quiet residential streets can be preferable to vulnerable and underrepresented cyclists than using busy main roads, such as women, who are less likely to cycle than men.[54]

[51] Sustrans (2018). "Are we nearly three yet?" Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[52] Sustrans (2018). "Are we nearly three yet?" Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[53] Ibid6
[54] Sustrans (2018). "Are we nearly three yet?" Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf

This option may marginally improve comparative access and transport inclusivity for protected characteristic groups through directly and indirectly increasing access to employment opportunities in the local area, and through linkages to other active travel routes, which are important to many groups with protected characteristics.

An uptake in active travel provides the opportunity to improve physical health and mental wellbeing outcomes. There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including older people and disabled people, albeit the geographic extent of this option limits the potential for this.

The construction activities associated with this option may result in localised negative impacts on Mugiemoss Road during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, older people, disabled people, and pregnant women.[55] However, it is considered that these impacts would be temporary.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion.

11.2.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

This option seeks to investigate the timings of existing traffic signals along the A947 corridor to help improve traffic flow through the junctions for all users.

The implementation of bus priority, with associated improvements to bus journey times and journey time reliability, would particularly benefit those without access to a private car who are more reliant on public transport networks, such as those on low incomes, disabled people and elderly people. More reliable and quicker public transport options can help to improve connectivity to key services such as employment, education, healthcare and shopping for these groups.

An uptake in public transport usage may additionally improve physical health and mental wellbeing outcomes if more people are using active modes to access the public transport network, although the impact of this is not expected to be significant. There may also be air quality improvements if the uptake in public transport usage is matched by a reduction in private vehicle use and traffic congestion. Improved health outcomes as a result of better air quality are of particular benefit to those who are more vulnerable to air pollution, including children, older people, pregnant women and disabled people.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.2.14 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

This option provides the opportunity to implement a package of measures to support the implementation of a 20-minute neighbourhood in Dyce. While further assessment of the project area is required, the implementation of measures to support a 20-minute neighbourhood is likely to improve conditions for local active travel and deliver social and community benefits including reduced road and personal safety concerns for active travel users, including those with protected characteristics. This option provides an opportunity to engender confidence in vulnerable and underrepresented groups who currently do not travel actively due to a lack of sufficient facilities, such as women, who are less likely to cycle than men.[56]

Further, women may benefit from the implementation of a 20-minute neighbourhood because they are more likely to make multi-stop and multi-purpose trips, combining travel to work with trips for other purposes such as taking children to school, looking after family members or shopping.[57]

There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved.

It is also anticipated that Option O16 would promote inclusivity by enhancing how connected local residents in Dyce feel with their local community. This could improve mental health and wellbeing particularly for elderly and disabled residents who rely on local social networks and family ties for assistance and interaction.

Overall, this option would be expected to have a **moderate positive impact** on this criterion.

[55] Ibid6
[56] Sustrans (2018). “Are we nearly three yet?” Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf
[57] Sustrans (2018). “Are we nearly three yet?” Exploring gender and active travel. Available at: https://www.sustrans.org.uk/media/2879/2879.pdf

11.2.15 O25 – Implement access only restrictions for general traffic on Victoria Street

The reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of access only restrictions for general traffic on Victoria Street.

Those who rely on private vehicles as a mobility aid (elderly and disabled people) may be affected if their journey times are increased or if routes are diverted through this option.

However, this option provides an opportunity to engender confidence in vulnerable and underrepresented groups by creating a space within the centre of Dyce which is more attractive for walking, wheeling and cycling. This would support improvement in road user safety.

There may be additional health benefits resulting from improved air quality due to reduced emissions attributed to removing vehicular traffic from the Victoria Street area. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people.

Further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers[58], particularly where access only restrictions place a constraint on accessibility for those who are not able to travel by active and sustainable modes of transport. Future consultation will need to engage people with protected characteristics to ensure their needs are represented.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion, subject to further development.

11.2.16 O26 – Implement one-way restrictions for general traffic on Victoria Street

The reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of one-way restrictions for general traffic on Victoria Street.

The implementation of one-way restrictions for general traffic on Victoria Street would be expected to reduce traffic levels and hence reduce road and personal safety concerns for active travel users, including younger people and vulnerable groups. This would provide an opportunity to engender confidence in vulnerable and underrepresented groups by creating a space within the centre of Dyce which is more attractive for walking, wheeling and cycling.

Further assessment is required to better understand the impacts this option would have on residents, local businesses, and key transport service providers, however, relative to Option O25, vehicular access along Victoria Street would continue to be enabled under this option. Future consultation will need to engage people with protected characteristics to ensure their needs are represented.

Furthermore, there may be additional health benefits resulting from improved air quality due to reduced emissions attributed to reduced levels of general traffic on Victoria Street. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion, subject to further development.

[58] It is assumed that public transport (bus) access would continue to be provided as part of this option

11.3 Children's Rights and Wellbeing Impact Assessment (CRWIA)

11.3.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

This option is likely to lead to some benefits for children due to the promotion of improved active travel access across a section of the study area.

There may be health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, albeit the geographic extent of this option limits the potential for this. Further, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

The construction activities associated with this option may result in negative impacts during the construction stage. This could lead to some negative impacts on groups who are more vulnerable to noise, vibration, and air quality such as children.[59] However, it is considered that these impacts would be temporary and limited, particularly given the scope of Option AT26.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

This option is likely to lead to some benefits for children due to the improved active travel access to the Riverside Path from residential areas. This option could also improve road safety for children and young people in this area – safety is a key issue for children with regards to transport. Child pedestrian casualties in Scotland in 2022 accounted for 32% of all pedestrian casualties of all ages (295 out of 912).[60] In particular, children from deprived areas and certain ethnic groups are more at risk.

There may be health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, albeit the geographic extent of this option limits the potential for this. However, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

With the focus of this option being on improving links to the Riverside Path, there are unlikely to be any significant impacts on journeys to/from Dyce Academy and Dyce Primary, although Option AT31 will contribute to a more accessible active travel environment as a whole in the part of the study area where the Academy is located.

The construction activities associated with this option may result in negative impacts for local communities during the construction stage. This could lead to some negative impacts on groups who are more vulnerable to noise, vibration, and air quality such as children.[61] However, it is considered that these impacts would be temporary and limited, particularly given the scope of Option AT31.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

This option is likely to lead to some benefits for children due to the promotion of improved active travel journeys between Dyce Rail Station and the A947 and the eastern section of Dyce. This option could also improve road safety for children and young people in this area – safety is a key issue for children with regards to transport. Child pedestrian casualties in Scotland in 2022 accounted for 32% of all pedestrian casualties of all ages (295

[59] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

[60] Transport Scotland (October 2023): Reported Road Casualties Scotland 2022. Available at: https://www.transport.gov.scot/media/fpxp1oxz/view-reported-road-casualties-scotland-2022-full-pdf-version-including-datasets.pdf

[61] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

out of 912).[62] In particular, children from deprived areas and certain ethnic groups are more at risk.

There may be health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, albeit the geographic extent of this option limits the potential for this. However, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

Active travel to school for pupils in Scotland decreased from 50.4% in 2014 to 47.8% in 2019.[63] Option AT33 could have an indirect positive impact on trips to and from Dyce Primary School as a result of potential increased uptake of cycling to school by pupils.

The construction activities associated with this option may result in negative impacts for local communities during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children.[64] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

This option is likely to result in positive impacts for children due to a reduction in the perceived danger of road accidents and casualties as well as reduced personal road safety concerns as a result of the implementation of the mixed-traffic street measures (which allows for safe, on-road cycling), including on Greenburn Road which acts as one of the main access points for Stoneywood School.

There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, albeit the geographic extent of this option limits the potential for this. However, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

The construction activities associated with this option may result in negative impacts for local communities during the construction stage. This could lead to some negative impacts on groups who are more vulnerable to noise, vibration, and air quality such as children.[65] However, it is considered that these impacts would be minor and temporary, particularly given the scope of Option AT35a.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

This option is likely to lead to some benefits for children due to the promotion of improved active travel access to the retail park. This option could also improve road safety for children and young people in this area – safety is a key issue for children with regards to transport. Child pedestrian casualties in Scotland in 2022 accounted for 32% of all pedestrian casualties of all ages (295 out of 912).[66] In particular, children from deprived areas and certain ethnic groups are more at risk.

There may be health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution,

[62] Transport Scotland (October 2023): Reported Road Casualties Scotland 2022. Available at: https://www.transport.gov.scot/media/fpxp1oxz/view-reported-road-casualties-scotland-2022-full-pdf-version-including-datasets.pdf

[63] Sustrans (2020). Travel to School in Scotland Hands up Scotland Survey 2019. Available at: https://www.sustrans.org.uk/media/6692/hands-up-scotland-survey-2019_national-summary-report.pdf

[64] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

[65] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

[66] Transport Scotland (October 2023): Reported Road Casualties Scotland 2022. Available at: https://www.transport.gov.scot/media/fpxp1oxz/view-reported-road-casualties-scotland-2022-full-pdf-version-including-datasets.pdf

including children, albeit the geographic extent of this option limits the potential for this. However, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

Noise levels generated during the construction phase of measures proposed as part of this option, including the provision of a shared use path or segregated cycleway, have the potential to impact upon nearby noise sensitive receptors (NSRs) including a small number of residential and business properties adjacent to the A947 between Bucksburn Roundabout and the toucan crossing to the north of the Old Meldrum Road Junction. While this could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children, it is considered that these impacts whilst adverse would be temporary.[67]

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

This option is likely to lead to some benefits for children due to the promotion of improved active travel access in this part of the study area, with added benefit of improving access to, and between, bus stop infrastructure.

However, overall, no significant impacts are expected on this criterion, due to the local scale and targeted nature of these improvements. The geographic extent of this option limits the potential for additional health benefits for children resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles.

Overall, this option would be expected to have a **neutral impact** on this criterion.

11.3.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

This option is likely to lead to some benefits for children due to the promotion of improved active travel access across the study area. This option could improve road safety for children and young people in this area – safety is a key issue for children with regards to transport. Child pedestrian casualties in Scotland in 2022 accounted for 32% of all pedestrian casualties of all ages (295 out of 912).[68] In particular, children from deprived areas and certain ethnic groups are more at risk.

There may be health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children. The habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

The construction activities associated with this option may result in negative impacts for local communities during the construction stage. This could lead to some negative impacts on groups who are more vulnerable to noise, vibration, and air quality such as children.[69] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

This option is likely to lead to benefits for children due to the promotion of improved active travel journeys to onward locations such as Dyce. The implementation of segregated cycle facilities would reduce road and personal safety concerns for users, including children. However, the geographic extent of this option limits its overall impact.

There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, dependent on the level of modal shift that can be achieved. The habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

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[67] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

[68] Transport Scotland (October 2023): Reported Road Casualties Scotland 2022. Available at: https://www.transport.gov.scot/media/fpxp1oxz/view-reported-road-casualties-scotland-2022-full-pdf-version-including-datasets.pdf

[69] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

The construction activities associated with this option may result in localised negative impacts on Old Meldrum Road during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children.[70] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

This option is likely to lead to benefits for children due to the promotion of improved active travel journeys to onward locations such as Dyce. The implementation of segregated cycle facilities would reduce road and personal safety concerns for users, including children. However, the geographic extent of this option limits its overall impact.

There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, dependent on the level of modal shift that can be achieved. The habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

The construction activities associated with this option may result in localised negative impacts on Old Meldrum Road during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children.[71] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

The implementation of shared use paths would reduce road and personal safety concerns for active travel users, including children, however with the location of this option being relatively far from Dyce communities, and generally focussing on links to employment areas in Dyce, there are no significant impacts expected on this criterion.

Overall, this option would be expected to have a **neutral impact** on this criterion.

11.3.11 AT61a – Implement package of active travel measures on Victoria Street

This option is likely to lead to benefits for children due to the promotion of improved active travel journeys in the centre of Dyce, with improved user safety promoted by cycling on segregated cycleways.

There may be health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, dependent on the level of modal shift that can be achieved. The habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population. Option AT61a could also have an indirect positive impact on trips to and from Dyce Primary School, which is located close to Victoria Street along Gordon Terrace.

The construction activities associated with the option may result in negative impacts in the centre of Dyce. The construction could have a negative impact on groups who are more vulnerable to noise, vibration and air quality, such as children.[72] However, it is considered that these impacts would be temporary.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

[70] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

[71] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

[72] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

11.3.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

This option is likely to lead to some benefits for children due to the improved level of accessibility along Mugiemoss Road. The implementation of quiet route measures would reduce road and personal safety concerns for active travel users, including children. The implementation of active travel quiet routes which utilise quiet residential streets can be preferable to less experienced and vulnerable cyclists than using busy main roads. However, the geographic extent of this option limits its overall impact.

The construction activities associated with this option may result in localised negative impacts on Mugiemoss Road during the construction stage. The construction could have a negative impact on groups who are more vulnerable to noise, vibration, and air quality such as children.[73] However, it is considered that these impacts would be temporary.

Overall, on balance, this option would be expected to have a **neutral impact** on this criterion.

11.3.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

The implementation of bus priority is unlikely to affect journeys to schools in the study area and therefore a negligible impact on children and young people would be expected.

However, whilst the main focus of this option is promoting increased bus usage through bus priority at all traffic signals along the A947, there may be marginal health benefits associated, with, for example, increased walking or cycling to access bus services. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles and reduced congestion. This in turn can make communities more attractive and have benefits on the health and wellbeing of children. However, the scale of these benefits for children and young people is unlikely to be significant.

Overall, this option would be expected to have a **neutral impact** on this criterion.

11.3.14 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

This option is likely to lead to benefits for children due to the promotion of more pleasant, accessible, safe communities, and improved provision for active travel journeys in Dyce. The habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population. It is anticipated that Option O16 would also support increased active travel journeys to and from educational establishments, for example Dyce Primary and Dyce Academy.

There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, dependent on the level of modal shift that can be achieved.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.3.15 O25 – Implement access only restrictions for general traffic on Victoria Street

This option is likely to lead to some benefits for children by creating a space within the centre of Dyce which is more attractive for walking, wheeling and cycling. This would support improvement in road user safety. Further assessment is required to better understand the impacts this option would have on access to, for example, Dyce Primary School.

There may be additional health benefits resulting from improved air quality due to reduced emissions attributed to removing vehicular traffic from the Victoria Street area. This could benefit those who are more vulnerable to air pollution, including children. Further, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion, subject to further development.

[73] Hjortebjerg, D., Anderson, A.M., Christensen, J.S., Ketzel, M., RaaschouNielsen, O., Sunyer, J., Julvez, J., Forns, J. and Sorensen, M. (2015) 'Exposure to Road Traffic Noise and Behavioral Problems in 7-Year-Old Children: A Cohort Study' Environmental Health Perspectives, 124(2): 228-34

11.3.16 O26 – Implement one-way restrictions for general traffic on Victoria Street

This option is likely to lead to some benefits for children by creating a space within the centre of Dyce which is more attractive for walking, wheeling and cycling. This would support improvement in road user safety. Further assessment is required to better understand the impacts this option would have on access to, for example, Dyce Primary School – traffic flow analysis would be required to determine the preferred direction of one-way restrictions on Victoria Street based on capacity for entering/exiting.

There may be additional health benefits resulting from improved air quality due to reduced emissions attributed to reduced levels of general traffic on Victoria Street. This could benefit those who are more vulnerable to air pollution, including children. Further, the habit-forming effect of embedding active travel at a younger age has the potential to have longer-term health benefits, in terms of moving to a more active population.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion, subject to further development.

11.4 Health Inequalities Impact Assessment (HIIA)

11.4.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

This option provides the opportunity for improved active travel access between the A947 study area and TECA, and key trip attractors to the west, including Aberdeen International Airport. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health, as well as having beneficial impacts on mental health and wellbeing.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.

This option, through enabling and facilitating active travel, is also anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[74] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[75] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[76]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

With the geographic focus of this option being in the west of the study area, there are unlikely to be any significant direct impacts on access to health and wellbeing facilities. However, the improved active travel facilities associated with this option could promote access to green spaces such as Stoneyton Park and the Former Rowett Institute Trail (TECA Trail), which has been known to improve mental wellbeing.[77]

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

This option provides the opportunity for improved active travel access in the east of the study area between large residential areas in the centre of Dyce and the Riverside Path. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health, as well as having beneficial impacts on mental health and wellbeing.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.[78] However, overall, it is anticipated that improved accessibility to the Riverside Path from large residential areas will have positive impacts on physical health and mental wellbeing.

[74] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[75] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[76] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[77] Pasanen, T. et al (2023). Urban green space and mental health among people living alone: The mediating roles of relational and collective restoration in an 18-country sample. Environmental Research, Volume 232, 116324.
[78] Ibid6

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[79] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[80] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[81]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

With the focus of this option being on improving links to the Riverside Path, there are unlikely to be any significant direct impacts on access to health and wellbeing facilities. However, through improved accessibility to the Riverside Path, Option AT31 would promote improved access to blue and green spaces around the River Don which has been known to improve mental wellbeing (and, as a result, would indirectly support onward journeys to Seaton Park and the centre of Aberdeen via NCN1).[82]

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

This option provides the opportunity for improved active travel connectivity between Dyce Rail Station and the A947 and the eastern section of Dyce. An uptake in active travel, especially for short local journeys, could have a big impact on improved physical health and mental wellbeing outcomes. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity, as well as having beneficial impacts on mental health and wellbeing.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the focus on short local journeys and geographic extent of this option limits the potential for this.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[83] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[84] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[85]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

With the geographic focus of this option being around Dyce Rail Station and the eastern section of Dyce, there are unlikely to be any significant impacts on access to health and wellbeing facilities, but the option could facilitate access to health and wellbeing infrastructure outwith the study area through improved links to Dyce Rail Station.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

This option provides the opportunity for improved active travel facilities on the local road network to the west of the A947 along Bankhead Road, Greenburn Road and Millhill Brae. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health, as well as having beneficial impacts on mental health and wellbeing.

[79] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[80] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[81] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[82] Pasanen, T. et al (2023). Urban green space and mental health among people living alone: The mediating roles of relational and collective restoration in an 18-country sample. Environmental Research, Volume 232, 116324.
[83] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[84] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[85] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[86] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[87] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[88]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

With the geographic focus of this option being in the west of the study area, there are unlikely to be any significant impacts on access to health and wellbeing facilities. However, the improved active travel facilities associated with this option would promote access to green spaces, such as Stoneyton Park and green spaces to the west of Greenburn Road, which has been known to improve mental wellbeing.[89]

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

This option provides the opportunity for improved active travel access to the retail park at the Bucksburn Roundabout. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health, as well as having beneficial impacts on mental health and wellbeing.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[90] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[91] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[92]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

There may be some indirect benefits associated with access to health and wellbeing facilities such as the Inverurie Road Clinic. Improved access to blue and green spaces (for example, the River Don) could also have a **minor positive impact** on health and wellbeing, particularly for employees of the retail park at the Bucksburn Roundabout.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

This option provides the opportunity for improved active travel access between the old and new A947 and provides linkage to the wider active travel network. Access to active travel and transport systems that encourage active living (including as part of multi-modal journeys involving public transport) and regular physical activity is an important factor in combatting obesity and improving physical health, as well as having beneficial impacts on mental health and wellbeing.

[86] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[87] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[88] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[89] Pasanen, T. et al (2023). Urban green space and mental health among people living alone: The mediating roles of relational and collective restoration in an 18-country sample. Environmental Research, Volume 232, 116324.
[90] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[91] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[92] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, albeit the geographic extent of this option limits the potential for this.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[93] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[94] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[95]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

With the geographic extent of this option limiting its overall impact, there are unlikely to be any significant impacts on access to health and wellbeing facilities attributable to this option in isolation.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

This option provides the opportunity for improved active travel connectivity along the A947 corridor, between the Bucksburn Roundabout and Riverview Drive Roundabout North. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. The increased opportunity to travel actively on this section of the A947 corridor (supporting the promotion of an overall coherent and connected active travel network) will also have beneficial impacts on mental health and wellbeing.

Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[96] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[97] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[98]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area (e.g. Gilbert Road Medical Group and the Inverurie Road Clinic), however the option on its own would not provide improved access directly to these facilities.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

This option provides the opportunity for improved active travel connectivity by implementing a with-flow segregated cycleway on Old Meldrum Road. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims

[93] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[94] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[95] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[96] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[97] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

[98] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26[99] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[100] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[101]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

There may be some indirect benefits associated with access to health and wellbeing facilities such as the Gilbert Road Medical Group, which is located to the west of Old Meldrum Road. Improved access to green spaces, for example to the Auchmill Nature Walk on the north side of Auchmill Road, could also have a **minor positive impact** on health and wellbeing. There could be wider benefits on access to green space to the south of Auchmill Road opposite the Old Meldrum Road Junction outwith the study area.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

This option provides the opportunity for improved active travel connectivity by implementing a two-way segregated cycleway on Old Meldrum Road. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[102] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[103] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day)[104]. Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

There may be some indirect benefits associated with access to health and wellbeing facilities such as the Gilbert Road Medical Group, which is located to the west of Old Meldrum Road. Improved access to green spaces, for example to the Auchmill Nature Walk on the north side of Auchmill Road, could also have a **minor positive impact** on health and wellbeing. There could also be wider benefits on access to green space to the south of Auchmill Road opposite the Old Meldrum Road Junction outwith the study area.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

It is anticipated that increased opportunity to travel actively in this area will have positive impacts on physical health and mental wellbeing where use of the shared use path forms part of active journeys to work along Dyce Drive and at Kirkhill Industrial Estate. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. Furthermore, there may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including older people and disabled people, dependent on the level of modal shift that can be achieved.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[105] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150

[99] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[100] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[101] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[102] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[103] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[104] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[105] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)

minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[106] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day).[107] Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

With the location of this option being relatively far from Dyce and its associated facilities and amenities, there are unlikely to be any significant impacts on access to health and wellbeing facilities.

This option could indirectly improve access to blue and green spaces in the vicinity of the River Don, which could have a **minor positive impact** on health and wellbeing, particularly for employees of the business units located adjacent to Dyce Road and within Kirkhill Industrial Estate, as well as facilitating trips between Kirkhill Industrial Estate and the Formartine & Buchan Way.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.4.11 AT61a – Implement package of active travel measures on Victoria Street

This option provides opportunity to improve accessibility and active travel opportunities in the 'heart' of Dyce, along Victoria Street. There may be health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved. Increased opportunity to travel actively along Victoria Street will have positive impacts on physical health and mental wellbeing. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. This will be further supported by the continued redistribution of vehicular traffic to the A947 route via Riverview Drive, following the reclassification of the Roads Hierarchy.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[108] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[109] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day).[110] Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

This option would be expected to improve access for those walking, wheeling or cycling to GP surgeries and health centres in the centre of Dyce (for example New Dyce Medical Practice) for those living in proximity to Victoria Street, and indirectly via improved active travel links within relatively close proximity to Dyce Rail Station for onward links to facilities in the wider area.

This option could also improve access to green spaces, for example Dyce Boys & Girls Club, Dyce Bowling Club and play parks (and to a lesser extent, Central Park, located to the east of the Victoria Street area), which could have a positive impact on health and wellbeing, particularly for local residents and employees of businesses located along Victoria Street.

Overall, this option would be expected to have a **moderate positive impact** on this criterion.

11.4.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

This option provides the opportunity for streetscape improvements and widened pavements on Mugiemoss Road. An uptake in active travel provides the opportunity to improve physical health and mental wellbeing outcomes. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including older people and disabled people, albeit the geographic extent of this option limits the potential for this.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims

[106] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[107] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[108] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[109] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[110] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[111] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[112] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day).[113] Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

It is anticipated that this option could contribute to improved access to health and wellbeing facilities for those walking, wheeling or cycling, such as to GP surgeries and health centres in the local area, however the option on its own would not provide improved access directly to these facilities.

Improved access to green and blue spaces (for example paths and trails alongside the River Don) could also have a **minor positive impact** on health and wellbeing. However, with the geographic extent of this option limiting its overall impact, there are unlikely to be any significant impacts on access to health and wellbeing facilities.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion.

11.4.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

Whilst the main focus of this option is on promoting bus usage through bus priority at all traffic signals along the A947, there may be marginal health benefits associated, with, for example, increased walking or cycling to access bus services. Furthermore, evidence shows that car commuters are more likely to suffer from strain and lack of concentration in comparison to those who use public transport. This is due to increased physical activity from walking, wheeling, or cycling to access public transport services, mental health benefits from relaxing, reading or socialising whilst riding on the service, and an increased level of social connection associated with travelling alongside other users of the service. However, the impact of this is not expected to be significant.

There may be additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles and reduced congestion through junctions for all users. This in turn can make communities more attractive and have associated benefits on health and wellbeing for those more vulnerable to air pollution, including children, older people, pregnant women and disabled people.[114] Changes to air quality would vary along the road network depending on traffic flows and would be dependent on the level of modal shift that is achieved. Further detailed assessment would be required to calculate and model local air quality emissions alongside traffic flow data.

Improved bus journey times could facilitate better access to health and wellbeing facilities for those travelling by bus, especially those without access to any other means of travel. This could also potentially support onward connections to health and wellbeing infrastructure outwith the study area.

Improved access to blue spaces (for example the River Don) and green spaces (for example paths and trails alongside the River Don, Ian Mair Park, Dyce Boys & Girls Club, Dyce Bowling Club and play parks) could also have a positive impact on health and wellbeing, particularly for local residents and employees of businesses located along the corridor.

At this stage, on balance, this option would be expected to have an overall **minor positive impact** on this criterion.

11.4.14 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

This option is likely to lead to benefits for residents of Dyce due to the promotion of improved active travel environments as a result of implementing 20-minute neighbourhoods. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health. There may additional health benefits resulting from improved air quality in the area due to reduced emissions attributed to modal shift away from private vehicles. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people, dependent on the level of modal shift that can be achieved.

This option, through enabling and facilitating active travel, is also anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[115] Around 27%

[111] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[112] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[113] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[114] Ibid6
[115] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)

of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[116] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day).[117] Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

It is also anticipated that Option O16 would promote inclusivity by enhancing how connected local residents in Dyce feel with their local community. Improved public realm allows for people to gather and socialise and studies have linked the quality of public spaces to people's perceptions of attractiveness of an area, contributing towards their quality of life. By creating more pleasant, accessible, safe communities, this option would help realise these outcomes.

It is anticipated that this option would improve direct access to health and wellbeing facilities, such as New Dyce Medical Practice, for those walking, wheeling and cycling, and indirectly via improved active travel links to transport stops and hubs (for example Dyce Rail Station), for onward links to facilities in the wider area.

This option could also improve access to blue and green spaces, for example paths and trails alongside the River Don and to a range of recreational spaces across the study area, which could have a positive impact on health and wellbeing, particularly for local residents and employees of businesses within Dyce.

Overall, this option would be expected to have a **moderate positive impact** on this criterion.

11.4.15 O25 – Implement access only restrictions for general traffic on Victoria Street

This option is likely to have positive impacts on health and wellbeing, by creating a space within the centre of Dyce which is more attractive to those walking, wheeling and cycling, due to the removal of vehicular traffic. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health.

Furthermore, there may be additional health benefits resulting from improved air quality due to reduced emissions attributed to removing vehicular traffic from the Victoria Street area. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[118] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[119] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day).[120] Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

Further assessment is required to better understand the impacts this option would have on access to health and wellbeing facilities (including New Dyce Medical Practice) and green spaces (for example Dyce Boys & Girls Club, Dyce Bowling Club and play parks (and to a lesser extent, Central Park, located to the east of the Victoria Street area)).

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion. This should be kept under review as designs are developed, particularly in terms of the impact this option could have on access to health and wellbeing facilities and blue and green spaces.

11.4.16 O26 – Implement one-way restrictions for general traffic on Victoria Street

This option is likely to have positive impacts on health and wellbeing, by creating a space within the centre of Dyce which is more attractive to those walking, wheeling and cycling. Access to active travel and transport systems that encourage active living and regular physical activity is an important factor in combatting obesity and improving physical health.

[116] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[117] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[118] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[119] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[120] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/

There may be additional health benefits resulting from improved air quality due to reduced emissions attributed to reduced levels of general traffic on Victoria Street. This could benefit those who are more vulnerable to air pollution, including children, older people and disabled people.

This option, through enabling and facilitating active travel, is anticipated to contribute to the Physical Health aims for the Aberdeen North area, as set out in the Aberdeen City – North: Locality Plan 2021-26.[121] Around 27% of men and 35% of women in Scotland do not meet recommended guidelines for physical activity (at least 150 minutes of moderate physical activity, 75 minutes of moderate to vigorous activity, or an equivalent combination between the two per week).[122] 29% of children do not meet the guideline (at least 60 minutes of activity on average per day).[123] Walking, wheeling and cycling can be one of the easiest ways to incorporate activity into daily routine and reduce health inequality.

Further assessment is required to better understand the impacts this option would have on access to health and wellbeing facilities (including New Dyce Medical Practice) and green spaces (for example Dyce Boys & Girls Club, Dyce Bowling Club and play parks (and to a lesser extent, Central Park, located to the east of the Victoria Street area)), however, relative to Option O25, vehicular access along Victoria Street will continue to be enabled under this option. Traffic flow analysis would be required to determine the preferred direction of one-way restrictions on Victoria Street based on capacity for entering/exiting.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion, subject to further development.

11.5 Fairer Scotland Duty Assessment (FSDA)

11.5.1 AT26 – Improve active travel connectivity between the A947 study area and TECA

This option could provide a beneficial impact in tackling inequalities experienced by socio-economically disadvantaged groups. It could help to support reduced social isolation, improved health and wellbeing and deliver consequential positive impacts on improving active travel access between the A947 study area and TECA, and key trip attractors to the west, including Aberdeen International Airport.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[124] Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. Therefore, the provision of an affordable active travel network could positively impact socio-economically disadvantaged groups who could otherwise be excluded from opportunities.[125]

There is one data zone in the study area which is ranked within the fourth lowest Scottish Index of Multiple Deprivation (SIMD) decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. The measures included within this option may enable this area to be better served by improved active travel provision. This could improve accessibility to leisure activities (e.g. events at TECA) for those most in need.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.5.2 AT31 – Improve active travel links between the Riverside Path and housing within Dyce

A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including data zones at high risk of transport poverty within the vicinity of this option around the northern section of Riverview Drive. Improved accessibility to the Riverside Path from residential areas could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups. As a result, the option can help in supporting reduced social isolation, improved health and wellbeing and consequential positive impacts on improving accessibility between where people live in Dyce and recreational assets such as the Riverside Path.

Overall, however, considering the scale of impact and recognising that this option formalises an existing, albeit

[121] Community Planning Aberdeen (2021). Aberdeen City – North: Locality Plan 2021-2026. Available at: Final-Aberdeen-City-Locality-North-1.2.pdf (communityplanningaberdeen.org.uk)
[122] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[123] Scottish Health Survey, 2021, https://www.gov.scot/publications/scottish-health-survey-2021-volume-1-main-report/pages/11/
[124] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[125] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf

informal, active travel desire line and does not provide new linkage, this option would be expected to have a **neutral impact** on this criterion.

11.5.3 AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones at high risk of transport poverty towards the north of Victoria Street and medium risk of transport poverty on either side of Station Road. Improved active travel links supporting enhanced connections between Dyce Rail Station and eastern areas of Dyce along Station Road could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups. The option could help in supporting reduced social isolation, improved health and wellbeing and consequential positive impacts on improving access to Dyce Rail Station for all users.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[126] Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. Therefore, the provision of a safe and affordable active travel network linking to the local public transport network at Dyce Rail Station could positively impact socio-economically disadvantaged groups who could otherwise be excluded from opportunities.[127]

Overall, considering the scale of impact, this option would be expected to have a **minor positive impact** on this criterion.

11.5.4 AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Improved active travel facilities supporting improved active travel accessibility in the west of the study area could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups. As a result, the option can help in supporting reduced social isolation and improved health and wellbeing.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[128] Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. Therefore, the provision of a safe and affordable active travel network could positively impact socio-economically disadvantaged groups who could otherwise be excluded from opportunities.[129]

There is one data zone in the study area which is ranked within the fourth lowest Scottish Index of Multiple Deprivation (SIMD) decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. The measures included within this option may enable this area to be better served by improved active travel provision.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.5.5 AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

Improved active travel facilities supporting improved connectivity to the retail park could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups. Transport is seen as an essential component for low-income families to access essential services and employment as a means of escaping poverty, as well as supporting their general wellbeing.[130] As a result, the option can help in supporting reduced social isolation, improved health and wellbeing and consequential positive impacts on improving access to this key destination.

[126] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[127] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[128] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[129] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[130] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf

Access to transport is shaped by three key factors: affordability, accessibility, and individual household circumstances. Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. Therefore, the provision of an affordable active travel network could positively impact socio-economically disadvantaged groups who could otherwise be excluded from opportunities.[131]

There is one data zone in the study area which is ranked within the fourth lowest Scottish Index of Multiple Deprivation (SIMD) decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. The measures included within this option may enable this area to be better served by improved active travel provision. This could improve accessibility to key amenities at the retail park for those most in need.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.5.6 AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones at high risk of transport poverty on either side of the A947 at this location in the study area. This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, through improved active travel links and linkage between the northbound and southbound bus stops in this location, as well as the widened shared use path being progressed under Option AT58. As a result, the option can help in supporting reduced social isolation and improved health and wellbeing.

However, overall, considering the scale of impact this option would be expected to have a **minor positive impact** on this criterion.

11.5.7 AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, with improved active travel facilities supporting the promotion of an overall coherent and connected active travel network along the A947 corridor. As a result, the option can help in supporting reduced social isolation, improved health and wellbeing and consequential positive impacts on improving active travel access on the study corridor.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[132] Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. Therefore, the provision of a safe and affordable active travel network could positively impact socio-economically disadvantaged groups who could otherwise be excluded from opportunities.[133]

There is one data zone in the study area which is ranked within the fourth lowest Scottish Index of Multiple Deprivation (SIMD) decile according to the 2020 figures. This is concentrated in the Bankhead area immediately east of TECA. The measures included within this option may enable this area to be better served by improved active travel provision.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.5.8 AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, through improved active travel links. As a result, the option can help in supporting reduced social isolation and improved health and wellbeing.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[134] A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, although data zones in the vicinity of this option are generally identified to

[131] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[132] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[133] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[134] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf

be at low risk of transport poverty. Therefore, while the provision of an affordable active travel network could positively impact socio-economically disadvantaged groups who could otherwise be excluded from opportunities, the level of impact is dependent on the scale of transport poverty in the local area.[135]

Overall, considering the scale of impact, this option would be expected to have a **neutral impact** on this criterion.

11.5.9 AT52 – Implement two-way segregated cycleway on Old Meldrum Road

This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, through improved active travel links. As a result, the option can help in supporting reduced social isolation and improved health and wellbeing.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[136] A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, although data zones in the vicinity of this option are generally identified to be at low risk of transport poverty. Therefore, while the provision of an affordable active travel network could positively impact socio-economically disadvantaged groups who could otherwise be excluded from opportunities, the level of impact is dependent on the scale of transport poverty in the local area.[137]

Overall, considering the scale of impact, this option would be expected to have a **neutral impact** on this criterion.

11.5.10 AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, through improved active travel links. As a result, the option can help in supporting reduced social isolation and improved health and wellbeing through access to employment.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[138] A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at high risk of transport poverty in and around Dyce Drive. This option would be anticipated to provide improved active travel provision for trips on Dyce Drive between the A947 and Kirkhill Industrial Estate, as an alternative to motorised transport.

Overall, however, considering the scale of impact, this option would be expected to have a **neutral impact** on this criterion.

11.5.11 AT61a – Implement package of active travel measures on Victoria Street

This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, through improved active travel links. As a result, the option can help in supporting reduced social isolation and improved health and wellbeing.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[139] A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty on either side of Victoria Street.

This option includes the primary residential and commercial section of Victoria Street and would be anticipated improve active travel provision for short- to medium-distance trips to leisure, education and employment opportunities in the local area. This could particularly impact those without access to any other means of transport and who would otherwise be unable to access key services, as an alternative to motorised transport.

[135] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[136] Transport Scotland, 2021, Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[137] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[138] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[139] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf

Overall, considering the function of Victoria Street as the 'heart' of Dyce, this option would be expected to have a **minor positive impact** on this criterion.

11.5.12 AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, although data zones within the vicinity of this option are generally identified to be at low risk of transport poverty. This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, with improved accessibility along Mugiemoss Road. As a result, the option, to a certain extent, can help in supporting reduced social isolation and improved health and wellbeing.

Overall, considering the scale of impact, this option would be expected to have a **neutral impact** on this criterion.

11.5.13 PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, with the outcome of the traffic signal review potentially helping to implement bus priority. As a result, the option can help in supporting reduced social isolation through enabling a greater number of people to access public transport.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[140] A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. This option would be anticipated to improve bus journey times and journey time reliability for short-to medium-distance trips to leisure, education and employment opportunities in the A947 study area, particularly for those without access to any other means of transport and who would otherwise be unable to access key services. This option provides linkage with the primary residential and commercial section of Dyce, in addition to the residential areas of Bankhead and Stoneywood. However, it does not provide any new transport services or increased network provision.

Overall, this option would be expected to have a **minor positive impact** on this criterion.

11.5.14 O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups. Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[141] This option could help in supporting reduced social isolation and improved health and wellbeing.

Access to transport is shaped by three key factors: affordability, accessibility, and individual household circumstances. Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty. This option would encompass the primary residential and commercial areas of Dyce and would provide improved active travel provision for short- to medium-distance trips to leisure, education and employment opportunities in the local area, including east-west trips, particularly for those without access to any other means of transport and who would otherwise be unable to access key services, as an alternative to motorised transport.

Overall, considering the potential for the option to increase accessibility and active travel permeability across a large part of the study area, this option would be expected to have a **moderate positive impact** on this criterion.

11.5.15 O25 – Implement access only restrictions for general traffic on Victoria Street

A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty to the east and west of Victoria Street in this location. This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, with the implementation of access only restrictions creating a space within the centre of Dyce which is more attractive to those walking,

[140] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[141] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf

wheeling and cycling.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[142] Access to transport is shaped by three key factors: affordability, accessibility, and individual household circumstances. Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty on either side of Victoria Street. This option would provide improved active travel provision on Victoria Street and for accessing central Dyce, particularly for those without access to any other means of transport and who would otherwise be unable to access key services.

Further assessment is required to better understand where access only restrictions place a constraint on accessibility for those who are not able to travel by active and sustainable modes of transport, however, it is assumed that public transport access itself would be maintained under this option.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion, subject to further development.

11.5.16 O26 – Implement one-way restrictions for general traffic on Victoria Street

A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty to the east and west of Victoria Street in this location. This option could provide a beneficial impact in tackling inequality experienced by socio-economically disadvantaged groups, with the implementation of one-way restrictions creating a space within the centre of Dyce which is more attractive to those walking, wheeling and cycling. A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty on either side of Victoria Street.

Transport is seen as an essential component for low-income families to access essential services, such as education, employment and childcare services as a means of escaping poverty, as well as supporting their general wellbeing.[143] Access to transport is shaped by three key factors: affordability, accessibility, and individual household circumstances. Transport often represents a significant cost to those that carry out low-paid, low-skilled or 'atypical' work that involves irregular shifts or hours and has been cited as unmanageable for families, frequently causing anxiety. A combined 89% of data zones in the study area are identified to be at medium risk (65%) or high risk (24%) of transport poverty, including within the vicinity of this option, with data zones identified to be at medium risk of transport poverty on either side of Victoria Street This option would provide improved active travel provision along Victoria Street, particularly for those without access to any other means of transport and who would otherwise be unable to access key services.

This option would, however, impact on access for some vehicle users (including bus users) who would be required to re-route via Riverview Drive to facilitate the one-way traffic flow along Victoria Street. Further assessment is required to better understand where one-way restrictions place a constraint on accessibility for those who are not able to travel by active and sustainable modes of transport directly to their destination.

Overall, on balance, this option would be expected to have a **minor positive impact** on this criterion, subject to further development.

11.6 Summary

This Chapter has set out the outcomes of a series of impact assessments undertaken to inform the Detailed Appraisal, including the EqIA, CRWIA, HIIA and FSDA. The following Chapter sets out the work undertaken to progress the assessment of the Table 1 options in parallel to the key tasks set out in this report for the Table 2 options.

[142] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf
[143] Transport Scotland, 2021. Transport and Child Poverty – Beyond the Pandemic. Available at: https://www.transport.gov.scot/media/49932/transport-and-child-poverty-beyond-the-pandemic.pdf

12. Cost to Government

12.1 Introduction

STAG requires that the net cost of an option is assessed from a public spending perspective, which is then compared with the total benefits of the option in terms of the STAG criteria, allowing an overall value for money assessment to be made.

Cost to Government refers to all costs incurred by the public sector as a whole net of any revenues. The total net cost consists of:

- Investment (capital) costs – including all infrastructure and other capital costs incurred by public sector operators which are additional to those incurred in the Do Minimum scenario;
- Operating and maintenance costs – including the annual recurring costs incurred by the public sector in running and maintaining the option considered;
- Grant/subsidy payment – should private sector operators not cover the investment and operating costs, some form of grant or subsidy may be required for the delivery of an option by private sector operators;
- Revenues – user charges, which represent monetary transfers from the users to the Government; and
- Taxation impacts – options which substantially promote public transport can lead to reductions in indirect tax receipts by shifting expenditure from cars and car fuel, which are heavily taxed, to public transport services on which the indirect tax rate is relatively low.

This Chapter outlines high-level cost estimates for the remaining options in Table 2.

12.2 Capital Costs – Table 2 Options

This section sets out high-level cost estimates for the Table 2 options under assessment at the Detailed Appraisal stage of the study. The cost for each option is broken down into the relevant Manual of Contract Documents for Highway Works (MCHW) series with itemised rates included.

The rates used to develop the estimates are taken from SPONS 2023 and are current to Q3/2023 using an uplift factor. Although an uplift factor for Q4/2023 is now available, the estimates have been produced to Q3 for consistency with earlier costing of Table 1 options (see below). Some of the rates have been collated by AECOM based on work with other local authorities and are typically more accurate than SPONS.

General assumptions, inclusions and exclusions in the composition of the estimates are as follows:

- Risk and contingency included at 44% of construction costs;
- Costs do not include price of land acquisition, further investigation / survey, detailed earthworks, structures, retaining walls or enhanced drainage;
- Costs reflect the core intervention associated with each option – extras that would likely be considered in more detailed scoping of design schemes for delivery, such as general carriageway resurfacing, have not been accounted for.
- 10% of quantified construction costs have been added for the utility diversions.

Table 12-1: Estimated Option Costs

Option	Estimated Construction Cost (Q3/2023)
AT26 – Improve active travel connectivity between the A947 study area and TECA	**£1,114,000**
AT31 – Improve active travel links between the Riverside Path and housing within Dyce	**£56,000**
AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	**£84,000**
AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	**£299,000**
AT41a – Improve active travel access to the retail park at the Bucksburn Roundabout (Shared Use Option)	**£153,000**
AT41b – Improve active travel access to the retail park at the Bucksburn Roundabout (Segregated Option)	**£562,000**
AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	**£62,000**
AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	**£4,939,000**
AT51 – Implement with-flow segregated cycleway on Old Meldrum Road	**£807,000**
AT52 – Implement two-way segregated cycleway on Old Meldrum Road	**£650,000**
AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	**£3,502,000**
AT61a – Implement package of active travel measures on Victoria Street	**£645,000**
AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road	**£308,000**
O2 – Review the layout of the Victoria Street/Skene Place Junction	**£8,000**
O3 – Review the layout of the Riverview Drive/Balloch Way Junction	**£29,000**
O4 – Review the layout of the Riverview Drive/Todlaw Walk Junction	**£29,000**
O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction	**£45,000**
O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	**£30,000**
O8 – Review the layout of the A947/Stoneywood Brae Junction	**£18,000**

A more detailed summary of the above costs is provided in **Appendix F** – this considers:

- Risk and Contingency;
- Design;
- Placemaking;
- Site Supervision and Project Management;
- Traffic Management; and
- Monitoring and Evaluation.

Further cost breakdown for the options has also been provided to ACC under separate cover.

12.3 Operating and Maintenance Costs – Table 2 Options

It is anticipated that maintenance costs would be associated with each of the costed options. These would generally be expected to be associated with the requirement to maintain signing/lining associated with, for example, the shared use paths and cycleways. There will be the need for occasional footway and cycleway sweeping and general repairs. This infrastructure would also require winter maintenance. It is assumed that these costs could largely be covered by existing maintenance programmes for similar schemes in the city.

ACC would require to identify the maintenance requirements associated with options progressing to business case stage – and thereafter, implementation.

12.4 Other Costs – Table 2 Options

The options under consideration do not incorporate user charging, and therefore no revenues would be anticipated in terms of monetary transfers from the users to the Government.

It is also not anticipated that the options under consideration would generate any notable impacts in terms of taxation relating to the promotion of public transport.

12.5 Table 1 Option Costs

The Table 1 Option Costs have been provided to ACC under separate cover.

12.6 Options Not Costed

Some Table 1 and Table 2 options have not been costed at this stage – the reasons for this are set out in the table below.

Table 12-2: Options Not Costed

Option	Rationale
AT8 – Reconfigure the Auchmill Road/Old Meldrum Road junction to improve connections for pedestrians and cyclists	Junction proposals at this location will be progressed and consulted on as part of the A96 corridor study design with the A947 study proposals for Old Meldrum Road tying-in to what emerges from the A96 appraisal.
AT19 – Implement pedestrian crossing facilities at the Old Meldrum Road/Mugiemoss Road junction	Pedestrian crossing facilities have been developed as part of works under the Old Meldrum Road / Mugiemoss Road committed scheme. As a result, there was no design work undertaken for Option AT19 prior to the option being sifted.
AT20 – Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways	Carried out as a site walkover using GIS applications with the findings delivered as a technical note.
AT30 – Provide direct active travel link between Dyce Drive and Riverview Drive	Improvements proposed for AT13, AT14 and AT59 support the fulfilment of this option – no specific design work has been carried out for AT30.
AT68 – Conduct a review of wayfinding signage throughout the study area	Carried out as a site walkover using GIS applications with the findings delivered within **Appendix B.**
PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	Further development of this option would be necessary to determine cost. Detailed transport modelling would be required to understand impacts that implementing traffic signal priority (TSP) technology would have on the A947.
O11 – Undertake a review of parking arrangements on Victoria Street	Carried out as combination of a site walkover and desk study with the findings delivered within **Appendix B.**
O15 – Introduce placemaking and gateway features on Victoria Street	Various Table 2 options have a direct impact on the opportunities available to deliver placemaking and gateway features on Victoria Street. Specific costing of this option is therefore not appropriate at this time.
O10 – Review layout of the A947/McDonalds access road junction	No design work has been carried out on this option as the existing junction radii meets DMRB CD 123 minimum requirements. Layout of the junction may be altered if AT41b is progressed but, in isolation, O10 has no associated cost.

Option	Rationale
O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	The area of the 20-minute neighbourhood is subject to further assessment and engagement with the local community.
O25 – Implement access only restrictions for general traffic on Victoria Street	No design work carried out to date. Option is subject to consultation and further development to determine impacts on stakeholders.
O26 – Implement one-way restrictions for general traffic on Victoria Street	No design work carried out to date. Option is subject to consultation and further development to determine impacts on stakeholders.

12.7 Value for Money

As noted earlier in the report, AMAT has been used to undertake an analysis of the economic performance of the six options most likely to achieve modal shift, taking account of option route length and change in extent of physical infrastructure provision. This has assessed the net cost of each option from a public spending perspective and compared this with the total benefits of the option in terms of the STAG Criteria, to allow an overall value for money assessment to be made.

Table 12-3, on the following page, provides a summary of the monetised impacts of each option assessed using AMAT. It is important to note that Table 12-3 sets out those benefits that can be monetised in the assessment framework and does not include other possible socio-economic impacts. More detail on the AMAT assessment, including the assumptions contained within, is included in the AMAT technical note, which forms **Appendix H.**

Table 12-3 includes the following:

- Present Value of Benefits (PVB): The total benefits the intervention is expected to deliver over the appraisal period. These values are discounted and deflated to 2010 values and prices.
- Present Value of Costs (PVC): The total cost of the intervention to central and local government, including any additional costs associated with maintaining the infrastructure.
- Net Present Value (NPV): NPV is a metric used to evaluate the profitability of an investment or project. NPV represents the discounted sum of all future benefits minus the discounted sum of all future costs over a specified appraisal period (in this case, 20 years). It provides the net cost of an option from the public sector's perspective.
- Benefit to Cost Ratio (BCR): The ratio of the PVB and the PVC, indicating the relative costs and benefits of the proposed intervention.

Based on value of money categories described in the AMAT guidance144, options AT48a and AT58 have a 'Poor' BCR (between 0 and 1), options AT51, AT52 and AT61a have a 'Low' BCR (between 1 and 1.5) and option AT33 has a 'High' BCR (between 2 and 4). As has been emphasised within the AMAT assessment, this has been derived on travel to work/study and therefore does not include other potential benefits derived from leisure and recreational use. The shorter lengths of routes associated with options AT33, AT51 and AT52 may reduce the time people spend cycling or walking by providing more direct route choice and may partially offset the benefits associated with new walking and cycling trips generated by these options. In addition, option AT33 is in close proximity to Dyce Rail Station and would be expected to result in greater benefits beyond those captured by AMAT. It should also be noted that the options presented within this appraisal are not mutually exclusive and the cumulative effects would be greater.

[144] AMAT User Guide, Section 3.37, DfT, May 2022, *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1102781/active-model-appraisal-toolkit-user-guidance.pdf*

Table 12-3: Value for Money Assessment

Metric	Option					
	AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	AT51: with-flow segregated cycleway on Old Meldrum Road	AT52: two-way segregated cycleway on Old Meldrum Road	AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	AT61a: package of active travel measures on Victoria Street
Congestion Ber	£750	£107,990	£10,070	£10,070	£5,380	£14,290
Accident	£120	£17,400	£1,620	£1,620	£1,290	£2,300
Local Air Quality	£10	£740	£70	£70	£70	£100
Noise	£10	£1,160	£110	£110	£70	£150
Greenhouse Gas	£50	£7,080	£660	£660	£2,000	£940
Indirect Taxation	£0	-£40	£0	£0	£100	-£10
Journey Ambience	£93,520	£326,840	£261,430	£261,430	£157,860	£99,340
Reduced Risk of Premature Death	£8,720	£1,210,020	£133,220	£133,220	£387,300	£176,670
Reduced Absenteeism	£1,500	£201,960	£25,660	£25,660	£65,200	£32,280
PVB	£104,690	£1,873,160	£432,850	£432,850	£619,270	£326,060
PVC	£41,710	£2,451,490	£400,570	£322,740	£1,738,800	£320,190
NPV	£62,980	-£578,330	£32,280	£110,110	-£1,119,530	£5,870
BCR	2.51	0.76	1.08	1.34	0.36	1.02

12.8 Summary

This Chapter has provided a high-level overview of estimated costs associated with the remaining Table 2 options, including capital costs, operating and maintenance costs, and consideration of any other costs. It has also provided a Value of Money assessment for the six options that have been assessed using the AMAT tool. The following Chapter considers risk and uncertainties that should be considered through the progression of options to business case stage and identifies a series of measures that could be put in place to reduce the risks identified.

13. Risk and Uncertainty

13.1 Introduction

Risk management is a structured approach to identifying, assessing and controlling risks that emerge during the course of the option lifecycle. This supports better decision-making by developing a more thorough understanding of inherent risks and their likely impact. Risk management involves:

- Identifying possible risks in advance and putting mechanisms in place to minimise the likelihood of their materialising with adverse effects;
- Having processes in place to monitor risks, and access to reliable, up-to-date information about risks;
- The right balance of control in place to mitigate the adverse consequences of the risks, if they should materialise; and
- Decision-making processes supported by a framework of risk analysis and evaluation.

Risk management strategies should be adopted throughout the appraisal and implementation stages of proposals in order to ensure that steps have been taken to prevent and mitigate risks and uncertainties. Once reliable estimates of relevant costs are built up, risks are explicitly assessed and quantified, and work to minimise project-specific risks is undertaken, any Optimism Bias (risk and contingency) can be reduced.

Once risk factors have been explicitly quantified and valued, adjustment should be made to the costs and benefits in order to calculate risk-adjusted “expected values”. An expected value provides a single value for the expected impact of all risks. However, in general, even with a well-developed project, there will remain some risks which cannot be foreseen. In such cases it will not be possible to include these risks in the expected value, so instead a contingency figure should be added in order to take account of possible unanticipated risks.

This Chapter considers risk and uncertainties that should be borne in mind through the progression of options to business case stage and identifies a series of measures that could be put in place to reduce the risks identified. The only dedicated public transport option, PT2, is considered in terms of risk and contingency within this chapter however the final chapter of this report brings together the key outcomes of the Detailed Appraisal to determine whether this option should progress to the business case stage.

13.2 Risk Management Process

STAG states that all risks and uncertainties associated with an option need to be fully identified and accounted for in the appraisal process. As stated in the HM Treasury Green Book (2022)[145], in appraisals it is always likely there is some difference between what is expected and what actually happens. This is the consequence of biases unwittingly inherent in the appraisal process, and risks and uncertainties that materialise. As a result, it is important to identify and mitigate risks, and make allowances for Optimism Bias (risk and contingency).

The objectives of the risk management process are to:

- Identify risks from all sources;
- Assess the potential likelihood, impact and hence overall significance of those risks, thereby prioritising those most in need of management and mitigation;
- Identify an appropriate mitigation strategy;
- Allocate responsibility for management of the mitigation process; and
- Periodically review progress towards mitigation and assess the resultant reduction in the Optimism Bias (risk and contingency) uplift factor.

13.3 Risk Identification

The approach to risk management on the A947 Multi-Modal Corridor study to date has adopted the principles of both the ACC and AECOM approaches to risk identification and mitigation. The ACC approach requires:

[145] The Green Book, Central Government Guidance on Appraisal and Evaluation, HM Treasury (2022) https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063330/Green_Book_2022.pdf

1. Risk identification;
2. Analysis, assessment and evaluation of risks;
3. Identification of controls;
4. Implementation of control actions; and
5. Monitoring and reporting adequacy of controls.

ACC assesses risk levels according to level of impact (Very Serious, Serious, Material or Negligible) and likelihood (Almost Impossible, Very Low, Low, Significant, High and Very High).

This approach complements the flexible, partnering and responsive approach to risk management undertaken by AECOM. This requires the assessment of project risks at the outset of the project, with risks subsequently managed throughout.

Going forward, it is important that risks continue to be identified and managed through the lifecycle of the study. This will involve inputs from all appropriate stakeholders: in this case ACC, Nestrans and Aberdeenshire Council, together with other key stakeholders as appropriate. A Project Risk Workshop would be useful at an early stage, following identification of the preferred option(s) to be taken forward following the completion of the OBC. Prior to the workshop, attendees should be asked to advise on areas of potential risk and, from this, a list can be compiled to provide the basis for the discussions.

It is noted that a Risk Register was developed for the A947 Multi-Modal Corridor study as a whole at the Inception stage, and this continues to be monitored. This should form the basis of a more specific consideration of risks related to development of the preferred option(s).

13.4 Risks Identified Within STAG Appraisal

It is recognised that the identification of risks and uncertainties would form an ongoing process. At this stage, the following risks have been identified:

- Availability of funding – Funding for the preferred option(s) that will move to OBC stage has not yet been confirmed; however, the OBC will provide the basis for the preferred package of measures to be considered for future funding opportunities.
- Environment – as detailed within the Environmental appraisal, various issues have been identified as part of this study. Further assessment of key aspects including, for example, air quality, noise and vibration, would be required to establish any specific risks prior to the preferred option(s) being progressed. In addition, consultation with environmental specialists would be required in relation to specific aspects for example cultural heritage, ecology and archaeology. A scheme of protection measures would require to be implemented to eliminate the risk of pollution of watercourses during construction, where options are located in the vicinity of the River Don and its tributaries.
- Ground investigation – detailed ground investigation would require to be undertaken to establish any specific risks prior to the preferred option(s) being progressed, particularly where carriageway widening or realignment is required to accommodate active travel infrastructure.
- Future travel patterns and trip generation – a programme of modelling would be required to quantify in detail benefits of the preferred option(s) taken forward for further consideration.
- Consent risk – legal and planning issues, specifically where planning approval or powers are required.
- Political support and public acceptability.

13.5 Risk Register

Going forward, the Risk Register for the preferred option(s) should be structured to identify:

- A unique identification reference
- A description of the risk
- The stage of scheme development at which the risk might materialise
  - Planning;

  - Procurement;
  - Construction; or
  - Operations.
- Elements impacted by the risk
  - Capital expenditure;
  - Operating expenditure;
  - Revenue;
  - Programme;
  - Quality;
  - Functionality;
  - Approvability; and
  - Safety.
- The likelihood of realisation of the risk, the likely impact of the risk and hence its significance (a rating for which is derived from the product of likelihood and impact)
  - Prior to mitigation; and
  - Following mitigation.
- Responsibility for mitigation management
  - Lead responsibility; and
  - Support to be provided to task leader.
- Mitigation strategy
- Action taken
- Mitigation factor achieved

The Risk Register would be a living document subject to regular review and amendment. An initial draft risk register is set out within the table overleaf. Going forward, this should be expanded upon to include more detailed consideration of risks relating to the preferred option(s), taking cognisance of each of the aspects noted above.

Table 13-1: Indicative Risk Register

Category	Risk Assessment			Risk Description	Risk Nature	
	Risk Likelihood 1-5	Risk Impact 1-5	Risk Rating		Deliverability	Operation
3rd Parties/Stakeholders	5	4	20	Significant objections to proposals by stakeholders/public resulting in delays/challenges resulting in increasing costs.	✓	
Commercial	4	5	20	Anticipated bus patronage levels would need to be assessed to determine viability of bus priority at traffic signals (Option PT2).	✓	✓
Land and Compensation	4	4	16	Consent risk (and associated cost/feasibility risk) – legal and planning issues, specifically where planning approval or powers are required for use of third party land (Option AT58).	✓	
Funding	4	4	16	Financial support – Progressing interventions beyond the STAG and OBC stages will require further funding. There is a risk that sufficient funds may not be secured.	✓	✓
Asset Management	3	4	12	Existing road space reallocated to accommodate active travel infrastructure, adverse impacts on local traffic movements.	✓	✓

Category	Risk Assessment			Risk Description	Risk Nature	
Design	3	4	12	Design considerations inherent with all projects include uncertainty risks relating to, for example, topography, underground conditions, drainage issues, utilities and diversions. Further investigation of these aspects will be required for any options taken forward. There may additionally be design requirements relating to extended areas of hardstanding (for example for SEPA).	✓	
Relocation of Lighting	3	3	9	There may be a requirement to relocate lighting columns to accommodate proposed works.	✓	
Feasibility	4	3	12	Further investigation of the operational feasibility of some aspects will be required (e.g. reduction of A947 central reserve associated with Option AT41b to retain two lanes would require further investigations and consultation with the local authority to determine feasibility).	✓	
Environment	3	3	9	Pre-construction surveys undertaken by a suitably qualified ecologist would be required to establish potential	✓	

Category	Risk Assessment			Risk Description	Risk Nature	
				impacts on biodiversity and habitats, as a result of any options taken forward.		
3rd Parties/Stakeholders	3	3	9	Further consultation/surveys would be required to fully gauge the impacts of any options taken forward on residents, local businesses, and key transport service providers. This will include assessing impacts on on-street waiting, loading and parking provisions, and the impact of changes to traffic flows and access arrangements, associated with delivery of active travel measures.	✓	✓
Maintenance	3	3	9	Availability of funding/resource to maintain new infrastructure.	✓	✓
Construction	3	3	9	Weather – delays as a result of inclement weather.	✓	
Construction	3	3	9	Traffic management issues – problems with construction sequencing.	✓	✓
General – Modelling, Standards, Legislation, Taxation	3	3	9	Modelling (including detailed environmental assessment) will be required to quantify the impacts of any options taken forward.	✓	
Construction	2	3	6	Inflation risk – the risk that	✓	

Category	Risk Assessment			Risk Description	Risk Nature	
				actual inflation differs from assumed inflation rates. It is possible that the construction costs developed as part of this study could vary in the future.		
Construction	2	3	6	Impact on local businesses, and events during construction.	✓	
Construction	2	3	6	Impact of noise from construction on local residents and NSRs.	✓	
Parties/Stakeholders	2	3	6	Difficulties in defining expectations and level of information required for those impacted by the scheme proposals.	✓	
Volume	2	3	6	Actual usage of the scheme(s) varies from the level forecast. It is possible that usage of the proposed active travel facilities could differ from the levels predicted, which could reduce the predicted benefits generated by the schemes in the AMAT assessment.		✓

Category	Risk Assessment			Risk Description	Risk Nature	
Technology	2	3	6	Changes in technology result in services being provided using non-optimal technology. It is possible that where technological solutions are provided as part of the study (for example traffic signals), obsolescence can occur over time (Option PT2).		✓

13.6 Uncertainties

It is recognised that no matter how well risks are identified and analysed, the future is uncertain. STAG therefore requires consideration of how future uncertainties could affect the choice between options.

STAG recognises that the identification of future uncertainties which, if realised, would cause a scheme to perform poorly, should not be viewed as a negative; rather, it provides decision makers with the important information regarding the robustness of study results, and highlights areas where mitigation can be put in place to ensure a positive outcome.

Table 13-2 sets out the key uncertainties identified at this stage of the study process. Should the decision be taken to proceed with preferred option(s), further consideration of these uncertainties would be required.

Table 13-2: Uncertainty Log

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
Development	Development (General)	Realisation of developments within the immediate and wider study area (for example residential developments).	Within next 10 years	Near Certain	Medium	Changes in land use may result in changes in demand, with new housing developments acting as trip generators and business and community facilities acting as trip attractors. This could result in a shift in demand from trips between other locations, or in an overall increase in demand. This is likely to affect all modes.
Interdependencies	Interdependencies (A96 proposals)	Impact of A96 Multi-Modal Corridor Study proposals.	Within next 5 years	Reasonably Foreseeable	Medium	Configuration and feasibility of Option AT48a (in particular around the Bucksburn Roundabout area) and Options AT51/AT52 (towards the Old Meldrum Road / Auchmill Road junction) may be

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
						impacted by the outcomes of the A96 STAG appraisal report – ACC are keeping abreast of the interdependency between both projects. In the case of Options AT51/AT52, the A96 study is promoting the active travel design solution at the junction itself.
Land Ownership	Land Ownership	Some interventions would require development of land that is not owned by ACC/Aberdeenshire Council.	Within next 5 years	Reasonably Foreseeable	High	It is uncertain what legal and planning issues may arise in relation to land ownership, specifically where planning approval or powers are required (applies to Option AT58).
Funding	Financial Support	Progressing interventions beyond the STAG and OBC stage will require further funding, either by ACC or their partners.	Within next 5 years	Reasonably Foreseeable	High	Progressing interventions beyond the STAG and OBC stage will require further funding, either by ACC or their partners.

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
						Level of financial support available is uncertain.
Stakeholder Support	Stakeholder Support	Progressing interventions beyond the STAG and OBC stage will require stakeholder support.	Within next 5 years	Near Certain	High	Progressing interventions beyond the STAG stage will require stakeholder support. There may be acceptability issues for some of the interventions, as shown during consultation in Spring 2024 (for example relating to some of the proposals on Victoria Street), and approvals required where land-take is necessary.
Technology	Widespread Uptake of Autonomous Vehicles (AVs)	Advances in AV technology significantly alter travel behaviour and vehicle ownership.	Within next 15 years	Reasonably Foreseeable	Medium	Advancement in AV technology may result in an increase in travel demand, due to more usable travel time. However, it may encourage other changes in travel behaviour, such as increased car sharing, or reduced

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
						car ownership/increased use of Mobility as a Service (MaaS). Even if AVs result in increased car use, features of AVs may mitigate traditional risks (for example usable travel time may place less emphasis on journey times, optimisation of speed/braking may improve reliability, removal of human error may reduce accidents). However, if AV technology is not accompanied by cleaner fuel, there may be implications for the environment, and greater reliance on private car may also have impacts on equality.
Technology	Widespread Uptake of Mobility as a Service (MaaS) and micro-mobility	Advances in MaaS and micro-mobility innovations (for example E-	Within next 10 Years	Reasonably Foreseeable	Medium	Advancement in MaaS technology may result in a move away from

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
	innovations (for example E-Scooters)	Scooters) significantly alter travel behaviour and vehicle ownership.				private car use, by providing a viable alternative for all, and connecting the gaps in the public transport network, particularly in more rural areas. Affordable and integrated MaaS could result in a significant increase in demand for the existing public transport and active travel network. In the longer-term, effective MaaS may make it more attractive to live in rural locations and lead to a less dense land-use model. This may result in an increase in vehicle kilometres travelled, with implications for network capacity and potentially for the environment if other technological improvements are not undertaken simultaneously to

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
						MaaS. There could be positive impacts in terms of equality if MaaS reduces reliance on car ownership and results in a connected and affordable transport network.
Travel Behaviour	Increased popularity of hybrid/home-working and online shopping	Enhanced digital connectivity and changing attitudes to where we live and work results in more home-working and online shopping.	Within next 5 years	Reasonably Foreseeable	High	Increased home-working and online shopping is likely to result in reduced travel for commuting and shopping purposes and may result in an overall reduction in travel demand. However, time savings associated with less commuting and travelling to shops could result in an increase in other travel purposes such as visiting friends and family, visiting the gym, active travel for leisure, and visiting cafes or restaurants

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
						either during a lunch break, or at the start or end of the working day. Increased home-based working will also shift the pattern of trips observed during lunch breaks and before and after work, due to the change in origin.
Travel Behaviour	Increased popularity of walking, wheeling and cycling	Changes in travel behaviour due to attitudes to climate change and greater health consciousness result in significantly increased levels of walking, wheeling and cycling for all journey types.	Within next 5 years	Reasonably Foreseeable	High	Increased propensity to walk, wheel and cycle is likely to result in greater value for money for active travel infrastructure investment.
Demographics	Ageing Population	Increased life expectancy and reduced birth rate resulting in a greater proportion of older people.	Within next 20 Years	Near Certain	Medium/Low	Ageing population may lead to increased demand for public transport and active travel due to availability of concessionary travel and greater prevalence of medical conditions,

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
						disabilities or medications which may prevent driving. There may also be an increased demand for public transport and active travel infrastructure to access health and social care services.
Environment	Disruption Impacts of Climate Change	Climate change results in increasing disruption to the transport network, including flooding, snow, ice, and extreme temperatures.	Within next 20 years	Reasonably Foreseeable	Medium	Disruptions could result in accidents, damage, closures, diversions and delays on the transport network.
Economic Conditions	Continued Economic Decline and Instability as a Result of Cost of Living Crisis	Continued economic decline and instability leads to higher levels of unemployment and low productivity.	Within next 5 years	Near Certain	Medium	Higher unemployment and lower productivity could affect demand for travel by all modes.
Policy	City Centre Car Restrictions	Significant policy measures are introduced to discourage private car trips into city centre locations (for example,	Within next 10 Years	Reasonably Foreseeable	Medium	Significant demand management measures in city centre locations (including the recently implemented

Uncertainty Type	Factor	Description	Timeframe	Uncertainty (Likelihood)	Impact on Options	Comments
		introduction of Low Emission Zone, Workplace Parking Levy and other demand management measures) to support net zero targets.				Aberdeen Low Emission Zone) could result in a shift away from private car to more sustainable modes for journeys to the city centre. This may also have longer-term implications for land-use, shifting to a denser population around major public transport nodes, which could in turn result in a reduction in car ownership and a broader shift to public transport and active travel.

13.7 Benefits Blueprint

STAG recommends that as part of an appraisal, an outline benefits realisation framework ("Benefits Blueprint") is considered. The purpose of a Benefits Blueprint is to maximise additional social and economic opportunities in the study area generated through implementing the proposed option(s).

The Benefits Blueprint will include, for example:

- The type of benefit;
- Who the benefit applies to;
- The expected outcomes; and
- How the benefit will be recorded – including the process to facilitate, manage and implement the additional benefits, and defined roles and responsibilities.

The Benefits Blueprint is founded on the objectives for the study, as described in Chapter Five of this report.

The benefits generated will be dependent on the specific option(s) taken forward, however, at this stage, it is expected that the benefits from improved active travel provision on the A947 study corridor will include the following:

- Transport outcomes – for example:
    - Change in mode share to walking, wheeling and cycling;
    - Reduced levels of vehicular traffic;
    - More attractive walking, wheeling and cycling environment;
    - Enhanced sense of 'place' within Dyce;
    - Improved levels of safety for active travel users, through reducing the risk of accidents and collisions between active travel users and between active travel users and general traffic; and
    - Improvement in bus journey times along study corridor.
- Societal impacts – for example:
    - Improved health and wellbeing of individuals, through increased levels of physical activity associated with walking, wheeling and cycling;
    - Improved air quality as a result of reduced levels of air pollution and greenhouse gas emissions, attributable to a reduction in vehicular traffic;
    - Positive impact on personal security due to increased natural surveillance as a result of increasing the number of people out and about walking, wheeling and cycling;
    - Improved sustainable access to employment, education, healthcare, leisure and other key facilities;
    - Reduced car ownership and associated positive impact on personal finances;
    - Improvements to journey quality for those walking, wheeling and cycling;
    - Positive impact on local services – research shows that people who walk, wheel or cycle to shops and services spend more money;
    - Reduced burden on healthcare systems and promotion of healthier communities, through increased levels of physical activity;
    - Reduced transport inequalities; and

- Reduced social isolation.

Benefits management and evaluation will be considered further as part of the Management Case of the Business Case for the preferred option(s).

13.8 Summary

Consideration of risk and uncertainty is essential throughout project development. Ongoing requirements have been set out which are necessary to manage risk and uncertainty during development of the preferred option(s). High-level consideration has also been given to benefits realisation. The following Chapter considers monitoring and evaluation.

14. Monitoring and Evaluation

14.1 Introduction

The Scottish Government requires monitoring and evaluation to be undertaken and documented for any proposal for which it provides funding or approval. STAG requires that a new project or strategy be subject to planned monitoring and evaluation, in additional to regular re-validation throughout its development.

Monitoring is an ongoing process of watching over the performance of a project, identifying problems as they arise and taking appropriate action, whilst evaluation is used for specific, post-implementation events, designed to assess the project performance against established objectives and to provide in-depth diagnosis of successes as well as deficiencies. Therefore, by gathering and interpreting information, monitoring and evaluation will demonstrate how the project or strategy performs against its objectives, identify any deficiencies, and allow adjustments to be made.

Soon after implementation, the performance of the scheme should be assessed against the specified objectives, requiring the data capture associated with scheme delivery. Recognising that certain projects require time before the full benefits can be realised, a further evaluation is required at an appropriate time after implementation.

In addition, regular monitoring of the scheme is essential against specified Key Performance Indicators (KPIs) to assess the ongoing effectiveness of the overall scheme and individual components. The only dedicated public transport option, PT2, is considered in terms of monitoring and evaluation within this chapter however the final chapter of this report brings together the key outcomes of the Detailed Appraisal to determine whether this option should progress to the business case stage.

This Chapter describes the measures which may be put in place by ACC to meet the requirements of the STAG with regards to monitoring and evaluation. An indicative monitoring process is displayed within **Figure 14-1**, on the following page.

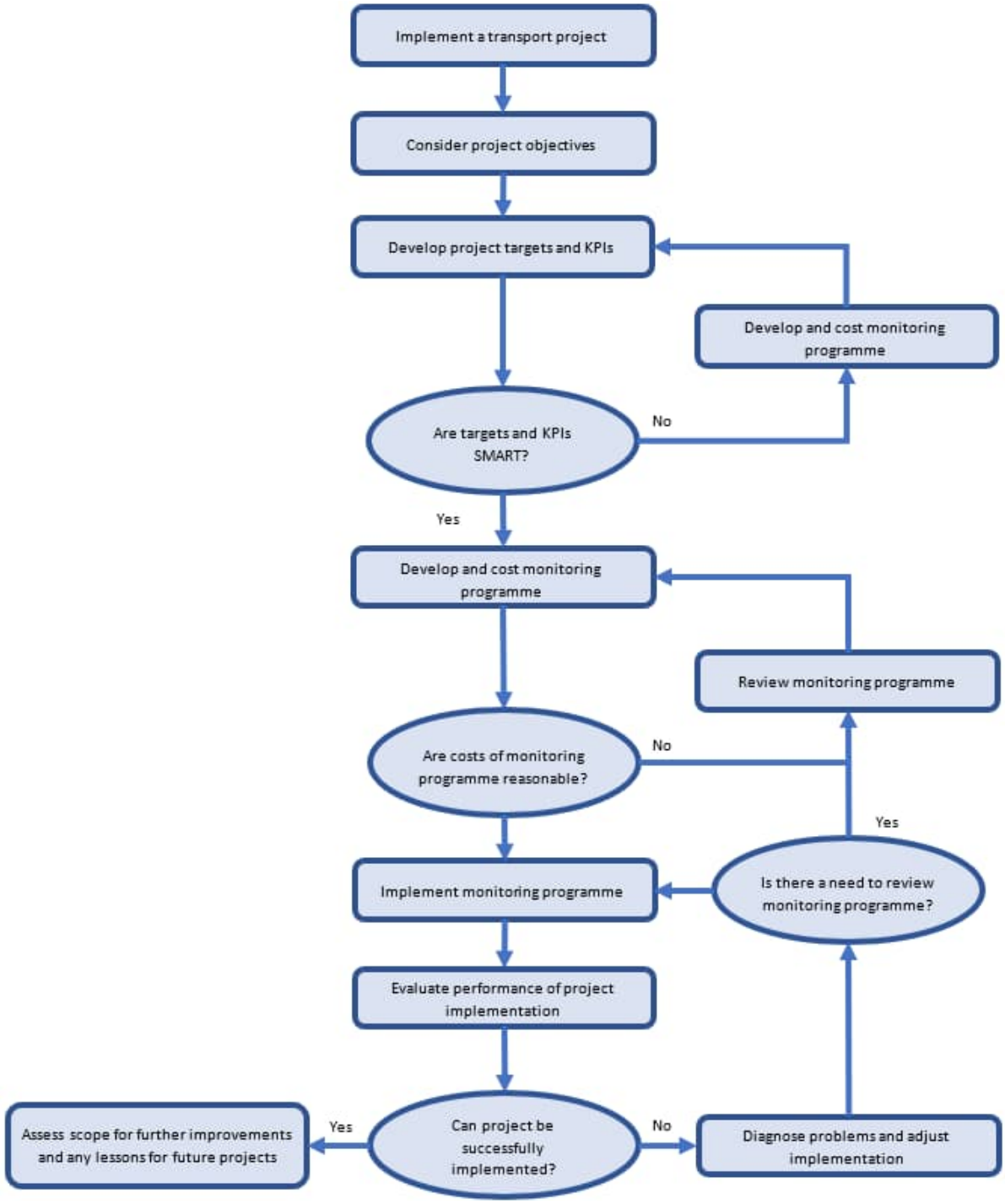


Figure 14-1: Indicative Monitoring Process

14.2 Objectives

14.2.1 Introduction

The specific study objectives are described in Chapter Five of this report. The objectives have been subject to further review at this stage of the study and were evaluated to confirm their continued applicability at this Detailed Appraisal stage.

14.2.2 Study Objectives

The specific objectives against which the proposals will be evaluated and monitored, are as follows:

- TPO1 – Increase the number of walking and wheeling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline); and
- TPO2 – Increase the number of cycling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline).

14.3 Base Case

It is considered premature to be prescriptive in terms of the establishment of the collection and organisation of the data that will provide the Base Case. It is anticipated that this will be developed and agreed with ACC and partners as appropriate, during the period immediately prior to completion/operation of the preferred option(s), and as a Baseline Report is prepared. This should be progressed by ACC at a later date.

It is likely that the baseline data may include, but will not necessarily be limited to:

- Active travel data along sections of the study area which will be affected by the proposals;
- Active travel infrastructure audits;
- Mode choice surveys;
- User satisfaction surveys;
- Traffic count data on key routes and at critical locations (to monitor change in mode share);
- Public transport metrics, including journey time and patronage data (particularly in relation to the implementation of Option PT2);
- Safety records; and
- Data to capture environmental factors in the study area.

It will be important to establish, through discussions with stakeholders, what information is available as part of their regular data gathering functions at that time, to avoid incurring additional cost and to limit the collection of new information to that which is strictly necessary to establish performance against the study objectives. This will contribute to the notion of undertaking monitoring and evaluation which is proportionate to the parameters of the study.

It is also noted that it may be necessary to obtain some baseline data prior to the start of construction to be certain that construction activities do not adversely impact the validity of any changes measured.

14.4 Project Development, Procurement and Construction

14.4.1 Project Validation

It is possible that circumstances may change within the time required for scheme development, approval and construction, which could affect the assumptions made regarding the proposals. During this time it will be necessary to keep under review the TPOs, taking into account any changes in the underlying transport situation.

14.4.2 Cost and Revenue and Programme Monitoring

It is recommended that a management team comprising various advisors be appointed to manage the process of monitoring cost and revenue and programme issues throughout the development and construction of the preferred option(s). The team will thereby evaluate any potential for changes in project costs and associated risks; with a clear audit trail logged and rationale for decision-making captured.

14.5 Operations

Evaluations are specific post-implementation events designed to identify whether:

- A project has performed as intended (or under or beyond expectations);
- Established objectives have been achieved (fully or partially, and the reasons for any failures); and
- The project continues to represent value for money (also considering actual cost budget).

The Process Evaluation is conducted immediately after implementation. It will draw lessons for on-going implementation and for the design, management and implementation of future projects.

For the reasons given above with respect to Base Case data, it is not possible at this stage to be specific about the nature of the process evaluation. It seems likely at this stage that there will be a need to provide data which will measure changes in the baseline parameters mentioned above such as various active travel datasets, bus passenger counts, mode choice surveys, bus journey time surveys, and user satisfaction surveys, together with junction performance where these are impacted by the measures, and safety and environmental parameters. Through evaluation, the degree to which change in datasets can be attributed to scheme delivery will be sought.

Table 14-1, below, summarises a possible example which might be employed as the basis for the process evaluation.

Table 14-1: Indicative Evaluation Performance Indicators

Aspect	Performance indicator/measure	Performance target	Source of indicator	Monitoring method and frequency
Costs	Proportion of actual costs over budget, including realisation of risk	X% of budget exceedance	Project costs	Budget and cost comparison – after implementation
	Proportion of budget allocated to ACC which was actually spent within timescale	X% budget spent by completion	Project costs by time	Project costs by time – after implementation
Views	The extent to which (stakeholder, public) consultation influenced outcomes	Significant number of views taken into account	Consultation process	Qualitative examination of consultation, by group
	Stakeholder's views on how well the project was designed and implemented	Overall positive views	Stakeholder interviews	Qualitative survey results by group – after implementation

Aspect	Performance indicator/measure	Performance target	Source of indicator	Monitoring method and frequency
Transport	The extent to which expected results reflect reality	Modal shift Accessibility Journey times Junction performance	Mode share surveys, user count data, bus service performance indicators (reliability) (Option PT2), accessibility mapping, junction performance surveys	Comparison between modelled and actual – after implementation and again one year later
User experience	The extent to which expected results reflect reality	Overall positive user experience	User satisfaction surveys	Qualitative survey results by user type – after implementation and again one year later
Local environment	Actual impact on environment	Air quality, noise and vibration, other environmental criteria as relevant	Before and after surveys	Comparison between before and one year after implementation, by location and activity
Safety	Actual impact on safety	Number of accidents and casualties by causality and location	Before and after data	Data collected by local authority/local Police Comparison between before and one year after implementation
Local economy	Actual impact on economic activity	Business performance	Local economy	Actual impact on economic activity Comparison between before and one year after implementation

Based upon the study TPOs, the following performance indicators could be appropriate:

- Active travel usage
    - Increase levels of walking, wheeling and cycling along the A947 corridor.
- Mode share
    - Increase the proportion of sustainable travel use for access to employment, education, leisure, healthcare and other key services.
- Active travel infrastructure
    - Availability of traffic-free walking, wheeling and cycling infrastructure.
    - Perceptions of quality and safety of active travel infrastructure.
- Public transport journey times (through the implementation of bus user priority at all traffic signals associated with Option PT2).
    - Increase average bus speeds along the A947 corridor.
    - Improve bus journey times and journey time reliability along the A947 corridor.

Table 14-2 summarises potential performance indicators and a possible monitoring programme.

Table 14-2: Potential Performance Indicators for Monitoring and Evaluation[146]

Aspect	Performance indicator	Definition of indicator	Performance target	Source of indicator/target	Monitoring method and frequency
Walking and Wheeling Mode Share	Active travel connections	Proportion of walking and wheeling trips for access to employment, education, leisure, healthcare and other key services	X% trips undertaken by walking and wheeling for all journeys.	Scottish Household Survey data; Hands Up Survey data; mode share surveys; non-motorised user (NMU) count equipment, in conjunction with ATC traffic count data and bus passenger data, could be used to monitor change in mode share.	Review of Scottish Household Survey data and Hands Up survey data for local authority area, annually. Bus passenger data, mode share surveys, ATC count data and NMU count data annually. Supplementary engagement and bespoke manual count surveys as required. Explore the potential for deploying mobile active travel counters.[147]
Cycling Mode Share	Active travel connections	Proportion of cycling trips for access to employment, education, leisure, healthcare and other key services	X% trips undertaken by cycling for all journeys.	Scottish Household Survey data; Hands Up Survey data; mode share surveys; non-motorised user (NMU) count equipment, in conjunction with ATC traffic count data and bus passenger data, could be used to monitor change in mode share.	Review of Scottish Household Survey data and Hands Up survey data for local authority area, annually. Bus passenger data, mode share surveys, ATC count data and NMU count data annually. Change in the number of recorded cyclists – Cycling Scotland Open Data – annually. Supplementary engagement and bespoke manual count surveys as required. Explore the potential for deploying mobile active travel counters.[148]

[146] This table should be read in conjunction with the indicators shown in the Revised Study SMART TPOs table in Section 5.4.

[147] In addition to this, it is understood that ACC have submitted a funding request to procure new active travel counters for stationing at Victoria Street, Riverview Drive and Old Meldrum Road. These will support monitoring and evaluation going forward.

[148] In addition to this, as noted earlier in this report, it is understood that ACC have submitted a funding request to procure new active travel counters for stationing at Victoria Street, Riverview Drive and Old Meldrum Road. These will support monitoring and evaluation going forward.

Aspect	Performance indicator	Definition of indicator	Performance target	Source of indicator/target	Monitoring method and frequency
Active Travel Provision	Active Travel Infrastructure	Availability of traffic-free walking, wheeling and cycling infrastructure	Kilometres of traffic-free walking, wheeling and cycling infrastructure	Infrastructure audits; use of Walking Route Audit Tool; GIS-based mapping ; Quality of cycling provision (Level of Service) – safety; directness; coherence; comfort; attractiveness; and adaptability.	Annual review.
Quality and Safety of Active Travel Provision	Perception of quality and safety of active travel infrastructure	Changes in perceptions of quality and safety of active travel provision	Improvement in perceptions of quality of active travel provision; and Improvement in perceptions of safety of active travel provision.	Engagement via active travel user satisfaction surveys, Citizens' Panel surveys, Community Councils, and employers' travel plans, for example, could inform performance indicators.	Annual user satisfaction surveys/engagement, supplemented with feedback via, for example, Community Councils, employers' travel plans etc, as available.
Bus Journey Times	M	Changes in journey times and journey time reliability by bus	Improvement in bus journey times along study corridor; Ability of buses to adhere to timetables.	Direct engagement with bus operators; journey time surveys; operator performance indicators; and INRIX data.	Annual journey time surveys; operator performance indicators as published; Tom-Tom data; TRACC public transport (bus) journey times; and INRIX data annually.

Going forward, these will be essential monitoring tools to gauge how any options subsequently implemented are performing. There will be a requirement for ACC to establish an evaluation regime for any schemes which progress through business case stage to construction.

In addition to the potential performance indicators set out within **Table 14-2**, consideration should also be given to utilising emerging and innovative data collection methods – such as STRAVA Metro, Better Points[149] or mobile phone data, where appropriate.

A detailed Monitoring and Evaluation Plan should be prepared as options move forward to implementation.

Before the monitoring programme is agreed upon, consideration must be given to the actual availability of the data, practicalities from collecting new data, its format, whether it will properly reflect the indicators proposed and the cost of obtaining it. Indicators and targets should be subject to regular reviews to ensure that they continue to properly reflect the performance of the project against its objectives, throughout the monitoring period.

[149] Better Points is an app which allows users to earn points for making sustainable journeys. Points can be redeemed for vouchers. HITRANS uses Better Points to monitor active travel journeys.

14.6 Summary

This Chapter has set out the study objectives, together with actions to be taken during the various phases from option development through to operation, to meet the requirements of the STAG guidance with respect to monitoring and evaluation. The next Chapter provides a summary of the key findings arising from the Detailed Appraisal and sets out the proposed package of measures for the OBC.

15. Next Steps – OBC Package Development

15.1 Detailed Appraisal Summary

This Chapter builds on the work completed in this Detailed Appraisal report to confirm the next steps for progression of an Outline Business Case (OBC) for the A947 study area. A summary of the Table 2 option scoring against the Detailed Appraisal criteria is provided below.

Table 15-1: Detailed Appraisal Option Scoring Summary (TPOs)

Option	Description	TPO1[150]	TPO2[151]
AT26	Improve active travel connectivity between the A947 study area and TECA	+1	+1
AT35a	Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	+1	+1
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout	+1	+1
O10	Review layout of the A947/McDonalds access road junction	+1	0
AT31	Improve active travel links between the Riverside Path and housing within Dyce	+1	+1
O3	Review the layout of the Riverview Drive/Balloch Way Junction	0	0
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	0	0
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	0	0
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	+1	+2
AT61a	Implement package of active travel measures on Victoria Street	+2	+3
O2	Review the layout of the Victoria Street/Skene Place Junction	+1	+1
O25	Implement access only restrictions for general traffic on Victoria Street	+3	+3

[150] Increase the number of walking and wheeling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline)
[151] Increase the number of cycling trips in the study area by 20% within 5 years of project delivery (against a 2024 baseline)

Option	Description	TPO1[150]	TPO2[151]
O26	Implement one-way restrictions for general traffic on Victoria Street	+2	+2
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	0	0
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	0	+2
AT52	Implement two-way segregated cycleway on Old Meldrum Road	0	+2
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	+1	+1
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	0	0
O8	Review the layout of the A947/Stoneywood Brae Junction	0	+1
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	+1	+2
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	+2	+2
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	0	0
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	+3	+3

Table 15-2: Detailed Appraisal Option Scoring Summary (STAG Criteria)

Option	Description	Environment								Climate Change			Health, Safety and Wellbeing					Economy		Equality and Accessibility				
		Biodiversity and Habitats	Geology and Soils	Land Use	Water, Drainage and Flooding	Air Quality	Historic Environment	Landscape	Noise and Vibration	Greenhouse Gas Emissions	Vulnerability to Effects of Climate Change	Potential to Adapt to Effects of Climate Change	Accidents	Security	Health	Access to Health and Wellbeing Infrastructure	Visual Amenity	Transport Economic Efficiency (TEE)	Wider Economic Impacts (WEI)	Public Transport Network Coverage	Active Travel Network Coverage	Comparative Access by People Group	Comparative Access by Geographic Location	Affordability
AT26	Improve active travel connectivity between the A947 study area and TECA	0	0	0	0	0	0	0	0	0	0	+1	0	+1	+1	+1	0	+1	0	0	+1	+1	+1	+1
AT35a	Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	0	0	0	0	0	0	0	+1	0	0	0	+1	+1	+1	+1	0	+1	0	0	+1	+1	+1	+1
AT41a	Improve active travel access to the retail park at the Bucksburn Roundabout (Shared use)	-1	0	0	0	0	0	0	+1	0	0	+1	+1	+1	+1	+1	0	+1	+1	0	+1	+1	+1	+1
AT41b	Improve active travel access to the retail park at the Bucksburn Roundabout (Segregated)	0	0	0	0	0	0	0	0	0	0	+1												
O10	Review layout of the A947/McDonalds access road junction	0	0	0	0	0	0	0	0	0	0	0	+1	0	0	0	0	0	0	0	0	0	0	0
AT31	Improve active travel links between the Riverside Path and housing within Dyce	0	0	0	0	0	0	0	0	0	0	0	0	+1	+1	+1	0	+1	0	0	+1	+1	0	+1
O3	Review the layout of the Riverview Drive/Balloch Way Junction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	0	0	0	0	0	0	0	0	0	0	0	+1	0	0	0	0	0	0	0	0	0	0	0
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	0	0	0	0	0	0	0	0	0	0	0	+1	+1	+1	+1	0	+1	0	0	+1	+1	+1	+1
AT61a	Implement package of active travel measures on Victoria Street	-1	0	0	0	0	0	0	+1	+1	-1	+1	+2	+1	+2	+2	+1	+1	+2	0	+2	+2	+1	+2
O2	Review the layout of the Victoria Street/Skene Place Junction	0	0	0	0	0	0	0	+1	0	0	0	+1	+1	0	0	0	0	0	0	0	0	0	0
O25	Implement access only restrictions for general traffic on Victoria Street	0	0	0	0	+2	0	0	+2	+1	0	0	+2	+1	+2	+1	+2	-2	+1	0	0	+1	+1	+1
O26	Implement one-way restrictions for general traffic on Victoria Street	0	0	0	0	+1	0	0	+1	+1	0	0	+1	+1	+1	+1	+1	+1	+1	-1	0	+1	+1	+1
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	0	0	0	0	0	0	0	0	0	0	+1	+1	0	+1	0	0	+1	0	0	+1	0	0	+1
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	0	0	0	0	0	0	0	+1	0	0	0	+2	+1	+1	+1	0	-1	0	0	+1	+1	0	+1
AT52	Implement two-way segregated cycleway on Old Meldrum Road	0	0	0	0	0	0	0	+1	0	0	0	+1	+1	+1	+1	0	-1	0	0	+1	+1	0	+1

Option	Description	Environment								Climate Change			Health, Safety and Wellbeing					Economy		Equality and Accessibility				
		Biodiversity and Habitats	Geology and Soils	Land Use	Water, Drainage and Flooding	Air Quality	Historic Environment	Landscape	Noise and Vibration	Greenhouse Gas Emissions	Vulnerability to Effects of Climate Change	Potential to Adapt to Effects of Climate Change	Accidents	Security	Health	Access to Health and Wellbeing Infrastructure	Visual Amenity	Transport Economic Efficiency (TEE)	Wider Economic Impacts (WEI)	Public Transport Network Coverage	Active Travel Network Coverage	Comparative Access by People Group	Comparative Access by Geographic Location	Affordability
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	0	0	0	0	0	0	0	+1	0	0	0	+2	+1	+1	+1	+1	+1	+1	0	+1	+1	0	+1
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	0	0	0	0	0	0	0	0	0	0	0	+1	0	0	0	0	0	0	0	0	0	0	0
O8	Review the layout of the A947/Stoneywood Brae Junction	0	0	0	0	0	0	0	0	0	0	0	+1	0	0	0	0	0	0	0	0	0	0	0
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	0	0	0	0	0	0	0	+1	+1	-1	+1	+2	+1	+2	+1	0	+1	+1	0	+1	+1	+1	+1
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	-2	0	0	0	0	0	0	+1	+1	-1	+1	+2	+1	+1	+1	0	+1	0	0	+1	+1	+1	+1
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	0	0	0	0	0	0	0	+1	+1	0	0	+1	0	+1	+1	0	+1	+1	0	0	+1	+1	0
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	0	0	0	0	+1	0	0	+1	+1	-1	+1	+1	+1	+2	+2	+2	+1	+2	0	+2	+2	+2	+2

Table 15-3: Detailed Appraisal Option Scoring Summary (Statutory Impact Assessment Criteria)

Option	Description	EqIA	CRWIA	HIIA	FSDA
AT26	Improve active travel connectivity between the A947 study area and TECA	+1	+1	+1	+1
AT35a	Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	+1	+1	+1	+1
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout	+1	+1	+1	+1
O10	Review layout of the A947/McDonalds access road junction	0	0	0	0
AT31	Improve active travel links between the Riverside Path and housing within Dyce	+1	+1	+1	0
O3	Review the layout of the Riverview Drive/Balloch Way Junction	N/A	N/A	N/A	N/A
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	N/A	N/A	N/A	N/A
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	N/A	N/A	N/A	N/A
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	+1	+1	+1	+1
AT61a	Implement package of active travel measures on Victoria Street	+2	+1	+2	+1
O2	Review the layout of the Victoria Street/Skene Place Junction	0	0	0	0
O25	Implement access only restrictions for general traffic on Victoria Street	+1	+1	+1	+1
O26	Implement one-way restrictions for general traffic on Victoria Street	+1	+1	+1	+1
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	+1	0	+1	+1
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	+1	+1	+1	0
AT52	Implement two-way segregated cycleway on Old Meldrum Road	+1	+1	+1	0
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	+1	0	+1	0
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	0	0	0	0
O8	Review the layout of the A947/Stoneywood Brae Junction	0	0	0	0

Option	Description	EqIA	CRWIA	HIIA	FSDA
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	+1	+1	+1	+1
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	+1	0	+1	0
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	+1	0	+1	+1
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	+2	+1	+2	+2

Table 15-4: Detailed Appraisal Option Scoring Summary (Deliverability Criteria)

Option	Description	Feasibility	Affordability	Public Acceptability
AT26	Improve active travel connectivity between the A947 study area and TECA	Low	Low	Low
AT35a	Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	Medium	Medium	Medium
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout	Low / Medium	Medium / High	Low / Medium
O10	Review layout of the A947/McDonalds access road junction	Low	Low	Low
AT31	Improve active travel links between the Riverside Path and housing within Dyce	Medium	Low	Low
O3	Review the layout of the Riverview Drive/Balloch Way Junction	Low	Low	Low
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	Low	Low	Low
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	Low	Low	Low
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	Medium	Low	High

Option	Description	Feasibility	Affordability	Public Acceptability
AT61a	Implement package of active travel measures on Victoria Street	Medium	Medium	High
O2	Review the layout of the Victoria Street/Skene Place Junction	Low	Low	High
O25	Implement access only restrictions for general traffic on Victoria Street	Medium	Low	High
O26	Implement one-way restrictions for general traffic on Victoria Street	Medium	Low	High
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	Low	Low	Low
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	Medium	Low	Medium
AT52	Implement two-way segregated cycleway on Old Meldrum Road	Medium	Low	Medium
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	Low	Low	Medium
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	Low	Low	Low
O8	Review the layout of the A947/Stoneywood Brae Junction	Low	Low	Medium
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	High	Medium	Medium
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	High	High	Low
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	Medium	Medium	Medium
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	Medium	Medium	Medium

15.2 OBC Package Composition

The table below has been prepared to summarise the outcomes of the Detailed Appraisal and to confirm which of the remaining Table 2 options should be progressed to OBC stage.

Table 15-5: Detailed Appraisal Outcome

Option Ref	Description	Detailed Appraisal Outcome	Progress to OBC
AT26	Improve active travel connectivity between the A947 study area and TECA	While this option has minor positive impacts across many of the appraisal criteria, it is considered that the key components of the option, including implementation of wayfinding signage and path surfacing, could be considered for delivery by ACC as 'quick wins'. Therefore there would not be a requirement to provide a case for this option as part of the OBC.	**No**
AT35a	Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	With this option adding to the existing active travel network and improving provision in the west of the study area, it is considered that Option AT35a should be promoted for assessment within the OBC.	**Yes**
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout	This option would improve active travel provision from the north of Old Meldrum Road to the retail park at Bucksburn Roundabout. Proposed works include the creation of either a shared use facility between the A947 crossing and the retail park or carriageway width reduction to facilitate a segregated two-way cycleway. This option should be promoted for assessment within the OBC, with a preferred design solution to be identified following the development of the business case.	**Yes**
O10	Review layout of the A947/McDonalds access road junction	While this option in isolation has neutral impacts across most of the appraisal criteria, junction layout alterations can be considered in conjunction with Option AT41 to improve active travel infrastructure and safety in this part of the study area, and, on this basis, should be promoted for assessment within the OBC.	**Yes**
AT31	Improve active travel links between the Riverside Path and housing within Dyce	This option is expected to add to the existing active travel network and increase connectivity between Riverview Drive (south of the Todlaw Walk junction) and the Riverside Path. As this option has minor positive impacts across many of the appraisal criteria and would promote uptake of active travel for leisure trips in the study area, it is considered appropriate to include Option AT31 within the OBC.	**Yes**
O3	Review the layout of the Riverview Drive/Balloch Way Junction	While the design and costing of each of these options has been developed on the basis of their implementation without the wider segregation on Riverview Drive, the principles of each option (junction kerb radii being reduced to manage entry/exit speeds and improved attractiveness/accessibility for crossing users) would still be required as part of Option AT48a. The collective range of improvements including segregation and junction adjustments are captured as part of this option. On this basis, and on the basis that Option AT48a is to progress to the OBC (see below), these individual options are no longer required.	**No**
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction		**No**
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction		**No**

Option Ref	Description	Detailed Appraisal Outcome	Progress to OBC
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	This option would offer minor positive impacts across many of the appraisal criteria, and, together with the inclusion of Option O2 in the OBC, would offer complementary support for an overall integrated active travel strategy in the Victoria Street area.	**Yes**
AT61a	Implement package of active travel measures on Victoria Street	This option would offer moderate positive impacts on aspects relating to health, safety and wellbeing, wider economic impacts, accessibility and equality; and minor positive impacts across a number of the other appraisal criteria. This option could be considered as an overarching strategy to deliver an active travel environment in the Victoria Street area, and, on this basis, should form part of the OBC.	**Yes**
O2	Review the layout of the Victoria Street/Skene Place Junction	While this option in isolation has neutral impacts across most of the appraisal criteria, junction layout alterations can be considered in conjunction with options to improve active travel infrastructure and safety in this part of the study area. Therefore, together with the inclusion of Option AT33 in the OBC, there would be complementary support for an overall integrated active travel strategy in the Victoria Street area.	**Yes**
O25	Implement access only restrictions for general traffic on Victoria Street	On the basis that this option has the potential for moderate negative impacts in terms of economy, and has significant risks in terms of public acceptability, it is not recommended to progress to the OBC. Further analysis of the option has proposed that restrictions on access would work most effectively on the north section only between Pitmedden Road and Riverview Drive Roundabout North. It would be challenging to implement on the southern half of Victoria Street without impacting access to public services, commercial units and Dyce Rail Station and it is anticipated that this would meet resistance from a range of stakeholders.	**No**
O26	Implement one-way restrictions for general traffic on Victoria Street	This option has the potential to complement the wider package of measures being considered for Victoria Street, and, on this basis, should form part of the OBC to further the case for the delivery of an overall integrated active travel strategy for this area.	**Yes**
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	This option provides a degree of connectivity with the nearby access to the F&B Way; however the opportunity for substantial connectivity improvement was limited by the existing constraints of the B977 corridor, specifically the restricted visibility and narrow cross section under the F&B overbridge which negates opportunity for allocation of a dedicated active travel space. With the proposed wider improvement to the F&B Way through to Dyce Rail Station, and the improved connectivity with the F&B Way north of Dyce proposed by Option AT13 (Table 1) it would be anticipated that there would be few users joining or leaving the F&B Way at this point. While this option does inform the northern extent of Option AT59 (Table 1), the only real benefit of retaining this option would be to support better accessibility and connection between the bus stops on either side of the A947 (and the widened shared use path being progressed under Option AT58), and, overall, it is not considered that this	**No**

Option Ref	Description	Detailed Appraisal Outcome	Progress to OBC
		would have a significant impact. On this basis, this option is not proposed to form part of the OBC package of measures.	
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	It is proposed that Option AT51 is progressed to the OBC on the basis that this provides a higher level of service than Option AT52 (and a preferred solution in terms of safety). The scheme would tie-in to active travel proposals at the south end of Old Meldrum Road (at the Auchmill Road junction) which are being considered as part of the A96 corridor study, supporting an integrated active travel solution for the north-west of the city. There may be a greater public acceptability risk relative to Option AT52 as this option would require some localised footway narrowing to an absolute minimum width to facilitate retention of on-street parking at the northern end. Both Option AT51 and Option AT52 would require removal of on-street parking at the southern end of Old Meldrum Road to facilitate implementation of segregated active travel facilities.	**Yes**
AT52	Implement two-way segregated cycleway on Old Meldrum Road	While Option AT52 would offer similar levels of benefit locally in the study area as Option AT51, on the basis that with-flow segregation (Option AT51) provides a higher level of service for users (and is a preferred solution in terms of safety, where there are vehicle crossovers and junctions as on Old Meldrum Road), Option AT52 is not proposed to form part of the OBC package of measures.	**No**
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	While this option has minor positive impacts across many of the appraisal criteria, it is considered that the key components of the option, including streetscape improvements and footway widening, could be considered for delivery by ACC as 'quick wins'. Therefore, there would not be a requirement to provide a case for this option as part of the OBC. It should be noted that the deliverability of this option has been enhanced with the wider improvements recently implemented in the area, particularly the removal of southbound access onto Mugiemoss Road.	**No**
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	While this option in isolation has neutral impacts across most of the appraisal criteria, junction layout alterations can be considered in conjunction with options to improve active travel infrastructure and safety in this part of the study area, and, on this basis, should be promoted for assessment within the OBC.	**Yes**
O8	Review the layout of the A947/Stoneywood Brae Junction	While this option in isolation has neutral impacts across most of the appraisal criteria, junction layout alterations can be considered in conjunction with options to improve active travel infrastructure and safety in this part of the study area, and, on this basis, should be promoted for assessment within the OBC.	**Yes**
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	This option offers positive impacts across the majority of the appraisal criteria, supporting the promotion of an overall coherent and connected active travel network. With an overall objective to support the highest practicable level of service on the study corridor between Bucksburn Roundabout and Riverview Drive Roundabout (North), the option has low risk in terms of public acceptability. Together with other active travel options, this option would support delivery of an integrated	**Yes**

Option Ref	Description	Detailed Appraisal Outcome	Progress to OBC
		active travel strategy for the A947 study area as a whole, and, on this basis, should be promoted for assessment within the OBC.	
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	This option would offer positive impacts across most of the appraisal criteria – supporting the promotion of an overall coherent and connected active travel network. Notably, this option would satisfy a gap in the network in the north of the study area, and, on this basis, should be promoted for assessment within the OBC. Going forward, this option will need to consider technical limitations associated with the length of the route and constraints relating to third party land, existing infrastructure and the need to provide crossing points on a higher speed road – a reduced speed limit and priority pedestrian crossings on the section of Dyce Drive between Pitmedden Road and the Industrial Estate form part of the proposals.	**Yes**
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	On the A947 corridor, there are signal controlled junctions at Stoneywood Road/Beech Manor, Market Street/Stoneywood Terrace, Stoneywood Park at the southern end, and the B977 to the north. In each junction at the southern end, there is a single lane for through traffic, therefore adapting signals to improve bus priority with approach detection would generally only improve bus through-flow when they are close to the front of the queuing traffic. There may be some minor benefits but given the relatively low number of signalised junctions, this is unlikely to lead to significant improvements to bus journey times, and, on this basis, this option is not proposed to form part of the OBC package of measures.	**No**
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	It is considered that a combined package of options from the packages conceived for the study consultation can, collectively, serve as an integrated sustainable travel strategy for Dyce (and the A947 study area as a whole). On this basis, it is considered that the implementation of the OBC packages can deliver on the principles associated with 20-minute neighbourhoods and it is therefore considered that Option O16 in its own right is not required to be promoted directly as part of the business case.	**No**

Considering the above – and the previously identified options from Table 1 progressing directly to business case stage – the final OBC package of measures for assessment at the next stage of the study can now be confirmed, overpage.

Table 15-6: Final OBC Package

Option Ref	Description
AT4	Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive
AT13	Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the Formartine and Buchan Way
AT14	Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout
AT16	Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout
AT17	Implement signalised crossing facility on Victoria Street adjacent to Tesco
AT30[152]	Provide direct active travel link between Dyce Drive and Riverview Drive
AT32	Implement footways on the south side of the carriageway on Pitmedden Road
AT59	Widen the shared use path on the east side of the A947 to the north of Riverview Drive
AT60	Provide continuous footways on Riverview Drive for the duration of the route
O15	Introduce placemaking and gateway features on Victoria Street
AT35a	Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout
O10	Review layout of the A947/McDonalds access road junction
AT31	Improve active travel links between the Riverside Path and housing within Dyce
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road
AT61a	Implement package of active travel measures on Victoria Street
O2	Review the layout of the Victoria Street/Skene Place Junction
O26	Implement one-way restrictions for general traffic on Victoria Street
AT51	Implement with-flow segregated cycleway on Old Meldrum Road
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer
O8	Review the layout of the A947/Stoneywood Brae Junction
AT48a[153]	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

[152] Option AT30 is effectively delivered through the combination of Options AT13, AT14 and AT59. Should one or more of these options not progress within the package of measures, Option AT30 would be subject to reliance on existing active travel facilities and its accessibility and overall value to users would be reduced.
[153] Should Option AT48a not progress to implementation, Options AT4 and AT60 could still be considered to offer value in isolation and should still be differentiated as standalone options.

Two options initially conceived for direct inclusion in the OBC at the outset of the study (i.e. as part of Table 1), will now **not** feature in the OBC:

- Option AT8 (Reconfigure the Auchmill Road/Old Meldrum Road junction to improve connections for pedestrians and cyclists) – junction proposals at this location will be progressed and consulted on as part of the A96 corridor study design with the A947 study proposals for Old Meldrum Road (Option AT51) tying-in to what emerges from the A96 appraisal.
- Option AT19 (Implement pedestrian crossing facilities at the Old Meldrum Road/Mugiemoss Road Junction) – pedestrian crossing facilities implemented as part of the Barratt Homes development along Mill Drive have superseded the requirement for this option in the study.

In addition, the following options from Table 1 will also not feature in the OBC having been subject to work as part of this study, with the outcomes now with ACC to further consider:

- Option AT20 (Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways).
- Option AT68 (Conduct a review of wayfinding signage throughout the study area).
- Option O11 (Undertake a review of parking arrangements on Victoria Street).

Furthermore, it was noted in Section 4.5 of this report that while Options AT10, AT11 and AT12 could be delivered as ‘quick wins’, on-road cycling infrastructure is not shown to influence modal shift and therefore it is considered that segregated cycling infrastructure should be promoted as part of this study. However, these options were noted as providing interim opportunities to improve on-road cycling infrastructure in advance of further consideration of segregation in the study area. With the Detailed Appraisal now complete – and Option AT48a (Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North) moving forward to the OBC stage – it should be highlighted that advisory cycle lane improvements would be superseded by implementation of a segregated cycleway as part of Option AT48a.

On this basis, it is concluded that Options AT10, AT11 and AT12 are no longer required as ‘quick win’ projects for delivery by ACC; although this would be subject to implementation of improvements to the level of service on the study corridor, including along Riverview Drive and on Stoneywood Road (at the Stoneywood Park junction), which would cover the scope of the improvements proposed by Options AT10/11/12.

15.3 Summary

This report has set out the outcomes of the appraisal of the ‘Table 2’ options under consideration in the A947 Multi-Modal Corridor Study. This has facilitated the identification of a preferred package of measures for the OBC.

The OBC package will now be assessed in terms of the Strategic, Socio-Economic, Financial, Commercial and Management cases – these will be provided to ACC under separate cover.

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Appendix A –
Rationale for Table 2 Option Sifting

Delivering a better world

Table 2 - To progress to further development, appraisal, design and OBC		SIFT or RETAIN	Design Comments
AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport	RETAIN	:- Access to Heliport improved by committed works on Farburn Terrace. :- Improvements on Market St. add benefit in terms of directness for wider area. Supporting AT26. :- Works could include: - Cycle signage + markings added along route - Modal filter installed at Western end to replace old metal gate - TRO to adjust speed limit to 20mph if not already changed from 30mph when access restrictions introduced.
AT26	Improve active travel connectivity between the A947 study area and TECA	RETAIN	:- Improving connection with existing shared use facilities along Wellheads Drive would support a coherent AT route/network. :- Improved wayfinding throughout would add benefits. :- Improvements on Market St. add benefit in terms of directness for wider area. Supporting AT24. :- Works could include: - Cycle signage + markings added along route - Modal filter installed at Western end to replace old metal gate - TRO to adjust speed limit to 20mph if not already changed from 30mph when access restrictions introduced. :- Existing path network south of TECA could be upgraded to bound surface to offer higher level of service for users.
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate	SIFT	:- Propose to sift AT27 as promotes similar outcomes to AT24, AT26 and AT58 which are more targeted and specific.
AT31	Improve active travel links between the Riverside Path and housing within Dyce	RETAIN	:- AT14 and AT60 from Table 1 provide improved connection with Riverside Path network. :- AT14 provides formal pedestrian crossing to the north on Riverview Drive and connects to the Riverside Path via existing footways. :- AT60 provides a missing link in the existing shared-use path to complete access to the Riverside Path. This would facilitate access for residents on the south side of Riverview Drive and remove the need for multiple road crossings. :- Further consideration of desire lines will inform addition of further priority crossings over Riverview Drive. Worn surface close to Dyce Academy, approximately 280m south of the established Riverside Path access is a potential location that would merit further review. AT31 to be retained to specifically review and develop improved connections in the area between AT14 and AT60.
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	RETAIN	:- Introduction of a one-way system on Station Road and adjacent streets would help improve attractiveness of active travel and support quiet route measures and the delivery of O2. :- Existing corridor width is 7.5m. A contra-flow cycle lane could potentially be adopted for improved cycling accessibility but would require existing sub-standard footways to be retained at existing width (approx 1.25m) and removal of existing on-road parking.
AT35	Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station	RETAIN	:- Farburn Terrace improvements already captured under separate committed project. :- Wellheads Drive is too wide to be considered for quiet route measures (CbD 3.8.3) :- Opportunities for implementation of quiet route measures on Bankhead Road to be investigated further. : -There would be merit in redefining option as quiet route may also not be the most appropriate measure for Bankhead Road - would need to establish traffic conditions to inform suitability. "Implement active travel improvements on the local road network to the west of A947 via Bankhead Road and Wellheads Drive" may be more appropriate but would require additional optioneering. Client group to consider.
AT41	Improve active travel access to the retail park at the Bucksburn Roundabout	RETAIN	Access from Bankhead Road considered to connect with wider active travel infrastructure as no improvements proposed on the A947 between Bucksburn Roundabout and the Old Meldrum Road junction. Opportunity to introduce accessible ramp where existing stair only access is located however technical and deliverability challenges noted: :- Approx 5m level difference therefore 100m+ ramp required. :- Proximity to overbridge wingwalls would raise constructability challenges :- Risk that users would be approaching Bankhead Road on a lengthy downhill gradient and visibility would be obscured by the overbridge abutment. :- Significant deliverability challenges noted therefore connection from Bankhead Road not proposed to be taken forward for further development and evaluation. _____ Update: Following installation of new Toucan Crossing on A947, north of Old Meldrum Road junction, there is a new opportunity to consider creation of an active travel link to the retail park along the A947. :- On the assumption the A947 dual traffic lanes are to be retained, the existing northbound footway could be upgraded to a shared use facility between the A947 crossing and the retail park. :- Existing footway width varies between 1.8-3m with available verge space at rear although widening would require relocation of lighting columns, signal posts and removal of some vegetation. :- A947 carriageway width reduction to one lane would facilitate a segregated two-way cycle track to at least desirable minimum width with buffer to meet the new crossing facility. Wider connectivity north of the crossing should be captured as part of AT48.
AT42	Review access to the Formartine and Buchan Way from within Dyce	SIFT	:- 5 primary points of access identified between Dyce Station and B977 :- Improvement in access facilitated to F&B Way facilitated by multiple other Table 1 and 2 options - AT68 promotes general wayfinding improvement - AT13 & AT58 promote shared use paths and crossings which connect with existing access to the F&B way - AT32 improves access from Pitmedden Drive :- Propose to sift as promotes similar outcomes to above mentioned options which are more targeted and specific.
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	RETAIN	:- AT28 from Table 4 (Quick Wins) provides direct access from the A947 onto existing path connecting to B977. :- Existing path could be brought up to a desirable minimum width and bound surface :- A new crossing of the A947 would improve access to bus stops and connect with AT59 to accommodate transition between NB and SB movements on A947. :- Old A947 pre-AWPR is suitable for consideration of quiet route measures.
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	SIFT	:- Variability of conditions and number of fixed physical constraints along route mean that there is not a 'one size fits all' solution. :- Section specific options which broadly cover extent of route are available across Tables 1-4 and are considered more deliverable when considered individually.

AT48	Implement two-way segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	RETAIN	:- Variability of conditions and number of fixed physical constraints along route mean that there is not a 'one size fits all' solution. :- Section specific options which broadly cover extent of route are available across Tables 1-4 and are considered more deliverable when considered individually. :- Reconsider the wording of this option to incorporate 'evaluation of highest practicable level of service' such as shared use where constraints present significant deliverability risk to segregation: :-it should be retained as a standalone option to capture sections not considered under other targetted options and to promote an overall coherent and connected network. :- improvements taken forward as part of this option include: Bucksburn Roundabout to Old Meldrum Road :- No existing facility :- connection to A96 segregated route evaluated as part of Old Meldrum Road (AT51/52) :- connection to Bucksburn Retail Park evaluated as part of AT41 :- segregation on this link would require A947 to be downgraded to single carriageway. Old Meldrum Road to Stoneywood Brae :- Existing Shared-Use path typically compliant with absolute minimum standard and constrained by road corridor, embankment and overbridges. Reducing VRS set back to 0.6m on southbound approach to Old Meldrum Road junction would support consistent shared-use width throughout. :- Segregation or desirable minimum shared-use on this link would require A947 to be downgraded to single carriageway. Stoneywood Brae to Beech Manor :- Availible verge space to provide segregation to desirable minimum standard using existing verge space with reallocation of lighting columns.
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	RETAIN	:- Existing corridor width varies between 14-16m with on-street parking throughout. :- Insufficient width to provide with-flow segregation to desirable minimum width on Old Meldrum Road. Absolute minimum widths could be achieved but only with a significant reduction in existing on-street parking provision. :- Option to be retained for further consideration based on benefits of with-flow at junctions.
AT52	Implement two-way segregated cycleway on Old Meldrum Road	RETAIN	:- Existing corridor width varies between 14-16m with on-street parking throughout. :- Two-way segregation to desirable minimum width could be achieved with a significant reduction in existing on-street parking provision. :- Two-way segregation consistent with wider proposals on connecting A96 corridor.
AT55	Implement with-flow segregated cycleway on Gilbert Road	SIFT	:- Existing corridor width 10-11m with on-street residential parking and fixed private boundaries on both sides. :- Not feasible to achieve CbD absolute minimum with-flow segregation along route without removal of parking. :- Low moving traffic volumes and speeds would suggest mixed traffic street measures could be more effective here.
AT56	Implement two-way segregated cycleway on Gilbert Road	SIFT	:- Existing corridor width 10-11m with on-street residential parking and fixed private boundaries on both sides. :- Not feasible to achieve CbD absolute minimum two-way segregation along route without removal of parking. :- Low moving traffic volumes and speeds would suggest mixed traffic street measures could be more effective here.
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	RETAIN	:- Approx 2.5km of new shared-use path would connect existing shared-use path network through Kirkhill Industrial Estate with F&B Way and proposed infrastructure connecting to Dyce. :- Constraint at rail overbridge would require route to cross Dyce Drive at 2no. locations. Provision of priority crossing for active travel users would require the existing posted speed limit on Dyce Drive (de-restricted) to be reduced to at least 50mph (and lower if non-signalised crossing considered).
AT61	Implement shared use path on Victoria Street	RETAIN	:- Variable cross-sectional width along length of Victoria Street, approximately 12m wide in places. :- On-street parking for a number of residential and commercial properties. :- Higher risk of conflict between users therefore shared use not considered appropriate on primary residential and commercial section of Victoria Street. :- Mixed traffic street measures considered to be potentially more appropriate in association with O16, O25 and O26 however HGV use on part of the link could limit attractiveness. :- Promotion of a reduced 20mph speed limit would help minimise cross-section width and increase attractiveness of active travel. :- Propose to update option wording to allow evaluation of wide range of options for Victoria Street - "Implement package of active travel measures on Victoria Street" and split into 3 sections for evaluation: 1. Victoria St/Riverview Dr South roundabout to Farburn Terrace 2. Farburn Terrace to Pitmedden Road 3. Pitmedden Road to Victoria St/Riverview Dr North (HGV access recognised for Pitmedden Road industrial estate) Section 1 Adequate verge space on Eastern side to develop segregated connection. Existing advisory lanes could be reallocated to support development too. Section 2 Limited scope to widen existing footways or reduce carriageway width. Propose to reduce speed limit to 20mph and introduce variety of measures to formalise this section as a mixed traffic street Section 3 Option 1 Reduction of speed limit to 20mph, carriageway narrowing to 6m and removal of on street parking would create opportunity for segregated cycleway along this section with minimal impact on 3rd party land. Absolute minimum width footway + Desirable minimum cycletrack Section 3 Option 2 Reduction of speed limit to 20mph and removal of on street parking would create opportunity to widen and reclassify existing footways on Eastern side to shared use desirable minimum width with localised narrowing to absolute minimum width. Section 3 Option 3 Reduction of speed limit to 20mph and introduction of a variety of measures to formalise this section as a mixed traffic street. Reduction in HGV movements desirable to improve attractiveness of route.
AT64	Implement shared use path on Old Meldrum Road	SIFT	:- Existing corridor width varies between 14-16m with on-street parking throughout. :- A shared-use path could feasibly be provided to desirable minimum requirements with moderate reduction in existing on-street parking provision. :- However, segregated facilities along Old Meldrum Road offer a higher LoS to cyclists and therefore will be retained over SU option.
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	RETAIN	:- Primary route now through Mill Drive which also incorporates a shared-use path facility. :- Constrained width of Mugiemoss Road and assumed continued operation as a bus route limit viability of footway widening. :- Quiet route/mixed traffic street measures could be considered to remove modal conflict on footways.

AT66	Implement shared use path on Gilbert Road	SIFT	:- Existing corridor width 10-11m with on-street residential parking and fixed private boundaries on both sides. :- Not feasible to achieve CbD absolute minimum shared-use without removal of parking on one side. :- Low moving traffic volumes and speeds would suggest mixed traffic street measures could be more effective here.
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	RETAIN	:- To be taken forward for further analysis. Lower cost intervention that could deliver wide benefit.
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport	SIFT	:- Following PT specific engagement with the client group including Nestrans, it was agreed that standalone public transport options could be sifted. The Roads Hierarchy places greater emphasis on active travel and by delivering traffic calming and active travel improvements as captured under retained Table 1 and 2 options, benefits in terms of public transport attractiveness and journey time reliability will be realised. It is also noted that public transport improvements are reliant on commitment and buy-in from private operators.
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride	SIFT	:- Following PT specific engagement with the client group including Nestrans, it was agreed that standalone public transport options could be sifted. The Roads Hierarchy places greater emphasis on active travel and by delivering traffic calming and active travel improvements as captured under retained Table 1 and 2 options, benefits in terms of public transport attractiveness and journey time reliability will be realised. It is also noted that public transport improvements are reliant on commitment and buy-in from private operators.
PT11	Improve public transport connectivity between the A947 study area and TECA	SIFT	:- Following PT specific engagement with the client group including Nestrans, it was agreed that standalone public transport options could be sifted. The Roads Hierarchy places greater emphasis on active travel and by delivering traffic calming and active travel improvements as captured under retained Table 1 and 2 options, benefits in terms of public transport attractiveness and journey time reliability will be realised. It is also noted that public transport improvements are reliant on commitment and buy-in from private operators.
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate	SIFT	:- Following PT specific engagement with the client group including Nestrans, it was agreed that standalone public transport options could be sifted. The Roads Hierarchy places greater emphasis on active travel and by delivering traffic calming and active travel improvements as captured under retained Table 1 and 2 options, benefits in terms of public transport attractiveness and journey time reliability will be realised. It is also noted that public transport improvements are reliant on commitment and buy-in from private operators.
O2	Review the layout of the Victoria Street/Skene Place Junction	RETAIN	:- Review of junction layout to be considered alongside AT33 :- Introduction of a one-way system on Station Road and adjacent streets would help improve attractiveness of active travel and support quiet route measures. :- Initial swept path analysis with a DB32 fire appliance has been undertaken with potential constraint turning into Skene Place if one-way network adopted.
O3	Review the layout of the Riverview Drive/Balloch Way Junction	RETAIN	:- Reduction in kerb radii proposed to reduce traffic speed turning into the side road. :- Swept path analysis undertaken based on OS data suggests no encroachment into opposing lane but would require survey data to confirm.
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	RETAIN	:- Reduction in kerb radii proposed to reduce traffic speed turning into the side road. :- Swept path analysis undertaken based on OS data suggests no encroachment into opposing lane but would require survey data to confirm.
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	RETAIN	:- Reduction in kerb radii proposed to reduce traffic speed turning into the side road. :- Swept path analysis undertaken based on OS data suggests no encroachment into opposing lane but would require survey data to confirm.
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	RETAIN	:- Public consultation identified frequency of illegal manoeuvres from Stoneywood Road onto A947 at junction. :- Options to improve junction operation include: - increasing splitter island kerb radius and/or introducing a taper entry to inhibit right turn and straight through movement at junction. - Replace hatch marking with physical island adjacent to right turn filter lane on A947 (similar to Stoneywood Brae Junction) - Revise junction layout to accommodate desired movements with possible signalised interchange or roundabout.
O8	Review the layout of the A947/Stoneywood Brae Junction	RETAIN	:- Assessment of existing layout to be undertaken. Initial review identified taper for change in carriageway width is not to standard. :- To be retained and considered further as part of wider improvements on A947 corridor.
O10	Review layout of the A947/McDonalds access road junction	RETAIN	:- Swept path analysis to be undertaken. Proximity of at-grade pedestrian crossing and left turn onto the A947 to be evaluated and visibility to be assessed.
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	RETAIN	:- Area wide analysis and consultation required :- Deliverability and benefits will be subject to appraisal of a number of specific options from Tables 1 to 4
O25	Implement access only restrictions for general traffic on Victoria Street	RETAIN	:- Area wide modelling and consultation required :- Reprioritisation of A947 route along Riverview Drive supports measure :- Potential deliverability challenge with restriction of access to local businesses and services therefore clear benefits to be established ahead of consultation on this option.
O26	Implement one-way restrictions for general traffic on Victoria Street	RETAIN	:- Area wide modelling and consultation required :- Modelling will provide information to inform one-way direction based on current and future traffic flows along Victoria Street :- Reprioritisation of A947 route along Riverview Drive supports measure :- Potential deliverability challenge with restriction of access to local businesses and services therefore clear benefits to be established ahead of consultation on this option.

AT62	Widen the shared use path on the east side of the A947 between the A96 and Beech Manor	N/A - sifted at previous stage	:-Option was sifted at previous project stage on the basis that segregated facilities should be promoted as part of the study rather than shared use. Assessment of technical viability was founded on agreed assumption that the A947 dual traffic lanes were to be retained and recognised limitations in terms of available width to improve existing absolute minimum shared use paths to provide segregation or desirable minimum shared use with buffer. North of Bucksburn Roundabout, the corridor is constrained on embankment and across overbridges. Revisited as part of discussion on end-to-end active travel provision along A947 (AT48).

Table 2 - Proposed Revision to Option Definition		SIFT or RETAIN	Design Comments
AT35a	Implement active travel improvements on the local road network to the west of A947 via Bankhead Road and Wellheads Drive	RETAIN	:- Farburn Terrace improvements already captured under separate committed project. :- Wellheads Drive is too wide to be considered for quiet route measures (CbD 3.8.3) :- Opportunities for implementation of quiet route measures on Bankhead Road to be investigated further.

AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between AWPR Junction and A947/A96 Junction	RETAIN	:- Variability of conditions and number of fixed physical constraints along route mean that there is not a 'one size fits all' solution. :- Section specific options which broadly cover extent of route are available across Tables 1-4 and are considered more deliverable when considered individually. :-it should be retained as a standalone option to capture sections not considered under other targeted options and to promote an overall coherent and connected network. :- improvements taken forward as part of this option include: Bucksburn Roundabout to Old Meldrum Road :- No existing facility :- connection to A96 segregated route evaluated as part of Old Meldrum Road (AT51/52) :- connection to Bucksburn Retail Park evaluated as part of AT41 :- segregation on this link would require A947 to be downgraded to single carriageway. Old Meldrum Road to Stoneywood Brae :- Existing Shared-Use path typically compliant with absolute minimum standard and constrained by road corridor, embankment and overbridges. Reducing VRS set back to 0.6m on southbound approach to Old Meldrum Road junction would support consistent shared-use width throughout. :- Segregation or desirable minimum shared-use on this link would require A947 to be downgraded to single carriageway. Stoneywood Brae to Beech Manor :- Availible verge space to provide segregation to desirable minimum standard using existing verge space with reallocation of lighting columns.
AT61a	Implement package of active travel measures on Victoria Street	RETAIN	:- Variable cross-sectional width along length of Victoria Street, approximately 12m wide in places. :- On-street parking for a number of residential and commercial properties. :- Higher risk of conflict between users therefore shared use not considered appropriate on primary residential and commercial section of Victoria Street. :- Mixed traffic street measures considered to be potentially more appropriate in association with O16, O25 and O26 however HGV use on part of the link could limit attractiveness. :- Promotion of a reduced 20mph speed limit would help minimise cross-section width and increase attractiveness of active travel. :- Propose to consider in 3 sections for evaluation: 1. Victoria St/Riverview Dr South roundabout to Farburn Terrace 2. Farburn Terrace to Pitmedden Road 3. Pitmedden Road to Victoria St/Riverview Dr North (HGV access recognised for Pitmedden Road industrial estate) Section 1 Adequate verge space on Eastern side to develop segregated connection. Existing advisory lanes could be reallocated to support development too. Section 2 Limited scope to widen existing footways or reduce carriageway width. Propose to reduce speed limit to 20mph and introduce variety of measures to formalise this section as a mixed traffic street Section 3 Option 1 Reduction of speed limit to 20mph, carriageway narrowing to 6m and removal of on street parking would create opportunity for segregated cycleway along this section with minimal impact on 3rd party land. Absolute minimum width footway + Desirable minimum cycletrack Section 3 Option 2 Reduction of speed limit to 20mph and removal of on street parking would create opportunity to widen and reclassify existing footways on Eastern side to shared use desirable minimum width with localised narrowing to absolute minimum width. Section 3 Option 3 Reduction of speed limit to 20mph and introduction of a variety of measures to formalise this section as a mixed traffic street. Reduction in HGV movements desirable to improve attractiveness of route.

Appendix B –
Table 1 Design Technical Note

Delivering a better world

Project:	**A947 Multi-Modal Corridor Study: Detailed Appraisal & OBC**		
Subject:	**Technical Note - Table 1 Design Overview**		
Prepared by:	**Jack McKenna**	Date:	**05/01/2024**
Checked by:	**Steven Smith**	Date:	**10/01/2024**
Verified by:	**Joanne Melarkey**	Date:	**17/01/2024**
Approved by:	**Andrew Robb**	Date:	**19/01/2024 (Draft)** **11/03/2024 (Final following client comment)**

Introduction

This Technical Note details the Option Development undertaken as part of the Detailed Appraisal and Outline Business Case (OBC) stage of the A947 Multi-Modal Corridor Study. This Option Development exercise focuses on the 'Table 1' options specified by Aberdeen City Council (ACC) at the inception stage of the study, as summarised in Table 1 below.

Table 1 – 'Table 1' Options for Detailed Design and OBC

Option	Description
AT4	Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive
AT8	Reconfigure the Auchmill Road/Oldmeldrum Road junction to improve connections for pedestrians and cyclists
AT13	Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the Formartine and Buchan Way
AT14	Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout
AT16	Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout
AT17	Implement signalised crossing facility on Victoria Street adjacent to Tesco
AT19	Implement pedestrian crossing facilities at the Oldmeldrum Road/Mugiemoss Road Junction
AT20	Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways
AT30	Provide direct active travel link between Dyce Drive and Riverview Drive
AT32	Implement footways on the south side of the carriageway on Pitmedden Road
AT59	Widen the shared use path on the east side of the A947 to the north of Riverview Drive
AT60	Provide continuous footways on Riverview Drive for the duration of the route
AT68	Conduct a review of wayfinding signage throughout the study area
O11	Undertake a review of parking arrangements on Victoria Street
O15	Introduce placemaking and gateway features on Victoria Street

General arrangement (GA) layouts for the design-orientated options are available in Appendix A and the basis of design, key design details and recognised risks and unknowns are discussed within the main body of this Technical Note.

Design Guidance Overview

Cycling by Design provides guidance for permanent active travel infrastructure design in Scotland and has been considered and referenced throughout this Technical Note. The guidance defines 'desirable minimum' and 'absolute minimum' widths for various forms of active travel facility. 'Desirable minimum' widths should be considered as the minimum requirement and reductions below this level should only be applied where specific constraints are identified, such that it cannot be reasonably achieved. In such cases, limited reductions are permissible, but the highest achievable

standard should be maintained. 'Absolute minimum' widths represent the scope of permissible reduction to the requirement. Where elements of the design are subject to statutory obligations, these must be adhered to.

The Cycling by Design footway and cycle track width requirements for different cycle track types are outlined in the table below.

Table 2 – Cycling by Design Track Width Requirements

Cycle Track Types		Footway Width	Cycle track width *One-way, less than 300 cycles per hour peak*	Cycle track width *Two-way, less than 300 cycles per hour peak*
Remote Cycle Tracks Separated from pedestrians	Desirable minimum	2.0m	2.0m	3.0m
	Absolute minimum	1.5m	1.5m	2.0m
Remote Cycle Tracks Shared with pedestrians	Desirable minimum	N.A.	Not Recommended	4.0m
	Absolute minimum	N.A.	Not Recommended	2.5m
Cycle Tracks adjacent to carriageway Separated from pedestrians	Desirable minimum	2.0m	2.0m	3.0m
	Absolute minimum	1.5m	1.5m	2.0m
Cycle Tracks adjacent to carriageway Shared with pedestrians	Desirable minimum	N.A.	Not Recommended	4.0m
	Absolute minimum	N.A.	Not Recommended	2.5m

In addition to the direct width of the usable facility, consideration of the minimum buffer width for a facility adjacent to a carriageway is also required and is defined by the posted road speed limit. Table 3 is also taken from Cycling by Design and outlines these minimum requirements.

Table 3 – Minimum Buffer Widths

Speed Limit	Minimum Buffer Width
30mph	0.5m
40mph	1.00m
50mph	2.00m (including any hard strip)
60mph	2.50m (including any hard strip)
70mph	3.50m (including any hard strip)

The Design Manual for Roads and Bridges (DMRB) has also been referenced in this Technical Note. The DMRB provides design guidance for the development of the trunk road network in the UK. Where no standard specific to the local road network is available, the DMRB becomes the primary point of reference and the requirements set out within the standards were considered to evaluate road layout interventions and opportunities in accordance with several of the Table 1 options.

Table 1 Option Development

AT4 – Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive

Riverview Drive is a standard single carriageway road with a 40mph posted speed limit. Burnside Drive provides direct access to a residential estate and is signed as the access to Farburn Industrial Estate which is located south of the residential area. A primary access to Farburn Industrial Estate is provided by the Wellheads Road priority junction, 430m to the west along Riverview Drive however this is not promoted by directional signage.

Access to Burnside Drive is currently provided off an extended straight on Riverview Drive by an at-grade priority junction with unobstructed visibility and 10m junction corner radii. A shared use path, forming part of NCN Route 1, runs adjacent to Riverview Drive, crossing the Burnside Drive junction bell mouth at an uncontrolled dropped kerb crossing.

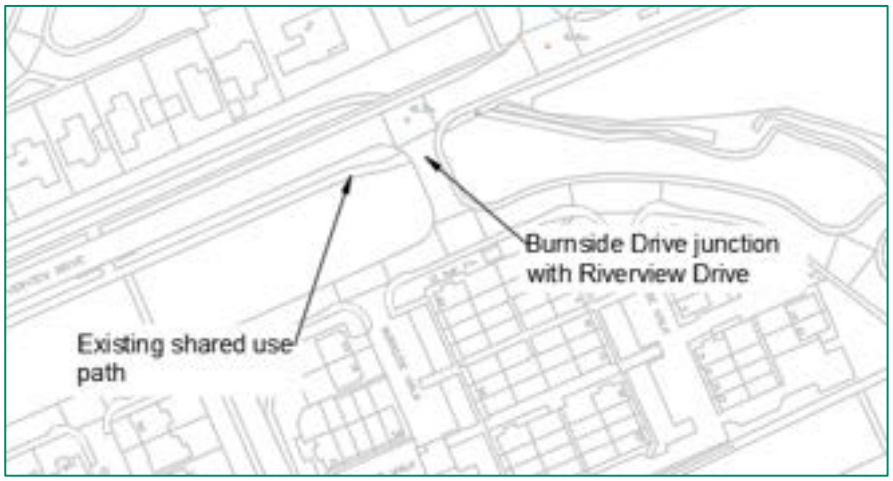


Figure 1 - Existing Arrangement

In line with changes to the Highway Code from January 2022, walking and wheeling users crossing Burnside Drive and continuing straight on the shared use path have priority over vehicles turning into Burnside Drive. To provide priority over vehicles turning out of Burnside Drive and improve attractiveness and safety for users, a controlled 'bend-out' crossing is being developed as part of this option. Cycling by Design promotes this as the appropriate arrangement due to the 40mph speed limit of Riverview Drive.

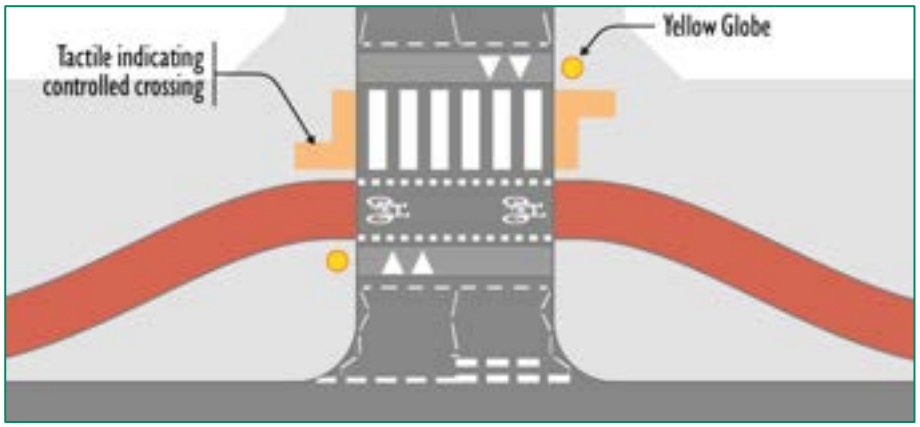


Figure 2 - Priority at side road 'bend-out' layout (Source: Cycling by Design)

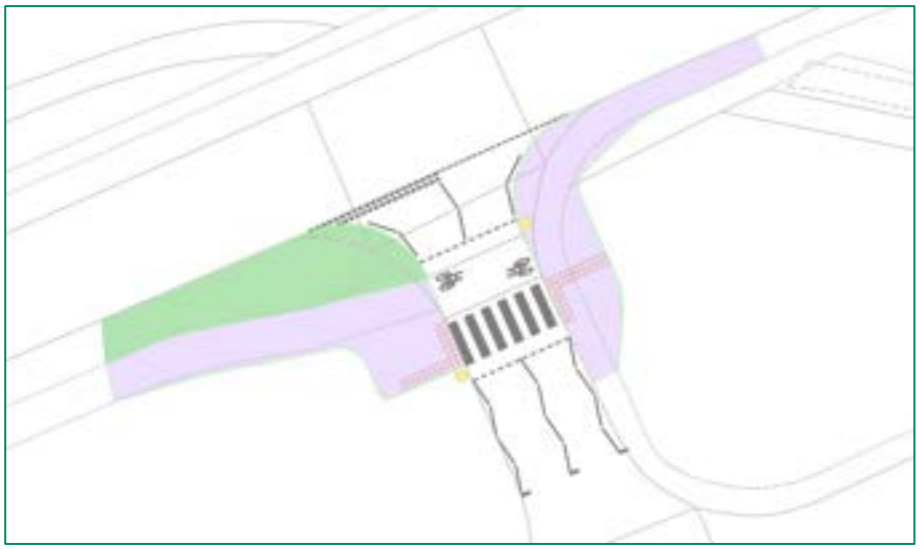


Figure 3 - Proposed active travel priority crossing layout on Burnside Drive

Key design features

- Crossing location set-back 5m, similar to existing, from the junction edge line to accommodate storage of a vehicle off the main road and without obstruction to crossing whilst also avoiding excessive detours for active travel users.
- Shared use path realigned locally and widened on approach to crossing using existing verge space and without disturbing existing vegetation.
- Parallel crossing arrangement to clearly define user space and avoid conflict between user groups on the crossing.
- Directional signage for Farburn Industrial Estate relocated to promote Wellheads Road as primary access route.
- Junction corner radii reduced from 10m to 6m to limit vehicle speeds, enabled by redirection of HGVs away from Burnside Drive to access the industrial estate at Wellheads Road.
- Dropped kerb crossing rather than raised table as recognised to be more distinguishable by visually impaired user groups; enables existing drainage runoff flow paths to be retained and simplifies future maintenance by ACC.

Risks and Unknowns

The Far Burn is culverted below Riverview Drive, crossing diagonally from the east of the Burnside Drive junction. This limits opportunity to realign the shared use facilities on the eastern approach to the Burnside Drive crossing. Further information on the surfacing depth on top of the culvert will be required to inform detailed development of the tie-in following junction improvements.

Utility chambers are observed in the eastern footway and western verge. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered to be low. C2 preliminary inquiries will be undertaken to establish apparatus in the study area to inform the detailed design impact.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT4 is £221,000 including optimism bias at 44%.

AT8 – Reconfigure the Auchmill Road/Old Meldrum Road junction to improve connections for pedestrians and cyclists.

The A96 Auchmill Road is an urban dual carriageway with a 30mph posted speed limit. Old Meldrum Road meets Auchmill Road at a priority junction with a restricted eastbound only merge. Central reserve widening on Auchmill Road accommodates a right-turning lane for westbound vehicles and a diverge taper with give-way prevents conflict with eastbound vehicles turning onto Old Meldrum Road.

The Old Meldrum Road junction is approximately 40m wide and pedestrian access across the junction is accommodated in multiple uncontrolled stages with dropped kerbs and pedestrian refuge areas on the splitter islands.

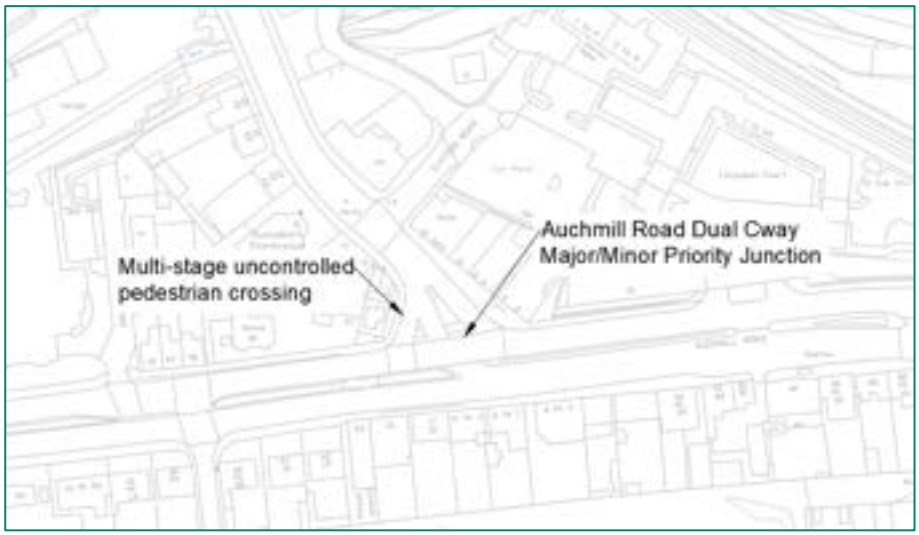


Figure 2 Existing Arrangement

The A96 Multi-Modal Corridor Study, being progressed separately by ACC, is promoting a bi-directional segregated cycleway in the westbound channel of Auchmill Road alongside bus improvements. Reconfiguration of the Auchmill Road central reserve and removal of the right turn into Old Meldrum Road are proposed to facilitate these improvements.

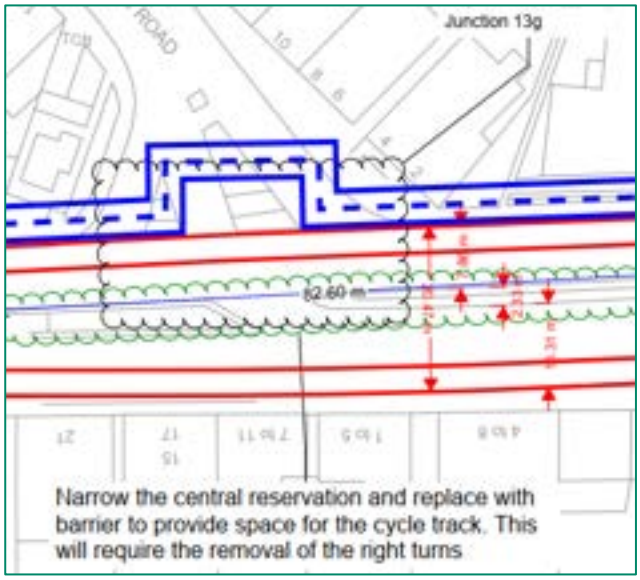


Figure 3 - Outline concept design developed as part of A96 Multi-Modal Corridor Study (Source: Stantec)

The proposed interventions on the A96 Auchmill Road create opportunity for reconfiguration of the Old Meldrum Road junction to improve pedestrian and cycle user accessibility.



Figure 4 - Proposed A96 Auchmill Road/Old Meldrum Road Layout

Key design features

- Give-way entry and exit moved south into existing Auchmill Road carriageway, indicatively representing proposed reconfiguration proposed by parallel corridor study.
- Localised realignment of Old Meldrum Road for a more perpendicular approach, reducing footprint of the road carriageway and length of crossing with significant redistribution of space (>300m^2) for pedestrian and cycle users or for placemaking improvements.
- Scope to also utilise redistributed space to integrate bi-directional cycleway on Auchmill Road with with-flow or bi-directional facilities being appraised on Old Meldrum Road (AT51 & AT52 from Table 2).
- Junction corner radii reduced to 6m on exit and 10m on entry to major road to limit vehicle speeds whilst also accommodating access and egress swept path from a bus and fire appliance.
- Bend-out crossing feasible due to major road having speed limit less than 40mph, providing pedestrian and cycle users with controlled priority.
- Crossing location set-back 10m from the junction edge line to accommodate storage of a bus at the give-way onto Auchmill Road whilst maintaining a relatively direct path for active travel users.
- Dropped kerb crossing rather than raised table as recognised to be more distinguishable by visually impaired user groups; enables existing drainage runoff flow paths to be retained and simplifies future maintenance by ACC.

Risks and Unknowns

Utility chambers are observed throughout the existing junction. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered to be low. C2 preliminary inquiries will be undertaken to establish apparatus in the study area to inform design impact.

The proposed layout assumes the bi-directional cycleway is developed out from the existing Auchmill Road channel line with traffic lanes redeveloped using the existing central reservation as suggested by the outline concept designs. It is also assumed that improvements on the A96 corridor will be delivered on a parallel timeline to the Old Meldrum Road junction improvements and the layout represents a permanent case. Going forward, it has been agreed that the Auchmill Road/Old Meldrum Road junction improvements will be progressed and consulted on as part of the A96 design with the A947 study proposals for Old Meldrum Road tying-in to what emerges from the A96 appraisal.

AT13 – Provide a formal pedestrian crossing point to the North of the A947/Riverview Drive roundabout to facilitate movements to the Formartine and Buchan Way

North of the A947/Riverview Drive Roundabout, the A947 is a single carriageway road with 40mph posted speed limit and localised widening for a ghost island at the Dyce Drive junction. Dyce Drive also comprises a single carriageway cross-section with 40mph posted speed limit on the immediate approach to and exit from the A947 junction. West of the Formartine and Buchan (F&B) Way overbridge, Dyce Drive has a de-restricted speed limit and rural character.

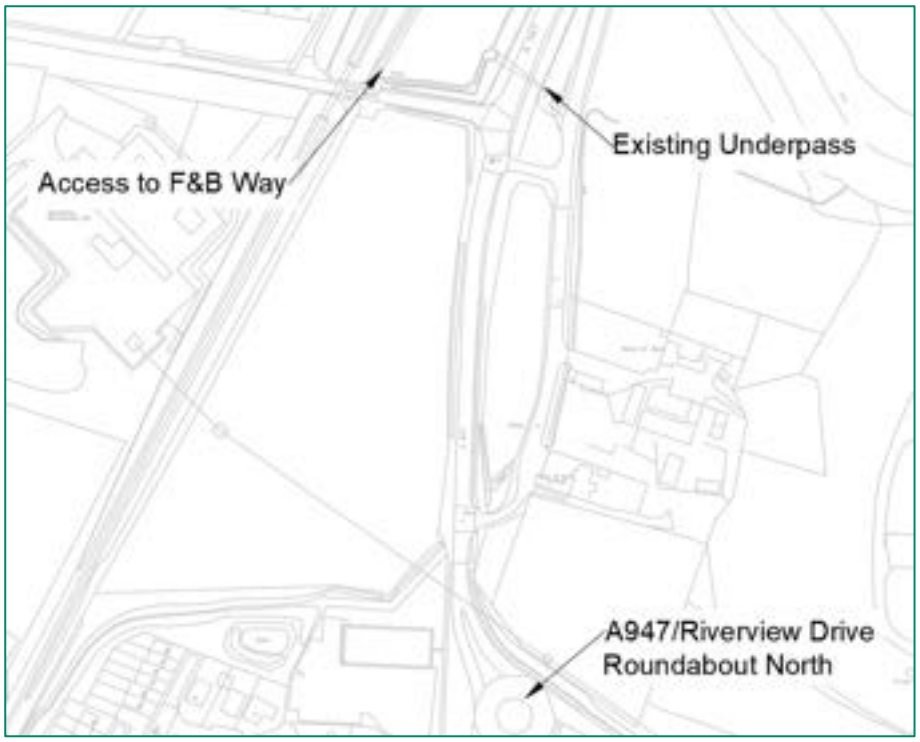


Figure 5 - Location Plan

National Cycle Network (NCN) Route 1 waymarks the existing connectivity between the Riverview Drive Roundabout and the F&B Way with a combination of shared use paths and quiet on-road facilities. A narrow footway extends the length of the A947 verge and provides an alternative to the on-road quiet route section for pedestrian users. It is understood that agreement is in place for the development of the section of the F&B Way south of Dyce Drive to extend NCN Route 1 to Dyce Railway Station[1].

[1] (Public Pack)Agenda Document for North East of Scotland Transport Partnership, 06/12/2023 14:00 (nestrans.org.uk)

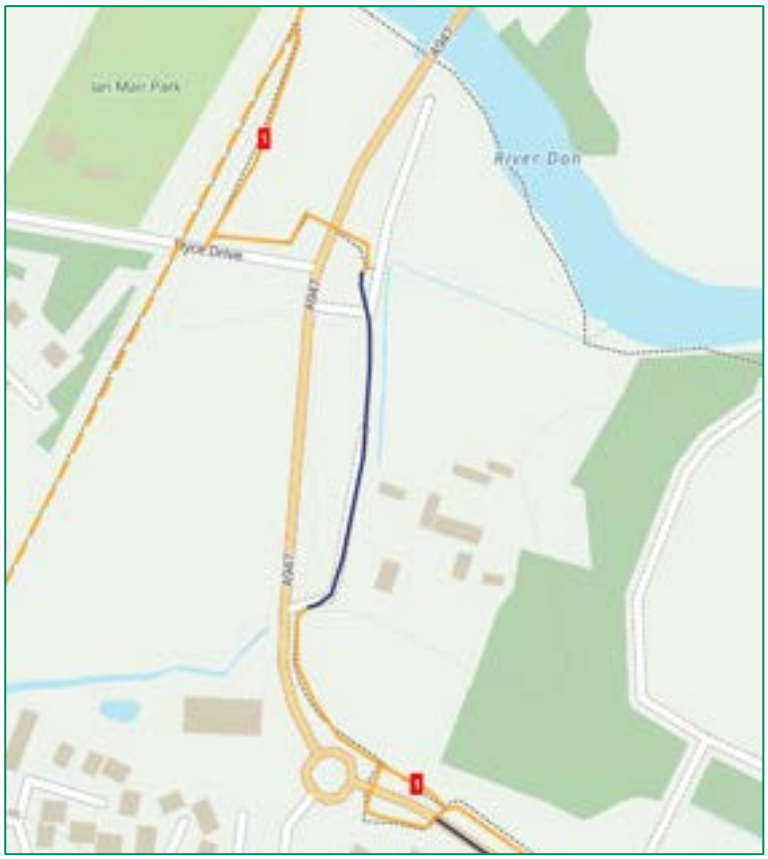


Figure 6 - NCN Route 1 Map (Source: Sustrans.org.uk)

The crossing of the A947 is currently accommodated by an underpass north of the Dyce Drive junction. The underpass is approximately 33m long with 2.1m headroom and a 2m path cross section. Existing low level lighting was not observed to be operational and the approach geometry and overgrown vegetation limit visibility for users making it unattractive in terms of personal security. The limited headroom also presents a low level of service for cycle users who are instructed to dismount when travelling through.



Figure 7 - Existing conditions at A947 underpass

Cycling by Design recommends a desirable minimum 2.7m and absolute minimum 2.2m headroom for underbridges of length greater than 23m. Minimising concerns over personal safety is noted as being essential and it is recommended that this is achieved by optimising through-visibility and natural light; maximising headroom; minimising the length; and minimising the perception of an enclosed space.

Consideration has been given to the possible options for improving the existing connection or providing a new formal crossing of the A947 north of the Riverview Drive roundabout to facilitate access to the F&B Way. The outline options are sketched in Figure 10 and summarised in Table 1.

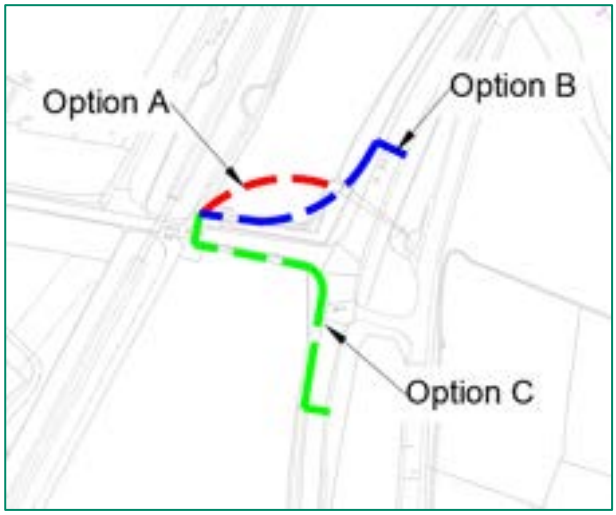


Figure 8 - Outline Improvement Options to facilitate F&B Way access

Table 4 - Access Improvement Options Overview

Option	Overview	Benefits/Opportunities	Limitations/Constraints
A	Retain and enhance existing underpass: • improve approach geometry on west side • clear vegetation on approaches • Recommission and enhance lighting to improve attractiveness	• Grade separation so no interface with vehicles at crossing	• No scope to improve approach geometry on east side of underpass • Severance of third party land on west side • Whole life cost of lighting operation and maintenance • Fundamental limitations with existing headroom and cross section width, taking cognisance of current guidance
B	Stop-up underpass and re-grade western approach for an at-grade crossing of the A947 north of Dyce Drive, connecting with improved shared use path on east side of A947 (AT59)	• Single at-grade crossing of main route with good visibility • Wider A947 cross section to the north would allow for accommodation of a refuge island and make for more accessible crossing. • Integrates with improvements promoted in east A947 verge as part of AT59	• Less direct than Option C for users travelling to/from northern Dyce. • Third party land impact anticipated but severance minimised.
C	At-grade crossings of Dyce Drive and A947 south of Dyce Drive, connecting with improved shared use path on east side of A947 (AT59).	• Most direct option for users travelling to/from northern Dyce. • Would allow for existing underpass to be retained as an alternative traffic-free route.	• Increased interface with traffic due to 2no. at-grade crossings • Insufficient space to accommodate refuge islands at crossings. • Visibility at Dyce Drive crossing anticipated to be constrained by F&B Way bridge abutment • Greater third party land impact than Option B

From the high-level comparative analysis of the outline options, Option B was recognised to present a generally attractive solution with fewer deliverability constraints than Option C and was therefore progressed in a concept design.



Figure 9 - Proposed Formal Crossing Arrangement to Facilitate Access to F&B Way

Key design features

- 80m long shared use path at a desirable maximum 5% longitudinal gradient, assuming an approximate level difference of 4m between the F&B Way and the A947.
- 2.5m refuge island to accommodate all forms of cycle vehicle, permitted due to speed limit not exceeding 40mph.
- Crossing integrates with shared use improvements on east side of A947 as promoted as part of Option AT59.
- Ghost island junction markings adapted to incorporate crossing but impact on existing junction operation minimised.

Additional Opportunities

- Existing underpass could be refurbished to continue to provide a safe grade-separated alternative route for users. Vegetation removal on approach and recommissioning of lighting through underpass would improve attractiveness of existing facility. However, fixed constraints in terms of the length, cross section and headroom through the underpass would continue to be the primary limiting factors in terms of attractiveness for users.

Risks and Unknowns

- Adjacent third-party land ownership to be confirmed; to inform subsequent consultation process.
- Due to the earthworks associated with formation of the ramp, a desk-based analysis of ground conditions would be recommended to inform identification of constructability and deliverability risks. It is assumed that existing ground conditions are acceptable.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT13 is £278,000 including optimism bias at 44%.

AT14 – Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout

There are two existing uncontrolled crossings to the east of the A947/Riverview Drive north roundabout. A staggered crossing utilising the splitter island as a pedestrian refuge is located immediately adjacent to the roundabout on the eastern arm. The second crossing is offset 50m to the east of the roundabout and provides an uncontrolled continuous 10.8m crossing across both north and southbound traffic lanes.

In the vicinity of the existing crossing locations, Riverview Drive has a wide overall cross section comprising a single carriageway layout with advisory with-flow cycle lanes in both channels. The crossing adjacent to the roundabout is signed as part of National Cycle Network Route 1 with cycle users in the northbound advisory cycle lane diverging from the road carriageway at the offset crossing before continuing towards the staggered roundabout crossing on a short section of shared use footway.

A 40mph speed limit applies on Riverview Drive transitioning to 30mph on the immediate approach to the roundabout. The straight horizontal geometry and wide cross section of the route provides good visibility for vehicles and it is assumed that the 85th percentile speed on this section of the route is close to the posted speed.

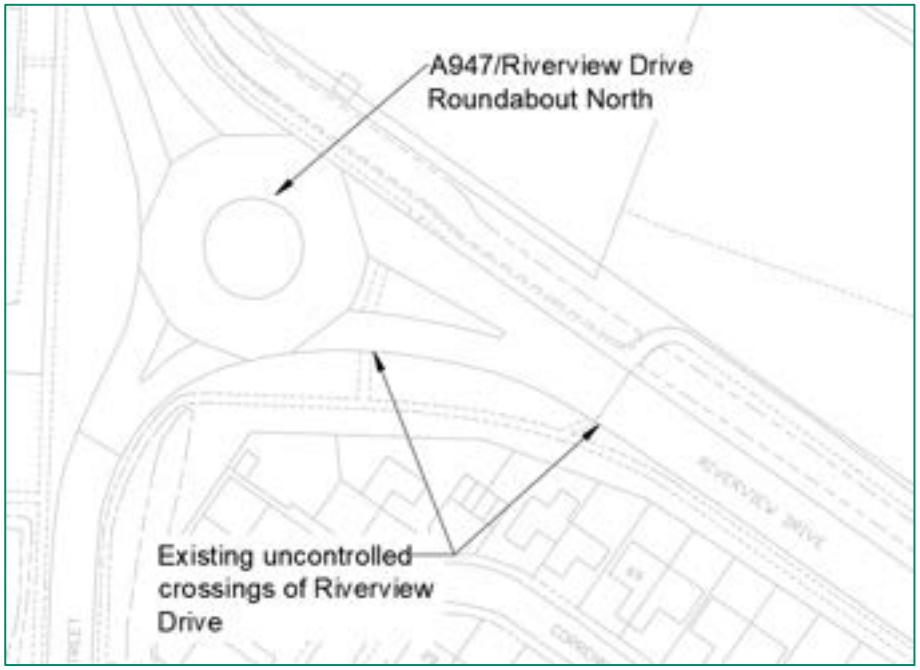


Figure 10 - Existing Layout of A947/Riverview Drive Roundabout North

Aberdeen City Council guidance states that following initial desktop study, an on-site survey and modified PV2 assessment is required to determine whether a pedestrian crossing is justified at a given location. In the absence of detailed pedestrian and vehicle count data, it has been assumed that a controlled crossing would be justified at this location. This is based on the anticipated future increase in crossing demand following area wide connectivity improvements proposed as part of this study and the increased demand driven by a committed residential development in the existing greenfield site north of Riverview Drive.

Parallel crossings are generally not recommended where the 85th percentile speed exceeds 35mph. Although vehicles will be slowing on approach to the roundabout, southbound vehicles exiting the roundabout will be accelerating up to 40mph speed limit. A signal-controlled cycle crossing such as a Toucan crossing can be adopted for 85th percentile speeds up to 50mph therefore represents a more appropriate arrangement on Riverview Drive.



Figure 11 - Proposed Formal Crossing Layout on Riverview Drive

Key design features

- Signalised shared crossing to accommodate pedestrian and cycle users on a demand driven basis.
- New crossing sited 60m from roundabout entry give-way to best integrate non-motorised user movements from all directions and minimise influence on roundabout operation.
- Existing uncontrolled crossings removed and signage relocated to designate the new crossing as part of NCN Route 1.
- Shared use path widened to 2.5m with 1m buffer on the north side for continuity with proposals for the A947 north (as part of Option AT59), and to provide greater clearance from manoeuvring vehicles on adjacent roundabout.
- Existing on-carriageway advisory lane on Riverview Drive reallocated to shared use path/buffer to minimise earthworks and third party land intrusion on north side and to reduce crossing length to 7.3m.
- Segregated transition to/from existing advisory lanes on Riverview Drive south-east of the crossing.
- Improvements to existing shared use path to the south-west of the crossing to be considered as part of Victoria Street improvements (Table 2, Option AT61a).

Risks and Unknowns

- Further assessment of projected user demand would be required and a PV2 assessment undertaken to confirm justification for development of formal crossing facilities at this location in line with guidance provided by the Department for Transport.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT14 is £272,000 including optimism bias at 44%.

AT16 – Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout

The Riverview Drive/Stoneywood Road Roundabout is a three-arm roundabout linking the A947 Stoneywood Road to the south, the A947 Riverview Drive to the east and Victoria Street to the north. There are existing uncontrolled staggered crossings immediately adjacent to the roundabout entry/exit on each arm however dropped kerbs are not present at the

crossing on the Victoria Street arm.

The connecting section of Stoneywood Road has a 30mph posted speed limit and comprises two lanes northbound on approach to the Riverview Drive roundabout and a single lane southbound. On-road advisory cycle lanes and roadside footways are present in both directions. A bus stop with layby is located on Stoneywood Road at the southbound exit from the roundabout.

The connecting section of Victoria Street also has a 30mph posted speed limit and comprises a single carriageway layout with on-road advisory cycle lanes and footways on each side. A bus stop with layby is located on Victoria Street at the northbound exit from the Riverview Drive roundabout. The gatehouse property boundary and railway boundary are located at the rear of the northbound footway. The car park for the hotel to the east is located in a cutting with approximate 2m level difference adjacent to the southbound roundabout entry.

Riverview Drive has a 40mph posted speed limit and comprises a single carriageway layout with footways on each side. A short section of segregated cycleway, part of NCN Route 1, is offset in the southern verge and extends to Wellheads Road from which point it becomes a shared use facility and continues along Riverview Drive to the east.

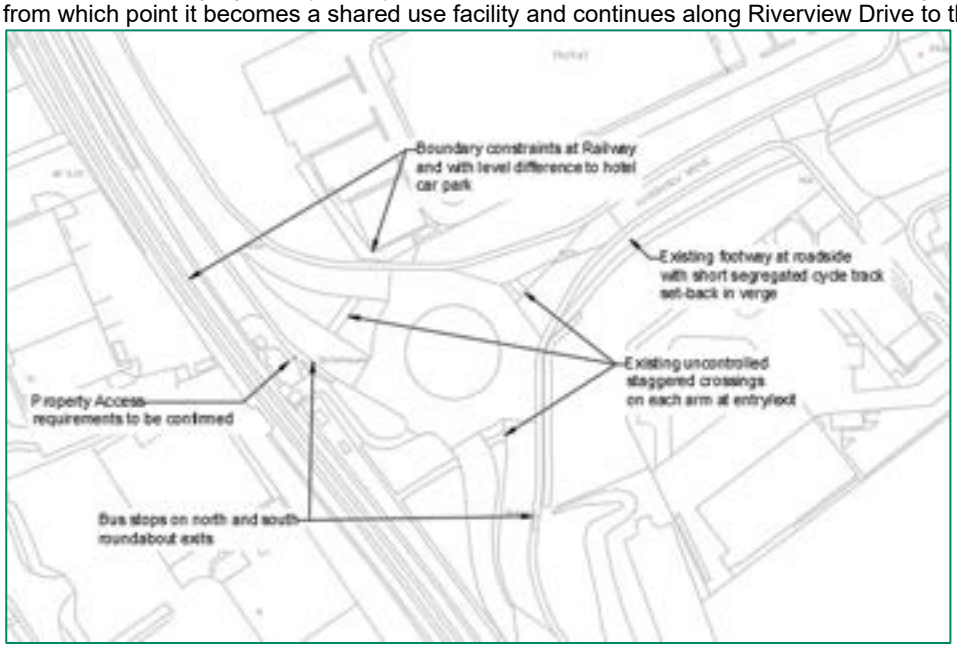


Figure 12 - Riverview Drive/Stoneywood Road Roundabout – Existing Layout

Spatial constraints from boundary features inhibit the scope to provide segregated facilities on the perimeter of the roundabout. A shared use path of at least absolute minimum width of 2.5m in accordance with Cycling by Design guidance can be provided throughout and offers a coherent environment for active travel users navigating the roundabout. This is also consistent with the existing facilities in the proximity on Riverview Drive and Farburn Terrace. A 0.5 to 1m buffer between the road carriageway and shared use path can be accommodated relative to the 30mph or 40mph posted speed limits respectively, in accordance with requirements of Cycling by Design guidance.

Improvement of the existing crossing facilities to formalise and make these more attractive and accessible for all users is required. Aberdeen City Council guidance states that following initial desktop study, an on-site survey and modified PV2 assessment is required to determine whether a pedestrian crossing is justified at a given location. In the absence of detailed pedestrian and vehicle count data, it has been assumed that a controlled crossing would be justified at this location. This is based on the anticipated future increase in crossing demand following area wide connectivity improvements proposed as part of this study.

Cycling by Design recommends that parallel crossings should not be installed on roads with an 85th percentile speed of 35mph or above without additional speed reduction measures. The 40mph posted speed limit of Riverview Drive is more appropriately suited to a signal-controlled crossing arrangement.

Separate crossing facilities can provide a better level of service for users by reducing potential for conflict between competing modes while crossing, however, the integration with the proposed shared use path network on approach to the crossings would promote simpler interpretation and navigation of a shared space throughout. It is proposed that Toucan crossings are therefore adopted on each arm as a coherent solution to cater for all movements.

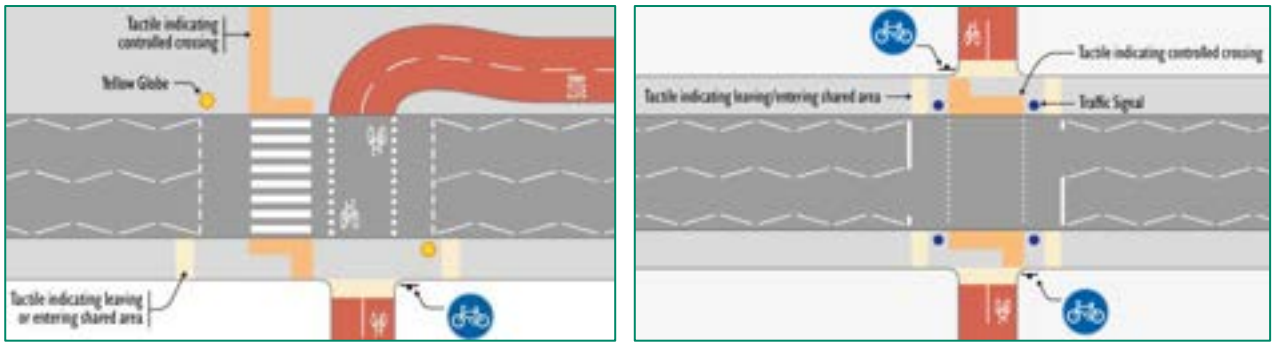


Figure 13 - Indicative Parallel and Toucan Crossing Layouts (Source: Cycling by Design)

The DMRB, volume CD 116, recommends that crossings should not be sited between 20m and 60m from the give-way line at roundabout entries. Formal replacement of the existing crossings at the roundabout and within the permissible 20m of the give-way line would result in an overall greater crossing length for users and impact the existing bus stops located on the Victoria Street and Stoneywood Road arms of the roundabout.

Key trip generators and attractors are not located in the immediate vicinity of the roundabout therefore it is recognised that crossings offset 60m from the give-way line would still offer a direct connection for users, minimise the crossing length and enable single stage crossings to be provided. Consistent and clear wayfinding signage on approach to the crossings would inform user journeys ahead of reaching the roundabout to support users in taking the most direct route towards their intended destination.



Figure 14 - Proposed Formal Crossing Facilities and Connections at the Riverview Drive/Stoneywood Road Roundabout

Key design features

- Signalised and single stage toucan crossings on each arm, set-back 60m from roundabout entries and 6m wide to minimise user conflict when crossing in the shared space.
- Existing crossings and private access off roundabout stopped-up/removed.
- A network of shared use paths at least 2.5m wide and expanding to the desirable minimum 4m wide where space allows. Buffer strips provided where routes are adjacent to road carriageway.
- Minor reduction in entry width for Victoria Street entry to accommodate absolute minimum shared use path and required buffer with minimal earthworks and minimal impact on third party hotel car park.
- Existing section of segregated footway and cycleway on Riverview Drive upgraded and resurfaced to better differentiate for intended user groups.

Risks and Unknowns

- Access requirements for gatehouse property immediately west of the roundabout to be confirmed. Design currently assumes that vehicular access would be formally stopped up to facilitate a continuous shared active travel route to connecting north to south.
- Street lighting is currently present at back of existing footways. It is anticipated that relocation of some lighting columns will be required where footways are widened into the verge to achieve standard for shared use.
- Widening into potential third party land required to develop a bus stop bypass arrangement at the bus stop with shelter on the southern roundabout exit onto Stoneywood Road. Established vegetation will also require to be cleared to facilitate the layout for improved accessibility.
- The southbound visibility to the signals at the proposed crossing on Stoneywood Road will also potentially be obstructed by existing vegetation – this provides further rationale for localised clearance subject to consideration by the relevant team within ACC.
- Connecting facilities north of the crossing on Victoria Street and south of the crossing on Stoneywood Road subject to change based on design development of Table 2 options.
- Localised third party land impact at hotel on north side of Riverview Drive (required to accommodate widening for shared use facility on approach to proposed crossing). Engagement with landowner will be required.
- Further assessment of projected user demand would be required and a PV2 assessment undertaken to confirm justification for development of formal crossing facilities at these locations in line with guidance provided by the Department for Transport.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT16 is £1,149,000 including optimism bias at 44%.

AT17 – Implement signalised crossing facility on Victoria Street adjacent to Tesco

Victoria Street comprises a typical urban single carriageway layout with posted speed limit of 30mph, designated on street parking bays throughout and a high number of residential and commercial frontages.

An existing controlled zebra crossing of approximate 7.3m length exists adjacent to the Tesco store. The crossing is located on an extended straight section of the corridor with good visibility. A minor junction with access to parking for Tesco is located south-west of the crossing and a loading bay is located north-west. A residential vehicular access with dropped kerb onto Victoria Street is located immediately south-east of the crossing.

Where the 85th percentile speed of vehicles is between 20mph and 35mph, Cycling by Design advises that a controlled zebra crossing offers a 'medium level of service' and may not be suitable for some users. Transport Scotland's inclusive design guidance, Roads for All, also notes that zebra crossings are not inclusive for visually impaired users.

It is proposed that the existing zebra crossing is replaced by a signal controlled puffin crossing at its existing location to provide a direct and accessible improvement on the existing desire line. Refresh of existing lining and tactile paving would be required as part of the upgrade. Cycling by Design recognises that signal controlled crossings offer a 'high level of service' and are suitable for most users.



Figure 15 - New puffin crossing on Victoria Street

Risks and Unknowns

- Existing 'Belisha Beacons' for the zebra crossing are mounted on lighting columns. It is anticipated that 2no. lighting columns will require relocation to accommodate the new signals.
- It is assumed that the south-east signal post can be accommodated without impacting access to property immediately south-east of the crossing.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT17 is £198,000 including optimism bias at 44%.

AT19 – Implement pedestrian crossing facilities at the Old Meldrum Road/Mugiemoss Road junction

Formal pedestrian crossing facilities have been developed at the Old Meldrum Road/Mugiemoss Road junction as part of the redevelopment of Old Meldrum Road. It is therefore concluded that this option should be sifted from further appraisal as part of this study.



Figure 168 - New pedestrian crossing facility at the Old Meldrum Road/Mugiemoss Road Junction

AT20 – Conduct a footway review throughout the study area, identifying gaps in provision and considering the width and surfacing of existing footways

A footway review throughout the study area was undertaken in November 2023. A summary of the findings is included in Appendix B of this Technical Note. The note focuses on gaps in provision for footways at key locations across Dyce identified through a detailed footway assessment throughout the study area. Within the note, recommendations are made for improvement based on condition, surface type and width.

AT30 – Provide direct active travel link between Dyce Drive and Riverview Drive

Option AT13 outlines the existing active travel connectivity between Riverview Drive and the F&B Way off Dyce Drive. Shared use improvements are proposed between the Riverside Path access off Riverview Drive and a new at-grade formal crossing north of the A947/Dyce Drive junction. It is considered that the improvements proposed as part of AT13, AT14 and AT59 support fulfilment of this option and that no further option specific interventions would be required. Therefore, the AT30 option should be sifted from further design and appraisal as part of this study.

AT32 – Implement footways on the south side of the carriageway on Pitmedden Road

Pitmedden Road is a single carriageway link road with a posted speed limit of 40mph. It serves residential and recreational accesses at its southern end close to the junction with Victoria Street. North of the Pitmedden Drive access, the route primarily serves a number of industrial sites. An existing 2m wide footway is present in the southern verge between Victoria Street and the Dyce Scout Hut access. North of this, the verge comprises grass with third party boundary fencing offset approximately 3m from the edge of the road carriageway. The existing footway provision extends further on the north side, terminating at the Kirkton Drive access.

Approximately 400m north of the Victoria Street junction on Pitmedden Road, an unbound track in the southern verge provides connection onto the F&B Way. Footway improvements are proposed to extend the existing footway provision in the south verge and provide an improved, accessible pedestrian connection onto the F&B Way. Due to the higher concentration of industrial vehicle accesses within the south verge beyond the F&B Way connection, it is considered that the existing footway on the north side of the carriageway offers a reduced likelihood of vehicle conflict and provides an appropriate level of connectivity without further intervention in the south verge.



Figure 179 - Existing Layout



Figure 20 - Existing grass verge on south side of Pitmedden Road and access onto F&B Way



Figure 181 – Proposed extent of new footways on Pitmedden Road to tie-in with F&B Way

Key design features

- Formation of 2m bound footway in existing grass verge to connect the existing footway with F&B Way access.
- Access onto F&B Way formalised on the primary desire line with opportunity to improve landscaping.
- Tactile paving introduced at uncontrolled access crossing locations and at interface with shared use F&B Way in line with inclusive design guidance.

Risks and Unknowns

- Street lighting is currently present in the verge. It is anticipated that localised relocation of some lighting columns will be required to locate at the rear of the footway if not currently set-back 2m from the edge of the road carriageway.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT32 is £119,000 including optimism bias at 44%.

AT59 – Widen the shared use path on the East side of the A947 to the North of Riverview Drive

The A947 north of Riverview Drive is a 40mph single carriageway with a shared use path of variable width between 0.7m and 1.7m in the eastern verge between Riverview Drive Roundabout and the B977 junction. The path is of bound formation between Riverview Drive Roundabout and Parkhill Bridge and then becomes unbound north of the bridge.

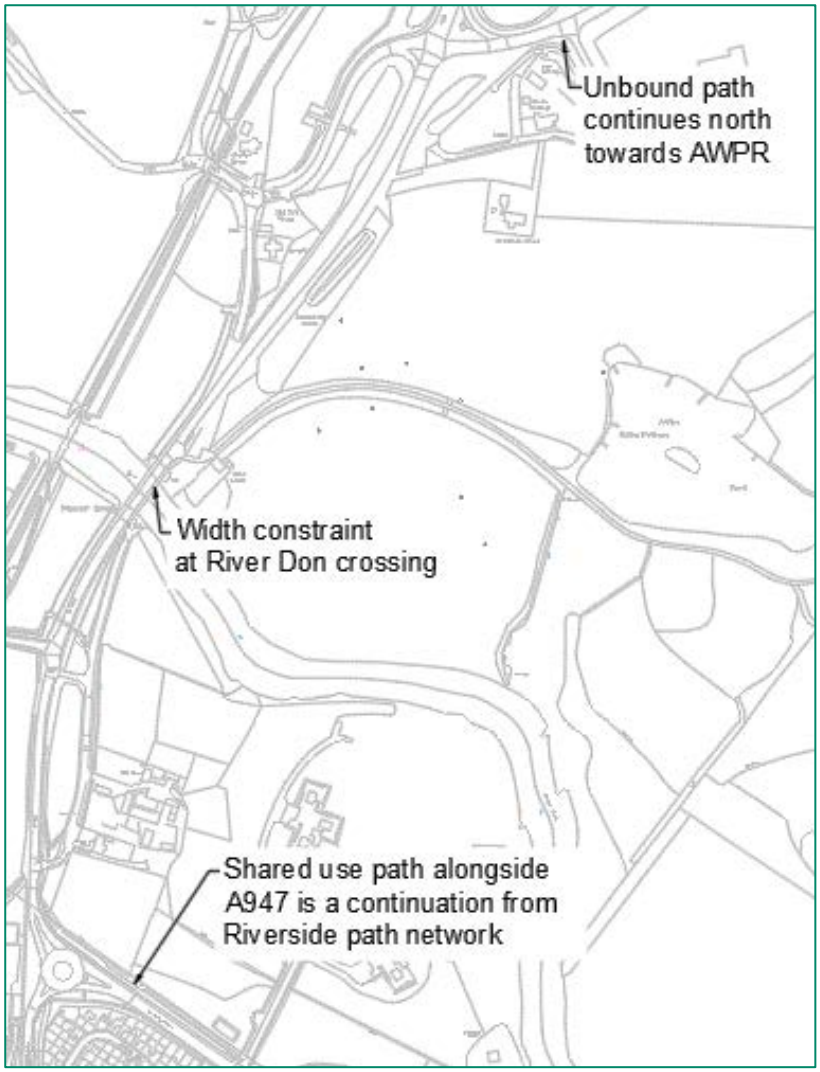


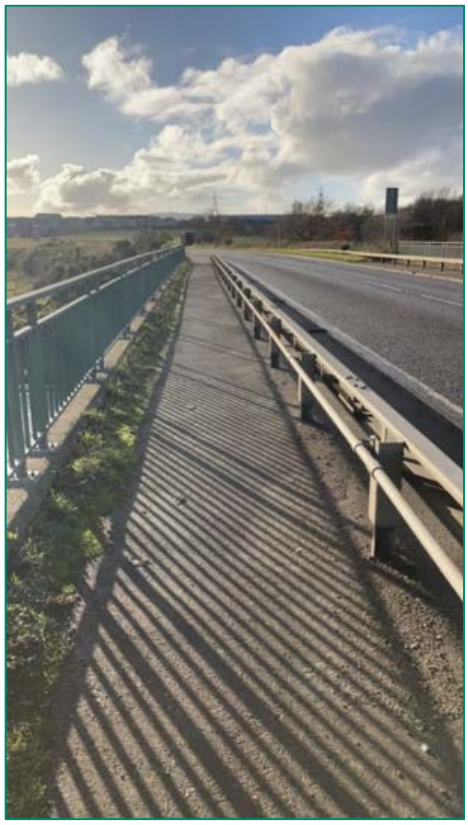
Figure 192 - Extents of existing shared use path on A947

The existing path does not meet the 4m desirable minimum or 2.5m absolute minimum width parameters for a shared use facility as outlined in Cycling by Design. The guidance also recommends a minimum 1.0m buffer between road and cycleway, based on a 40mph posted speed limit.

There is sufficient nominally flat verge space along the majority of this corridor to implement widening to achieve desirable minimum standards without impact on third party land. However, localised constraints exist over two sections.

Between Riverview Drive and the Dyce gateway sign south of Dyce Drive, the verge narrows to approximately 3.5m and existing path to 1m due to the close proximity and level difference of adjacent third party land. The adjacent land transitions from being in cutting to embankment which limits the effective width for low impact intervention. Widening to achieve desirable minimum would require land agreement and earthworks with associated increased footprint and costs. It is considered proportionate to promote a short section which meets the absolute minimum width requirement of 2.5m based on the more rural setting and associated lower probability of conflict between users in this part of the study area.

A fixed verge width of 3m exists on the Parkhill Bridge over the River Don. This is further constrained by the presence of a vehicle restraint system (VRS), set-back 1.2m from the carriageway edge, which reduces the usable shared use path space to approximately 1.8m.



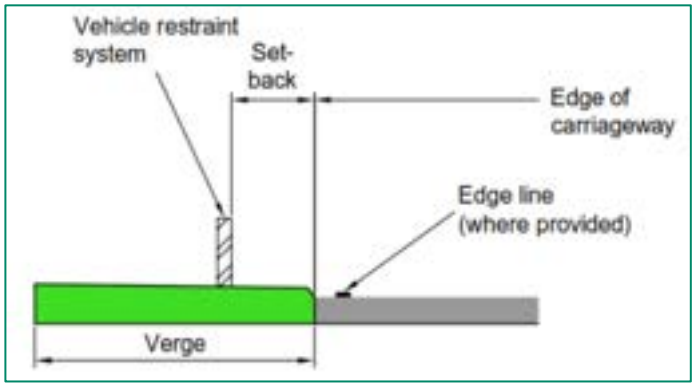


Figure 203 - Existing VRS set-back on Parkhill Bridge and diagram illustrating VRS set-back measurement (Source: DMRB CD 127)

DMRB CD 127 defines the 1.2m requirement for set-back of a VRS in a verge. Where the speed limit is less than 50mph, the standards permit relaxation of the set-back to 0.6m. It is proposed that this intervention is taken to release space in the existing verge for use as part of an improved shared use path. It is recognised that the approximate 2.4m shared use path achievable by this intervention is short of the absolute minimum width defined in the guidance however this is recognised as a proportionate and reasonably practicable solution to overcome the localised constraint.



Figure 214 - Proposed extent of shared use path widening on A947 north of Riverview Drive

Key design features

- Widening of existing shared use path on east side of A947 to a desirable minimum 4m width with localised sections at 2.4m due to specific constraints such as the VRS on Parkhill Bridge. Minimum 1m buffer strips provided throughout in line with 40mph speed limit. Proposed improvements to extend for 600m on existing path alignment from Riverview Drive roundabout to the northern bus stop and crossing which connects with the former A947 carriageway and B977.

- Tactile paving introduced at uncontrolled minor access crossing locations and at interface with options AT13 (Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the Formartine and Buchan Way) and AT43 (Implement active travel connection between the A947 and the B977, utilising a section of the old A947).
- Minor adjustment to existing access corner radii to reduce to 10m and limit vehicle turning speeds.
- Existing road signage to be relocated within verge to accommodate shared use path widening.

Risks and Unknowns

- Adjacent third party land ownership to be confirmed; to inform subsequent consultation process.
- Where minor earthworks are required, a desk-based analysis of ground conditions would be recommended to inform constructability risks and suitability of material for reuse.
- Street lighting is currently present in front of or within the existing shared use path on the approach to Riverview Drive roundabout. It is anticipated that localised relocation of some lighting columns will be required to facilitate the proposed improvements.
- Utility chambers are observed throughout the existing footway and verge. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered to be low. C2 preliminary inquiries will be undertaken to establish apparatus in the study area to inform design impact.
- As-built design information for the River Don overbridge will be required to confirm the viability of relocating VRS to reduce set-back. Depth to the bridge deck, position of existing service ducts and arrangements for on-bridge drainage will inform safety barrier foundation design.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT59 is £502,000 including optimism bias at 44%.

AT60 – Provide continuous footways on Riverview Drive for the duration of the route

Riverview Drive is a standard single carriageway road with a 40mph posted speed limit. A footway is provided along the entirety of its length in the northbound verge. An existing shared use path in the southbound verge extends from the southern roundabout to a point 65m east of the Overton Circle Junction and then from the northern Riverside Path access point to the northern roundabout. Advisory on-road cycle lanes extend along the majority of Riverview Drive from the end of the southern section of shared use path to the northern roundabout. The Riverside Path provides an alternative traffic-free shared use connection between North and South. Both the advisory lanes and Riverside Path are designated as part of National Cycle Network Route 1.

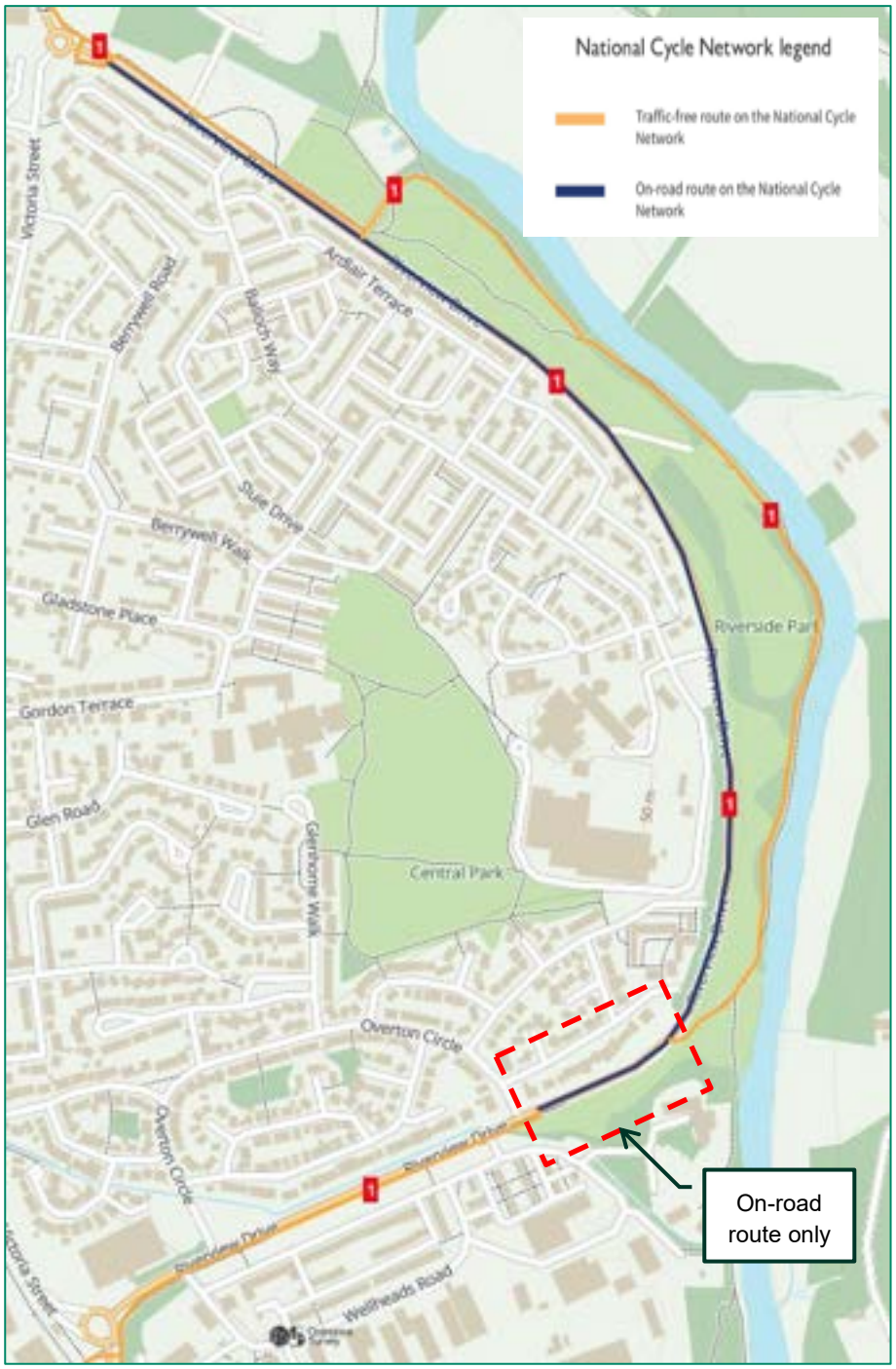


Figure 225 - NCN Route 1 Map (Source: Sustrans.org.uk)

A number of residential at-grade priority junctions take access off the northbound side of the road carriageway. In line with changes to the Highway Code, walking and wheeling users crossing the minor access roads and continuing straight on the footway have priority over vehicles turning into the minor road. A continuous footway arrangement as illustrated in Figure 26 would further improve attractiveness and demonstrate active travel user priority; however Cycling by Design guidance states that the layout should only be used in locations where the main road and side road have a speed limit of 30 mph or less. Therefore this approach is not appropriate on Riverview Drive (which has a posted speed limit of 40 mph).

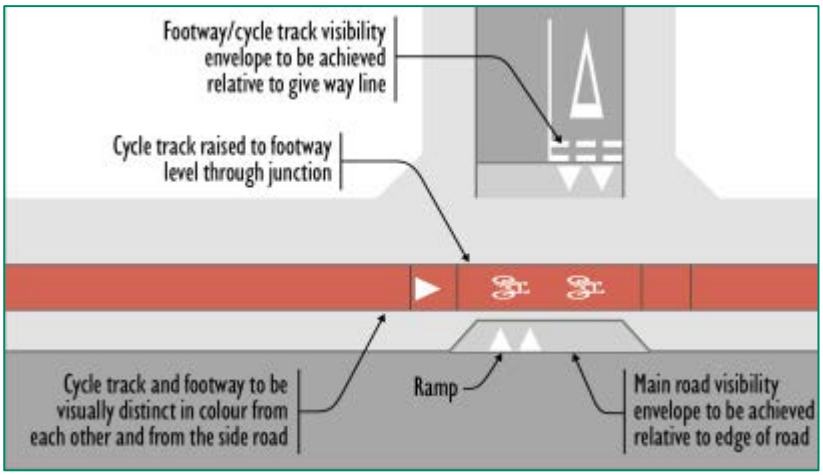


Figure 236 - Continuous Footway Arrangement (Source: Cycling by Design)

There is however opportunity to improve connectivity and accessibility along Riverview Drive by addressing the missing traffic free link on NCN Route 1 in the southbound verge between the existing shared use path, and the Riverside Path access. A section of new shared use path, 4m wide in the existing road verge would provide a continuous connection without need for users to cross Riverview Drive. As part of the improvements, the existing uncontrolled crossing connecting the Riverside Path with the footway in the northbound verge would be formalised with tactile paving.



Figure 247 Proposed works to address missing link and extend continuous off-road shared use facility to meet Riverside Path

Continuation of the shared use path in the Riverview Drive southbound verge beyond the Riverside Path access is inhibited by the narrowing of the road corridor and the existing placement of VRS on the outside of the extended bend, protecting against errant vehicle encroachment into the park and towards the river. Light segregation could be implemented to improve the existing on-road advisory cycle lanes. Light segregation offers greater protection than painted cycle lanes and can be considered as an additional measure due to it not being reasonably practical to provide a more formal kerb segregation. It is proposed that light segregation can be achieved with vertical features such as bollards or Wand Orcas to improve visibility and recognition for all users.

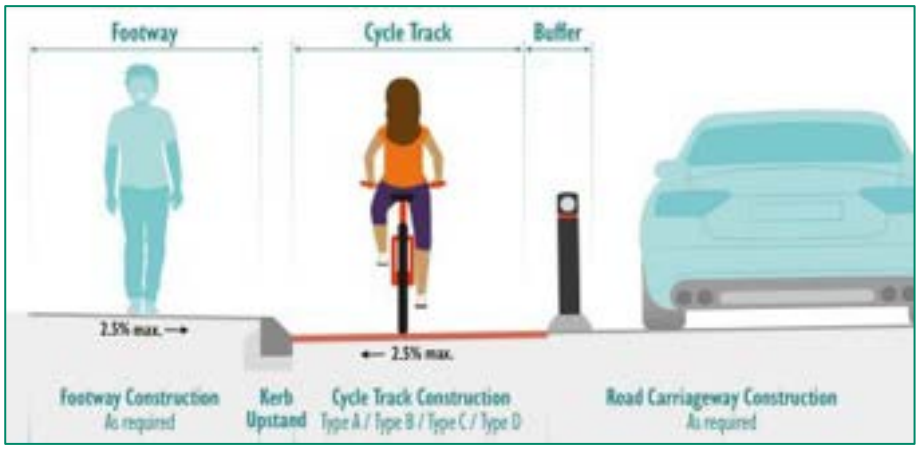


Figure 258 - Proposed light segregation on existing Riverview Drive advisory cycle lanes (Source: Cycling by Design)

Key design features

- 160m of new shared use path to address the missing traffic-free link in the southbound verge of Riverview Drive. Desirable minimum 4m wide shared use path proposed with 1m buffer strip in line with 40mph speed limit.
- Improved uncontrolled crossing of Riverview Drive with consistent width on each side and tactile paving in line with inclusive design requirements.
- Introduction of Wand Orcas or similar to provide a highly visible and robust form of light segregation for cycle users continuing on the on-road facility.

Risks and Unknowns

- Street lighting is currently present within the existing verge. It is anticipated that localised relocation of 4no. lighting columns will be required to facilitate the proposed improvements.
- Provision of a shared use path to desirable minimum dimension will result in minor encroachment beyond the existing road boundary fence. ACC land ownership extent is to be confirmed through engagement. It is assumed that this land is owned by ACC as part of the Riverside Park and therefore no third party land agreements would be required. This land offers an alternative routing opportunity if moving the existing lighting columns located along the verge presents a significant risk to cost or delivery.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT60 is £182,000 including optimism bias at 44%.

AT68 – Conduct a review of wayfinding signage throughout the study area

A review of wayfinding signage throughout the study area was undertaken in November 2023. A summary of the findings is included in Appendix C of this Technical Note.

O11 – Undertake a review of parking arrangements on Victoria Street

A review of parking arrangements on Victoria Street was undertaken in November 2023. A summary of the findings is included in Appendix D of this Technical Note.

O15 – Introduce placemaking and gateway features on Victoria Street

The opportunities for introduction of placemaking and gateway features on Victoria Street are intrinsically linked to the comparative design options being progressed through design as part of Table 2. The holistic review of the Table 2 options will to inform the appropriate locations and types of placemaking and gateway features which can be introduced. The following options from Table 2 have a direct impact on the opportunities for placemaking and gateway features on Victoria Street:

- AT33 – Provide improved active travel links between Dyce Rail Station, the A947 and the eastern section of Dyce, particularly along Station Road
- AT61 – Implement a shared use path on Victoria Street
- O2 – Review the layout of Victoria Street/Skene Place junction
- O25 – Implement access only restrictions for general traffic on Victoria Street
- O26 – Implement one-way restrictions for general traffic on Victoria Street

Appendix A – Design General Arrangement Layouts

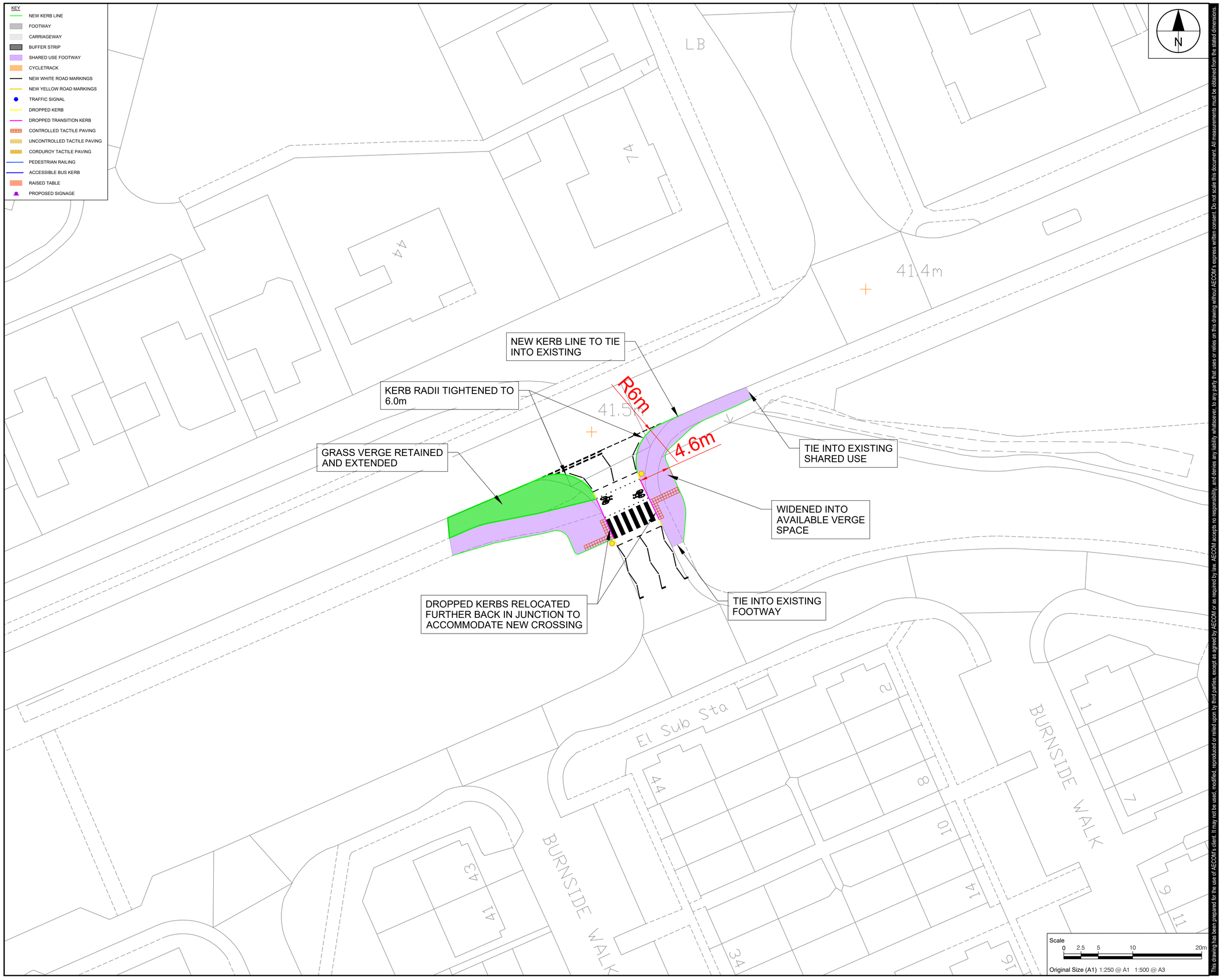
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Checked: SS

Designer: JM

Project Management Initials:



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A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

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AT4 General Arrangement
Sheet 1 of 8

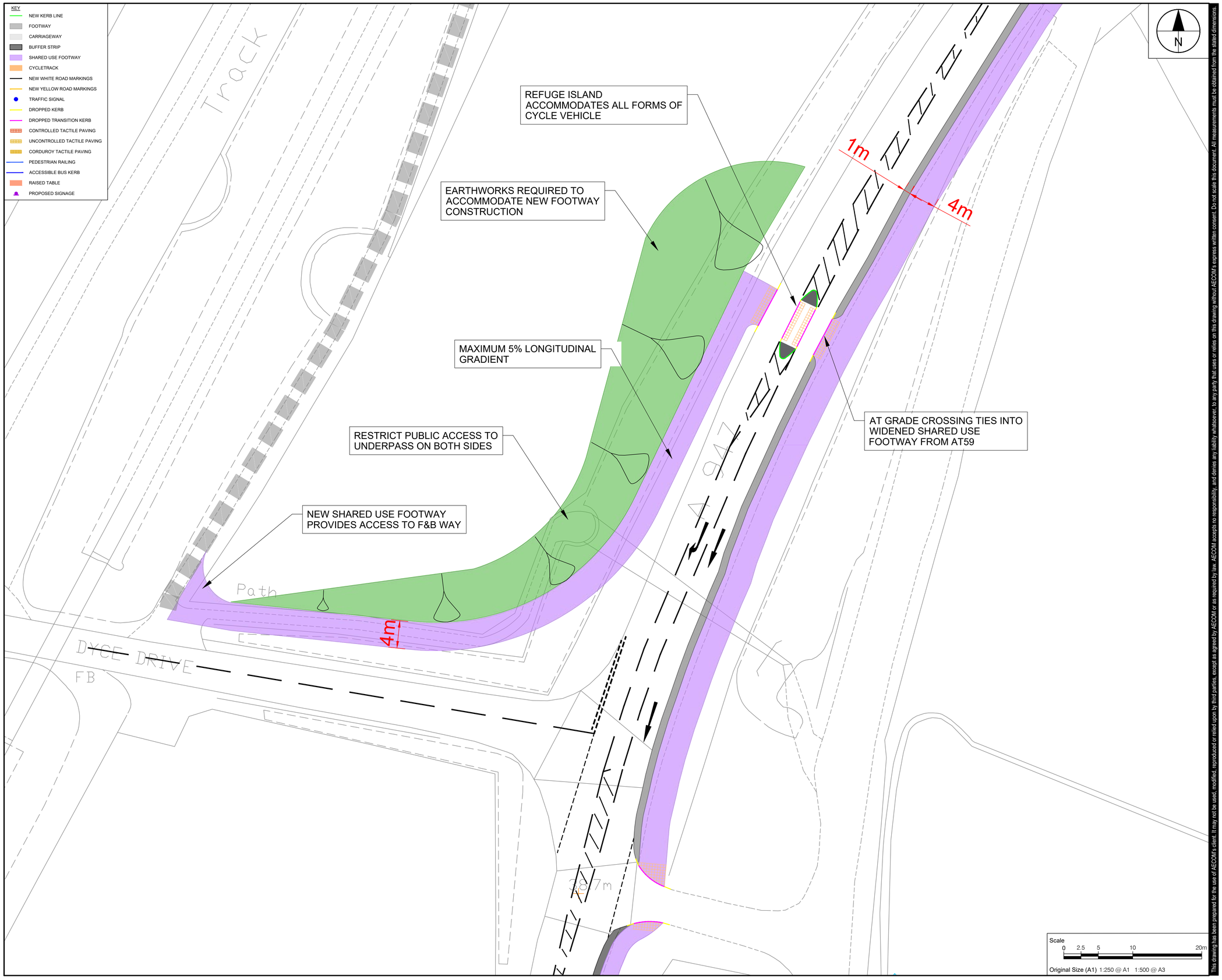
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Designer: JM
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KEY
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- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE



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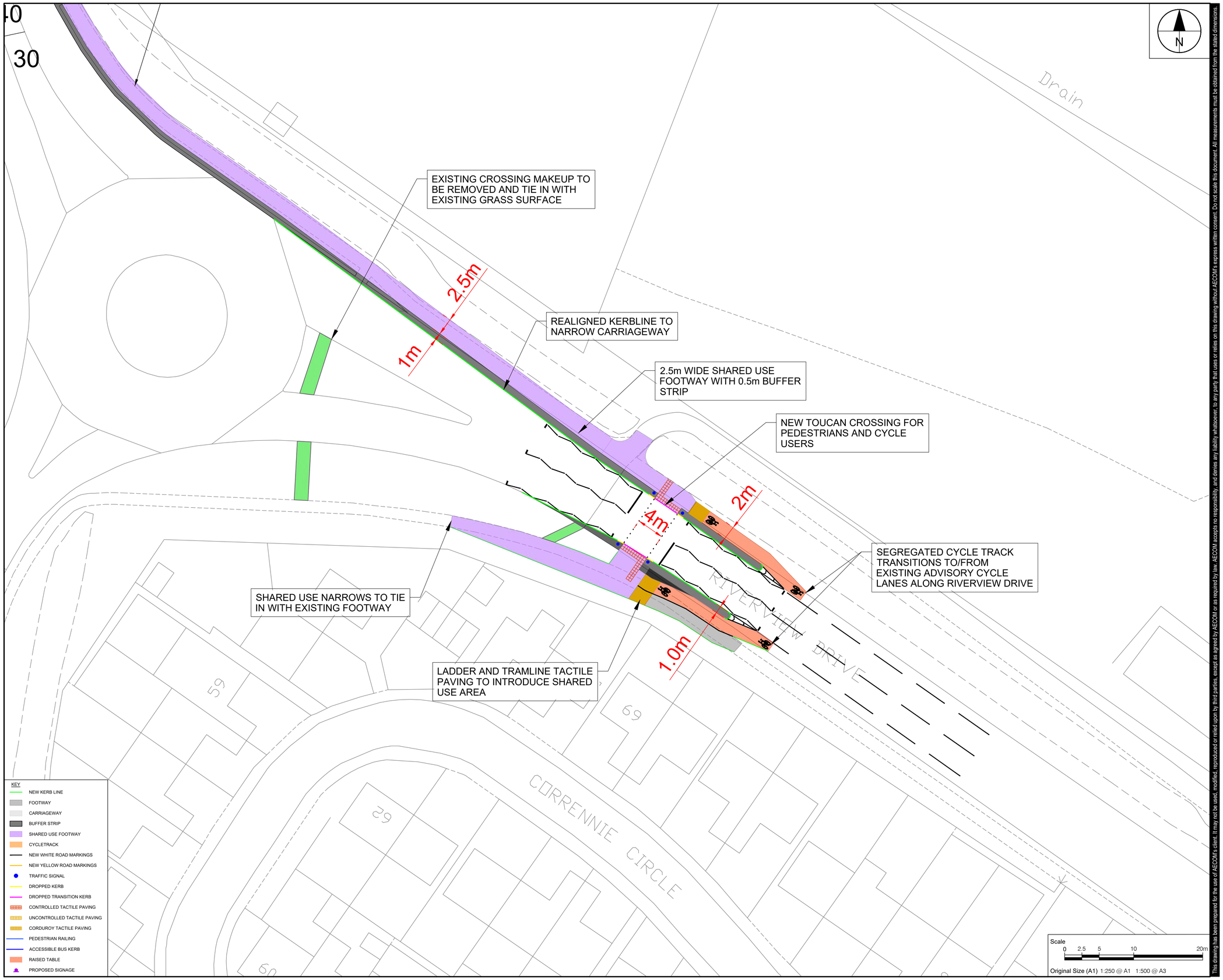
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AT14 General Arrangement
Sheet 3 of 8

SHEET NUMBER

60709527-SHT-30-C-T1-0703

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Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

WIDENING INTO EXISTING VERGE AND TREE LINE

NEW TOUCAN CROSSING FOR PEDESTRIANS AND CYCLE USERS

STREET LIGHTING COLUMNS CURRENTLY LOCATED THE BACK OF FOOTWAYS BEING WIDENED WILL NEED TO BE RELOCATED TO BACK OF NEW FOOTWAY LAYOUT ACROSS ALL ROUNDABOUT ARMS

LADDER AND TRAMLINE TACTILE PAVING TO WARN PEDESTRIANS AND CYCLE USERS ABOUT ENTERING SHARED USE SPACE

WIDENING OF EXISTING FOOTWAY TO 2.5m INTO 3rd PARTY LAND

NEW TOUCAN CROSSING FOR PEDESTRIANS AND CYCLE USERS

RESURFACE EXISTING FOOTWAY

LADDER AND TRAMLINE TACTILE PAVING BETWEEN SHARED USE AND SEGREGATED FACILITIES

EXISTING CROSSING FACILITIES ON ROUNDABOUT ARMS TO BE STOPPED UP

PROPOSE TO STOP-UP PRIVATE ACCESS TO GATEHOUSE PROPERTY TO FACILITATE CONTINUOUS SHARED USE FOOTWAY

ADDITIONAL WIDENING FOR BUS STOP SHELTER. 3rd PARTY LAND ENGAGEMENT MAY BE REQUIRED

NEW TOUCAN CROSSING FOR PEDESTRIANS AND CYCLE USERS

0.5m BUFFER STRIP IMPLEMENTED THROUGHOUT AS PER CbD GUIDANCE FOR 30MPH CARRIAGEWAY

Scale
0 5 10 20 40m
Original Size (A1) 1:500 @ A1 1:1000 @ A3

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PROJECT

A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

ABERDEEN CITY COUNCIL

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I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 1 Detailed Design
AT16 Option 2 General Arrangement
Sheet 4 of 8

SHEET NUMBER

60709527-SHT-30-C-T1-0704

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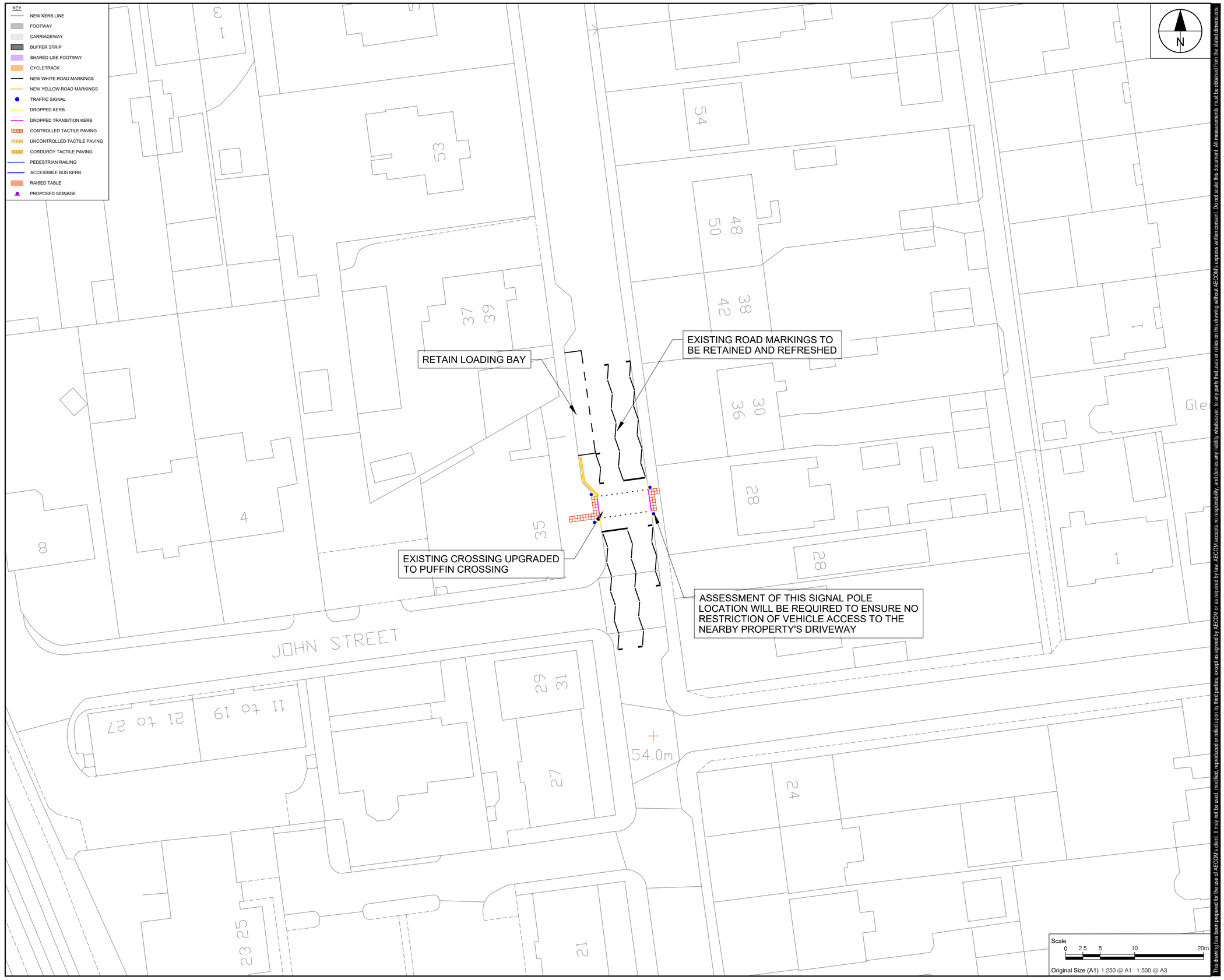
Checked: SS

Designer: JM

Project Management Initials:

KEY

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- FOOTWAY
- CARRIAGEWAY
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KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

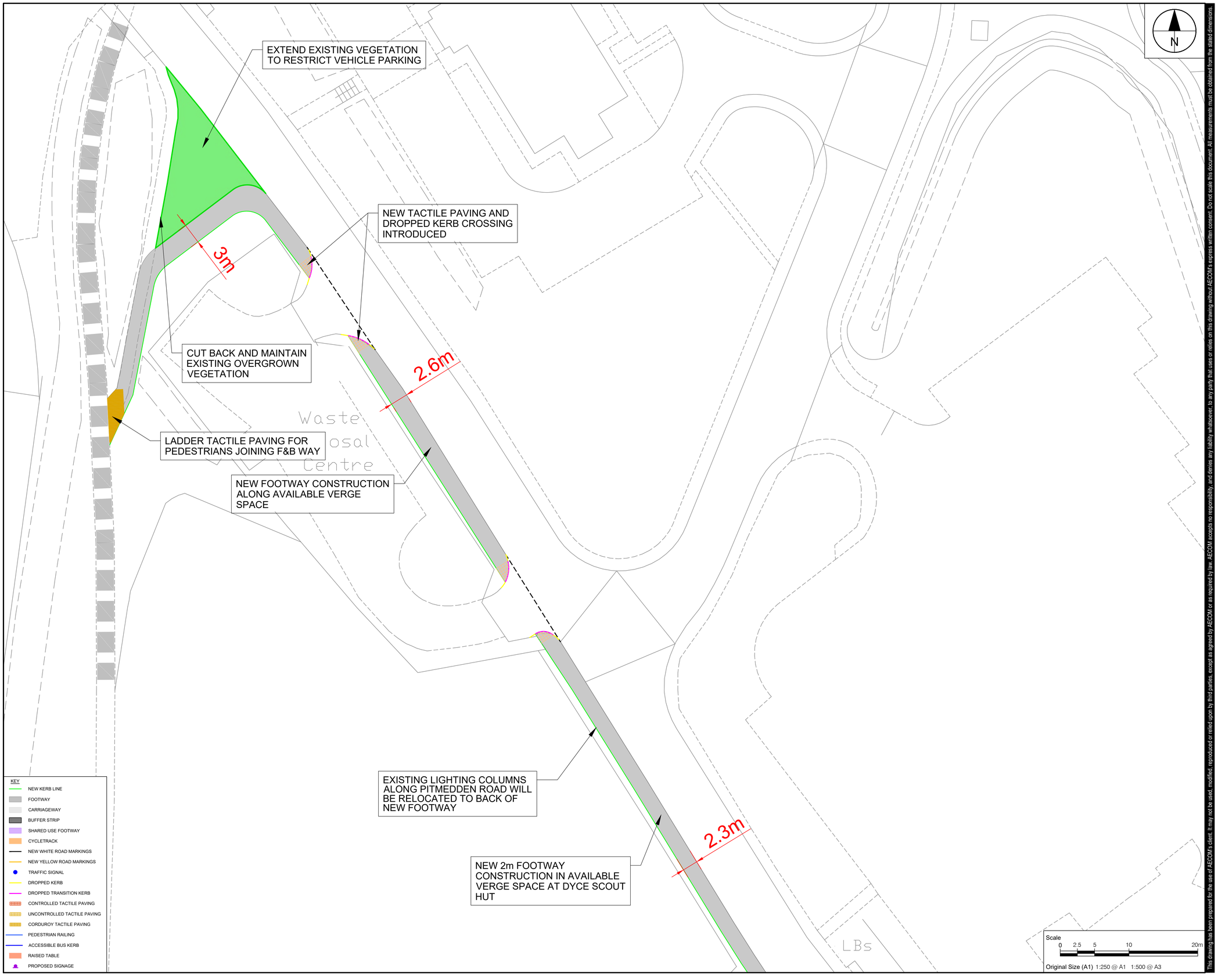
A947 Table 1 Detailed Design
AT17 General Arrangement
Sheet 5 of 8

SHEET NUMBER

60709527-SHT-30-C-T1-0705

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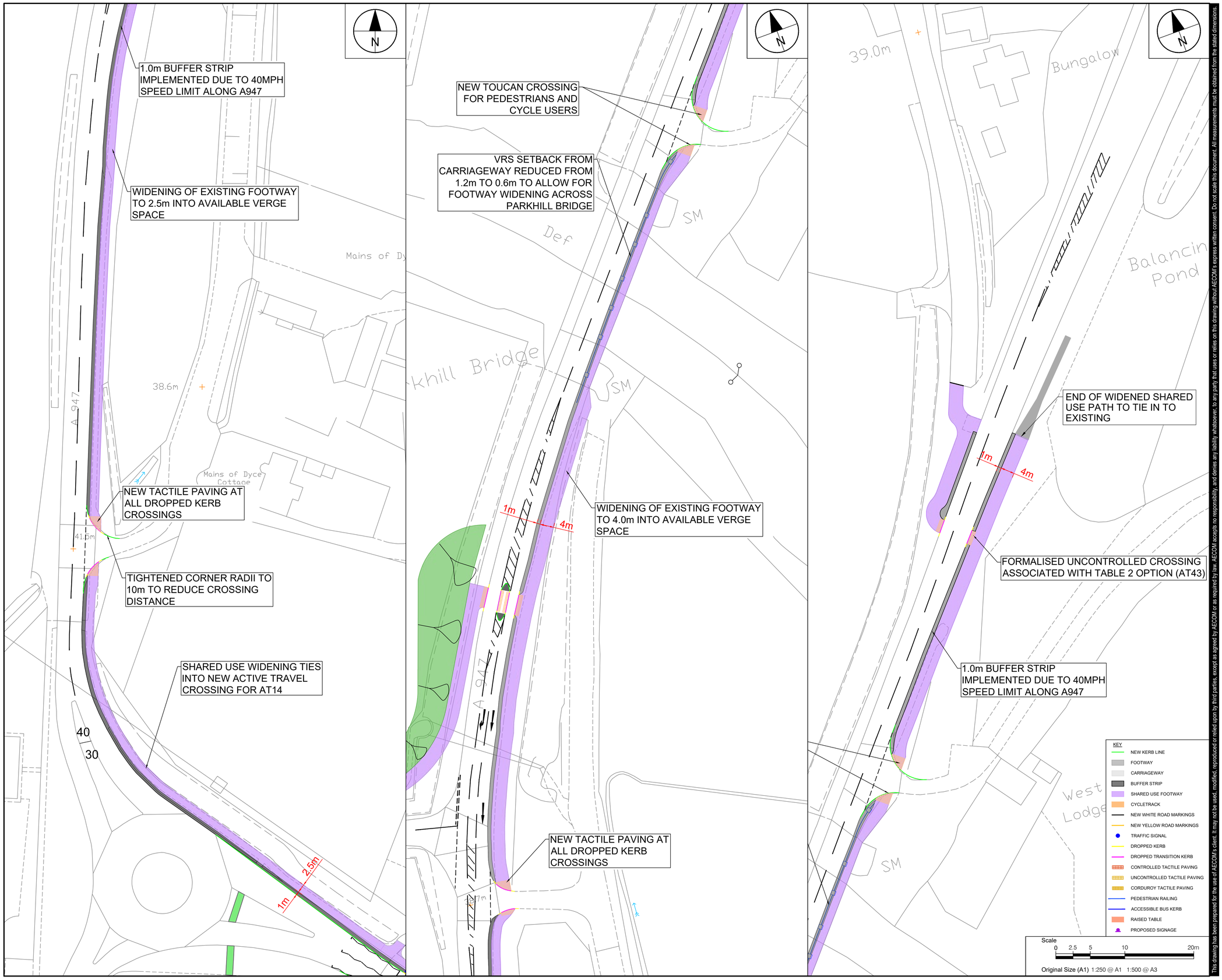
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SHEET TITLE

A947 Table 1 Detailed Design
AT17 General Arrangement
Sheet 6 of 8

SHEET NUMBER

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KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 1 Detailed Design
AT59 General Arrangement
Sheet 7 of 8

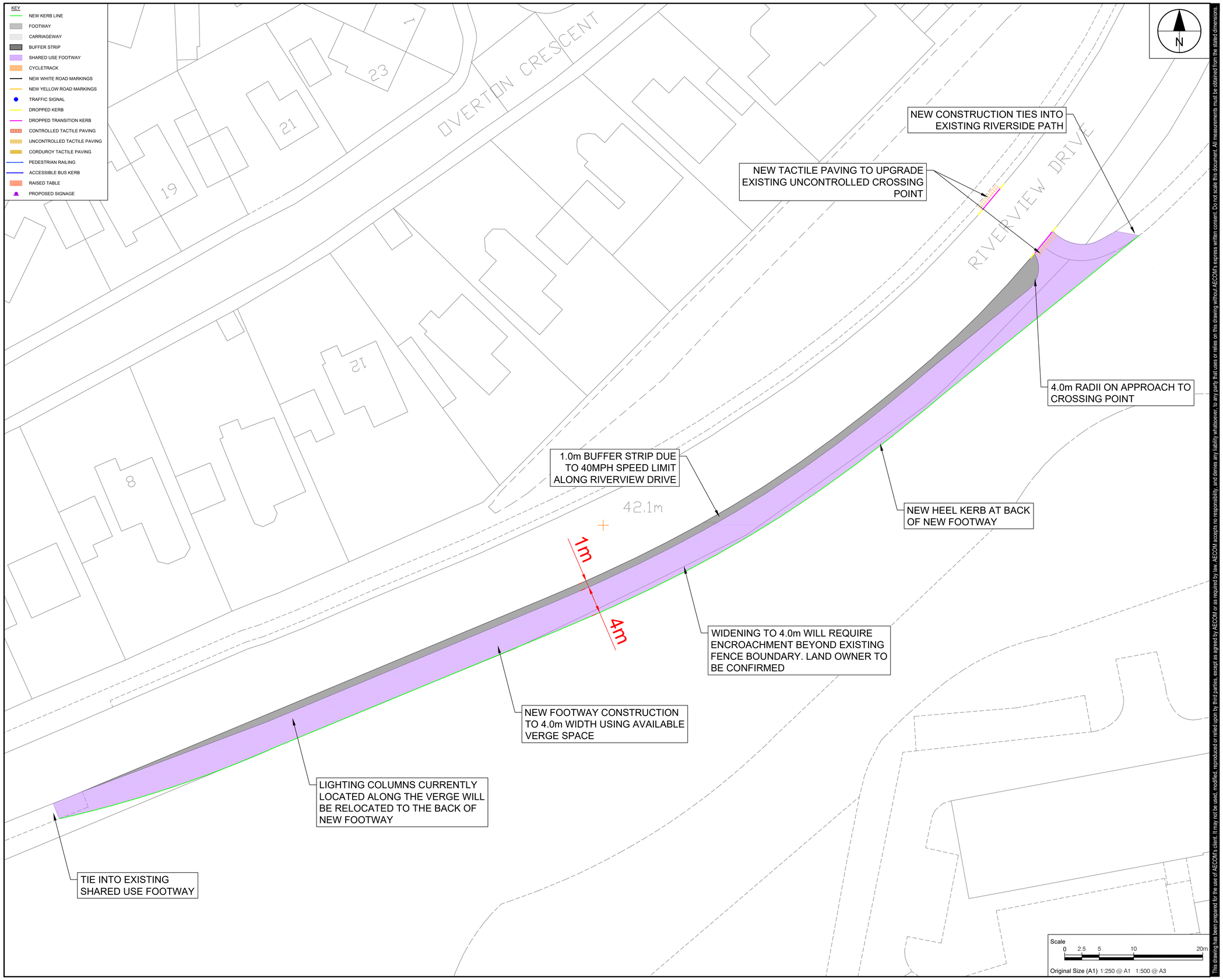
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ISO A1 594mm x 841mm
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Checked: SS
Designer: JM
Project Management Initials:

KEY

- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
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KEY PLAN

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60709527

SHEET TITLE

A947 Table 1 Detailed Design
AT60 General Arrangement
Sheet 8 of 8

SHEET NUMBER

60709527-SHT-30-C-T1-0708

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Appendix B – Existing Footway Review

Project:	**A947 Multi-Modal Corridor Study: Detailed Appraisal & OBC**		
Subject:	**Existing Footway Review**		
Prepared by:	**Jack McKenna**	Date:	**11/12/2023**
Checked by:	**Steven Smith**	Date:	**10/01/2024**
Verified by:	**Joanne Melarkey**	Date:	**17/01/2024**
Approved by:	**Andrew Robb**	Date:	**19/01/2024**

Existing Footway Review

Introduction

AECOM staff carried out a site visit to the study area in November 2023.The purpose of the visit was to conduct a site walkover and capture data on the existing signage and footway network along the A947 to inform a detailed review of each.

ArcGIS Survey123 was utilised on site to gather and collect data throughout the day. The software is a form-based data collection tool which can be used to gather information on site and then analysed off-site through a variety of tools and interfaces. AECOM's GIS team created a smart form survey which was accessible from a mobile device and used the device's GPS to record the location of each entry. The data and photos collected on site were then automatically transferred from the offline application into a GIS web map for further review and analysis.

To ensure an efficient walkover, each location visited within the study area was predetermined based on the street's assumed high footfall or planned works as part of the active travel improvement options detailed within Tables 1 and 2. For the larger stretches of footways along the A947 corridor, multiple entries were used to achieve an averaged evaluation. For example, along Riverview Drive, 11 entries were captured along its length on both sides of the carriageway. Each footway's width was assessed manually using a tape measure with the measurement being taking between the front of a heel kerb or equivalent and the back of the roadside kerb.

Review Criteria

The footway review was split into two objectives; 1) to identify any gaps in provision within the study area and; 2) to consider and evaluate the width and condition of the existing footway network. These footway review objectives were reflected through the categories and questions which were set out in the mobile survey for use on-site.

The six categories of questions within the survey were:

- Site Information;
- Footway Information;
- Verge Information;
- Existing Barriers;
- Gaps in Provision; and
- Other.

Questions were then included within the categories in various forms such as multiple choice and scoring between 1-5 (ranging from very poor to very good). Figure 1 provides an example of the questions which were included for a selection of the above categories.

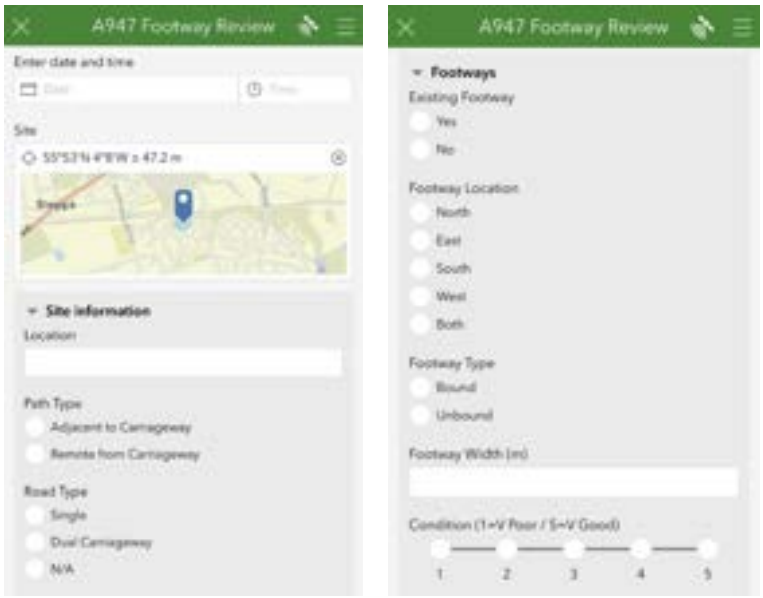


Figure 1 - ArcGIS Survey123 example

Gaps in Provision

Various gaps in provision were identified within the study area during the site walkover. Examples of the issues identified were poor footway surface makeup, lack of lighting and evidence of pedestrian desire lines which are not currently being accommodated. This section of the Technical Note will highlight a selection of the areas identified; the full list of areas identified is summarised in Table 1 at the end of this note.

Figure 2 shows the current access point to the Formartine and Buchan (F&B) Way from Pitmedden Road. The poor characteristics of this path include a steep gradient, narrow width, and overgrown vegetation. Proposed works as part of Option AT32 from Table 1 focus on extending the existing footway into the available verge space on the south side of Pitmedden Road. These works would provide a link for users to the F&B Way from Victoria Street via this access point. It is anticipated that as a result of Option AT32, pedestrian footfall would increase. To ensure there is no missing pedestrian link between the new footway along Pitmedden Road and the F&B Way, it is recommended that improvements to the existing path are included under Option AT32. This path scored a 1 out of 5 (very poor) for its current condition due to the uneven surface, 1m width and presence of overgrown vegetation. Proposed works would include widening to 3m, resurfacing to produce a smooth surface and introducing a regular maintenance plan to avoid the risk of vegetation overgrowth.



Figure 2 - Existing path to F&B Way

An assessment along the north of Riverview Drive identified an existing pedestrian desire line which is not currently accommodated by safe crossing facilities or a bound path surface. To the east of the Todlaw Walk junction, a worn section of the grass verge was observed where there is a gap in the existing fencing, shown in Figure 3.



Figure 3 - Worn surface between Todlaw Walk and Riverside Path

The amount of wear demonstrates that this route is currently being taken by local residents to enter and exit the Riverside Path on foot. There was also evidence of bike tyre marks in the ground showing that cyclists are also utilising this area. Scope for improvement will be investigated as part of Option AT31 from Table 2 which aims to provide active travel links between local housing in Dyce and the Riverside Path. The works required to formalise this link would include implementing dropped kerbs and tactile paving, the improvement of the existing pedestrian refuge island and approximately 50m of new bound surfacing, connecting to the Riverside Path.

An existing shared use footway is located on the north and west side of Wellheads Drive, between the Dyce Drive junction and Aberdeen Airport Fire Station. Despite the footway not meeting Cycling by Design's (CbD) absolute minimum width requirements for a shared use path, the inclusion of an adequate width buffer and the overall condition of the footway surface led to a scoring of 4 out of 5 during the review. However, at the end point of the shared use path, the road markings were found to be significantly faded, as outlined in Figure 4. On approach to the fire station, the possibility of an active travel user missing the give-way markings presents a safety risk due to the potential for a dangerous interaction with exiting vehicles.



Figure 4 - Faded cycle markings on Wellheads Drive footway

Refreshing the existing road markings is recommended to improve the safety of active travel users who use the shared use path.

Footway Width and Condition Assessment

All key footways throughout the study area were evaluated through a data collection and scoring process using the previously described smart form survey. Data based on characteristics such as the width, type and adjacent road's speed limit was collected and considered when scoring footway condition. Key findings are presented below, with all footway data entries summarised in Table 2 at the end of this note.

Multiple locations within the study area scored 5 out of 5 for their overall condition. These were typically footways which had been recently constructed or resurfaced. For example, the newly constructed Mill Drive shared use footway has a smooth surface with minimal wear and its width is compliant with the minimum standards set out by Cycling by Design.



Figure 5 - Shared use footway adjacent to Mill Drive

The primary reason for the low scoring footways in this review was the condition of the surface layer. Unlike that of the Mill Drive footway shown above, these footways have an unbound surface which can make it difficult to walk on for some users.



Figure 6 - Example of poor footway condition on Old Meldrum Road

It is recommended that any footways which were scored either a “1” or “2” out of 5 are reviewed and proposed for future resurfacing by Aberdeen City Council (ACC). Some of these are included in active travel improvement works through Tables 1 and 2. Those that are not currently captured within the proposed scope of options being developed as part of this study are summarised below:

Table 0.1 - Low scoring footways not captured under existing design options

Location	Footway Condition Score
Wellheads Way	2
Market Street	2
Greenburn Road	2

Various localised narrowing locations on footways along the A947 were identified and captured under this review. Such narrowing was mainly caused by the introduction of a lighting column in the footway; Figure 7 provides an example from Victoria Street.



Figure 7 - Localised footway narrowing on Victoria Street

The footway width between the lighting column and the property was measured as 1.0m, an insufficient width for two pedestrians to pass one another. This introduces a safety risk of a pedestrian stepping into the carriageway into oncoming traffic. It is understood that this may be the only appropriate location for the lighting column and the required cabling due to the property boundary but has still been captured under this review to highlight the potential risk present to pedestrian safety.

Table 0.1 - Summary of Existing Gaps in Provision

Location	Identified Gap in Provision	Reasoning
A947 Oldmeldrum Road (North of Dyce)	Y	Scope to improve conditions at bus stops Realignment of crossings North of Parkhill Bridge to tie them together DMRB allows for reposition of the VRS on Parkhill Bridge closer to the carriageway to reallocate space on footway Shared use path footway to south below CbD minimum requirements
Riverside Path	Y	Introduction of lighting along the path would make it more accessible and safer (subject to the appropriate environmental assessment)
Riverview Drive	Y	Existing pedestrian desire line not accommodated by a formal footpath at Todlaw Walk junction Available verge space to widen existing shared use footway outside Overton Circle
Pitmedden Road	Y	Footway ends on west side of carriageway at Dyce Scout Hut. Available verge space to extend footway further north to tie in with F&B Way
Wellheads Drive	Y	Existing cycle warning markings need refreshed
TECA paths	Y	Potential to upgrade to a bound surface to improve accessibility
Millhill Brae underpass	Y	Introduction of lighting to improve user safety
Old Meldrum Road	Y	Footway condition on west side deteriorated

Table 2 - Footway Assessment Summary

Location	Surface Type	Footway Width (m)	Condition (1 – 5)	Existing Verge	Speed Limit (mph)	Existing Buffer	Buffer Width (m)	Illuminated
A947 Oldmeldrum Road (Towards B977 Junction)	Unbound	1.0	1	Yes	40	Yes	1.5	No
A947 Oldmeldrum Road (between Dyce Drive and north of Parkhill Bridge)	Bound	1.7	4	Yes	40	No	-	No
A947 Oldmeldrum Road (between Riverview Drive Roundabout and Dyce Drive)	Bound	0.7 - 1.3	2	Yes	40	Yes	1.5	Yes
North Victoria Street	Bound	1.0 - 1.8	3	No	30	No	-	Yes
Central Victoria Street	Bound	1.5	3	No	30	No	-	Yes
Gordon Terrace	Bound	1.5 - 1.8	3	No	20	No	-	Yes
Station Road	Bound	1.2	3	No	20	No	-	Yes
Skene Place	Bound	1.4	2	No	20	No	-	Yes
Merrivale	Bound	1.4	4	No	20	No	-	Yes
South Victoria Street	Bound	1.5	3	Yes	30	No	-	Yes
Farburn Terrace	Bound	1.5	3	Yes	30	No	-	Yes
Wellheads Drive	Bound	2.2	4	Yes	40	Yes	0.5	Yes
Wellheads Crescent	Bound	1.9	3	Yes	30	No	-	Yes
Wellheads Way	Bound	2.0	2	Yes	30	No	-	Yes

Location	Surface Type	Footway Width (m)	Condition (1 – 5)	Existing Verge	Speed Limit (mph)	Existing Buffer	Buffer Width (m)	Illuminated
Wellheads Place	Bound	2.0	3	Yes	30	No	-	Yes
North Riverview Drive	Bound	1.8	3	Yes	40	Yes	1	Yes
South Riverview Drive	Bound	1.8 - 2.5	4	Yes	40	Yes	2 - 2.5	Yes
Riverside Path	Bound	2.5	4	Yes	-	No	-	No
Market Street	Bound	0.9 - 1.5	2	No	20	No	-	Yes
North Stoneywood Road	Bound	1.5 - 2.0	3	Yes	30	No	-	Yes
Central Stoneywood Road	Bound	3	4	Yes	30	No	-	Yes
South Stoneywood Road	Bound	2 – 2.80	3	Yes	40	Yes	0.9	Yes
Bankhead Road	Bound	1.3 – 1.5	2	No	20	No	-	Yes
Millhill Brae	Bound	3	2	No	20	No	-	Yes
Greenburn Road	Bound	1.4	2	No	20	No	-	Yes
TECA Paths	Bound	2.9	5	Yes	-	No	-	Yes
TECA Paths	Unbound	1.9	3	Yes	-	No	-	No
Mill Drive	Bound	1.8 - 2.9	5	Yes	20	No	-	Yes
Old Meldrum Road	Bound	2.1 – 2.9	2	No	20	No	-	Yes
Mugiemoss Road	Bound	1.3 – 2	3	No	20	No	-	Yes

Appendix C – Existing Wayfinding Signage Review

Project:	**A947 Multi-Modal Corridor Study: Detailed Appraisal & OBC**		
Subject:	**A947 Wayfinding Signage Review**		
Prepared by:	**Jack McKenna**	Date:	**11/12/2023**
Checked by:	**Steven Smith**	Date:	**10/01/2024**
Verified by:	**Joanne Melarkey**	Date:	**17/01/2024**
Approved by:	**Andrew Robb**	Date:	**19/01/2024**

A947 Wayfinding Signage Review

Introduction

AECOM staff carried out a site visit to the study area in November 2023.The purpose of the visit was to conduct a site walkover and capture data on the existing wayfinding signage and footway network along the A947 to inform a detailed review of each.

ArcGIS Survey123 was utilised on site to gather and collect data throughout the day. The software is a form-based data collection tool which can be used to gather information on site and then analysed off-site through a variety of tools and interfaces. AECOM's GIS team created a smart form survey which was accessible from a mobile device and used the device's GPS to record the location of each entry. The data and photos collected on site were then automatically transferred from the offline application into a GIS web map for further review and analysis.

The signage review was limited to wayfinding signage for the Formartine and Buchan (F&B) Way, National Cycle Network (NCN) and other local pedestrian trip attractors as vehicle traffic signage was considered out of the scope of works for this project. The walkover was expanded beyond the A947 corridor to ensure all relevant signage was covered and the NCN route within the study area was followed.

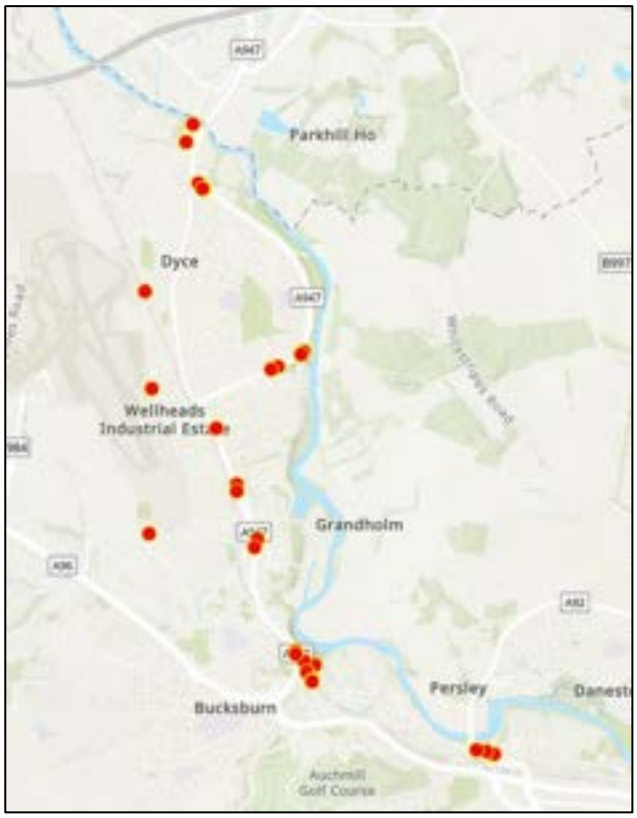


Figure 1 - Map of signage review data entries (Source: ArcGIS)

Review Criteria

Assessment of the signage network throughout the A947 study area was focused on two components; 1) each physical sign and its positioning within the network relative to the intended final destination and; 2) other nearby signs. Details of each sign were captured using the smart form survey throughout the walkover. The questions selected for the survey focused on identifying three key points from each sign: the site information; sign and pole condition; and the sign's coherence and orientation relative to the network. Figure 2 shows a screenshot of the survey and the questions which were used.

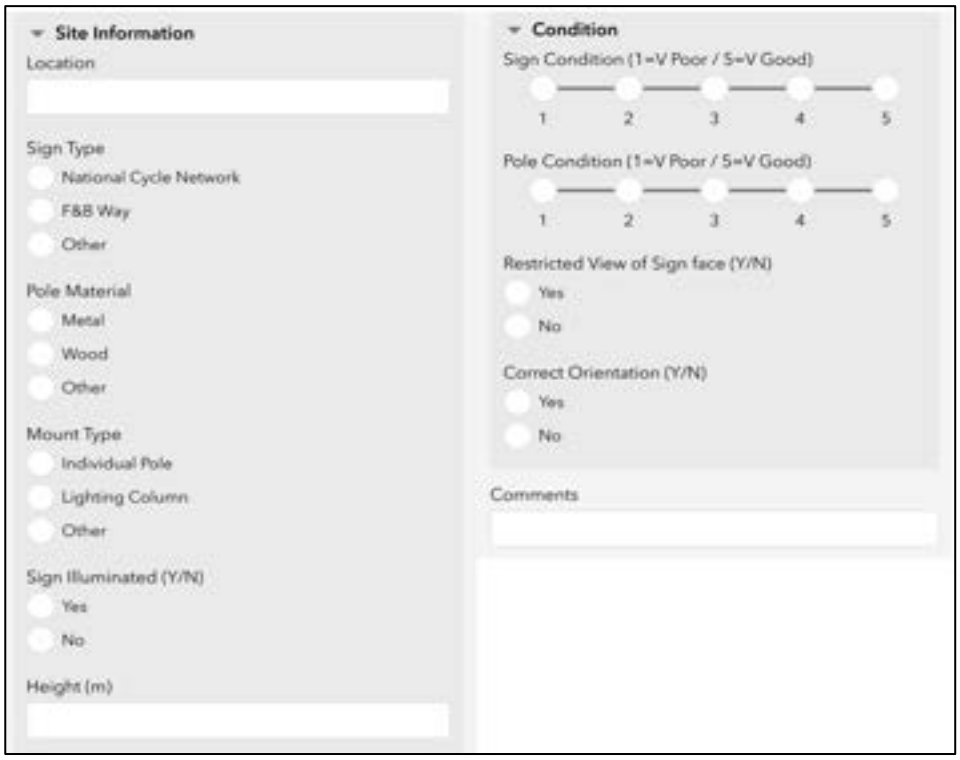


Figure 2 - ArcGIS Survey123 Criteria

Signage Review Findings

Throughout the site walkover, a total of 32 signs were assessed as part of the A947 signage network review. The condition of each sign face and signpost were evaluated on a scale between 1 and 5, with 1 being very poor condition and 5 being very good condition. Figure 3 illustrates the findings of the sign face and post review.

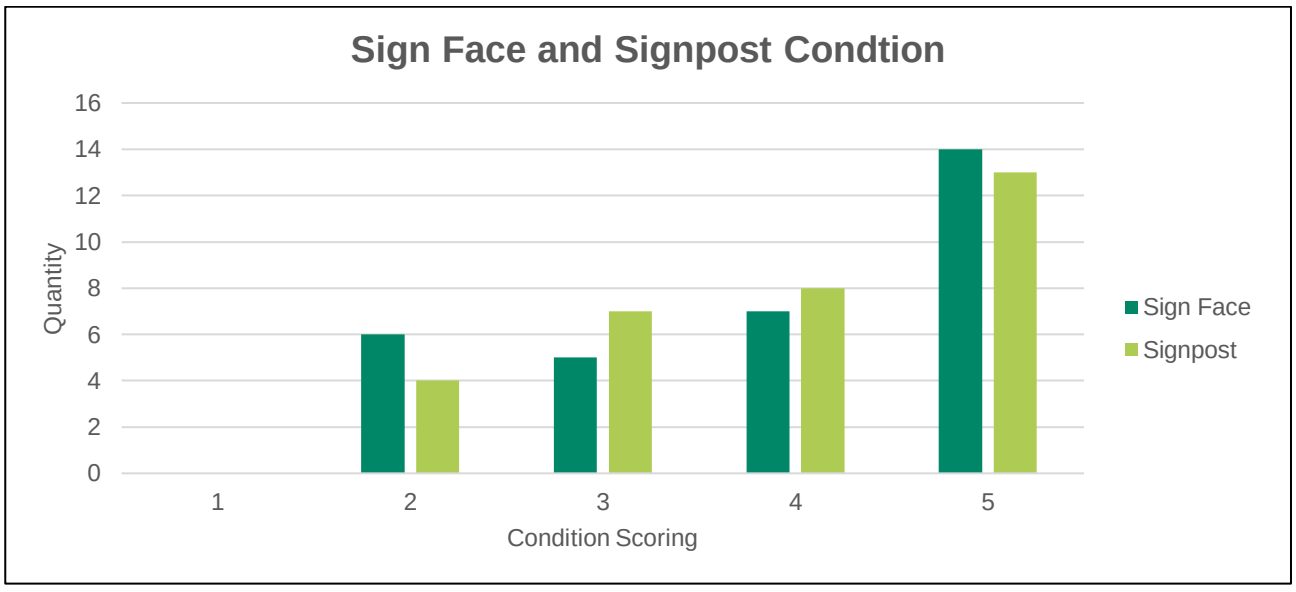


Figure 3 - Sign face and post condition graph

This graph indicates that the majority of sign faces and posts within the study area are in very good condition. These scores were awarded due to the minimal wear and damage observed, likely due to signs being installed in recent years by the Council. The surrounding trees and vegetation at these locations was also well

maintained to ensure there was no restricted view of the sign faces which would impact their legibility to active travel users.

An example of a sign face which received a poor score during the review is shown in Figure 4. This sign is located on a shared use path adjacent to Stoneywood Road.



Figure 4 - Poor condition sign face example

As shown in the above image, the NCN Route 1 sign face's legibility is impacted by the presence of moss leading to a poor score for condition during the review. This form of degradation in sign faces across the study area was common where located next to a woodland area or other forms of vegetation. Impacted signs could be more regularly maintained to reduce their legibility risk for users. Other low scoring sign faces showed signs of damage through dents and bends, however, there were no instances of damage impacting sign readability for users.

Damage was the primary cause of the low scoring of signpost condition which was outlined in Figure 3. Figure 5 demonstrates a sign which is no longer fully connected to its post due to damage. The damage to the wooden fencepost on which the sign is mounted impacts the connection to the sign face which in future may lead to the sign breaking off entirely.



Figure 5 - Damaged wooden sign mounting post

The orientation of wayfinding signage was also monitored during the site walkover to ensure each sign was directing active travel users in the correct direction. This was included in the survey as it is common for road and traffic signs to be vandalised and turned to face an incorrect direction. From the 32 signs captured in this review, only two signs were identified to have the incorrect orientation. These were only slight variations to the intended orientation and had no significant impact on their legibility for users but were highlighted as they could face the oncoming lane more directly.

While walking the majority of the NCN route within the study area, a coherent network was observed through the use of wayfinding signage in an effective manner along the route. As the data map indicates in Figure 1, the pattern of signage follows NCN Route 1 correctly with reasonable gapping in between. This gapping ensures that cyclists can follow the intended route while avoiding street clutter along the route corridor. The other wayfinding signage for trip attractors such as the F&B Way and Riverside Path are located more locally to the intended destination. The most effective location for these signs is near all access points nearby, providing clear and direct instructions for users.

Table 1 - Signage Review Summary Table

Location	Sign Type	Post Material	Illuminated?	Height (m)	Sign Condition	Pole Condition	Restricted View of Sign Face?	Correct Orientation?
F&B Way Path	F&B Way	Metal	No	2.0	4	5	No	Yes
F&B Way Access Point	Other	Metal	No	2.0	4	3	Yes	Yes
Old Meldrum Road Underpass	NCN	Wood	No	1.0	2	2	No	Yes
Riverview Drive	NCN	Metal	No	1.8	4	5	No	Yes
Riverview Drive	NCN	Metal	No	2.2	5	3	No	Yes
Riverview Drive	NCN	Metal	No	1.8	4	2	No	Yes
Riverside Path	Other	Wood	No	2.0	4	2	No	Yes
Riverside Path	Other	Wood	No	2.2	3	3	No	Yes
Riverview Drive	NCN	Metal	No	2.2	5	5	No	Yes
Riverview Drive	NCN	Metal	No	2.0	5	5	No	Yes
Dyce Station	F&B Way	Metal	Yes	2.8	2	2	No	Yes
Wellheads Drive	NCN	Metal	Yes	2.0	5	5	No	Yes

Location	Sign Type	Post Material	Illuminated?	Height (m)	Sign Condition	Pole Condition	Restricted View of Sign Face?	Correct Orientation?
Wellheads Drive	Other	Metal	Yes	2.8	5	5	No	Yes
Stoneywood Road	NCN	Metal	Yes	2.0	5	5	No	No
Stoneywood Road	NCN	Metal	No	2.2	4	3	No	No
Stoneywood Road	NCN	Metal	Yes	2.5	3	4	No	Yes
Stoneywood Road	NCN	Metal	No	2.0	3	4	No	Yes
Stoneywood Road	NCN	Metal	No	2.5	5	5	No	Yes
Stoneywood Road	NCN	Metal	No	2.3	2	4	No	Yes
Stoneywood Road	NCN	Metal	No	2.0	2	4	No	Yes
Stoneywood Road	NCN	Metal	Yes	2.0	3	4	No	Yes
Stoneywood Road	F&B Way	Wood	No	2.1	2	3	No	Yes
Mill Drive	NCN	Metal	No	2.3	5	5	No	Yes
Bankhead Road	NCN	Metal	No	2.0	5	5	No	Yes
Old Meldrum Road	NCN	Metal	No	2.0	5	5	No	Yes
Old Meldrum Road	NCN	Metal	No	2.0	5	5	No	Yes

Location	Sign Type	Post Material	Illuminated?	Height (m)	Sign Condition	Pole Condition	Restricted View of Sign Face?	Correct Orientation?
Old Meldrum Road	F&B Way	Metal	No	2.3	5	3	No	Yes
Mugiemoss Road	NCN	Metal	No	2.5	2	4	No	Yes
Persley Walled Garden	NCN	Metal	No	2.0	4	4	Yes	Yes
Persley Walled Garden	NCN	Metal	No	2.8	5	4	No	Yes
Persley Walled Garden	Other	Wood	No	2.2	3	3	No	Yes
Persley Walled Garden	NCN	Metal	No	2.0	5	5	No	Yes

Appendix D – Review of Existing Parking Arrangements on Victoria Street

Project:	**A947 Multi-Modal Corridor Study: Detailed Appraisal & OBC**		
Subject:	**Review of Existing Parking Arrangements on Victoria Street**		
Prepared by:	**Jack McKenna**	Date:	**05/01/2024**
Checked by:	**Steven Smith**	Date:	**10/01/2024**
Verified by:	**Joanne Melarkey**	Date:	**17/01/2024**
Approved by:	**Andrew Robb**	Date:	**19/01/2024**

Review of Existing Parking Arrangements on Victoria Street

Introduction

This Technical Note will investigate the current parking arrangements along Victoria Street, a primary urban street which runs through the centre of Dyce within the A947 study area. Victoria Street contains a mix of residential and commercial properties along its boundary which attracts a large volume of traffic and footfall on a daily basis. Victoria Street is a single carriageway route with a varying corridor width along its length. It is bordered by pedestrian footways and properties throughout. The route was reclassified following the revision of ACC's Roads Hierarchy, with the route no longer forming part of the A947 itself; the priority route is now via Riverview Drive.

The review of the current parking arrangements will focus on the current capacity for on-street and off-street parking, locations of businesses relative to parking and the existing areas along Victoria Street which have parking restrictions. For the purpose of this Technical Note, Victoria Street will be split into three sections based on the property type bordering each section. The following sections have been identified:

- North – Riverview Drive roundabout to Pitmedden Road
- Central – Pitmedden Road to Farburn Terrace
- South - Farburn Terrace to Riverview Drive roundabout

Capacity Review

This section of the Technical Note will focus on the existing parking capacity for vehicles throughout Victoria Street. The capacity of on-street parking along Victoria Street was measured through a desk study using online OS mapping. Sections across residential driveways and existing parking restrictions were excluded when measuring the existing capacity.

The northern area of Victoria Street is primarily bordered by residential properties with a small number of businesses also in this area, each of which provides customers with suitable off-street parking arrangements. During a site walkover, it was observed that a large number of the residential properties in this area have access to a single or multi-car driveway with the others requiring to use on-street parking outside or near their property. There is approximately 220m of available on-street parking on the west side of the Victoria Street corridor and 240m to the east. This provides approximately 36 and 40 spaces respectively for vehicles to utilise on-street parking in the northern section of Victoria Street.

The central area of Victoria Street contains the majority of its commercial properties along with Dyce Railway Station. These trip attractors create a higher vehicle parking demand. A lot of these non-residential properties come with adequate off-street parking areas for their customers, however, there are a number which do not have dedicated parking, and patrons need to use on-street parking along Victoria Street or an adjacent residential street. A previous study undertaken on behalf of Nestrans identified limited parking availability at the Railway Station during peak times due to the volume of park and ride passengers. This was recognised to result in on-street parking overflow into the nearby residential street network.

Within the central section of Victoria Street, the western side of the carriageway has available space for approximately 190m of parking and the eastern side has accommodation for approximately 100m. This provides 31 and 16 spaces respectively for a typical 6m length parallel bay. The availability of on-street parking in this section is impacted by the build outs and parking restrictions which are located at crossing points throughout. The build outs narrow the carriageway to reduce the effective crossing width for pedestrians.

The southern extents of Victoria Street sit between the Farburn Terrace junction and the Riverview Drive roundabout. The corridor here is bordered by greenspace and connects Victoria Street with areas south such as Stoneywood and Bucksburn using the A947. The carriageway is narrowed due to the presence of advisory cycle lanes which restricts parking along this section as a result.

Existing Parking Restrictions

The northern section of Victoria Street has minimal existing double yellow line parking restrictions. Those primarily located at the corner of junctions to adjacent side streets are deployed to ensure clear visibility for vehicles waiting to exit these junctions. Other parking restrictions are in place as part of the two controlled crossing points near the south Riverview Drive roundabout and outside Dyce Parish Church.

As a result of the physical buildouts present in the centre of Victoria Street and the resulting carriageway narrowing, there is an increase in the number of parking restrictions which are required in this area. These restrictions impact the volume of on-street parking available for local residents and customers of the local businesses.

Appendix E – Outline Cost Estimates

Table 5 – Summary of Outline Cost Estimates

Option	Estimated Construction Cost
AT4 - Implement measures to give active travel users priority over Burnside Drive when using the shared use path on Riverview Drive	**£221,000**
AT13 - Provide a formal pedestrian crossing point to the north of the A947/Riverview Drive Roundabout to facilitate movements to the Formartine and Buchan Way	**£278,000**
AT14 - Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout	**£272,000**
AT16 - Implement formal pedestrian crossing facilities on the arms of the Riverview Drive/Stoneywood Road Roundabout	**£1,149,000**
AT17 - Implement signalised crossing facility on Victoria Street adjacent to Tesco	**£198,000**
AT32 - Implement footways on the south side of the carriageway on Pitmedden Road	**£119,000**
AT59 - Widen the shared use path on the east side of the A947 to the north of Riverview Drive	**£502,000**
AT60 - Provide continuous footways on Riverview Drive for the duration of the route	**£182,000**

Appendix C –
Table 2 Preliminary Design Option Development Technical Note

Delivering a better world

Project:	**60709527 – A947 Detailed Appraisal & OBC**		
Subject:	**Table 2 Preliminary Option Development Technical Note**		
Prepared by:	**Jack McKenna, Engineer**	Date:	**16/10/2023**
Checked by:	**Steven Smith, Principal Engineer**	Date:	**09/11/2023**
Verified by:	**Joanne Melarkey, Regional Director (Project Director)**	Date:	**17/11/2023**
Approved by:	**Andrew Robb, Associate Director (Project Manager)**	Date:	**08/12/2023**

Introduction

This Technical Note details the Preliminary Option Development exercise undertaken as part of the Detailed Appraisal and Outline Business Case (OBC) stage of the A947 Multi-Modal Corridor Study.

This Preliminary Option Development exercise focuses on 'Table 2' options specified by Aberdeen City Council (ACC) considering specific aspects of deliverability for each of the options, to assess whether they should be subsequently considered as part of a detailed STAG-based appraisal.

Table 1 – 'Table 2' Options for Development, Detailed Appraisal, Detailed Design and OBC

Option	Description
AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport
AT26	Improve active travel connectivity between the A947 study area and TECA
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate
AT31	Improve active travel links between the Riverside Path and housing within Dyce
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road
AT35a	Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout
AT42	Review access to the Formartine and Buchan Way from within Dyce
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North
AT51	Implement with-flow segregated cycleway on Old Meldrum Road
AT52	Implement two-way segregated cycleway on Old Meldrum Road
AT55	Implement with-flow segregated cycleway on Gilbert Road
AT56	Implement two-way segregated cycleway on Gilbert Road

Option	Description
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport
AT61a	Implement package of active travel measures on Victoria Street
AT62	Widen the shared use path on the east side of the A947 between the A96 and Beech Manor
AT64	Implement shared use path on Old Meldrum Road
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road
AT66	Implement shared use path on Gilbert Road
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride
PT11	Improve public transport connectivity between the A947 study area and TECA
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate
O2	Review the layout of the Victoria Street/Skene Place Junction
O3	Review the layout of the Riverview Drive/Balloch Way Junction
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer
O8	Review the layout of the A947/Stoneywood Brae Junction
O10	Review layout of the A947/McDonalds access road junction
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce
O25	Implement access only restrictions for general traffic on Victoria Street
O26	Implement one-way restrictions for general traffic on Victoria Street

Options assigned to ‘Table 1’ by ACC at the outset of the commission have been expedited to OBC stage, however, by nature of the scope of the options in Table 2, this interim Preliminary Option Development exercise has been necessary to ensure there is adequate rationale for progressing this group of options further in the appraisal and design processes. Following this appraisal exercise, the strongest performing options will move forward to the OBC stage.

This Preliminary Option Development exercise has sought to establish if there are any deliverability barriers taking into account the design requirements and existing conditions. It has also sought to identify conflicting proposals or solutions which are dependent on each other.

Design Guidance Overview

Cycling by Design provides guidance for permanent active travel infrastructure design in Scotland and has been considered and referenced throughout this Technical Note. The guidance defines ‘desirable minimum’ and ‘absolute minimum’ widths for various forms of active travel facility. ‘Desirable minimum’ widths should be considered as the minimum requirement and reductions below this level should only be applied where specific constraints are identified, such that it cannot be reasonably achieved. In such cases, limited reductions are permissible, but the highest achievable standard should be maintained. ‘Absolute minimum’ widths represent the scope of permissible reduction to the requirement. Where elements of the design are subject to statutory obligations, these must be adhered to.

The Cycling by Design footway and cycle track width requirements for different cycle track types are outlined in the table below.

Table 2 - Cycling by Design Track Width Requirements

Cycle Track Types		**Footway Width**	**Cycle track width** *One-way, less than 300 cycles per hour peak*	**Cycle track width** *Two-way, less than 300 cycles per hour peak*
Remote Cycle Tracks Separated from pedestrians	Desirable minimum	2.0m	2.0m	3.0m
	Absolute minimum	1.5m	1.5m	2.0m
Remote Cycle Tracks Shared with pedestrians	Desirable minimum	N.A.	Not Recommended	4.0m
	Absolute minimum	N.A.	Not Recommended	2.5m
Cycle Tracks adjacent to carriageway Separated from pedestrians	Desirable minimum	2.0m	2.0m	3.0m
	Absolute minimum	1.5m	1.5m	2.0m
Cycle Tracks adjacent to carriageway Shared with pedestrians	Desirable minimum	N.A.	Not Recommended	4.0m
	Absolute minimum	N.A.	Not Recommended	2.5m

In addition to the direct width of the usable facility, consideration of the minimum buffer width for a facility adjacent to a carriageway is also required and is defined by the posted road speed limit. Table 3 is also taken from Cycling by Design and outlines these minimum requirements.

Table **3** - Minimum Buffer Widths

Speed Limit	**Minimum Buffer Width**
30mph	0.5m
40mph	1.00m
50mph	2.00m (including any hard strip)
60mph	2.50m (including any hard strip)
70mph	3.50m (including any hard strip)

The Design Manual for Roads and Bridges (DMRB) has also been referenced in this Technical Note. The DMRB provides design guidance for the development of the trunk road network in the UK. Where no standard specific to the local road network is available, the DMRB becomes the primary point of reference and the requirements set out within the standards were considered to evaluate road layout interventions and opportunities in accordance with several of the Table 2 options.

A947 Study – Table 2 Option Development

This section sets out the preliminary option development work undertaken to support the assessment of the options. Each option section has a summary rationale to confirm:

- Retain – Option progresses to detailed appraisal; or
- Sift – Option is no longer under consideration in the scope of the A947 Detailed Appraisal & OBC study.

AT24 – Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport

This option considered the two primary connection points between the A947 and Aberdeen Airport/Heliport as being Farburn Terrace and Market Street.

As part of ACC's Active Travel Action Plan, Farburn Terrace and its roundabout with Wellheads Drive have been identified as a missing link between the existing shared use cycleways on Wellheads Drive and Dyce Rail Station. ACC secured funding from Sustrans and Nestrans to develop a detailed design for shared use cycleways along Wellheads Drive, around the existing roundabout and along Farburn Terrace to Victoria Street. As these are committed improvements from ACC, the works on Farburn Terrace will no longer be included in the scope of Option AT24.

Market Street is a residential street with a barrier to the west restricting vehicle access to/from Wellheads Drive. Active travel improvements would add benefit in terms of directness between the southern extents of the A947 and Aberdeen Airport and Heliport. Based on anticipated traffic volumes and speeds on Market Street, adoption as a mixed traffic street is considered to provide a high level of service to users. Proposed works would include the implementation of new cycle signage and road markings and replacement of the existing barrier at the western end with a modal filter restricting vehicle access but permitting active travel permeability. The improvements to Market Street present limited risk in terms of complexity and deliverability therefore it is recommended that this option is now taken forward as a 'Quick Win' and moved to Table 4 for delivery by ACC as part of that workstream.

AT24 Recommendation:	Move to Table 4 for delivery as a Quick Win

AT26 – Improve active travel connectivity between the A947 study area and TECA

There are currently multiple links from The Event Complex Aberdeen (TECA) to the study area through an existing core path network to the north, east, south and west. The current condition of this network is mixed with a combination of bound and unbound surfacing. Based on Cycling by Design's core design principle of Comfort, an unbound surface provides a low level of service to its users.

Proposed works as part of this option include upgrading the existing path surface to the south and west of TECA to a bound surface and improving wayfinding signage for users.

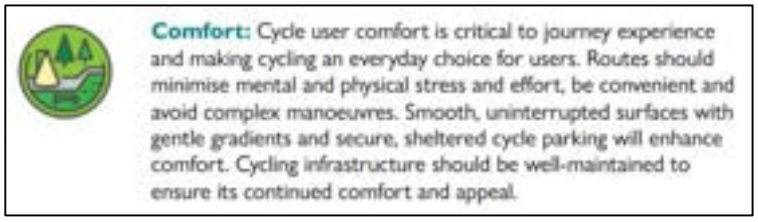


Figure 1 - Cycling by Design's Definition of Comfort (Cycling by Design, 2021)

A combination of options AT24 and AT26 along with the existing shared use facilities along Wellheads Drive creates a coherent active travel network between the A947 and key trip attractors to the west, Aberdeen International Airport and TECA.

AT26 Recommendation:	Retain

AT27 – Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate

There are various active travel solutions to improve connectivity between the A947 and Kirkhill Industrial Estate. These can be delivered in a more targeted way as part of options AT24, AT26 and AT58[1]. As a result, AT27 will be sifted out moving into the detailed appraisal stage.

AT27 Recommendation:	Sift

AT31 – Improve active travel links between the Riverside Path and housing within Dyce

The Riverside Path runs along the River Don and connects into the southbound verge of Riverview Drive at two established locations, east of Overton Circle and east of Balloch Way. The current connection between the Riverside Path and housing in Dyce is through informal dropped kerb crossings on Riverview Drive which do not meet desirable accessibility requirements. Connection improvements with the Riverside Path network are covered by Table 1 options AT14[2] and AT60[3].

Assessment of pedestrian desire lines has been carried out to determine appropriate crossing locations to improve connections between the Riverside Path and nearby housing areas. A worn section of verge was identified south of the Todlaw Walk junction, approximately 280m south of the established Riverside Path entrance.



Figure 2 – Evidence of Pedestrian Desire Line South of Todlaw Walk (Site Walkover Photo)

[1] **AT58 -** Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport.
[2] **AT14 -** Provide a formal pedestrian crossing point to the east of the A947/Riverview Drive Roundabout.
[3] **AT60 -** Provide continuous footways on Riverview Drive for the duration of the route.

Proposed works to formalise this connection point would include 40m of a new bound surface, dropped kerbs and tactile paving. AT31 will be retained to specifically review and develop improved connections in the area between AT14 and AT60 from Table 1.

AT31 Recommendation:	Retain

AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

Station Road is the main link between Dyce Rail Station and Victoria Street. The corridor consists of a 5.5m carriageway with 1.5m footways each side and parking restrictions at various locations throughout. Due to low traffic volumes and speeds along Station Road, the introduction of one-way side roads is being proposed as part of the associated Option O2[4].

The introduction of a one-way system on Station Road and adjacent streets would allow opportunity for the adoption of contra-flow cycle lanes. However, the narrow corridor width would require the retention of the existing narrow footways and removal of the existing on-road parking. This option is proposed to be retained in conjunction with Option O2.

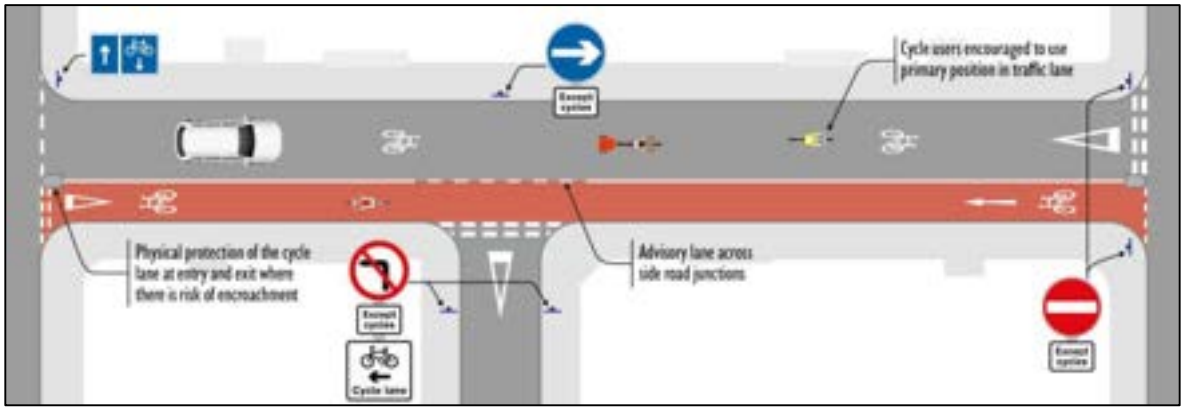


Figure 3 - Contra-flow Cycle Lane Example Arrangement (Cycling by Design, 2021)

AT33 Recommendation:	Retain

AT35a – Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Following a review of Option AT35, the wording of the option was redefined to broaden the scope from focusing on quiet route measures to active travel improvements. The option reference has now been updated to AT35a to reflect this change[5]. Since this revision was approved by the client group, the option definition has been further expanded to identify the importance of Farburn Terrace in the context of active travel improvements to the west of the A947 corridor.

Bankhead Road, Wellheads Drive and Farburn Terrace have been identified as western boundary streets to the proposed Low Traffic Neighbourhood (LTN) and have various options which focus on active travel improvements within this study. An assessment of these roads was caried out to understand their suitability for active travel improvements.

Millhill Brae and Greenburn Road have been identified as the key connecting roads to Bankhead Road for active travel users. There is an underpass at the end of Millhill Brae which provides users with access to the east of the A947. A variety of quiet route measures are considered suitable for Millhill Brae and will be explored in the detailed design stage to improve conditions for active travel

[4] **O2 -** Review the layout of Victoria Street/Skene Place junction.
[5] Original **AT35** wording *"Implement quiet route measures on the local road network to the west of the A947 via Bankhead Road, Wellheads Drive and Farburn Terrace to Dyce Rail Station".*

users. Greenburn Road is a residential street that also acts as one of the main access points for pedestrians to Stoneywood School. The introduction of quiet route measures would support improved access to the school for pupils, parents and other pedestrians daily.

Wellheads Crescent, Wellheads Way and Wellheads Place were identified as options to control vehicle movements and create new active travel opportunities for users traveling to and from the various business premises within Wellheads Industrial Estate. However, traffic lanes in this area often exceed 3.5m to accommodate HGVs. Cycling by Design Section 3.8.3 states that on streets where cycle users mix with motor traffic, lane widths should be designed between 2.8m – 3.2m to allow cycle users to safely adopt the primary riding position. The carriageway widths for roads connecting with Wellheads Drive are therefore too wide to accommodate the introduction of quiet route measures without impact on continued industrial access. Market Street is also considered as a connecting road to Wellheads Drive; and implementation of quiet route measures is already being progressed under Option AT24.

Farburn Terrace was previously identified as a suitable boundary street for a proposed Low Traffic Neighbourhood (LTN), however, with existing committed works being progressed separately by ACC, introduction of any new active travel measures on Farburn Terrace will not be considered further as part of this study.

AT35a Recommendation:	Redefine and retain

AT41a/b – Improve active travel access to the retail park at the Bucksburn Roundabout

An initial review of this option identified the stair access from Bankhead Road as the most appropriate connection between the A947 and the retail park for active travel users. An opportunity was identified to replace the stairs with an accessible ramp, facilitating the movement of active travel users to and from the retail park. Various technical and deliverability challenges were identified with this option upon further review. Due to the approximate 5m level difference between the footway on Bankhead Road and the A947 carriageway level, to meet Cycling by Design gradient requirements, a ramp in excess of 100m would be necessary to achieve a suitable gradient. Furthermore, the close proximity to the A947 overbridge wingwalls raised concerns of constructability challenges. Finally, the overbridge walls could have obscured visibility to oncoming traffic along Bankhead Road, increasing hazard to cycle users on a downhill approach to Bankhead Road.

Following the recent installation of a new Toucan crossing on the A947, North of the Old Meldrum Road junction, there is a new opportunity to create an active travel link to the retail park along the A947 corridor. The A947 widens to a dual carriageway in this area which presents two different opportunities for the new active travel link. Reduction of the northbound carriageway to one lane would facilitate a segregated two-way cycleway between the retail park and the new crossing facility on the A947 in accordance with Cycling by Design's desirable minimum width. Should the dual traffic lanes be retained, the existing footway west of the A947 could be upgraded to a shared use facility between the A947 crossing and the retail park at Bucksburn Roundabout. The existing footway varies in width between 1.8-3m with available verge space at the rear. Widening of this footway to at least the absolute minimum width would require the reallocation of lighting columns, signal posts and the removal of vegetation. AT41a/b will be retained to allow further design work on the proposed active travel link to be carried out. Connectivity north of the new crossing and the Old Meldrum Road junction is captured more broadly as part of the associated Option AT48a[6].

Option AT41a assumes the existing dual carriageway layout is retained and the existing northbound footway is upgraded to a shared use facility between the A947 crossing and the retail park. Option AT41b would involve A947 carriageway width reduction to one lane to facilitate a segregated two-way cycleway.

AT41a/b Recommendation:	Retain

[6] **AT48a -** Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North.

AT42 – Review access to the Formartine and Buchan Way from within Dyce

Five primary points of access to the Formartine and Buchan (F&B) Way were identified between Dyce Rail Station and the B977 in a review of the study area. Improvement in access onto the F&B Way is captured by other options that are already being carried forward to detailed appraisal. Option AT68 focuses on improving wayfinding signage throughout the study area including promoting access to the F&B Way. Options AT13 and AT58 promote the introduction of shared use paths and crossings which will connect to existing access points to the F&B Way. Option AT32 will improve access to the F&B Way by formalising pedestrian movements on the south side of Pitmedden Road to the F&B Way.

It is therefore proposed that AT42 is sifted out as it promotes similar outcomes to the options outlined above. Review of access to the F&B Way will therefore form part of the consideration of other more targeted options.

AT42 Recommendation:	Sift

AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

A section of the former A947 was repurposed for local access only when the primary route was diverted to align with new infrastructure as part of the AWPR project. There is an existing path which connects the northbound bus stop on Oldmeldrum Road and the section of old A947 carriageway with dropped kerbs for pedestrians wishing to cross perpendicularly.

Option AT28 aims to facilitate the movement of cyclists travelling northbound by implementing additional dropped kerbs to improve integration with the A947 and the existing strip of path for cyclists. This was identified as a quick-win and will be delivered by ACC.



Figure 4 - Existing A947/B977 Connection Conditions (Site Walkover Photo)

The proposals for Option AT43 focus on improvements to the existing path between the old and new A947 which is approximately 1.5m wide and comprises an unbound surface. There is adequate verge space here to widen the path to Cycling by Design's desirable minimum width of 4m and upgrade to a bound surface, offering a higher level of service in comparison to the existing conditions. A proposed new crossing at this location will also be explored at the next design stage, aiming to improve access between the northbound and southbound bus stops as well as the widened shared use path being progressed under Option AT58.

AT43 Recommendation:	Retain

AT47 – Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction

A review of corridor widths along the full length of the route recognised that implementation of continuous with-flow segregated cycleways on the A947 between the AWPR and A947/A96 junction is not feasible due to several fixed constraints at overbridges, property boundaries and junctions. The section specific options previously outlined in Tables 1-4 (of the original ACC Invitation To Tender) are considered more deliverable when considered individually. As a result of the deliverability challenges outlined, Option AT47 will be sifted out on this basis.

AT47 Recommendation:	Sift

AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

In order to capture sections along the A947 which are not considered under other targeted active travel options and to promote an overall coherent and connected network, AT48 has been reworded to incorporate the evaluation of solutions which offer a high level of service between the Bucksburn Roundabout and Riverview Drive Roundabout North, through the implementation of new shared use and segregated cycleway facilities. This would enable active travel improvements along the entirety of Riverview Drive. The option reference has now been updated to AT48a to reflect this change.

A mapping exercise was carried out to review any existing and proposed active travel facilities along the A947 corridor between the AWPR junction and the A947/A96 junction. The overview map created is shown in Appendix A. The was developed to understand the cumulative extents of the proposed active travel links and to identify any gaps in provision and potential missing links. Subsequently, improvements in the following sections will be taken forward: Bucksburn Roundabout to Old Meldrum Road, Old Meldrum Road to Stoneywood Brae and Stoneywood Brae to Beech Manor, with this option then extending as far as Riverview Drive Roundabout North.

AT48a Recommendation:	Redefine and retain

AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

Works are currently ongoing north of the Bankhead Road Junction on Old Meldrum Road. As part of the Barratt Homes development, the Mill Drive carriageway has been realigned and is now the priority route for vehicles coming off the A947. A short new section of carriageway is currently under construction which will connect Old Meldrum Road to Mill Drive. Figure 5 shows a photo captured by AECOM staff during a recent visit to the area with an aim to better understand the new road layout north of Old Meldrum Road.



Figure 5 - New Layout North of Old Meldrum Road (Site Walkover Photo)

Assessment of the Old Meldrum Road corridor width was carried out to understand its suitability for with-flow segregation. It was measured to vary between 14-16m with multiple sections of on-street parking. This width is insufficient to accommodate with-flow segregation to Cycling by Design's desirable minimum specification. However, absolute minimum widths could be achieved when accompanied with a reduction in existing on-street parking provision. Option AT51 will be retained for further consideration and design due to the benefits of with-flow segregation at junctions – a prominent feature along both sides of the Old Meldrum Road corridor.

AT51 Recommendation:	Retain

AT52 – Implement two-way segregated cycleway on Old Meldrum Road

A two-way segregated cycleway demands less road space than a with-flow alternative. As a result, a desirable minimum width layout could be achieved along Old Meldrum Road. This would still require a reduction in the existing on-street parking provision, like that of the with-flow option. A two-way segregated cycleway would also offer continuity in association with a similar facility which is proposed on the A96 to the south along Auchmill Road. The interface with junctions and impact on on-street parking will inform the comparative appraisal between AT51 and AT52 through the appraisal and detailed design stage.

AT52 Recommendation:	Retain

Furthermore, the A96 Multi-Modal Corridor Study, being progressed separately by ACC, is promoting a bi-directional segregated cycleway in the westbound channel of Auchmill Road alongside bus improvements. Reconfiguration of the Auchmill Road central reserve and removal of the right turn into Old Meldrum Road are proposed to facilitate these improvements. This is detailed further in the Table 1 Design Technical Note (forming Appendix B of the Detailed Appraisal Report).

AT55 – Implement with-flow segregated cycleway on Gilbert Road

Gilbert Road is a residential street which connects Old Meldrum Road and the A96. On-street parking is prevalent throughout due to several properties having no off-street alternatives. Gilbert Road has an existing corridor width of approximately 10-11m with fixed property boundaries on both sides. Cycling by Design outlines an absolute minimum cycleway width of 1.5m with 1.5m wide footways. Implementation of a with-flow segregated cycleway is therefore not feasible on Gilbert Road due to the width being unable to support absolute minimum pedestrian and cycle facilities without reduction in road width below 6m or acquisition of third-party land. Option AT55 is sifted out on this basis.

AT55 Recommendation:	Sift

AT56 – Implement two-way segregated cycleway on Gilbert Road

A similar assessment of Gilbert Road's corridor width against Cycling by Design standards was carried out for Option AT56. An absolute minimum two-way segregated cycleway requires a 2m width with a 1.5m footway. There is inadequate space available to achieve two-way segregation without impact on the existing road corridor width or requirement for third-party land acquisition. As a result, Option AT56 will also be sifted from further consideration.

AT56 Recommendation:	Sift

AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

This route spans along Dyce Drive between the F&B Way overbridge and the existing shared use path network located to the north of Kirkhill Industrial Estate with an approximate length of 2.5km. Multiple constraints exist within the proposed extent of this route. There is minimal to no verge space adjacent to the carriageway along the eastern part of the link; as a result, third party land acquisition will be required. In the western section between Pitmedden and Kirkhill Industrial Estates, the route will have to cross Dyce Drive at two locations to align with the wide verge of the railway overbridge. To accommodate priority crossings for pedestrians, the speed limit on Dyce Drive would require reduction to at least 50mph. It is proposed that this option is progressed to the next stage to develop an optimal route along Dyce Drive while also ensuring the safety of active travel users.

AT58 Recommendation:	Retain

AT61a – Implement package of active travel measures on Victoria Street

Victoria Street has been assessed to have a variable cross-sectional width along its length, with the most common width approximately 12m. As the urban centre of Dyce, implementation of a shared use path would bring a higher risk of conflict between users. Therefore, shared use is not considered appropriate on the primary residential and commercial section of Victoria Street. As a result of the recent reprioritisation of the A947 along Riverview Drive as part of the Roads Hierarchy revision, it is anticipated that there will be reduced traffic levels along Victoria Street with route reclassification. Despite the implementation of a shared use path being discounted, it is important to continue developing other active travel measures along Victoria Street to improve accessibility and active travel opportunities in the 'heart' of Dyce. AT61 has been reworded[7] to capture a broader range of options for active travel improvements along Victoria Street. The option reference has now been updated to AT61a to reflect this change and the option has been considered in three sections: 1) Victoria Street/Riverview Drive South Roundabout to Farburn Terrace; 2) Farburn Terrace to Pitmedden Road; and 3) Pitmedden Road to Victoria Street/Riverview Drive North Roundabout. In Section 1, there is adequate space on the eastern side to develop a segregated cycleway connection

[7] Original **AT61** wording *"Implement shared use path on Victoria Street".*

by reallocating the existing advisory cycle lanes and utilising the existing verge space. In Section 2, there is limited scope to widen the existing footways or reduce the carriageway width due to bordering property boundaries. A reduction of the speed limit to 20mph and introduction of various measures would allow this section to be formalised as a mixed traffic street. Section 3 has three sub-improvement options, with varying volumes of works required. Option 3a involves the reduction of the road carriageway width to 6m, removal of on-street parking and speed limit reduction to 20mph. Option 3b – reduction of speed limit to 20mph and removal of on street parking would create opportunity to widen and reclassify existing footways on Eastern side to shared use desirable minimum width, with local sections of absolute minimum shared use width due to corridor constraints. Option 3c would continue the measures introduced as part of Option 3b with a reduced speed limit to formalise Section 3 as a mixed traffic street.

Further design work and appraisal will be carried out on this package of options to understand their feasibility and impact on road and active travel users along Victoria Street.

AT61a Recommendation:	Redefine and Retain

AT62 – Widen the shared use path on the East side of the A947 between the A96 and Beech Manor

This option was sifted out at the previous project stage on the basis that segregated facilities should be promoted as part of the study rather than shared use. An assessment of technical viability was founded on the agreed assumption that the A947 dual traffic lanes were to be retained, limiting the available width at this section. Further discussions with the client group have presented a desire for further consideration of space reallocation for active travel measures on this section of the A947 corridor. This would assist in delivering end-to-end active travel provisions along the A947 and will be revisited as part of Option AT48.

AT62 Recommendation:	Sifted as part of previous phase – consider residual improvements as part of AT48 option development

AT64 – Implement shared use path on Old Meldrum Road

Old Meldrum Road has a variable corridor width of 14-16m along the length of the route. The implementation of a shared use path and buffer strip to absolute minimum width requirements is considered feasible but the introduction of additional parking restrictions along Old Meldrum Road would be required. Despite having adequate corridor width to implement this option, it will not be progressed as two-way segregation is also feasible, Option AT52 outlined previously. A segregated cycleway is considered to offer a higher level of service to cyclists and will therefore be retained over the shared use alternative on Old Meldrum Road.

AT64 Recommendation:	Sift

AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

Recent residential development along Mill Drive has resulted in realignment of the carriageway in this area. When exiting the A947 to the north west, vehicles are now taken towards Mill Drive with a small connector road available for journeys down Old Meldrum Road. The connector road is still under construction; however, it is anticipated that the change to the primary route in this area will reduce traffic volumes along the western extents of Mugiemoss Road. As part of the new carriageway construction along Mill Drive, a 2.5m shared use footway was incorporated in the development which ties in with the existing active travel infrastructure along Old Meldrum Road and the A947.

At Mugiemoss Road, between the Old Meldrum Road and Mill Drive junctions, the narrow 6m road corridor offers limited scope for footway widening. Due to the anticipated reduction in traffic volumes and the existing 20mph speed limit in this area, the introduction of quiet route and mixed street measures could be considered to protect active travel users and remove existing modal conflict on the footways along Mugiemoss Road.

Beyond the Mill Drive junction, the road corridor widens to 7.5m which provides opportunity to reallocate space from the road carriageway and widen the existing north footway to Cycling by Design's absolute minimum width for shared use. Due to the ongoing active travel improvements along Mill Drive and the potential to widen Mugiemoss Road footways to the east, Option AT65 will be retained to allow further design and appraisal.

AT65 Recommendation:	Retain

AT66 – Implement shared use path on Gilbert Road

Similar constraints are present when exploring the implementation of a shared use path on Gilbert Road as with implementing segregated cycle infrastructure. Due to the narrow corridor width of 10-11m and the requirement for on-street parking throughout, delivering an adequate shared use path to Cycling by Design standards is not considered feasible without impacting the existing road corridor width or requiring third party land. Therefore, Option AT66 will be sifted out at this stage of the study.

AT66 Recommendation:	Sift

PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

This option seeks to investigate the timings of existing traffic signals along the A947 corridor and consider the introduction of adaptive traffic signals to improve traffic flow through the junctions for all users and therefore deliver a positive impact on journey times. This option will be taken forward for further assessment.

PT2 Recommendation:	Retain

PT9 – Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport

PT10 – Improve public transport connectivity between the A947 study area and Craibstone Park & Ride

PT11 – Improve public transport connectivity between the A947 study area and TECA

PT12 – Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate

Following targeted engagement with the ACC client team, and Nestrans, it was agreed that the standalone public transport options would be sifted out at this stage of the study. The Roads Hierarchy places greater emphasis on active travel and by delivering traffic calming and active travel improvements under the Table 1 and Table 2 options, benefits in terms of public transport attractiveness and journey time reliability will also be realised. It is also noted that public transport improvements are reliant on commitment and buy-in from private operators. Existing initiatives such as the Airport 'Hoppa' service, which has been extended to TECA[8], will deliver some of the scope of these options as they were originally conceptualised at the Preliminary Appraisal stage.

Option PT2 (described above) will also have some benefit for public transport operations on the study corridor.

PT9/PT10/PT11/PT12 Recommendation:	Sift

O2 – Review the layout of the Victoria Street/Skene Place Junction

Option AT33 explores the improvement of active travel links between Dyce Rail Station and the A947 through the adoption of LTN measures along Station Road and its side roads. Skene Place is linked to Station Road by Merrivale. Option O2 aims to simplify traffic movements to and from Victoria Street by introducing a one-way system using Station Road, Merrivale and Skene Place, as shown in Figure 6 below.



Figure 6 - Proposed One-Way System (OS Base Map)

West of Merrivale, Station Road and Skene Place would remain with bi-directional flow due to there being no alternative through link available. Initial swept path analysis was carried out using OS mapping to gauge the feasibility of emergency vehicles turning throughout the one-way system. No major issues were identified in this high-level review, supporting the retention of this option for further appraisal.

O2 Recommendation:	Retain

[8] Airport 'Hoppa' service extended to P&J Live (agcc.co.uk)

O3 & O4 – Review the layout of the Riverview Drive/Balloch Way Junction / Review the layout of the Riverview Drive/Todlaw Walk Junction

A reduction in kerb radii to 6m and a narrowing of the existing junction is proposed to reduce traffic speeds turning into Balloch Way (Figure 7) and Todlaw Walk (Figure 8) from Riverview Drive. Initial swept path analysis against the OS mapping base for an emergency vehicle suggests no encroachment into the opposing lane on entry and exit manoeuvres. It is proposed that these options are retained and further analysis conducted to verify the feasibility of changes to junction arrangements.



Figure 7 - Proposed improvements to the Riverview Drive/Balloch Way Junction (OS Base Map)



Figure 8 - Proposed improvements to the Riverview Drive/Todlaw Walk Junction (OS Base Map)

O3 & O4 Recommendation:	Retain

O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

A reduction in kerb radii to 10m and a narrowing of the existing junction is proposed to reduce traffic speeds turning into Netherview Avenue from Riverview Drive. Initial swept path analysis against the OS mapping base for a rigid industrial vehicle suggests no encroachment into the opposing lane on entry and exit manoeuvres. It is proposed that this option is retained, and further analysis conducted to verify the feasibility of changes to junction arrangement.



Figure 9 - Proposed improvement to the Riverview Drive/Netherview Avenue junction (OS Base Map)

O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

Early public consultation identified a high frequency of illegal turning manoeuvres occurring from vehicles continuing straight though the 'left only' exit from Stoneywood Road to the Co-op and Marks and Spencer's retail access at Beech Manor. The following minor interventions to improve the current conditions at this junction are considered feasible.

Increasing the existing splitter island radius at the Stoneywood Road junction in conjunction with the introduction of a tapered merge would further guide vehicles north the on A947. The altered kerb line has been indicatively sketched, as shown in Figure 10.

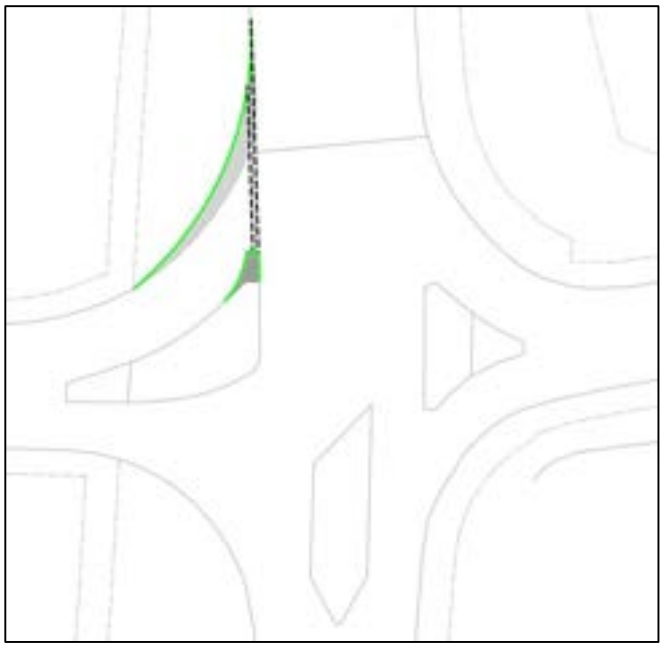


Figure 10 - Indicative kerb adjustments to the A947/Stoneywood Road junction (OS Base Map)

The introduction of a physical island to replace the existing hatch road markings adjacent to the right turn filter lane on the A947 would physically preclude the straight through manoeuvre and present an arrangement consistent with the adjacent Stoneywood Brae junction. This is indicatively shown in Figure 11.

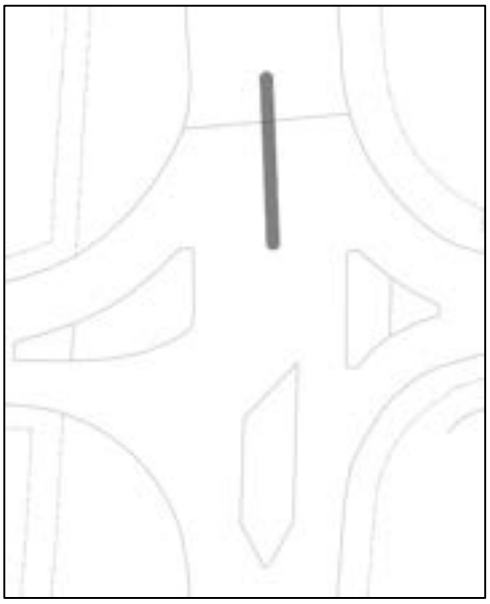


Figure 11 - Indicative location for new road island on A947 (OS Base Map)

Option O7 will be retained and progressed to establish which of the above interventions is most appropriate at the Stoneywood Road junction.

O7 Recommendation:	Retain

O8 – Review the layout of the A947/Stoneywood Brae Junction

Stakeholder consultation raised concerns about vehicle acceleration through the A947/Stoneywood Brae junction as the carriageway transitions from single to dual carriageway, creating a safety risk for on-road cycle users.

An initial review of this junction identified that the existing taper for change in carriageway width is not to the standard set out in DMRB CD 127 Cross Sections and Headroom[9]. The DMRB is the primary referenced standard in this case due to the nature of the road corridor and absence of other overriding guidance specific to the taper length in a local road context. The speed limit on the A947 is 40mph, therefore, a minimum taper ratio of 1:35 is required for implementation of the change in carriageway width. Option O8 is to be retained and proposed alterations to the junction to meet the minimum taper ratio will be developed at the next stage.

O8 Recommendation:	Retain

O10 – Review layout of the A947/McDonalds access road junction

The existing junction radii meets DMRB CD 123 Geometric Design of at-grade Priority and Signal-Controlled Junctions[10] minimum requirements, however there is potential to narrow or reposition the junction to further protect pedestrians using an at-grade crossing north of the access road. The nature of the junction as a primary commercial access adjacent to the trunk road network (A96) promotes the DMRB as the primary reference document. Option O10 will be retained to allow swept path analysis to be conducted of the junction, helping to confirm potential layout improvements.

O10 Recommendation:	Retain

[9] https://www.standardsforhighways.co.uk/search/10442706-b592-42c8-85f8-2a0c779a8e37

[10] https://www.standardsforhighways.co.uk/search/962a81c1-abda-4424-96c9-fe4c2287308c

O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce.

Further assessment of the project area is required along with engagement with the local community to ensure implemented works best meet their needs within a 20-minute neighbourhood environment. Deliverability and benefits of any additional works would be subject to appraisal in line with various options defined in Tables 1 to 4 of the ACC study brief. This option will be retained for holistic development in conjunction with the other options being delivered.

O16 Recommendation:	Retain

O25 – Implement access only restrictions for general traffic on Victoria Street

Reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of access only restrictions for general traffic on Victoria Street. Further assessment is required to better understand the impacts this would have on residents, local businesses, and key transport service providers. The feasibility of this option will be assessed through various forms of consultation with these stakeholders. There are several deliverability challenges that need to be considered with this option. These include impeded access to key trip attractors in Dyce, Pitmedden and Kirkhill Industrial Estates, Aberdeen International Airport/Heliport, Dyce Rail Station and Dyce Primary School. Option O25 would be most beneficial if rolled out alongside various other active travel improvements. This option will be retained for further holistic consideration and design.

O25 Recommendation:	Retain

O26 – Implement one-way restrictions for general traffic on Victoria Street

Reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of one-way restrictions for general traffic on Victoria Street. Option O26 has similar benefits and constraints as Option O25 with both requiring significant consultation with various stakeholders. Victoria Street is located between two roundabouts to the north and south. Traffic flow analysis would be required to determine the preferred direction of one-way restrictions based on capacity for entering/exiting. Assessment of benefits and feasibility will continue in the next stage of this study, with this option to be retained for further assessment.

O26 Recommendation:	Retain

Summary

Option	Description	Recommendation	Reason for Sifting
AT24	Improve active travel connectivity between the A947 study area and Aberdeen Airport/Heliport	**Move to Table 4 for delivery as a 'Quick Win'**	Well defined remaining measures support progression as a quick win without need for further appraisal.
AT26	Improve active travel connectivity between the A947 study area and TECA	**Retain**	
AT27	Improve active travel connectivity between the A947 study area and Kirkhill Industrial Estate	**Sift**	Delivered in more targeted ways by other options.
AT31	Improve active travel links between the Riverside Path and housing within Dyce	**Retain**	
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road	**Retain**	
AT35a	Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae	**Retain**	
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout	**Retain**	
AT42	Review access to the Formartine and Buchan Way from within Dyce	**Sift**	Delivered in more targeted ways by other options.
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)	**Retain**	
AT47	Implement with-flow segregated cycleway on the A947 between AWPR Junction and A947/A96 Junction	**Sift**	Not feasible due to several fixed constraints.
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North	**Retain**	
AT51	Implement with-flow segregated cycleway on Old Meldrum Road	**Retain**	
AT52	Implement two-way segregated cycleway on Old Meldrum Road	**Retain**	
AT55	Implement with-flow segregated cycleway on Gilbert Road	**Sift**	

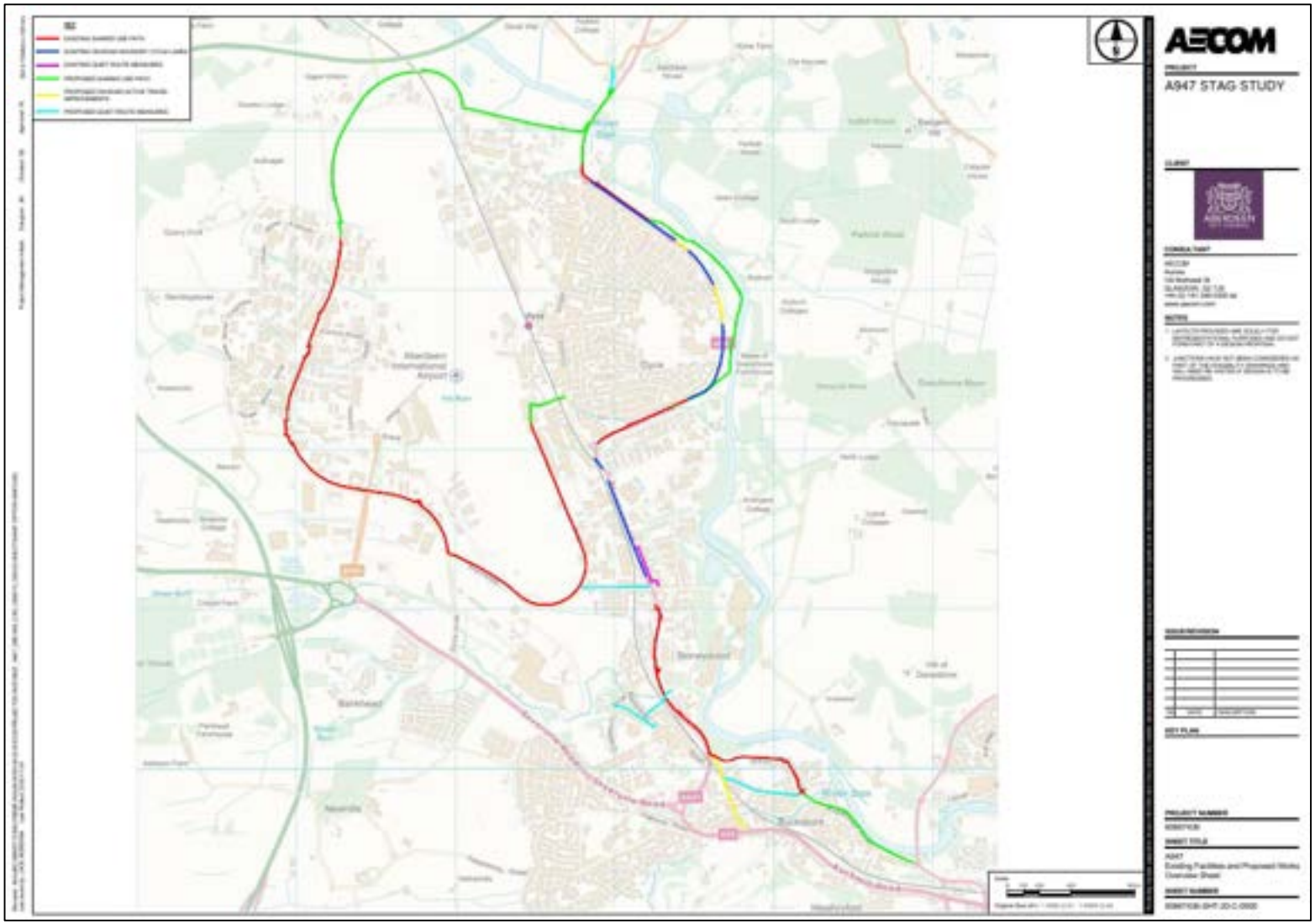
AT56	Implement two-way segregated cycleway on Gilbert Road	**Sift**	Existing corridor width unable to support absolute minimum segregated pedestrian and cycle facilities without reduction in road width below 6m or acquisition of third-party land.
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport	**Retain**	
AT61a	Implement package of active travel measures on Victoria Street	**Retain**	
AT62	Widen the shared use path on the east side of the A947 between the A96 and Beech Manor	**Sift**	Part of previous phase – consider residual improvements as part of AT48 option development.
AT64	Implement shared use path on Old Meldrum Road	**Sift**	Two-way segregation being taken forward instead.
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road	**Retain**	
AT66	Implement shared use path on Gilbert Road	**Sift**	Existing corridor width unable to support absolute minimum shared use facilities without reduction in road width below 6m or acquisition of third-party land.
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor	**Retain**	
PT9	Improve public transport connectivity between the A947 study area and Aberdeen Airport/Heliport	**Sift**	Active travel improvements will have knock on benefits to public transport attractiveness.
PT10	Improve public transport connectivity between the A947 study area and Craibstone Park & Ride	**Sift**	
PT11	Improve public transport connectivity between the A947 study area and TECA	**Sift**	
PT12	Improve public transport connectivity between the A947 study area and Kirkhill Industrial Estate	**Sift**	
O2	Review the layout of the Victoria Street/Skene Place Junction	**Retain**	
O3	Review the layout of the Riverview Drive/Balloch Way Junction	**Retain**	
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction	**Retain**	
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction	**Retain**	

O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer	**Retain**
O8	Review the layout of the A947/Stoneywood Brae Junction	**Retain**
O10	Review layout of the A947/McDonalds access road junction	**Retain**
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce	**Retain**
O25	Implement access only restrictions for general traffic on Victoria Street	**Retain**
O26	Implement one-way restrictions for general traffic on Victoria Street	**Retain**

Next Steps

The retained options from the preliminary option design exercise associated with Table 2 as discussed in this Technical Note will now progress through a design process to inform detailed appraisal and outline design.

Appendix A – A947 Active Travel Provision Map



(Source – OS Opendata Base Map)

Appendix D –
Table 2 Design Technical Note

Delivering a better world

Project:	**A947 Detailed Appraisal & OBC**		
Subject:	**Technical Note - Table 2 Design Overview**		
Prepared by:	**Dan Baines**	Date:	**11/06/2024**
Checked by:	**Steven Smith**	Date:	**12/06/2024**
Verified by:	**Joanne Melarkey**	Date:	**18/06/2024**
Approved by:	**Andrew Robb**	Date:	**19/06/2024**

Introduction

This Technical Note details the Option Development undertaken as part of the Detailed Appraisal and Outline Business Case (OBC) stage of the A947 Multi-Modal Corridor Study. This Option Development exercise focuses on the 'Table 2' options specified for further development, design and appraisal following initial review of the remaining options at the start of the study.

Table 1 – 'Table 2' Options for Detailed Appraisal

Option Ref	Description
AT26	Improve active travel connectivity between the A947 study area and TECA
AT31	Improve active travel links between the Riverside Path and housing within Dyce
AT33	Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road
AT35a	Implement improvements to develop a mixed-traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae
AT41a/b	Improve active travel access to the retail park at the Bucksburn Roundabout
AT43	Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)
AT48a	Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North
AT51	Implement with-flow segregated cycleway on Old Meldrum Road
AT52	Implement two-way segregated cycleway on Old Meldrum Road
AT58	Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport
AT61a	Implement package of active travel measures on Victoria Street
AT65	Implement streetscape improvements and widened pavements along Mugiemoss Road
PT2	Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor
O2	Review the layout of the Victoria Street/Skene Place Junction
O3	Review the layout of the Riverview Drive/Balloch Way Junction
O4	Review the layout of the Riverview Drive/Todlaw Walk Junction
O5	Review the layout of the Riverview Drive/Netherview Avenue Junction
O7	Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer
O8	Review the layout of the A947/Stoneywood Brae Junction
O10	Review layout of the A947/McDonalds access road junction
O16	Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

Option Ref	Description
O25	Implement access only restrictions for general traffic on Victoria Street
O26	Implement one-way restrictions for general traffic on Victoria Street

General arrangement (GA) layouts for the design-orientated options are available in Appendix E of the Detailed Appraisal Report and the basis of design, key design details and recognised risks and unknowns are discussed within the main body of this Technical Note.

Design Guidance Overview

Cycling by Design provides guidance for permanent active travel infrastructure design in Scotland and has been considered and referenced throughout this Technical Note. The guidance defines 'desirable minimum' and 'absolute minimum' widths for various forms of active travel facility. 'Desirable minimum' widths should be considered as the minimum requirement and reductions below this level should only be applied where specific constraints are identified, such that it cannot be reasonably achieved. In such cases, limited reductions are permissible, but the highest achievable standard should be maintained. 'Absolute minimum' widths represent the scope of permissible reduction to the requirement. Where elements of the design are subject to statutory obligations, these must be adhered to.

The Cycling by Design footway and cycle track width requirements for different cycle track types are outlined in the table below.

Table 2 – Cycling by Design Track Width Requirements

Cycle Track Types		Footway Width	Cycle track width *One-way, less than 300 cycles per hour peak*	Cycle track width *Two-way, less than 300 cycles per hour peak*
Remote Cycle Tracks Separated from pedestrians	Desirable minimum	2.0m	2.0m	3.0m
	Absolute minimum	1.5m	1.5m	2.0m
Remote Cycle Tracks Shared with pedestrians	Desirable minimum	N.A.	Not Recommended	4.0m
	Absolute minimum	N.A.	Not Recommended	2.5m
Cycle Tracks adjacent to carriageway Separated from pedestrians	Desirable minimum	2.0m	2.0m	3.0m
	Absolute minimum	1.5m	1.5m	2.0m
Cycle Tracks adjacent to carriageway Shared with pedestrians	Desirable minimum	N.A.	Not Recommended	4.0m
	Absolute minimum	N.A.	Not Recommended	2.5m

In addition to the direct width of the usable facility, consideration of the minimum buffer width for a facility adjacent to a carriageway is also required and is defined by the posted road speed limit. Table 3 is also taken from Cycling by Design and outlines these minimum requirements.

Table 3 – Minimum Buffer Widths

Speed Limit	Minimum Buffer Width
30mph	0.5m
40mph	1.00m
50mph	2.00m (including any hard strip)
60mph	2.50m (including any hard strip)
70mph	3.50m (including any hard strip)

The Design Manual for Roads and Bridges (DMRB) has also been referenced in this Technical Note. The DMRB provides design guidance for the development of the trunk road network in the UK. Where no standard specific to the local road network is available, the DMRB becomes the primary point of reference and the requirements set out within the standards were considered to evaluate road layout interventions and opportunities in accordance with several of the Table 2 options.

Active Travel Option Appraisal

AT26 – Improve active travel connectivity between the A947 study area and TECA

The Event Complex Aberdeen (TECA) was designed with an extensive core path network which provides active travel users access between the facilities on site and the A947 study area due to their shared use classification. There is a mixture of surface makeups across the network between bound and unbound. Based on Cycling by Design's core design principle of Comfort, the sections of unbound surface provide a low level of service to users.

The focus of option AT26 is to upgrade the existing unbound surfaces to a bound makeup and widen where suitable to Cycling by Design's desirable minimum width requirement of 4.0m for shared use as outlined in Table 2. The current unbound surfaces are located to the east, west and south of TECA and are approximately 2.0m wide; upgrading the surface and widening will provide a higher level of service to users and as a result, improve connectivity between TECA and the study area.

Key Design Features:

- Resurfacing of unbound paths to the east, west and south of TECA to a bound asphalt surface.
- Widening of existing 2.0m paths to 4.0m desirable minimum width with new footpath construction.
- Introduction of additional wayfinding signage at the entrance/exit locations throughout the path network.

Risks and Unknowns

There is no proposed change to the existing route topography however gradients should be reviewed against survey data to evaluate compliance with Cycling by Design guidance in line with the design review process.

Existing drainage to be reviewed and assessment carried out to understand if existing system can handle the additional surface runoff from the widened footpaths.

Some existing vegetation will require removal to accommodate widening. Preliminary ecological appraisal would be required to inform impact and constraint mapping.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT26 is £1,114,000 including risk and contingency at 44%.

AT31 – Improve active travel links between the Riverside Path and housing within Dyce

The Riverside Path runs adjacent to the River Don and connects into the southbound verge of Riverview Drive at two established locations, east of Overton Circle and east of Balloch Way. The current connection between the Riverside Path and housing in Dyce is through informal dropped kerb crossings on Riverview Drive which do not meet desirable accessibility requirements. Connection improvements across Riverview Drive, as covered by Table 1 options AT14 and AT60, promote improved connection with the Riverside Path network at key existing locations.

A review of pedestrian desire lines has been undertaken to determine potential missing links between the Riverside Path and nearby housing areas. A worn section of verge was identified south of the Todlaw Walk junction, approximately 280m south of the established Riverside Path entrance.



Figure 1 – Worn verge at Todlaw Walk (Site walkover photo)

Proposed works to formalise this connection would include a new uncontrolled crossing on Riverview Drive and approximately 40m of a new bound surface from the Riverside Path to Riverview Drive. Suitable wayfinding signage would also be required on the new proposed bound surface.

The proposed uncontrolled crossing would provide dropped kerbs and tactiles along with a reconfiguration of the existing island to bring this in line with current inclusive design standards. The proposed new island would be widened to 3.0m resulting in the narrowing of the carriageway lanes at this point to 3.4m each. Localised realignment of the kerb on approach to the island would be required to support carriageway narrowing at an appropriate taper. The narrowing on approach to the island would provide a secondary benefit through provision of a minor traffic calming effect.

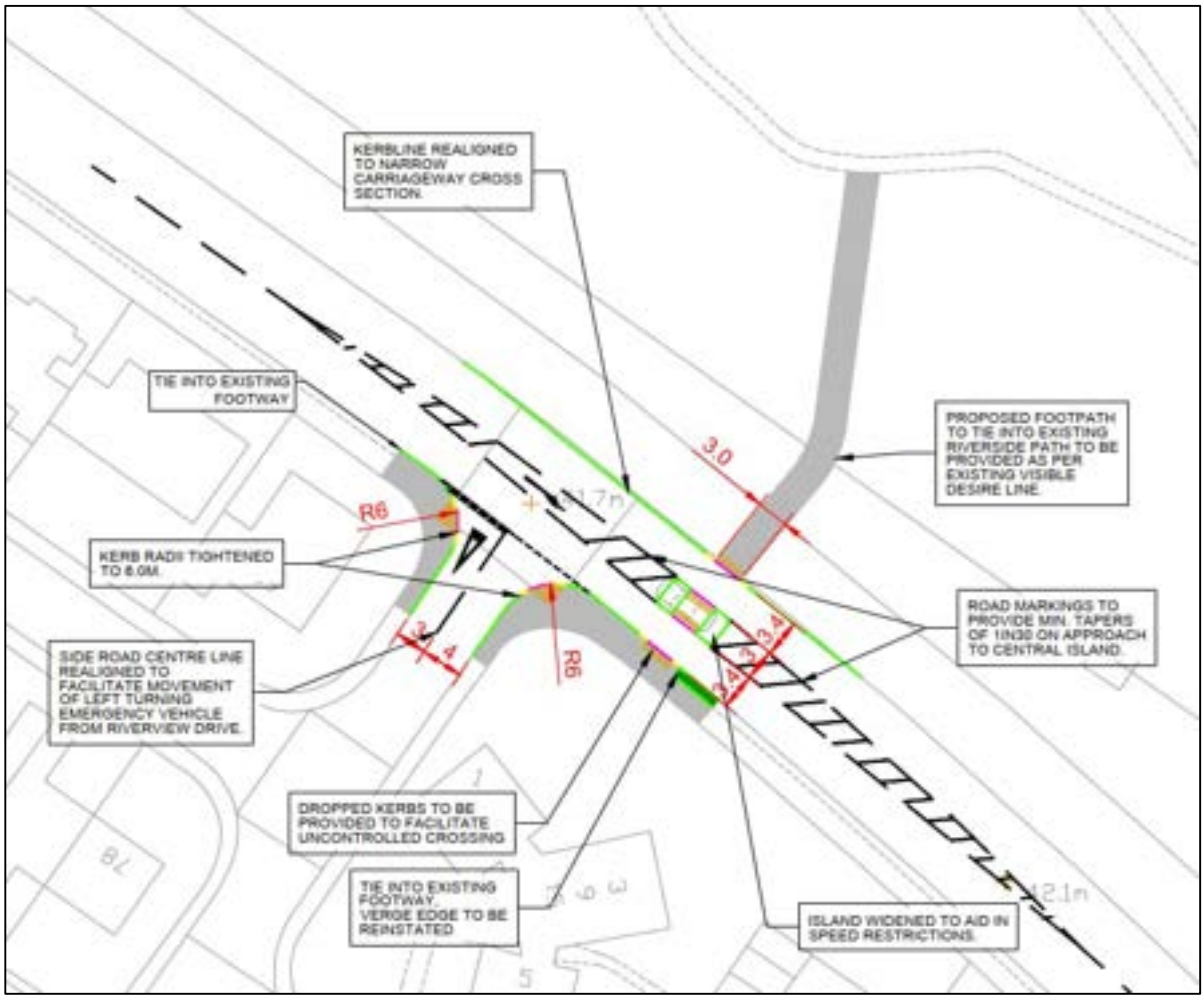


Figure 2 – Proposed crossing and footpath arrangement

Key Design Features:

- New 3.0m wide island to be provided on Riverview Drive, narrowing carriageway lanes to 3.4m at crossing to impact upon traffic calming on approach to the crossing.
- Dropped kerbs and tactiles to be provided over Riverview Drive to facilitate the movement of pedestrians from the Riverside Path.
- New 40m bound footpath to be provided from Riverside Path and Riverview Drive, with appropriate wayfaring signage.
- 1in30 hatched tapers to be provided on approach to proposed widened island.

Risks and Unknowns

Existing ground conditions of proposed footpath between Riverview Drive and the Riverside Path are to be determined and due to the lack of topographical information, the drainage requirements are unknown. Porous asphalt may require consideration to maintain existing surface water infiltration.

Proposed island crossing would not be feasible if Option AT48a is implemented to introduce a two-way segregated cycleway along Riverview Drive. The Riverside Path connection could still be developed alongside Option AT48a, however accessibility from housing within Dyce would be compromised.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT31 is £56,000 including risk and contingency at 44%.

AT33 – Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road

Station Road is the main link between Dyce Rail Station and Victoria Street. The corridor consists of a 5.5m carriageway with 1.5m footways each side and parking restrictions at various locations throughout. Due to low traffic volumes and speeds along Station Road, the introduction of one-way side roads is proposed as part of the associated Option O2.

The introduction of a one-way system on Station Road and adjacent streets allows the opportunity for the adoption of a contra-flow cycle lane on Station Road for direct cycle access to and from the Dyce Railway Station. The proposed cycle lane varies in width between a desirable minimum 2.0m and 2.2m to ensure the constant reduced width of the carriageway to an absolute maximum 3.2m width. Existing on-street parking would be removed to accommodate the formalised allocation of existing carriageway space for the contra-flow lane. There is minimal scope to provide widened footways without compromising the contra flow cycle lane and vehicle swept path on Station Road. It is therefore proposed that existing absolute minimum width footways are retained.

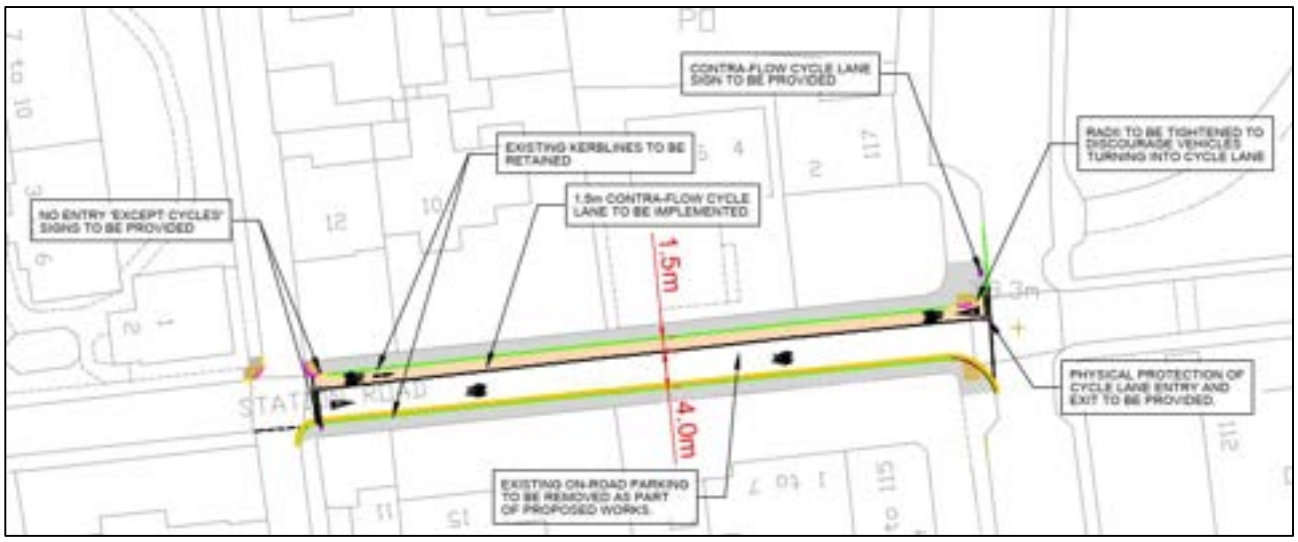


Figure 3 – Proposed layout of new segregated cycleway on Station Road

Key Design Features:

- Contra-flow cycle lane is to be provided with the one-way carriageway lane reduced to 3.2m in width, allowing the provision of a minimum 2.0m cycle lane. The proposed one-way system will form part of Option O2.
- Physical protection at the start and end of the cycle lane is provided to reduce the risk of encroachment into the cycle lane.
- The new one-way system and exception to the one-way restriction is to be indicated by signs advising of the exception.
- Existing footways widths of 1.5m are to be retained.
- All on-street parking is to be removed as part of this option due to the proposed cycle lane on the south side of Station Road. To the north of Station Road, the existing double yellow lines are to be retained.
- Radii on exit of cycle lane is to be tightened to deter vehicles from turning into the cycle lane.

Risks and Unknowns

On-street parking for residents will be removed along Station Road for residents; while most residents seem to have access to off-street parking spaces, there is a risk they may park and obstruct the cycle lane. A parking survey should be undertaken to understand the risk of this occurring.

Utility chambers are observed throughout the existing street. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, Scottish Water and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT33 is £84,000 including risk and contingency at 44%.

AT35a – Implement improvements to develop a mixed traffic street (which allows for safe, on-road cycling) on the local road network to the west of the A947, incorporating Bankhead Road, Greenburn Road and Millhill Brae

Following a review of Option AT35, the wording of the option was redefined to broaden the scope from focusing on quiet route measures to active travel improvements. The option reference has now been updated to AT35a to reflect this change. Following on from the Preliminary Option Development Technical Note, active travel improvements for this option have been focused along Bankhead Road, Greenburn Road and Millhill Brae. Both Millhill Brae and Greenburn Road have been reviewed within the proposed active travel improvements as they have been highlighted as key connecting roads to Bankhead Road for active travel users. There is an underpass at the end of Millhill Brae which provides users with access to the east of the A947 and potential longer distance strategic active travel connections as promoted by Option AT48 as part of this study.

Due to the constrained nature of Greenburn Road and a requirement to retain residential parking, the options that can be implemented are limited. As a result, it is proposed that Greenburn Road is promoted as a quiet route in conjunction with traffic calming measures to provide a safer environment around Stoneywood School. To implement a traffic calming effect on Greenburn Road, a give-way chicane has been proposed with vehicles from Bankhead Road giving way to vehicles from Greenburn Drive – this will slow vehicles down on approach to Stoneywood School, providing a safer traffic environment. In addition, a dropped kerb will be provided on the buildout to allow active travel users to cross to the car park opposite the school and the stepped access down to Bankhead Road. The give way location is proposed on the side of the school to minimise impact on existing on-road parking.

Further improvements to pedestrian accessibility and permeability in the area are proposed with the introduction of raised tables at the Crossgates, Station Road and Millhill Brae junctions with Bankhead Road. These would provide a higher level of connectivity and priority to pedestrians, emphasising road user hierarchy priority in line with changes to the highway code. Additional calming measures west of the A947 where an existing island is located are proposed with the carriageway lanes either side of the island reduced to 3.2m, helping to encourage lower vehicle speeds in conjunction with the quiet route. The benefit of this measure is as a result of widening the footway and narrowing the carriageway there has been no impact upon the parking within the area. Similarly at the Bankhead Road/Crossgates junction, the

footways have been widened to narrow the carriageway lanes to 2.9m while the protected right turn lane into Crossgates has been widened to 3.0m.

To improve accessibility from Stoneywood School along Millhill Brae and through the underpass to the A947, a signalised crossing has been proposed as part of the improvements to replace the existing unsignalised island crossing as shown in Figure 44. To further enforce the quiet route measures where the signalised crossing has been proposed, the carriageway has been narrowed to 6.4m. Further improvements to Millhill Brae include the widening of the footway at the eastern end of the road and the provision of a dropped kerb, along with Millhill Brae being proposed as a quiet road.

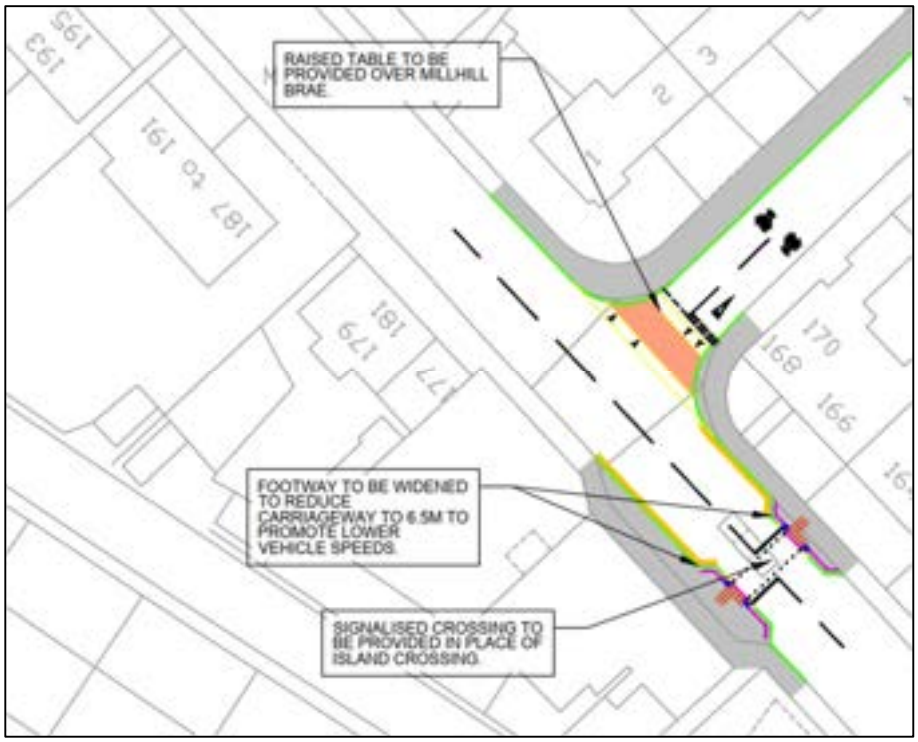


Figure 4 – Proposed widening of footway to provide a new signalised crossing

Key Design Features:

- Raised tables implemented on the Millhill Brae, Crossgates and Station Road junctions with Bankhead Road.
- Signalised crossing to replace island crossing on Bankhead Road near junction with Millhill Brae and carriageway narrowed to 6.4m at crossing.
- Quiet road implemented along Millhill Brae and Greenburn Road.
- Footway widened and dropped kerb provided at eastern end of Millhill Brae to provide improved connections to the underpass.
- Carriageway narrowed to provide 2.9m lanes at Crossgates junction with Bankhead Road, with footway to be widened to facilitate the change.
- Carriageway lanes narrowed to 3.2m at island on Bankhead Road east of A947, with footway to be widened to facilitate the change.
- Existing island crossings located near Crossgates junction with Bankhead Road to be upgraded providing tactiles.
- Eastern Bankhead Avenue Radii to be tightened to 6.0m. Narrowing of western radii not feasible due to bus movements.
- Existing access opposite Crossgates to provide a continuous footpath with a dropped kerb access for vehicles due to the limited properties using the lane for access.
- Chicane give-way island to be implemented on Greenburn Road in front of Stoneywood School.

Risks and Unknowns

Utility chambers are observed throughout the existing street. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, Scottish Water, SGN and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

Drainage conditions to be investigated due to proposed works within existing carriageway. It is noted that the introduction of the raised table crossings at the junctions may impede existing runoff flow paths. Topographical survey information should be obtained, and further analysis undertaken to fully determine impact on surface runoff.

The proposed signalised crossing and associated widening would impact an existing access restricted lay-by which is potentially utilised for servicing and loading for the adjacent Bankhead Inn. Further engagement is required to determine the purpose and frequency of use of the lay-by.

A small section of parking will be impacted near Stoneywood School to allow the movement of vehicles around the proposed give-way chicane.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT35a is £299,000 including risk and contingency at 44%.

AT41a – Improve active travel access to the retail park at the Bucksburn Roundabout (Shared Use Option)

Following the recent installation of a toucan crossing on the A947, north of the Old Meldrum Road junction, there is a new opportunity to create an active travel link to the retail park along the A947 corridor. The A947 widens to a dual carriageway in this area which presents two options for the new active travel link. Option A focuses on upgrading the existing shared use facility west of the A947 between the toucan crossing and the retail park at Bucksburn Roundabout. The existing footway varies in width between 1.8m and 3m between the crossing and retail park with available verge space at the rear of the footway which could be utilised for widening to 4m wide with 1m buffer in line with Cycling by Design guidance for shared use. Through the retail park, the limited verge width restricts opportunity to widen existing footways with a maximum of 3m feasible. This is in excess of the absolute minimum defined in guidance for shared use and would still be considered to present an improvement on existing provision. Raised table crossings of the two existing service roads off the main retail park access are also proposed to improve accessibility and emphasise priority for active travel users.



Figure 5 – Proposed widened shared use arrangement

Key Design Features:

- Existing shared use footways west of the A947 widened to 4m using available verge space at rear.

- Existing footways at entrance to retail park widened to 3m using available verge space and promoted as shared use.
- Two raised tables introduced at side roads near the retail park entrance.
- Lighting columns to be relocated at the back of upgraded footways.
- Cycleway and footway to change to shared use footway on approach to Option O10/AT48a due to physical constraints. Tram/ladder tactiles to indicate the change from segregated to shared surface. Two raised crossings will be provided across two accesses as part of the shared use footway, widening the existing footway from 2m to 3m.
- Shared area to be provided at new toucan crossing where segregated cycleway and footway end, with tram/ladder tactiles to indicate the change from segregated to shared surface.

Risks and Unknowns

Utility chambers are observed throughout the existing footway. A C2 preliminary inquiry has been carried out and identified Scottish Water as a supplier who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

Drainage conditions to be investigated due to increased surface runoff. It is noted that the introduction of the raised table crossings may impede existing runoff flow paths. Topographical survey information should be obtained, and further analysis undertaken to fully determine impact on surface runoff.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT41a is £153,000 including risk and contingency at 44%.

AT41b – Improve active travel access to the retail park at the Bucksburn Roundabout (Segregated Option)

Reduction of the northbound carriageway to one lane, as shown in Figure 6, would facilitate a segregated two-way cycleway between the retail park and the new crossing facility to the north on the A947 in accordance with Cycling by Design's desirable minimum width. In line with the Traffic Signs Manual, a 1 in 40 taper would be required on the approach to the lane reduction. This would result in the reduction beginning approximately 100m north of the exit of Bucksburn Roundabout.



Figure 6 – Proposed segregated cycleway layout and A947 road taper

The proposed design will provide a segregated footway and two-way cycleway along with a 1m buffer which is required for roads with speed limit of 40mph in line with Cycling by Design guidance. The cycleway is to commence at the new toucan crossing at the top of Old Meldrum Road and combine with the proposed upgrades as part of Option O10/AT48a where the pedestrian and cycle facilities merge into a shared use area. The cycleway and footway will be vertically segregated with the cycleway at carriageway level. The existing bus stop will be retained as part of the design and reconfigured into a bus stop bypass where the cycleway will be ramped up on the approach and narrowed to 2m due to corridor width constraints. Shared use areas are to be provided on approach to Option AT48a and the new toucan crossing at the top of Old Meldrum Road. The shared use provision will extend into the retail park with raised table crossings of the two service accesses proposed to improve accessibility and emphasise priority for active travel users.

Key Design Features:

- Segregated 3m two-way cycleway at carriageway level with 1m raised buffer to be provided. Footway to be narrowed to a desirable minimum 2m where required and A947 northbound road carriageway reduced from two lanes to one.
- Bus stop retained and reconfigured as a bus stop bypass, cycleway to be ramped up and narrowed to 2m to slow cyclists on approach. Zebra crossing and tactiles to provide pedestrians with safe crossing over the cycleway.
- Lighting columns to be relocated where required to facilitate proposed cycleway.
- Raised table crossings provided across the two service accesses off the main retail park access as part of the shared use footway, widening the existing footway from 2m to 3m.
- Shared use area to be provided at new toucan crossing where segregated cycleway and footway end, with tram/ladder tactiles to indicate the change from segregated to shared use surface.

Risks and Unknowns

Utility chambers are observed throughout the existing footway. A C2 preliminary inquiry has been carried out and identified Scottish Water as a supplier who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low; however these suppliers will be engaged throughout future design stages.

It is assumed that breaks would be provided within the buffer to maintain A947 surface runoff flow paths as existing and minimise need for additional drainage features. It is noted that the introduction of the raised table crossings may impede existing runoff flow paths. Topographical survey information should be obtained, and further analysis undertaken to fully determine impact on surface runoff.

Further analysis of the operational impact on the A947 would be required if the option to reduce from two to one lane was taken forward. There is a noted risk of delay in relation to stationary buses at the St John's Road bus stop impeding traffic behind. There may be opportunity to reduce the central reserve width or reduce the posted speed limit to enable relaxation in the cycle buffer width and more efficiently allocate space within the corridor. Further investigation would be required to establish feasibility if this option was to be taken forward and traffic implications were recognised as a major constraint.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT41b is £562,000 including risk and contingency at 44%.

AT43 – Implement active travel connection between the A947 and the B977, utilising a section of the old A947 (pre-AWPR)

A section of the former A947 was repurposed for local access only when the primary route was diverted to align with new infrastructure as part of the AWPR project. The short section of former A947 spans between the revised A947 alignment and the B977. An existing access onto the Formartine and Buchan Way (F&B Way) is located approximately 100m to the north, off the B977. There is a short section of unbound footpath which connects the new and former A947 corridors and links with bus stops on the new route. Dropped kerbs provide informal pedestrian access across the A947 between the north and southbound bus stops.

The proposals for Option AT43 focus on improvements to the existing connection between the old and new A947 which is approximately 1.5m wide and comprises an unbound surface. There is adequate verge space to widen the existing footpath to a shared use path in line with Cycling by Design's desirable minimum width of 4m, and to upgrade to a bound surface, offering a higher level of service in comparison to the existing conditions. A 1.0m grass buffer could be maintained between the shared use path and carriageway for added protection for users. The existing uncontrolled crossing at this location, as shown in Figure 7, is proposed for upgrade with provision of dropped kerbs and tactiles to facilitate improved accessibility between the northbound and southbound A947 bus stops as well as to provide greater connectivity with the extended shared use route towards Dyce as is being progressed under Option AT59.



Figure 7 – Existing uncontrolled crossing

On the north side of the proposed widened shared use path between the new and old A947, the short section of former A947 would provide appropriate low traffic volume and speed conditions for promotion as a mixed-traffic street. However the opportunity to improve the extended connectivity along the B977 onto the F&B Way is constrained by the existing narrow road corridor, notably at the F&B Way overbridge, below desirable standard geometry and higher traffic speeds associated with the 60mph posted speed limit of the B977.

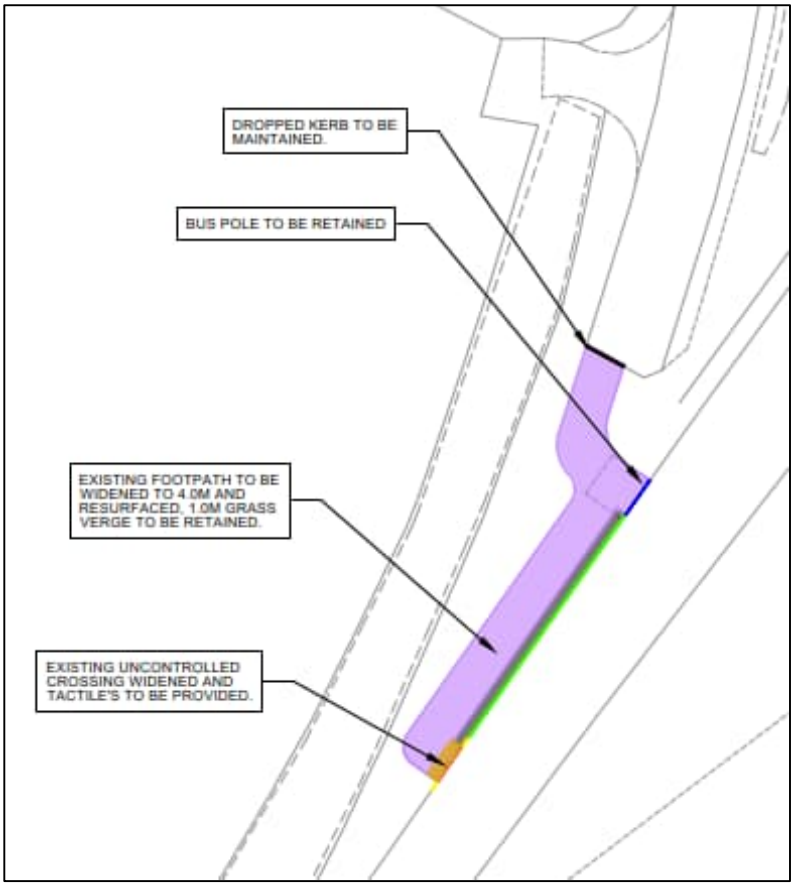


Figure 8 – Proposed path improvements

Key Design Features:

- Existing unbound footpath widened to 4.0m and a bound surface provided.
- 1.0m grass verge buffer maintained between the shared use footpath and carriageway.
- Existing uncontrolled crossing widened to 4.0m and tactiles provided.
- Existing bus stops and accessible kerbs maintained and surface on approach to bus stops upgraded from unbound to bound surfaces.

Risks and Unknowns

Existing gullies located along the carriageway edge may need to be relocated away from the proposed uncontrolled crossing to avoid the risks of slips, trips and falls.

Utility chambers are observed throughout the existing footway. A C2 preliminary inquiry has been carried out and identified BT as a supplier who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however this supplier will be engaged throughout future design stages.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT43 is £62,000 including risk and contingency at 44%.

AT48a – Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North

In order to capture sections along the A947 which are not considered under other targeted active travel options and to promote an overall coherent and connected network, AT48 has been reworded to incorporate the evaluation of solutions which offer a high level of service between the Bucksburn Roundabout and Riverview Drive Roundabout North, through the implementation of new shared use and segregated cycleway facilities. This would enable active travel improvements along the entirety of Riverview Drive. The option reference has now been updated to AT48a to reflect this change.

A mapping exercise was carried out to review any existing and proposed active travel facilities along the A947 corridor between the AWPR junction and the A947/A96 junction. The overview map created is shown in Appendix A. The was developed to understand the cumulative extents of the proposed active travel links and to identify any gaps in provision and potential missing links. Subsequently, improvements in the following sections will be taken forward: Bucksburn Roundabout to Old Meldrum Road, Old Meldrum Road to Stoneywood Brae and Stoneywood Brae to Beech Manor, with this option then extending as far as Riverview Drive Roundabout North.

Bucksburn Roundabout to Old Meldrum Road

Proposed improvements between the Bucksburn Roundabout and Option AT41 connecting to Old Meldrum Road would tie-in with the segregated cycleway improvements proposed and advancing as part of the A96 Multi-Modal Corridor Study as indicatively shown in Figure 99. There are no existing cycle or pedestrian facilities on the A947 corridor between Bucksburn Roundabout and the Bucksburn Retail Park access.

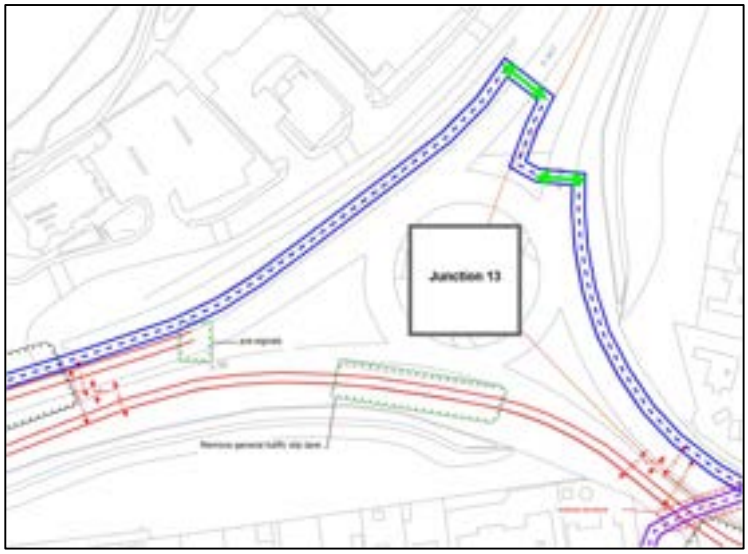


Figure 9 – Proposed Bucksburn Roundabout configuration proposed as part of the A96 Multi-Modal Corridor Study

Due to there being adequate verge space with the adjacent A947 (subject to a 40mph posted speed limit in this area), it is proposed a 3m two-way cycleway will be provided adjacent to the A947 with at least a 1m buffer provided between the cycleway and carriageway. The proposed cycleway will be located within the existing grass verge, connecting with the improved facilities proposed as part of Option AT41 at the north end. The existing raised table/speed ramp across the retail park access road is proposed to be upgraded as part of the interventions to provide a priority cycle crossing.

Key Design Features:

- Segregated 3m two-way cycleway at carriageway level with 1m buffer to be provided adjacent to carriageway, before diverging to cross the retail park access road.
- Existing raised table/speed ramp across access road to be upgraded as part of proposals to provide a priority cycle crossing and connect the segregated cycleway with the shared footway proposed as part of Option AT41 and extended network to the north.

Risks and Unknowns

Configuration of the proposed layout is subject to change relative to the advancement and design development of the active travel facilities as part of the A96 Multi-Modal Corridor Study.

Utility chambers are observed throughout the existing footways and available verge space. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SGN, SSE and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

Lighting columns located within the A947 road verge may require relocation to accommodate the proposed works.

There is a potential requirement for minor earthworks to regrade the existing A947 road verge to accommodate the segregated cycleway cross section.

Old Meldrum Road to Stoneywood Brae

Due to constraints on the existing A947 road corridor between Old Meldrum Road and Stoneywood Brae, minimal intervention is proposed. An existing shared use footway with minimum 2.75m width is located in the southbound verge. A large embankment at the rear of the footway presents a constraint to improvement with significant engineering works required to allow widening of the existing facility. Consideration was given to widening to the footway on the west of the A947, however, to ensure continuity of the facility and connection with Old Meldrum Road to the east, this was discounted. Immediately north of the constrained section, the flatter topography and verge space would enable the shared footway to be widened to a desirable minimum 4m up to Stoneywood Brae.

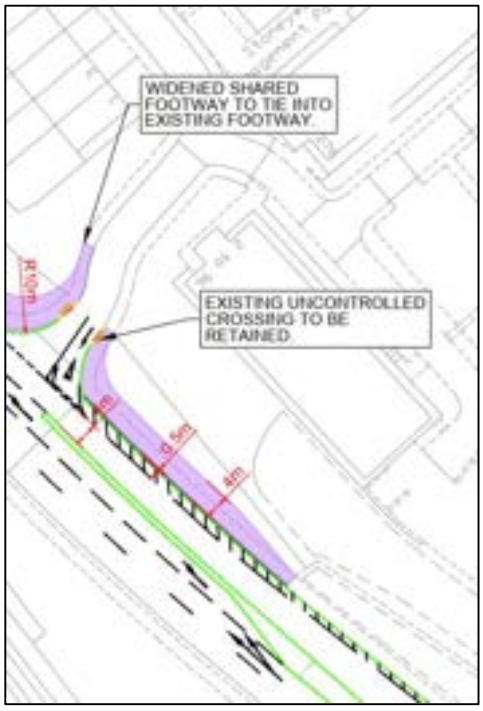


Figure 10 – Proposed section of footway widening

Key Design Features:

- Approximately 50m of localised widening of existing shared use footway to 4m towards Stoneywood Brae.

Risks and Unknowns

Potential requirement for minor earthworks to regrade verge at back of existing footway.

Lighting columns located within the A947 road verge may require relocation to accommodate the proposed works.

Stoneywood Brae to Wellheads Avenue

Improvement on the existing shared use footways, advisory cycle lanes and on-road quiet routes for active travel are proposed between Stoneywood Brae and Wellheads Avenue. Constraints relative to specific sections of the A947

corridor in this area dictate the achievable provision, but the highest practicable level of service has been targeted with a combination of segregated cycleways and shared use footways proposed.

Between Stoneywood Brae and Beech Manor, the existing shared use footway on the east side of the A947 will be upgraded to a 3m segregated two-way cycleway facility with 0.5m buffer and 2m footway by widening into the available verge space, retaining the carriageway width as existing. The proposed works will tie into the existing residential footway networks and the toucan crossings at Beech Manor. This existing controlled crossing layout will be used to facilitate connection with the active travel network which continues on the west side of the A947 to the north of Beech Manor.

A combination of segregated and shared use active travel improvements are proposed between Beech Manor and Market Street with the segregated cycleways proposed where adequate existing verge space is available and free from constraints such as fixed property boundaries, established vegetation and drainage features.

The geometry of the south Stoneywood Road junction located across from Beech Manor is proposed to be altered and the A947 locally narrowed to facilitate the widening of the pedestrian area and narrowing of the existing toucan crossing length to 9m. Property boundaries are present to the west of the current shared footway for approximately 200m and limit opportunity for fully segregated provision, however available verge space could still be utilised to widen the existing footway to a 4m desirable minimum for shared use and introduce a 0.5m buffer strip separation from the A947 carriageway. As the verge space increases on approach to north Stoneywood Road junction, the current footway can be upgraded to a 3m wide two-way segregated cycleway with adjacent 2m footway for approximately 200m, offering a high level of service to users.

The narrow A947 road corridor on approach to the Market Street junction with close adjacent property boundaries presents a constraint for active travel improvements. It is proposed that the carriageway would be narrowed by 1m, where this can be accommodated without reducing the number of approach lanes to the junction, to enable footway widening to an absolute minimum 2.5m shared use width with accompanying 0.5m buffer strip. This upgraded shared use footway would then tie into the existing controlled crossing located across the Market Street junction.

Between Market Street and Cedar Avenue there is an opportunity to repurpose 2m to 2.5m of existing road space which is allocated to advisory on-road cycle lanes to facilitate the widening of the existing pedestrian footways to a desirable minimum 4m for shared use with a 0.5m buffer strip. Widening of the footway will provide an opportunity to improve on the current National Cycle Network (NCN) route which directs users off the A947 and on-road through Polo Gardens.

North of Cedar Avenue, where the A947 Stoneywood Road is no longer bounded by properties on the west, the additional space offered by the existing verge would allow for a two-way segregated cycleway to extend to tie-in to the improvements as part of Option AT16 just north of Wellheads Avenue. Potential impacts on established vegetation and trees within the verge will dictate the optimum location for transition from shared use to segregation and inform construction.

Key Design Features:

- Reallocation of road space and utilisation of available verge space to upgrade existing active travel facilities to provide the optimum segregated or shared use facility within the space available and in recognition of the range of constraints which apply to specific sections of the corridor.
- 0.5m wide buffer strips between active travel facilities and the A947 road carriageway incorporated on all sections to provide separation from vehicular traffic.
- Existing formal crossing locations retained, and accessibility improved.

Risks and Unknowns

Lighting columns, signage and street furniture would be required to be relocated where the existing footway/shared use path is proposed to be widened into the verge space to accommodate an improved facility. Impacts on established vegetation will also inform design methodology.

Existing road drainage gullies would be required to be relocated as part of the proposed works where the existing kerb line is proposed to be amended to accommodate an improved segregated or shared use active travel link. Further consideration should be given to the increased paved surfaced area and capacity of the existing drainage network to cope with additional runoff as part of future stages of the works.

There is a potential requirement for minor earthworks to regrade verges to tie-in widening with the existing topography.

Utility chambers are observed throughout the existing footways and available verge space. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SGN, SSE and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low; however these suppliers will be engaged throughout future design stages.

Riverview Drive South to Central

The existing 3m wide shared use footway along the southern straight of Riverview Drive is approximately 550m long and spans between the Riverview Drive/Stoneywood Road roundabout and Burnside Drive. In conjunction with the active travel improvements planned along Stoneywood Road, it is proposed that this existing link is also upgraded as part of Option AT48a to promote the highest level of service for users and create a coherent and continuous network along the A947 corridor.

Utilising the available verge space around the existing footway will allow for the introduction of a two-way segregated cycleway and pedestrian footway in place of the existing shared use facility, as outlined in Figure 11.



Figure 111 – Proposed segregated arrangement along the southern extents of Riverview Drive

There is sufficient available verge space at this location to support a facility which meets the desirable minimum widths for segregation as outlined in Cycling by Design, while also maintaining the existing grass verge buffer to the A947. Localised sections of shared use would be proposed at the connections with the residential area and existing signalised crossings. The segregated cycleway would transition to shared use on approach to Burnside Drive to tie-in with improvements to the existing crossing and connection to the Riverside Path which are covered under Options AT4 and AT60 as part of the Table 1 list of interventions. Tactile paving would be incorporated and upgraded as appropriate in line with national accessibility guidance to designate transition between shared and segregated spaces.

Key Design Features:

- Verge space proposed to be used to widen existing shared use footway to provide a 3m wide two-way segregated cycleway and 2m wide footway.
- Localised sections of shared use at interface with existing footway connections and Riverview Drive signalised crossing locations.
- Proposed design would tie-in to Options AT4, AT60 and AT16 from the Table 1 list of interventions to the east and west respectively to support a connected and continuous active travel route along the A947 corridor.

Risks and Unknowns

Utility chambers are observed throughout the existing footways and available verge space. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SGN, SSE and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low; however, these suppliers will be engaged throughout future design stages.

The effectiveness and value of the improvements along the south section of Riverview Drive is dependent on the progression of Options AT4, AT60 and AT16.

Riverview Drive Central to North

Proposals to upgrade the Riverside Path to a high-quality active travel route, including improvements to the surfacing of the route, are being progressed separately by ACC as part of the Table 3 list of interventions.

Improvements on the northern section of the A947 Riverview Drive corridor are proposed as part of Option AT48a as a more direct alternative. It is proposed that the 3m of road space allocated to the existing on-road advisory cycle lanes and 1m grass verge strip at the roadside are repurposed, redistributing the traffic lanes and providing a two-way segregated cycleway with buffer separation in the northbound channel.

The existing on-road advisory lanes are discontinuous across the junctions, significantly up and downstream of Netherview Avenue where a ghost island provides space for right turning vehicles from the north. In order to maintain existing traffic conditions and accommodate a continuous active travel connection, localised realignment of the A947 road into the southbound verge would be required over an approximate 300m length.

Where spatial constraints exist with third party land at the Todlaw Walk and Balloch Way junction crossings, it is proposed that the segregated route would transition to localised shared use space.

Key Design Features:

- 3.0m wide two-way at-grade segregated cycleway with a 1.0m raised buffer on the northbound side of the Riverview Drive carriageway commencing 200m east of the Overton Circle junction.
- 2.0m wide footways directly adjacent to the cycleway with no impact to existing property boundaries.
- Approximately 550m^2 of new carriageway construction over a 300m length in the vicinity of the Netherview Avenue junction due to the need for localised carriageway realignment to retain the ghost island right turn lane in conjunction with implementation of a segregated cycleway.
- Localised sections of shared use at Todlaw Walk and Balloch Way junctions where spatial constraints preclude feasibility of full segregation up to the crossing.
- Proposed design would tie-in to Options AT14 and AT60 from the Table 1 list of interventions to the north and south respectively to support a connected and continuous active travel route along the A947 corridor.

Risks and Unknowns

Further engagement with the ACC roads team would be required in conjunction with the proposed alteration to the A947 road alignment.

Lighting columns, signage and street furniture would be required to be relocated on the north-east side of the corridor around the Netherview Drive junction to facilitate road carriageway widening and on the south-west side of the corridor between Todlaw Walk and Riverview Drive Roundabout to accommodate the segregated cycleway improvements.

Existing road drainage gullies would be required to be relocated as part of the proposed works where the existing kerb line is proposed to be amended to accommodate an improved segregated or shared use active travel link. Further consideration should be given to the increased paved surfaced area and capacity of the existing drainage network to cope with additional runoff as part of future stages of the works.

Utility chambers are observed throughout the existing footways and available verge space. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SGN, SSE and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low; however, these suppliers will be engaged throughout future design stages.

The development of a segregated cycleway on the northern section of Riverview Drive would negate the viability of the proposed improvement to the existing traffic island at Todlaw Walk as part of Option AT31.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT48a is £4,939,000 including risk and contingency at 44%.

AT51 – Implement with-flow segregated cycleway on Old Meldrum Road

Works are ongoing to realign the northern section of Old Meldrum Road and Bankhead Road as part of the Barratt Homes development. Mill Drive has been developed as the primary route for vehicles coming off the A947 and Old Meldrum Road now meets the realigned Bankhead Road as the minor arm on a priority junction as shown in Figure 12.

Redevelopment of the Mugiemoss Road junction onto Old Meldrum Road is also ongoing with access off Old Meldrum Road stopped-up. As part of the redevelopment works, footways are being widened for shared use and the existing pedestrian crossing on Old Meldrum Road is being upgraded to a toucan crossing. As-built construction information is currently not available therefore for indicative purposes, the proposed northern extent of the Old Meldrum Road active travel improvements is south of Mugiemoss Road and subject to further development to tie-in.



Figure 12 – New layout north of Old Meldrum Road (Site Walkover Photo)

The southern extent of Old Meldrum Road meets the A96 Auchmill Road. Option AT8 developed as part of the Table 1 list of interventions investigated opportunity for reconfiguration of the junction to improve connections for pedestrians and cycle users. However, due to the greater significance of the interface with A96 Multi-Modal Corridor Study, improvements associated with the junction and tie-in between Old Meldrum Road and Auchmill Road are now to be progressed as part of the parallel study.

With-flow segregated cycleways on both sides of the carriageway, at a desirable minimum 2m width and with 0.5m buffer, are proposed as part of Option AT51. It is proposed that the footways are also generally retained at the existing desirable minimum 2m width however localised narrowing of the cycleway and footways and to an absolute minimum 1.5m width each is required to retain some on-street parking. The cycleway and footway will be provided in a stepped arrangement with the cycleway benefiting from both vertical and horizontal protection. The carriageway would also be reduced to a minimum of 6.5m with approximately 75m of existing parking retained to the north of Old Meldrum Road. Width constraints at the southern end of Old Meldrum Road would impose a need to remove on-street parking as part of the proposed design.

Old Meldrum Road has a number of accesses off both sides with minor junctions predominantly off the northbound side of the carriageway at Gilbert Road and Malcolm Road, with Station Road off the southbound side. At each of the accesses it is proposed that the cycleway and footway would be continuous with dropped kerbs provided for vehicle access. To provide this continuous arrangement across the minor junctions, it is proposed that a raised table ramp would be provided across the junction with the cycleway raising to the footway level and narrowing to 1.5m to align with the raised table.



Figure 13 – Proposed with-flow cycleway arrangement

Key Design Features:

- 2m wide with-flow cycleways to be provided on either side of the carriageway in a stepped arrangement along Old Meldrum Road.
- 2m wide footways to be maintained on either side of carriageway along Old Meldrum Road reducing to a minimum of 1.5m in constrained areas.
- Parking bays at the north end of Old Meldrum Road to be retained, with cycleway reduced to 1.5m. Dropped kerb access to be retained across the cycleway and footway to maintain existing access and enable users of the parking bays to safely access the footway. All other on-street parking would be removed as part of this option.
- Continuous footway/cycleway with raised table ramp across the carriageway at the Gilbert Road, Malcolm Road and Station Road junctions, cycleway to be narrowed to 1.5m to facilitate the ramp arrangement.

Risks and Unknowns:

Drainage conditions to be investigated due to proposed works within existing carriageway. It is noted that the introduction of the raised table crossings at the junctions may impede existing runoff flow paths. Topographical survey information should be obtained, and further analysis undertaken to fully determine impact on surface runoff.

Utility chambers are observed along the route. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SGN and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

On-street parking capacity would be impacted as part of the proposed works, with roughly 75m of parking bays retained at the northern end of Old Meldrum Road.

The tie-in details for the Old Meldrum Road linear corridor improvements are subject to change based on the as-built information at the north end and the parallel A96 Multi-Modal Corridor Study at the south end.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT51 is £807,000 including risk and contingency at 44%.

AT52 – Implement two-way segregated cycleway on Old Meldrum Road

Option AT52 proposes an alternative segregated active travel arrangement for Old Meldrum Road with a two-way segregated cycleway on the southbound side of the carriageway, at a desirable minimum 3m width with 0.5m buffer. It is proposed that the footways are also generally retained at the existing desirable minimum 2m width however localised narrowing of the cycleway and footways to a minimum 1.8m width is required to retain some on-street parking. The cycleway and footway will be provided in a stepped arrangement with the cycleway benefiting from both vertical and horizontal protection. Approximately 75m of existing parking retained to the north of Old Meldrum Road. Width constraints at the southern end of Old Meldrum Road would impose a need to remove on-street parking as part of the proposed design.

The two-way cycleway is proposed on the southbound side of the carriageway to minimise junction interface with only the conflict with the minor Station Road junction to be managed with a proposed raised table arrangement. The two-way cycleway presents a higher risk of conflict with vehicles entering and exiting the junction and private accesses and not anticipating two-way cycle flow. It does however offer some coherence in arrangement with that proposed on the A96 corridor and throughout the A947 study area.



Figure 14 – Proposed two-way cycleway arrangement

Key Design Features:

- 3m wide two-way at-grade cycleway to be provided on the southbound carriageway with a raised 0.5m buffer along Old Meldrum Road.
- Generally, 2m wide footways are to be maintained on either side of carriageway along Old Meldrum Road reducing to a minimum of 1.8m in constrained areas.
- Carriageway would be narrowed to accommodate cycle infrastructure resulting in the loss of on-street parking for the majority of Old Meldrum Road.

- Parking bays at the north end of Old Meldrum Road could be retained, dropped kerb access across the cycleway and footway to maintain existing access and enable users of the bays access to the footway. All other on-street parking would be removed as part of this option.
- A continuous footway/cycleway with raised table is to be provided at the Station Road junction.

Risks and Unknowns:

Drainage conditions to be investigated due to proposed works within existing carriageway. It is noted that the introduction of the raised table crossings at the junctions may impede existing runoff flow paths. Topographical survey information should be obtained, and further analysis undertaken to fully determine impact on surface runoff.

Utility chambers are observed along the route. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SGN and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

On-street parking capacity would be impacted as part of the proposed works, with roughly 70m of parking bays retained at the northern end of Old Meldrum Road.

The tie-in details for the Old Meldrum Road linear corridor improvements are subject to change based on the as-built information at the north end and the parallel A96 Multi-Modal Corridor Study at the south end.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT52 is £650,000 including risk and contingency at 44%.

AT58 – Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport

There is currently no pedestrian or active travel infrastructure to the west of the F&B Way access off the A947 at Dyce Drive. Option AT58 focuses on implementing a shared use path between the F&B Way and Kirkhill Industrial Estate to the west. Existing available verge space to the north of the carriageway along Dyce Drive is limited and construction of a 4m footway with a 2m buffer based on posted speed limit would require the acquisition of party land for large sections along the route.

The proposed route has been designed to the north of the carriageway for approximately 50% of its length, until it meets the bridge over the railway where space is constrained by the skewed verge and bridge parapet. There is 1.5m of hard surface between the carriageway edge and parapet wall which restricts any development at this location. As a result, it is proposed that an active travel compatible signalised crossing is installed on approach to the railway overbridge to transfer users to the south verge, where there is approximately 7m of available room between the carriageway and parapet wall due to the skew of the structure. To enable the adoption of the signalised crossing on approach to the railway overbridge, it is proposed to reduce the posted speed limit on Dyce Drive from the national speed limit to 40mph, in line with Traffic Signs Manual Chapter 6. The route would then continue along the southern verge and into the eastern verge of the carriageway, crossing junctions at Pitmedden Road, Dyce Drive and a local farm access road with appropriate crossing facilities included in the design.

On approach to Kirkhill Industrial Estate, another active travel signal crossing would be provided to transfer users to the eastern side of Dyce Drive, where the route will tie-in to the existing shared use infrastructure along Dyce Drive. Tie-in to the existing facilities will require an upgrade to the Howe Moss Avenue signal layout which currently has no inclusion for active travel users due to there being no footways in this area. Upgrading this crossing to a toucan crossing will assist in linking the new and existing shared use footways.

To improve directness of the proposed route from the A947 to Kirkhill Industrial Estate, an alternative route could also be considered. At the end of the eastern section of Dyce Drive, users would travel south rather than north towards Pitmedden Road which would be reclassified as a mixed traffic street. A reduction in the speed limit and improved visibility along the road would help to promote cycle users to travel on-road along this section, returning to Dyce Drive west of the railway line. As with the other option, a new shared use footway in the eastern verge would take users to Kirkhill Industrial Estate to tie in with the existing active travel facilities. This alternative option has not been developed in detail or indicatively costed at this stage of the assessment.



Figure 15 – Proposed route between the A947 and Kirkhill Industrial Estate

Key Design Features:

- New 4m shared use footway and 2m buffer strip between the F&B overbridge on Dyce Drive and the Kirkhill Industrial Estate. Construction of footway would require the acquisition of large pockets of third party land
- 2 x new toucan crossings and upgrading of a signalised junction to toucan crossing at Howe Moss Avenue
- A speed limit reduction to maximum 40mph to facilitate introduction of formal signalised crossings.
- Extending gateway 30mph speed limit on approach to Kirkhill Industrial Estate would support introduction of a new signalised toucan crossing and better manage vehicle speeds on approach.

Risks and Unknowns:

Utility chambers are observed within the carriageway where there are proposed alterations to the carriageway alignment. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SSE and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

The acquisition of large areas of third party land along the proposed route introduces cost and feasibility risks to the deliverability of this option. Landowner engagement would be required to understand the acceptance and cost to the proposed route and plans.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT58 is £3,502,000 including risk and contingency at 44%.

AT61a – Implement package of active travel measures on Victoria Street

Victoria Street has been assessed to have a variable cross-sectional width along its length, with the most common width approximately 12m. As the urban centre of Dyce, implementation of a shared use path would bring a higher risk of conflict between users. Therefore, shared use is not considered appropriate on the primary residential and commercial section of Victoria Street. As a result of the recent reprioritisation of the A947 along Riverview Drive as part of the Roads Hierarchy revision, it is anticipated that there will be reduced traffic levels along Victoria Street with route reclassification. Despite the implementation of a shared use path being discounted, it is important to continue developing other active travel measures along Victoria Street to improve accessibility and active travel opportunities in the 'heart' of Dyce. AT61 has been reworded[1] to capture a broader range of options for active travel improvements along Victoria Street. The option reference has now been updated to AT61a to reflect this change and the option has been considered in three sections: 1) Victoria Street/Riverview Drive South Roundabout to Farburn Terrace; 2) Farburn Terrace to Pitmedden Road; and 3) Pitmedden Road to Victoria Street/Riverview Drive North Roundabout. In Section 1, there is adequate space on the eastern side to develop a segregated cycleway connection by reallocating the existing advisory cycle lanes and utilising the existing verge space. In Section 2, there is limited scope to widen the existing footways or reduce the carriageway width due to bordering property boundaries. A reduction of the speed limit to 20mph and introduction of various measures would allow this section to be formalised as a mixed traffic street. Section 3 has three sub-improvement options, with varying volumes of works required. Option 3a involves the reduction of the road carriageway width to 6m, removal of on-street parking and speed limit reduction to 20mph. Option 3b – reduction of speed limit to 20mph and removal of on street parking would create opportunity to widen and reclassify existing footways on Eastern side to shared use desirable minimum width, with local sections of absolute minimum shared use width due to corridor constraints. Option 3c would continue the measures introduced as part of Option 3b with a reduced speed limit to formalise Section 3 as a mixed traffic street.

In Section 1, to connect with the improvements proposed at the Riverview Drive/Victoria Street Roundabout and recent developments on Farburn Terrace, a shared footway would be provided on the western side of Victoria Street. This option would provide continuity and improve safety for cycle users on approach to the roundabout allowing them to avoid merging with traffic at the roundabout. To provide this option the existing footway on the western side of the road would be widened to a desirable minimum 4m shared use facility with additional 0.5m buffer separation from the road.



Figure 16 – Widened footways along Victoria Street south of Farburn Terrace

[1] Original **AT61** wording *"Implement shared use path on Victoria Street".*

For Section 2, there is limited scope to widen the existing footways or reduce the carriageway width due to bordering property boundaries. Measures which could be implemented to improve the attractiveness of the route for active travel users would include the implementation of raised table junctions to provide priority for pedestrians as well as act as a traffic calming measure along the route. In addition to this a reduction of the speed limit to 20mph would allow this section to be formalised as a mixed traffic street.

For Section 3 the current carriageway is in excess of 6.0m wide, and a reduction of the carriageway width would allow for the widening of the existing eastern footway north of the signalised crossing at Dyce Parish Church. A 4m shared footway with 0.5m buffer is achievable along the length of this section when narrowing the carriageway to 6m. Where the existing footway narrows adjacent to Fergus House, localised widening into third party land would be required to achieve a desirable minimum width for shared use in line with Cycling by Design guidance. To the north, the shared use footway would tie-in to the existing and proposed active travel infrastructure in the vicinity of the Victoria Street/Riverview Drive North roundabout. Appropriate transition detail between each section of the active travel route on Victoria Street would be configured as part of the next stage of design.

Key Design Features:

- A 4m shared footway with 0.5m buffer would be provided between Victoria Street/Riverview Drive South Roundabout widening the existing footway to the west into the verge, with cycle lanes removed on the carriageway.
- A 20mph speed limit would be implemented in Section 2 allowing this section to be formalised as a mixed traffic street.
- In Section 2 suitable traffic calming measures would be implemented at side roads which interact with Victoria Street, to be determined at later stages in the design.
- A 4m shared footway with 0.5m buffer is to be provided between Dyce Parish Church and Victoria Street/Riverview Drive North Roundabout widening the existing footway into the existing road carriageway, reducing the carriageway to 6m.

Risks and Unknowns

The proposals for Victoria Street are subject to change in conjunction with the development of Options O25 & O26, where access only and one-way restrictions have been proposed for Victoria Street.

Utility chambers are observed within the carriageway and verge where there are proposed alterations to the carriageway alignment and widening of the verges. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, NEOS Networks, Scottish Water, SGN, SSE and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

All on-street parking including a disabled bay would be impacted and localised third party land acquisition would be required to implement a desirable minimum width shared use active travel facility on Section 3 at the north end of Victoria Street.

Drainage conditions to be investigated due to proposed works within existing carriageway. It is noted that the introduction of the raised table crossings at the junctions may impede existing runoff flow paths. Topographical survey information should be obtained, and further analysis undertaken to fully determine impact on surface runoff.

Where widening works are proposed, lighting columns may be required to be relocated.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT61a is £645,000 including risk and contingency at 44%.

AT65 – Implement streetscape improvements and widened pavements along Mugiemoss Road

Following the Barratt Homes development to the north of Mugiemoss Road and the reconfiguration of road layout at the top of Old Meldrum Road, it is assumed that the existing bi-directional bus route along Mugiemoss Road will change to northbound only. This creates an opportunity to narrow the existing 6m carriageway and widen the existing footways along Mugiemoss Road. Scots National Roads Development Guidance states that where there is a 20mph speed limit and buses make up only a small proportion of the road's traffic flow, a carriageway width of 4.7m is sufficient. This would provide 1.3m of additional footway width to the northern footways along Mugiemoss Road. This additional space would create a variable width footway between 2.2m and 4m. Further assessment of the bus routing and engagement with operators would be required.



Figure 17 – Arrangement of widened footways along Mugiemoss Road

Key Design Features:

- Reduction of carriageway width to 4.7m between Old Meldrum Road and Mill Drive junctions
- Variable width footway along Mugiemoss Road. Allowing footway widths of up to 4m in sections and improving accessibility along corridor.
- Extension of enforceable parking restrictions along Mugiemoss Road to ensure reduced width carriageway would be navigable at all times by buses.
- Reduction in speed limit to 20mph.

Risks and Unknowns:

Drainage conditions to be investigated due to proposed works within existing carriageway. It is noted that the introduction of the raised table crossings at the junctions may impede existing runoff flow paths. Topographical survey information should be obtained, and further analysis undertaken to fully determine impact on surface runoff.

Utility chambers are observed along Mugiemoss Road. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, ESP, GTC, NEOS Networks, Scottish Water, SGN and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low, however these suppliers will be engaged throughout future design stages.

Further assessment of classified traffic flow volumes and engagement with bus operators is required to inform further advancement of these proposals.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option AT65 is £308,000 including risk and contingency at 44%.

PT2 – Conduct a traffic signal review to consider bus priority at all traffic signals along the A947 corridor

The initial part of the review was to identify signalised junctions which are part of the bus routes. On the A947 corridor, there are signal controlled junctions along Stoneywood Road with Beech Manor, Market Street/Stoneywood Terrace and Stoneywood Park at the southern end, and the B977 to the north. At each of these signalised junctions, there is currently only one single lane for through traffic.

The use of traffic signal technology is commonly used to improve bus journey times where space to implement physical bus priority measures is constrained. The types of technology available has seen a major growth in recent years for both local and network-based systems. On a larger scale, these advancements can provide the ability to locate and identify individual buses across a network. This information can be used to better control journey times to provide an improved and reliable service for users. For the A947 corridor, the forms of local technology are considered more effective due to the extent of the existing bus network. An approach style of traffic signal priority (TSP) would add value to the corridor by improving bus priority as they approach the existing signalised junctions.

Due to the single through lanes at the current junctions, implementing TSP would only improve bus through flow when the bus is detected close to the front of queuing traffic. There is available verge space in the north to widen the existing A947 carriageway to accommodate an additional through lane. However, widening the existing carriageway in the south has a number of constraints. There may be some minor journey time benefits in implementing approach detection but due to there only being four signal junctions within the A947 corridor, it is unlikely to lead to any significant improvements to bus journey times.

An assessment is also required to understand the impact that implementing TSP technology would have on the operational capacity of the A947 as the proposal may lead to potential delays for other vehicles utilising the corridor. Understanding the impact that bus priority would have on pedestrian wait times at these junctions is also another key factor as promotion of active travel through delivery of improved measures is the priority within the corridor.

Key Design Features

- Engagement with bus operators to receive feedback on the current bus route along the A947 corridor and the current operations.

Risks & Unknowns

Detailed transport modelling would be required to understand impacts that implementing traffic signal priority technology would have on the A947.

O2 – Review the layout of the Victoria Street/Skene Place Junction

Option AT33 explores the improvement of active travel links between Dyce Rail Station and the A947 through the adoption of Low Traffic Neighbourhood measures along Station Road and its side roads. Skene Place is linked to Station Road by Merrivale. The proposed layout as part of Option O2 is to simplify traffic movements to and from Victoria Street by introducing a one-way network using Station Road, Merrivale and Skene Place, as shown in Figure 18 below. As part of the design new road markings and no entry signs will be implemented on Station Road, Merrivale and Skene Place in addition to the changes promoted as part of Option AT33.



Figure 18 – Proposed One-Way System

Key Design Features:

- One-way system to be implemented on Station Road, Merrivale and Skene Place with associated signage and road markings implemented.

Risks and unknowns

On-street parking for residents will be removed along Station Road for residents; while most residents seem to have access to off-street parking spaces, there is a risk they may park and obstruct the cycle lane. A parking survey should be undertaken to understand the risk of this occurring.

Utility chambers are observed throughout the existing street. A C2 preliminary inquiry has been carried out and identified BT, CityFibre, Scottish Water and Vodafone as the suppliers who have apparatus in the area which may be affected. The proposed improvements are at-grade therefore the risk of utility impact and diversions is considered low; however these suppliers will be engaged throughout future design stages.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option O2 is £8,000 including risk and contingency at 44%.

O3/O4 – Review the layout of the Riverview Drive/Balloch Way Junction / Review the layout of the Riverview Drive/Todlaw Walk Junction

A reduction in kerb radii to 6m and a narrowing of the existing junction is proposed to reduce traffic speeds turning into Balloch Way and Todlaw Walk from Riverview Drive. Initial swept path analysis against an OS mapping base for an emergency vehicle suggests no encroachment into the opposing lane on entry and exit manoeuvres for Balloch Way. However, relocation of the centre line is required for Todlaw Walk to facilitate the movement. As a result of the relocation of the centre line, the lane upon exit is proposed to be reduced in width to a minimum 3m width.

Key Design Features:

- Corner radii at junctions reduced to 6m in line with DMRB CD123 & CbD guidance.

- Centre line at Todlaw Walk junction relocated to facilitate movement of emergency vehicle without encroachment onto the other side of carriageway.
- Dropped kerbs and tactiles reinstated following changes to radii.

Risks and Unknowns

Utility chambers are observed within the carriageway close to the corner radii with the intended tightening of the radii likely to impact this chamber, requiring an adjustment in the chamber level. A C2 preliminary inquiry has been carried out and identified BT and Scottish Water as the suppliers who have apparatus in the area which may be affected. These suppliers will be engaged throughout future design stages.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for each junction improvement is £29,000 including risk and contingency at 44%.

O5 – Review the layout of the Riverview Drive/Netherview Avenue Junction

A reduction in kerb radii to 10m and a narrowing of the existing junction is proposed to reduce traffic speeds turning into Netherview Avenue from Riverview Drive. Initial swept path analysis against an OS mapping base for a rigid industrial vehicle suggests realignment of the centre line road marking is required to facilitate the movement; as a result the kerb line on the northern edge of the junction needs realigning to maintain two minimum 3m wide lanes.

Key Design Features:

- Corner radii at junction reduced to a 10m radii in line with DMRB CD123 & CbD guidance.
- Carriageway widening required to facilitate the movement of an HGV and to maintain two 3m lanes to the north of the junction.
- Dropped kerbs and tactiles reinstated following carriageway widening.
- Existing gullies will need to be relocated to facilitate tightened radii at both corners of the junctions.

Risks and Unknowns

Utility chambers are observed within the carriageway close to the corner radii with the intended tightening of the radii likely to impact this chamber, requiring an adjustment in the chamber level. A C2 preliminary inquiry has been carried out and identified Scottish Water as a supplier who have apparatus in the area which may be affected. They will be engaged throughout future design stages.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option O5 is £45,000 including risk and contingency at 44%.

O7 – Review the layout of the A947/Stoneywood Road Junction at Co-Op/Marks and Spencer

Early public consultation identified a high frequency of illegal turning manoeuvres occurring from vehicles continuing straight though the ‘left only’ exit from Stoneywood Road to the Co-op and Marks and Spencer’s retail access at Beech Manor. The most suitable intervention to prevent illegal turning manoeuvres at the left turn lane has been determined to be the use of a raised splitter island which would physically prevent vehicles from undertaking a right turn or straight through manoeuvre on exit from the junction.

The splitter island would be approximately 15m long and 1m wide in line with Traffic Signs Manual Chapter 5 allowing sufficient room for right turning vehicles to manoeuvre from the A947 onto Stoneywood Road. The splitter island would not physically reduce the width of the existing road space due to implementation as replacement to the existing hatched markings.

Based on swept path analysis for an articulated vehicle exiting the junction with physical splitter island in place, it is proposed that the radii of the northern kerb line of Stoneywood Road will be widened into the existing grass verge space.

Key Design Features:

- A 15m long and 1m wide splitter island is proposed on the existing hatched road markings to prevent movement across the junction
- Northern radii of the A947/Stoneywood Road junction to be increased into the grass verge

Risks and Unknowns

Existing signage with lighting is observed within the existing grass verge; this would require relocation of the sign and associated cables. Additionally encroaching onto the verge may impact Scottish Water and SGN utility apparatus, however, as the proposed improvements are at-grade, the risk of utility impact and diversions is considered low.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option O7 is £30,000 including risk and contingency at 44%.

O8 – Review the layout of the A947/Stoneywood Brae Junction

Stakeholder consultation raised concerns about vehicle acceleration through the A947/Stoneywood Brae junction as the carriageway transitions from single to dual carriageway, creating a safety risk for on-road cycle users.

A review of this junction identified that the existing taper for change in carriageway width is not to the standard set out in DMRB CD 127 Cross Sections and Headroom. The DMRB is the primary referenced standard in this case due to the nature of the road corridor and absence of other overriding guidance specific to the taper length in a local road context. The speed limit on the A947 is 40mph, therefore, a minimum taper ratio of 1:35 is provided for implementation of the change in carriageway width.

To further help in the reduction of speed, the single lane running through the junction is proposed to be narrowed to 4m with corner radii tightened to 10m. Additionally, to the south of the junction, it is proposed that the hatched road markings in which the taper begins are widened to also reduce lane width to 4m.

Key Design Features:

- Junction radii tightened to 10m, and road carriageway narrowed to 4m to manage vehicle speed through the junction.
- Existing road lining revised to implement a 1 in 35 taper for change in width over a length of approximately 120m.
- Existing gullies would require relocation to facilitate adjustment to junction kerb radii.

Outline Cost Estimate

A high-level costing exercise has been undertaken to establish the outline construction costs. The estimated construction cost for Option O8 is £18,000 including risk and contingency at 44%.

O10 – Review layout of the A947/McDonalds access road junction

The existing junction radii meets DMRB CD 123 minimum requirements. Swept path analysis has been undertaken and confirmed that the existing kerb radii is appropriate to accommodate movement of an articulated vehicle. The geometry of the junction taper is proposed to be adjusted to facilitate the widening of the existing footpath and implementation of a segregated two-way cycleway as part of Option AT41.

Key Design Features:

- Existing radii retained with taper provided from tangent of existing radii to new two-way cycleway proposed as part of Option AT41.

Risks and Unknowns

The proposed tie-in arrangements are subject to change in accordance with the future development of Option AT41.

O16 – Implement package of measures to support implementation of a 20-minute neighbourhood in Dyce

The area highlighted within Figure 199 shows an initial indicative 20-minute neighbourhood extent which could be implemented within Dyce. While further assessment of the project area will be required along with engagement with the local community to ensure the implemented works best meet their needs within a 20-minute neighbourhood environment, the area shown within Figure 19 incorporates a number of key amenities that would meet most people's daily needs and that would be accessible by active means in line with the development of other options considered as part of this study. The outline area appropriate for consideration includes education facilities such as Dyce Primary School and Academy; local shops including Asda and Tesco Express; numerous recreational facilities; and public transport links.

However, the deliverability and benefits of any additional works would be subject to appraisal in line with various options defined in Tables 1 to 4 of the study brief.



Figure 19 – Initial indicative 20-minute neighbourhood in Dyce

Key Design Features:

The promotion of a 20-minute neighbourhood within the Dyce area would be subject to the development of other measures promoted as part of this study to improve accessibility and permeability of the area by active means.

Risks and Unknowns

The area of the 20-minute neighbourhood is subject to further assessment and engagement with the local community.

O25 – Implement access only restrictions for general traffic on Victoria Street

Reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of access only restrictions for general traffic on Victoria Street. Further desk-based assessment has been undertaken since the Preliminary Option Development Technical Note was prepared to understand the impacts on residents, local businesses, and key transport service providers. It is only considered potentially feasible to provide access only restrictions from Pitmedden Road to Riverview Drive/A947 Roundabout. This is due to there being minimal public facilities that would be impacted with access primarily required for residential purposes. There is also potential to further expand the access only restriction to Station Road to the south of Pitmedden Road, but this would result in impacting traffic to the industrial facility and local recycling centre along Pitmedden Road and the local businesses of Victoria Street.

To the south of Station Road, the feasibility of access only restrictions is limited due to accessibility required to multiple local facilities and key attractors off Victoria Street such as Dyce Rail Station, Dyce Primary School, Aberdeen International Airport/Heliport, Pitmedden and Kirkhill Industrial Estates and other local businesses.

The feasibility of this option will be further assessed through consultation. Detailed analysis of traffic impacts would be required if it was favourable to progress further beyond the current stage of the study.

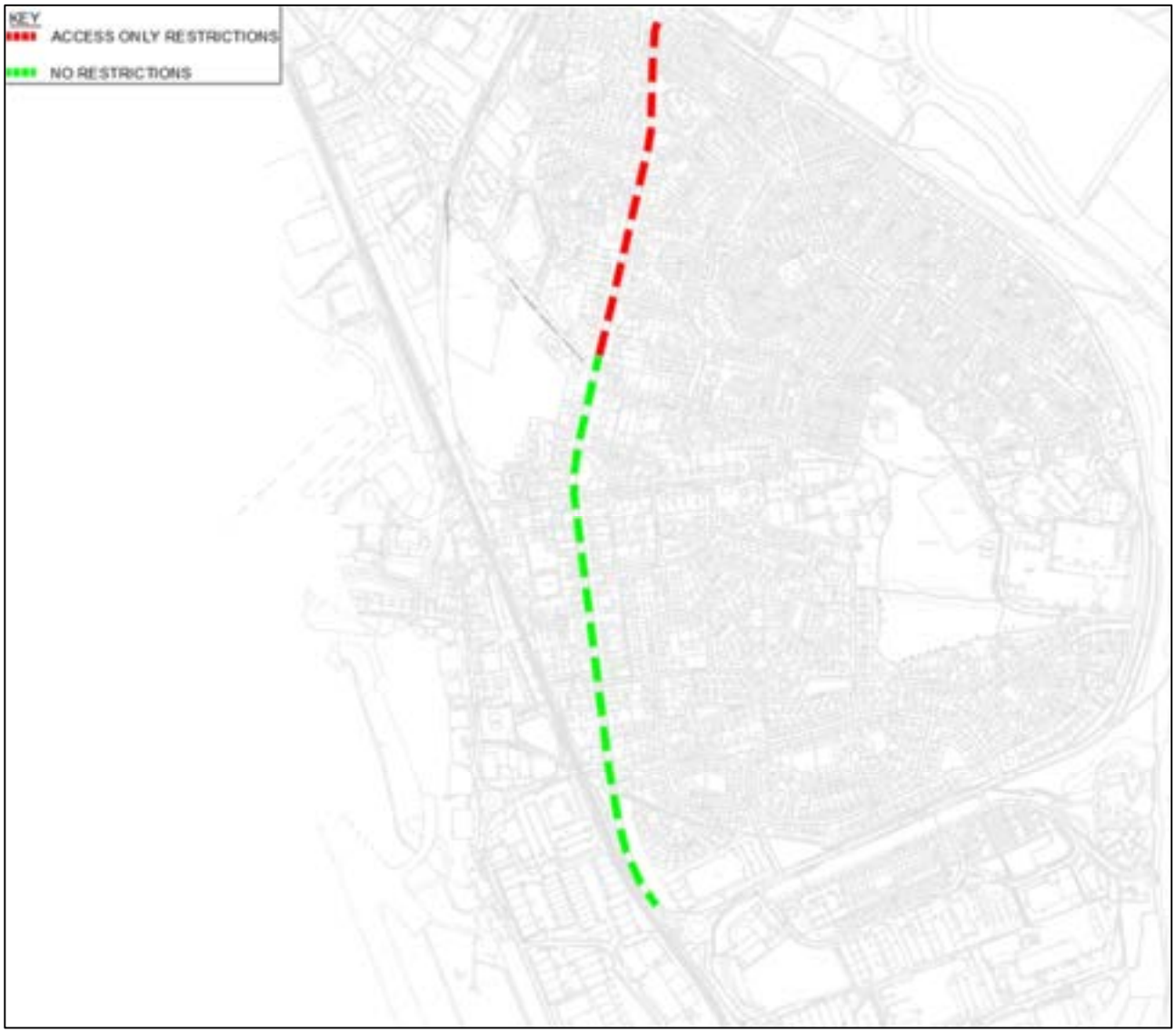


Figure 20 – Proposed Access Only Restrictions along Victoria Street

Key Design Features:

- Implementation of access only restrictions on Victoria Street between Pitmedden Road and Riverview Drive/A947 Roundabout.

Risks and Unknowns

Consultation and detailed traffic analysis would be required to inform viability and benefits associated with implementing access only restrictions on Victoria Street.

O26 – Implement one-way restrictions for general traffic on Victoria Street

Reprioritisation of the A947 along Riverview Drive supports consideration of the implementation of one-way restrictions for general traffic on Victoria Street. Further desk-based assessment has been undertaken since the Preliminary Option Development Technical Note was prepared to understand the impacts on residents, local businesses, and key transport service providers and it has been determined that currently, based on the information available, it is most suitable to provide one-way restrictions from Farburn Terrace to the Riverview Drive/A947 Roundabout. The reason for not further

extending the restrictions is to not restrict movement to and from Aberdeen International Airport/Heliport and Wellheads Industrial Estate.

As a result of proposed one-way restrictions along Victoria Street, there are opportunities to improve active travel facilities along the route such as segregated cycleway and widened pedestrian facilities. The implementation of a shared use footway has however been discounted as it would bring a higher risk of conflict between users as Victoria Street runs through the urban centre of Dyce.

The feasibility of this option will be further assessed through consultation. Detailed analysis of traffic impacts would be required if it was favourable to progress further beyond the current stage of the study. Option O26 could also be developed alongside Option O25 with a combination of both options being provided.

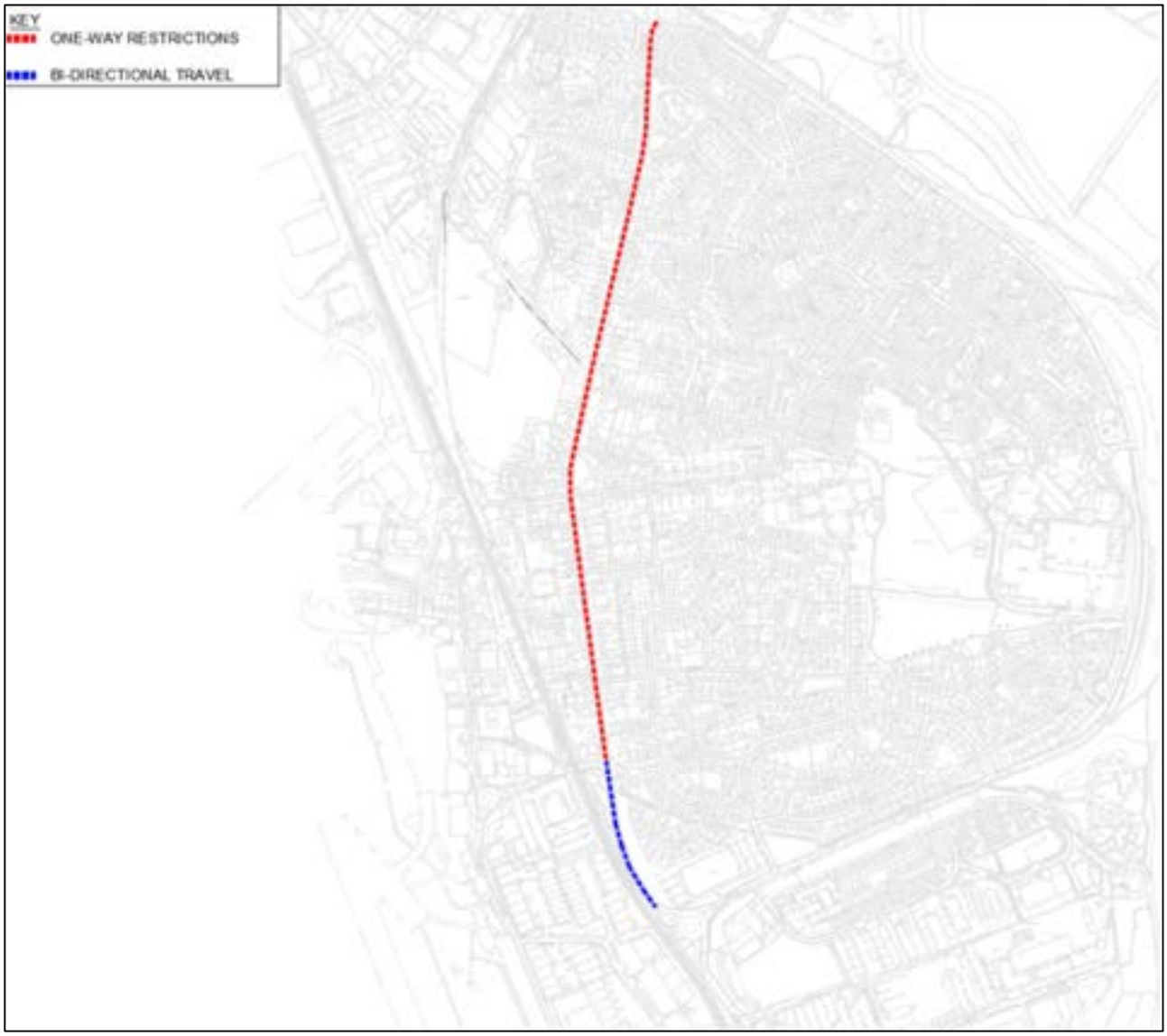


Figure 21 – Proposed one-way restrictions on Victoria Street

Key Design Features:

- Implementation of one-way restrictions on Victoria Street between Farburn Terrace and Riverview Drive/A947 Roundabout.

Risks and Unknowns

The proposal of a one-way section of Victoria Street is subject to public and stakeholder consultation to determine the impact the restrictions may have on local residents and business owners.

Detailed traffic modelling would be required to inform primary and secondary impacts from the redistribution of traffic and inform on optimum direction of flow if restrictions were to be taken forward.

Appendix E –
Table 2 Option Designs

Delivering a better world

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KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

LOCALISED NARROWING DUE TO WOODEN FOOTBRIDGE

UPGRADE TO BOUND SURFACE

RELOCATE BENCH LOCATIONS INTO AVAILABLE VERGE SPACE

4m

WIDENING TO WEST NOT FEASIBLE DUE TO PROXIMITY TO WATER BURN

RELOCATE BENCH LOCATIONS INTO AVAILABLE VERGE SPACE

APPROX. 2m WIDENING OF EXISTING PATH INTO AVAILABLE VERGE SPACE

UPGRADE TO BOUND SURFACE

FOOTPATH NARROWS ON APPROACH TO RAMPED SECTION

RELOCATE BENCH LOCATIONS INTO AVAILABLE VERGE SPACE

RETAIN EXISTING PATH WIDTH

Green Burn

GREENBURN ROAD

130

132

18

1

Post

N

Scale
0 5 10 20 40m
Original Size (A1) 1:500 @ A1 1:1000 @ A3

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A947 Table 2 Detailed Design
AT26 General Arrangement
Sheet 1 of 3

SHEET NUMBER

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- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

N

FOOTPATH NARROWS ON APPROACH TO RAMPED SECTION

RELOCATE BENCH LOCATIONS INTO AVAILABLE VERGE SPACE

RETAIN EXISTING PATH WIDTH

4m

APPROX. 2m WIDENING OF EXISTING PATH INTO AVAILABLE VERGE SPACE

UPGRADE TO BOUND SURFACE BUT RETAIN EXISTING WIDTH DUE TO PEDESTRIAN ONLY USAGE

4m

WIDENED INTO SOUTH VERGE SPACE DUE TO PRESENCE OF LIGHTING COLUMNS IN NORTH VERGE

ONS

UPGRADE FROM UNBOUND TO BOUND SURFACE

APPROX. 2m WIDENING OF EXISTING PATH INTO AVAILABLE VERGE SPACE

4m

RELOCATION OF EXISTING WELCOME TO TECA SIGN

TIE INTO EXISTING BOUND SURFACE SECTION

4m

El Sub Sta

Tanks

Shelter

Lay-by

A 96

RELOCATE BENCH LOCATIONS INTO AVAILABLE VERGE SPACE

Shelter

Scale
0 5 10 20 40m

Original Size (A1) 1:500 @ A1 1:1000 @ A3

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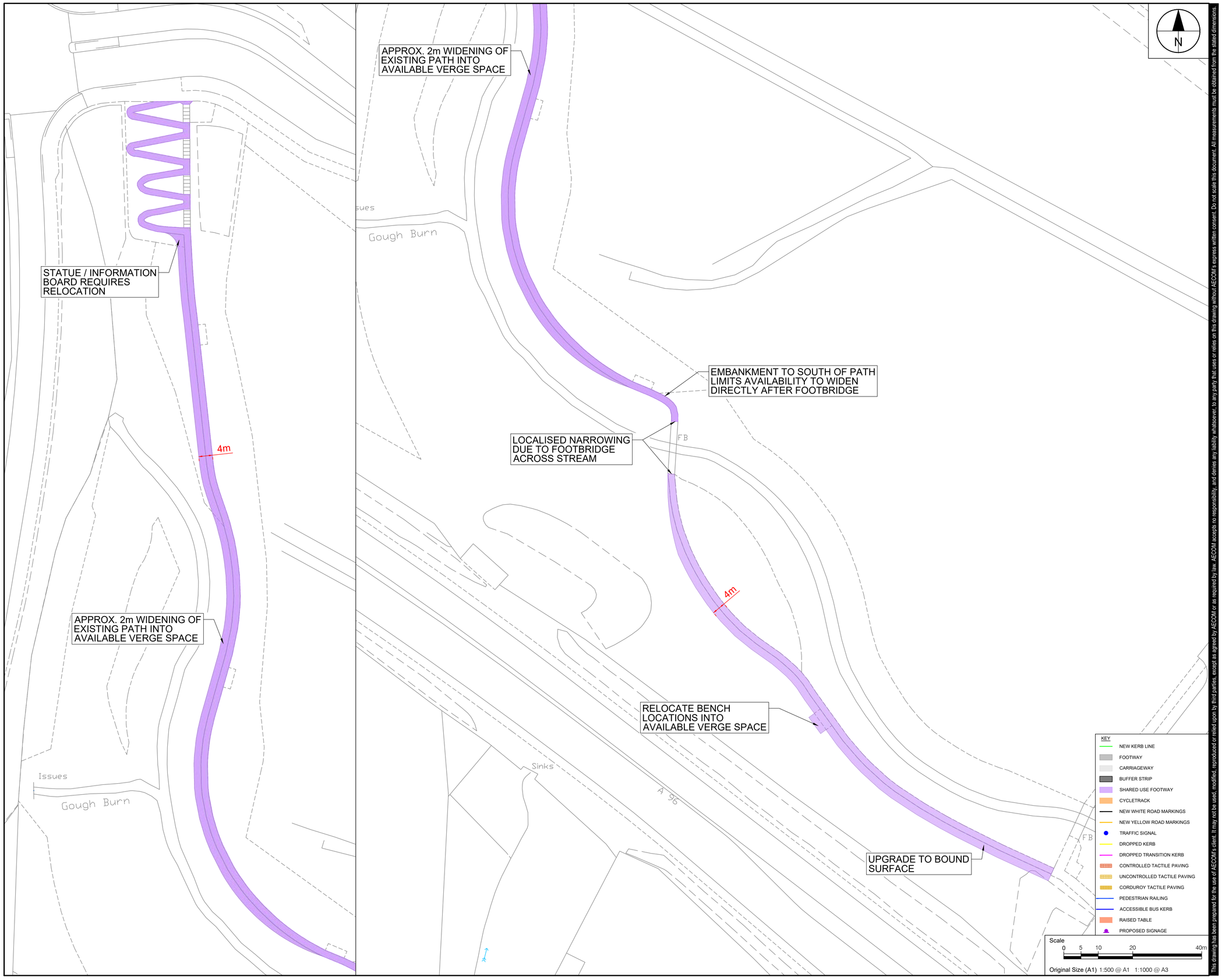
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AT26 General Arrangement
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Sheet 3 of 3

SHEET NUMBER

60709527-SHT-30-C-T2-0703

ISO A1 594mm x 841mm
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Checked: SS
Designer: JM
Project Management Initials:

KEY
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- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
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- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

N

KERBLINE REALIGNED TO NARROW CARRIAGEWAY CROSS SECTION.

TIE INTO EXISTING FOOTWAY

PROPOSED FOOTPATH TO TIE INTO EXISTING RIVERSIDE PATH TO BE PROVIDED AS PER EXISTING VISIBLE DESIRE LINE.

KERB RADII TIGHTENED TO 6.0M.

ROAD MARKINGS TO PROVIDE MIN. TAPERS OF 1IN30 ON APPROACH TO CENTRAL ISLAND.

SIDE ROAD CENTRE LINE REALIGNED TO FACILITATE MOVEMENT OF LEFT TURNING EMERGENCY VEHICLE FROM RIVERVIEW DRIVE.

DROPPED KERBS TO BE PROVIDED TO FACILITATE UNCONTROLLED CROSSING

TIE INTO EXISTING FOOTWAY, VERGE EDGE TO BE REINSTATED

ISLAND WIDENED TO AID IN SPEED RESTRICTIONS.

41.7m
42.1m
R6
R6
3.0
3.4
3.4
3.4
3
4

Scale
0 2.5 5 10 20m
Original Size (A1) 1:250 @ A1 1:500 @ A3

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AT31/O4 General Arrangement
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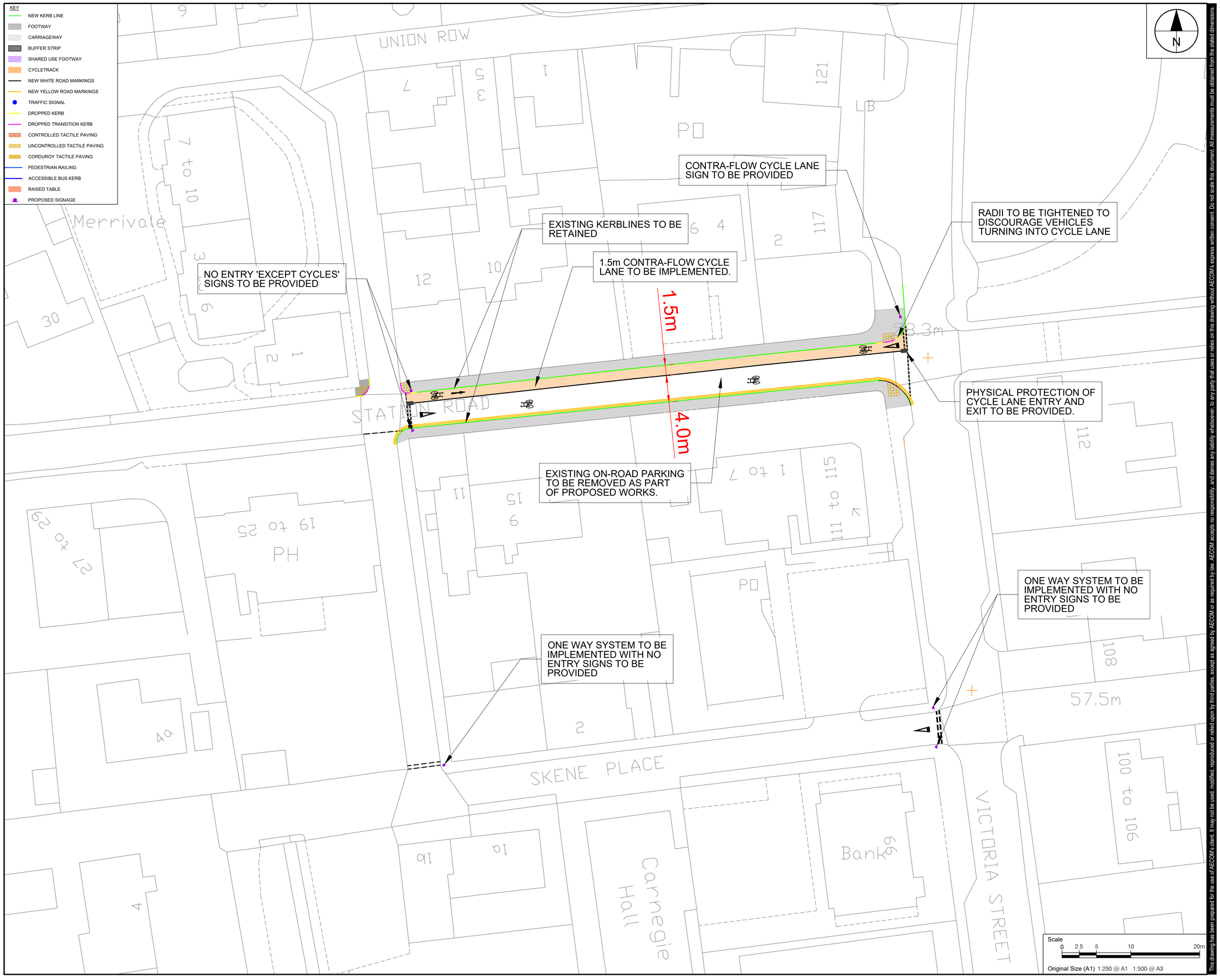
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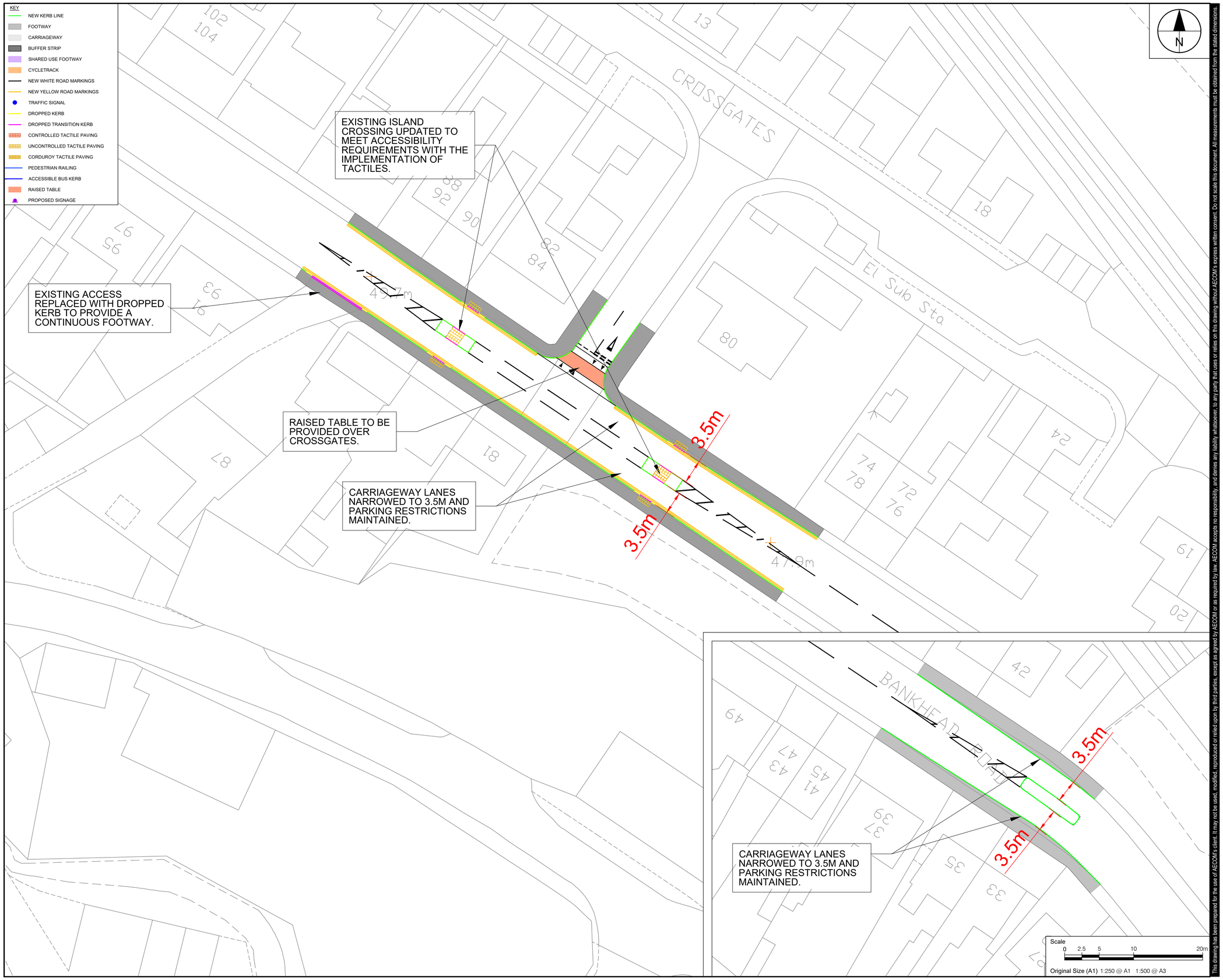
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AT33/O2 General Arrangement
Sheet 1 of 1

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AT35a General Arrangement
Sheet 1 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0706

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW-UK\GLG1\DCS\PROJECTS\C\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-ARRANGEMENTS.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25

ISO A1 594mm x 841mm

Approved: PL

Checked: SS

Designer: JM

Project Management Initials:

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

FOOTWAY WIDENED AND DROPPED KERB PROVIDED

RAISED TABLE TO BE PROVIDED OVER MILLHILL BRAE.

MILLHILL BRAE TO BE IMPLEMENTED AS A MIXED TRAFFIC STREET

PARKING TO BE RETAINED ALONG GREENBURN ROAD

MILLHILL BRAE TO BE IMPLEMENTED AS A MIXED TRAFFIC STREET

SIGNALISED CROSSING TO BE PROVIDED IN PLACE OF ISLAND CROSSING.

FOOTWAY TO BE WIDENED TO REDUCE CARRIAGEWAY TO 6.5M TO PROMOTE LOWER VEHICLE SPEEDS.

EXISTING STAIRS TO BANKHEAD ROAD MAINTAINED

APPROX. 17M OF PARKING RESTRICTIONS PROPOSED.

WEST-BOUND VEHICLES TO GIVE-WAY.

DROPPED KERB PROVIDED TO IMPROVE ACCESSIBILITY TO STAIRS ONTO BANKHEAD ROAD.

BUILD-OUT OF FOOTWAY PROPOSED TO IMPLEMENT GIVE-WAY CHICANE.

RAISED TABLE TO BE PROVIDED OVER STATION ROAD.

RADII TIGHTENED TO 6.0M

Scale 0 5 10 20 40m

Original Size (A1) 1:500 @ A1 1:1000 @ A3

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AECOM

PROJECT

A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

ABERDEEN CITY COUNCIL

CONSULTANT

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Aurora
120 Bothwell St
GLASGOW, G2 7JS
+44 (0) 141 248 0300 tel
www.aecom.com

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT35a General Arrangement
Sheet 2 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0707

Filename: \\NA.AECOMNET.COM\EFS\EMEA\GLASGOW-UKGLG1\DCS\PROJECTS\IC\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-ARRANGEMENTS.DWG Last Plotted: 2024-04-25
Last saved by: JACK.MCKENNA

ISO A1 594mm x 841mm

Approved: PL

Checked: SS

Designer: JM

Project Management Initials:

KEY

- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

N

Allotment Gardens

BANKHEAD ROAD

4m

1m

RAISED TABLE PROVIDED OVER SIDE ROAD.

EXISTING FOOTWAY WIDENED TO PROVIDE 3.0M WIDE SHARED SPACE

RAISED TABLE PROVIDED OVER SIDE ROAD.

El Sub Sta

Co Const Bdy

A 947 CR Burgh Const Bdy

125

2

24

33

35

Scale
0 2.5 5 10 20m

Original Size (A1) 1:250 @ A1 1:500 @ A3

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

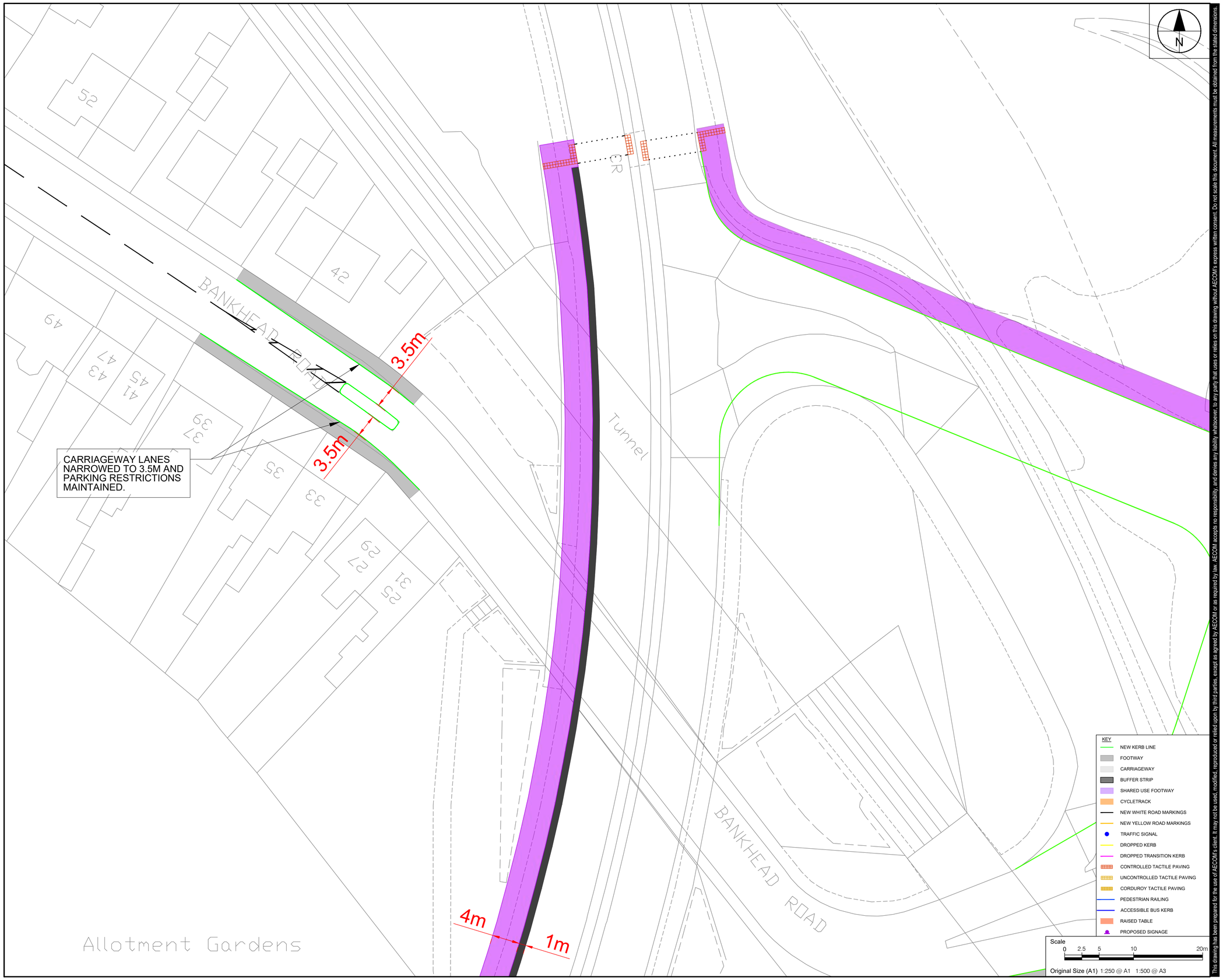
A947 Table 2 Detailed Design
AT41a General Arrangement
Sheet 1 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0708

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW-UKGL01\DCS\PROJECTS\Cit\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT41A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-18

Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm



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A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT41a General Arrangement
Sheet 2 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0709

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW-UKGL61\DCS\PROJECTS\CI\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT41A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25

Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

EXISTING FOOTWAY NARROWED TO 2.0M

CYCLE TRACK RAMPS UP AND NARROWS TO 2.0M WHEN PASSING PROPOSED ISLAND BUS STOP DUE TO CONSTRAINTS AND TO RESTRICT CYCLISTS SPEED.

EXISTING BUS STOP RETAINED AND RECONFIGURED. BUS SHELTER REMOVED AS PART OF WORKS DUE TO CONSTRAINTS.

EXISTING RADIUS RETAINED

RAISED TABLE PROVIDED OVER SIDE ROAD.

EXISTING FOOTWAY WIDENED TO PROVIDE 3.0M WIDE SHARED SPACE

1IN20 RAMP TO BE PROVIDED TO RAMP CYCLE TRACK UPTO SHARED FOOTWAY LEVEL.

RAISED TABLE PROVIDED OVER SIDE ROAD.

EXISTING FOOTWAY REALIGNED AND MIN. 3.0M WIDE SHARED SPACE PROVIDED FROM THE END OF THE SEGREGATED SECTION.

AT48a PROPOSED CYCLE TRACK TO TIE INTO SHARED SPACE AS PART OF OPTION AT41

EXISTING RAMP UPGRADED TO FACILITATE CROSSING OF CYCLISTS.

Allotment Gardens
El Sub Sta
BANKHEAD ROAD
A 947 CR Burgh Const Bdy
Co Const Bdy
33
35
24

N

Scale
0 2.5 5 10 20m
Original Size (A1) 1:250 @ A1 1:500 @ A3

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CLIENT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT41b General Arrangement
Sheet 1 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0710

Filename: \\NA.AECOMNET.COM\LFS\EME\AIGLASGOW-UKGLG1\DCS\PROJECTS\CI\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-GENERAL ARRANGEMENTS.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25

ROAD MARKINGS TO PROVIDE A MIN. TAPER OF 1IN40 AWAY FROM LANE REDUCTION.

WHERE REQUIRED TRAFFIC POLES ARE TO BE RELOCATED.

NEW CYCLE TRACK/FOOTWAY ARRANGEMENT TO TIE-IN TO EXISTING SHARED FOOTWAY.

1IN20 RAMP TO BE PROVIDED TO RAMP CYCLE TRACK UPTO SHARED FOOTWAY LEVEL.

EXISTING ARRANGEMENT TO BE RETAINED

3.5m

3.5m

3.0M 2-WAY CYCLE TRACK TO BE PROVIDED AT EXISTING CARRIAGEWAY LEVEL, WITH 1.0M ISLAND SEGREGATION PROVIDED.

EXISTING FOOTWAY NARROWED TO 2.0M

CYCLE TRACK RAMPS UP AND NARROWS TO 2.0M WHEN PASSING PROPOSED ISLAND BUS STOP DUE TO CONSTRAINTS AND TO RESTRICT CYCLISTS SPEED.

EXISTING BUS STOP RETAINED AND RECONFIGURED. BUS SHELTER REMOVED AS PART OF WORKS DUE TO CONSTRAINTS.

WIDENING OF SHARED USE FOOTWAY UNDERTAKEN AS PART OF IMPROVEMENTS TO JUNCTION AT TOP OF OLD MELDRUM ROAD.

ROAD MARKINGS TO PROVIDE A MIN. TAPER OF 1IN40 AWAY FROM LANE REDUCTION.

NEW CYCLE TRACK/FOOTWAY ARRANGEMENT TO TIE-IN TO EXISTING SHARED FOOTWAY.

WHERE REQUIRED TRAFFIC POLES ARE TO BE RELOCATED.

1IN20 RAMP TO BE PROVIDED TO RAMP CYCLE TRACK UPTO SHARED FOOTWAY LEVEL.

EXISTING ARRANGEMEN TO BE RETAINED

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

Scale
0 2.5 5 10 20m

Original Size (A1) 1:250 @ A1 1:500 @ A3

N

Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

Filename: \\NA.AECOMNET.COM\LFSIEMEA\GLASGOW-UKGLG1\DCS\PROJECTS\CI\60709527_A947_OBC\900_CAD_GIS\010_CAD\20-SHEETS\60709527-SHT-C-T2-GENERAL ARRANGEMENTS.DWG
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PROJECT

A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT41b General Arrangement
Sheet 2 of 2

SHEET NUMBER

60709527-SHT-30-C-0711

Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

N

DROPPED KERB TO BE MAINTAINED.

BUS POLE TO BE RETAINED

EXISTING FOOTPATH TO BE WIDENED TO 4.0M AND RESURFACED, 1.0M GRASS VERGE TO BE RETAINED.

EXISTING UNCONTROLLED CROSSING WIDENED AND TACTILE'S TO BE PROVIDED.

Balancing Pond

Scale
0 2.5 5 10 20m
Original Size (A1) 1:250 @ A1 1:500 @ A3

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CLIENT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT43 General Arrangement
Sheet 1 of 1

SHEET NUMBER

60709527-SHT-30-C-T2-0712

Filename: \\NA.AECOMNET.COM\LFSIEMEA\GLASGOW-UKGLG1\DCS\PROJECTS\CI\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-GENERAL ARRANGEMENTS.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25

ISO A1 594mm x 841mm
Approved: PL
Checked: SS
Designer: JM
Project Management Initials:

KEY

- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

TIE IN WITH AT14 TO BE DECIDED

EXISTING LIGHTING COLUMNS AND SIGNAGE ALONG RIVERVIEW DRIVE VERGE WILL REQUIRE RELOCATION

CARRIAGEWAY NARROWING TO ACCOMMODATE SEGREGATED CYCLE TRACK

EXISTING LIGHTING COLUMNS AND SIGNAGE ALONG RIVERVIEW DRIVE VERGE WILL REQUIRE RELOCATION

RIVERVIEW DRIVE

CORRENNIE CIRCLE

ARDLAIR TERRACE

LOUDEN PLACE

LOUDE

1m
3m
2m

41m

40.4m

40.8m

Scale
0 2.5 5 10 20m
Original Size (A1) 1:250 @ A1 1:500 @ A3

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 1 of 8

SHEET NUMBER

60709527-SHT-30-C-T2-0713

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW\UKGLG1\DCS\PROJECTS\IC\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT48A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA
Last Plotted: 2024-04-26

ISO A1 594mm x 841mm

Approved: PL

Checked: SS

Designer: JM

Project Management Initials:

KEY

- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
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- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

REMOVAL OF EXISTING TRAFFIC ISLAND AND CARRIAGEWAY RESURFACING

WIDENING OF CARRIAGEWAY INTO VERGE SPACE DUE TO NEED FOR PROTECTED TURNING LANE

EXISTING LIGHTING COLUMNS AND SIGNAGE ALONG RIVERVIEW DRIVE VERGE WILL REQUIRE RELOCATION

RIVERVIEW DRIVE

TORNASHEAN GARDENS

RIVERVIEW AVENUE

GALLOWHILL TERRACE

NETHERVIEW AVENUE

Monument

El Sub Sta

LB

GG

41.7m

42.1m

42.1m

43.9m

42.3m

N

Scale
0 5 10 20 40m

Original Size (A1) 1:500 @ A1 1:1000 @ A3

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PROJECT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 2 of 8

SHEET NUMBER

60709527-SHT-30-C-T2-0714

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

ISO A1 594mm x 841mm
Approved: PL
Checked: SS
Designer: JM
Project Management Initials:

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW-UKGLG1\DOCS\PROJECTS\C\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT48A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

KEY

- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE



Scale
0 5 10 20 40m
Original Size (A1) 1:500 @ A1 1:1000 @ A3

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SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 3 of 8

SHEET NUMBER

60709527-SHT-30-C-T2-0715

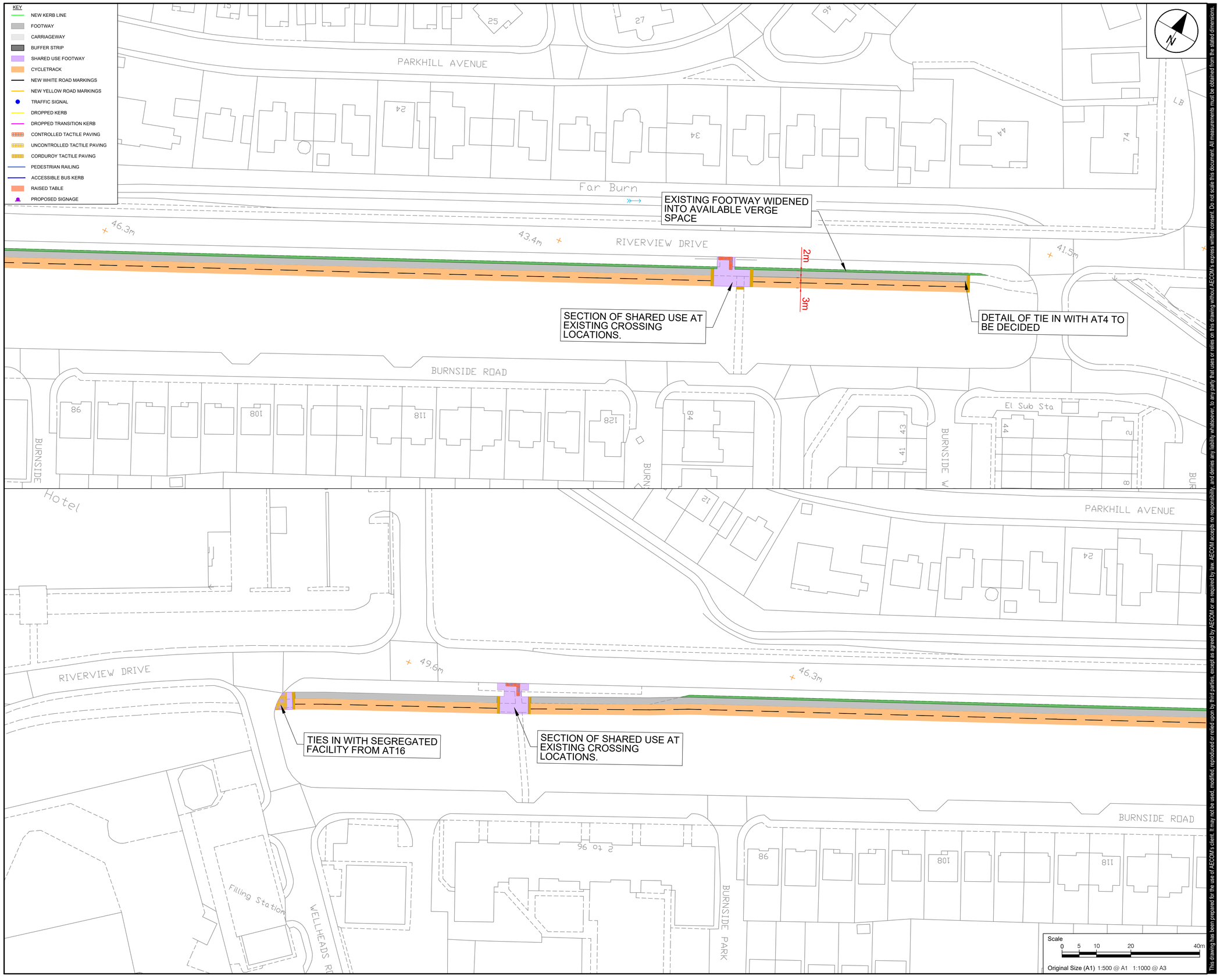
ISO A1 594mm x 841mm

Approved: PL

Checked: SS

Designer: JM

Project Management Initials:



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AECOM

PROJECT

A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

ABERDEEN CITY COUNCIL

CONSULTANT

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Aurora
120 Bothwell St
GLASGOW, G2 7JS
+44 (0) 141 248 0300 tel
www.aecom.com

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 4 of 8

SHEET NUMBER

60709527-SHT-30-C-T2-0716

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

TIE IN DETAILS BASED ON PROGRESSION OF ASSOCIATED TABLE 2 OPTIONS

EXISTING FOOTWAY CORRIDOR WILL BE WIDENED INTO CARRIAGEWAY AND VERGE SPACE TO ACCOMMODATE SEGREGATED CYCLE TRACK

EXISTING LIGHTING COLUMNS AND SIGNAGE AT THE BACK OF FOOTWAY WILL REQUIRE RELOCATION

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW-UKGLG1\DCS\PROJECTS\CI\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT48A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

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I/R	DATE	DESCRIPTION

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PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 5 of 8

SHEET NUMBER

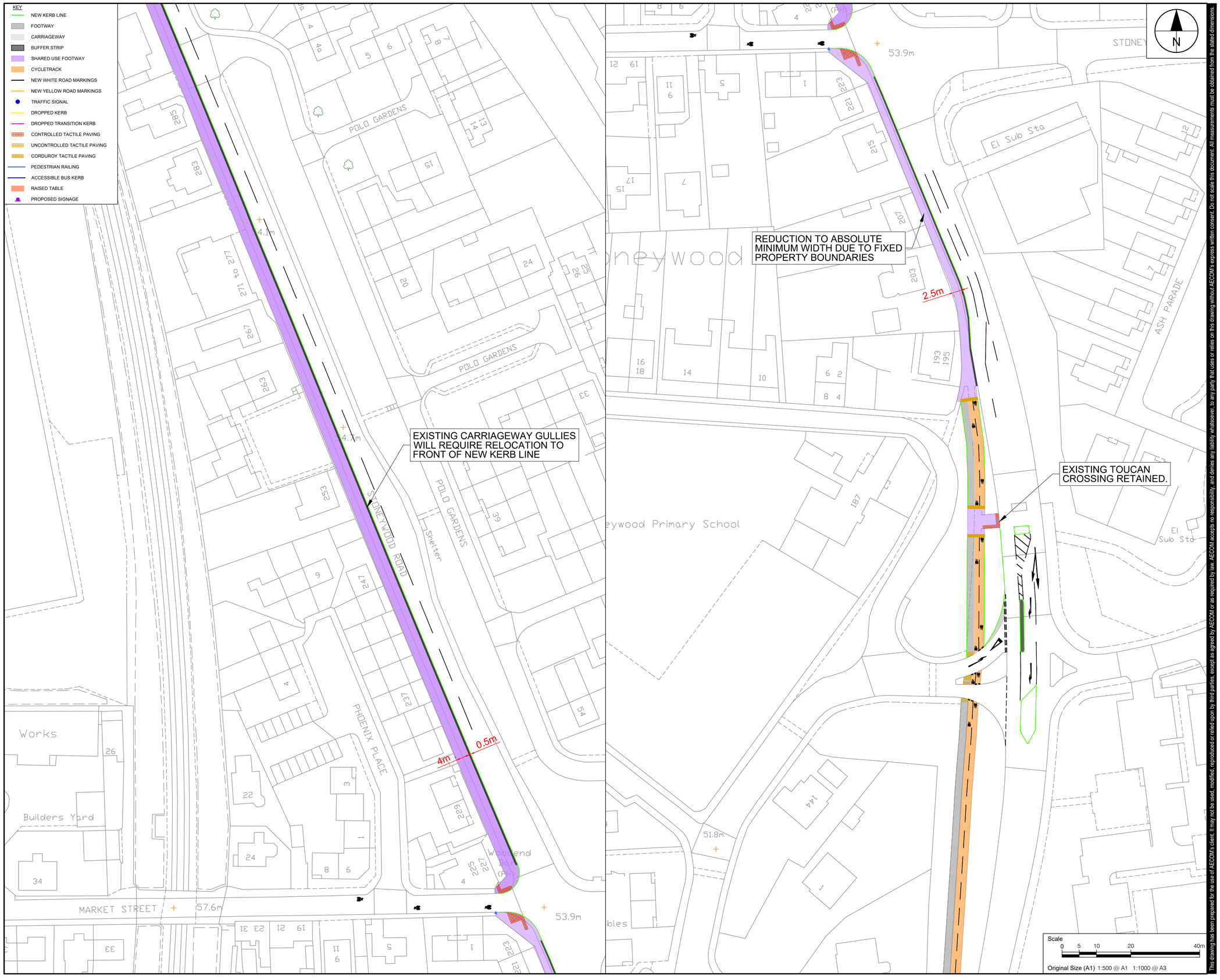
60709527-SHT-30-C-T2-0717

Scale
0 5 10 20 40m
Original Size (A1) 1:500 @ A1 1:1000 @ A3

Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

KEY

- NEW KERB LINE
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- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
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- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE



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KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 6 of 8

SHEET NUMBER

60709527-SHT-30-C-T2-0718

Filename: \\NA.AECOMNET.COM\LFSIEMEA\GLASGOW.UKGLG1\DCS\PROJECTS\CI\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT48A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

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- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

TRANSITION TO TWO-WAY CYCLE TRACK DUE TO AVAILABLE VERGE SPACE.

2m

3m

EXISTING CARRIAGEWAY GULLIES WILL REQUIRE RELOCATION TO FRONT OF NEW KERB LINE

4m

9m

CARRIAGEWAY NARROWING TO ACCOMMODATE WIDENED FOOTWAYS

EXISTING TOUCAN CROSSING RETAINED.

EXISTING TOUCAN CROSSING RETAINED.

WIDENED SHARED FOOTWAY TO TIE INTO EXISTING FOOTWAY.

TWO-WAY SEGREGATED CYCLE TRACK WITHIN AVAILABLE VERGE SPACE.

LIGHTING COLUMNS TO BE RELOCATED.

3.5m

3m

N

Scale
0 5 10 20 40m

Original Size (A1) 1:500 @ A1 1:1000 @ A3

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60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 7 of 8

SHEET NUMBER

60709527-SHT-30-C-T2-0719

Filename: \\NA.AECOM.NET.COM\LFS\EMEA\GLASGOW-UKGLG1\DCS\PROJECTS\CIM\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT48A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

KEY
- NEW KERB LINE
- FOOTWAY
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- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
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- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

WIDENED SHARED FOOTWAY TO TIE INTO EXISTING FOOTWAY.

EXISTING UNCONTROLLED CROSSING TO BE RETAINED.

PROPOSED CYCLE TRACK TO TIE INTO SHARED SPACE AS PART OF OPTION AT41

EXISTING RAMP UPGRADED TO FACILITATE CROSSING OF CYCLISTS.

POTENTIAL REQUIREMENT FOR EARTHWORKS TO FACILITATE CYCLE TRACK

ROAD MARKINGS TO PROVIDE A MIN. TAPER OF 1IN40 ON APPROACH THE LANE REDUCTION.(OPTION AT41)

EXISTING LIGHTING COLUMNS TO BE RELOCATED TO FACILITATE CYCLE TRACK.

WHERE REQUIRED ROAD MARKINGS HAVE BEEN PROVIDED TO FACILITATE THE REDUCTION OF LANES FROM 2 TO 1. (OPTION AT41)

OPTION AT48a TO TIE INTO PROPOSED A96 MULTI-MODEL STUDY STAG APPRAISAL. LAYOUT TO BE CONFIRMED.

Allotment Gardens

Mast (Telecommunication)

Stoneywood Pavilion

WOOD BRAE

RSLIE ROAD

GILBERT

A 947

A 947 CR Burgh Const Bdy

Co Const Bdy

R10m

R14m

R32m

4.1m

4m

0.5m

4m

3m

1m

2.76m

Scale
0 5 10 20 40m

Original Size (A1) 1:500 @ A1 1:1000 @ A3

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT48a General Arrangement
Sheet 8 of 8

SHEET NUMBER

60709527-SHT-30-C-T2-0720

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW-UKGLG1\DCS\PROJECTS\C\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-AT48A GENERAL ARRANGEMENT.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

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ISO A1 594mm x 841mm

Approved: PL

Checked: SS

Designer: JM

Project Management Initials:

KEY

- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
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- RAISED TABLE
- PROPOSED SIGNAGE

TIE INTO NEW ROAD ALIGNMENT AND LAYOUT TO BE DETERMINED.

ACCESS TO INFORMAL PARKING PROVIDED VIA PROVISION OF DROPPED KERB.

DROPPED KERBS TO BE PROVIDED IN FRONT OF THE PARKING FACILITY WITH 2 SECTIONS OF DROPPED KERBS PROVIDED AT EITHER END OF THE PARKING FACILITY ALONG THE FOOTWAY TO FACILITATE CROSSING OF THE CYCLE TRACK.

CYCLE TRACK NARROWED TO 1.5M AND 0.5M WIDE SEPERATION STRIP OF COLOURED SURFACING TO BE PROVIDED BETWEEN THE CYCLE TRACK AND PARKING FACILITY

75M OF ON STREET PARKING TO BE MAINTAINED.

FOOTWAY WIDENED TO ALLOW FOR PARKING FACILITIES TO BE RETAINED FOLLOWING THE PROVISION OF THE CYCLE TRACK.

STEPPED CYCLE TRACK TO BE PROVIDED ON BOTH SIDES OF CARRIAGEWAY.

FOOTWAY NARROWED TO AN ABSOLUTE MIN. 1.5M.

RAISED TABLE TO BE PROVIDED OVER SIDE ROAD WITH CYCLE TRACK RAISED THROUGH JUNCTION TO FOOTWAY LEVEL.

CYCLE TRACK NARROWED TO 1.5M OVER RAISED TABLE TO FACILITATE RAMP.

Scale
0 2.5 5 10 20m

Original Size (A1) 1:250 @ A1 1:500 @ A3

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PROJECT

A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT51 General Arrangement
Sheet 1 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0713

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
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- CYCLETRACK
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- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

RAISED TABLE TO BE PROVIDED OVER SIDE ROAD WITH CYCLE TRACK RAISED THROUGH JUNCTION TO FOOTWAY LEVEL.

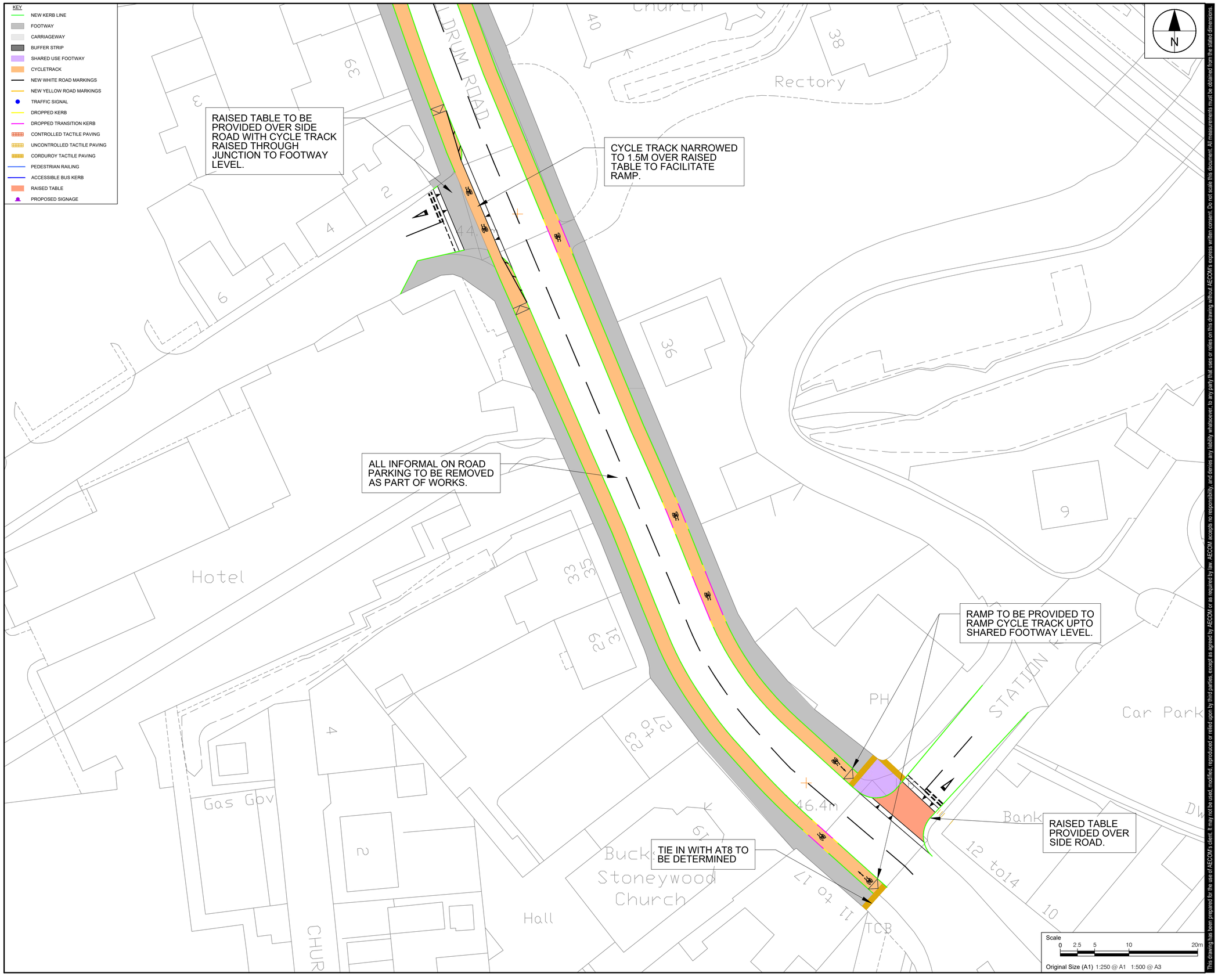
CYCLE TRACK NARROWED TO 1.5M OVER RAISED TABLE TO FACILITATE RAMP.

ALL INFORMAL ON ROAD PARKING TO BE REMOVED AS PART OF WORKS.

RAMP TO BE PROVIDED TO RAMP CYCLE TRACK UPTO SHARED FOOTWAY LEVEL.

RAISED TABLE PROVIDED OVER SIDE ROAD.

TIE IN WITH AT8 TO BE DETERMINED



Scale
0 2.5 5 10 20m
Original Size (A1) 1:250 @ A1 1:500 @ A3

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60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT51 General Arrangement
Sheet 2 of 2

SHEET NUMBER

60709527-SHT-30-C-0714

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25

ISO A1 594mm x 841mm
Approved: PL
Checked: SS
Designer: JM
Project Management Initials:

KEY

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- CYCLETRACK
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- CORDUROY TACTILE PAVING
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- RAISED TABLE
- PROPOSED SIGNAGE

TIE INTO NEW ROAD ALIGNMENT AND LAYOUT TO BE DETERMINED

ACCESS TO INFORMAL PARKING PROVIDED VIA PROVISION OF DROPPED KERB.

DROPPED KERBS TO BE PROVIDED AT SPECIFIC LOCATIONS ON THE SEGREGATION ISLAND WITH 2 SECTIONS OF DROPPED KERBS PROVIDED AT EITHER END OF THE PARKING FACILITY ALONG THE FOOTWAY TO FACILITATE CROSSING OF THE CYCLE TRACK.

70M OF ON STREET PARKING TO BE MAINTAINED.

FOOTWAY NARROWED TO 1.8M TO FACILITATE ON STREET PARKING.

PROPERTY ACCESSES MAINTAINED VIA PROVISION OF DROPPED KERB.

4.7m

46.3m

Scale
0 2.5 5 10 20m

Original Size (A1) 1:250 @ A1 1:500 @ A3

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60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT52 General Arrangement
Sheet 1 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0723

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

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- RAISED TABLE
- PROPOSED SIGNAGE

ALL INFORMAL ON ROAD PARKING TO BE REMOVED AS PART OF WORKS.

1IN20 RAMP TO BE PROVIDED TO RAMP CYCLE TRACK UPTO SHARED FOOTWAY LEVEL.

RAISED TABLE PROVIDED OVER SIDE ROAD.

TIE INTO OPTION AT8 TO BE DETERMINED.

Scale
0 2.5 5 10 20m
Original Size (A1) 1:250 @ A1 1:500 @ A3

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AT52 General Arrangement
Sheet 2 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0724

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25



Project Management Initials: Designer: JM Checked: SS Approved: PL ISO A1 594mm x 841mm

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PROJECT

A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

ABERDEEN CITY COUNCIL

CONSULTANT

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

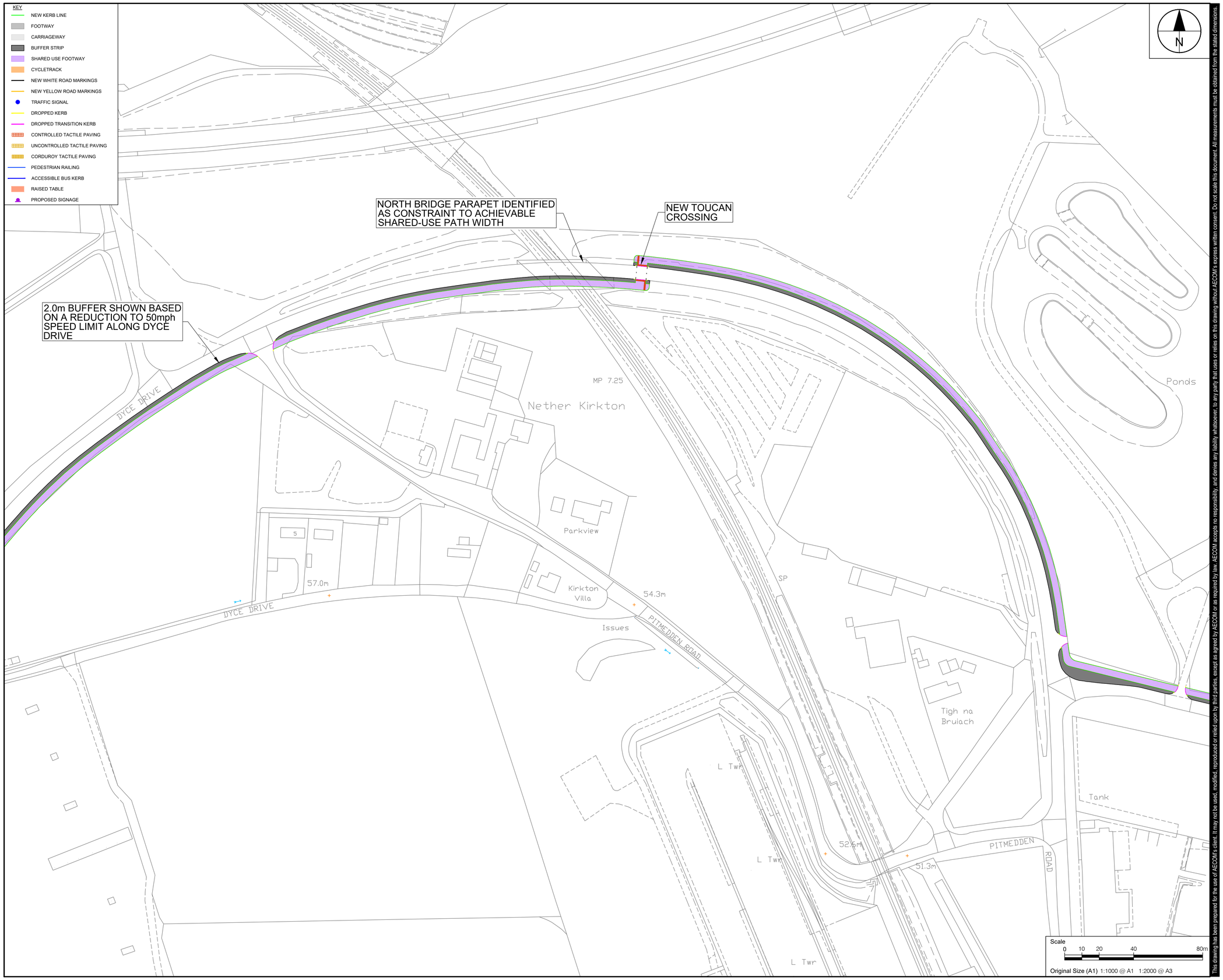
60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT58 General Arrangement
Sheet 1 of 3

SHEET NUMBER

60709527-SHT-30-C-T2-0725



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I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT58 General Arrangement
Sheet 2 of 3

SHEET NUMBER

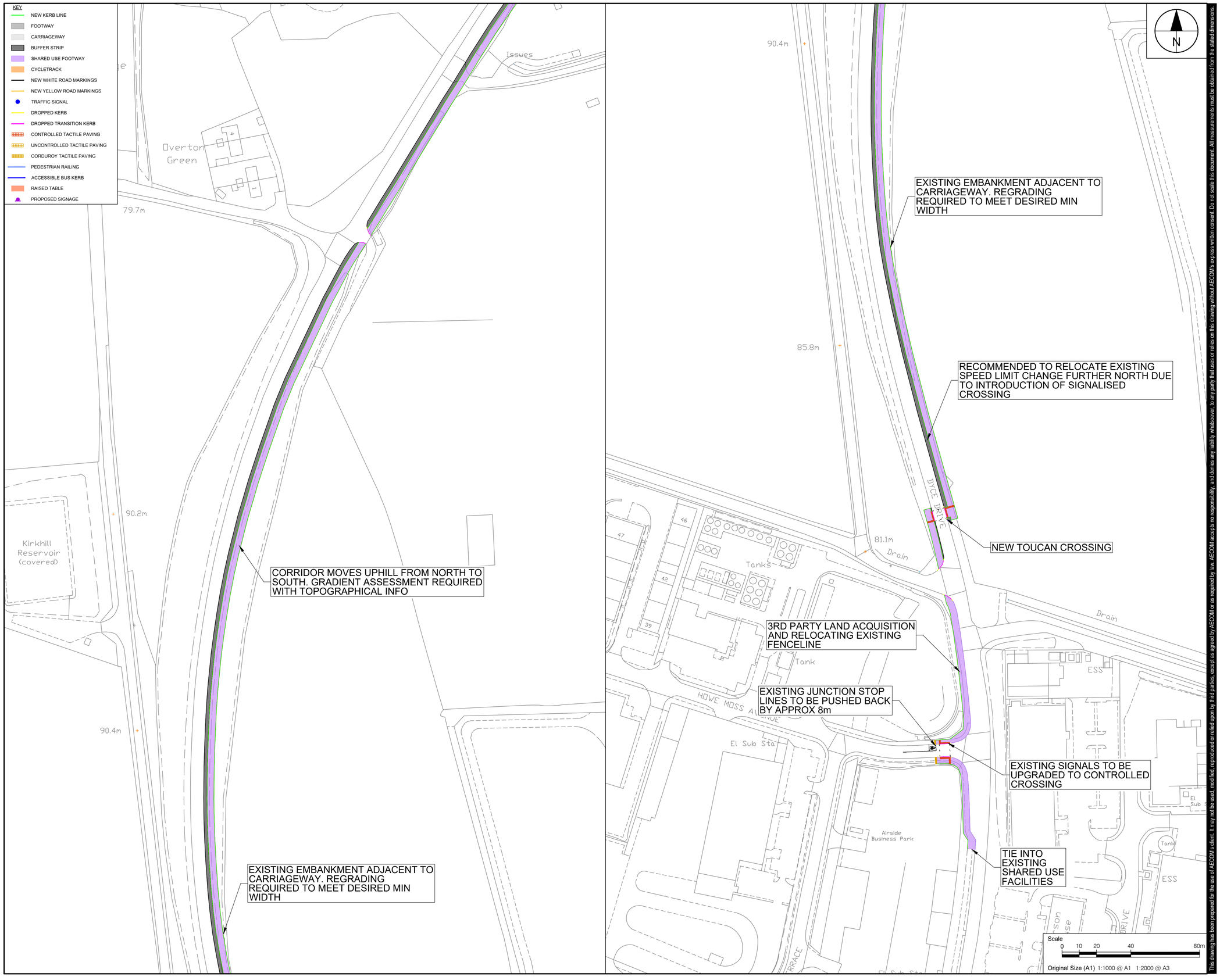
60709527-SHT-30-C-T2-0726

Filename: \\NA.AECOMNET.COM\LFSIEMEA\GLASGOW-UKGLG1\DCS\PROJECTS\Cl\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-GENERAL ARRANGEMENTS.DWG
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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE



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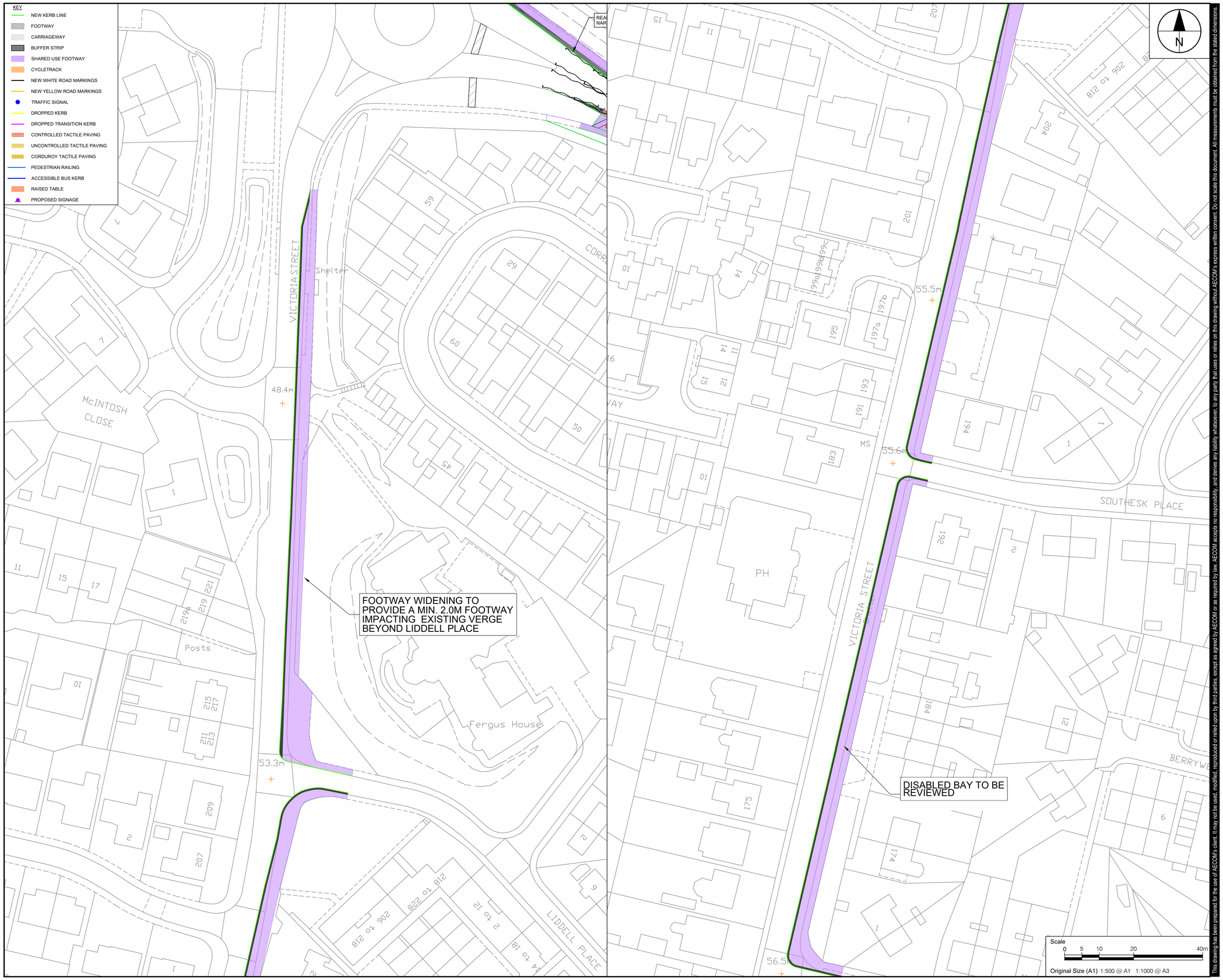
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SHEET TITLE

A947 Table 2 Detailed Design
AT58 General Arrangement
Sheet 3 of 3

SHEET NUMBER

60709527-SHT-30-C-T2-0727



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KEY PLAN

PROJECT NUMBER

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SHEET TITLE

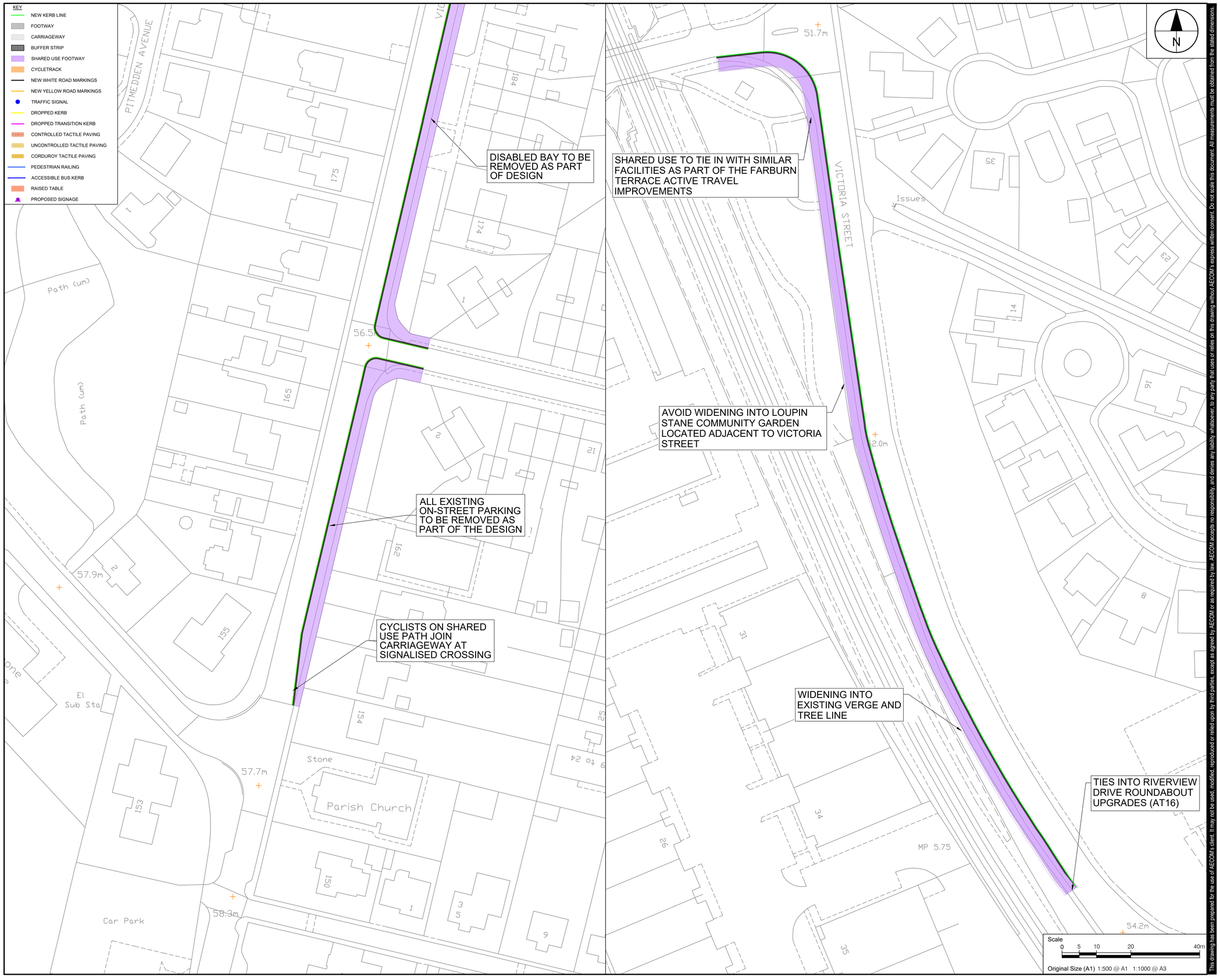
A947 Table 2 Detailed Design
AT61a General Arrangement
Sheet 1 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0728

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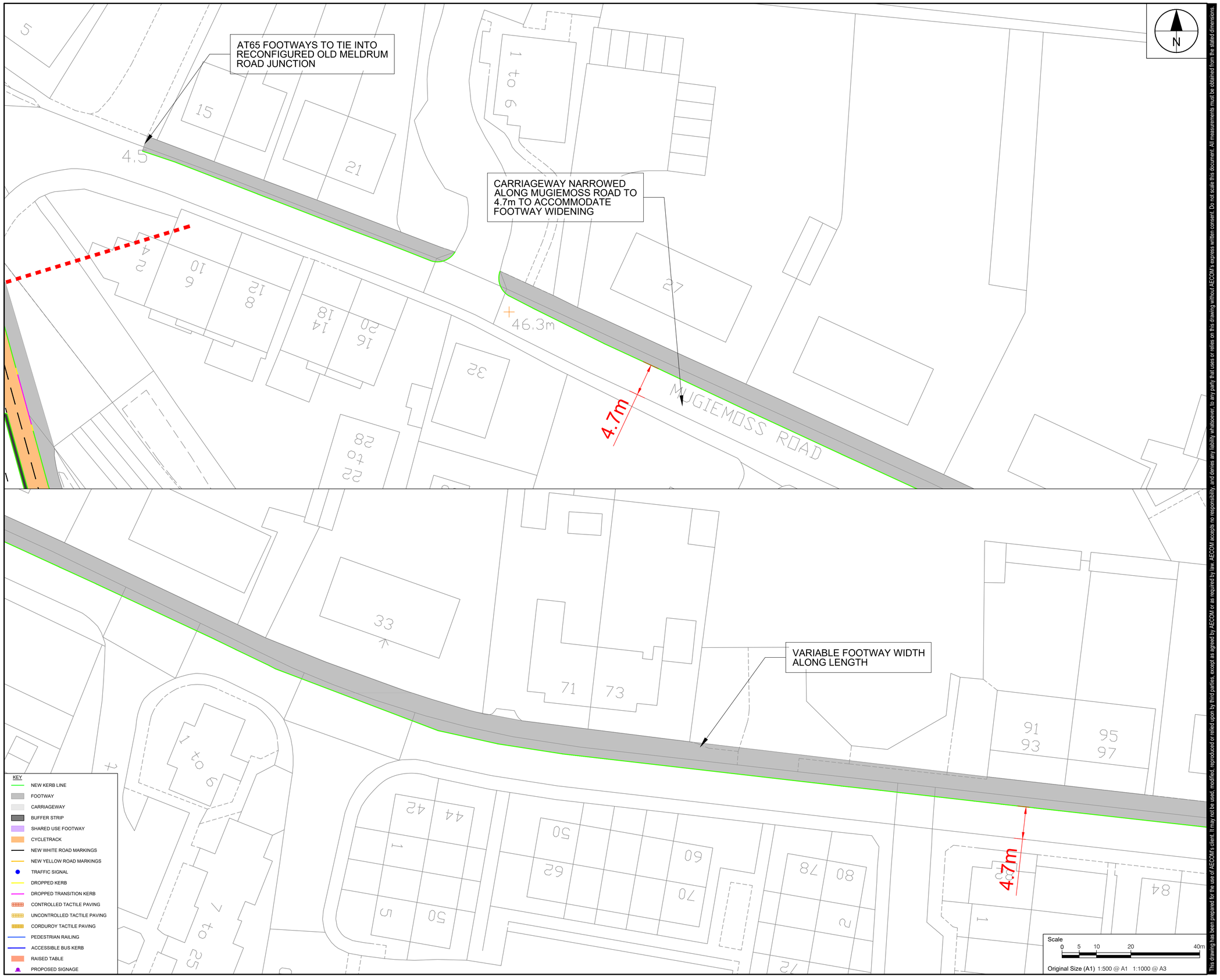
SHEET TITLE

A947 Table 2 Detailed Design
AT61a General Arrangement
Sheet 2 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0729

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I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT65 General Arrangement
Sheet 1 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0730

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Page 1083

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PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
AT65 General Arrangement
Sheet 2 of 2

SHEET NUMBER

60709527-SHT-30-C-T2-0731

ISO A1 594mm x 841mm

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Designer: JM

Project Management Initials:



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I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
O3 General Arrangement
Sheet 1 of 1

SHEET NUMBER

60709527-SHT-30-C-T2-0732

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-25

KEY
- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
- TRAFFIC SIGNAL
- DROPPED KERB
- DROPPED TRANSITION KERB
- CONTROLLED TACTILE PAVING
- UNCONTROLLED TACTILE PAVING
- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

TIE INTO EXISTING FOOTWAY, VERGE EDGE TO BE REINSTATED

CARRIAGEWAY EXTENDED TO FACILITATE VEHICLE MOVEMENTS DUE TO NEW RADII.

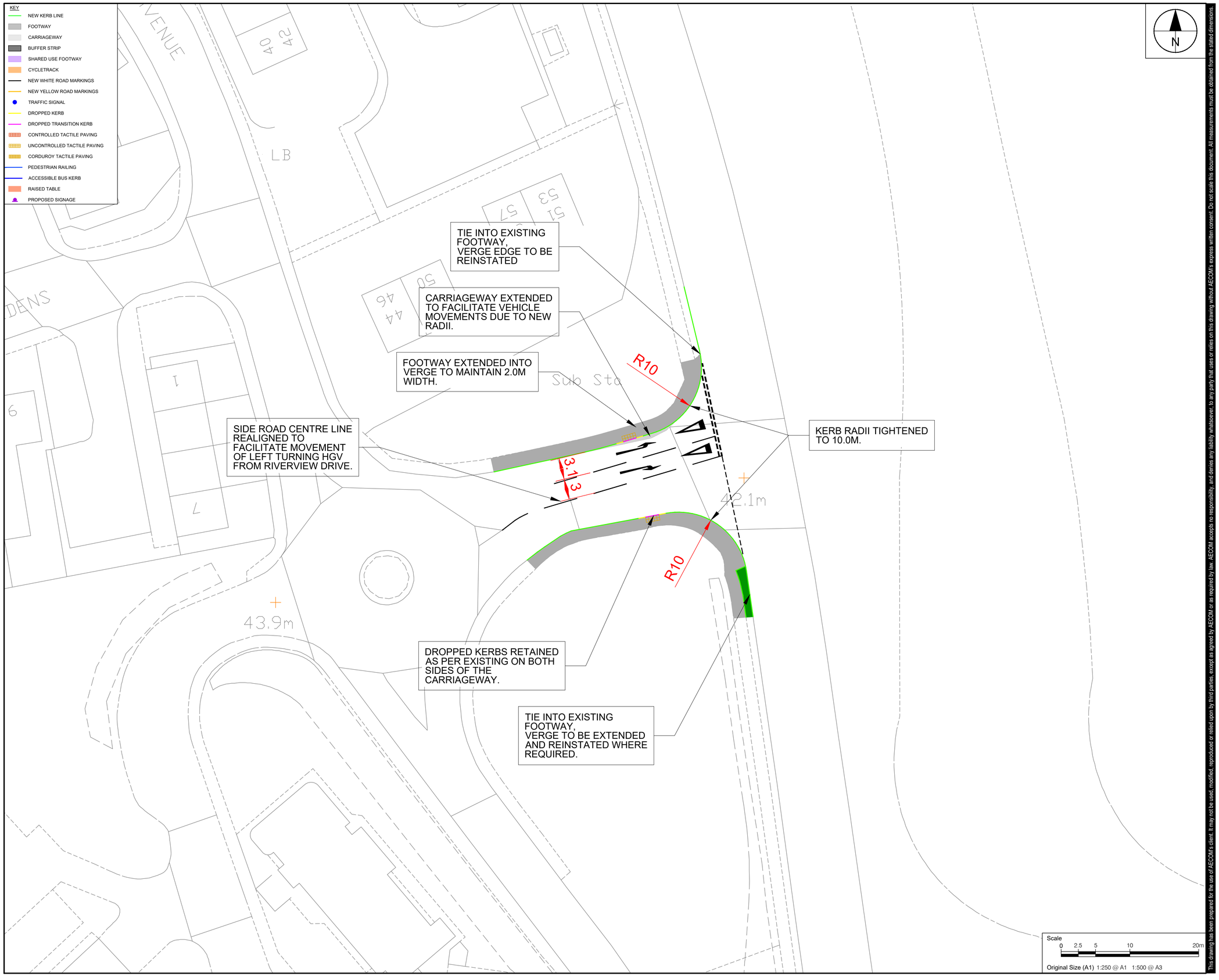
FOOTWAY EXTENDED INTO VERGE TO MAINTAIN 2.0M WIDTH.

SIDE ROAD CENTRE LINE REALIGNED TO FACILITATE MOVEMENT OF LEFT TURNING HGV FROM RIVERVIEW DRIVE.

KERB RADII TIGHTENED TO 10.0M.

DROPPED KERBS RETAINED AS PER EXISTING ON BOTH SIDES OF THE CARRIAGEWAY.

TIE INTO EXISTING FOOTWAY, VERGE TO BE EXTENDED AND REINSTATED WHERE REQUIRED.



Scale
0 2.5 5 10 20m
Original Size (A1) 1:250 @ A1 1:500 @ A3

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A947 MULTI-MODAL STUDY - DETAILED APPRAISAL AND OBC

CLIENT

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I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

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SHEET TITLE

A947 Table 2 Detailed Design
O5 General Arrangement
Sheet 1 of 1

SHEET NUMBER

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Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

ISO A1 594mm x 841mm

Approved: PL

Checked: SS

Designer: JM

Project Management Initials:

KEY

- NEW KERB LINE
- FOOTWAY
- CARRIAGEWAY
- BUFFER STRIP
- SHARED USE FOOTWAY
- CYCLETRACK
- NEW WHITE ROAD MARKINGS
- NEW YELLOW ROAD MARKINGS
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- DROPPED TRANSITION KERB
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- CORDUROY TACTILE PAVING
- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

RAISED ISLAND PROVIDED IN PLACE OF HATCHED ROAD MARKINGS.

CARRIAGEWAY AND SPLITTER ISLAND TO BE REALIGNED

EXISTING RIGHT TURN LANE GEOMETRY RETAINED.

15.3

1.1

N

Scale
0 2.5 5 10 20m

Original Size (A1) 1:250 @ A1 1:500 @ A3

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I/R	DATE	DESCRIPTION

KEY PLAN

PROJECT NUMBER

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SHEET TITLE

A947 Table 2 Detailed Design
O7 General Arrangement
Sheet 1 of 1

SHEET NUMBER

60709527-SHT-30-C-T2-0734

Filename: \\NA.AECOMNET.COM\LFS\EMEA\GLASGOW-UKGLG1\DOCS\PROJECTS\Cli\60709527_A947_OBC\900_CAD_GIS\910_CAD\20-SHEETS\60709527-SHT-C-T2-GENERAL ARRANGEMENTS.DWG
Last saved by: JACK.MCKENNA Last Plotted: 2024-04-26

ISO A1 594mm x 841mm

Approved: PL

Checked: SS

Designer: JM

Project Management Initials:

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- PEDESTRIAN RAILING
- ACCESSIBLE BUS KERB
- RAISED TABLE
- PROPOSED SIGNAGE

RADIUS TIGHTENED TO FACILITATE NARROWING OF LANE FROM APPROX. 4.6M TO 4.1M.

ROAD MARKINGS PROVIDING A 1IN35 TAPER ARE TO BE PROVIDED FROM JUNCTION OVER APPROX. 122M.

BUFFER WIDENED AND LANE NARROWED TO 4.0M FROM APPROX. 4.6M.

EXISTING 40MPH SPEED LIMIT SIGNS TO BE RELOCATED.

0.5m

4m

2.76m

MP 4.50

LIE ROAD

Scale 0 1 2 4 8m

Original Size (A1) 1:100 @ A1 1:200 @ A3

N

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KEY PLAN

PROJECT NUMBER

60709527

SHEET TITLE

A947 Table 2 Detailed Design
O8 General Arrangement
Sheet 1 of 1

SHEET NUMBER

60709527-SHT-30-C-T2-0735

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Appendix F –
Detailed Table 2
Option Cost Breakdown

Delivering a better world

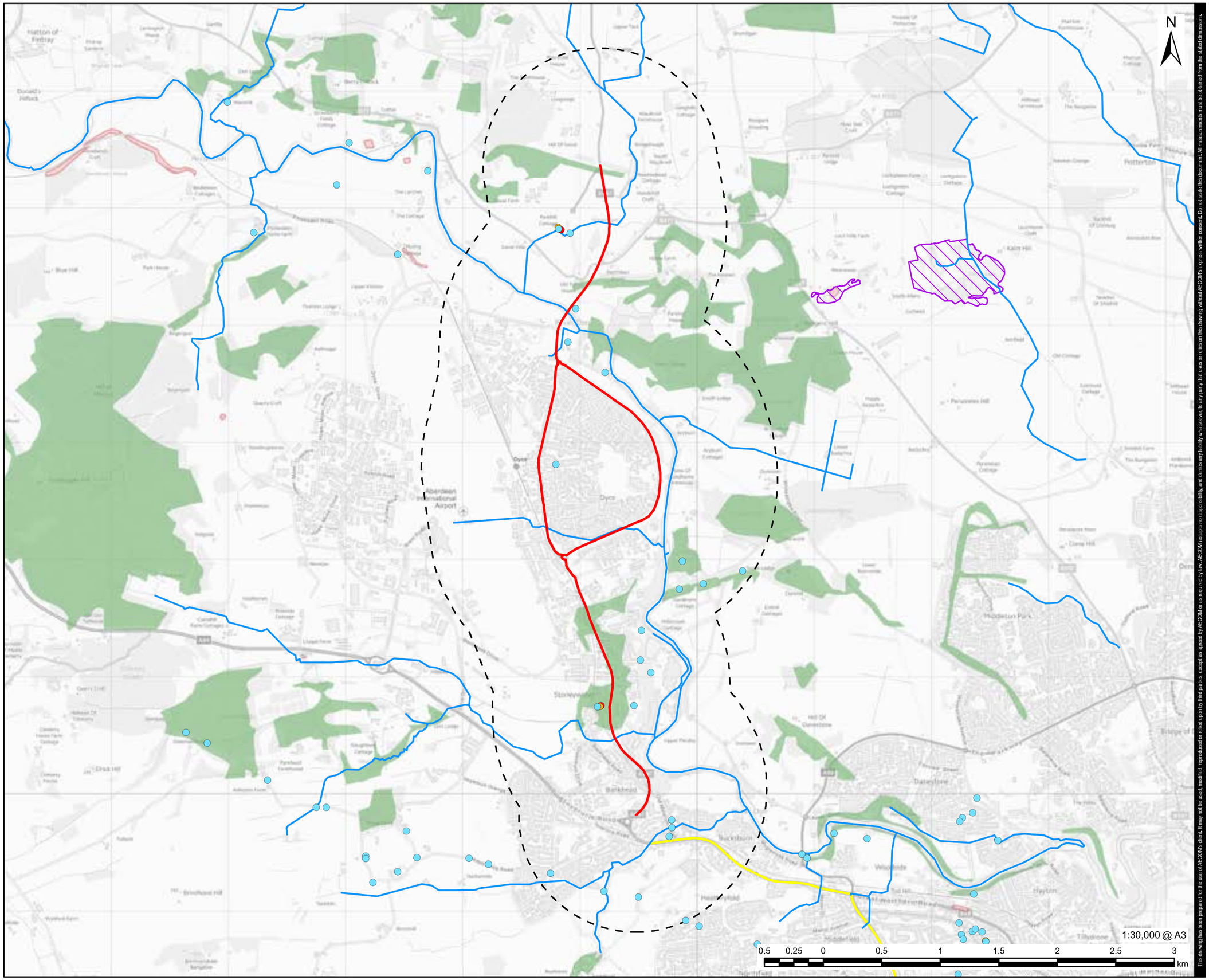
A947 Table 2 Options - Outline Cost Estimate
Summary

	AT26	AT31	AT33	AT35a	AT41a	AT41b	AT43	AT48a	AT51	AT52	AT58	AT61a	AT65	O2	O3	O4	O5	O7	O8
Construction Costs Sub-Total	**£606,000**	**£29,000**	**£44,000**	**£154,000**	**£78,000**	**£288,000**	**£32,000**	**£2,540,000**	**£415,000**	**£335,000**	**£1,801,000**	**£331,000**	**£159,000**	**£3,000**	**£15,000**	**£15,000**	**£23,000**	**£16,000**	**£9,000**
Risk and Contingency (44%)	£267,000	£13,000	£19,000	£68,000	£35,000	£127,000	£14,000	£1,118,000	£182,000	£147,000	£793,000	£146,000	£70,000	£2,000	£7,000	£7,000	£10,000	£7,000	£4,000
Construction Costs Sub-Total (inclusive of Risk and Contingency)	**£873,000**	**£42,000**	**£63,000**	**£222,000**	**£113,000**	**£415,000**	**£46,000**	**£3,658,000**	**£597,000**	**£482,000**	**£2,594,000**	**£477,000**	**£229,000**	**£5,000**	**£22,000**	**£22,000**	**£33,000**	**£23,000**	**£13,000**
Design	£87,000	£4,000	£6,000	£22,000	£11,000	£42,000	£5,000	£366,000	£60,000	£48,000	£259,000	£48,000	£23,000	£1,000	£2,000	£2,000	£3,000	£2,000	£1,000
Placemaking	£44,000	£2,000	£3,000	£11,000	£6,000	£21,000	£2,000	£183,000	£30,000	£24,000	£130,000	£24,000	£11,000	£300	£1,000	£1,000	£2,000	£1,000	£1,000
Site Supervision and Project Management	£44,000	£2,000	£3,000	£11,000	£6,000	£21,000	£2,000	£183,000	£30,000	£24,000	£130,000	£24,000	£11,000	£300	£1,000	£1,000	£2,000	£1,000	£1,000
Traffic Management	£22,000	£4,000	£6,000	£22,000	£11,000	£42,000	£5,000	£366,000	£60,000	£48,000	£259,000	£48,000	£23,000	£1,000	£2,000	£2,000	£3,000	£2,000	£1,000
Monitoring and Evaluation	£44,000	£2,000	£3,000	£11,000	£6,000	£21,000	£2,000	£183,000	£30,000	£24,000	£130,000	£24,000	£11,000	£300	£1,000	£1,000	£2,000	£1,000	£1,000
Base Construction Costs Total (inclusive of Risk, Contingency and Overheads)	**£1,114,000**	**£56,000**	**£84,000**	**£299,000**	**£153,000**	**£562,000**	**£62,000**	**£4,939,000**	**£807,000**	**£650,000**	**£3,502,000**	**£645,000**	**£308,000**	**£8,000**	**£29,000**	**£29,000**	**£45,000**	**£30,000**	**£18,000**

Appendix G –
Environmental Constraints Mapping

Delivering a better world

Revision: 01 Drawn: ER Checked: LC Approved: AI Date: 2021-12-15



AECOM

PROJECT

A947 Multi-Modal Study - STAG-Based Apprasial

CLIENT

Aberdeen City Council

CONSULTANT

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LEGEND

- Study Area
- 1km Study Corridor
- River
- Site of Special Scientific Interest (SSSI)
- Air Quality Management Area (AQMA)
- Ancient Woodland
- Scheduled Monument
- Grade 1 Listed Building
- Grade 2 Listed Building
- Grade 3 Listed Building

NOTES

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ISSUE PURPOSE

FINAL

PROJECT NUMBER

60667436

FIGURE TITLE

Environmental Constraints Plan

FIGURE NUMBER

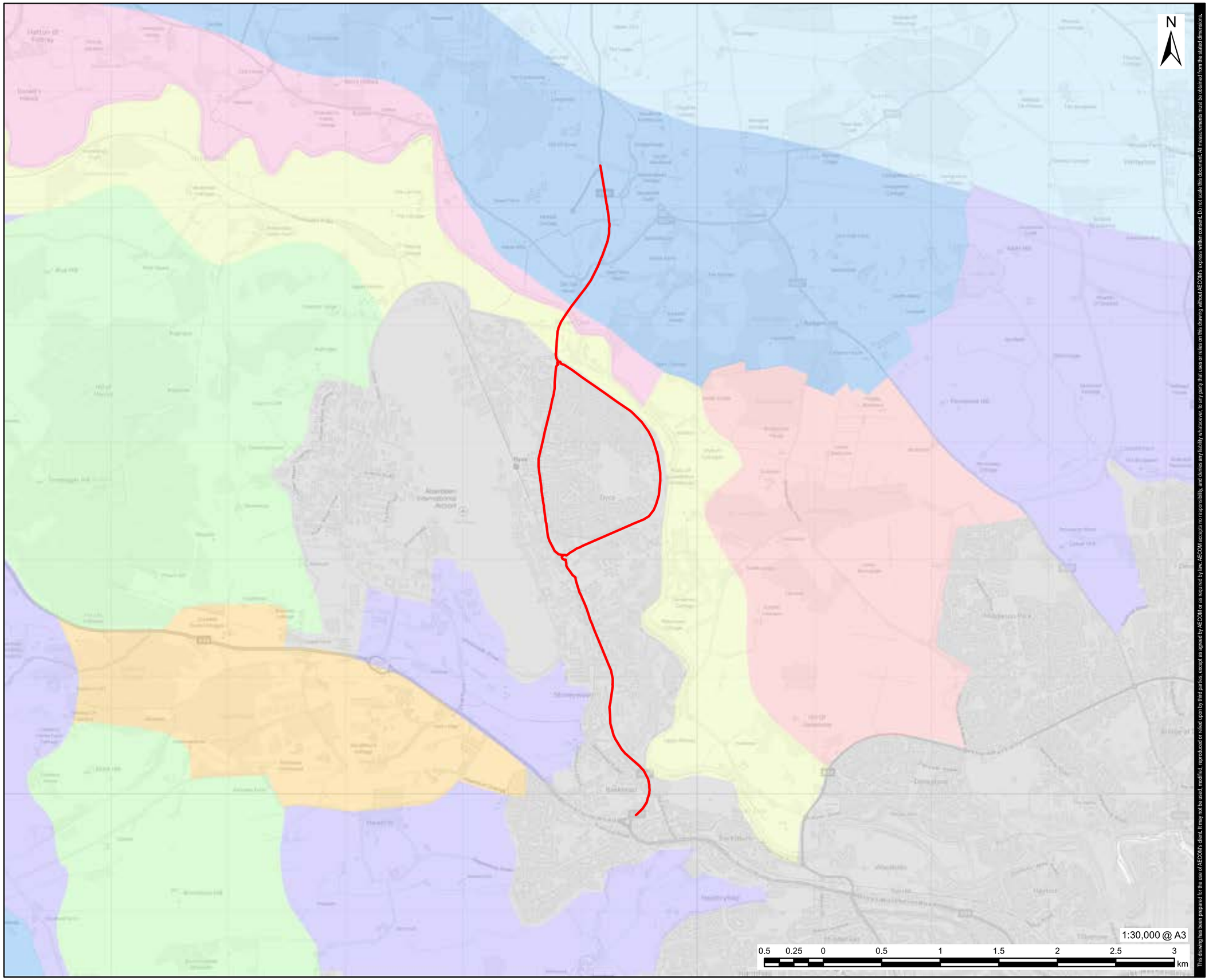
Figure 1

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Filename: C:\Users\RaineE\OneDrive - AECOM\Documents\Projects\A947102_Maps\Fig1_EnvironmentalConstraints_211210.mxd

Revision: 01 Drawn: ER Checked: LC Approved: AI Date: 2021-12-15

Filename: C:\Users\RaineE\OneDrive - AECOM\Documents\Projects\A947\02_Maps\Fig2_Landscape_Character_Areas_211215.mxd



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LEGEND

Study Area

NOTES

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Soil Survey of Scotland Staff (1981). Soil maps of Scotland at a scale of 1:250 000. Macaulay Institute for Soil Research, Aberdeen. DOI: 10.5281/zenodo.4646891.

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60667436

FIGURE TITLE

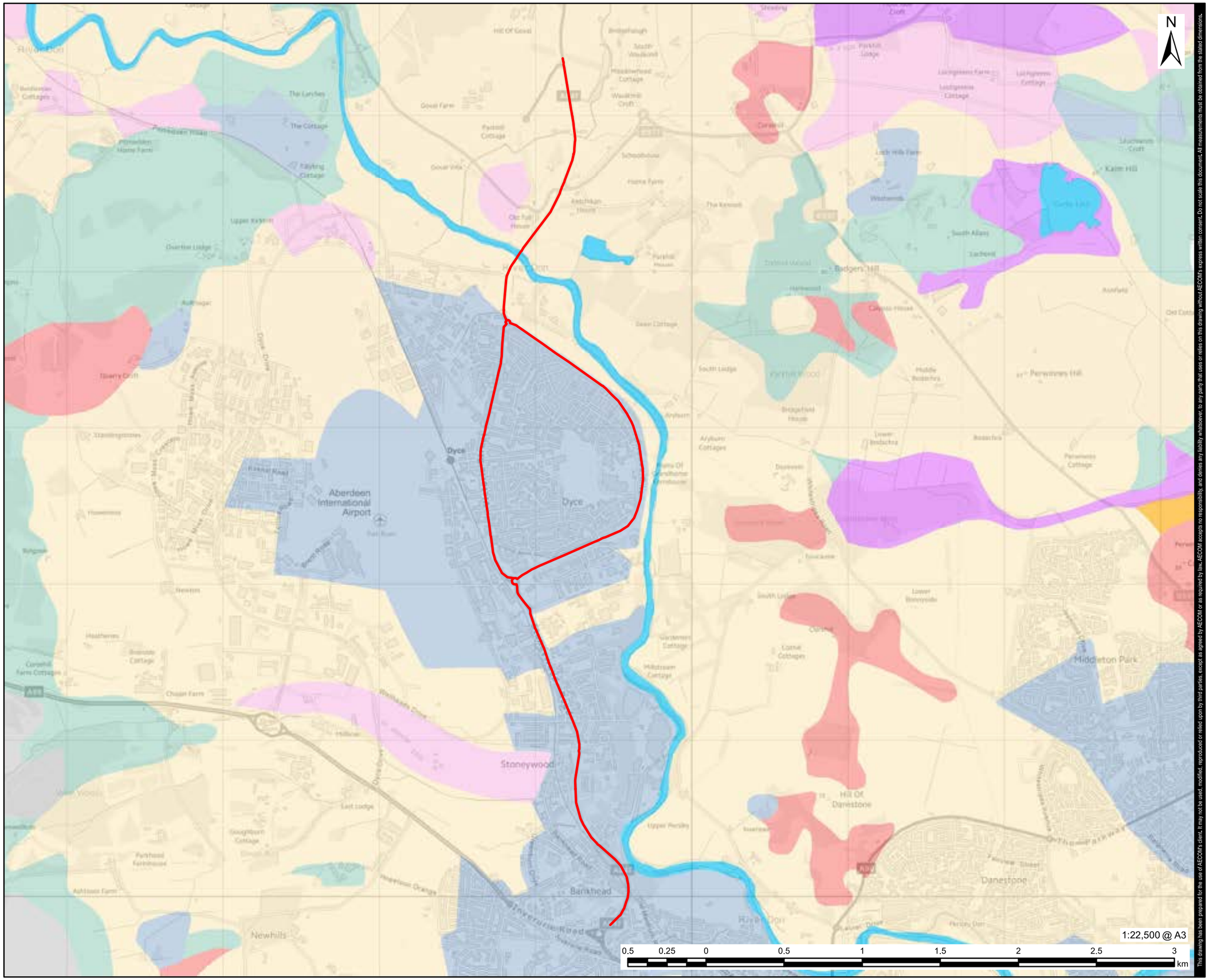
Landscape Character Areas

FIGURE NUMBER

Figure 2

Revision: 02 Drawn: ER Checked: LC Approved: AI Date: 2022-02-04

Filename: \\na.aecomnet.com\fs\EMEA\Glasgow-UKGLG1\Legacy\UKGLG3\P0002\DATA\DCS\Projects\CI\60667436_A947_STAG\900_CAD_GIS\920_929_GIS_Graphics\02_Maps\Fig3_Land_Capability_for_Agriculture_220203.mxd



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LEGEND

- Study Area

Land Capability for Agriculture

- 3.1 - Land capable of producing consistently high yields of a narow range of crops and/or moderate yields of a wider range. Short grass leys are common.
- 3.2 - Land capable of average production though high yields of barley, oats and grass can be obtained. Grass leys are common.
- 4.1 - Land capable of producing a narrow range of crops, primarily grassland with short arable breaks of forage crops and cereal
- 4.2 - Land capable of producing a narrow range of crops, primarily on grassland with short arable breaks of forage crops.
- 5.2 - Land capable of use as improved grassland. Few problems with pasture establishment but may be difficult to maintain.
- 5.3 - Land capable of use as improved grassland. Pasture deteriorates quickly.
- 6.2 - Land capable of use as rough grazings with moderate quality plants.
- Urban
- Unknown

NOTES

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Soil Survey of Scotland Staff (1981). Soil maps of Scotland at a scale of 1:250 000. Macaulay Institute for Soil Research,

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60667436

FIGURE TITLE

Land Capability for Agriculture

FIGURE NUMBER

Figure 3

Appendix H – Active Mode Appraisal Toolkit (AMAT) Assessment

Delivering a better world

Active Mode Appraisal Toolkit (AMAT) Assessment

Client name	Project name	Date	Project number
Aberdeen City Council	A947 Multi-Modal Corridor Study	16 August 2024	60709527

Prepared by	Approved by	Checked by	Verified by
Sam Stirling & Eleanor Bagnall	Andrew Robb	Rob Sutherland	Joanne Melarkey

Revision History

Revision	Revision date	Details	Authorised	Name	Position
0	06/06/2024	Draft for Client Comment	AR	Andrew Robb	Project Manager
1	16/08/2024	Final Appendix H	AR	Andrew Robb	Project Manager

1. Introduction

This Note sets out an assessment of potential costs and benefits arising from improved active travel infrastructure on the A947 corridor between the Aberdeen Western Peripheral Route (AWPR) and the A96 (at the Bucksburn Roundabout), as part of the A947 Multi-Modal Corridor Study. The Department for Transport's (DfT) Active Mode Appraisal Toolkit (AMAT) has been used to calculate these benefits and summarise these against costs in line with principles of best practice set out in Transport Analysis Guidance (TAG)[1].

This assessment appraises six options included in the Detailed Appraisal. This includes:

- AT33: Provide improved active travel links between Dyce Rail Station and the A947 and the eastern section of Dyce, particularly along Station Road;
- AT48a: Implement active travel improvements to support highest practicable level of service on the A947 between the Bucksburn Roundabout and Riverview Drive Roundabout North;
- AT51: Implement with-flow segregated cycleway on Old Meldrum Road;
- AT52: Implement two-way segregated cycleway on Old Meldrum Road;
- AT58: Implement shared use path on Dyce Drive between the A947 and Kirkhill Industrial Estate to the north of Aberdeen International Airport; and
- AT61a: Implement package of active travel measures on Victoria Street[2].

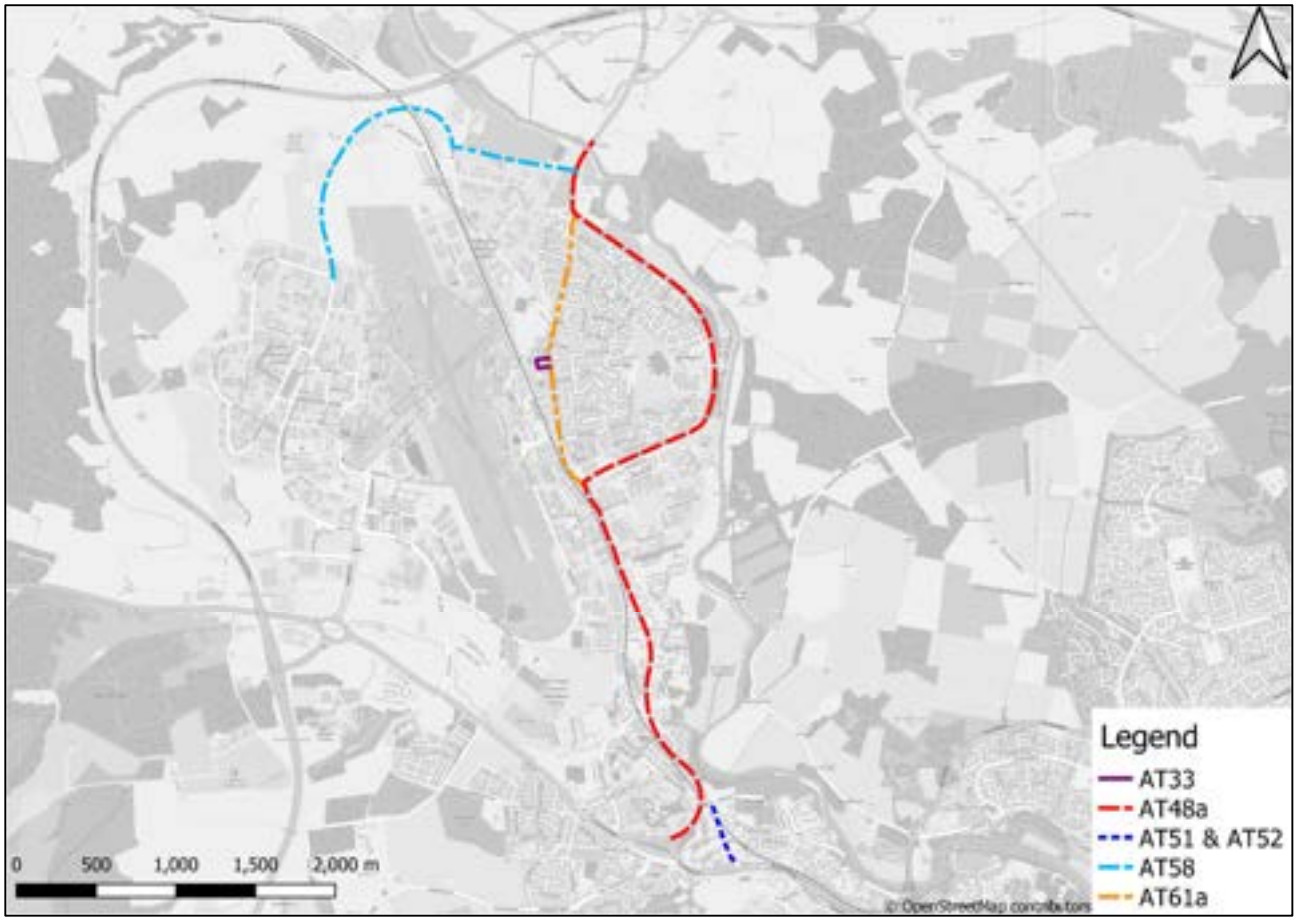
This assessment considers active travel only. The above options have been selected as those most likely to achieve modal shift, taking account of option route length and change in extent of physical infrastructure provision.

The options that have been assessed are illustrated in **Figure 1.1.**

[1] Transport Analysis Guidance (TAG), DfT, November 2022, https://www.gov.uk/guidance/transport-analysis-guidance-tag#supplementary-guidance

[2] This option provides the opportunity to improve accessibility and active travel opportunities in the 'heart' of Dyce and has been considered in three sections: 1) Victoria Street/Riverview Drive South Roundabout to Farburn Terrace; 2) Farburn Terrace to Pitmedden Road; and 3) Pitmedden Road to Victoria Street/Riverview Drive North Roundabout. In Section 1, there is adequate space on the eastern side to develop a segregated cycleway connection by reallocating the existing advisory cycle lanes and utilising the existing verge space. In Section 2, there is limited scope to widen the existing footways or reduce the carriageway width due to bordering property boundaries. A reduction of the speed limit to 20mph and introduction of various measures would allow this section to be formalised as a mixed traffic street. Section 3 has three sub-improvement options, with varying volumes of works required. Option 3a involves the reduction of the road carriageway width to 6m, removal of on-street parking and speed limit reduction to 20mph. Option 3b – reduction of speed limit to 20mph and removal of on street parking would create opportunity to widen and reclassify existing footways on Eastern side to shared use desirable minimum width, with local sections of absolute minimum shared use width due to corridor constraints. Option 3c would continue the measures introduced as part of Option 3b with a reduced speed limit to formalise Section 3 as a mixed traffic street.

Figure 1.1: Options Assessed



2. Demand

Baseline (Do Minimum) demand for walking and cycling has been estimated by applying mode share factors to a population catchment within a 1km buffer of the study routes. A background growth rate has then been applied to factor this demand to the estimated scheme opening year, assumed for the purposes of this assessment to be 2027.

Future (Do Something) demand for walking and cycling has been estimated using the disaggregate mode-choice model set out in Section 2.3 of TAG Unit A5.1[3]. This approach is described in the following sections below.

2.1 Population

A 1km buffer has been created in GIS for each option outlined in **Figure 1.1**. This buffer has then been intersected with Scottish Neighbourhood Statistics (SNS) Data Zones[4] to set out an estimate of the area of influence of each option. The data zones which intersect the buffer have then been spatially joined to the latest available data zone population estimates (2021) available from the National Records of Scotland (NRS)[5] to obtain a baseline (2021) population catchment for each option. It is noted that no weighting or scaling has been applied to the intersecting population catchment for each data zone, i.e. the full population for the data zone has been included in the catchment if the zone intersects the buffer.

As different mode share factors can be identified for different journey purposes, the population catchments for each option have been split into three constitutive age groups for the purposes of the demand analysis: 4-18 years, 19-66 years and 67+ years. The 4-18 years age range has been selected to be approximately representative of those who travel to education, and the 19-66 age range to be approximately representative of those who travel to work. **Table 2.1** shows the

[3] TAG Unit A5.1 - Active Mode Appraisal, DfT, November 2022, *https://www.gov.uk/government/publications/tag-unit-a5-1-active-mode-appraisal*
[4] Census Geographies, 2011, Scotland's Census, *https://www.scotlandscensus.gov.uk/about/2011-census/2011-census-geographies/*
[5] Mid-2021 Small Area Population Estimates for 2011 Data Zones, NRS, September 2022, *https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/small-area-population-estimates-2011-data-zone-based/mid-2021*

baseline population catchment for each option in 2021, noting that options AT51 and AT52 are identical in terms of catchment area and subsequent catchment population.

Table 2.1: Population Catchments by Option and Age Group (2021)

Option	<4	4-18	19-66	67+
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	204	927	3,777	1,467
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	946	3,022	12,710	3,694
AT51: with-flow segregated cycleway on Old Meldrum Road	830	2,555	10,055	2,363
AT52: two-way segregated cycleway on Old Meldrum Road	830	2,555	10,055	2,363
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	322	1,159	4,731	1,745
AT61a: package of active travel measures on Victoria Street.	391	1,347	5,794	2,110

The 4-18 age group represents approximately 15% of the total population catchment, with the 19-66 age group representing approximately 61%[6]. In determining these figures, it has been assumed that either option AT51 or AT52 would be implemented (not both) and therefore AT51/AT52 has been considered as one option to avoid double counting.

It is noted that the focus of this assessment is on travel to work/education due to the nature of the mode-choice model being applied to estimate future growth, discussed further in the **Future Demand** section below. As such, the population of those over 67 years of age has not been included in this analysis, nor have estimates of the impacts to leisure demand more generally. This is not to say that the measures included as part of the options will not affect those travelling for leisure, nor that those over 66 years of age would not experience benefits, rather that modelling these impacts is difficult and not well understood. The results of this assessment could therefore be considered conservative as a result.

The scheme opening year has been assumed to be 2027 for the purposes of this analysis. Since the latest NRS mid-year population estimates are for 2021, a background growth factor has been applied to estimate the future population during the scheme opening year. This factor has been calculated as the unweighted average of (a) cycle trip growth between 2021 and 2027, obtained from the National Trip End Model (NTEM)[7], (b) walk trips growth between 2021 and 2027, obtained from the NTEM[8], and (c) population growth between 2021 and 2027, obtained from NRS Population Projections[9]. The resulting background growth factor is 1.4%.

2.2 Mode Share

Baseline mode share factors for walking and cycling have been identified for both travel to education (SUSTRANS Hands Up Survey, HUS)[10] and for travel to work (Scottish Household Statistics, SHS)[11] for the Aberdeen City area and have been applied. These mode share splits by journey purpose and active travel mode are shown in **Table 2.2.**

To mitigate against potential short-term travel trends, the mode shares presented here are five-year averages, 2015-2019 for travel to work (2019 being the latest available), and 2018-2022 for travel to education (2022 being the latest available). It is noted that HUS data includes all school types (but not nurseries). It is also noted that sample sizes for SHS data are very low (~130 responses for Aberdeen City in 2019), so some caution is urged with these results.

[6] The remaining population segments are less than four years old (4%) and 67 years old or older (20%)
[7] National Trip End Model (NTEM), DfT, February 2023, *https://www.data.gov.uk/dataset/11bc7aaf-ddf6-4133-a91d-84e6f20a663e/national-trip-end-model-ntem*
[8] National Trip End Model (NTEM), DfT, February 2023, *https://www.data.gov.uk/dataset/11bc7aaf-ddf6-4133-a91d-84e6f20a663e/national-trip-end-model-ntem*
[9] Population Projections for Scottish Areas (2018-based), NRS, 2020, *https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections/2018-based*
[10] Hands Up Survey Scotland, SUSTRANS, May 2023, *https://www.sustrans.org.uk/our-blog/projects/uk-wide/scotland/hands-up-scotland-survey*
[11] Scottish Household Survey Travel to Work, 2008-2019, Table 8.25, *https://scotland.shinyapps.io/sg-scottish-household-survey-data-explorer/*

Table 2.2: Do Minimum (baseline) Mode Share Factors

Local Authority	Education		Work	
	Walk	Cycle	Walk	Cycle
Aberdeen City	49.3%	4.0%	20.4%	2.5%

2.3 Do Something Demand

Do Something (with scheme) demand has been estimated using a disaggregate mode-choice model as set out in Section 2.3 of TAG Unit A5.1[12]. This model forecasts the impacts of improvements in the attractiveness of cycling for commuting trips based on several factors, including the type of infrastructure to be implemented, the existing mode share, distance travelled, and the proportion of those for whom cycling would be a viable alternative.

The AMAT guidance[13] notes that "[this model] *could be extended to cover walking but research in this area is problematic. People do not regard walking as a mode of transport in quite the same way as driving, using a bus or even cycling so studying their reaction to changes in the walking environment is difficult*". In the absence of a bespoke model to calculate walking (and non-commuting trips more generally), the uplift to walk trips to work and the uplift in both walk and cycle trips to education have been calculated by applying the same process. Some additional caution is therefore required around these figures. It is noted, however, that trips to work represent the majority of trips estimated in this assessment (the working population represents approximately 61% of the total population) and that the uplift in cycle trips calculated by the model is far larger than for walking – the uplift for walking is around 8% compared with 39% for cycling[14].

Mode share figures for the Do Something scenario, based on the above approach, are shown in **Table 2.3**.

Table 2.3: Do Something (with scheme) Mode Share Factors

Section	Education		Work	
	Walk	Cycle	Walk	Cycle
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	49.5%	4.1%	20.5%	2.5%
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	53.4%	7.5%	24.3%	4.8%
AT51: with-flow segregated cycleway on Old Meldrum Road	50.4%	4.3%	21.3%	2.6%
AT52: two-way segregated cycleway on Old Meldrum Road	50.4%	4.3%	21.3%	2.6%
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	53.0%	7.0%	23.9%	4.4%
AT61a: package of active travel measures on Victoria Street.	51.3%	4.8%	22.2%	3.0%

[12] TAG Unit A5.1 - Active Mode Appraisal, DfT, November 2022, https://www.gov.uk/government/publications/tag-unit-a5-1-active-mode-appraisal
[13] Ibid.
[14] Averaged across the options

3. Costs

Total investment (i.e. capital expenditure) costs for each option have been obtained utilising SPONS Civil Engineering and Highway Works Price Book, Local Authority Framework Rates and construction costs from similar projects. These costs include preliminaries; site clearance and construction costs for the individual measures included in each option. Risk and contingency has been set at 44% across all options in line with the Green Book for this design stage. More detail about specific measures included within the costings is included in Chapter 13 of the Detailed Appraisal Report.

No ongoing operating costs have been included, although these could be included as part of future sensitivity testing. Additionally, as per the AMAT User Guide[15], costs have been inserted in current (2024) nominal prices, i.e. they have not been adjusted for inflation. **Table 3.1** illustrates the total capital cost for each option.

Table 3.1: Costs by Option

Option	Total Costs (Inclusive of Risk and Contingency at 44%)
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	£84,000
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	£4,939,000
AT51: with-flow segregated cycleway on Old Meldrum Road	£807,000
AT52: two-way segregated cycleway on Old Meldrum Road	£650,000
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	£3,502,000
AT61a: package of active travel measures on Victoria Street.	£645,000

For the purposes of this assessment, these costs have been assumed to be incurred over a two-year period, 50% in 2026, and 50% in 2027.

[15] Section 3.3, AMAT User Guide, DfT, May 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1102781/active-model-appraisal-toolkit-user-guidance.pdf

4. AMAT Assessment

Based on the methodology described in the sections above, the estimated number of trips per day across the options in the Do Minimum and Do Something scenarios are shown in **Table 4.1**. It is again noted that these trip numbers do not include leisure users, and as such the resulting demand uplift could be considered a conservative estimate[16].

Table 4.1: Daily Trip Estimates and % Uplift for each Option

Option	Do Minimum (baseline)		Do Something (with scheme)		Uplift	
	Walk	Cycle	Walk	Cycle	Walk	Cycle
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	473	50	475	51	1%	2%
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	1,572	168	1,812	322	15%	91%
AT51: with-flow segregated cycleway on Old Meldrum Road	1,275	136	1,321	145	4%	7%
AT52: two-way segregated cycleway on Old Meldrum Road	1,275	136	1,321	145	4%	7%
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	592	63	672	111	14%	76%
AT61a: package of active travel measures on Victoria Street.	711	76	762	92	7%	20%

The following additional assumptions have been included in the AMAT assessment across all options:

- The intervention opening year is defined as 2027, and the last year of funding has been defined as 2027.
- The appraisal period has been defined as 20 years. Sensitivity testing could be conducted on longer periods (up to 60 years), which would enhance benefits and may be considered appropriate for these options.
- The local area type has been defined as ‘Rural’ for option AT58 as the majority of this option lies within the more rural area to the north of Aberdeen International Airport. ‘Other Urban’ has been used as the local area type for all other options as the majority of these routes lie within the Aberdeen City boundary.
- No current existing cycling infrastructure is assumed. This has been selected as the most appropriate measure since the majority of the proposed route alignments have no existing cycling infrastructure. The proposed infrastructure type for options AT33 and AT58 has been chosen as ‘on-road non-segregated cycle lane’. For options AT48a, AT51 and AT52, ‘on-road segregated cycle lane’ has been chosen. The proposed infrastructure type for option AT61a has been chosen as ‘wider lane’, albeit some sections of the route will be on-road segregated cycle lane. Since AMAT is rigid in allowing only one proposed infrastructure type, this option has been selected to cover both.
- The proposals are assumed to include kerb levelling, pavement evenness, street lighting and directional signage, but not measures to implement information panels, reduce crowding, nor install benches[17].
- The present value of benefits and costs are discounted to 2010 prices and values.

Benefits identified in AMAT are grouped into three main categories: health, journey quality improvements, and mode shift. Each of these are considered below.

[16] A basic assumption could be made that the proposals would likely improve leisure trips via active modes
[17] AMAT User Guide Annex C, DfT, May 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1102781/active-model-appraisal-toolkit-user-guidance.pdf

4.1 Health Benefits

The health benefits quantified in AMAT relate primarily to a reduced risk of premature death, and a reduced rate of absenteeism as a result of health benefits associated with improved active travel uptake.

Research shows that physical activity increases life expectancy and decreases the risk of many adverse health conditions, including coronary heart disease, type 2 diabetes, and breast and colon cancers[18]. Increased active travel uptake delivers health benefits due to the associated reduction in the risk of premature death.

Increased physical activity of individuals improves their health and therefore reduces their number of 'sick days', resulting in increased economic activity. There is evidence that better health due to increased physical activity (such as cycling or walking to work) can also lead to reduced rates of absenteeism[19], which provides a range of benefits resulting from increased workforce productivity. In the UK there are 4.6 days 'lost' per worker due to sickness or injury[20].

The toolkit indicates that, for all options combined, there would be an estimated 195 fewer days of short-term sick leave and an estimated £28,184 increased output from this reduction in absenteeism. It should be noted, that for the purposes of determining this metric, it has been assumed that either option AT51 or AT52 would be implemented (not both) and therefore AT51/AT52 has been considered as one option in the combined total to avoid double counting. **Table 4.2** shows the days reduced absenteeism by each option, per year, and **Table 4.3** shows the present value of these benefits over the 20-year appraisal period.

Table 4.2: Days reduced absenteeism (annual)

Option	Metric
	Annual Days Reduced Absenteeism
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	1
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	121
AT51: with-flow segregated cycleway on Old Meldrum Road	15
AT52: two-way segregated cycleway on Old Meldrum Road	15
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	39
AT61a: package of active travel measures on Victoria Street.	19

Table 4.3: Present Value of Health Benefits (2010 values and prices)

Option	Metric	
	Reduced Risk of Premature Death	Reduced Absenteeism
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	£8,720	£1,500
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	£1,210,020	£201,960
AT51: with-flow segregated cycleway on Old Meldrum Road	£133,220	£25,660
AT52: two-way segregated cycleway on Old Meldrum Road	£133,220	£25,660
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	£387,300	£65,200

[18] Impact of Physical Inactivity on the World's Major Non-Communicable Diseases, Lee et al, 2012, https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3645500/
[19] NICE, 2008, Business Case Tool for Physical Activity in the Workplace; Leisure time physical activity and sickness absenteeism: a prospective study, Van Amelsvoort et al, 2006; Effects of an Employee Fitness Program on Reduced Absenteeism, Lechner et al, 1997
[20] Office for National Statistics (ONS), Sickness Absence in the Labour Market, 2021, https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/labourproductivity/articles/sicknessabsenceinthelabourmarket/2021

Option	Metric	
	Reduced Risk of Premature Death	Reduced Absenteeism
AT61a: package of active travel measures on Victoria Street.	£176,670	£32,280

4.2 Journey Quality Benefits

Journey quality impacts are generally comprised of improvements to journey ambience which might enhance and improve a user's experience of travelling along a route.

Benefits to new and existing cyclists or pedestrians as a result of improvements to infrastructure can relate to a perception of improved safety and/or environmental conditions. These benefits have been quantified using monetary values set out in TAG[21] for pedestrian and cycle features, including for aspects such as the quality of the infrastructure (for cycling) and street lighting, kerb levelling, pavement evenness etc. (for walking). The values are provided in pence per kilometre (for pedestrian features) and in pence per minute (for cycle infrastructure). These impacts are subjective and primarily experienced by existing route users, i.e. those who are best placed to measure the effects of the improvements. TAG recommends applying a 'rule of a half', whereby current users of a route will experience the full benefit of improvements to quality, but the benefits for new users should be divided by two.[22]

The table below shows the present value of these benefits for both new and existing users over the 20-year appraisal period.

Table 4.4: Present Value of Journey Quality Benefits (2010 values and prices)

Option	Metric
	Journey Ambience
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	£93,520
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	£326,840
AT51: with-flow segregated cycleway on Old Meldrum Road	£261,430
AT52: two-way segregated cycleway on Old Meldrum Road	£261,430
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	£157,860
AT61a: package of active travel measures on Victoria Street.	£99,340

4.3 Mode Shift Impacts

A transfer from car-based modes amongst functional route users would result in a reduction in vehicle kilometres travelled. The approximate amounts are displayed in **Table 4.5**.

Table 4.5: Approximate Reduction in Vehicle Kilometres Travelled

Option	Metric
	Approximate Reduction in Vehicle Kilometres Travelled
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	312
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	44,689
AT51: with-flow segregated cycleway on Old Meldrum Road	4,169
AT52: two-way segregated cycleway on Old Meldrum Road	4,169
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	14,182

[21] TAG Data Book, November 2019, Table 4.1.6 and Table 4.1.7, DfT, https://www.gov.uk/government/publications/tag-data-book
[22] DfT, TAG Unit A5.1 Active Mode Appraisal, November 2022, https://www.gov.uk/government/publications/tag-unit-a5-1-active-mode-appraisal

Option	Metric
	Approximate Reduction in Vehicle Kilometres Travelled
AT61a: package of active travel measures on Victoria Street.	5,912

These figures are calculated based on the total additional kilometres travelled by cyclists and pedestrians on each scheme, multiplied by the proportion of users who might otherwise use a car or taxi. The figures on proportion of users who would otherwise use a car or taxi have been obtained from cycling diversion factors set out in TAG[23].

This reduction creates benefits due to reduced traffic congestion, infrastructure benefits relating to reduced wear and tear on roads, fewer collisions, better air quality, less noise pollution, as well as indirect tax impacts. These benefits have been quantified according to TAG External Costs[24], which describe the marginal costs of each of these impacts in pence per vehicle kilometre. These costs have then been multiplied by the estimated reduction in vehicle kilometres for each option described above.

Table 4.6 shows the present value of these benefits over the 20-year appraisal period.

Table 4.6: Present Value of Journey Quality Benefits (2010 values and prices)

Option	Metric					
	Congestion Benefit	Accident	Local Air Quality	Noise	Greenhouse Gas	Indirect Taxation
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	£750	£120	£10	£10	£50	£0
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	£107,990	£17,400	£740	£1,160	£7,080	-£40
AT51: with-flow segregated cycleway on Old Meldrum Road	£10,070	£1,620	£70	£110	£660	£0
AT52: two-way segregated cycleway on Old Meldrum Road	£10,070	£1,620	£70	£110	£660	£0
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	£5,380	£1,290	£70	£70	£2,000	£100
AT61a: package of active travel measures on Victoria Street.	£14,290	£2,300	£100	£150	£940	-£10

4.4 Cost Benefit Summary

Table 4.7 provides a summary of the Present Value of Benefits (PVB), the Present Value of Costs (PVC), and the Benefit-Cost Ratio (BCR) for each option in 2010 values and prices. The PVB below is equal to the sum of the benefits included in **Table 4.3**, **Table 4.4,** and **Table 4.6**.

Table 4.7: Present Value of Benefits (PVB), Costs (PVC), and BCR (rounded, 2010 values and prices)

Option	Metric		
	PVB	PVC	BCR
AT33: improved active travel links between Dyce Rail Station and A947 and eastern section of Dyce, particularly along Station Road	£104,690	£41,710	2.51
AT48a: active travel improvements to support highest practicable level of service on A947 between Bucksburn Roundabout and Riverview Drive Roundabout North	£1,873,160	£2,451,490	0.76
AT51: with-flow segregated cycleway on Old Meldrum Road	£432,850	£400,570	1.08

[23] TAG Data Book v1.16, September 2021, Table A5.4.7, DfT, https://www.gov.uk/government/publications/tag-data-book
[24] TAG Data Book v1.16, September 2021, Table A5.4.2, DfT, https://www.gov.uk/government/publications/tag-data-book

Option	Metric		
	PVB	PVC	BCR
AT52: two-way segregated cycleway on Old Meldrum Road	£432,850	£322,740	1.34
AT58: shared use path on Dyce Drive between A947 and Kirkhill Industrial Estate north of Aberdeen International Airport	£619,270	£1,738,800	0.36
AT61a: package of active travel measures on Victoria Street.	£326,060	£320,190	1.02

Based on value of money categories described in the AMAT guidance[25], options AT48a and AT58 have a 'Poor' BCR (between 0 and 1), options AT51, AT52 and AT61a have a 'Low' BCR (between 1 and 1.5) and option AT33 has a 'High' BCR (between 2 and 4). However, it should be noted that Section 5 of AMAT Guidance states "Scheme length – in some circumstances issues arise in the calculation of benefits where shorter walking and cycling routes are introduced. For example, where a scheme proposes a new shorter link, the scheme may encourage new walking and cycling trips due to an improved route option. However, these benefits may be partially offset if they reduce the time people spend cycling or walking by providing a more direct route choice". This may be reflected in the BCRs for options AT33, AT51 and AT52, given the shorter lengths of these routes. In addition, option AT33 is in close proximity to Dyce Rail Station and would be expected to result in greater benefits beyond those captured by AMAT.

4.5 Additional Benefits and Limitations

It should be noted that there are a number of potential additional benefits that are not captured in the AMAT process:

- Research suggests that cycling benefits the local economy through bicycle manufacturing, cycle and accessory sales and cycling related employment. A study carried out by the London School of Economics[26] in 2010 concluded that each cyclist contributes a Gross Cycling Product (GCP) of £230 per year to the UK economy, accounting for a total of £2.9bn in 2010. This research is supported by a European-wide study[27] which found that cycling delivers wider economic benefits in terms of supporting jobs and driving tourism, with cycling having greater employment intensity than any other transport sub-sector. It is noted that additional benefits as a result of GCP have not been quantified as part of this study.
- There are a number of potential impacts of cycling and walking interventions which cannot currently be quantified in AMAT but nevertheless might constitute a material benefit of interventions such as improvements to landscape, townscape and heritage.
- Cyclist and pedestrian specific accident changes resulting from the intervention – AMAT only calculates safety impacts related to changes in car kilometres not from other factors such as the increase in cycling or adjustments based on infrastructure types such as segregation.
- Journey time impacts relating to changes in road space for other road users for example, cars and buses.
- Morbidity-related health impacts and health impacts for children.
- Impacts relating to improved natural surveillance and lighting.

[25] AMAT User Guide, Section 3.37, DfT, May 2022, *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1102781/active-model-appraisal-toolkit-user-guidance.pdf*
[26] Gross Cycling Product Report, London School of Economics, 2010, *http://eprints.lse.ac.uk/38063/1/BritishCyclingEconomy.pdf*
[27] European Cycling Federation, CYCLING WORKS: Jobs and Job Creation in the Cycling Economy, 2014 *https://ecf.com/system/files/141125-Cycling-Works-Jobs-and-Job-Creation-in-the-Cycling-Economy.pdf*

5. Conclusion

This Note has provided an overview of the findings from the Active Mode Appraisal Toolkit (AMAT) Assessment undertaken to understand the potential costs and benefits arising from options for improving active travel infrastructure between the AWPR and the A96 (at the Bucksburn Roundabout), as part of the A947 Multi-Modal Corridor Study.

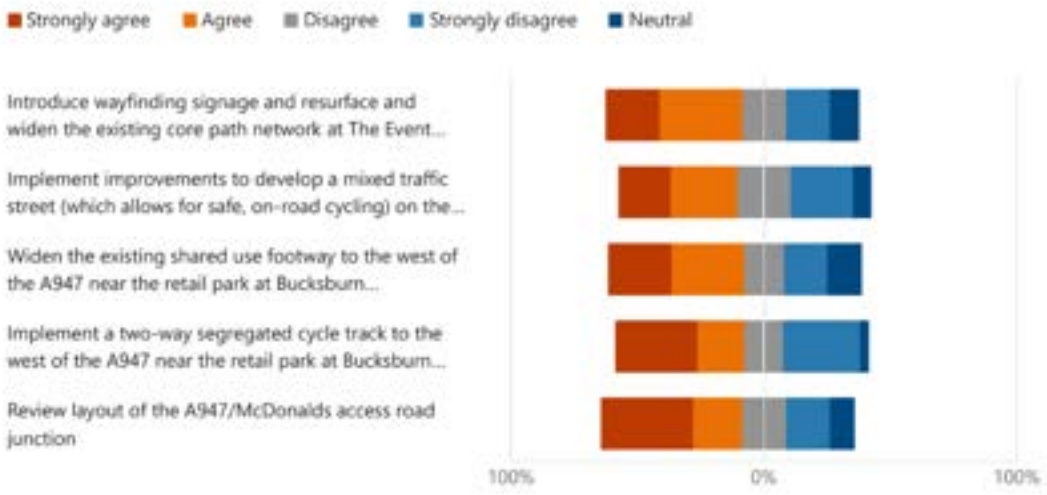
The assessment indicates that Options AT48a and AT58 would deliver poor value for money, Options AT51, AT52 and AT61a would deliver low value for money, and Option AT33 would be expected to deliver high value for money. As has been emphasised throughout this Note, this has been derived on travel to work/study and therefore does not include other potential benefits derived from leisure and recreational use. The shorter lengths of routes associated with Options AT33, AT51 and AT52 may reduce the time people spend cycling or walking by providing more direct route choice and may partially offset the benefits associated with new walking and cycling trips generated by these options. In addition, Option AT33 is in close proximity to Dyce Rail Station and would be expected to result in greater benefits beyond those captured by AMAT. It should also be noted that the options presented within this appraisal are not mutually exclusive and the cumulative effects would be greater.

Appendix I –
Consultation Results Outputs

Delivering a better world

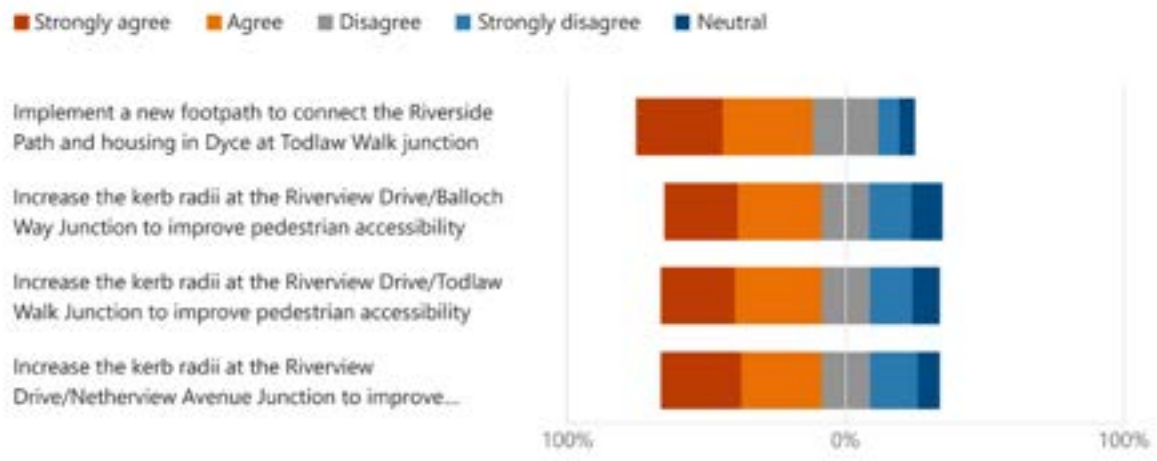
A947 Multi-Modal Corridor Study – Member of Public Respondent

1. To what extent do you agree that the options in the A947 (West) Package would improve travel conditions in the study area?



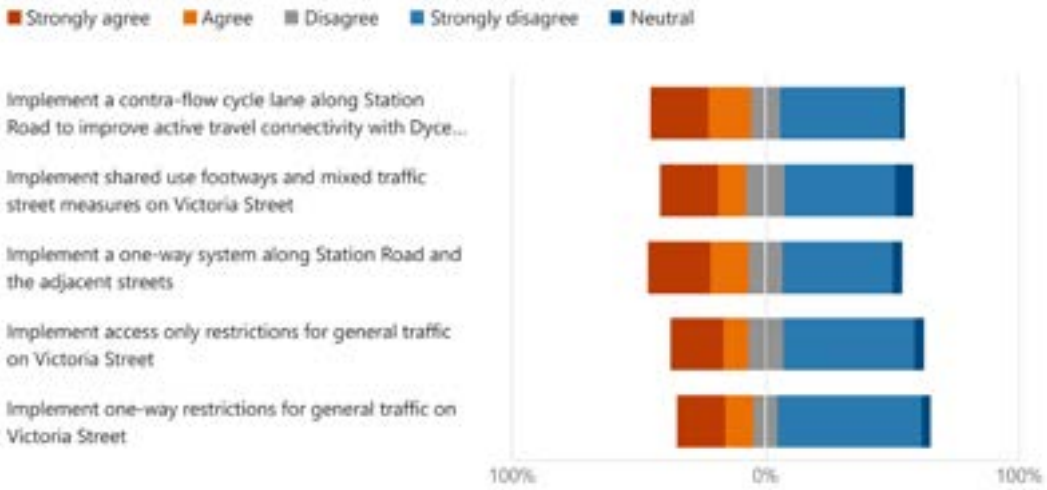
2. Do you have any comments on the individual options that make up the A947 (West) Package or on the package as a whole? 17 Responses

3. To what extent do you agree that the options in the Riverview Drive Package would improve travel conditions in the study area?



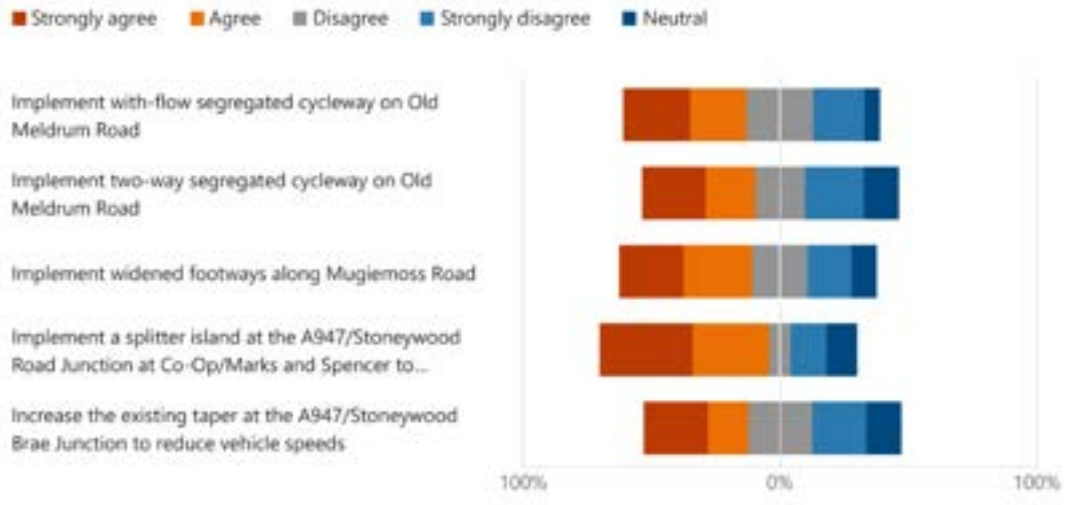
4. Do you have any comments on the individual options that make up the Riverview Drive Package or on the package as a whole? 12 Responses

5. To what extent do you agree that the options in the Victoria Street Package would improve travel conditions in the study area?



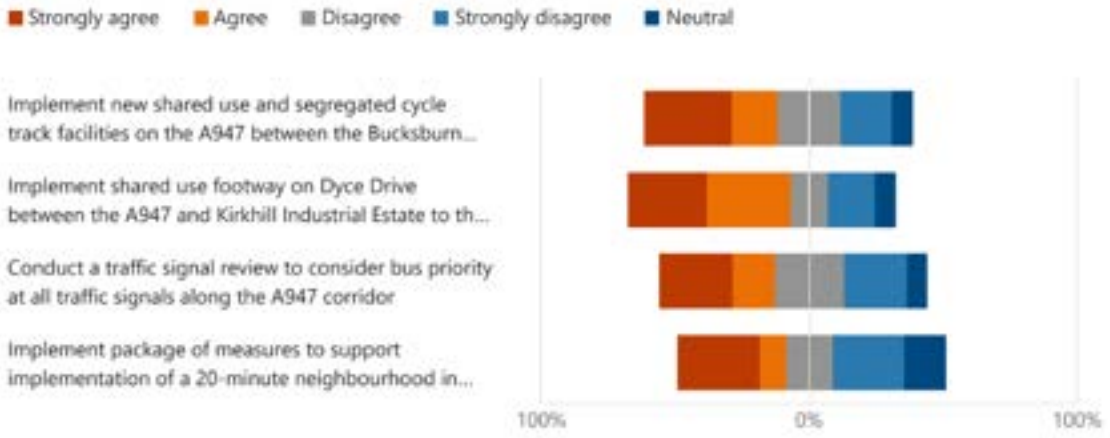
6. Do you have any comments on the individual options that make up the Victoria Street Package or on the package as a whole? 20
Responses

7. To what extent do you agree that the options in the Targeted Local Improvements Package would improve travel conditions in the study area?



8. Do you have any comments on the individual options that make up the Targeted Local Improvements Package or on the package as a whole? 7
Responses

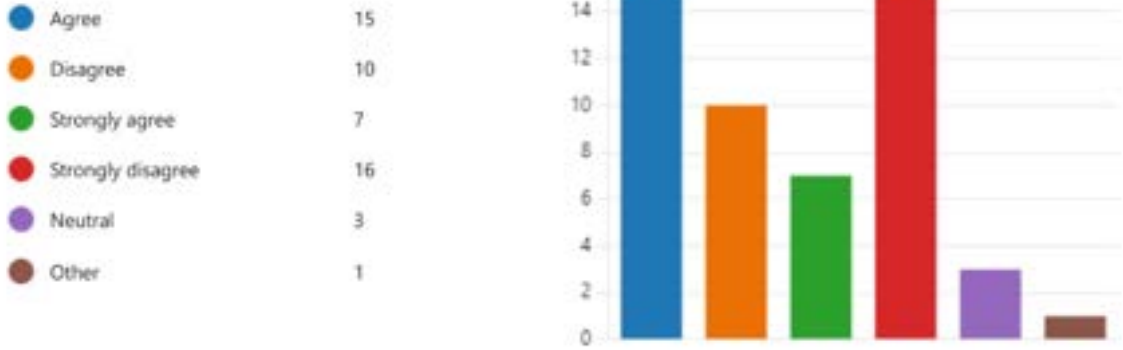
9. To what extent do you agree that the options in the Strategic Corridor Improvements Package would improve travel conditions in the study area?



10. Do you have any comments on the individual options that make up the Strategic Corridor Improvements Package or on the package as a whole?

11
Responses

11. The option packages represent combinations of options in different parts of the study area and various types of intervention. They are not mutually exclusive and the final list of measures for further development and design may include measures from across the different packages. To what extent do you agree with the overall transport strategy for the A947 corridor presented in the consultation materials?



12. Do you have any comments on the overall transport strategy we have for the A947 corridor?

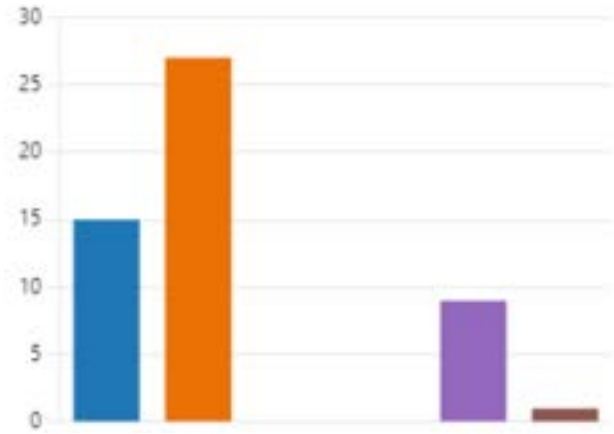
20
Responses

13. Please enter the first four digits of your postcode. This will only be used for mapping analysis.

49
Responses

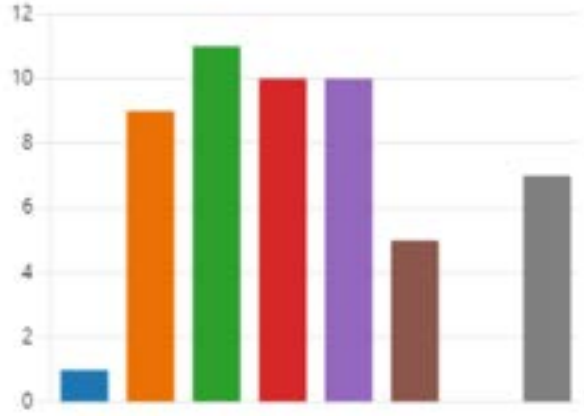
14. How would you describe your gender?

Woman (including trans woman)	15
Man (including trans man)	27
Non-binary / gender fluid	0
In another way	0
Prefer not to say	9
Other	1



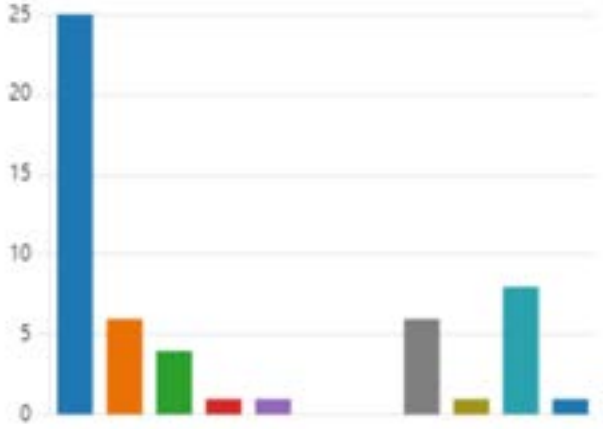
15. What is your age?

16-24	1
25-34	9
35-44	11
45-54	10
55-64	10
65-74	5
75+	0
Prefer not to say	7



16. What is your employment status?

Employed - full time	25
Employed - part time	6
Self employed	4
Unemployed	1
Student	1
Looking after family/home	0
Long term sick	0
Retired	6
Other	1
Prefer not to say	8
Other	1



17. Do you have a health condition or illness which affects your personal mobility?

Yes, a lot	3
Yes, a little	8
No	35
Prefer not to say	6
Other	1



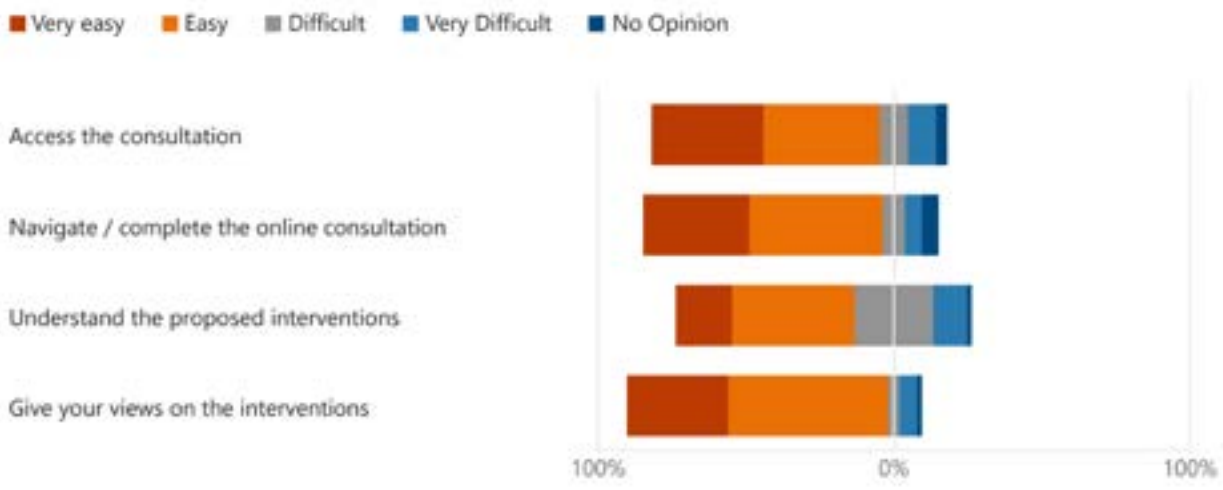
18. Does your condition or illness affect your ability to use public transport

Yes, a lot	2
Yes, a little	5
No	40
Prefer not to say	4
Other	1



19. How did you hear about the survey? 41 Responses

20. How easy was it for you to:



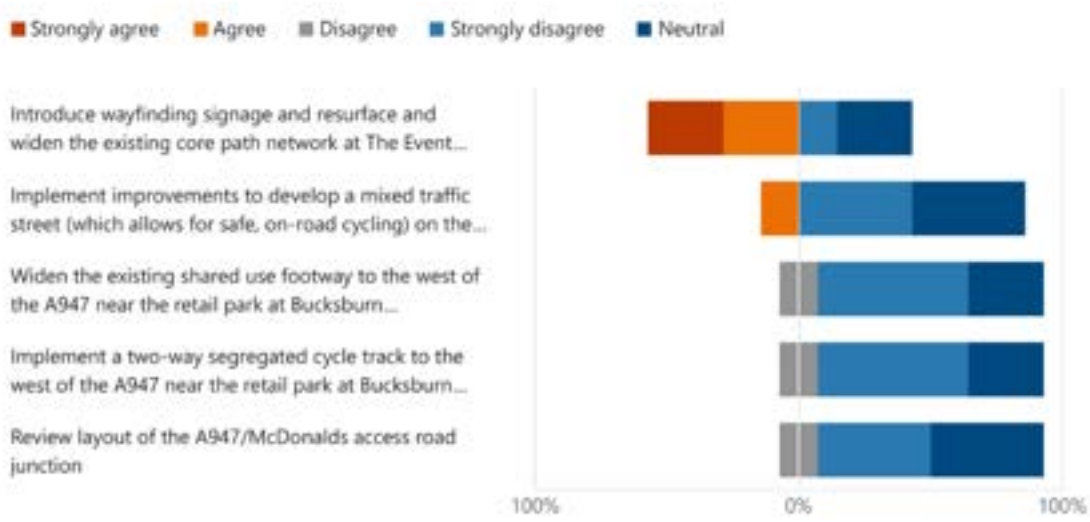
21. Do you have suggestions for how similar online consultations could be improved?

14
Responses

A947 Multi-Modal Corridor Study – Organisation Respondent

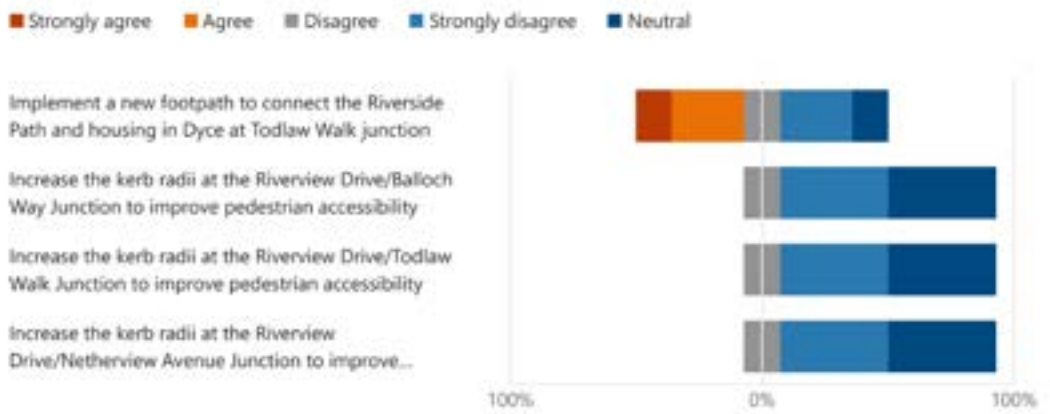
1. Organisation Name: 7 Responses

2. To what extent does your organisation agree that the options in the A947 (West) Package would improve travel conditions in the study area?



3. Does your organisation have any comments on the individual options that make up the A947 (West) Package or on the package as a whole? 4 Responses

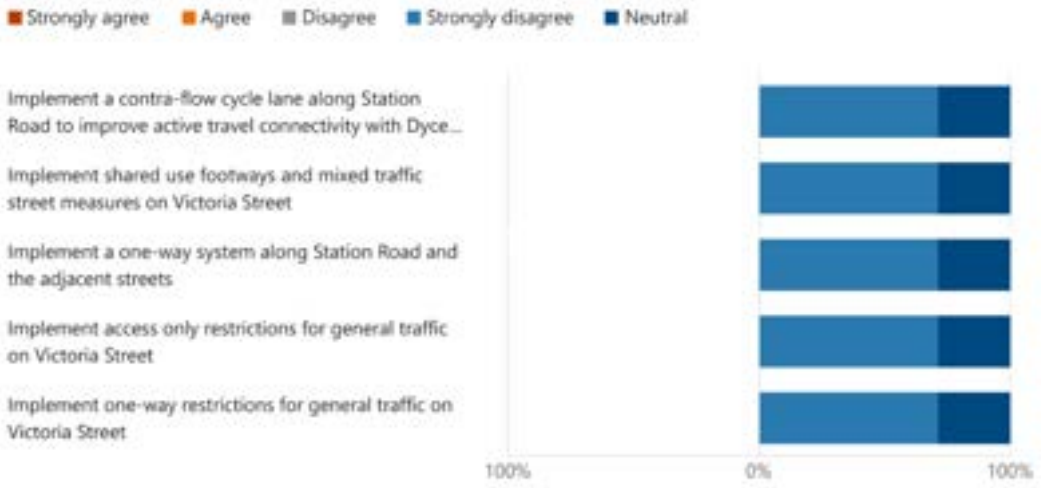
4. To what extent does your organisation agree that the options in the Riverview Drive Package would improve travel conditions in the study area?



5. Does your organisation have any comments on the individual options that make up the Riverview Drive Package or on the package as a whole? 5

Responses

6. To what extent does your organisation agree that the options in the Victoria Street Package would improve travel conditions in the study area?



7. Does your organisation have any comments on the individual options that make up the Victoria Street Package or on the package as a whole? 6

Responses

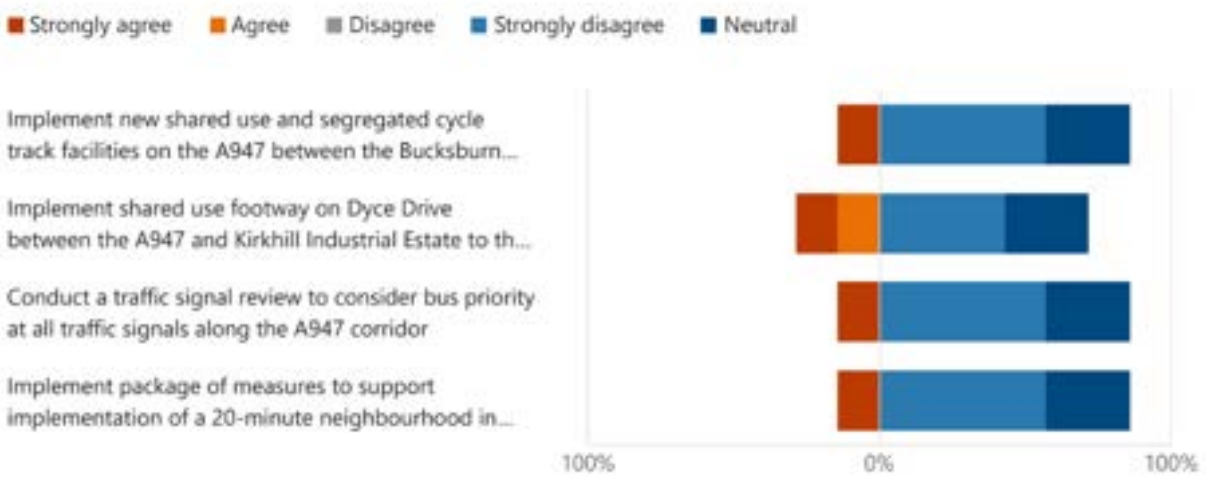
8. To what extent does your organisation agree that the options in the Targeted Local Improvements Package would improve travel conditions in the study area?



9. Does your organisation have any comments on the individual options that make up the Targeted Local Improvements Package or on the package as a whole? 2

Responses

10. To what extent does your organisation agree that the options in the Strategic Corridor Improvements Package would improve travel conditions in the study area?



11. Does your organisation have any comments on the individual options that make up the Strategic Corridor Improvements Package or on the package as a whole? 3

Responses

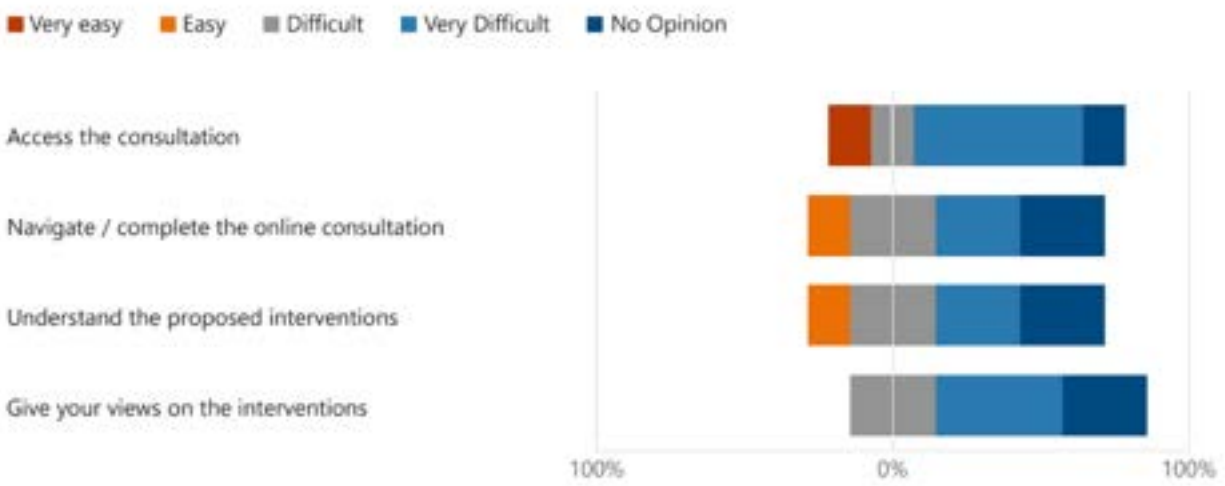
12. The option packages represent combinations of options in different parts of the study area and various types of intervention. They are not mutually exclusive and the final list of measures for further development and design may include measures from across the different packages. To what extent does your organisation agree with the overall transport strategy for the A947 corridor presented in the consultation materials?



13. Does your organisation have any comments on the overall transport strategy we have for the A947 corridor? 4

Responses

14. How easy was it for your organisation to:



15. Does your organisation have suggestions for how similar online consultations could be improved?

6
Responses

ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero, Environment and Transport Committee
DATE	3rd September 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	Roads Winter Service Plan 2024-2025
REPORT NUMBER	CR&E/24/250
DIRECTOR	Gale Beattie
CHIEF OFFICER	Mark Reilly
REPORT AUTHOR	Neale Burrows, Paul Davies
TERMS OF REFERENCE	8

1. PURPOSE OF REPORT

1.1 This report is intended to present Members with the Roads Winter Service Plan for the coming winter for approval and to highlight any significant changes.

2. RECOMMENDATIONS

That the Committee:-

2.1 Approve the "Roads Winter Service Plan 2024/2025" (Appendix 1);

2.2 Delegate authority to the Chief Officer - Operations, following consultation with the Chief Officer – Finance, to continue to deliver the Winter Maintenance Service; and

2.3 Instruct the Chief Officer – Operations to hold an induction meeting on a date to be arranged, for elected members on the winter service process.

3. CURRENT SITUATION

3.1 Aberdeen City Council's Roads Winter Service Plan has evolved over many years and is reviewed and amended annually to reflect both national and local requirements, changes in resource and guidance. This year's Roads Winter Service Plan is an evolution of the service plan for 2023/24.

3.2 The winter maintenance budget (unchanged since 2019) has only been sufficient to provide a basic level of winter maintenance during a mild to average winter. This is around the level which the service believes to be only slightly above the minimum level required to fulfil statutory obligation. More severe winters, such as winter 2020/21, have seen significant extra spend from contingency budget. During winter 2023/24, additional budget provision of £272,000 came from the contingency budget. With inflationary effects on material costs and uplifts in labour rates and fuel costs, the service again

forecast that current budgets are only sufficient to deliver a service in line with minimum statutory obligation over a mild to average winter.

3.3 The effects of climate change continue to present challenges to the winter service. During recent winters, significant geographical variations in simultaneous weather behaviours have been observed. Officers have had to deal with instances of heavy rainfall causing flooding concerns to the east of the city whilst simultaneously snowfall persists in the west. These competing demands present complex logistical challenges to service delivery.

3.3.1 A pattern of weather behaviour where temperatures rise during the day, often accompanied by precipitation, before falling rapidly through late afternoon and evening times continues to pose a challenge to treatment. Historically, an early morning grit was often sufficient to treat routes for a 24 hour period, however the recent weather patterns have seen regular requirements for routes to be treated multiple times through the day as wash off and freeze thaw removes residual salt. A lesser requirement for morning grits, and greater for later grits has been observed. The effect of this has been the requirement for greater numbers of gritter runs to treat the primary route network, increasing labour, salt and fuel costs.

3.3.2 A secondary impact of the changed weather patterns effect on gritting has been to lessen the extent of secondary and tertiary network which can be treated on days of continued action. Precipitation throughout the day effectively acts as a reset on gritting, requiring the service to revert back to treatment of priority one routes.

3.4 Route Changes

For winter 2024/25 the roads service will run lightly tweaked versions of the routes run in winter 2023/24. No roads will be removed from any of the routes, however alterations will be made in line with changes made to the adopted roads network; for instance where road layouts have changed as a result of development works. Other minor changes will reflect feedback from drivers. These include changes to make the routes easier to drive in the gritting vehicles.

3.5 Salt Usage and Stocks

Salt stock levels will be taken back up to around 11,500 tonnes (full capacity). This stock will be topped up with regular programmed deliveries throughout winter. Salt usage in previous years is shown below.

Year	Salt Usage (tonnes)
2019/20	4,500
2020/21	11,760
2021/22	4,820
2022/23	18,642
2023/24	14,697

3.5.1 During the winter 2023/24 season, and as with the winter previous, there were a significant number of winter treatment days where daytime rainfall washed off salt spread during early morning grits. With temperatures dropping through late afternoon and into the evenings, there was a requirement to re-treat routes covered earlier in the day. This repeated running of routes coupled with a high number of winter treatment days led to a fairly high level of salt use. During dry conditions a route may only require to be gritted once per day, and sometimes one treatment may last multiple days where there is no wash off.

3.6 Salt Bins

3.6.1 There are more than 900 salt bins throughout the city. Every year there are demands for further bins at new locations. Maintaining the salt bins is a labour-intensive operation and to continually increase the numbers would only add to the current restocking problems. The policy of not issuing new bins will be maintained.

3.6.2 During extended periods of winter weather, salt bins may become depleted and there may be significant delay to them being refilled. The reason for these delays is that the staff who drive gritting vehicles and complete gritting activities are the same as carry out grit bin replenishment. The treatment of priority routes is prioritised over salt bin replenishment.

3.6.3 Twenty large capacity grit bins, introduced in late 2018, from which the public can collect salt remain in place. These “community bins” have continued to see low utilisation and it is the intention to further promote them in a bid to encourage residents to collect salt for their location. Residents can fill buckets, or similar suitable receptacles, which they can store at their property for use on the adopted footways and carriageways around their properties when the need arises. With these bins being easier and more efficient to fill, there is a service benefit to their use. It is hoped that residents can be encouraged to make use of this resource.

3.6.4 It may be useful to note that the roads adoption process does not include salt bins and the roads service do not adopt salt bins left by developers when adopting new roads.

3.7 Community Salt Bags

3.7.1 There were 507 applications for bags before winter 2023/24 with 296 bags being delivered. The main reasons for applications being rejected was a lack of suitable location for the bag and proximity to another applicant. No alterations to the scheme are being proposed for the 2023/24 winter season. A further 51 salt bags were delivered to Aberdeen schools.

3.7.2 The guidelines for the scheme are found within the winter service plan and will be published on the Council webpage.

- Salt is issued to community groups.

- The bags are to be in a secure place, such as a resident's driveway as they are susceptible to theft and vandalism.
- The locations need to be accessible to a large delivery lorry.
- Salt will not be left on or near private grassed or garden areas until the owner/tenant accepts responsibility for the possible long-term damage that could occur from salt contamination of the ground.

3.7.3 Applications will open on the 23rd of September and the cut-off date for applications will be Sunday the 27th of October 2024, after which applications will not be processed due to the additional demand this places on the service at this busy time of year. The media team will make the public aware of this well in advance. Whilst the scheme will run until the end of October, we would encourage applications as soon as possible as this helps to ensure the scheme runs as efficiently as possible.

3.7.4 During winter 2023/24 a trial was carried out in partnership with the NHS Public Health department. This NHS led trial saw 3 community councils supplied with grit bags and hand propelled gritting apparatus for the treatment of footways. ACC provided forecasting information to the community councils which could inform whether they chose to grit. ACC offered this information on an advisory only basis and did not have any direct control of the volunteer gritting crews. At the time of writing it is understood that the NHS are carrying out analysis of fall data in the trial areas in order to determine whether there have been any discernible benefits of the trial. If there have been, it is anticipated that this scheme may be run again, and potentially expanded, however this is an NHS decision and does not fall within the remit of the Roads service.

3.8 Service Provision – Gritter Drivers

Due to the changing weather patterns, the delivery model for drivers will remain under review and may be subject to change if weather patterns persist, however any changes will not impact the proposed delivery of the winter plan.

3.9 Service Provision – Festive Period

Service provision over the festive period will remain at the same level as in previous years. The specific details are shown below.

Day	**Status**	**Service Available**
Sun 22nd Dec	Normal Day	Normal Service
Mon 23rd Dec	Normal Day	Normal Service
Tues 24th Dec	Normal Day	Normal Service
Wed 25th Dec	Public Holiday	Standby & Response only
Thurs 26th Dec	Public Holiday	Standby & Response only
Fri 27th Dec	Normal Day	Standby & Response only
Sat 28th Dec	Normal Day	Standby & Response only
Sun 29th Dec	Normal Day	Standby & Response only
Mon 30th Dec	Normal Day	Standby & Response only
Tues 31st Dec	Public Holiday	Standby & Response only
Wed 1st Jan	Public Holiday	Standby & Response only

Thurs 2nd Jan	Public Holiday	Standby & Response only
Fri 3rd Jan	Normal Day	Normal Service
Sat 4th Jan	Normal Day	Normal Service
Sun 5th Jan	Normal Day	Normal Service

The Response team consists of up to 6 roadworkers providing 24 hours of cover per day, 7 days per week. This team is available to respond to the required treatment on the 4 Priority 1 Gold Routes.

3.10 Cycle Routes

Cycle route provision remains the same as winter 2023/24.

3.11 Footway treatments have been slightly tweaked for winter 2024/25. The city centre priority 1 footways remain unchanged and all other footways will continue to be treated as priority 2. Historically there has been a list of footways treated first when service commences on priority 2 footways. For winter 2024/25 this list of footways has been expanded to include key footways within communities. These footways see higher footfall, are in locations known to have higher levels of vulnerable users, or are known locations which are particularly treacherous in winter conditions. Maps of these footways can be found with the other winter routing information in appendix C of the winter service plan. These footways will be prioritised, as much as reasonably possible, when treatment of priority 2 footways commence.

3.11.1 The city centre priority 1 footways as set out in the Roads Winter Services Plan are the only routes to be covered as part of the early morning operations. The priority 1 routes are concentrated on the city centre, shopping areas and footways with a steep gradient. Treatment should begin on these footways early in the morning so that they may be completed prior to the footways becoming busy with pedestrians. Treatment is not safe or practical once footways become busy.

3.11.2 Footway and cycleway treatment operations are completed in conjunction with the Grounds Service who support the Roads Service during winter operations and without whom we would be unable to provide the current levels of service.

3.11.3 Once the priority 1 footways are treated, further treatment is extended into the priority 2 footways and cycleways. The treatment that lower priority footways and cycleways receive is dependent on the resources available and so there is no timescale placed on when these will be completed. Where conditions mandate the re-treatment of priority 1 routes, this will limit the number of priority 2 footways which can be treated.

3.12 Public Information

3.12.1 An information section for Winter Operations is included on the Council's web site and this provides information on gritter routes and the winter service plan. The webpage will continue to be developed further as necessary. Information on winter conditions and treatments is shared on ACC's social media pages.

3.12.2 In recent years the Roads Service has worked closely with the ACC media team to put more winter information into the public domain. This has helped reduce enquiries and complaints from the public and is something that the service will continue to grow for the coming winter. The media team will continue to issue a daily winter service update (Mon-Fri) to elected members to keep them abreast of operations.

3.13 Resilience

Whilst no resilience issues are foreseen, to ensure salt supply risk is minimised, salt levels will be kept high with top ups throughout the winter as necessary to ensure good stock.

4. FINANCIAL IMPLICATIONS

4.1 Inflationary effects on resource costs will continue to reduce the effective spending power of the winter budget.

4.2 It should be noted that the expenditure for the previous three winters has been £1.84M in 2023/24,£1.971M in 2022/23, £1.37M in 2021/22 and £2.1M in 2020/21. The outturn expenditure is heavily dependent on conditions experienced during the winter. It would therefore be prudent to note that authorisation may be required for continued expenditure beyond the budget should the weather be worse than anticipated.

5. LEGAL IMPLICATIONS

5.1 Failure to provide a robust and justifiable “Roads Winter Service Plan” would leave the Council vulnerable to legal challenges and 3rd party insurance claims.

5.2 The Council is obligated under Section 34 of the Roads (Scotland) Act 1984 to take such steps as it considers reasonable to prevent snow and ice endangering the safe passage of pedestrians and vehicles over a public road.

6. ENVIRONMENTAL IMPLICATIONS

6.1 Gritting operations are carried out using salt as the primary de-icing treatment. It is inevitable that as part of these operations, salt will be washed into water courses. The service have considered the environmental implications of the use of salt and have concluded that the environmental risk posed is low, and that at present no practical alternative exists.

6.2 Further environmental consequence comes from the burning of diesel in the fleet of gritting vehicles. Alternative fuels with a lower carbon footprint are being investigated for the replacement of the existing fleet once the reach the end of their working lives, although no plant is due for replacement before the commencement of winter 2024/25.

7. RISK

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic Risk	Failure to complete adequate winter maintenance operations could compromise travel and transport across the strategic Aberdeen road network.	The service plan has been designed to ensure that primary roads will remain treated at all times.	L	**Yes**
Compliance	The legal requirement and basis for a Roads Winter Service Plan has been in place for many years. What is considered an adequate Winter Service Plan changes in line with national guidance. There is a risk that not following national guidance may open the council up to litigation.	The winter service plan has been produced following the national guidance such as advice in the "Well managed Highway Infrastructure" Code of Practice. Staff also attend national seminars and discuss requirements with neighbouring authorities to rationalise treatments across the region.	L	**Yes**
Financial	Allocated Budget will only cover costs of a mild winter, overspend at times of prolonged or worse than average winter weather will require the allocation of additional budget	Make provision within the overall budgets for the possibility of additional expenditure being required if the winter is more than averagely severe.	H	**Yes**

Reputational	Winter maintenance activities are highly visible and residents may form negative views of operations if they believe winter maintenance to be inadequate.	The winter service plan outlines how winter maintenance will be completed and provides an explanation of this to residents. Social media posts will be used to keep customers updated with the actions being taken.	L	**Yes**
Environment / Climate	The risk to plants, trees, watercourses, bridges and other structures from overtreating the networks.	There is a potential risk of overtreating the network with salt this is mitigated by training the duty officers on the required level of treatment.	L	**Yes**

8. OUTCOMES

COUNCIL DELIVERY PLAN	
	Impact of Report
Aberdeen City Council Policy Statement *Delivering a Revised Local Transport Strategy*	Continue to work to facilitate safe transport for customers during winter weather events.
Aberdeen City Local Outcome Improvement Plan	
Prosperous Economy Stretch Outcomes	The provision of an effective winter maintenance service that keeps the transport network working effectively is important to support the economy of Aberdeen during adverse winter conditions
Prosperous People Stretch Outcomes	The Council is committed to providing a winter maintenance service that will help to enhance Aberdeen as a place to invest, live and visit. An effective winter maintenance service will also make the city safer for all road and transport users.

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	New Integrated Impact Assessment has been completed
Data Protection Impact Assessment	Not Required

10. BACKGROUND PAPERS

10.1 Code of Practice for Roads – *Well Managed Highway Infrastructure*

10.2 Roads (Scotland) Act 1984

11. APPENDICES

11.1 Roads Winter Service Plan 2024-2025

12. REPORT AUTHOR CONTACT DETAILS

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ABERDEEN CITY COUNCIL
Roads Winter Service Plan
2024 – 2025



Specification
&
Operational Plan

OPERATIONS & PROTECTIVE SERVICES

ROAD SERVICES

WINTER SERVICE PLAN

2024-2025

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ABERDEEN CITY COUNCIL

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2024 – 2025

PART 1 SPECIFICATION

WINTER SERVICE PLAN

PART 1 SPECIFICATION DOCUMENT

1. Policy

1.1 The City Council's policy is stated in the report submitted to the Roads Sub-Committee of the Policy and Resources Committee on 19th September 1996 and Policy & Strategy Committee of 5th June 2008.

1.2 The Council's policy objectives in relation to winter service is defined as the reduction, as far as practicable, of the effects of adverse weather conditions on the movement of people and vehicles to facilitate safe travel on the higher priority roads in the City.

2. Priorities and Standards

2.1 General

The Committee agreed that the priorities for treatment and standards of treatment be determined in accordance with the relative importance of any particular road in the Road network, and that the relevant Corporate Director be requested to endeavour to curtail the level of expenditure within the sum provided in the annual budget, bearing in mind the conditions which pertain and the policies set down in the report.

2.1.1 Priority 1 routes will be principal roads or other classified roads serving as the main routes of major traffic distributors. Priority 1 routes should also carry heavy traffic flows or serve as major public service bus routes or give access to public service or emergency facilities providing an essential public service. In special circumstances a road which does not meet the above definition may be considered a priority 1 route if it is regularly used and presents special hazards because it is habitually liable to drifting snow or freezing because of altitude or exposure etc. A road need not be considered a priority route at all times.

2.1.2 Priority 1 routes shall be separated into two levels those of strategic importance (Strategic Roads and Main Distributor Roads and access roads to emergency services facilities in addition to the detrunked sections of the A92 and A96) and Priority 1 Silver, those of less than strategic importance (Historic Priority 1 routes less Priority 1 Gold routes and Link Roads and Local Access Roads that do not have any special circumstance such as steep slopes, etc. These routes are identified in Appendix C.

2.1.3 The standard to be aimed at on Priority 1 routes is that:

For the Priority 1 Gold routes for 24 hours 7 days a week during the winter.
For the Priority 1 Silver routes between the hours of 04.45 and 21.00 7 days a week.

These routes should never become impassable to traffic, during the times indicated, unless there are abnormal conditions. Snow and ice clearance should be started as soon as practical when the need for it becomes apparent. Equipment and resources should be provided and should be capable of being deployed sufficiently quickly to be able to

salt for ice or clear a moderate snowfall of up to 50 millimetres depth (2 inches) within two and a half hours of the physical start of operations.

2.1.4 There should be, for these routes an availability of crews and equipment with the Response crews and standby arrangements being such that the response time for an instruction from a responsible officer of the authority to commence winter service operations to the start of snow or ice clearing on site should not be greater than one hour, during the times indicated in clause 2.1.3.

2.1.5 Consideration will be given to the pre-salting of priority 1 routes on receipt of an adverse weather forecast to prevent the formation of ice, or to make the clearing of snow or ice from the surface of the road less difficult.

2.1.6 A list of priority 1 Gold and Silver routes should be drawn up. The routes will be collated into convenient lengths to be dealt with by one or more salt stores and the need to keep mileage, which is run empty for reloading to an absolute minimum.

2.1.7 The priority 1 Gold and Silver routes should be reviewed annually in the late summer/autumn months to take account of changes in the road layout e.g. change from single to dual carriageway or in the light of new development and particularly the opening of new community facilities e.g. hospitals or similar, or in the light of changes in the road network and amendments to the routing of Public Transport.

2.1.8 Priority 2 routes will be principal and other classified roads not included in the priority 1 routes but which serve as main roads or as traffic distributors and which carry medium traffic flows or give access to community or public facilities of a non-essential nature. These routes will contain the (Category 3b Secondary Distributor routes 4a Link Roads).

2.1.9 In order to provide an efficient and effective use of labour and plant several of the Priority 2 Routes may be included in the Priority 1 Gold and Silver routes, the remaining Priority 2 routes will only be treated once the combined Priority 1 & 2 routes have been opened to traffic. The remaining Priority 2 roads will be dealt with on an “Area Response” basis with the allocation of resources to the defined areas being subject to the prevailing weather conditions. Treatment of an Area is not subject to a time for completion due to their size and complexity. Additional resources from external Contractors may be employed to assist in the operation.

2.1.10 Priority 3 locations (Category 4b Link Roads) such as access roads, service roads, cul de sacs and minor roads where it could be expected that residents and employees etc could make their way with some difficulty in all but abnormal conditions to the nearest higher priority route.

2.1.11 The standard for Priority 3 locations would be that they would not normally be treated unless conditions were severe enough to prevent the passage of emergency vehicles, where it was considered in the light of prevailing weather forecasts that the conditions might be expected to persist for some time or that there was an exceptional depth of snow packed snow or ice. In the case of a medical emergency or an event such as a funeral the location in question would be treated. Priority 3 locations due to width of access, or they are dead ends will not always be accessible with normal winter

maintenance plant and would not be treated until all routes of a higher priority had been opened to traffic.

2.1.12 Non-Aberdeen City Council maintained roads and roads or lanes providing a secondary means of access for service vehicles together with roads on which there are no direct accesses to any habitations would not be treated except in the case of a medical emergency.

2.1.13 In extreme weather conditions only, Priority 1 routes will be treated. Should salt stock levels diminish, salt treatment of Areas will be stopped, then Priority 2 routes, until only priority 1 routes are being treated.

2.2 Priorities and Standards – Footways & Cycle Ways

2.2.1 The priority with regard to the treatment of footways is that, precedence will be given to those footways and cycleways in the City for which the Council is responsible and which carry the greatest number of pedestrians. This means the central areas of the City where the shopping and commercial facilities etc are concentrated. Precedence will also be given to footways and gradients, which are so steep, that they would be dangerous when covered with ice or hard packed snow. This may be altered by the duty supervisor or the duty officer depending on the circumstances that are being encountered.

2.2.2 The standard to be aimed at for footways on the Priority 1 list is that, these footways should be kept in a safe condition for pedestrians. In "normal" conditions snow or ice clearance should be started as soon as practicable when the need for such treatment becomes apparent. Equipment and resources should be provided and should be capable of being deployed sufficiently quickly to be able to begin treatment of a moderate snowfall between the hours of 04.45 and 15.45 Monday to Sunday. At weekends the duty supervisor or the duty officer will determine if additional resources can be sourced.

2.2.3 All other footways and cycleways in the city will be treated as priority 2; footways in the vicinity of major public services, medical or community facilities providing an essential public service and where numbers of infirm, elderly, accompanied infants and young children are likely to congregate will be prioritised for treatment as far as reasonably practical. These footways and cycleways will be treated only when the Priority 1 routes have been treated and made safe for pedestrian movement and will be dealt with on an Area Response basis with the allocation of resources to the defined areas being subject to the prevailing weather conditions. Treatment of an Area is not subject to a time for completion due to their size and complexity. Maps of prioritised footways can be found in appendix C.

During forecasts of snow or ice or for periods of snow or ice council employees will be deployed to treat Priority 1 footways and then continue into the Areas. Additional resources from external Contractors may be employed to assist in the operation.

2.2.4 Other equipment and resources should be deployed to deal with particular situations as conditions dictate, particularly where treatment has not been carried out and there is a public need for such treatment at individual locations, e.g. bus stops, pedestrian crossings, traffic islands and the like.

2.2.5 Privately maintained footways will not normally be treated.

2.2.6 Cycle ways in the city will be considered to have the same priority as lower priority footways. These cycle ways will be treated only when the Priority 2 routes have been treated and will be dealt with on an Area Response basis in conjunction with the footways in that area. The allocation of resources to the defined areas will be subject to the prevailing weather conditions. Treatment of an Area is not subject to a time for completion due to their size and complexity. In keeping with Priority 3 carriageways, it would be expected that cyclists could make their way with some difficulty in all but abnormal conditions to the nearest higher priority route. A list of the cycle ways to be treated was approved at the EP & I Committee on 12 November 2013 and is included in Appendix C.

2.3 Self Help

2.3.1 On lower priority routes both on carriageways, lay-bys and footways, grit bins should be provided where they can be sited without inconvenience or danger to residents and road users. Due to the demand on resources to fill grit bins, it has been decided not to increase the number of grit bins. Alternatively, 1 Tonne salt bags will be made available for community use (see 2.3.4). The location of the grit bins can be viewed on the council's web site at: https://www.aberdeencity.gov.uk/services/people-and-communities/get-ready-winter/find-grit-bin

2.3.2 Grit bins are maintained and kept filled by the Council so that the salt, salt/sand mixtures are readily available to Council employees, local residents or any other road user should they choose to use the facility. The locations and condition of all grit bins should be reviewed annually in late summer/autumn. It should be noted that whilst making use of grit bins, care should be taken as it is common for them to be used by some members of the public for the disposal of rubbish, such as glass, sharp metal and, in some instances, syringes which could result in injury to the user should they inadvertently come into contact with this material. Hazard warnings should be positioned on the lid of the grit bin.

2.3.3 It is recommended that all grit bins be highlighted for public use with a telephone number to call allowing members of the public to inform on the location of the empty grit bin.

2.3.4 1 Tonne bags of salt will be issued on application to individual residents on behalf of their community for self help winter treatment. These bags will be issued and replenished on condition that they are situated in a secure location which is accessible to the Council delivery lorry. A communal area such as a car park would not be acceptable as the bags will be susceptible to theft and vandalism.

To receive a bag, the following criteria must be met:*

- A named individual must take responsibility for the salt bag
- Contact details of that named individual (phone no. or email address) must be supplied
- A location within the boundaries of the individuals private property must be provided for the bag to be placed (we regret that we are unable to deliver bags to locations that are on Council owned or adopted assets. **)
- The location requires 1.5m^2 space for bag to be dropped
- 3m width access for our delivery lorry, with room to turn (we are unable to deliver bags to locations where HGV access is not possible. All applications will be checked for access prior to approval being given)
- The location should be within 5m of public road or carriageway, where possible
- The bag must be accessible to members of the community, i.e. not behind locked gates, or out of sight. The scheme is for community benefit and not just for the

benefit of the applicant and applicants who attempt to prevent access to bag may have their bag removed without notice.

- Applicants must sign our disclaimer removing Aberdeen City Council's liability for damage caused to vegetation by the salt bags. Salt can kill vegetation and we cannot accept any responsibility for such loss as a result of participation in the scheme. We ask applicants to consider this when selecting a location for their bag.
- Bags must be a reasonable distance apart – i.e. we will not deliver bags to closely proximate locations. We will also reject applications where the location already has a permanent grit bin in close proximity.
- Applications after the closing date will not be considered and will be automatically rejected.

* Please note that that having been approved for a bag in years does not guarantee an application will be successful this year. Council officers have the final say on whether an application is successful and may consider any relevant factor when dealing with requests. ACC reserve the right to close the scheme should demand outstrip service delivery capacity.

** Exception may be made where a location is on a recently adopted road where the developer has left a grit bin which has not been adopted but does have space beside it for a bag to be placed. This must not encroach onto the adopted footway in such a way as to restrict the footway width to below 1.5m. Locations at the very end of a footway or carriageway may be considered where the location is not a thoroughfare, and the placement of the bag would not hinder access to property or for services such as refuse collection. A named contact would still be required for the bag.

2.3.5 Large Community Grit Bins have been located throughout the city these are specifically located to allow rapid replenishment from small lorries during storm conditions. The locations are listed in Appendix (D,a)

3. Treatments of Conditions

3.1 Precautionary Salting - Priority 1 routes and locations of particular hazard.

Precautionary treatments should be carried out to as per Appendix (D,b) Column C. This table is based on guidance issued by the Society of Chief Officers of Transportation in Scotland (SCOTS) Winter Service Subgroup.

Column C is appropriate when the Salt Cover is Poor, Traffic Levels are Low/Medium and the Salt Loss due to traffic is Normal.

Precautionary Treatment for Hoar Frost and Ice.

3.1.1 If the road temperature is at or above -2C and the road is damp, salt at a rate of 10g per square metre. If the temperature falls between -2C and -5C and the road is damp, salt at 15/20g per square metre. If the road is damp and the temperature is below -5C, salt at 20g per square metre, monitor conditions and retreat if required.

If the road temperature is at or above -2C and the road is wet, salt at a rate of 15g per square metre. If the temperature falls between -2C and -5C and the road is wet, salt at 15/20g per square metre. If the Road is wet and the temperature is below -5C, salt at 20g per square metre, monitor conditions and retreat if required.

When rain is forecast prior to frost/ice, treatment should be timed to commence at the cessation of rainfall subject to being completed within the council's hours of coverage.

3.2 Precautionary Treatment for Snow.

3.2.2 When continuous snow/freezing rain is forecast precautionary salting rates are to be 20 g/sq. m according to the anticipated severity of the snowfall as per Appendix (D,c)

3.2.3 If snow accumulation starts to exceed 10mm, ploughing should be undertaken. Where possible, 20g per square metre of salt should be applied in advance of a snowfall to allow the formation of a debonding layer and assist subsequent ploughing.

3.2.4 These spread rates are dependent on available salt stocks, during periods of sustained snow salt availability may be restricted due to availability or instructions from out with the council, and periods of salt conservation may be necessary as per section 7.0.

3.3 Treatment for Ice and Compacted Snow Conditions

When ice or compacted snow has already formed the surface should be treated as be the guidance in Appendix (D,d).

3.3.1 When temperatures drop below -5 degrees Celsius grit or salt/grit mixtures may be used. The grit used in these circumstances should be single particle size 6mm – 2mm having low fine content. The particles should be angular suitable for an abrasive. **Grit shall only be used when absolutely necessary** due to additional problems arising, such as sweeping and gully emptying and the subsequent additional costs for waste disposal.

3.4 Updated guidelines on salt spread rates

3.4.1 The Society of Chief Officers of Transportation in Scotland (SCOTS) have produced recommendations on the most appropriate and practical approach to implementing salt spread rates. Following consultation with the National Winter Service Research Group (NWSRG), concerning the implementation of Well Managed Highways, the SCOTS Winter Subgroup have suggested a number of developments and those relevant to salt spread rates.

Minimum spread rates of unmodified salt are suggested in Appendix (D,b) treatment matrix for different operational scenarios out-with resilience situations.

Detailed below is the justification provided by the SCOTS Winter Service Subgroup for advising these variations and this is supported by Aberdeen City Council officers.

- Review conclusions based on significant experience of delivering winter service by Scottish local Authorities.
- Review conclusions based on developed best practice within Scottish local Authorities.
- Recognition that going forward that these variations to Well Managed Highways and the successor document, need to be monitored in relation to the development of equipment, research undertaken and revisions to recommended salt spread rates.
- These variations to salt spread rates need to be kept under review by the SCOTS Roads Group/SCOTS Winter Service Subgroup to continue to inform the most appropriate approach to Winter Service to be taken by Scottish Roads Authorities.
- The treatment matrix developed through the SCOTS Winter Sub group is being adopted by Aberdeen City Council and is detailed in Appendix (D,b) along with associated notes.

4. Winter Service Plant

To be effective, salt must be spread evenly at rates to suit prevailing conditions. The spreading equipment supplied should be to BS 1622:1989. The controls of spreading machines are to be calibrated annually and clearly marked for distinct spread rates up to 40g/sq.m.

5. Salt and Grit

5.1.1 Salt supplied to various locations throughout the City shall be to BS 3247.

5.1.2 Grit for use either neat or in mixtures shall be single sized abrasive or particle size 6mm – 2mm having a low fine content. The particles should be angular in shape suitable for an abrasive.

5.1.3 Chemical de-icing treatment may to be used at selected locations including the city centre and cycleways.

5.1.4 Salt is purchased to restock the storage areas to their maximum stock levels in advance of the season, salt stocks are closely monitored, and restocking orders placed to maintain suitable levels.

5.1.5 Salt at storage areas are currently stored uncovered.

5.1.6 A guide to appropriate maximum and minimum and resilience stock levels are included in Appendix (D,e).

5.1.7 Salt stocks are monitored weekly by Transport Scotland for all 32 Local Authorities, and have an emergency stock for any authority running short during severe winter conditions.

6. Communications

6.1.1 Work has been carried out with the Corporate Communications Team and the Service Design and Development team to provide up to date information on the Council Web Site and social media channels. The information provided will enable members of the public to check on expected road conditions, confirm main gritting routes and check action currently underway. There is also a section to check the weather and road conditions.

7. Resilience

7.1.1 If salt stock levels fall close to the resilience stock levels indicated in Appendix (D,e) the Roads Operations Manager will consider and implement the actions required to maintain traffic flow along the strategic network.

7.1.2 In extreme circumstances including but not limited to national salt shortages, pandemic circumstances, fuel shortages, that may have a major adverse impact on the provision of the winter service the Roads Operations Manager after consultation with the Roads Infrastructure Manager may implement the actions required to maintain traffic flow along the strategic network these may include but are not restricted to:

- Reduce salt spread rates.
- Restrict salt spreading to the Priority 1 Gold or Gold/Silver routes.
- Move to using salt/grit mixes.
- Move to using grit only on Secondary routes

- Grit only to be used on hard packed snow on priority/secondary/cul de sac routes
- Replenish Grit Bins with grit only
- Move to using grit only on priority and secondary footway routes
- Restrict treatment to the resilience network consisting of Priority 1 Gold or Gold/ Silver routes and city centre footways.
- Restrict the level of service to the capacity of the available resources.
- Dedicate further available resources to the service delivery.

7.1.3 The resilience network consists of the Priority 1 Gold and Silver routes and the City Centre footways. The normal Minimum Winter Network being treated would be the resilience networks. In extreme circumstances when resources are not available to treat this network either as a result of illness or due to restrictions applied by the Scottish or UK governments the minimum network being treated could be reduced to the Priority 1 Gold network.

7.1.4 The trigger points for considering activation of the Minimum Winter Network treatment is any one of the following

Salt Levels

All depots	Non-Winter stock	Non-Core Winter Period	Core Winter Period
Tonnes	N/A	2690	4485

ABERDEEN CITY COUNCIL

OPERATIONS & PROTECTIVE SERVICES

ROADS OPERATIONS

WINTER SERVICE PLAN

2024-2025

PART 2 - OPERATIONAL PLAN

WINTER SERVICE DOCUMENT

PART 2 OPERATIONAL PLAN

1.	Introduction	1.1	Outline
		1.2	Stages of Plan
		1.3	Delegation of Responsibilities
2.	Working Arrangements	2.1	Operating Period
		2.2	Standby Service
		2.3	Early Morning Patrols
		2.4	Service Within Working Hours
		2.5	Service Outwith Normal Working Hours
		2.6	Footway Treatment
		2.7	Footway Readiness
		2.8	Thawing
		2.9	Lifting of Snow from Roads etc
3.	Information	3.1	Communications
		3.2	Weather Forecasts
		3.3	Advice Sheets
		3.4	Road Condition Reports
4.	Plant	4.1	Availability and Maintenance for Vehicles, Plant etc.
		4.2	Operation of Vehicles
5.	Materials	5.1	Salt and Salt/Sand Stocks
		5.2	Use of Materials
6.	Assistance from Third Parties	6.1	Local Authority Services
		6.2	Education
		6.3	Parks etc.
7.	Road Closures	7.1	Road Closures
8.	Monitoring and Reporting	8.1	Road Treatment Log

Appendices

A Emergency Contacts
B Duties of Personnel
C Gritting Routes
D Stock & Treatment Guidance.
E Flooding Guidance

WINTER SERVICE PLAN - STANDING ORDERS

PART 2 - OPERATIONAL PLAN

1. Introduction

1.1 Outline

The Operational Plan is designed to provide for a twenty-four hour a day, seven days a week service. The plan, which is designed to be flexible enough to cover all foreseeable weather conditions normally experienced in this part of the country, will operate in various phases according to the time of day and weather conditions.

The plan consists of an emergency standby service out with normal working hours, regular routine patrols by specialist gritting and snow clearing vehicles in the early hours of the morning augmented, as necessary, by the use of the Council's normal heavy goods vehicles fitted with demountable snowploughs and/or gritter bodies as appropriate. The Council's own resources can be augmented by hired labour and vehicles and plant from local contractors.

1.2 Stages of the Plan

In deploying the Council's resources and resources from other Services, Supervisors will take into account the priorities drawn up to cover all weather conditions, will seek to ensure that the road network is dealt with in the sequence and to the standards set out in Part 1, Section 2 headed "Priorities and Standards".

Supervisors in planning and executing the Winter Service Operations must give consideration to the needs of all employees to have reasonable periods of rest between periods of duty, however, in extreme and prolonged weather conditions Aberdeen City Council can declare the event an emergency to continue with winter service operations.

1.3 Delegation of Responsibilities

1.3.1 The Roads Infrastructure Manager is responsible for the work of the Roads Services throughout the City. The Roads Infrastructure Manager is responsible for formulating the policy objectives with regard to Winter Service operations and ensuring that adequate resources are allocated to meet the objectives and standards set in the Specification Document. The Roads Infrastructure Manager is also responsible for ensuring that the Specification and Operational Plan are continually reviewed in the light of experience and changing circumstances.

1.3.2 The Roads Infrastructure Manager in conjunction with the Road Operations Manager will be wholly responsible for ensuring that Winter Service operations are carried out in accordance with the policy of the Council and in accordance with accreditation in Winter Maintenance Quality Assurance under ISO 9001. They will ensure that the Duty Officers and the Supervisors and operators are conversant with the Winter Service Plan and will ensure that the standard of training, etc. of the operatives is sufficiently high to enable them to carry out their allotted tasks. The day to day responsibility for producing the daily Winter Maintenance Advice Sheet may be delegated to the Duty Officer. The

Supervisors shall be provided with the physical resources to enable them to carry out the work within the limitations of the budget and shall have the authority to utilise all the resources available to them on normal works in the event of adverse weather conditions. The day to day responsibility for the organisation and supervision of Winter Service operations may be delegated to the Supervisors.

1.3.3 The Supervisors are wholly responsible to the Roads Infrastructure Manager/Road Operations Manager for the day to day organisation and execution of the Winter Service operations and will take immediate action to implement the Winter Service Plan on receipt of adverse weather advice or in the event of sudden frost or snowfall. The Supervisors have complete authority to set the plan in action without reference to the Roads Infrastructure Manager or Road Operations Manager but shall at all times keep the Management fully advised of the prevailing circumstances with regard to the progress of Winter Service operations and shall seek the advice and assistance of Management in dealing with any augmented work undertaken or conditions outwith the scope of the Winter Service Plan.

2. Working Arrangements

2.1 Operating period

The winter operating period will run from October to April each year.

The core period for continual monitoring will run from early November until Late March. Additional support staff and assistance from other services will run from mid-November until late March, the exact dates will be as detailed below, these dates are subject to change depending on the forecast weather conditions.

2.2 Standby Service – 28/10/2024 to 30/03/2025

A weekly duty rota for drivers and plant operators for both the standby service and for the early morning patrols will be prepared to ensure that all specialist Winter Service vehicles can be manned on a twenty-four hour, seven days a week basis in accordance with the Winter Service Plan.

Specialist Winter Service vehicles will be stationed at appropriate depots for immediate use out with normal working hours. The vehicles will be loaded with neat salt and drivers will be contactable to receive instructions from the Supervisor. A Supervisor will be available to receive telephone calls from the Police or other responsible Officers of the Council, assess road conditions and initiate emergency actions.

On receipt of an emergency call, the Supervisor will assess the situation and, if necessary, will call out the standby crews to treat roads as required, he may at his discretion, alert other Supervisors, as it may be necessary to call out additional drivers and vehicles.

The Supervisors will advise the Lead Response Operative or the Duty Officer what resources are deployed and the route/areas being treated to allow the Council's web site to be updated.

The standby drivers will report to the Supervisor the road conditions at the area of the particular hazard and in the area generally. The Supervisor will log the telephone call seeking assistance together with the details of any action taken in response to it and any action by way of treating other locations so that there is a permanent record, for inspection, of the extent of Winter Service operations carried out.

2.3 Early Morning Patrols – 18/11/2024 to 16/03/2025

The specialist Winter Service vehicles will be operated on early morning patrol service during the winter period. Each vehicle will be driven on a prescribed priority route and treatment will be carried out as instructed for the conditions encountered.

The Supervisor will advise the Lead Response Operative or the Duty Officer what resources are deployed, and the route/areas being treated to allow the Council's web site to be updated.

Special attention will be given to those locations, which are designated as areas of particular hazard; drivers will report the road conditions on their prescribed route to the Supervisor/Lead Response Operative both during and on completion of their patrols.

Additionally, the Supervisors may at their discretion, if adverse weather conditions are expected, detail additional operatives to make themselves available for standby duties/early action.

2.4 Service Within Working Hours

2.4.1 If road or weather conditions warrant it, Winter Service operations utilising the specialist vehicles will continue during the course of the working day. In addition to the specialist vehicles, the Supervisors can instruct the use of the Councils normal heavy goods vehicles on Winter Service operations. The vehicles will be fitted with snowploughs and/or gritter bodies according to the road conditions.

The Supervisors will advise the Lead Response Operative or the Duty Officer what resources are deployed, and the route/areas being treated to allow the Council's web site to be updated.

2.4.2 Daytime 07:45 a.m. – 15:45 p.m. Monday - Friday

The ice detection equipment will be monitored by the Road Services staff. When a change in conditions is displayed at any of the ice detection locations in his area, the Road Operations Manager or his staff will advise the Supervisors who, taking account of all factors known to him, will dispatch a gritting vehicle to inspect and treat conditions at the location as necessary and thereafter proceed to such other locations the Supervisors considers may require treatment.

2.5 Service out with Normal Working Hours 18/11/2024 to 16/03/2025

2.5.1 Response will provide an emergency all night service and specialist Winter Service vehicles will be ready for immediate use throughout the winter season.

The vehicles will be loaded with neat salt and drivers will be in attendance at the depot. In addition to the drivers the depot will be manned by a Duty Lead Response Operative who will receive telephone calls from the Met Office, Police or other responsible Officers of the Council initiating emergency action.

The Duty Officer will continue to monitor the ice detection equipment and forecast and will remain the point of contact for Winter Service until after the evening forecast is received (approximately 1830).

On receipt of an emergency call, the Duty Lead Response Operative will dispatch a driver to investigate and, if necessary, treat the road surface. Immediately after the driver has dealt with the specific complaint, he will travel to those locations designated as areas of particular hazard in the vicinity of the locus of the complaint and, if necessary, treat the road surface at these locations. He will report to the Duty Lead Response Operative the road conditions at the areas of particular hazard and in the area generally. The Lead Response Operative will log the telephone call seeking assistance together with the details of any locations so that there is a permanent record for inspection by the Duty Supervisor of the extent of Winter Service operations carried out during the night.

Should it appear to the Duty Lead Response Operative from the number of telephone calls received requesting assistance or from the reports received from drivers that the road conditions are so bad as to require the deployment of more resources than provided by the all night service, he will immediately telephone the Duty Supervisor advising him of the conditions so that the Duty Supervisor may, at his discretion, instruct the call out of additional drivers and vehicles.

2.5.2 When an adverse change of conditions is displayed at any of the ice detection locations in the City, the Lead Response Operative will dispatch a loaded gritter to inspect and treat conditions at the location as necessary and thereafter, taking account of all other known factors, proceed to treat as necessary areas of special hazard. The Duty Lead Response Operative will log the change in road temperatures together with his actions and details of any locations actioned so that there is a permanent record for inspection by the Duty Supervisor of the extent of Winter Service operations carried out during the night.

2.5.3 Over Christmas and New Year a stand by crew will only be available to treat priority 1 carriageways and footways on the days of the 25 – 26 December and 31 December – 2 January inclusive.

2.6 Footway Treatment

The Priority 1 footways for treatment are listed in Appendix C (e).

The standard practice for treating footways will be to use neat salt although discretion is given to Supervisors to use salt/grit mixtures when weather conditions warrant it, and especially when dealing with ice that has formed as a result of the re-freezing of partially thawed snow as per Appendix D, (d)

In clearing a passage for pedestrians, any cleared snow will be left piled at the edge of the footway. Special attention will be given at pedestrian crossings, road junctions where large number of pedestrians cross, bus stops etc where gaps should be left at these locations to allow pedestrians to cross without having to negotiate the heaped snow.

Special care will also be taken to ensure that street gullies are not blocked by piled snow, as this would prevent water draining away at the onset of a thaw.

2.7 Footway Readiness

Recourses for footway treatment are to be allocated on a three-level readiness basis. The readiness level shall be implemented and recorded following discussions between the duty officer and the Roads Operations/Roads Infrastructure Manager.

Green:
Forecast conditions to be below zero for up to 5 consecutive days.

City centre routes to be check by Supervisor each morning with treatment undertaken if required, no other routes to be treated.

Amber:
Forecast conditions of prolonged freezing extending beyond 5 days, snowfall or extensive ice forecast. Frontline staff to be made available for prolonged treatment, assistance from other departments requested as required. If other departments assistance required, they are to be notified when Amber condition is identified.

Grit bins and Community Bins, checked and filled in advance, Footway plant and equipment checked for readiness in advance, Priority 1 Footways are considered for treatment.

Additional back office staff requirement to respond to public enquiries.

Red:
Forecast conditions as Amber but with continued heavy snowfall or extreme ice in forecast resulting in a risk to infrastructure.

Action as per Amber, additionally external and supplementary resources from other departments to be mobilised as available.

Treatment to be extended to area footway treatment beyond Priority 1 routes as resources allow.

Full reporting system to be implemented, availability of resources to respond to repair to infrastructure to assessed. Additional back office staff requirement to respond to public enquiries regarding infrastructure damage after thaw develops.

2.8 Thawing

During the thaw, the first responsibility of the Supervisors will be to ensure, as far as practicable, that road channels and verges are cleared in the area of street gullies and cross grips to allow melted snow to drain away. Only after the channels and cross grips have been cleared should an attempt be made to clear the stockpiled snow.

2.9 Lifting of Snow from Roads etc

In extreme conditions after heavy snow falls it may be necessary to lift snow from streets. Snow cleared from the road will only be uplifted in exceptional circumstances, e.g. where existing piled snow is preventing further snow clearance from the road.

3. Information

3.1 Communications

During Office Hours - Mondays to Fridays inclusive, telephone messages will be received by the contact centre and passed to the duty officer as appropriate.

Out with Office Hours – All out of office calls will be received through the call centre and passed to the lead response officer or Duty officer as appropriate.

3.2 Weather Forecasts

The Council's meteorological advisors will provide information for the duration of the winter period including:-

a) General Forecasts for the following 36 hours
b) 2-5-day outlook forecast
c) Air and road temperatures and a predicted forecast graph

During Office Hours

The Forecast data information is assessed and entered into an advice sheet prepared by the Duty Officer in conjunction with the Duty Supervisor and submitted to the Roads Operations Manager for discussion and a decision made as to the required treatment. Roads Operations Manager to be advised of daily action.

The information will also be passed to the Standby Supervisor by the Duty Officer.

Out with Office Hours and Holidays

It will be the responsibility of the Duty Officer to obtain the weather forecast, review and confirm action. Roads Operations Manager to be advised of daily action.

Emergency Weather Forecasts

The Council's meteorological advisors will inform the Duty Officer from 0800 to 1830 or the Lead Response Operative from 1830 to 0800 to advise on changes in forecast information.

Additional phone numbers should be supplied to the Met Office in case there is difficulty in contacting the Duty Officer or the Lead Response Operative. The Duty Officer or the Lead Response Operative will advise the Duty Supervisor of changes to the weather forecast which may alter the proposed winter treatment.

3.3 Advice Sheets

3.3.1 Winter Maintenance Advice Sheets

Forecast information and the Winter Maintenance Advice Sheet will be used to assist in decision making. In the absence of any indication or information to the contrary the advice recommendation given on the Advice Sheets should be followed.

3.3.2 Interpretation of Advice Sheets

The Advice Sheets recommendations may be deviated from in the event of any of the following situations:

(a) A clear emergency exists which requires immediate action.

(b) The Road Operations Manager advises differently.

(c) The actual weather (e.g. as measured by Ice Outstations) is at variance from the forecast such that action taken would need to be significantly different from that advised, e.g. the stepping up of salting from 10 to 20 g/sq. m or equivalent in mixtures, or if the forecast of snow turns out to be rain then reducing or changing the treatment. Whilst officers may treat at a level above that recommended based on the forecast, they will not treat at a level below the forecast recommendation. In this case the meteorological advisors should be contacted, advised of actual weather conditions and new forecast information requested.

3.3.3 Variation from Advice Sheets

A record will be kept of all variations of action from the advised action on the advice sheet. The reason for such a variation will be noted on the advice sheet for record purposes.

3.3.4 General Note

The Council's meteorological advisers are available 24 hours a day and can be contacted at any time by Supervisors or staff for advice. They are contracted to supply new weather information when a significant change is forecast and to give advice over the telephone on all meteorological matters. If in any doubt about the actual weather and/or the forecast the rule is contact the meteorological advisers.

4. Plant

4.1 Availability and Maintenance of Vehicles, Plant etc

All specialist Winter Service vehicles, plant and footway snowploughs require to be maintained and overhauled prior to the commencement of Winter Service operations. All items of Winter Service equipment overhauled shall be on station not later than the end of September.

All vehicles, plant and equipment shall be checked to ensure they are fully operational on return to station.

A standby mechanic will be available at all times during the winter period.

4.2 Operation of Vehicles

Once the vehicles are on station and Winter Service operations have begun, it will be the duty of the driver and/or operator for each vehicle and item of plant to check his vehicle daily before starting duty. The inspection shall cover the fuel, oil and water levels and the lights, brakes and tyres, together with all bolts and couplings fixing ploughs, spinners and safety rails.

Any fault revealed by the check shall be immediately reported to the Supervisor who will call out the stand by mechanic to determine whether or not the vehicle is in a fit state to continue with Winter Service operations or whether the vehicle should be withdrawn from service for immediate repair at the Depot or transported to Kittybrewster.

The amber flashing lights fitted to each vehicle must be kept in operation during gritting and snow clearing operations. In poor visibility, the vehicle's horn should be sounded as necessary, but its use should be kept to a minimum consistent with safe driving and the need to cause as little inconvenience as is possible to residents, particularly during early morning and late night working. A "SPREADING" sign is to be fitted and kept clean on rear of gritting and large snow plough vehicles.

Snow ploughs and scrapers must always be raised above the road surface when passing over sections of road which are clear of snow and ice and drivers should constantly be on the lookout for manhole covers, street tobies or other obstructions such as traffic calming measures which may be standing proud of the road surface.

It is the responsibility of the driver of any vehicle to ensure that the hopper or the platform of this vehicle is not left loaded with salt or salt/sand mixture for more than forty-eight hours. If the salt or salt/sand mixture has not been used for this period of time, the hopper and/or platform should be emptied and immediately refilled with fresh material.

If the vehicle has been driven during heavy rain, the driver should check the salt or salt/sand mixture to ensure that caking has not taken place. If it has, the vehicle should be emptied and immediately refilled with fresh material.

Where mobile phone communication is used the driver must not under any circumstance answer the phone until parked safely and the engine is turned off as per the Council's mobile phone policy. Drivers will be issued with a two-way radio for communication purposes.

5. Materials and Equipment

5.1 Salt and Salt/Sand Stocks

Salt

Stocks of salt will maximised before the start of the winter period. It will be the responsibility of the Duty Supervisor and Duty Officer to make a daily update on salt usage and a weekly return of salt receipts and issues to the Road Operation Manager.

Salt/Sand mixtures

Although not routinely used, sand will be kept available to be mixed with salt in accordance with the instructions of the Roads Operations Manager and will generally consist of one parts sand to one part salt by weight but this mixture may be varied at the discretion of the Supervisors depending upon road and weather conditions.

5.2 Use of Materials

In general, neat salt will be used on all roads. The use of neat salt or of the salt/sand mixture may be varied at the discretion of the Roads Operations Manager depending upon road and weather conditions.

It shall be the responsibility of the Supervisors to ensure that all salt stores are allocated a loading shovel and that the stores are manned continuously during periods of extreme weather or when general Winter Service operations are being carried out.

During the spreading of salt, especially in built-up areas, care must be taken to keep salt clear of trees, hedges, shrubs, lawns etc.

6. Assistance from Third Parties

6.1 Local Authority Services

Other Local Authority Services may undertake the gritting/salting, and/or snow clearing of footways and/or roads in designated areas, by arrangement agreed prior to the onset of winter.

6.2 Education

Winter Service within the City's educational establishments are dealt with under separate arrangements within the Council

6.3 Parks, Cemetery accesses, Crematoria access, Sheltered Housing accesses, Unadopted Footways through Council Housing Areas and Other Council Property accesses

Winter Service within the above establishments are dealt with under separate arrangements within the Council.

7. Road Closures

7.1 Road Closures

The closure of a road under severe winter conditions can be authorised by the Police or Duty Supervisor. It is absolutely essential that there is consultation and co-operation between the two bodies in the issue of closure signage e.g. for a closure instigated by the Police during the night, the Duty Supervisor should be informed as soon as possible and where the closure initiative came from the Roads Staff the Police should be contacted immediately. Duty Officer will be informed by 08:00 of any road closures and openings. If a road is closed signing should be maintained until the road is reopened. Roads Operations Manager or a duty representative will be required to inform Roadworks Coordination and Communications of any road closures.

8 Road Treatment Logs

A “Road Treatment Log” will be kept by each gritter driver to show the times of treatment and the approximate tonnage of the material used. These sheets are to be completed daily by the gritter drivers and returned to the Supervisors each day.

ABERDEEN CITY COUNCIL

OPERATIONAL PLAN APPENDICES

APPENDIX A	EMERGENCY CONTACTS
APPENDIX B	DUTIES OF PERSONNEL
APPENDIX C	GRITTING ROUTES
APPENDIX D	STOCK & TREATMENT GUIDANCE.
APPENDIX E	FLOODING GUIDANCE

OPERATIONAL PLAN
APPENDIX A - EMERGENCY CONTACTS

Call Centre Number	03000 200292

OPERATIONAL PLAN

APPENDIX B - PERSONNEL
1 - DUTIES OF PERSONNEL

Duties of the Gritter Drivers

1. Duty Period: Monday – Sunday (including Public Holidays)

In addition, when on standby during period of duty, make themselves available for call-out by request, during emergency.

Maximum duty period will be 11 hours (10 hours driving unless a declared emergency and driver fit to drive).

2. Location: At Depot detailed by Duty Supervisor
3. Communication Radio

4. Responsible to the Duty Supervisor

5. Responsibilities

a) To carry out a First Use Vehicle Check.

b) Drive gritting vehicle along route as detailed on the route card or to verbal instructions of Duty Supervisor/Lead Response Operative, ensuring that carriageways are adequately gritted for the conditions prevailing.

c) Maintain communication with the Duty Supervisor/Lead Response Operative advising when treatment of a route/area is started and completed.

1) Provide an update of road and footway conditions when requested

2) Advise duty Supervisor/Lead Response Operative when required to deviate from programmed route.

d) During actual gritting and snow clearing operations, the amber flashing beacon must be used. Speeds in excess of 40mph (64kph) are prohibited.

e) In the event of a breakdown of his vehicle or any incident, which prevents him carrying out his allocated duty, he will advise the Duty Supervisor/Lead Response Operative by radio and await further instructions.

f) Complete daily winter maintenance treatment log and other such relevant documentation and pass to the Duty Supervisor/Lead Response Operative by the end of the next working day

g) To wash down gritter/spinner after use, clean and tidy the cab and top up fuel.

Duties of the Response Drivers

1. Duty period: 04:00 to 15:30 & 15:30 to 03:00

2. Location: Tullos Depot and work locations detailed by Supervisor

3. Communication Radio

4. Responsible to the Duty Supervisor

5. Responsibilities

a) Complete a First Use Vehicle Check before leaving the depot.

b) While he may be involved in routine maintenance work, he must be prepared to react immediately to a call-out request which will be initiated by a radio instruction from the Lead Response Operative/Duty Supervisor.

c) On receipt of a call-out he will proceed to location and deal with the condition, maintaining communication with the Lead Response Operative/Duty Supervisor advising him when the matter has been dealt with.

d) Drive gritting vehicle along route as detailed on satellite navigation system or to verbal instructions of Duty Supervisor, ensuring that carriageways are adequately gritted for the conditions prevailing.

e) Relay information back to the Lead Response Operative/Duty Supervisor on any action taken at the locations, the state of the roads and any action taken at any other locations.

f) Deal with all requests from the Lead Response Operative/Duty Supervisor until return to Depot when he will again resume his other allocated duties.

1) Provide an update of road and footway conditions when requested.

2) Advise Duty Supervisor/Lead Response Operative when required to deviate from programmed route.

g) In the event of a general call-out he will operate in the location advised by the Duty Supervisor/Lead Response Operative.

h) In the event of a breakdown of his vehicle or any incident, which prevents him, carrying out this allotted duty, he will advise the Lead Response Operative/Duty Supervisor by radio and await further instructions.

i) Complete daily winter maintenance treatment log and other such relevant documentation and pass to the Duty Supervisor/Lead Response Operative at the end of the shift.

j) To wash down gritter/spinner after use and clean and tidy the cab and top up of fluids also required.

Duties of the Duty Supervisor/Standby Supervisor

1. Duty Period: Duty Supervisor 04:45 – 15:45

   Standby Supervisor 15:45 – 04:45

2. Location: West Tullos Depot

3. Communication

   The Supervisor will be equipped with a mobile phone and a radio for communication.

4. Responsible to the Roads Operations Manager.

5. Responsibilities

   Overall responsibility for the day to day operations of the Winter Service function.

   a) On receipt of Winter Maintenance Advice Sheet, initiate appropriate action, utilising Lead Response Operative as necessary, including advising drivers on spread rates to be applied.

   b) Ensure that gritters, lorries, plant and ancillary equipment are maintained in operational condition and located at the appropriate Depots and that adequate supplies of salt and sand are available.

   c) Ensure that drivers and operators are conversant with operational details.

   d) In the event of severe conditions, which exhaust the capacity of his resources, advise the Road Operations Manager of the short fall in resources.

   e) To react to outside agency's requests and advise them, as necessary, when adverse conditions require their action and render support in plant and labour resources as necessary. Discuss with Roads Operations Manager or Duty Officer where this compromises treatment in the road network.

   f) In the event of the breakdown of a vehicle, report defect to the appropriate workshop.

   g) Complete a daily log of vehicles and plant breakdowns.

   h) To ensure all call-out requests are logged in Log Book indicating time received and time incident delt with.

   i) Ensure that drivers logs are maintained, and to ensure that the treatment and spread rates comply with his instruction on a daily or weekly basis.

j) To advise the Road Operations Manager or the Duty Officer each day not later than 07:00 on the road conditions prevailing and the action taken and to compile a morning stat report each day no later than 07:00 (08:00 on Sundays and public holidays).

k) If continuing action maintain and complete Continuing Action Form

l) During all operations the Supervisor must keep either the Lead Response Operative or the Duty Officer advised when action is taken on each route/area and also when action ceases. Total resources deployed on each route/area must also be communicated. It is vital that this information is accurate and given timeously in order that the Council's website reflects exactly the action being undertaken on the ground.

Duties of the Duty Officer

1. Duty Period: 1 week commencing with issue of midday forecast on Monday morning to completion of morning treatment the following Monday midday

2. Location: Duty Officer's Office or Residence as necessary.

3. Communication

   The Duty Officer will be equipped with a mobile phone and radio for communication.

4. Responsible to the Road Operations Manager.

5. Responsibilities

   Responsibility for interpreting the daily forecast to produce the daily Winter Maintenance Advice Sheet and ensuring that relevant parties are informed of the proposed action.

   a) On receipt of weather forecast, and telephone contact with Met Office if necessary, decide on appropriate winter treatment and spread rates for the coming afternoon, night shift and following morning. Check updated forecast at 18:00 and amend action plan as necessary with stand by Supervisor.

   b) Complete Winter Maintenance Advice Sheet and issue to Duty Supervisor. Duty Supervisor to be contacted by telephone/radio if not available in West Tullos Depot.

   c) Issue Winter Maintenance Advice Sheet to Lead Response Operative.
   d) As necessary issue Winter Maintenance Advice Sheet to appropriate parties.

   e) Update Weather Conditions on Council Website on a daily basis.

   f) Update Council Website at the start of each treatment and on completion of each treatment.

   g) Complete the Winter Maintenance Advice Sheet after the following morning's treatment, detailing any change from the proposed action and recording actual temperatures and conditions from the previous 24 hours.

   h) Advise Roads Operations Manager of salt tonnage used on a daily basis.

   i) Consult Roads Operations Manager concerning current salt stock levels and the impact this may have on limiting proposed winter action.

Duties of the Lead Response Operative

1. Duty period: 8:30 pm to 8.00am

2. Location: West Tullos Depot

3. Communication Telephone and radio

4. Responsible to Duty Supervisor/Stand-by Supervisor

5. Responsibilities

   a) To accept by telephone, all call-out requests from Police Scotland

   b) To log all calls in Log Book indicating time received, time incident dealt with and by which vehicle.

   c) To dispatch drivers, who are in attendance to the requested locations.

   d) In the event of demand significantly exceeding capability, telephone Stand-by/Duty Supervisor who will assume control and instruct as necessary.

   e) In the event of a report that a vehicle is out of commission,

      1) he will use alternative standby vehicle or driver if available

      2) if not available, advise Stand-by/Duty Supervisor who will assume responsibility.

   f) Ensure that he receives information and immediately updates the Council's website to reflect the current position on the ground

   g) Monitor weather forecast and graphs and recording actions taken

   h) From 06:30 compile morning status report by 07:00 and distribute to Roads Operations Manager, Duty Supervisor and Duty Officer.

Duties of the Road Operations Manager

1. Duty period: Flexible.

2. Location: Office/Residence.

3. Communication: Telephone and radio

4. Responsible to Roads Infrastructure Manager.

5. Responsibilities

a) Wholly responsible for ensuring that the Supervisors and Operatives are conversant with Winter Maintenance Operations and shall provide the Supervisors with the physical resources to enable them to carry out the objectives and meet the standard set.

b) Shall have the authority to utilise all the resources of his area, however, deployed on normal works, in the event of extreme conditions.

c) During working hours, responsible for ensuring the Supervisors are advised of weather forecasts.

d) Ensuring that stocks of sand and salt are maintained at a sufficient level during the operation period.

e) Responsible for checking that all Winter Service equipment is overhauled and on station by the end of September each year and reporting omissions, if any.

f) Responsible for preparing a duty rota for Supervisor and Operatives to ensure that adequate supervision for day to day operations is provided.

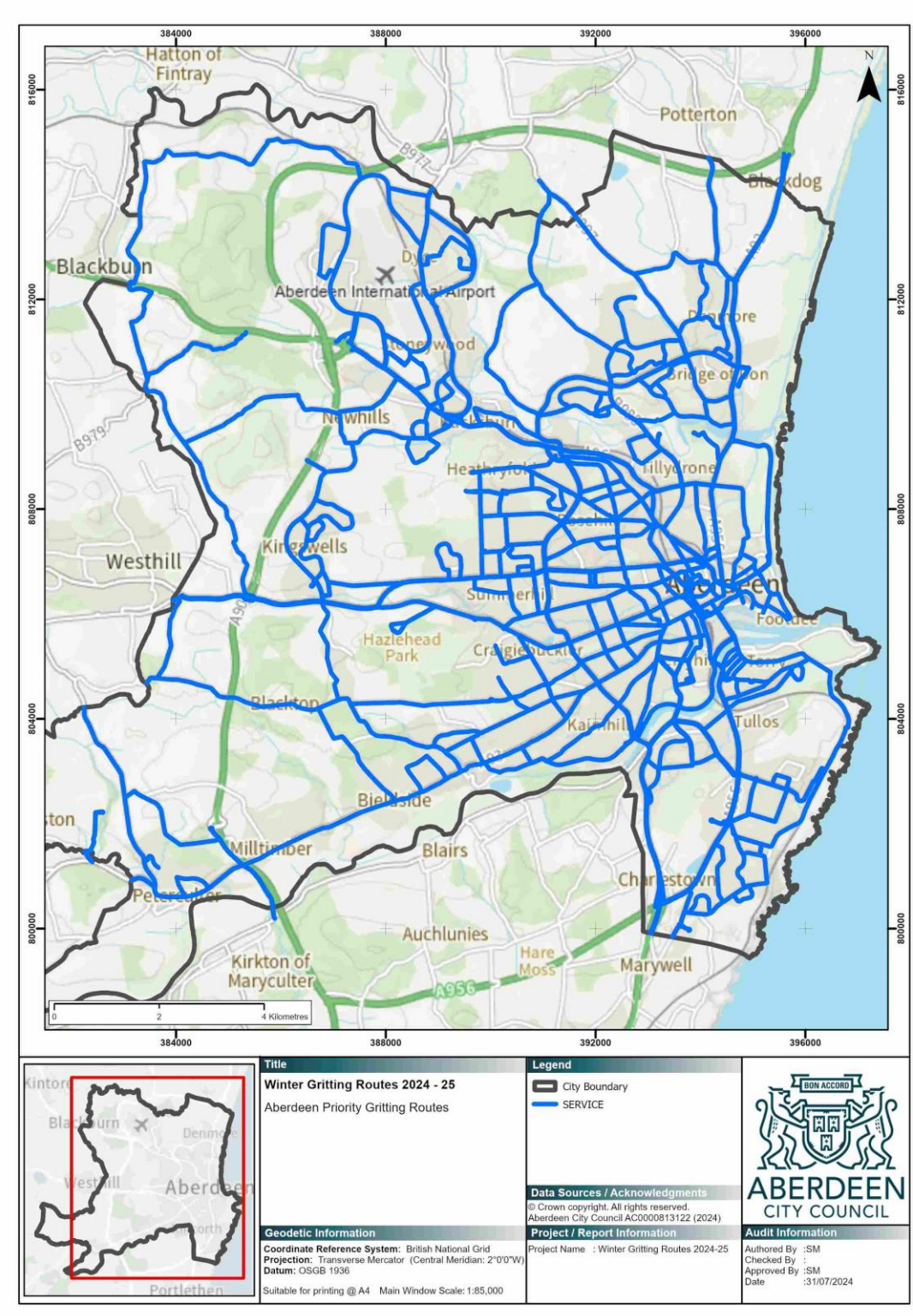
g) Ensure compliance with the Specification Document.

In Roads Operations Manager absence, this role will be taken over by the Team Leader – Operations.

OPERATIONAL PLAN
APPENDIX C - GRITTING ROUTES

Priority Routes

The following map shows the roads treated as either Priority1 Gold or Priority 1 Silver.

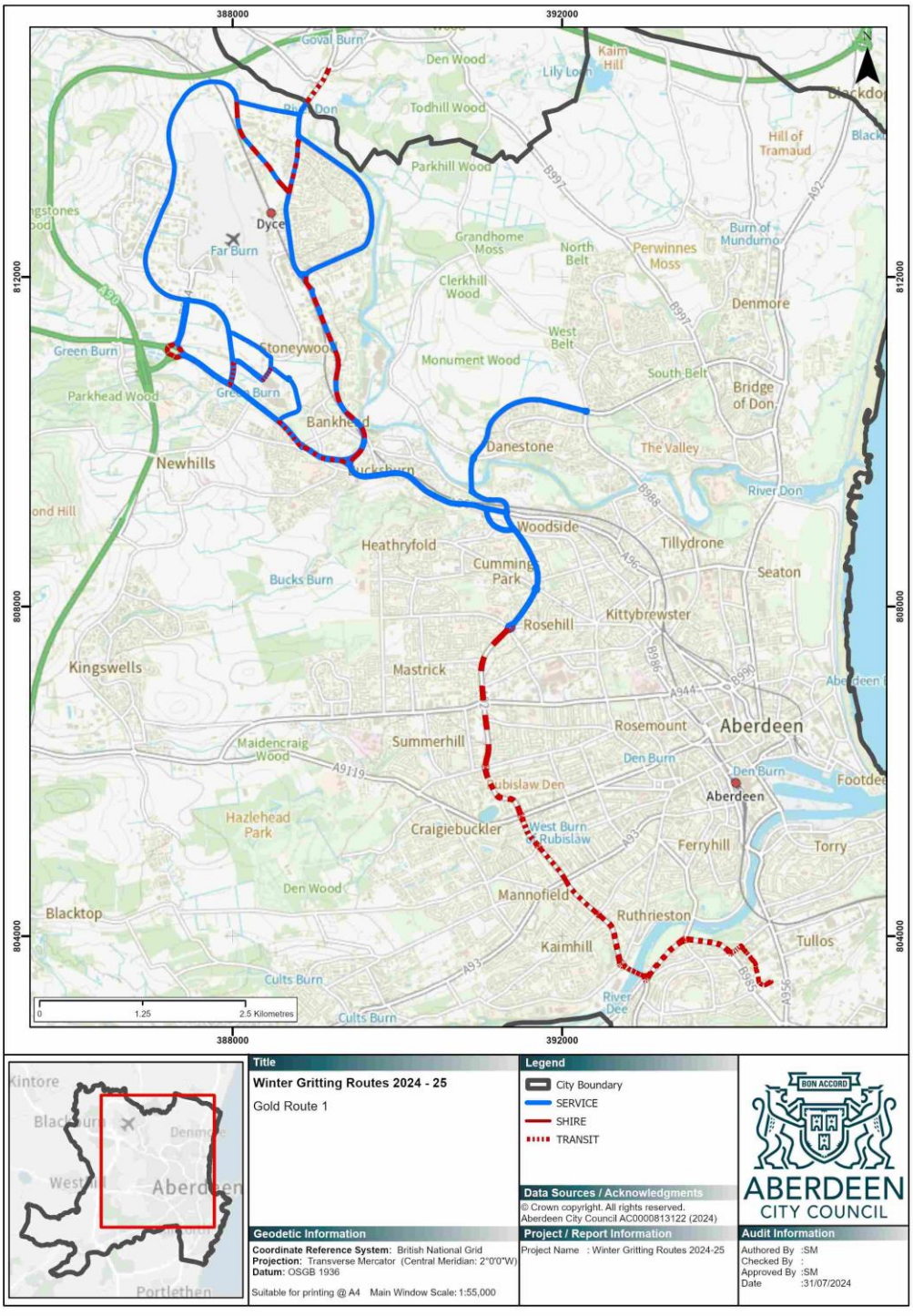


(a) Priority 1 Gold Routes

The following routes (Gold 1-4) are to be treated 24 hours 7 days during the winter.

Bold Text – Treat	*Italic - Run*

Gold route 1



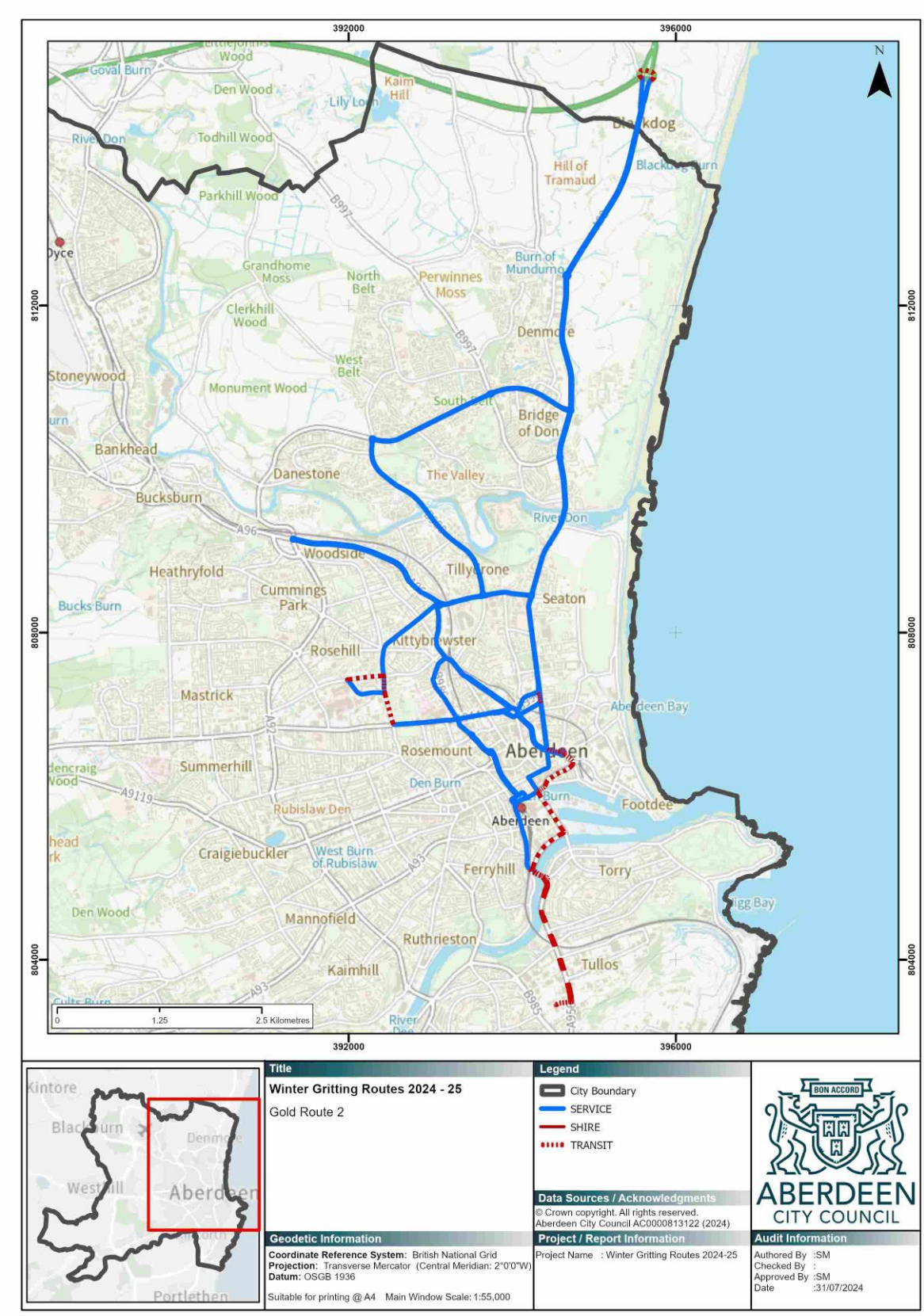
GOLD ROUTE 1		
STREET	**TO**	**DIRECTION**
WEST TULLOS DEPOT	*CRAIGSHAW DRIVE*	**RIGHT**
CRAIGSHAW DRIVE	*ABBOTSWELL ROAD*	**LEFT**
ABBOTSWELL ROAD	*ABBOTSWELL ROUNDABOUT*	**RIGHT - 2ND EXIT**
ABBOTSWELL ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*KING GEORGE VI BRIDGE ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
KING GEORGE VI BRIDGE ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*BRIDGE OF DEE ROUNDABOUT*	**RIGHT - 3RD EXIT**
BRIDGE OF DEE ROUNDABOUT	*STONEHAVEN ROAD*	
STONEHAVEN ROAD	*GARTHDEE ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
GARTHDEE ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*BROOMHILL ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
BROOMHILL ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*ANDERSON DRIVE*	**FOLLOW ON TO**
ANDERSON DRIVE	*SEAFIELD ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
SEAFIELD ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*KEPPLESTONE ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
KEPPLESTONE ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*KINGS CROSS ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
KINGS CROSS ROUNDABOUT	*NORTH ANDERSON DRIVE*	
NORTH ANDERSON DRIVE	*MURDOS ROUNDABOUT*	**COMPLETE - 2ND EXIT**
MURDOS ROUNDABOUT	**NORTH ANDERSON DRIVE**	
NORTH ANDERSON DRIVE	**ROSEHILL ROUNDABOUT**	**STRAIGHT - 2ND EXIT**
ROSEHILL ROUNDABOUT	**NORTH ANDERSON DRIVE**	
NORTH ANDERSON DRIVE	**HAUDAGAIN BYPASS**	**LEFT**
HAUDAGAIN BYPASS	**AUCHMILL ROAD**	**LEFT**
AUCHMILL ROAD	**INVERURIE ROAD**	**FOLLOW ON TO**
INVERURIE ROAD	**BUCKSBURN ROUNDABOUT**	**KEEP LEFT SLIP**
BUCKSBURN ROUNDABOUT	**INVERURIE ROAD**	
INVERURIE ROAD	**SCLATTIE ROUNDABOUT**	**ROUND - 4TH EXIT**
SCLATTIE ROUNDABOUT	**INVERURIE ROAD**	
INVERURIE ROAD	**BUCKSBURN ROUNDABOUT**	**LEFT - 1ST EXIT**
BUCKSBURN ROUNDABOUT	**NEW STONEYWOOD ROAD**	
NEW STONEYWOOD ROAD	**STONEYWOOD ROAD**	**FOLLOW ON TO**
STONEYWOOD ROAD	**"BP" ROUNDABOUT**	**LEFT - 1ST EXIT**
"BP" ROUNDABOUT	**VICTORIA STREET**	
VICTORIA STREET	**"KWIKFIT" ROUNDABOUT**	**LEFT - 1ST EXIT**
"KWIKFIT" ROUNDABOUT	**OLDMELDRUM ROAD**	

OLD MELDRUM ROAD	**DYCE DRIVE**	**LEFT**
DYCE DRIVE	**PITMEDDEN ROAD**	**LEFT**

PITMEDDEN ROAD	**VICTORIA STREET**	**LEFT**
VICTORIA STREET	*"KWIKFIT" ROUNDABOUT*	**LEFT - 1ST EXIT**
"KWIKFIT" ROUNDABOUT	**OLD MELDRUM ROAD**	
OLD MELDRUM ROAD	**OLD MELDRUM ROAD**	**FOLLOW ON TO**
OLD MELDRUM ROAD	*OLD MELDRUM ROAD*	**TURN AT LIGHTS**
OLD MELDRUM ROAD	*OLD MELDRUM ROAD*	**FOLLOW ON TO**
OLD MELDRUM ROAD	**"KWIKFIT" ROUNDABOUT**	**LEFT - 1ST EXIT**
"KWIKFIT" ROUNDABOUT	**RIVERVIEW DRIVE**	
RIVERVIEW DRIVE	**"BP" ROUNDABOUT**	**LEFT - 1ST EXIT**
"BP" ROUNDABOUT	**STONEYWOOD ROAD**	
STONEYWOOD ROAD	**NEW STONEYWOOD ROAD**	**FOLLOW ON TO**
NEW STONEYWOOD ROAD	**BUCKSBURN ROUNDABOUT**	**ROUND - 5TH EXIT**
BUCKSBURN ROUNDABOUT	**INVERURIE ROAD**	
INVERURIE ROAD	**SCLATTIE ROUNDABOUT**	**STRAIGHT - 2ND EXIT**
SCLATTIE ROUNDABOUT	**INVERURIE ROAD**	
INVERURIE ROAD	**GOUGH BURN CRESCENT**	**RIGHT**
GOUGH BURN CRESCENT	**ROUNDABOUT**	**STRAIGHT ON - LAP ROUNDABOUT**
ROUNDABOUT	**GOUGH BURN CRESCENT**	
GOUGH BURN CRESCENT	**FORRIT BURN ROAD**	**LEFT**
FORRIT BURN ROAD	**CORSEHILL BURN ROAD**	**RIGHT**
CORSEHILL BURN ROAD	**DYCE DRIVE**	**LEFT**
DYCE DRIVE	**INVERURIE ROAD**	**RIGHT**
INVERURIE ROAD	**AIRPORT ROUNDABOUT**	**ROUND - 4TH EXIT**
AIRPORT ROUNDABOUT	**INVERURIE ROAD**	
INVERURIE ROAD	**DYCE DRIVE**	**LEFT**
DYCE DRIVE	**CORSEHILL BURN ROAD**	**RIGHT**
CORSEHILL BURN ROAD	**FORRIT BURN ROAD**	**LEFT**
FORRIT BURN ROAD	**WELLHEADS DRIVE**	**LEFT**
WELLHEADS DRIVE	**DYCE DRIVE**	**RIGHT**
DYCE DRIVE	**AGYLL ROAD**	**LEFT**
AGYLL ROAD	**AIRPORT ROUNDABOUT**	**ROUND - 4TH EXIT**
AIRPORT ROUNDABOUT	**AGYLL ROAD**	
AGYLL ROAD	**DYCE DRIVE**	**RIGHT**
DYCE DRIVE	**INVERURIE ROAD**	**LEFT**
INVERURIE ROAD	**SCLATTIE ROUNDABOUT**	**ROUND - 4TH EXIT**
SCLATTIE ROUNDABOUT	**INVERURIE ROAD**	
INVERURIE ROAD	**DYCE DRIVE**	**RIGHT**
DYCE DRIVE	**PITMEDDEN ROAD**	**FOLLOW ON TO**
PITMEDDEN ROAD	**VICTORIA STREET**	**RIGHT**
VICTORIA STREET	**"BP" ROUNDABOUT**	**STRAIGNT - 2ND EXIT**
"BP" ROUNDABOUT	**STONEYWOOD ROAD**	
STONEYWOOD ROAD	*NEW STONEYWOOD ROAD*	**FOLLOW ON TO**
NEW STONEYWOOD ROAD	*BUCKSBURN ROUNDABOUT*	**LEFT - 1ST EXIT**
BUCKSBURN ROUNDABOUT	**INVERURIE ROAD**	
INVERURIE ROAD	**AUCHMILL ROAD**	**FOLLOW ON TO**
AUCHMILL ROAD	**HAUDAGAIN ROUNDABOUT**	**TURN AROUND 4TH EXIT**
HAUDAGAIN ROUNDABOUT	**AUCHMILL ROAD**	

AUCHMILL ROAD	**HAUDAGAIN BYPASS**	**LEFT**
HAUDAGAIN BYPASS	**NORTH ANDERSON DRIVE**	**LEFT**
NORTH ANDERSON DRIVE	**HAUDAGAIN ROUNDABOUT**	**STRAIGHT ON - 2ND EX**
HAUDAGAIN ROUNDABOUT	**MUGIEMOSS ROAD**	
MUGIEMOSS ROAD	**MUGIEMOSS ROUNDABOUT**	**RIGHT - 2ND EXIT**
MUGIEMOSS ROUNDABOUT	**PARKWAY**	
PARKWAY	**"TESCO" ROUNDABOUT**	**STRAIGHT - 2ND EXIT**
"TESCO" ROUNDABOUT	**PARKWAY**	
PARKWAY	**DANESTONE ROUNDABOUT**	**ROUND - 4TH EXIT**
DANESTONE ROUNDABOUT	**PARKWAY**	
PARKWAY	**"TESCO" ROUNDABOUT**	**STRAIGHT - 2ND EXIT**
"TESCO" ROUNDABOUT	**PARKWAY**	
PARKWAY	**MUGIEMOSS ROUNDABOUT**	**LEFT - 1ST EXIT**
MUGIEMOSS ROUNDABOUT	**MUGIEMOSS ROAD**	
MUGIEMOSS ROAD	**HAUDAGAIN ROUNDABOUT**	**RIGHT - 3RD EXIT**
HAUDAGAIN ROUNDABOUT	**NORTH ANDERSON DRIVE**	
NORTH ANDERSON DRIVE	**ROSEHILL ROUNDABOUT**	**STRAIGHT - 2ND EXIT**
ROSEHILL ROUNDABOUT	**NORTH ANDERSON DRIVE**	
NORTH ANDERSON DRIVE	**MURDOS ROUNDABOUT**	**STRAIGHT - 3RD EXIT**
MURDOS ROUNDABOUT	*NORTH ANDERSON DRIVE*	
NORTH ANDERSON DRIVE	*KINGS CROSS ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
KINGS CROSS ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*KEPPLESTONE ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
KEPPLESTONE ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*SEAFIELD ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
SEAFIELD ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*SOUTH ANDERSON DRIVE*	**FOLLOW ON TO**
SOUTH ANDERSON DRIVE	*BROOMHILL ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
BROOMHILL ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*GARTHDEE ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
GARTHDEE ROUNDABOUT	*STONEHAVEN ROAD*	
STONEHAVEN ROAD	*GREAT SOUTHERN ROAD*	**LEFT - 1ST EXIT**
GREAT SOUTHERN ROAD	*KING GEORVE VI BRIDGE ROUNDABOUT*	**STRAIGHT - 2ND EXIT**
KING GEORVE VI BRIDGE ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*ABBOTSWELL ROAD*	**LEFT - 1ST EXIT**
ABBOTSWELL ROAD	*CRAIGSHAW DRIVE*	**RIGHT**
CRAIGSHAW DRIVE	*WEST TULLOS DEPOT*	**LEFT**

Gold route 2

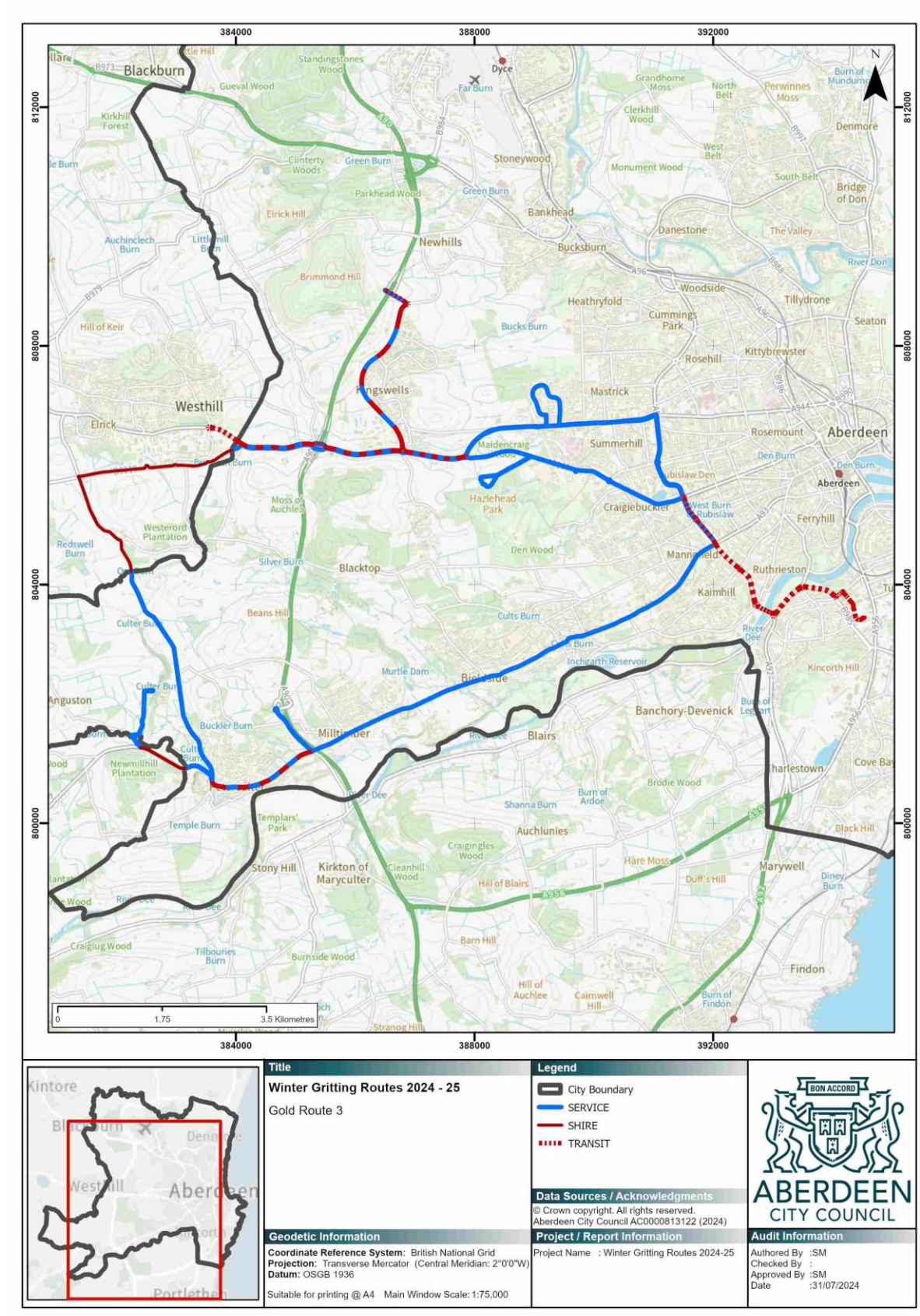

392000
396000
812000
808000
804000
N
Goval Burn
Den Wood
Kaim Hill
Lily Loch
Todhill Wood
River Don
Parkhill Wood
B997
Hill of Tramaud
Blackdog
Grandhome Moss
North Belt
Perwinnes Moss
Burn of Mundurno
Clerkhill Wood
West Belt
Stoneywood
Monument Wood
South Belt
Bridge of Don
Bankhead
Danestone
The Valley
Bucksburn
A96
Woodside
Heathryfold
Cummings Park
Bucks Burn
Seaton
Rosehill
Mastrick
Aberdeen Bay
Rosemount
Aberdeen
Summerhill
A9119
Den Burn
Rubislaw Den
Footdee
Craigiebuckler
West Burn of Rubislaw
A93
Ferryhill
Torry
Den Wood
Mannofield
Ruthrieston
Kaimhill
Tullos
B985
River Dee
0
1.25
2.5 Kilometres
Kintore
Blackburn
Westhill
Aberdeen
Portlethen
Title
Winter Gritting Routes 2024 - 25
Gold Route 2
Legend
City Boundary
SERVICE
SHIRE
TRANSIT
Data Sources / Acknowledgments
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Aberdeen City Council AC0000813122 (2024)
BON ACCORD
ABERDEEN
CITY COUNCIL
Geodetic Information
Coordinate Reference System: British National Grid
Projection: Transverse Mercator (Central Meridian: 2°0'0"W)
Datum: OSGB 1936
Suitable for printing @ A4 Main Window Scale: 1:55,000
Project / Report Information
Project Name : Winter Gritting Routes 2024-25
Audit Information
Authored By :SM
Checked By :
Approved By :SM
Date :31/07/2024

GOLD 2		
FROM	**TO**	**DIRECTION**
TULLOS DEPOT	*CRAIGSHAW DRIVE*	LEFT
CRAIGSHAW DRIVE	*WELLINGTON ROAD*	LEFT
WELLINGTON ROAD	*QUEEN ELIZABETH BRIDGE*	LEFT - 1ST EXIT
QUEEN ELIZABETH BRIDGE	*NORTH ESPLANADE WEST*	RIGHT - 3RD EXIT
NORTH ESPLANADE WEST	*MARKET STREET*	LEFT
MARKET STREET	**MARKET STREET**	FOLLOW ON TO
MARKET STREET	**UNION STREET**	RIGHT
UNION STREET	**CASTLE STREET**	FOLLOW ON TO
CASTLE STREET	**KING STREET**	LEFT
KING STREET	**ELLON ROAD**	FOLLOW ON TO
ELLON ROAD	**MURCAR ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
MURCAR ROUNDABOUT	**ELLON ROAD**	
ELLON ROAD	**ELLON ROAD**	CITY LIMIT
ELLON ROAD	**ELLON ROAD**	LEFT - OFF SLIP ROAD
ELLON ROAD	**ELLON ROAD**	ROUND - 5TH EXIT
ELLON ROAD	**ELLON ROAD**	ON SLIP ROAD
ELLON ROAD	**MURCAR ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
MURCAR ROUNDABOUT	**ELLON ROAD**	
ELLON ROAD	**AECC ROUNDABOUT**	RIGHT - 3RD EXIT
AECC ROUNDABOUT	**PARKWAY**	
PARKWAY	**SCOTSTOWN ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
SCOTSTOWN ROUNDABOUT	**PARKWAY**	
PARKWAY	**DANESTONE ROUNDABOUT**	ROUND - 4TH EXIT
DANESTONE ROUNDABOUT	**PARKWAY**	
PARKWAY	**SCOTSTOWN ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
SCOTSTOWN ROUNDABOUT	**PARKWAY**	
PARKWAY	**AECC ROUNDABOUT**	RIGHT - 3RD EXIT
AECC ROUNDABOUT	**KING STREET**	
KING STREET	**EAST NORTH STREET**	LEFT
EAST NORTH STREET	*BEACH BOULEVARD ROUNDABOUT*	STRAIGHT ON - 3RD EXIT
BEACH BOULEVARD ROUNDABOUT	*COMMERCE STREET*	
COMMERCE STREET	*VIRGINIA STREET*	RIGHT
VIRGINIA STREET	*GUILD STREET*	FOLLOW ON TO
GUILD STREET	**BRIDGE STREET**	RIGHT
BRIDGE STREET	**WAPPING STREET**	LEFT
WAPPING STREET	**DENBURN ROAD**	LEFT
DENBURN ROAD	**WOOLMANHILL ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
WOOLMANHILL ROUNDABOUT	**GILCOMSTON STEPS**	

GILCOMSTON STEPS	**SKENE SQUARE**	FOLLOW ON TO
SKENE SQUARE	**ROSEMOUNT ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
ROSEMOUNT ROUNDABOUT	**SKENE SQUARE**	
SKENE SQUARE	**CAROLINE PLACE**	FOLLOW ON TO
CAROLINE PLACE	**BERRYDEN ROAD**	STRAIGHT ON
BERRYDEN ROAD	**BERRYDEN ROOUNDABOUT**	STRAIGHT ON - 2ND EXIT
BERRYDEN ROOUNDABOUT	**BERRYDEN ROAD**	
BERRYDEN ROAD	**BELMONT ROAD**	FOLLOW ON TO
BELMONT ROAD	**POWIS TERRACE**	RIGHT
POWIS TERRACE	**POWIS PLACE**	KEEP LEFT
POWIS PLACE	**CAUSEWAYEND**	FOLLOW ON TO
CAUSEWAYEND	**MOUNTHOOLY ROUNDABOUT**	STRAIGHT ON - 2ND EXIT THEN 1ST LEFT
MOUNTHOOLY ROUNDABOUT	**NELSON STREET**	
NELSON STREET	**KING STREET**	LEFT
KING STREET	**MOUNTHOOLY WAY**	LEFT
MOUNTHOOLY WAY	**MONTHOOLY**	FOLLOW ON TO
MONTHOOLY	**MOUNTHOOLY ROUNDABOUT**	LEFT - 1ST EXIT
MOUNTHOOLY ROUNDABOUT	**WEST NORTH STREET**	
WEST NORTH STREET	**EAST NORTH STRREET**	STRAIGHT ON
EAST NORTH STRREET	**BEACH BOULEVARD ROUNDABOUT**	ROUND - 5TH EXIT
BEACH BOULEVARD ROUNDABOUT	**EAST NORTH STRREET**	
EAST NORTH STRREET	**WEST NORTH STREET**	STRAIGHT ON
WEST NORTH STREET	**MOUNTHOOLY ROUNDABOUT**	STRAIGHT ON - 3RD EXIT
MOUNTHOOLY ROUNDABOUT	**CAUSEWAYEND**	
CAUSEWAYEND	**POWIS PLACE**	FOLLOW ON TO
POWIS PLACE	**POWIS TERRACE**	STRAIGHT ON
POWIS TERRACE	**GREAT NORTHERN ROAD**	FOLLOW ON TO
GREAT NORTHERN ROAD	**ST MACHAR ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
ST MACHAR ROUNDABOUT	**GREAT NORTHERN ROAD**	
GREAT NORTHERN ROAD	**HAUDAGAIN ROUNDABOUT**	ROUND - 4TH EXIT
HAUDAGAIN ROUNDABOUT	**GREAT NORTHERN ROAD**	
GREAT NORTHERN ROAD	**ST MACHAR ROUNDABOUT**	LEFT - 2ND EXIT
ST MACHAR ROUNDABOUT	**ST MACHAR DRIVE**	
ST MACHAR DRIVE	**TILLYDRONE AVENUE**	LEFT
TILLYDRONE AVENUE	**GORDON MILLS ROAD**	FOLLOW ON TO

GORDON MILLS ROAD	**GORDON BRAE**	FOLLOW ON TO
GORDON BRAE	**DANESTONE ROUNDABOUT**	ROUND 4TH EXIT
DANESTONE ROUNDABOUT	**GORDON BRAE**	
GORDON BRAE	**GORDON MILLS ROAD**	FOLLOW ON TO
GORDON MILLS ROAD	**TILLYDRONE AVENUE**	FOLLOW ON TO
TILLYDRONE AVENUE	**ST MACHAR DRIVE**	LEFT
ST MACHAR DRIVE	**SEATON ROUNDABOUT**	ROUND - 4TH EXIT
SEATON ROUNDABOUT	**ST MACHAR DRIVE**	
ST MACHAR DRIVE	**ST MACHAR ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
ST MACHAR ROUNDABOUT	**LESLIE ROAD**	
LESLIE ROAD	**HILTON STREET**	STRAIGHT ON
HILTON STREET	**SIX ROADS ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
SIX ROADS ROUNDABOUT	**WESTBURN DRIVE**	
WESTBURN DRIVE	**CORNHILL ROAD**	RIGHT
CORNHILL ROAD	**ASHGROVE ROAD WEST**	RIGHT
ASHGROVE ROAD WEST	*WESTBURN DRIVE*	RIGHT
WESTBURN DRIVE	*WESTBURN ROAD*	LEFT
WESTBURN ROAD	**HUTCHEON STREET**	STRAIGHT ON
HUTCHEON STREET	**MOUNTHOOLY ROUNDABOUT**	ROUND - 5TH EXIT
MOUNTHOOLY ROUNDABOUT	**HUTCHEON STREET**	
HUTCHEON STREET	**CAROLINE PLACE**	LEFT
CAROLINE PLACE	**SKENE SQUARE**	FOLLOW ON TO
SKENE SQUARE	**ROSEMOUNT ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
ROSEMOUNT ROUNDABOUT	**SKENE SQUARE**	
SKENE SQUARE	**GILCOMSTON STEPS**	FOLLOW ON TO
GILCOMSTON STEPS	**DENBURN ROAD**	STRAIGHT ON - 2ND EXIT
DENBURN ROAD	**DENBURN ROAD**	
DENBURN ROAD	**WAPPING STREET**	LEFT
WAPPING STREET	**CARMELITE STREET**	RIGHT
CARMELITE STREET	**GUILD STREET**	RIGHT
GUILD STREET	**COLLEGE STREET**	LEFT
COLLEGE STREET	**SOUTH COLLEGE STREET**	STRAIGHT ON TO
SOUTH COLLEGE STREET	**QUEEN ELIZABETH BRIDGE ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
QUEEN ELIZABETH BRIDGE ROUNDABOUT	**QUEEN ELIZABETH BRIDGE**	
QUEEN ELIZABETH BRIDGE	*CRAIGINCHES ROUNDABOUT*	STRAIGHT - 2ND EXIT
CRAIGINCHES ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*TULLOS DEPOT*	RIGHT - DEPOT

Gold route 3


384000
388000
392000
812000
808000
804000
800000
N
Blackburn
Dyce
Stoneywood
Bankhead
Newhills
Bucksburn
Danestone
Woodside
Tillydrone
Aberdeen
Rosemount
Summerhill
Mastrick
Kingswells
Westhill
Elrick
Hazlehead Park
Craigiebuckler
Ferryhill
Ruthrieston
Kaimhill
Blacktop
Cults Burn
Inchgarth Reservoir
Banchory-Devenick
Blairs
Milltimber
Charlestown
Auchlunies
Kirkton of Maryculter
Stony Hill
Marywell
Findon
Hill of Blairs
Hare Moss
Brodie Wood
Shanna Burn
Burn of Ardoe
Templars' Park
Temple Burn
Buckler Burn
Silver Burn
Beans Hill
Murtle Dam
Barn Hill
Burnside Wood
Craiglug Wood
Tilbouries Burn
Hill of Auchlee
Cairnwell Hill
Burn of Findon
Stranog Hill
Kincorth Hill
Black Hill
Cove Bay
Diney Burn
Duff's Hill
Cleanhill Wood
Craigingles Wood
Newmillhill Plantation
Westerord Plantation
Redswell Burn
Moss of Auchleis
Den Wood
Maidencraig
Den Burn
West Burn
Rubislaw
Rubislaw Den
Mannofield
Kintore
Portlethen
0
1.75
3.5 Kilometres
Title
Winter Gritting Routes 2024 - 25
Gold Route 3
Legend
City Boundary
SERVICE
SHIRE
TRANSIT
Data Sources / Acknowledgments
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Aberdeen City Council AC0000813122 (2024)
BON ACCORD
ABERDEEN
CITY COUNCIL
Geodetic Information
Coordinate Reference System: British National Grid
Projection: Transverse Mercator (Central Meridian: 2°0'0"W)
Datum: OSGB 1936
Suitable for printing @ A4 Main Window Scale: 1:75,000
Project / Report Information
Project Name : Winter Gritting Routes 2024-25
Audit Information
Authored By :SM
Checked By :
Approved By :SM
Date :31/07/2024

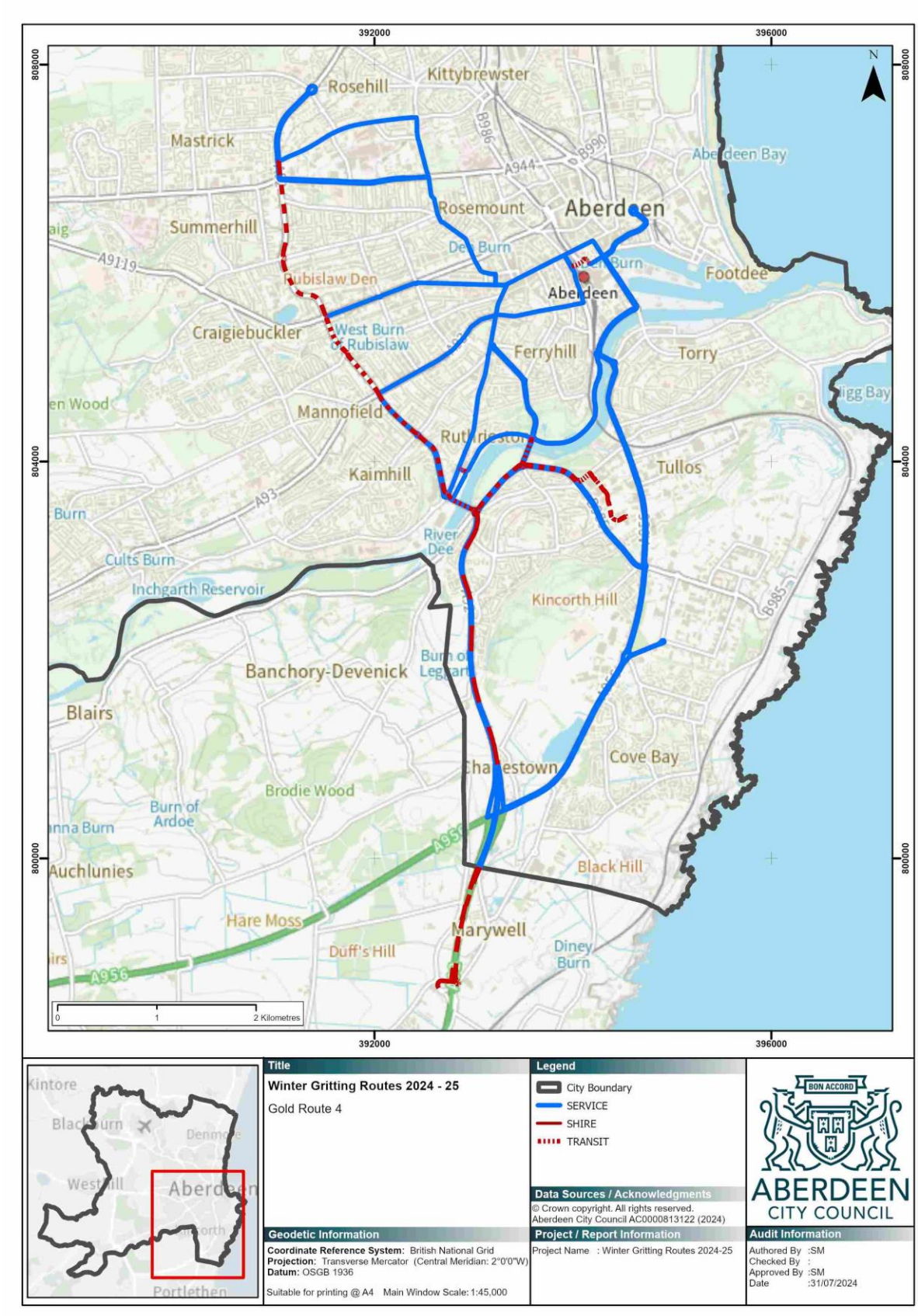
GOLD 3		
FROM	**TO**	**DIRECTION**
WEST TULLOS DEPOT	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*ABBOTSWELL ROAD*	LEFT
ABBOTSWELL ROAD	*ABBOTSWELL ROUNDABOUT*	RIGHT - 2ND EXIT
ABBOTSWELL ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*KING GEORGE VI BRIDGE ROUNDABOUT*	STRAIGHT - 2ND EXIT
KING GEORGE VI BRIDGE ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*BRIDGE OF DEE ROUNDABOUT*	RIGHT - 3RD EXIT
BRIDGE OF DEE ROUNDABOUT	*STONEHAVEN ROAD*	
STONEHAVEN ROAD	*GARTHDEE ROUNDABOUT*	STRAIGHT - 2ND EXIT
GARTHDEE ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*BROOMHILL ROUNDABOUT*	STRAIGHT - 2ND EXIT
BROOMHILL ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*ANDERSON DRIVE*	FOLLOW ON TO
ANDERSON DRIVE	**SEAFIELD ROUNDABOUT**	STRAIGHT - 2ND EXIT
SEAFIELD ROUNDABOUT	**ANDERSON DRIVE**	
ANDERSON DRIVE	**KEPPLESTONE ROUNDABOUT**	STRAIGHT - 2ND EXIT
KEPPLESTONE ROUNDABOUT	**ANDERSON DRIVE**	
ANDERSON DRIVE	**KINGS CROSS ROUNDABOUT**	STRAIGHT - 2ND EXIT
KINGS CROSS ROUNDABOUT	**NORTH ANDERSON DRIVE**	
NORTH ANDERSON DRIVE	**LANG STRACHT**	LEFT
LANG STRACHT	**MIDDENCRAIG ROUNDABOUT**	ROUND - 3RD EXIT
MIDDENCRAIG ROUNDABOUT	**LANG STRACHT**	
LANG STRACHT	**SKYE ROAD**	LEFT
SKYE ROAD	**ARRAN AVENUE**	LEFT
ARRAN AVENUE	**LEWIS ROAD**	FOLLOW ON TO
LEWIS ROAD	**LANG STRACHT**	LEFT
LANG STRACHT	**NORTH ANDERSON DRIVE**	RIGHT
NORTH ANDERSON DRIVE	**KINGS CROSS ROUNDABOUT**	STRAIGHT - 2ND EXIT
KINGS CROSS ROUNDABOUT	**ANDERSON DRIVE**	
ANDERSON DRIVE	**KEPPLESTONE ROUNDABOUT**	STRAIGHT - 2ND EXIT
KEPPLESTONE ROUNDABOUT	**ANDERSON DRIVE**	

ANDERSON DRIVE	**SEAFIELD ROUNDABOUT**	STRAIGHT - 2ND EXIT
SEAFIELD ROUNDABOUT	**ANDERSON DRIVE**	
ANDERSON DRIVE	**GREAT WESTERN ROAD**	RIGHT
GREAT WESTERN ROAD	**ST JOHNS TERRACE**	FOLLOW ON TO
ST JOHNS TERRACE	**NORTH DEESIDE ROAD**	FOLLOW ON TO
NORTH DEESIDE ROAD	**NORTH DEESIDE ROAD**	TO CITY LIMIT
NORTH DEESIDE ROAD	**ANGUSTON ROAD**	RIGHT
ANGUSTON ROAD	**LINN MOOR ROAD**	RIGHT
LINN MOOR ROAD	**ANGUSTON ROAD**	TO LINN MOOR SCHOOL AND RETURN
ANGUSTON ROAD	**NORTH DEESIDE ROAD**	LEFT
NORTH DEESIDE ROAD	**NORTH DEESIDE ROAD**	FOLLOW ON TO
NORTH DEESIDE ROAD	**AWPR**	LEFT
AWPR	*AWPR*	ROUND - 3RD EXIT
AWPR	*NORTH DEESIDE ROAD*	RIGHT
NORTH DEESIDE ROAD	**MALCOLM ROAD**	RIGHT
MALCOLM ROAD	**PETERCULTER - KIRKTON OF SKENE ROAD**	FOLLOW ON TO
PETERCULTER - KIRKTON OF SKENE ROAD	**B979**	TO CITY LIMIT
B979	*CARNIE ROUNDABOUT*	ROUND - 3RD EXIT
CARNIE ROUNDABOUT	*B9119*	
B9119	*B9119 ROUNDABOUT 'Total'*	STRAIGHT - 2ND EXIT
B9119 ROUNDABOUT 'Total'	*B9119*	
B9119	*B9119 ROUNDABOUT 'TAQA'*	STRAIGHT - 2ND EXIT
B9119 ROUNDABOUT 'TAQA'	*B9119*	
B9119	*B9119 ROUNDABOUT AT PROSPECT ROAD*	STRAIGHT - 2ND EXIT
B9119 ROUNDABOUT AT PROSPECT ROAD	*B9119 TO CITY BOUNDARY*	
B9119 TO CITY BOUNDARY	*B9119*	STRAIGHT - 2ND EXIT
B9119	**SKENE ROAD**	RIGHT
SKENE ROAD	**AWPR ROUNDABOUT**	STRAIGHT - 3RD EXIT
AWPR ROUNDABOUT	**SKENE ROAD**	
SKENE ROAD	**KINGSWELLS ROUNDABOUT**	LEFT - 1ST EXIT
KINGSWELLS ROUNDABOUT	**CHAPEL OF STONEYWOOD - FAIRLEY ROAD**	
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	**AWPR ROUNDABOUT**	LEFT - 1ST EXIT
AWPR ROUNDABOUT	**AWPR ACCESS ROAD**	
AWPR ACCESS ROAD	**AWPR ACCESS ROAD**	TURN
AWPR ACCESS ROAD	*AWPR ROUNDABOUT*	RIGHT - 2ND EXIT
AWPR ROUNDABOUT	*CHAPEL OF STONEYWOOD - FAIRLEY ROAD*	

CHAPEL OF STONEYWOOD - FAIRLEY ROAD	*KINGSWELLS ROUNDABOUT*	LEFT - 1ST EXIT
KINGSWELLS ROUNDABOUT	**SKENE ROAD**	
SKENE ROAD	**MIDDENCRAIG ROUNDABOUT**	ROUND - 3RD EXIT
MIDDENCRAIG ROUNDABOUT	**SKENE ROAD**	
SKENE ROAD	**KINGSWELLS ROUNDABOUT**	STRAIGHT - 2ND EXIT
KINGSWELLS ROUNDABOUT	**SKENE ROAD**	
SKENE ROAD	**AWPR ROUNDABOUT**	STRAIGHT - 2ND EXIT
AWPR ROUNDABOUT	**SKENE ROAD**	
SKENE ROAD	**SKENE ROAD TO CITY BOUNDARY**	FOLLOW ON TO
SKENE ROAD TO CITY BOUNDARY	*A944*	FOLLOW ON TO
A944	*A944 ROUNDABOUT AT WESTHILL DRIVE*	ROUND - 4TH EXIT
A944 ROUNDABOUT AT WESTHILL DRIVE	*A944 TO CITY BOUNDARY*	
A944 TO CITY BOUNDARY	*SKENE ROAD*	FOLLOW ON TO
SKENE ROAD	*AWPR ROUNDABOUT*	STRAIGHT - 3RD EXIT
AWPR ROUNDABOUT	*SKENE ROAD*	
SKENE ROAD	*KINGSWELL ROUNDABOUT*	STRAIGHT - 2ND EXIT
KINGSWELL ROUNDABOUT	*SKENE ROAD*	
SKENE ROAD	*MIDDENCRAIG ROUNDABOUT*	STRAIGHT - 2ND EXIT
MIDDENCRAIG ROUNDABOUT	*SKENE ROAD*	
SKENE ROAD	**CREMATORIUM LOOP**	RIGHT
CREMATORIUM LOOP	**SKENE ROAD**	RIGHT
SKENE ROAD	**QUEENS ROAD**	FOLLOW ON TO
QUEENS ROAD	**PROVOST GRAHAM AVENUE BUS LOOP**	RIGHT
PROVOST GRAHAM AVENUE BUS LOOP	**QUEENS ROAD**	RIGHT
QUEENS ROAD	**HAZLEHEAD ROUNDABOUT**	COMPLETE - 2ND EXIT
HAZLEHEAD ROUNDABOUT	**QUEENS ROAD**	
QUEENS ROAD	**KEPPLESTONE ROUNDABOUT**	RIGHT - 3RD EXIT
KEPPLESTONE ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*SEAFIELD ROUNDABOUT*	STRAIGHT - 2ND EXIT
SEAFIELD ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*SOUTH ANDERSON DRIVE*	FOLLOW ON TO

SOUTH ANDERSON DRIVE	*BROOMHILL ROUNDABOUT*	STRAIGHT - 2ND EXIT
BROOMHILL ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*GARTHDEE ROUNDABOUT*	STRAIGHT - 2ND EXIT
GARTHDEE ROUNDABOUT	*STONEHAVEN ROAD*	
STONEHAVEN ROAD	*GREAT SOUTHERN ROAD*	LEFT - 1ST EXIT
GREAT SOUTHERN ROAD	*KING GEORVE VI BRIDGE ROUNDABOUT*	STRAIGHT - 2ND EXIT
KING GEORVE VI BRIDGE ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*ABBOTSWELL ROAD*	LEFT - 1ST EXIT
ABBOTSWELL ROAD	*CRAIGSHAW DRIVE*	LEFT - 1ST EXIT
CRAIGSHAW DRIVE	*WEST TULLOS DEPOT*	RIGHT

Gold route 4


392000
396000
808000
804000
800000
N
Rosehill
Kittybrewster
Mastrick
Aberdeen Bay
Rosemount
Aberdeen
Summerhill
Footdee
Craigiebuckler
Ferryhill
Torry
Mannofield
Kaimhill
Tullos
Cults Burn
Inchgarth Reservoir
Kincorth Hill
Banchory-Devenick
Blairs
Cove Bay
Brodie Wood
Burn of Ardoe
Auchlunies
Black Hill
Hare Moss
Marywell
Duff's Hill
Diney Burn
A956
A93
A944
B986
B990
B985
0
1
2 Kilometres
Title
Winter Gritting Routes 2024 - 25
Gold Route 4
Legend
City Boundary
SERVICE
SHIRE
TRANSIT
Data Sources / Acknowledgments
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Aberdeen City Council AC0000813122 (2024)
ABERDEEN CITY COUNCIL
Geodetic Information
Coordinate Reference System: British National Grid
Projection: Transverse Mercator (Central Meridian: 2°0'0"W)
Datum: OSGB 1936
Suitable for printing @ A4 Main Window Scale: 1:45,000
Project / Report Information
Project Name : Winter Gritting Routes 2024-25
Audit Information
Authored By :SM
Checked By :
Approved By :SM
Date :31/07/2024

GOLD 4		
FROM	**TO**	**DIRECTION**
WEST TULLOS DEPOT	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*ABBOTSWELL ROAD*	LEFT
ABBOTSWELL ROAD	*WEST TULLOS ROAD*	LEFT - 1ST EXIT
WEST TULLOS ROAD	**WELLINGTON ROAD**	LEFT - 1ST EXIT
WELLINGTON ROAD	**CRAIGINCHES ROUNDABOUT**	COMPLETE - 4TH EXIT
CRAIGINCHES ROUNDABOUT	**QUEEN ELZABETH BRIDGE**	
QUEEN ELZABETH BRIDGE	**QUEEN ELZABETH BRIDGE ROUNDABOUT**	RIGHT - 3RD EXIT
QUEEN ELZABETH BRIDGE ROUNDABOUT	**NORTH ESPLANADE WEST**	
NORTH ESPLANADE WEST	**MARKET STREET**	LEFT
MARKET STREET	**UNION STREET**	LEFT
UNION STREET	**BRIDGE STREET**	RIGHT
BRIDGE STREET	**WAPPING STREET**	RIGHT
WAPPING STREET	*CARMELITE STREET*	RIGHT
CARMELITE STREET	*GUILD STREET*	RIGHT
GUILD STREET	**TRINITY QUAY**	STRAIGHT ON
TRINITY QUAY	**VIRGINIA STREET**	STRAIGHT ON
VIRGINIA STREET	**COMMERCE STREET**	LEFT
COMMERCE STREET	**BEACH BOULEVARD ROUNDABOUT**	COMPLETE - 5TH EXIT
BEACH BOULEVARD ROUNDABOUT	**COMMERCE STREET**	
COMMERCE STREET	**VIRGINIA STREET**	RIGHT
VIRGINIA STREET	**TRINITY QUAY**	FOLLOW ON TO
TRINITY QUAY	**MARKET STREET**	LEFT
MARKET STREET	**NORTH ESPLANADE WEST**	RIGHT
NORTH ESPLANADE WEST	**QUEEN ELZABETH BRIDGE**	LEFT - 1ST EXIT
QUEEN ELZABETH BRIDGE	**WELLINGTON ROAD**	2ND EXIT
WELLINGTON ROAD	**WELLINGTON ROAD**	RIGHT - 3RD EXIT
WELLINGTON ROAD	**NIGG ROUNDABOUT**	STRAIGHT ON - 3RD EXIT
NIGG ROUNDABOUT	**WELLINGTON ROAD**	
WELLINGTON ROAD	**ALTENS ROUNDABOUT**	LEFT - 1ST EXIT
ALTENS ROUNDABOUT	**SOUTER HEAD ROAD**	
SOUTER HEAD ROAD	**ALTENS ROUNDABOUT**	COMPLETE AND RETURN - LEFT - 2ND EXIT
ALTENS ROUNDABOUT	**WELLINGTON ROAD**	
WELLINGTON ROAD	**STONEHAVEN ROAD - A92 NORTH**	RIGHT
STONEHAVEN ROAD - A92 NORTH	**BRIDGE OF DEE ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
BRIDGE OF DEE ROUNDABOUT	**STONEHAVEN ROAD**	

STONEHAVEN ROAD	**GARTHDEE ROUNDABOUT**	COMPLETE - 4 EXIT
GARTHDEE ROUNDABOUT	**STONEHAVEN ROAD**	
STONEHAVEN ROAD	**BRIDGE OF DEE ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
BRIDGE OF DEE ROUNDABOUT	**STONEHAVEN ROAD - A92 SOUTH**	
STONEHAVEN ROAD - A92 SOUTH	**STONEHAVEN ROAD**	UNDER OVERPASS
STONEHAVEN ROAD	*STONEHAVEN ROAD - A92 NORTH*	TAKE SLIP ROAD AND RETURN ON NORTH CARRIAGEWAY
STONEHAVEN ROAD - A92 NORTH	**BRIDGE OF DEE ROUNDABOUT**	ROUND - 4TH EXIT
BRIDGE OF DEE ROUNDABOUT	*STONEHAVEN ROAD - A92 SOUTH*	
STONEHAVEN ROAD - A92 SOUTH	*STONEHAVEN ROAD - A92 SOUTH - OFF SLIP ROAD*	LEAVE AT FIRST SLIP ROAD
STONEHAVEN ROAD - A92 SOUTH - OFF SLIP ROAD	**WELLINGTON ROAD**	LEFT
WELLINGTON ROAD	**ALTENS ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
ALTENS ROUNDABOUT	**WELLINGTON ROAD**	
WELLINGTON ROAD	**NIGG ROUNDABOUT**	LEFT - 1ST EXIT
NIGG ROUNDABOUT	**WEST TULLOS ROAD**	
WEST TULLOS ROAD	**ABBOTSWELL ROUNDABOUT**	STRAIGHT ON - 1ST EXIT
ABBOTSWELL ROUNDABOUT	**WEST TULLOS ROAD**	
WEST TULLOS ROAD	**KING GEORGE VI ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
KING GEORGE VI ROUNDABOUT	**GREAT SOUTHERN ROAD**	
GREAT SOUTHERN ROAD	**BRIDGE OF DEE ROUNDABOUT**	ROUND - 4TH EXIT
BRIDGE OF DEE ROUNDABOUT	**GREAT SOUTHERN ROAD**	
GREAT SOUTHERN ROAD	**KING GEORGE VI BRIDGE ROUNDABOUT**	LEFT - 1ST EXIT
KING GEORGE VI BRIDGE ROUNDABOUT	**KING GEORGE VI BRIDGE**	
KING GEORGE VI BRIDGE	**DUTHIE PARK ROUNDABOUT**	COMPLETE - 4TH EXIT
DUTHIE PARK ROUNDABOUT	**KING GEORGE VI BRIDGE**	
KING GEORGE VI BRIDGE	**KING GEORGE VI ROUNDABOUT**	LEFT - 1ST EXIT
KING GEORGE VI ROUNDABOUT	**WEST TULLOS ROAD**	

WEST TULLOS ROAD	**ABBOTSWELL ROUNDABOUT**	ROUND - 3RD EXIT
ABBOTSWELL ROUNDABOUT	**WEST TULLOS ROAD**	
WEST TULLOS ROAD	*ABBOTSWELL ROUNDABOUT*	RIGHT - 3RD EXIT
ABBOTSWELL ROUNDABOUT	*KING GEORGE VI BRIDGE*	
KING GEORGE VI BRIDGE	*DUTHIE PARK ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
DUTHIE PARK ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	**WHINHILL ROUNDABOUT**	LEFT - 1ST EXIT
WHINHILL ROUNDABOUT	**GREAT SOUTHERN ROAD**	
GREAT SOUTHERN ROAD	**HOLBURN ROUNDABOUT**	COMPLETE - 4TH EXIT
HOLBURN ROUNDABOUT	**GREAT SOUTHERN ROAD**	
GREAT SOUTHERN ROAD	**WHINHILL ROUNDABOUT**	RIGHT - 2ND EXIT
WHINHILL ROUNDABOUT	**GREAT SOUTHERN ROAD**	
GREAT SOUTHERN ROAD	**DUTHIE PARK ROUNDABOUT**	LEFT - 1ST EXIT
DUTHIE PARK ROUNDABOUT	**RIVERSIDE DRIVE**	
RIVERSIDE DRIVE	**QUEEN ELZABETH BRIDGE ROUNDABOUT**	ROUND - 4TH EXIT
QUEEN ELZABETH BRIDGE ROUNDABOUT	**RIVERSIDE DRIVE**	ROUND - 4TH EXIT
RIVERSIDE DRIVE	**DUTHIE PARK ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
DUTHIE PARK ROUNDABOUT	**RIVERSIDE DRIVE**	
RIVERSIDE DRIVE	**HOLBURN STREET**	LEFT
HOLBURN STREET	**GARTHDEE ROUNDABOUT**	LEFT - 1ST EXIT
GARTHDEE ROUNDABOUT	**RIVERSIDE DRIVE**	
RIVERSIDE DRIVE	**RIVERSIDE DRIVE**	LEFT
RIVERSIDE DRIVE	**HOLBURN STREET**	RIGHT
HOLBURN STREET	**HOLBURN ROUNDABOUT**	LEFT - 1ST EXIT
HOLBURN ROUNDABOUT	**HOLBURN STREET**	
HOLBURN STREET	**ALFORD PLACE**	LEFT
ALFORD PLACE	**ALBYN PLACE**	FOLLOW ON TO
ALBYN PLACE	**QUEENS CROSS**	STRAIGHT ON - 2ND EXIT
QUEENS CROSS	**QUEENS ROAD**	
QUEENS ROAD	**QUEENS GATE**	STRAIGHT ON - 2ND EXIT
QUEENS GATE	**QUEENS ROAD**	
QUEENS ROAD	**KEPPLESTONE ROUNDABOUT**	LEFT - 1ST EXIT
KEPPLESTONE ROUNDABOUT	**ANDERSON DRIVE**	
ANDERSON DRIVE	*SEAFIELD ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
SEAFIELD ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*SOUTH ANDERSON DRIVE*	FOLLOW ON TO
SOUTH ANDERSON DRIVE	**BROOMHILL ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
BROOMHILL ROUNDABOUT	**SOUTH ANDERSON DRIVE**	

SOUTH ANDERSON DRIVE	**GARTHDEE ROUNDABOUT**	ROUND - 4TH EXIT
GARTHDEE ROUNDABOUT	**SOUTH ANDERSON DRIVE**	
SOUTH ANDERSON DRIVE	**BROOMHILL ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
BROOMHILL ROUNDABOUT	**SOUTH ANDERSON DRIVE**	
SOUTH ANDERSON DRIVE	**GREAT WESTERN ROAD A93**	RIGHT
GREAT WESTERN ROAD A93	**WILLOWBANK ROAD**	STRAIGHT ON
WILLOWBANK ROAD	**SPRINGBANK TERRACE**	FOLLOW ON TO
SPRINGBANK TERRACE	**WELLINGTON PLACE**	STRAIGHT ON
WELLINGTON PLACE	**SOUTH COLLEGE STREET**	LEFT
SOUTH COLLEGE STREET	**COLLEGE STREET**	FOLLOW ON TO
COLLEGE STREET	**BRIDGE STREET**	BEAR LEFT
BRIDGE STREET	**UNION STREET**	LEFT
UNION STREET	**ALFORD PLACE**	BEAR RIGHT
ALFORD PLACE	**VICTORIA STREET**	RIGHT
VICTORIA STREET	**WAVERLEY PLACE**	LEFT
WAVERLEY PLACE	**ALBERT STREET**	FOLLOW ON TO
ALBERT STREET	**CRAIGIE LOANINGS**	STRAIGHT ON
CRAIGIE LOANINGS	**WESTFIELD ROAD**	FOLLOW ON TO
WESTFIELD ROAD	**ARGYLL PLACE**	STRAIGHT ON
ARGYLL PLACE	**WESTBURN ROAD**	LEFT
WESTBURN ROAD	**NORTH ANDERSON DRIVE**	RIGHT
NORTH ANDERSON DRIVE	**MURDOS ROUNDABOUT**	ROUND - 5TH EXIT
MURDOS ROUNDABOUT	**NORTH ANDERSON DRIVE**	
NORTH ANDERSON DRIVE	**WESTBURN ROAD**	LEFT
WESTBURN ROAD	**WESTBURN DRIVE**	LEFT
WESTBURN DRIVE	**ASHGROVE ROAD WEST**	LEFT
ASHGROVE ROAD WEST	**NORTH ANDERSON DRIVE**	LEFT
NORTH ANDERSON DRIVE	*KINGS CROSS ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
KINGS CROSS ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*KEPPLESTONE ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
KEPPLESTONE ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*SEAFIELD ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
SEAFIELD ROUNDABOUT	*ANDERSON DRIVE*	
ANDERSON DRIVE	*SOUTH ANDERSON DRIVE*	STRAIGHT ON - 2ND EXIT
SOUTH ANDERSON DRIVE	*BROOMHILL ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
BROOMHILL ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*GARTHDEE ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
GARTHDEE ROUNDABOUT	*STONEHAVEN ROAD*	
STONEHAVEN ROAD	*BRIDGE OF DEE ROUNDABOUT*	LEFT - 1ST EXIT
BRIDGE OF DEE ROUNDABOUT	*GREAT SOUTHERN ROAD*	

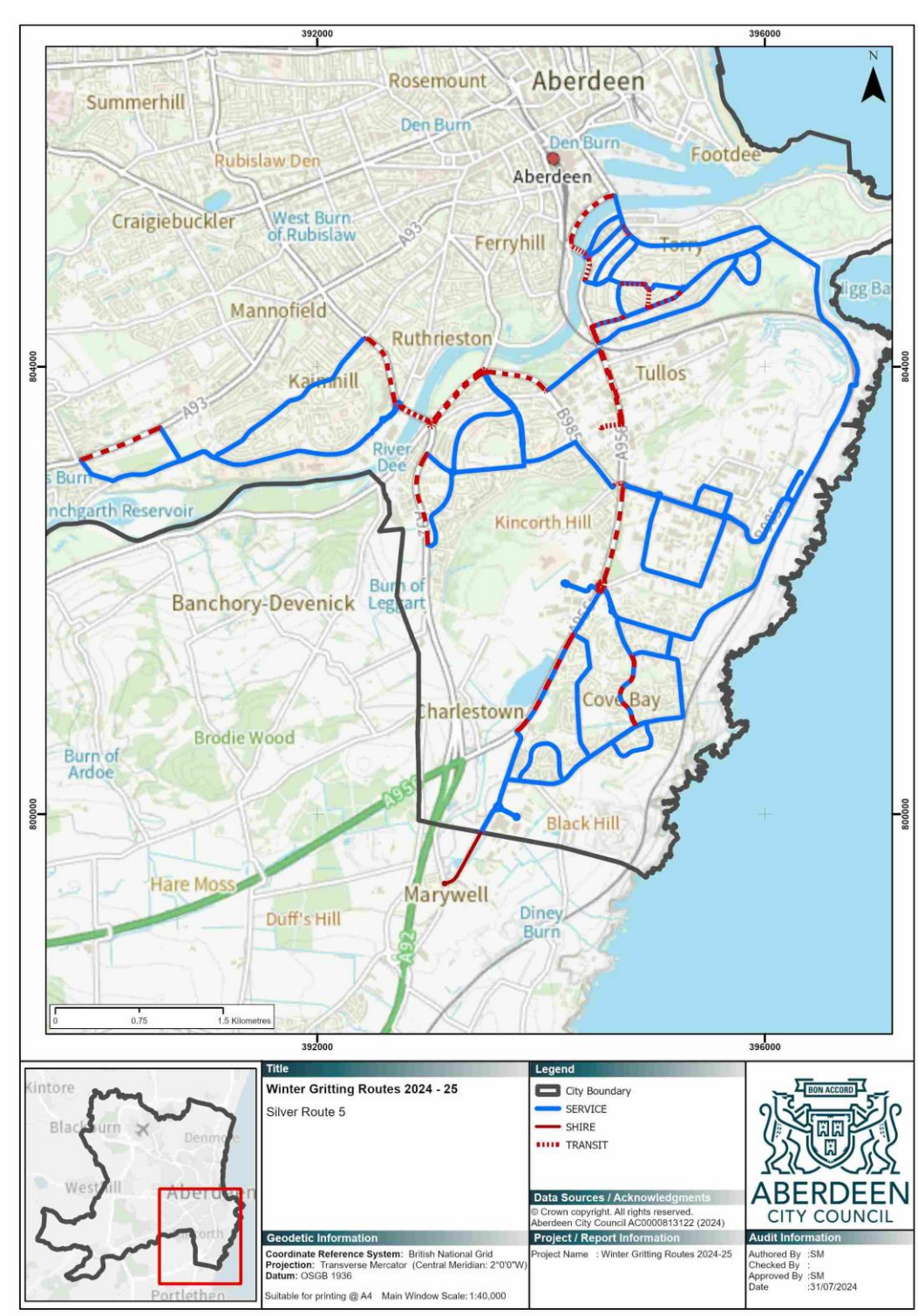
GREAT SOUTHERN ROAD	*KING GEORGE VI ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
KING GEORGE VI ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*ABBOTSWELL ROUNDABOUT*	LEFT - 1ST EXIT
ABBOTSWELL ROUNDABOUT	*ABBOTSWELL ROAD*	
ABBOTSWELL ROAD	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*WEST TULLOS DEPOT*	LEFT

(b) Priority 1, Silver routes

The following described routes (numbered 5-10) cover Priority 1 Silver routes within the City and are to be treated between 04.45 and 21.00.

Bold Text – Treat	*Italic - Run*

Silver route 5



SILVER 5		
FROM	**TO**	**DIRECTION**
CRAIGSHAW DRIVE	*WELLINGTON ROAD*	LEFT
WELLINGTON ROAD	*ABBOTSWELL ROAD*	LEFT
ABBOTSWELL ROAD	**ABBOTSWELL ROUNDABOUT**	RIGHT - 2ND EXIT
ABBOTSWELL ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*KING GEORGE VI BRIDGE ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
KING GEORGE VI BRIDGE ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*BRIDGE OF DEE ROUNDABOUT*	RIGHT - 3RD EXIT
BRIDGE OF DEE ROUNDABOUT	*STONEHAVEN ROAD*	
STONEHAVEN ROAD	*GARTHDEE ROUNDABOUT*	LEFT - 1ST EXIT
GARTHDEE ROUNDABOUT	*GARTHDEE ROAD*	
GARTHDEE ROAD	**ASDA ROUNDABOUT**	COMPLETE - 3RD EXIT
ASDA ROUNDABOUT	**GARTHDEE ROAD**	
GARTHDEE ROAD	**GARTHDEE ROUNDABOUT**	LEFT - 1ST EXIT
GARTHDEE ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*BROOMHILL ROUNDABOUT*	LEFT - 1ST EXIT
BROOMHILL ROUNDABOUT	*AUCHINYELL ROAD*	
AUCHINYELL ROAD	**GARTHDEE ROAD**	RIGHT
GARTHDEE ROAD	**PITFODELS STATION ROAD**	RIGHT
PITFODELS STATION ROAD	**NORTH DEESIDE ROAD**	LEFT
NORTH DEESIDE ROAD	*WESTERTON ROAD*	LEFT
WESTERTON ROAD	**INCHGARTH ROAD**	LEFT
INCHGARTH ROAD	**GARTHDEE ROAD**	STRAIGHT ON
GARTHDEE ROAD	**SAINSBURYS ROUNDABOUT ROUNDABOUT**	COMPLETE - 1ST EXIT
SAINSBURYS ROUNDABOUT ROUNDABOUT	**GARTHDEE ROAD**	
GARTHDEE ROAD	**ASDA ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
ASDA ROUNDABOUT	**GARTHDEE ROAD**	
GARTHDEE ROAD	**GARTHDEE ROUNDABOUT**	RIGHT - 3RD EXIT
GARTHDEE ROUNDABOUT	**STONEHAVEN ROAD**	
STONEHAVEN ROAD	*BRIDGE OF DEE ROUNDABOUT*	LEFT 1ST EXIT
BRIDGE OF DEE ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*KING GEORGE VI BRIDGE ROUNDABOUT*	RIGHT - 3RD EXIT

KING GEORGE VI BRIDGE ROUNDABOUT	*PROVOST WATT DRIVE*	
PROVOST WATT DRIVE	**FAULDS GATE**	RIGHT

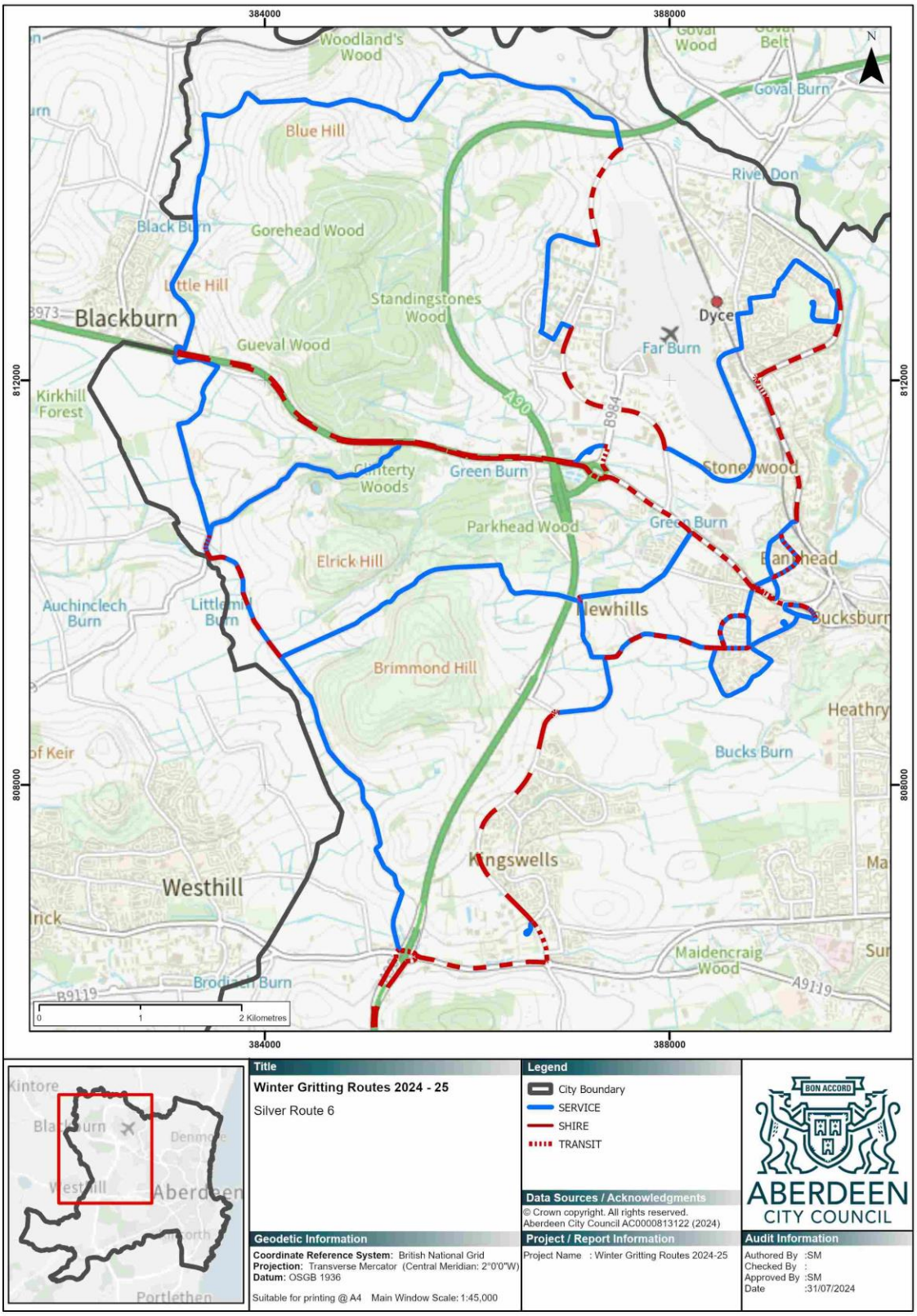
FAULDS GATE	**KINCORTH ROUNDABOUT**	RIGHT - 3RD EXIT
KINCORTH ROUNDABOUT	**CAIRNGORM ROAD**	
CAIRNGORM ROAD	**STONEHAVEN ROAD**	LEFT
STONEHAVEN ROAD	*NIGG WAY*	LEFT
NIGG WAY	**GARDNER DRIVE**	LEFT
GARDNER DRIVE	**KINCORTH ROUNDABOUT**	RIGHT -3RD EXIT
KINCORTH ROUNDABOUT	**CAIRNGORM DRIVE**	
CAIRNGORM DRIVE	**PROVOST WATT DRIVE**	LEFT
PROVOST WATT DRIVE	**KING GEORGE VI BRIDGE ROUNDABOUT**	ROUND - 4TH EXIT
KING GEORGE VI BRIDGE ROUNDABOUT	*PROVOST WATT DRIVE*	
PROVOST WATT DRIVE	**ARBROATH WAY**	LEFT
ARBROATH WAY	**ABBOTSWELL CRESCENT**	RIGHT
ABBOTSWELL CRESCENT	**REDMOSS ROAD**	LEFT
REDMOSS ROAD	**WEST TULLOS ROAD**	RIGHT
WEST TULLOS ROAD	*NIGG ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
NIGG ROUNDABOUT	*HARENESS ROAD*	
HARENESS ROAD	**CRAWPEEL ROUNDABOUT**	RIGHT - 3RD EXIT
CRAWPEEL ROUNDABOUT	**CRAWPEEL ROAD**	
CRAWPEEL ROAD	**SOUTERHEAD ROUNDABOUT**	LEFT - 1ST EXIT
SOUTERHEAD ROUNDABOUT	**SOUTERHEAD ROAD**	
SOUTERHEAD ROAD	**BLACKNESS ROAD**	LEFT
BLACKNESS ROAD	**HARENESS ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
HARENESS ROUNDABOUT	**MINTO ROAD**	
MINTO ROAD	**MINTO DRIVE**	LEFT
MINTO DRIVE	**MINTO AVENUE**	LEFT
MINTO AVENUE	**HARENESS ROAD**	LEFT
HARENESS ROAD	**HARENESS ROUNDABOUT**	ROUND - 4TH EXIT
HARENESS ROUNDABOUT	**HARENESS ROAD**	
HARENESS ROAD	**CRAWPEEL ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
CRAWPEEL ROUNDABOUT	**HARENESS ROAD**	
HARENESS ROAD	**NIGG ROUNDABOUT**	LEFT - 1ST EXIT
NIGG ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*ALTENS ROUNDABOUT*	RIGHT - 4TH EXIT
ALTENS ROUNDABOUT	*WELLINGTON CIRCLE*	
WELLINGTON CIRCLE	**WELLINGTON CIRCLE**	LEFT
WELLINGTON CIRCLE	**WELLINGTON CIRCLE IKEA ROUNDABOUT**	RIGHT - 4TH EXIT
WELLINGTON CIRCLE IKEA ROUNDABOUT	**WELLINGTON CIRCLE**	
WELLINGTON CIRCLE	**WELLINGTON CIRCLE**	RIGHT

WELLINGTON CIRCLE	**ALTENS ROUNDABOUT**	RIGHT - 4TH EXIT
ALTENS ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	**WELLINGTON ROAD**	LEFT
WELLINGTON ROAD	**COVE ROAD**	LEFT
COVE ROAD	**CHARLESTON DRIVE**	LEFT
CHARLESTON DRIVE	**COVE ROAD**	LEFT
COVE ROAD	**CHARLESTON ROAD**	LEFT
CHARLESTON ROAD	**CHARLESTON ROAD NORTH**	fOLLOW RIGHT
CHARLESTON ROAD NORTH	**WELLINGTON ROAD**	LEFT
WELLINGTON ROAD	*WELLINGTON ROAD*	LEFT
WELLINGTON ROAD	**GATEWAY ROUNDABOUT**	
GATEWAY ROUNDABOUT	**GATEWAY DRIVE**	LEFT - 1ST EXIT
GATEWAY DRIVE	**CHARLESTON MOSS ROUNDABOUT**	COMPLETE - 4TH EXIT
CHARLESTON MOSS ROUNDABOUT	**GATEWAY DRIVE**	
GATEWAY DRIVE	**GATEWAY ROUNDABOUT**	LEFT - 1ST EXIT
GATEWAY ROUNDABOUT	**WELLINGTON ROAD**	
WELLINGTON ROAD	**WELLINGTON ROAD**	CITY LIMIT
WELLINGTON ROAD	*ROUNDABOUT*	ROUND 4TH EXIT
ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*WELLINGTON ROAD*	TO CITY LIMIT
WELLINGTON ROAD	**GATEWAY ROUNDABOUT**	STRAIGHT ON - 1ST EXIT
GATEWAY ROUNDABOUT	**WELLINGTON ROAD**	
WELLINGTON ROAD	**COVE ROAD**	RIGHT
COVE ROAD	**COVE CRESCENT**	RIGHT
COVE CRESCENT	**COVE ROAD**	RIGHT
COVE ROAD	**EARNS HEUGH ROAD**	LEFT
EARNS HEUGH ROAD	**LANGDYKES ROAD**	LEFT
LANGDYKES ROAD	**HYDROGEN STATION**	LEFT
HYDROGEN STATION	**LANGDYKES ROAD**	LEFT
LANGDYKES ROAD	**ALTENS ROUNDABOUT**	ROUND - 5TH EXIT
ALTENS ROUNDABOUT	*LANGDYKES ROAD*	
LANGDYKES ROAD	**LORISTON ROAD**	RIGHT
LORISTON ROAD	**COVE ROAD**	RIGHT
COVE ROAD	**EARNS HEUGH ROAD**	RIGHT
EARNS HEUGH ROAD	*LORISTON AVENUE*	RIGHT
LORISTON AVENUE	**LORISTON ROAD**	LEFT
LORISTON ROAD	**LANGDYKES ROAD**	RIGHT
LANGDYKES ROAD	**COAST ROAD**	LEFT
COAST ROAD	**HARENESS ROAD**	LEFT

HARENESS ROAD	**HARENESS ROUNDABOUT**	ROUND 4TH EXIT
HARENESS ROUNDABOUT	**HARENESS ROAD**	
HARENESS ROAD	**HARENESS PLACE**	LEFT
HARENESS PLACE	**TURN POINT**	ROUND
TURN POINT	**HARENESS PLACE**	ROUND
HARENESS PLACE	**HARENESS ROAD**	LEFT
HARENESS ROAD	**COAST ROAD**	LEFT
COAST ROAD	**ST FITTICKS ROAD**	LEFT
ST FITTICKS ROAD	**BALNAGASK ROAD**	LEFT
BALNAGASK ROAD	**WELINGTON ROAD**	LEFT
WELINGTON ROAD	*GIRDLENESS ROAD*	LEFT
GIRDLENESS ROAD	**BALNAGASK ROAD**	RIGHT
BALNAGASK ROAD	**BALNAGASK CIRCLE**	RIGHT
BALNAGASK CIRCLE	**GIRDLENESS ROAD**	RIGHT
GIRDLENESS ROAD	**BALNAGASK ROAD**	RIGHT
BALNAGASK ROAD	**ST FITTICKS ROAD**	LEFT
ST FITTICKS ROAD	**VICTORIA ROAD**	LEFT
VICTORIA ROAD	**NORTH ESPLANADE WEST**	LEFT
NORTH ESPLANADE WEST	*QUEEN ELIZABETH BRIDGE ROUNDABOUT*	LEFT 1ST EXIT
QUEEN ELIZABETH BRIDGE ROUNDABOUT	*QUEEN ELZABETH BRIDGE*	
QUEEN ELZABETH BRIDGE	*CRAIGINCHES ROUNDABOUT*	COMPLETE - 5TH EXIT
CRAIGINCHES ROUNDABOUT	**SOUTH ESPLANADE WEST**	
SOUTH ESPLANADE WEST	**VICTORIA ROAD**	RIGHT
VICTORIA ROAD	**GRAMPIAN ROAD**	RIGHT
GRAMPIAN ROAD	**GRAMPIAN PLACE**	RIGHT
GRAMPIAN PLACE	**WALKER ROAD**	RIGHT
WALKER ROAD	**VICTORIA ROAD**	LEFT
VICTORIA ROAD	*MENZIES ROAD*	LEFT
MENZIES ROAD	**CRAIG PLACE**	FOLLOW ON TO
CRAIG PLACE	**CRAIGINCHES ROUNDABOUT**	LEFT - 1ST EXIT
CRAIGINCHES ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*GRAMPIAN PLACE*	LEFT
GRAMPIAN PLACE	**TULLOS CIRCLE**	RIGHT
TULLOS CIRCLE	**TULLOS PLACE**	STRAIGHT ON - 2ND EXIT
TULLOS PLACE	**ROUNDABOUT**	COMPLETE - 3RD EXIT
ROUNDABOUT	**BALNAGASK ROAD**	
BALNAGASK ROAD	*BATTOCK PLACE*	RIGHT
BATTOCK PLACE	*TULLOS CIRCLE*	LEFT
TULLOS CIRCLE	*GRAMPIAN PLACE*	LEFT

GRAMPIAN PLACE	*OSCAR ROAD*	LEFT
OSCAR ROAD	**BALNAGASK ROAD**	RIGHT
BALNAGASK ROAD	*WELINGTON ROAD*	LEFT
WELINGTON ROAD	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*WEST TULLOS DEPOT*	RIGHT
WEST TULLOS DEPOT		END

Silver route 6



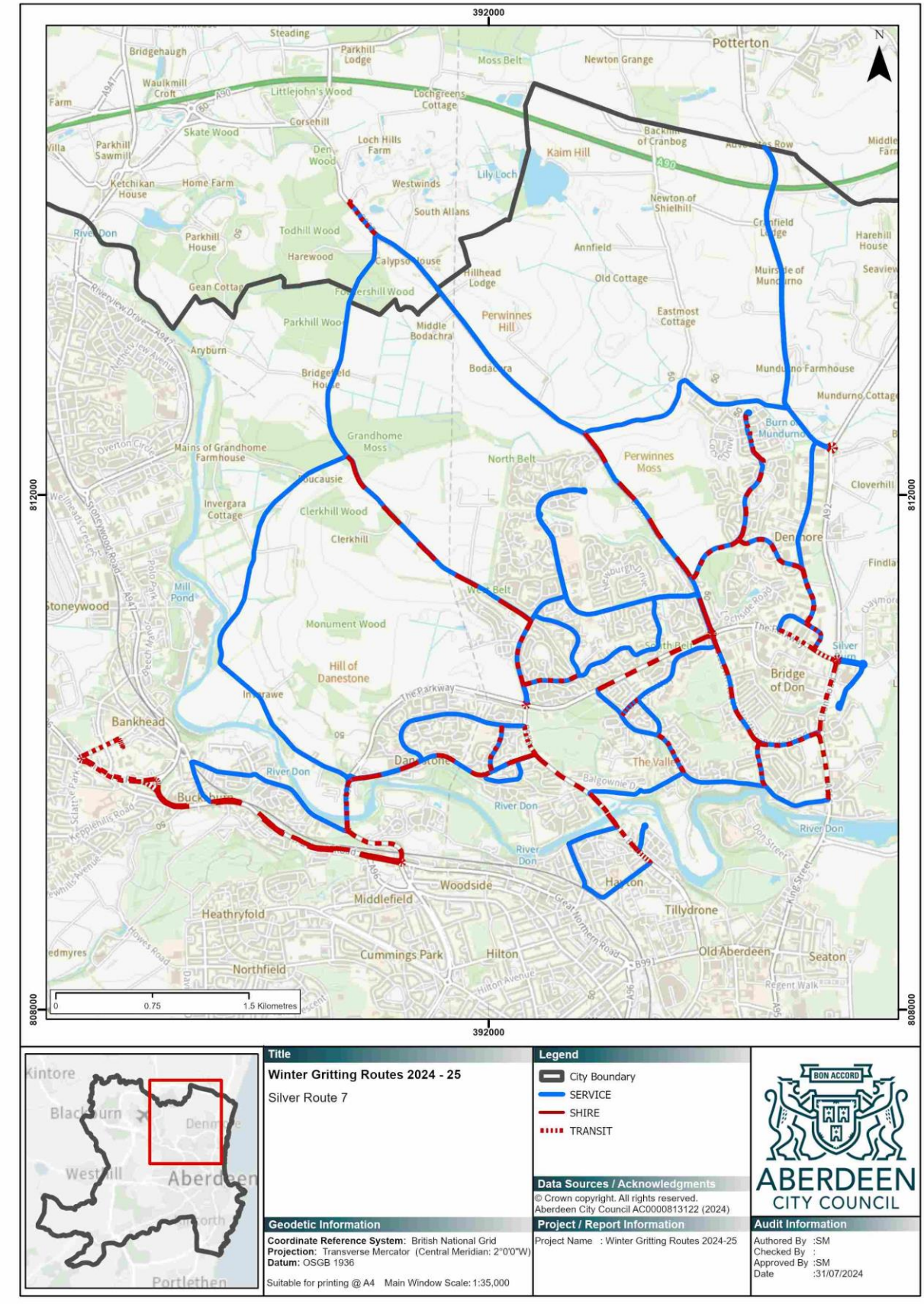
SILVER 6		
STREET	**TO**	**DIRECTION**
WEST TULLOS DEPOT	*CRAIGSHAW DRIVE*	LEFT
CRAIGSHAW DRIVE	*WELLINGTON ROAD*	RIGHT
WELLINGTON ROAD	*NIGG ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
NIGG ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*ALTENS ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
ALTENS ROUNDABOUT	*WELLINGTON RDAD -*	
WELLINGTON RDAD -	*AWPR ROUNDABOUT*	RIGHT - 2ND EXIT
AWPR ROUNDABOUT	*A90 NORTH*	
A90 NORTH	*AWPR ROUNDABOUT*	LEFT - A944 JUNCTION
AWPR ROUNDABOUT	*SKENE ROAD*	RIGHT - 4TH EXIT
SKENE ROAD	*KINGSWELLS ROUNDABOUT*	LEFT - 1ST EXIT
KINGSWELLS ROUNDABOUT	*CHAPEL OF STONEYWOOD - FAIRLEY ROAD*	
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	*KINGSWELLS P&R LOOP*	LEFT
KINGSWELLS P&R LOOP	**CHAPEL OF STONEYWOOD - FAIRLEY ROAD**	LEFT
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	*AWPR ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
AWPR ROUNDABOUT	*CHAPEL OF STONEYWOOD - FAIRLEY ROAD*	
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	**NEWHILLS ROAD**	RIGHT
NEWHILLS ROAD	**KEPPLEHILLS ROAD**	FOLLOW ON TO
KEPPLEHILLS ROAD	**NETHERHILLS AVENUE**	RIGHT
NETHERHILLS AVENUE	**NEWHILLS AVENUE**	RIGHT
NEWHILLS AVENUE	**KEPPLEHILLS ROAD**	RIGHT
KEPPLEHILLS ROAD	*SCLATTIE PARK*	LEFT
SCLATTIE PARK	**KEPPLEHILLS DRIVE**	LEFT
KEPPLEHILLS DRIVE	**KEPPLEHILLS ROAD**	LEFT
KEPPLEHILLS ROAD	**BUCKSBURN ACADEMY LOOP**	LEFT
BUCKSBURN ACADEMY LOOP	**KEPPLEHILLS ROAD**	LEFT
KEPPLEHILLS ROAD	**INVERURIE ROAD**	RIGHT
INVERURIE ROAD	**INVERURIE ROAD**	LEFT
INVERURIE ROAD	**BUCKSBURN ROUNDABOUT**	LEFT
BUCKSBURN ROUNDABOUT	**INVERURIE ROAD**	KEEP LEFT
INVERURIE ROAD	**INVERURIE ROAD**	LEFT
INVERURIE ROAD	**INVERURIE ROAD**	LEFT
INVERURIE ROAD	*INVERURIE ROAD*	LEFT
INVERURIE ROAD	*SCLATTIE ROUNDABOUT*	LEFT
SCLATTIE ROUNDABOUT	*INVERURIE ROAD*	STRAIGHT ON - 2ND EXIT
INVERURIE ROAD	*FORBIT BRAE*	

FORRIT BRAE	**CHAPEL OF STONEYWOOD - FAIRLEY ROAD**	LEFT

CHAPEL OF STONEYWOOD - FAIRLEY ROAD	**NEWHILLS ROAD**	FOLLOW ON TO
NEWHILLS ROAD	*KEPPLEHILLS DRIVE*	LEFT
KEPPLEHILLS DRIVE	*SCLATTIE PARK*	LEFT
SCLATTIE PARK	**SCLATTIE ROUNDABOUT**	RIGHT - 3RD EXIT
SCLATTIE ROUNDABOUT	*INVERURIE ROAD*	
INVERURIE ROAD	*GREENBURN DRIVE*	LEFT
GREENBURN DRIVE	**BANKHEAD AVENUE**	LEFT
BANKHEAD AVENUE	**SCLATTIE ROUNDABOUT**	ROUND - 4TH EXIT
SCLATTIE ROUNDABOUT	*BANKHEAD AVENUE*	
BANKHEAD AVENUE	**BANKHEAD ROAD**	LEFT
BANKHEAD ROAD	**GREENBURN DRIVE**	LEFT
GREENBURN DRIVE	**BANKHEAD AVENUE**	LEFT
BANKHEAD AVENUE	*BANKHEAD ROAD*	LEFT
BANKHEAD ROAD	*STONEYWOOD ROAD*	RIGHT
STONEYWOOD ROAD	**STONEYWOOD ROAD**	LEFT
STONEYWOOD ROAD	*ROUNDABOUT*	STRAIGHT ON - 1ST EXIT
ROUNDABOUT	*STONEYWOOD ROAD*	
STONEYWOOD ROAD	*'BP' ROUNDABOUT*	RIGHT - 2ND EXIT
'BP' ROUNDABOUT	*RIVERVIEW DRIVE*	
RIVERVIEW DRIVE	*NETHERVIEW AVENUE*	LEFT
NETHERVIEW AVENUE	**ROUNDABOUT**	LEFT - 1ST EXIT
ROUNDABOUT	**DYCE SHOPPING CENTRE LOOP**	
DYCE SHOPPING CENTRE LOOP	**ROUNDBOUT**	FOLLOW LOOP TO ROUNDABOUT AND RETURN
ROUNDBOUT	**NETHERVIEW GARDENS**	STRAIGHT ON - 2ND EXIT
NETHERVIEW GARDENS	**GORDON TERRACE**	STRAIGHT ON
GORDON TERRACE	**NETHERVIEW ROAD**	LEFT
NETHERVIEW ROAD	**GLEN ROAD**	RIGHT
GLEN ROAD	**VICTORIA STREET**	RIGHT
VICTORIA STREET	**FARBURN TERRACE**	RIGHT
FARBURN TERRACE	**FARBURN ROUNDABOUT**	LEFT - 1ST EXIT
FARBURN ROUNDABOUT	**WELLHEADS DRIVE**	
WELLHEADS DRIVE	**DYCE DRIVE**	RIGHT
DYCE DRIVE	*HOWE MOSS ROAD*	LEFT
HOWE MOSS ROAD	**HOWE MOSS DRIVE**	LEFT
HOWE MOSS DRIVE	**HOWE MOSS CRESCENT**	RIGHT
HOWE MOSS CRESCENT	**HOWE MOSS AVENUE**	RIGHT
HOWE MOSS AVENUE	**DYCE DRIVE**	LEFT
DYCE DRIVE	*PITMEDDEN ROAD*	LEFT
PITMEDDEN ROAD	**CASKIEBEN ROAD**	LEFT
CASKIEBEN ROAD	**MAIN ROAD**	LEFT
MAIN ROAD	**INVERURIE ROAD**	LEFT - 1ST EXIT
INVERURIE ROAD	*AIRPORT PARK & RIDE*	LEFT SLIP AT PARK AND RIDE

AIRPORT PARK & RIDE	**ARGYLL ROAD**	RIGHT
ARGYLL ROAD	*AIRPORT ROUNDABOUT*	RIGHT - 3RD EXIT
AIRPORT ROUNDABOUT	*INVERURIE ROAD*	
INVERURIE ROAD	*A96 ROUNDABOUT*	LEFT - 1ST EXIT
A96 ROUNDABOUT	*CLINTERTY ROAD*	
CLINTERTY ROAD	**CLINTERTY ROAD**	RIGHT
CLINTERTY ROAD	**CLINTERTY - TYREBAGGER ROAD**	RIGHT
CLINTERTY - TYREBAGGER ROAD	**BORROWSTONE ROAD**	LEFT
BORROWSTONE ROAD	**TULLUCH ROAD**	LEFT
TULLUCH ROAD	**CHAPEL OF STONEYWOOD - FAIRLEY ROAD**	LEFT
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	*FORRIT BRAE*	RIGHT
FORRIT BRAE	**INVERURIE ROAD**	LEFT
INVERURIE ROAD	*AIRPORT ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
AIRPORT ROUNDABOUT	*INVERURIE ROAD*	
INVERURIE ROAD	*CLINTERTY - TYREBAGGER ROAD*	LEFT
CLINTERTY - TYREBAGGER ROAD	**CLINTERTY - TYREBAGGER ROAD**	STRAIGHT ON
CLINTERTY - TYREBAGGER ROAD	*BORROWSTONE ROAD*	LEFT
BORROWSTONE ROAD	*BORROWSTONE ROAD*	FOLLOW ON TO
BORROWSTONE ROAD	**AWPR ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
AWPR ROUNDABOUT	*A90 SOUTH*	
A90 SOUTH	*AWPR ROUNDABOUT*	LEFT - 1ST EXIT
AWPR ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*ALTENS ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
ALTENS ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*NIGG ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
NIGG ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*CRAIGSHAW DRIVE*	LEFT
CRAIGSHAW DRIVE	*WEST TULLOS DEPOT*	RIGHT
WEST TULLOS DEPOT		END

Silver route 7



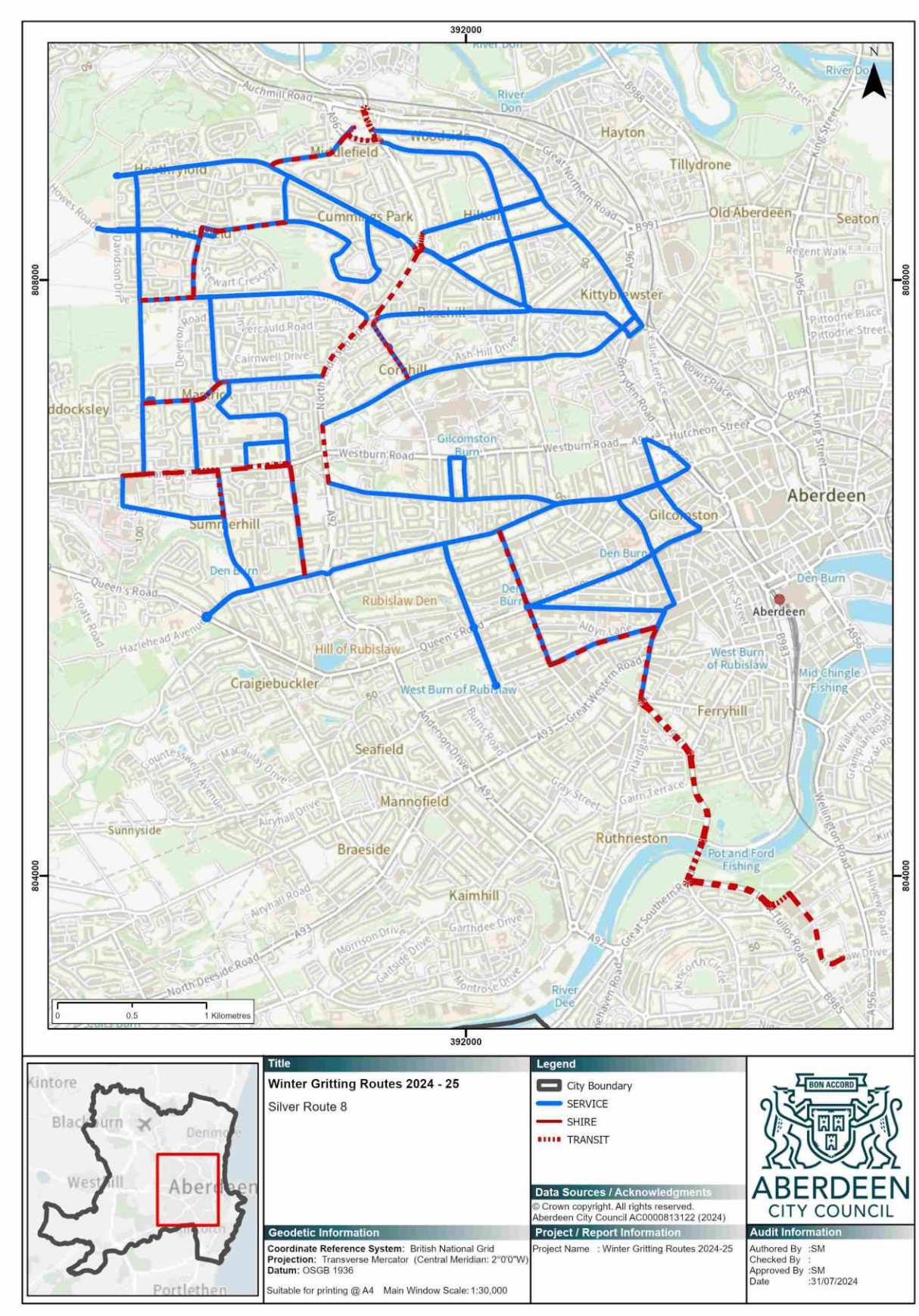
SILVER 7		
FROM	**TO**	**DIRECTION**
BANKHEAD DEPOT	*BANKHEAD AVENUE*	LEFT
BANKHEAD AVENUE	*SCLATTIE ROUNDABOUT*	LEFT - 1ST EXIT
SCLATTIE ROUNDABOUT	*INVERURIE ROAD*	
INVERURIE ROAD	*BUCKSBURN ROUNDABOUT*	RIGHT - 2ND EXIT
BUCKSBURN ROUNDABOUT	*INVERURIE ROAD*	
INVERURIE ROAD	*HAUDAGAIN ROUNDABOUT*	LEFT - 1ST EXIT
HAUDAGAIN ROUNDABOUT	*MUGIEMOSS ROAD*	
MUGIEMOSS ROAD	*MUGIEMOSS ROUNDABOUT*	RIGHT - 2ND EXIT
MUGIEMOSS ROUNDABOUT	*PARKWAY*	
PARKWAY	**'Tesco' ROUNDABOUT**	RIGHT - 3RD EXIT
'Tesco' ROUNDABOUT	**LAUREL DRIVE**	
LAUREL DRIVE	**FAIRVIEW STREET**	LEFT
FAIRVIEW STREET	**FAIRVIEW BRAE**	RIGHT
FAIRVIEW BRAE	**LAUREL DRIVE**	RIGHT
LAUREL DRIVE	**LAUREL PLACE**	LEFT
LAUREL PLACE	**LAUREL DRIVE**	LEFT
LAUREL DRIVE	**FAIRVIEW BRAE**	RIGHT
FAIRVIEW BRAE	*FAIRVIEW STREET*	RIGHT
FAIRVIEW STREET	**GORDON BRAE**	RIGHT
GORDON BRAE	*LAUREL DRIVE*	RIGHT
LAUREL DRIVE	**'Tesco' ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
'Tesco' ROUNDABOUT	**UPPER PERSLEY ROAD**	
UPPER PERSLEY ROAD	**WHITESTRIPES ROAD**	RIGHT
WHITESTRIPES ROAD	**WHITESTRIPES AVENUE**	LEFT
WHITESTRIPES AVENUE	**JESMOND AVENUE NORTH**	RIGHT
JESMOND AVENUE NORTH	**VALENTINE ROAD**	RIGHT
VALENTINE ROAD	**WHITESTRIPES AVENUE**	LEFT
WHITESTRIPES AVENUE	**DANESTONE ROUNDABOUT**	ROUND - 4TH EXIT
DANESTONE ROUNDABOUT	*WHITESTRIPES AVENUE*	
WHITESTRIPES AVENUE	**JESMOND DRIVE**	LEFT
JESMOND DRIVE	**JESMOND DRIVE**	TO BUS TURN POINT AND RETURN
JESMOND DRIVE	**JESMOND DRIVE**	INTO BUS TURN POINT
JESMOND DRIVE	**JESMOND DRIVE**	LEFT
JESMOND DRIVE	**SCOTSTOWN ROAD**	RIGHT
SCOTSTOWN ROAD	**SCOTSTOWN ROUNDABOUT**	ROUND - 4TH EXIT
SCOTSTOWN ROUNDABOUT	*SCOTSTOWN ROAD*	
SCOTSTOWN ROAD	**JESMOND DRIVE**	LEFT
JESMOND DRIVE	**JESMOND AVENUE**	LEFT
JESMOND AVENUE	**VALENTINE ROAD**	FOLLOW ON TO
VALENTINE ROAD	*WHITESTRIPES AVENUE*	RIGHT

WHITESTRIPES AVENUE	*WHITESTRIPES ROAD*	LEFT
WHITESTRIPES ROAD	*WHITESTRIPES ROAD*	FOLLOW ON TO
WHITESTRIPES ROAD	**SCOTSTOWN ROAD**	LEFT
SCOTSTOWN ROAD	*TURN POINT*	RIGHT TO TURN IN QUARRY OPENING

TURN POINT	*SCOTSTOWN ROAD*	LEFT
SCOTSTOWN ROAD	**DUBFORD ROAD**	LEFT
DUBFORD ROAD	**SHIELHILL AVENUE**	FOLLOW ON TO
SHIELHILL AVENUE	**SHIELHILL AVENUE**	TO BUS TURN AND RETURN
SHIELHILL AVENUE	*DUBFORD ROAD*	FOLLOW ON TO
DUBFORD ROAD	*GREENBRAE DRIVE*	LEFT
GREENBRAE DRIVE	**DENMORE ROAD**	RIGHT
DENMORE ROAD	*WOODSIDE ROAD*	RIGHT
WOODSIDE ROAD	**THE PARKWAY**	LEFT
THE PARKWAY	*WOODSIDE ROAD*	LEFT
WOODSIDE ROAD	**DENMORE ROAD**	RIGHT
DENMORE ROAD	*GREENBRAE DRIVE*	LEFT
GREENBRAE DRIVE	*DUBFORD ROAD*	LEFT
DUBFORD ROAD	*SCOTSTOWN ROAD*	LEFT
SCOTSTOWN ROAD	**SCOTSTOWN ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
SCOTSTOWN ROUNDABOUT	*SCOTSTOWN ROAD*	
SCOTSTOWN ROAD	**NORTH DONSIDE ROAD**	FOLLOW ON TO
NORTH DONSIDE ROAD	**GORDON BARRACKS ROUNDABOUT**	LEFT - 1ST EXIT
GORDON BARRACKS ROUNDABOUT	*ELLON ROAD*	
ELLON ROAD	*AECC ROUNDABOUT*	RIGHT - 3RD EXIT
AECC ROUNDABOUT	*PARKWAY EAST*	
PARKWAY EAST	**TECHNOLOGY PARK ROUNDABOUT**	RIGHT - 3RD EXIT
TECHNOLOGY PARK ROUNDABOUT	**AECC P & R LOOP**	
AECC P & R LOOP	**TECHNOLOGY PARK ROUNDABOUT**	LEFT - 1ST EXIT
TECHNOLOGY PARK ROUNDABOUT	**PARKWAY EAST**	
PARKWAY EAST	**AECC ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
AECC ROUNDABOUT	*THE PARKWAY*	
THE PARKWAY	*WOODSIDE ROAD*	RIGHT
WOODSIDE ROAD	*DENMORE ROAD*	RIGHT
DENMORE ROAD	**B999**	RIGHT
B999	**MURCAR ROUNDABOUT**	ROUND - 4TH EXIT
MURCAR ROUNDABOUT	*B999*	
B999	**B999**	TURN AT "TATTIE SHEDS" AND RETURN
B999	**SHIELHILL ROAD**	RIGHT
SHIELHILL ROAD	**SHIELHILL ROUNDABOUT**	LEFT
SHIELHILL ROUNDABOUT	**SHIELHILL ROAD**	LEFT
SHIELHILL ROAD	**SCOTSTOWN ROAD**	LEFT
SCOTSTOWN ROAD	*SCOTSTOWN ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
SCOTSTOWN ROUNDABOUT	*SCOTSTOWN ROAD*	
SCOTSTOWN ROAD	*SCOTSTOWN ROAD*	RIGHT

SCOTSTOWN ROAD	**BALGOWNIE ROAD**	FOLLOW ON TO
BALGOWNIE ROAD	**ELLON ROAD**	LEFT
ELLON ROAD	*BALGOWNIE ROAD*	LEFT - 1ST EXIT
BALGOWNIE ROAD	*SCOTSTOWN ROAD*	LEFT
SCOTSTOWN ROAD	*BALGOWNIE ROAD*	RIGHT
BALGOWNIE ROAD	**BRAEHEAD WAY**	RIGHT
BRAEHEAD WAY	**SCOTSTOWN ROAD**	LEFT
SCOTSTOWN ROAD	**SCOTSTOWN ROUNDABOUT**	LEFT - 1ST EXIT
SCOTSTOWN ROUNDABOUT	*THE PARKWAY*	
THE PARKWAY	*BALGOWNIE ROAD*	LEFT
BALGOWNIE ROAD	**BRAEHEAD WAY**	LEFT
BRAEHEAD WAY	*BODACRA ROAD*	RIGHT
BODACRA ROAD	**BALGOWNIE ROAD**	LEFT
BALGOWNIE ROAD	*BALGOWNIE DRIVE*	RIGHT
BALGOWNIE DRIVE	**GRANDHOME DRIVE**	LEFT
GRANDHOME DRIVE	**GORDON BRAE**	LEFT
GORDON BRAE	*PAPERMILL DRIVE BUS LOOP*	LEFT
PAPERMILL DRIVE BUS LOOP	**GORDON MILLS ROAD**	LEFT
GORDON MILLS ROAD	*HAYTON ROAD*	RIGHT
HAYTON ROAD	**DONBANK TERRACE**	RIGHT
DONBANK TERRACE	**GORDON MILLS ROAD**	RIGHT
GORDON MILLS ROAD	**GORDON MILLS ROAD**	LEFT
GORDON MILLS ROAD	*LAUREL DRIVE*	LEFT
LAUREL DRIVE	*"TESCO" ROUNDABOUT*	LEFT - 1ST EXIT
"TESCO" ROUNDABOUT	*THE PARKWAY*	
THE PARKWAY	*MUGIEMOSS ROUNDABOUT*	RIGHT - 2ND EXIT
MUGIEMOSS ROUNDABOUT	*MUGIEMOSS ROAD*	
MUGIEMOSS ROAD	**OLD MELDRUM ROAD**	LEFT
OLD MELDRUM ROAD	**AUCHMILL ROAD**	LEFT
AUCHMILL ROAD	*HAUDAGAIN ROUNDABOUT*	RIGHT - 4TH EXIT
HAUDAGAIN ROUNDABOUT	*AUCHMILL ROAD*	
AUCHMILL ROAD	*BUCKSBURN ROUNDABOUT*	LEFT - 1ST EXIT
BUCKSBURN ROUNDABOUT	*INVERURIE ROAD*	
INVERURIE ROAD	*SCLATTIE ROUNDABOUT*	RIGHT - 3RD EXIT
SCLATTIE ROUNDABOUT	*BANKHEAD AVENUE*	
BANKHEAD AVENUE	*BUCKSBURN DEPOT*	RIGHT
BUCKSBURN DEPOT		END

Silver route 8



SILVER 8		
FROM	**TO**	**DIRECTION**
WEST TULLOS DEPOT	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*ABBOTSWELL ROAD*	LEFT
ABBOTSWELL ROAD	*ABBOTSWELL ROAD ROUNDABOUT*	RIGHT, 2ND EXIT
ABBOTSWELL ROAD ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*KING GEORGE VI ROUNDABOUT*	RIGHT- 3RD EXIT
KING GEORGE VI ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*DUTHIE PARK ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
DUTHIE PARK ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*WHINHILL ROUNDABOUT*	LEFT - 1ST EXIT
WHINHILL ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*HOLBURN ROUNDABOUT*	RIGHT - 2ND EXIT
HOLBURN ROUNDABOUT	*HOLBURN STREET*	
HOLBURN STREET	*UNION GROVE*	LEFT
UNION GROVE	*ST SWITHIN STREET*	RIGHT
ST SWITHIN STREET	*QUEENS CROSS*	STRAIGHT ON - 2ND EXIT
QUEENS CROSS	**FOUNTAINHALL ROAD**	
FOUNTAINHALL ROAD	*KINGS GATE*	LEFT
KINGS GATE	**FOREST ROAD**	LEFT
FOREST ROAD	**QUEENS GATE**	STRAIGHT ON 2ND EXIT
QUEENS GATE	**FOREST AVENUE**	
FOREST AVENUE	**RENDEZVOUS ROUNDABOUT**	ROUND - 4TH EXIT
RENDEZVOUS ROUNDABOUT	**FOREST AVENUE**	
FOREST AVENUE	**QUEENS GATE**	STRAIGHT ON 2ND EXIT
QUEENS GATE	**FOREST ROAD**	
FOREST ROAD	**KINGS GATE**	LEFT
KINGS GATE	**KINGS CROSS**	STRAIGHT ON 2ND EXIT
KINGS CROSS	**KINGS GATE**	
KINGS GATE	**SUMMERHILL ROAD**	RIGHT
SUMMERHILL ROAD	**MASTRICK DRIVE**	STRAIGHT ON
MASTRICK DRIVE	**WHITEMYRES AVENUE**	LEFT
WHITEMYRES AVENUE	**WHITEMYRES PLACE**	LEFT
WHITEMYRES PLACE	**LANG STRACHT**	LEFT
LANG STRACHT	*MASTRICK DRIVE*	LEFT
MASTRICK DRIVE	**ARNAGE DRIVE**	RIGHT
ARNAGE DRIVE	**NEWPARK PLACE**	LEFT
NEWPARK PLACE	**MASTRICK ROAD**	LEFT
MASTRICK ROAD	*GREENFERN ROAD*	FOLLOW ON TO
GREENFERN ROAD	*FERNHILL DRIVE*	LEFT
FERNHILL DRIVE	**LANG STRACHT**	LEFT

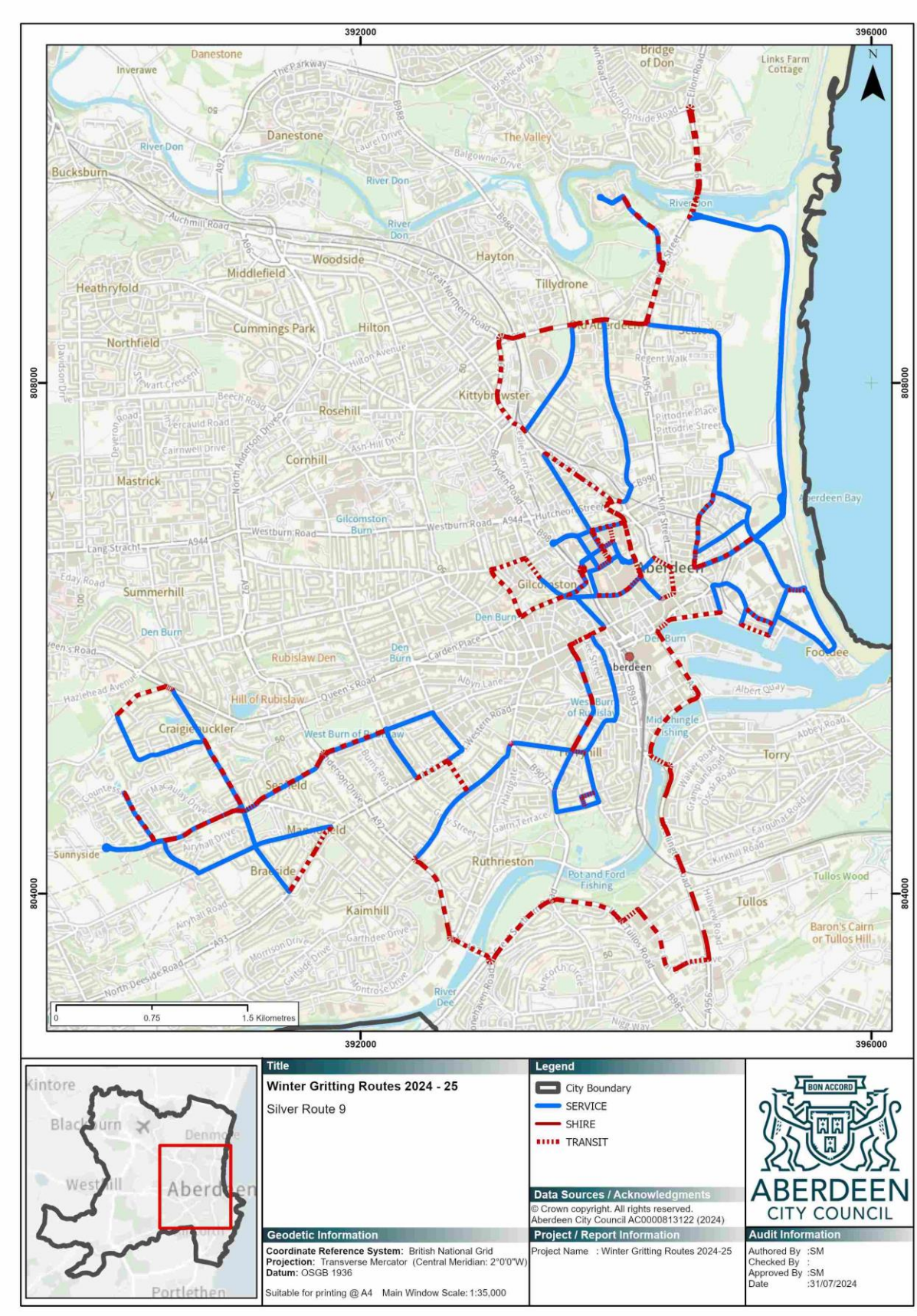
LANG STRACHT	*STRONSAY DRIVE*	RIGHT
STRONSAY DRIVE	**KINGS GATE**	RIGHT
KINGS GATE	**HAZELHEAD ROUNDABOUT**	COMPLETE - 4TH EXIT
HAZELHEAD ROUNDABOUT	**KINGS GATE**	
KINGS GATE	**SUMMERHILL ROAD**	LEFT
SUMMERHILL ROAD	*LANG STRACHT*	LEFT
LANG STRACHT	*ROUSAY DRIVE*	LEFT
ROUSAY DRIVE	**EDAY ROAD**	LEFT
EDAY ROAD	**STRONSAY DRIVE**	LEFT
STRONSAY DRIVE	*LANG STRACHT*	LEFT
LANG STRACHT	*SPRINGHILL ROAD*	RIGHT
SPRINGHILL ROAD	**GREENFERN ROAD**	RIGHT
GREENFERN ROAD	**GREENFERN ROAD BUS LOOP**	LEFT - 2ND ENTRANCE OF
GREENFERN ROAD BUS LOOP	**GREENFERN ROAD**	LEFT
GREENFERN ROAD	**UPPER MASTRICK WAY**	LEFT
UPPER MASTRICK WAY	**PROVOST FRASER DRIVE**	LEFT
PROVOST FRASER DRIVE	**SPRINGHILL ROAD**	LEFT
SPRINGHILL ROAD	**GREENFERN ROAD**	LEFT
GREENFERN ROAD	*MASTRICK ROAD*	FOLLOW ON TO
MASTRICK ROAD	**NORTH ANDERSON DRIVE**	LEFT
NORTH ANDERSON DRIVE	*"MURDOS" ROUNDABOUT*	LEFT - 1ST EXIT
"MURDOS" ROUNDABOUT	**PROVOST FRASER DRIVE**	
PROVOST FRASER DRIVE	**BYRON AVENUE**	RIGHT
BYRON AVENUE	**BYRON SQUARE**	RIGHT
BYRON SQUARE	**BYRON SQUARE**	RIGHT
BYRON SQUARE	**BYRON AVENUE**	LEFT
BYRON AVENUE	**BREBNER TERRACE**	RIGHT
BREBNER TERRACE	**DAVIDSON GARDENS**	STRAIGHT
DAVIDSON GARDENS	**HOWES ROAD**	STRAIGHT
HOWES ROAD	**HOWES ROAD BUS LOOP**	LEFT
HOWES ROAD BUS LOOP	**HOWES ROAD**	RIGHT
HOWES ROAD	**DAVIDSON GARDENS**	STRAIGHT
DAVIDSON GARDENS	**BREBNER TERRACE**	STRAIGHT
BREBNER TERRACE	**BYRON AVENUE**	LEFT
BYRON AVENUE	**BYRON SQUARE**	RIGHT
BYRON SQUARE	**QUARRY ROAD**	STRAIGHT
QUARRY ROAD	**CUMMINGS PARK CRESCENT**	MINI ROUNDABOUT - STRAIGHT ON 2ND EXIT
CUMMINGS PARK CRESCENT	**CUMMINGS PARK CIRCLE**	RIGHT
CUMMINGS PARK CIRCLE	**MOIR CRESCENT**	LEFT
MOIR CRESCENT	**PROVOST RUST DRIVE**	RIGHT
PROVOST RUST DRIVE	**PROVOST RUST DRIVE**	LEFT
PROVOST RUST DRIVE	**GRANITEHILL ROAD**	LEFT
GRANITEHILL ROAD	**QUARRY ROAD**	RIGHT
QUARRY ROAD	*BYRON SQUARE*	FOLLOW ON TO

BYRON SQUARE	*BYRON AVENUE*	LEFT
BYRON AVENUE	*PROVOST FRASER DRIVE*	RIGHT
PROVOST FRASER DRIVE	*SPRINGHILL ROAD*	RIGHT
SPRINGHILL ROAD	**PROVOST RUST DRIVE**	LEFT
PROVOST RUST DRIVE	**PROVOST RUST DRIVE BUS LOOP**	ROUND BUS LOOP
PROVOST RUST DRIVE BUS LOOP	**PROVOST RUST DRIVE**	
PROVOST RUST DRIVE	**MANOR AVENUE**	LEFT
MANOR AVENUE	*HAUDAGAIN BYPASS*	RIGHT
HAUDAGAIN BYPASS	*NORTH ANDERSON DRIVE*	LEFT
NORTH ANDERSON DRIVE	*HOUDAGAIN ROUNDABOUT*	RIGHT - 4TH EXIT
HOUDAGAIN ROUNDABOUT	*NORTH ANDERSON DRIVE*	
NORTH ANDERSON DRIVE	*CLIFTON ROAD*	LEFT
CLIFTON ROAD	**HILTON ROAD**	RIGHT
HILTON ROAD	**NORTH ANDERSON DRIVE**	LEFT
NORTH ANDERSON DRIVE	*ROSEHILL ROUNDABOUT*	RIGHT - 3RD EXIT
ROSEHILL ROUNDABOUT	*PROVOST RUST DRIVE*	
PROVOST RUST DRIVE	**MANOR AVENUE**	RIGHT
MANOR AVENUE	**BUS GATE**	TURN AT BUSGATE AFTER BYPASS
BUS GATE	*HAUDAGAIN BYPASS*	LEFT
HAUDAGAIN BYPASS	*NORTH ANDERSON DRIVE*	RIGHT
NORTH ANDERSON DRIVE	*HILTON DRIVE*	LEFT
HILTON DRIVE	**SIX ROADS ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
SIX ROADS ROUNDABOUT	**BACK HILTON ROAD**	
BACK HILTON ROAD	**BERRYDEN ROAD**	FOLLOW ON TO
BERRYDEN ROAD	**BELMONT ROAD**	LEFT
BELMONT ROAD	**POWIS TERRACE**	LEFT
POWIS TERRACE	**CLIFTON ROAD**	KEEP LEFT
CLIFTON ROAD	**HILTON ROAD**	LEFT
HILTON ROAD	**NORTH ANDERSON DRIVE**	LEFT
NORTH ANDERSON DRIVE	*ROSEHILL ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
ROSEHILL ROUNDABOUT	*NORTH ANDERSON DRIVE*	
NORTH ANDERSON DRIVE	*"MURDOS" ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
"MURDOS" ROUNDABOUT	*FORESTERHILL ROAD*	
FORESTERHILL ROAD	**CORNHILL ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
CORNHILL ROUNDABOUT	**FORESTERHILL ROAD**	
FORESTERHILL ROAD	**ASHGROVE ROAD WEST**	LEFT
ASHGROVE ROAD WEST	**ASHGROVE ROAD**	STRAIGHT ON
ASHGROVE ROAD	**POWIS TERRACE**	LEFT
POWIS TERRACE	**CLIFTON ROAD**	KEEP LEFT
CLIFTON ROAD	**HILTON AVENUE**	LEFT
HILTON AVENUE	**ROSEHILL DRIVE**	RIGHT
ROSEHILL DRIVE	**ROSEHILL ROUNDABOUT**	ROUND - 4TH EXIT
ROSEHILL ROUNDABOUT	*ROSEHILL DRIVE*	

ROSEHILL DRIVE	**SIX ROADS ROUNDABOUT**	RIGHT TO ROUNDABOUT
SIX ROADS ROUNDABOUT	**CAIRNCRY ROAD**	RIGHT - 4TH EXIT
CAIRNCRY ROAD	**"MURDOS" ROUNDABOUT**	LEFT - 1ST EXIT
"MURDOS" ROUNDABOUT	*FORESTERHILL ROAD*	
FORESTERHILL ROAD	*CORNHILL ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
CORNHILL ROUNDABOUT	*FORESTERHILL ROAD*	
FORESTERHILL ROAD	*ASHGROVE ROAD WEST*	RIGHT
ASHGROVE ROAD WEST	**NORTH ANDERSON DRIVE**	LEFT
NORTH ANDERSON DRIVE	*MIDSTOCKET ROAD*	LEFT
MIDSTOCKET ROAD	**CAMPERDOWN ROAD**	LEFT
CAMPERDOWN ROAD	**WESTBURN ROAD**	LEFT
WESTBURN ROAD	**HARCOURT ROAD**	LEFT
HARCOURT ROAD	**MIDSTOCKET ROAD**	LEFT
MIDSTOCKET ROAD	**ROSEMOUNT PLACE**	LEFT
ROSEMOUNT PLACE	**ROSEMOUNT ROUNDABOUT**	LEFT - 1ST EXIT
ROSEMOUNT ROUNDABOUT	**SKENE SQUARE**	
SKENE SQUARE	**ROSEMOUNT TERRACE**	LEFT
ROSEMOUNT TERRACE	**WESTBURN ROAD**	LEFT
WESTBURN ROAD	**MOUNT STREET**	LEFT
MOUNT STREET	**ROSEMOUNT PLACE**	RIGHT
ROSEMOUNT PLACE	**ESSLEMONT AVENUE**	LEFT
ESSLEMONT AVENUE	**SKENE STREET**	LEFT
SKENE STREET	**ROSEMOUNT VIADUCT**	LEFT
ROSEMOUNT VIADUCT	**SOUTH MOUNT STREET**	FOLLOW ON TO
SOUTH MOUNT STREET	**ROSEMOUNT PLACE**	LEFT
ROSEMOUNT PLACE	**BEECHGROVE TERRACE**	STRAIGHT ON
BEECHGROVE TERRACE	**FOUNTAINHALL ROAD**	LEFT
FOUNTAINHALL ROAD	**QUEENS CROSS**	STRAIGHT ON - 2ND EXIT
QUEENS CROSS	**ST SWITHIN STREET**	
ST SWITHIN STREET	**UNION GROVE**	LEFT
UNION GROVE	**HOLBURN STREET**	LEFT
HOLBURN STREET	**UNION STREET**	RIGHT
UNION STREET	**ROSE STREET**	LEFT
ROSE STREET	**SKENE STREET**	LEFT
SKENE STREET	**CARDEN PLACE**	FOLLOW ON TO
CARDEN PLACE	**ALBYN PLACE**	LEFT
ALBYN PLACE	**ALFORD PLACE**	FOLLOW ON TO
ALFORD PLACE	**HOLBURN STREET**	RIGHT
HOLBURN STREET	**HOLBURN ROUNDABOUT**	STRAIGHT - 2ND EXIT
HOLBURN ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*WHINHILL ROUNDABOUT*	STRAIGHT - 2ND EXIT
WHINHILL ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*DUTHIE PARK ROUNDABOUT*	STRAIGHT - 2ND EXIT
DUTHIE PARK ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*KING GEORGE VI ROUNDABOUT*	LEFT - 1ST EXIT
KING GEORGE VI ROUNDABOUT	*WEST TULLOS ROAD*	

WEST TULLOS ROAD	*ABBOTSHALL ROUNDABOUT*	LEFT - 1ST EXIT
ABBOTSHALL ROUNDABOUT	*ABBOTSHALL ROAD*	
ABBOTSHALL ROAD	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE		LEFT - TO DEPOT

Silver route 9



SILVER 9		
FROM	**TO**	**DIRECTION**
WEST TULLOS DEPOT	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*ABBOTSWELL ROAD*	LEFT
ABBOTSWELL ROAD	*ABBOTSWELL ROUNDABOUT*	RIGHT - 2ND EXIT
ABBOTSWELL ROUNDABOUT	*WEST TULLOS ROAD*	
WEST TULLOS ROAD	*KING GEORGE VI ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
KING GEORGE VI ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	*BRIDGE OF DEE ROUNDABOUT*	RIGHT - 3RD EXIT
BRIDGE OF DEE ROUNDABOUT	*STONEHAVEN ROAD*	
STONEHAVEN ROAD	*GARTHDEE ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
GARTHDEE ROUNDABOUT	*SOUTH ANDERSON DRIVE*	
SOUTH ANDERSON DRIVE	*BROOMHIL ROUNDABOUT*	RIGHT - 3RD EXIT
BROOMHIL ROUNDABOUT	*BROOMHILL ROAD*	
BROOMHILL ROAD	**PITSTRUAN PLACE**	LEFT
PITSTRUAN PLACE	*GREAT WESTERN ROAD*	LEFT
GREAT WESTERN ROAD	*FOREST AVENUE*	RIGHT
FOREST AVENUE	**RENDEZVOUS ROUNDABOUT**	LEFT
RENDEZVOUS ROUNDABOUT	**CROMWELL ROAD**	LEFT - 1ST EXIT
CROMWELL ROAD	**SEAFIELD ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
SEAFIELD ROUNDABOUT	*SEAFIELD ROAD*	
SEAFIELD ROAD	**COUNTESSWELLS ROAD**	STRAIGHT ON
COUNTESSWELLS ROAD	**COUNTESSWELLS ROAD**	FOLLOW ON TO
COUNTESSWELLS ROAD	*COUNTESSWELLS ROAD*	STRAIGHT ON
COUNTESSWELLS ROAD	**SLOPEFIELD ROUNDABOUT**	ROUND - 3RD EXIT
SLOPEFIELD ROUNDABOUT	**COUNTESSWELLS ROAD**	
COUNTESSWELLS ROAD	**COUNTESSWELLS AVENUE**	LEFT
COUNTESSWELLS AVENUE	**COUNTESSWELLS AVENUE**	TURN AROUND
COUNTESSWELLS AVENUE	*COUNTESSWELLS ROAD*	LEFT
COUNTESSWELLS ROAD	**SPRINGFIELD ROAD**	LEFT
SPRINGFIELD ROAD	**QUEENS ROAD**	LEFT
QUEENS ROAD	*HAZELDENE ROAD*	LEFT
HAZELDENE ROAD	*CRAIGIEBUCKLER AVENUE*	LEFT
CRAIGIEBUCKLER AVENUE	**SPRINGFIELD ROAD**	RIGHT
SPRINGFIELD ROAD	*SPRINGFIELD ROAD*	STRAIGHT ON
SPRINGFIELD ROAD	**SPRINGFIELD ROAD**	STRAIGHT ON
SPRINGFIELD ROAD	**CRAIGTON ROAD**	LEFT
CRAIGTON ROAD	**GREAT WESTERN ROAD**	RIGHT
GREAT WESTERN ROAD	*ST JOHNS TERRACE*	FOLLOW ON TO
ST JOHNS TERRACE	*SPRINGFIELD ROAD*	RIGHT
SPRINGFIELD ROAD	**CRAIGIE ROAD**	LEFT

CRAIGTON ROAD	**AIRYHALL AVENUE**	RIGHT

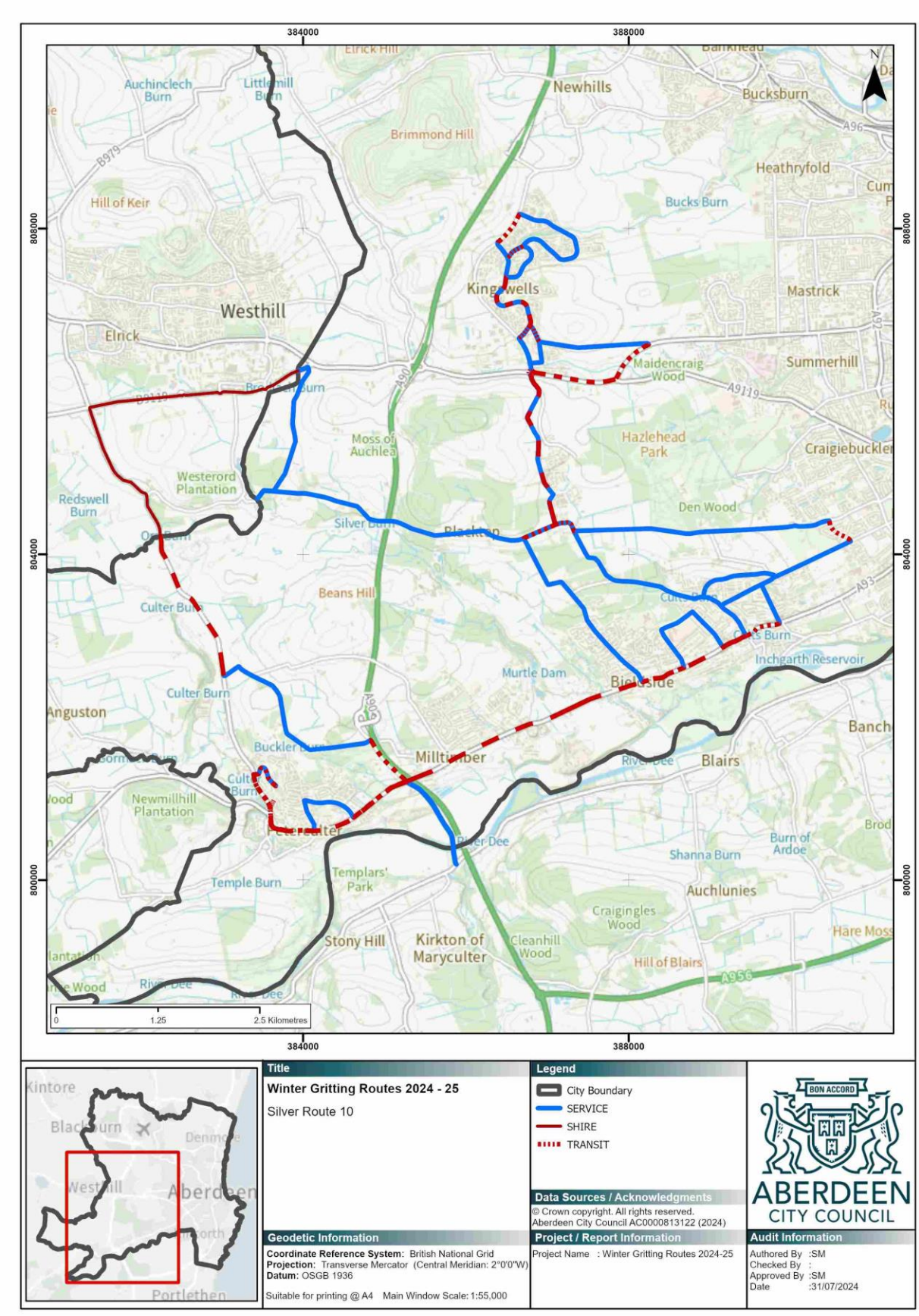
AIRYHALL AVENUE	**COUNTESSWELLS ROAD**	LEFT
COUNTESSWELLS ROAD	*COUNTESSWELLS ROAD*	RIGHT
COUNTESSWELLS ROAD	*SEAFIELD ROAD*	FOLLOW ON TO
SEAFIELD ROAD	*SEAFIELD ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
SEAFIELD ROUNDABOUT	*CROMWELL ROAD*	
CROMWELL ROAD	*RENDEZVOUS ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
RENDEZVOUS ROUNDABOUT	**UNION GROVE**	
UNION GROVE	**ASHLEY ROAD**	RIGHT
ASHLEY ROAD	**GREAT WESTERN ROAD**	RIGHT
GREAT WESTERN ROAD	**PITSTRUAN PLACE**	LEFT
PITSTRUAN PLACE	*BROOMHILL ROAD*	LEFT
BROOMHILL ROAD	**HOLBURN STREET**	STRAIGHT ON - 2ND EXIT
HOLBURN STREET	**HOLBURN ROUNDABOUT**	RIGHT - 2ND EXIT
HOLBURN ROUNDABOUT	*FONTHILL ROAD*	
FONTHILL ROAD	**BON ACCORD STREET**	LEFT
BON ACCORD STREET	**UNION STREET**	RIGHT
UNION STREET	*CROWN STREET*	RIGHT
CROWN STREET	**FERRYHILL ROAD**	RIGHT
FERRYHILL ROAD	**FONTHILL ROAD**	FOLLOW ON TO
FONTHILL ROAD	**WHINHILL ROAD**	LEFT
WHINHILL ROAD	**WHINHILL ROUNDABOUT**	STRAIGHT ON - 1ST EXIT
WHINHILL ROUNDABOUT	*GREAT SOUTHERN ROAD*	
GREAT SOUTHERN ROAD	**MURRAY TERRACE**	LEFT
MURRAY TERRACE	**BRIGHT STREET**	LEFT
BRIGHT STREET	**BRUNSWICK PLACE**	RIGHT
BRUNSWICK PLACE	**POLMUIR ROAD**	RIGHT
POLMUIR ROAD	**MURRAY TERRACE**	RIGHT
MURRAY TERRACE	**BRIGHT STREET**	RIGHT
BRIGHT STREET	*BRUNSWICK PLACE*	RIGHT
BRUNSWICK PLACE	*POLMUIR ROAD*	LEFT
POLMUIR ROAD	**FERRYHILL ROAD**	LEFT
FERRYHILL ROAD	*BON ACCORD STREET*	RIGHT
BON ACCORD STREET	*UNION STREET*	RIGHT
UNION STREET	*UNION TERRACE*	LEFT
UNION TERRACE	**ROSEMOUNT VIADUCT**	LEFT
ROSEMOUNT VIADUCT	**SOUTH MOUNT STREET**	FOLLOW ON TO
SOUTH MOUNT STREET	*ROSEMOUNT PLACE*	LEFT
ROSEMOUNT PLACE	*ESSLEMONT AVENUE*	LEFT
ESSLEMONT AVENUE	*SKENE STREET*	LEFT
SKENE STREET	*SKENE STREET*	FOLLOW ON TO
SKENE STREET	**WOOLMANHILL ROUNDABOUT**	ROUND - 4TH EXIT
WOOLMANHILL ROUNDABOUT	*SKENE STREET*	
SKENE STREET	*ROSEMOUNT VIADUCT*	LEFT
ROSEMOUNT VIADUCT	**SCHOOLHILL**	FOLLOW ON TO
SCHOOLHILL	**UPPERKIRKGATE**	FOLLOW ON TO

UPPERKIRKGATE	**GALLOWGATE**	LEFT
GALLOWGATE	**LITTLE JOHN STREET**	RIGHT
LITTLE JOHN STREET	**WEST NORTH STREET**	RIGHT
WEST NORTH STREET	*KING STREET*	RIGHT
KING STREET	*CASTLE STREET*	FOLLOW ON TO
CASTLE STREET	*UNION STREET*	FOLLOW ON TO
UNION STREET	*BROAD STREET*	RIGHT
BROAD STREET	**GALLOWGATE**	FOLLOW ON TO
GALLOWGATE	*MOUNTHOOLY ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
MOUNTHOOLY ROUNDABOUT	*CAUSEWAYEND*	
CAUSEWAYEND	*GEORGE STREET*	FOLLOW ON TO
GEORGE STREET	**POWIS PLACE**	LEFT
POWIS PLACE	*JOHN STREET*	LEFT
JOHN STREET	**LOCH STREET**	RIGHT
LOCH STREET	**BERRY STREET**	LEFT - 1ST EXIT
BERRY STREET	**GALLOWGATE**	LEFT
GALLOWGATE	*SPRING GARDEN*	LEFT
SPRING GARDEN	**GEORGE STREET**	LEFT
GEORGE STREET	*JOHN STREET*	LEFT
JOHN STREET	*LOCH STREET*	LEFT
LOCH STREET	*SPRING GARDEN*	LEFT
SPRING GARDEN	**GEORGE STREET**	LEFT
GEORGE STREET	*ST ANDREW STREET*	RIGHT
ST ANDREW STREET	**BLACKFRIARS STREET**	STRAIGHT ON
BLACKFRIARS STREET	**BLACKFRIARS STREET**	FOLLOW ROUND TO
BLACKFRIARS STREET	**SCHOOLHILL**	LEFT
SCHOOLHILL	*UPPERKIRKGATE*	FOLLOW ON TO
UPPERKIRKGATE	*GALLOWGATE*	LEFT
GALLOWGATE	*BERRY STREET*	LEFT
BERRY STREET	**LOCH STREET**	STRAIGHT ON - 2ND EXIT
LOCH STREET	**ST ANDREW STREET**	LEFT
ST ANDREW STREET	**CHARLOTTE STREET**	RIGHT
CHARLOTTE STREET	**JOHN STREET**	LEFT
JOHN STREET	**WOOLMANHILL ROUNDABOUT**	ROUND - 4TH EXIT
WOOLMANHILL ROUNDABOUT	*JOHN STREET*	
JOHN STREET	**GEORGE STREET**	RIGHT
GEORGE STREET	*ST ANDREW STREET*	RIGHT
ST ANDREW STREET	*CHARLOTTE STREET*	RIGHT
CHARLOTTE STREET	**MABERLEY STREET**	
MABERLEY STREET	**ROSEMOUNT ROUNDABOUT**	ROUND - 4TH EXIT
ROSEMOUNT ROUNDABOUT	**MABERLEY STREET**	
MABERLEY STREET	**SPRING GARDEN**	STRAIGHT ON

SPRING GARDEN	*GALLOWGATE*	LEFT
GALLOWGATE	*MOUNTHOOLY ROUNDABOUT*	RIGHT - 3RD EXIT
MOUNTHOOLY ROUNDABOUT	*MOUNTHOOLY*	
MOUNTHOOLY	**KINGS CRESCENT**	LEFT
KINGS CRESCENT	**SPITAL**	FOLLOW ON TO
SPITAL	**COLLEGE STREET**	FOLLOW ON TO
COLLEGE STREET	**HIGH STREET**	FOLLOW ON TO
HIGH STREET	**ST MACHAR DRIVE**	LEFT
ST MACHAR DRIVE	BEDFORD ROAD	LEFT
BEDFORD ROAD	**POWIS TERRACE**	RIGHT
POWIS TERRACE	*GREAT NORTHERN ROAD*	FOLLOW ON TO
GREAT NORTHERN ROAD	*KITTYBREWSTER ROUNDABOUT*	RIGHT 4TH EXIT
KITTYBREWSTER ROUNDABOUT	*ST MACHAR DRIVE*	
ST MACHAR DRIVE	*SEATON ROUNDABOUT*	LEFT - 1ST EXIT
SEATON ROUNDABOUT	*KING STREET*	
KING STREET	*DON STREET*	LEFT
DON STREET	**HILLHEAD CAMPUS BUS TURN POINT**	LEFT
HILLHEAD CAMPUS BUS TURN POINT	**DON STREET**	TURN AT TURN POINT
DON STREET	*KING STREET*	RIGHT
KING STREET	*SEATON ROUNDABOUT*	LEFT - 1ST EXIT
SEATON ROUNDABOUT	*SCHOOL ROAD*	
SCHOOL ROAD	**GOLF ROAD**	FOLLOW RIGHT
GOLF ROAD	**PARK ROAD**	FOLLOW ON TO
PARK ROAD	**PARK STREET**	FOLLOW ON TO
PARK STREET	**BEACH BOULEVARD ROUNDABOUT**	LEFT - 1ST EXIT
BEACH BOULEVARD ROUNDABOUT	**BEACH BOULEVARD**	
BEACH BOULEVARD	**LINKS ROAD**	LEFT
LINKS ROAD	**CONSTITUTION STREET**	LEFT
CONSTITUTION STREET	**PARK STREET**	LEFT
PARK STREET	*BEACH BOULEVARD ROUNDABOUT*	LEFT - 1ST EXIT
BEACH BOULEVARD ROUNDABOUT	*BEACH BOULEVARD*	
BEACH BOULEVARD	*LINKS RIOAD*	LEFT
LINKS RIOAD	**URQUHART ROAD**	LEFT
URQUHART ROAD	**PARK ROAD**	LEFT
PARK ROAD	*PARK STREET*	FOLLOW ON TO
PARK STREET	*BEACH BOULEVARD ROUNDABOUT*	LEFT - 1ST EXIT
BEACH BOULEVARD ROUNDABOUT	*BEACH BOULEVARD*	

BEACH BOULEVARD	**ESPLANADE**	STRAIGHT ON - 2ND EXIT
ESPLANADE	**KING STREET**	LEFT
KING STREET	*ELLON ROAD*	FOLLOW ON TO
ELLON ROAD	*GORDON BARRACKS ROUNDABOUT*	ROUND - 4TH EXIT
GORDON BARRACKS ROUNDABOUT	*ELLON ROAD*	
ELLON ROAD	*KING STREET*	FOLLOW ON TO
KING STREET	*ESPLANADE*	LEFT
ESPLANADE	**BEACH BOULEVARD**	STRAIGHT ON - 1ST EXIT
BEACH BOULEVARD	**LINKS ROAD**	LEFT
LINKS ROAD	**QUEENS LINKS ROUNDABOUT**	LEFT - 2ND EXIT
QUEENS LINKS ROUNDABOUT	**LINKS ROAD**	
LINKS ROAD	**ESPLANADE ROUNDABOUT**	ROUND - 3RD EXIT
ESPLANADE ROUNDABOUT	**LINKS ROAD**	
LINKS ROAD	**QUEENS LINKS ROUNDABOUT**	LEFT - 1ST EXIT
QUEENS LINKS ROUNDABOUT	**WELLINGTON STREET**	
WELLINGTON STREET	**YORK STREET**	LEFT
YORK STREET	**ESPLANADE**	LEFT
ESPLANADE	**LINKS ROAD**	LEFT - 1ST EXIT
LINKS ROAD	*QUEENS LINKS ROUNDABOUT*	LEFT - 1ST EXIT
QUEENS LINKS ROUNDABOUT	*WELLINGTON STREET*	
WELLINGTON STREET	**ST CLEMENT STREET**	LEFT
ST CLEMENT STREET	**CHURCH STREET**	RIGHT
CHURCH STREET	**WATERLOO QUAY**	LEFT
WATERLOO QUAY	*WELLINGTON STREET*	LEFT
WELLINGTON STREET	**ST CLEMENT STREET**	LEFT
ST CLEMENT STREET	*MILLAR STREET*	RIGHT
MILLAR STREET	**CASTLE TERRACE**	FOLLOW ON TO
CASTLE TERRACE	**COMMERCE STREET**	LEFT
COMMERCE STREET	**REGENT QUAY**	RIGHT
REGENT QUAY	*VIRGINIA STREET*	LEFT
VIRGINIA STREET	*MARKET STREET*	LEFT
MARKET STREET	*NORTH ESPLANADE WEST*	RIGHT
NORTH ESPLANADE WEST	*QUEEN ELIZABETH BRIDGE ROUNDABOUT*	LEFT - 1ST EXIT
QUEEN ELIZABETH BRIDGE ROUNDABOUT	*QUEEN ELIZABETH BRIDGE*	
QUEEN ELIZABETH BRIDGE	*CRAIGINCHES ROUNDABOUT*	RIGHT - 2ND EXIT
CRAIGINCHES ROUNDABOUT	*WELLINGTON ROAD*	
WELLINGTON ROAD	*CRAIGSHAW DRIVE*	RIGHT
CRAIGSHAW DRIVE	*DEPOT*	RIGHT

Silver route 10



SILVER 10		
FROM	**TO**	**DIRECTION**
THE BUSH	*MALCOLM ROAD*	RIGHT
MALCOLM ROAD	*JOHNSTON GARDENS*	RIGHT
JOHNSTON GARDENS	**JOHNSTON GARDENS**	TURN AT BUS TERMINUS
JOHNSTON GARDENS	*MALCOLM ROAD*	RIGHT
MALCOLM ROAD	*NORTH DEESIDE ROAD*	LEFT
NORTH DEESIDE ROAD	*SCHOOL ROAD*	LEFT
SCHOOL ROAD	**CORONATION ROAD**	RIGHT
CORONATION ROAD	**NORTH DEESIDE ROAD**	LEFT
NORTH DEESIDE ROAD	*MILLTIMBER BRAE*	RIGHT
MILLTIMBER BRAE	**MILLTIMBER BRAE**	TURN
MILLTIMBER BRAE	**NORTH DEESIDE ROAD**	RIGHT
NORTH DEESIDE ROAD	*KIRK BRAE*	LEFT
KIRK BRAE	**CRAIGBANK DRIVE**	RIGHT
CRAIGBANK DRIVE	**FRIARSFIELD ROAD**	RIGHT
FRIARSFIELD ROAD	**KIRK BRAE**	RIGHT
KIRK BRAE	**KIRK BRAE**	CONTINUE ON
KIRK BRAE	**BLACKTOP ROAD**	STRAIGHT ON
BLACKTOP ROAD	*BAILLIESWELLS ROAD*	LEFT
BAILLIESWELLS ROAD	**NORTH DEESIDE ROAD**	LEFT
NORTH DEESIDE ROAD	*QUARRY ROAD*	LEFT
QUARRY ROAD	**HILLVIEW CRESCENT**	RIGHT
HILLVIEW CRESCENT	**CULTS AVENUE**	RIGHT
CULTS AVENUE	**NORTH DEESIDE ROAD**	LEFT
NORTH DEESIDE ROAD	*NORTH DEESIDE ROAD*	CONTINUE ON
NORTH DEESIDE ROAD	*ABBOTSHALL ROAD*	LEFT
ABBOTSHALL ROAD	**CRAIGTON ROAD**	RIGHT
CRAIGTON ROAD	**AIRYHALL AVENUE**	LEFT
AIRYHALL AVENUE	*COUNTESSWELLS ROAD*	LEFT
COUNTESSWELLS ROAD	**CULTS - KINGSHILL ROAD**	RIGHT
CULTS - KINGSHILL ROAD	*CULTS - KINGSHILL ROAD*	RIGHT
CULTS - KINGSHILL ROAD	**KINGSWELLS ROUNDABOUT**	RIGHT - 3RD EXIT
KINGSWELLS ROUNDABOUT	*SKENE ROAD*	
SKENE ROAD	*MIDDENCRAIG ROUNDABOUT*	LEFT - 1ST EXIT
MIDDENCRAIG ROUNDABOUT	*LANG STRACHT*	
LANG STRACHT	*LANG STRACHT (BUS GATE)*	LEFT
LANG STRACHT (BUS GATE)	**FAIRLEY ROAD**	RIGHT
FAIRLEY ROAD	**KINGSWOOD DRIVE**	RIGHT
KINGSWOOD DRIVE	**KINGSWELLS CRESCENT**	RIGHT
KINGSWELLS CRESCENT	**CHAPEL OF STONEYWOOD - FAIRLEY ROAD**	LEFT
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	*KINGSWOOD DRIVE*	LEFT
KINGSWOOD DRIVE	**KINGSWELLS CRESCENT**	LEFT
KINGSWELLS CRESCENT	*KINGSWELLS AVENUE*	RIGHT

KINGSWELLS AVENUE	**KINGSWOOD DRIVE**	LEFT
KINGSWOOD DRIVE	*KINGSWOOD DRIVE*	FOLLOW ON TO
KINGSWOOD DRIVE	**CHAPEL OF STONEYWOOD - FAIRLEY ROAD**	LEFT
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	**FAIRLEY ROAD**	LEFT
FAIRLEY ROAD	**FAIRLEY ROAD**	LEFT
FAIRLEY ROAD	**FAIRLEY ROAD**	FOLLOW ON TO
FAIRLEY ROAD	*KINGSWOOD DRIVE*	LEFT
KINGSWOOD DRIVE	*CHAPEL OF STONEYWOOD - FAIRLEY ROAD*	LEFT
CHAPEL OF STONEYWOOD - FAIRLEY ROAD	**KINGSWELLS ROUNDABOUT**	STRAIGHT ON - 2ND EXIT
KINGSWELLS ROUNDABOUT	*CULTS - KINGSHILL ROAD*	
CULTS - KINGSHILL ROAD	*BLACKTOP ROAD*	RIGHT
BLACKTOP ROAD	**BLACKTOP ROAD**	TURN AROUND
BLACKTOP ROAD	**BISHOPDAMS ROAD**	LEFT
BISHOPDAMS ROAD	**B9119 TO CITY LIMIT**	LEFT
B9119 TO CITY LIMIT	**B9119**	STRAIGHT ON
B9119	*PROSPECT ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
PROSPECT ROUNDABOUT	*B9119*	
B9119	*TAQA ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
TAQA ROUNDABOUT	*B9119*	
B9119	*TOTAL ROUNDABOUT*	STRAIGHT ON - 2ND EXIT
TOTAL ROUNDABOUT	*B9119*	
B9119	*CARNIE ROUNDABOUT*	LEFT - 1ST EXIT
CARNIE ROUNDABOUT	*MALCOLM ROAD TO CITY LIMIT*	
MALCOLM ROAD TO CITY LIMIT	*MALCOLM ROAD*	FOLLOW ON
MALCOLM ROAD	*CONTLAW ROAD*	LEFT
CONTLAW ROAD	**CULTER HOUSE ROAD**	FOLLOW ON TO
CULTER HOUSE ROAD	**AWPR ACCESS ROAD**	RIGHT
AWPR ACCESS ROAD	*NORTH DEESIDE ROAD*	RIGHT
NORTH DEESIDE ROAD	*MALCOLM ROAD*	RIGHT
MALCOLM ROAD	*THE BUSH*	RIGHT - END ROUTE

(c) SNOW CLEARANCE AREAS

After priority routes have been cleared, when lying snow persists this will be tackled on an area basis in accordance with the following areas.

1.	BUCKSBURN	West of Auchmill Rd Dual Carriageway Section	
		South of Bankhead Road Railway Bridge and Greenburn Drive	
2.	DYCE	North of Bankhead Road Railway Bridge and Greenburn Drive	
3.	BRIDGE OF DON	North of Bridge of Don, and North of Brig o' Balgownie	
4.	KINGSWELLS		
		AREAS BOUNDED BY	
5.	NORTHFIELD	NORTH	Heathryfold Housing Scheme
		SOUTH	Provost Fraser Drive
		EAST	North Anderson Drive
		WEST	Howes Road
6.	WOODSIDE	NORTH	River Don
		SOUTH	Rosehill Drive / Back Hilton Road
		EAST	Great Northern Road / Powis Terrace
		WEST	North Anderson Drive
7.	SEATON / TILLYDRONE	NORTH	River Don
		SOUTH	St Machar Drive - School Road
		EAST	Beach Esplanade
		WEST	Donbank Terrace, Don Street / Great Northern Road
8.	MASTRICK	NORTH	Provost Fraser Drive
		SOUTH	Lang Stracht

		EAST	North Anderson Drive
		WEST	Sheddocksley Housing Scheme
9.	CORNHILL / CAIRNCRY	NORTH	Rosehill Drive / Back Hilton Road
		SOUTH	Westburn Road / Hutcheon Street
		EAST	George Street / Powis Terrace
		WEST	North Anderson Drive
10.	OLD ABERDEEN	NORTH	St Machar Drive / School Road
		SOUTH	Hutcheon Street / Nelson Street / Urquhart Road
		EAST	Beach Esplanade
		WEST	Powis Terrace/George Street
11.	ST. CLEMENTS	NORTH	Nelson Street / Urquhart Road / Hutcheon Street
		SOUTH	Regent Quay / Waterloo Quay
		EAST	Beach Esplanade
		WEST	Mount Street / South Mount Street / Rosemount Viaduct / Schoolhill / St
12.	WOODEND / SUMMERHILL	NORTH	Lang Stracht
		SOUTH	Skene Road/Queen's Road
		EAST	Anderson Drive
		WEST	A944 Lang Stracht
13.	MIDSTOCKET / KINS GATE	NORTH	Westburn Road
		SOUTH	Queen's Road / Carden Place / Skene Street
		EAST	Mount Street / South Mount Street
		WEST	Anderson Drive
14.	CENTRAL AREA	NORTH	Skene Street/Schoolhill
		SOUTH	Willowbank Road / Springbank Terrace/Guild Street
		EAST	St Nicholas Street/Market Street
		WEST	Rose Street/Holburn Street
15.	HAZLEHEAD / BRAESIDE	NORTH	Skene Road / Queen's Road
		SOUTH	North Deeside Road / Great Western Road
		EAST	Anderson Drive
		WEST	Woodlands / Craigton Road
16.	HOLBURN / BROOMHILL	NORTH	Queen's Road / Carden Place
		SOUTH	Holburn Street

		EAST	Rose Street
		WEST	South Anderson Drive
17.	FERRYHILL	NORTH	Willowbank Road / Springbank Terrace / Guild Street
		SOUTH	Riverside Drive / North Esplanade West
		EAST	Market Street
		WEST	Holburn Street
18.	TORRY	NORTH	South Esplanade West / East / Greyhope Road
		SOUTH	Tullos Industrial Estate
		EAST	Greyhope Road / Coast Road
		WEST	Wellington Road
19.	MANNOFIELD / GARTHDEE	NORTH	North Deeside Road/Great Western Road
		SOUTH	Garthdee Road
		EAST	South Anderson Drive
		WEST	Pitfodels Station Road
20.	KINCORTH	NORTH	South Deeside Road / Great Southern Road
		SOUTH	Wellington Road (Charleston)
		EAST	Wellington Road
		WEST	City Boundary
21.	COVE	NORTH	Tullos Industrial Estate
		SOUTH	City Boundary
		EAST	Sea
		WEST	Wellington Road
22.	CULTS/BIELDSIDE	NORTH	Countesswells Road
		SOUTH	River Dee
		EAST	Craigton Road / Pitfodels Station Road
		WEST	Hillhead Road
23.	MILLTIMBER	NORTH	A944
		SOUTH	River Dee
		EAST	Hillhead Road
		WEST	Contlaw Road
24.	CULTER	NORTH	City Boundary
		SOUTH	River Dee
		EAST	Contlaw Road
		WEST	Anguston Road

(e) **FOOTWAY ROUTES**

Location of Plant and Resources (Footways)

Area		Plant	Depot
1.	Bucksburn	1 tractor	Bucksburn
2.	Dyce	Shared area 1	
3.	Bridge of Don	3 tractors	Bucksburn
4.	Kingswells	1 tractor	Bucksburn
5.	Northfield	2 tractors	Mastrick
6.	Woodside	Shared area 13	
7.	Seaton / Tilllydrone	1 tractor	Bucksburn
8.	Mastrick	2 tractors	Mastrick
9.	Cornhill / Cairncry	1 tractor	Tullos
10.	Old Aberdeen	Shared Area 7	
11	St Clements	Shared Area 14	
12	Woodend / Summerhill	1 tractor	Tullos
13	Midstocket / Kings Gate	1 tractor	Tullos
14	Central Area	2 tractors	Tullos
15	Hazelhead / Braeside	Shared area 19	
16	Holburn / Broomhill	Shared Area 14	
17	Ferryhill	Shared Area 20	
18	Torry	Shared Area 21	
19	Mannofield / Garthdee	1 tractor	Tullos
20	Kincorth	1 tractor	Tullos
21	Cove	1 tractor	Tullos
22	Cults / Bieldside	1 tractor	Tullos
23	Milltimber	1 tractor	Tullos
24	Culter	1 tractor	Tullos

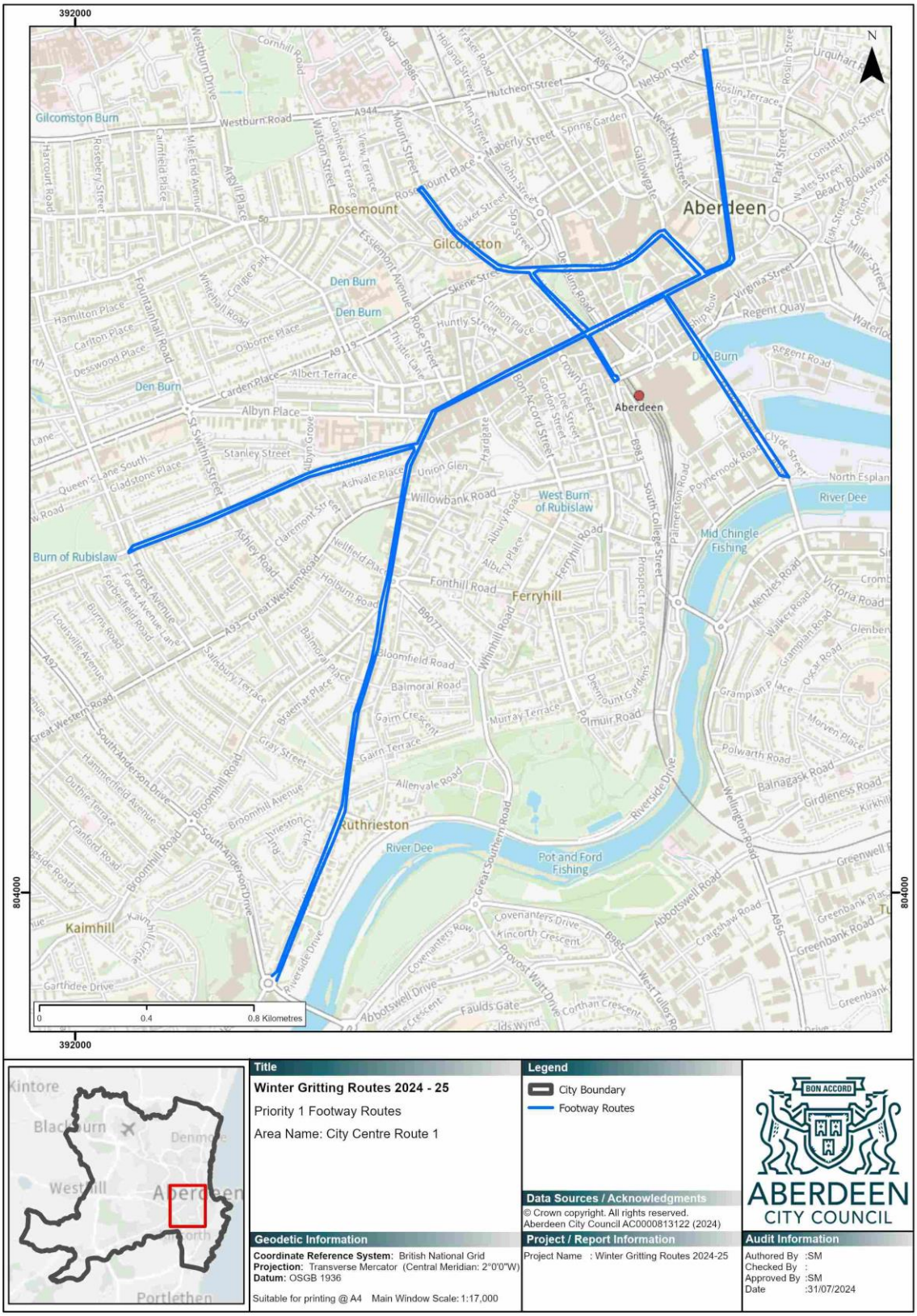
Priorities in Treatment

When working in above locations, priority to be given to those areas, as part of an area response steep gradients, and to City Centre Routes 1 and 2, in particular.

The footways within Areas 1 to 24 will be treated on an area by area basis. However, within each specific area, the footways indicated in the following footway sections will be given priority within that area.

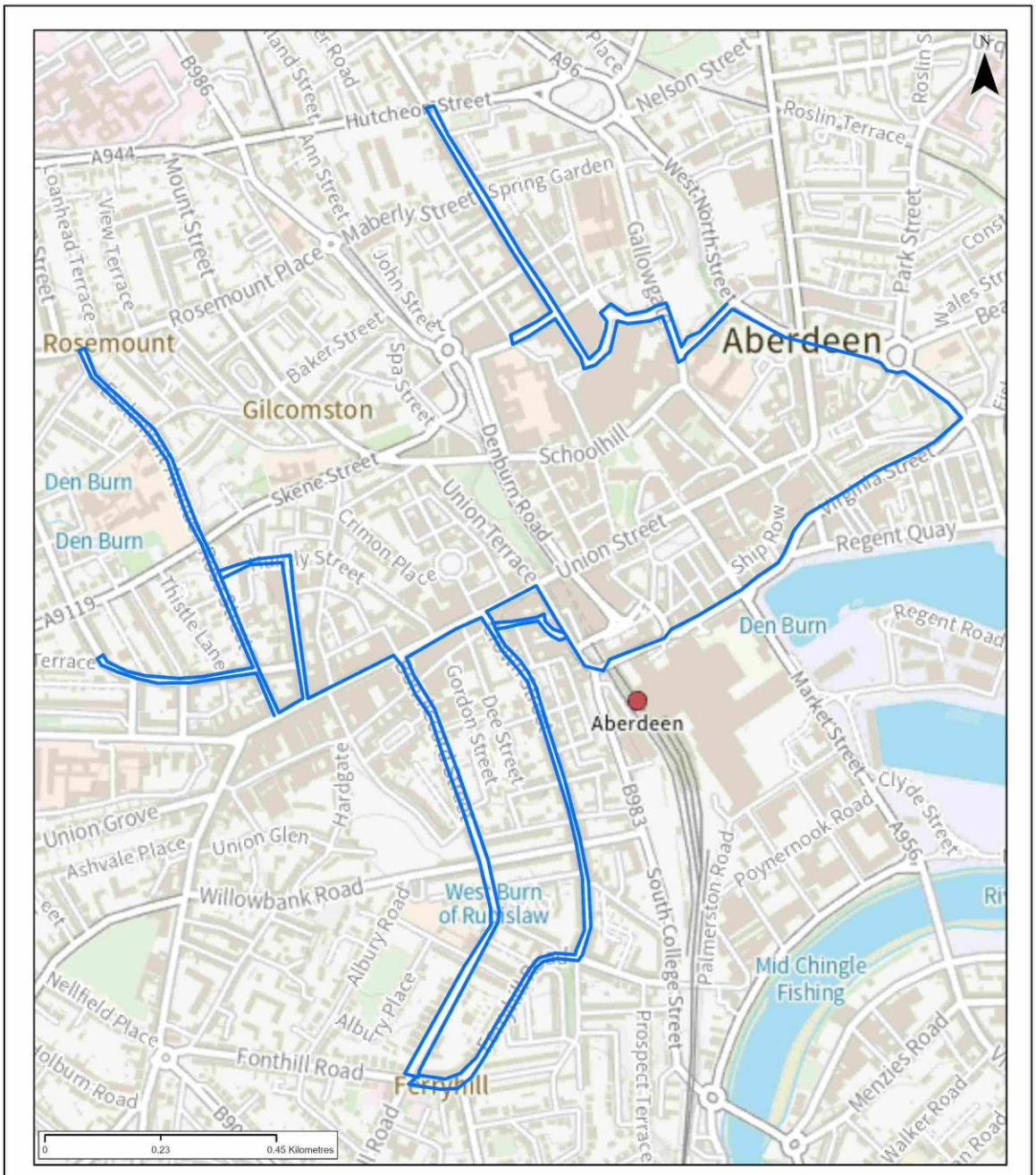
CITY CENTRE FOOTWAY PRIORITY 1 GRITTING ROUTE 1

Commence Bridge of Dee Roundabout at Holburn Street
Holburn Street East F/P to Riverside Terrace
Drive to Holburn Street at Fonthill Road
Holburn Street East F/P to Union Street
Union Street South F/P to Bridge Street
Bridge Street West F/P to Guild Street
Bridge Street East F/P to Union Street
Union Street South F/P to Market Street
Market Street West F/P to North Esplanade West
Market Street East F/P to Union Street
Union Street South F/P to Castle Street
Castle Street South F/P to King Street
King Street East F/P to Nelson Street
King Street West F/P to Castle Street
Castle Street North F/P to Broad Street
Broad Street East F/P to Schoolhill
Schoolhill North F/P to Rosemount Viaduct
Rosemount Viaduct North F/P to South Mount Street
South Mount Street East F/P to Rosemount Place
Rosemount Place North F/P to Argyll Place
Rosemount Place South F/P to South Mount Street
South Mount Street West F/P to Rosemount Viaduct
Rosemount Viaduct South F/P to Union Terrace
Union Terrace West F/P to Union Street
Union Terrace East F/P to Schoolhill
Schoolhill South F/P to Broad Street
Broad Street West F/P to Union Street
Union Street North F/P to Holburn Street
Holburn Street West F/P to Union Grove
Union Grove North F/P to Forest Avenue
Union Grove South F/P to Holburn Street
Holburn Street West F/P to Nellfield Place
Drive to Holburn Street/Riverside Terrace
Holburn Street West F/P to Bridge of Dee Roundabout


392000
804000
N
Aberdeen
Rosemount
Gilcomston
Den Burn
Ferryhill
Ruthrieston
Kaimhill
West Burn of Rubislaw
Burn of Rubislaw
Mid Chingle Fishing
Pot and Ford Fishing
River Dee
0
0.4
0.8 Kilometres
Kintore
Blackburn
Westhill
Portlethen
Title
Winter Gritting Routes 2024 - 25
Priority 1 Footway Routes
Area Name: City Centre Route 1
Legend
City Boundary
Footway Routes
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Geodetic Information
Coordinate Reference System: British National Grid
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CITY CENTRE FOOTWAY PRIORITY 1 GRITTING ROUTE 2

Drive Rose Street
Rose Street West F/P to Thistle Street
Thistle Street South F/P to Albert Street
Thistle Street North F/P to Rose Street
Rose Street West F/P to Esslemont Avenue
Esslemont Avenue West F/P to Rosemount Place
Esslemont Avenue East F/P to Rose Street
Rose Street East F/P to Union Street
Drive to Chapel Street/Union Street Junction
Chapel Street West F/P to Huntly Street
Huntly Street South F/P to Rose Street
Drive to Huntly Street/Chapel Street Junction
Chapel Street East F/P to Union Street
Drive to Union Street/Bon Accord Street Junction
Bon Accord Street West F/P to Fonthill Road
Bon Accord East F/P to Union Street
Drive to Union Street/Crown Street Junction
Crown Street West F/P to Ferryhill Road
Ferryhill Road North F/P to Bon Accord Street
Ferryhill Road South F/P to Crown Street
Crown Street East F/P to Union Street
Drive to Windmill Brae North F/P to Bath Street
Windmill Brae South F/P to Crown Street
Drive to Bridge Street/Link Brae Junction
Link Brae South F/P
Drive to Guild Street/Bridge Street Junction
Guild Street North F/P to Market Street
Trinity Quay North F/P to Marischal Street
Drive to West North Street Littlejohn Street Junction
Littlejohn Street South F/P
Drive to Gallowgate Upper Kirkgate Junction
Gallowgate West F/P to Berry Street
Berry Street South F/P to Loch Street
Loch Street South F/P to George Street
George Street West F/P to John Street
John Street South F/P to North St Andrew Street
John Street North F/P to George Street
George Street West F/P to Hutcheon Street
George Street East F/P to Loch Street
Loch Street North F/P to Berry Street
Berry Street North F/P to Gallowgate
Gallowgate East F/P to Littlejohn Street
Littlejohn Street North F/P





Title

Winter Gritting Routes 2024 - 25

Priority 1 Footway Routes

Area Name: City Centre Route 2

Legend

City Boundary

Footway Routes

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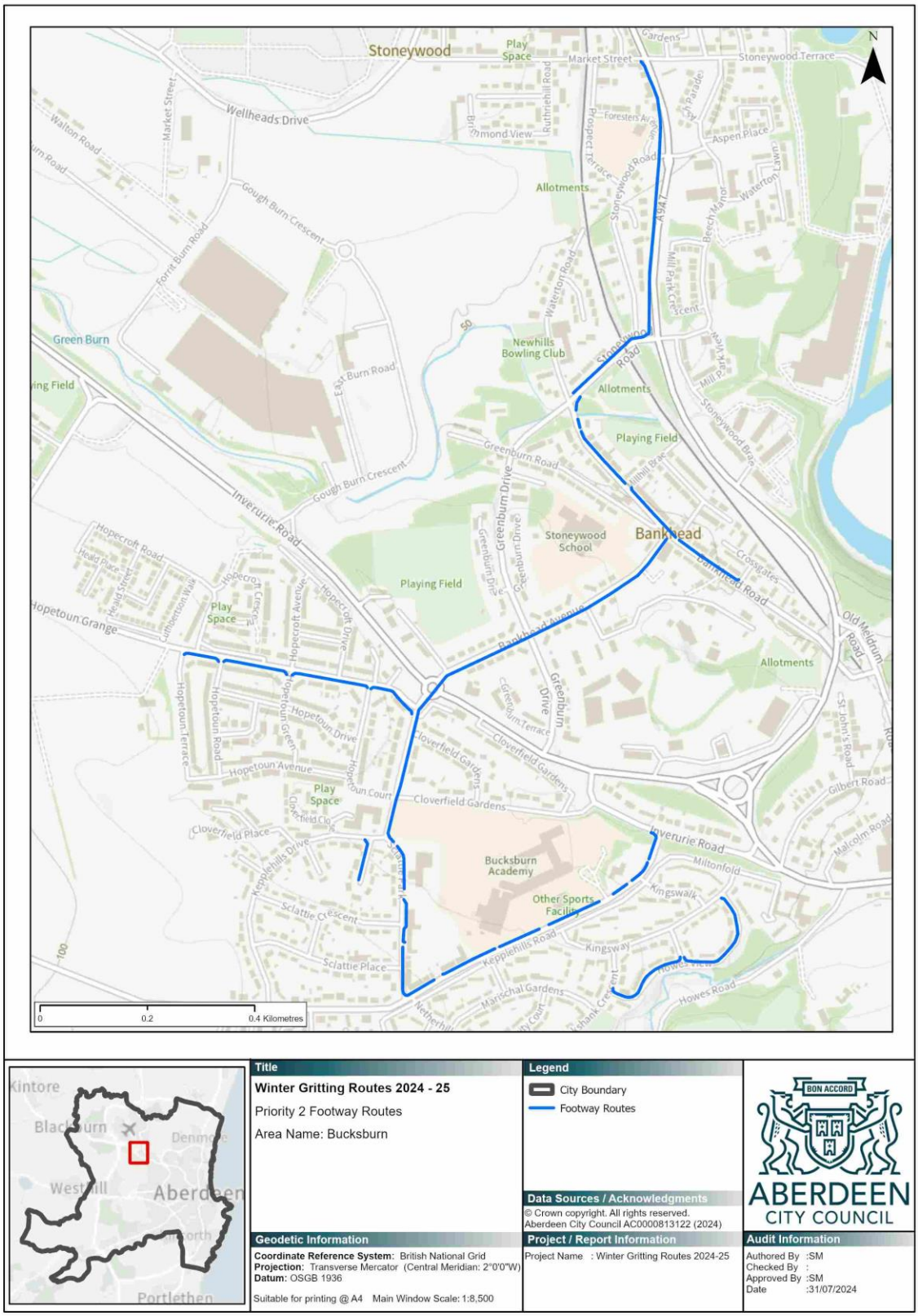
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AREA	PRIORITY FOOTWAY ROUTES
1. Bucksburn	Sclattie Circle Sclattie Park Kepplehills Road Howes View Hopetoun Grange Bankhead Road New Stoneywood Road Bankhead Avenue Stoneywood Road
2. Dyce	Victoria Street Dyce Shopping Centre Access Gordon Terrace Gladstone Place Liddell Place Stoneywood Road Riverview Drive Station Road
3. Bridge of Don	Cairnfold Road Scotstown Gardens Harehill Road Bodachra Road Braehead Way Newburgh Road Fairview Grange Fairview Street Greenbrae Drive Laurel Drive Jesmond Drive Greenbrae Crescent
4. Kingswells	Kingswood Drive Village Centre Kingswells Avenue Kingswood Avenue Kingswells Crescent
5. Northfield	Lintmill Terrace Byron Avenue Byron Square Quarry Road Cummings Park Crescent Moir Green Byron Crescent Howes Road Cruden Crescent
6. Woodside	Clifton Road Great Northern Road

7. Seaton / Tillydrone	Wingate Road Coningham Gardens Tillydrone Road St Machar Drive King Street Seaton Road Don Street Seaton Place East School Road Tillydrone Avenue Gordon Mill's Road
8. Mastrick	Mastrick Road Mastrick Drive Birkhall Parade Invercauld Road Springhill Road Sheddocksley Road Greenfern Road Kingsford Road Maidencraig Place
9. Cornhill / Cairncry	Cornhill Road Berryden Road Rosehill Drive Foresterhill Road Cairncry Road Westburn Road Raeden Park Road Westburn Drive Ashgrove Road West
10. Old Aberdeen	Sunnybank Road Spital King Street Bedford Road College Bounds
12. Woodend / Summerhill	Eday Drive Eday Road Summerhill Road Summerhill Terrace Westholme Avenue Queen's Road Lang Stracht Stronsay Place King's Gate Campsie Place

13. Mid Stocket / King's Gate	Craigie Loanings Whitehall Place Skene Street Fountainhall Road Rosemount Place Midstocket Road Albert Street Beechgrove Terrace
15. Hazlehead / Braeside	Springfield Road Seafield Road Great Western Road Craigton Road
16. Holburn / Broomhill	Albyn Place Queen's Road St Swithin Street Great Western Road
17. Ferryhill	Great Southern Road Whinhill Road Caledonian Place King George VI Bridge
18. Torry	Abbey Place Rockall Road Ladywell Place Battock Place Brimmond Place Oscar Place Grampian Place Glenbervie Road Mansefield Road Victoria Road Menzies Road Craig Place
19. Mannofield / Garthdee	Morrison Drive Deeside Crescent Deeside Gardens Deeside Drive Garthdee Road Garthdee Drive Pitmedden Road
20. Kincorth	Gardner Drive Provost Watt Drive Faulds Gate Arbroath Way Cairngorm Drive

15. Cove	Loirston Avenue Charleston Road / Charleston Road North Langdykes Road Loirston Road Cove Road Earn's Heugh Road
16. Cults / Bieldside	North Deeside Road Baillieswells Road Cairn Road Quarry Road Cults Avenue Kirk Brae Abbotshall Road Hillview Crescent
17. Milltimber	Contlaw Brae Monearn Gardens Binghill Road
18. Culter	North Deeside Road Towerview Road School Road Coronation Road Malcolm Road



Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Bucksburn

Legend

City Boundary

Footway Routes

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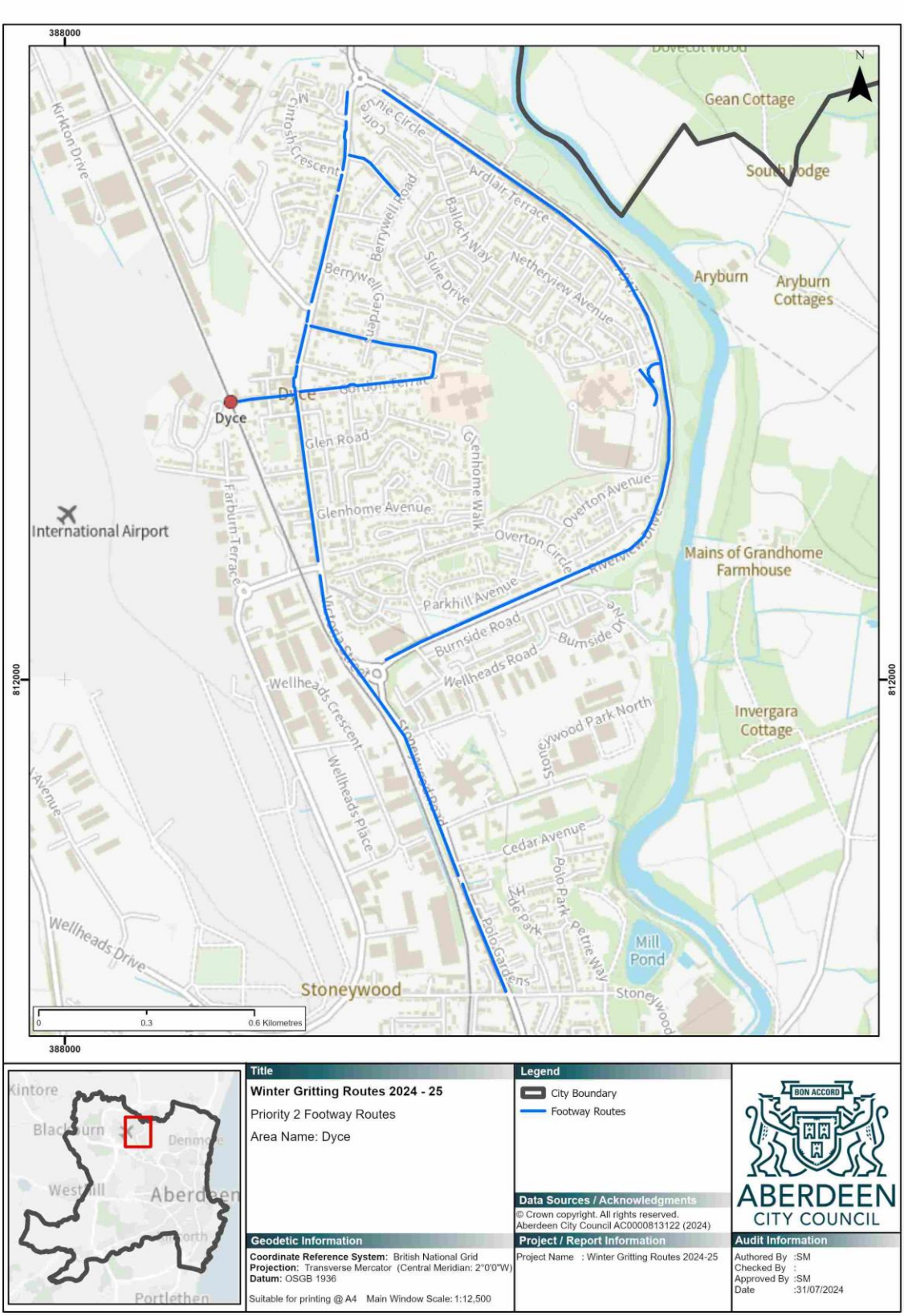
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Dyce

Legend

City Boundary

Footway Routes

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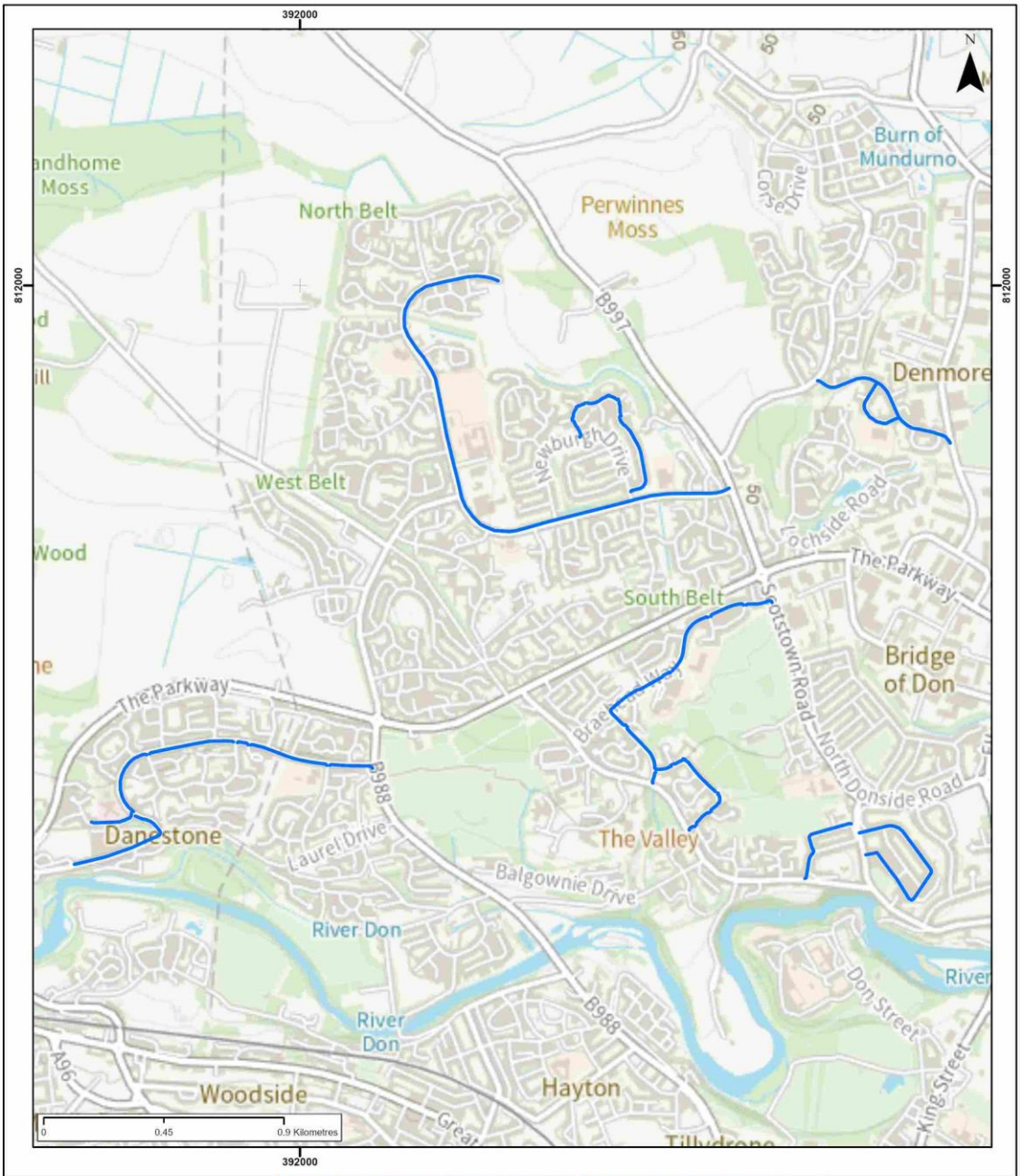
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Bridge of Don

Legend

City Boundary

Footway Routes

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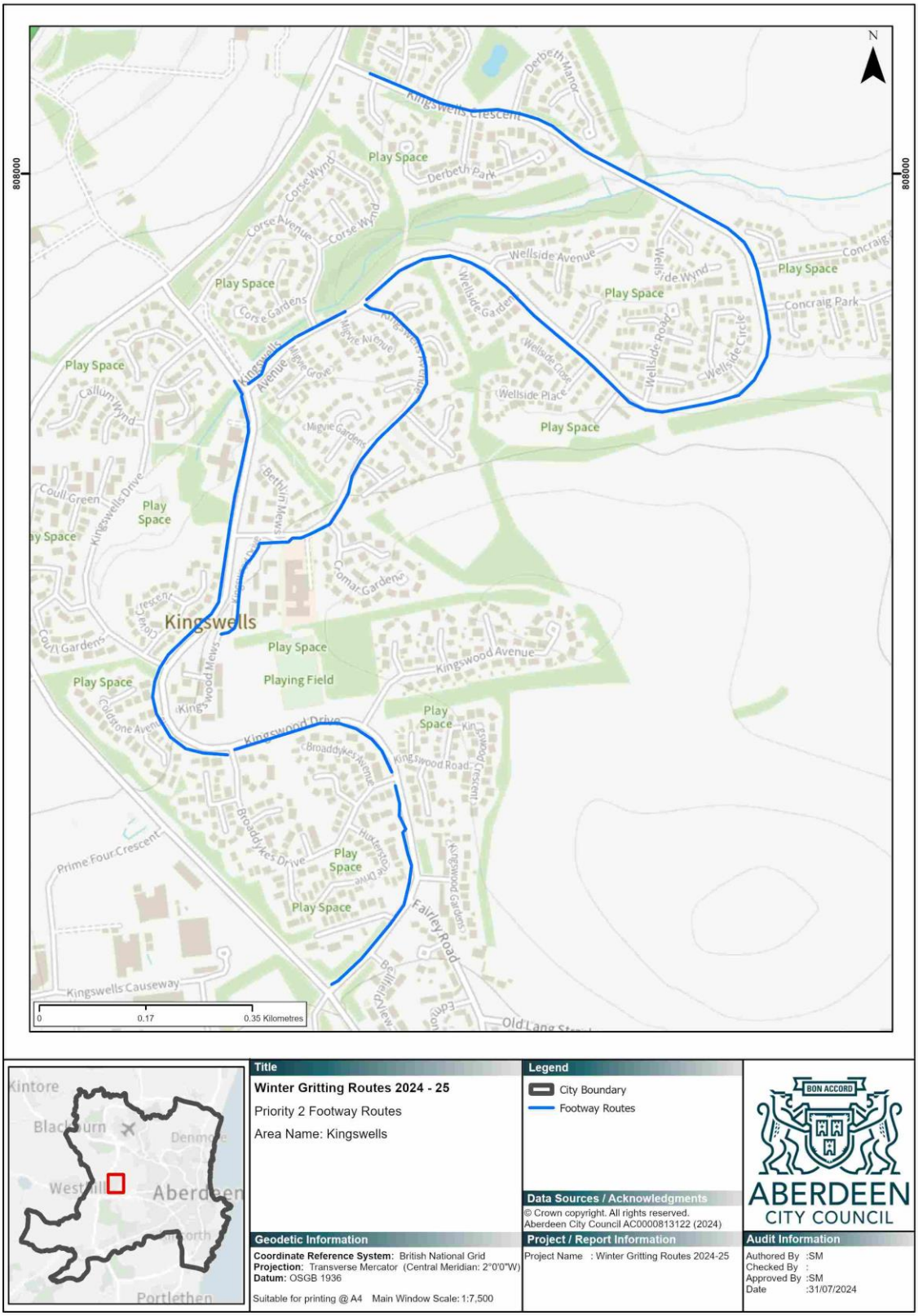
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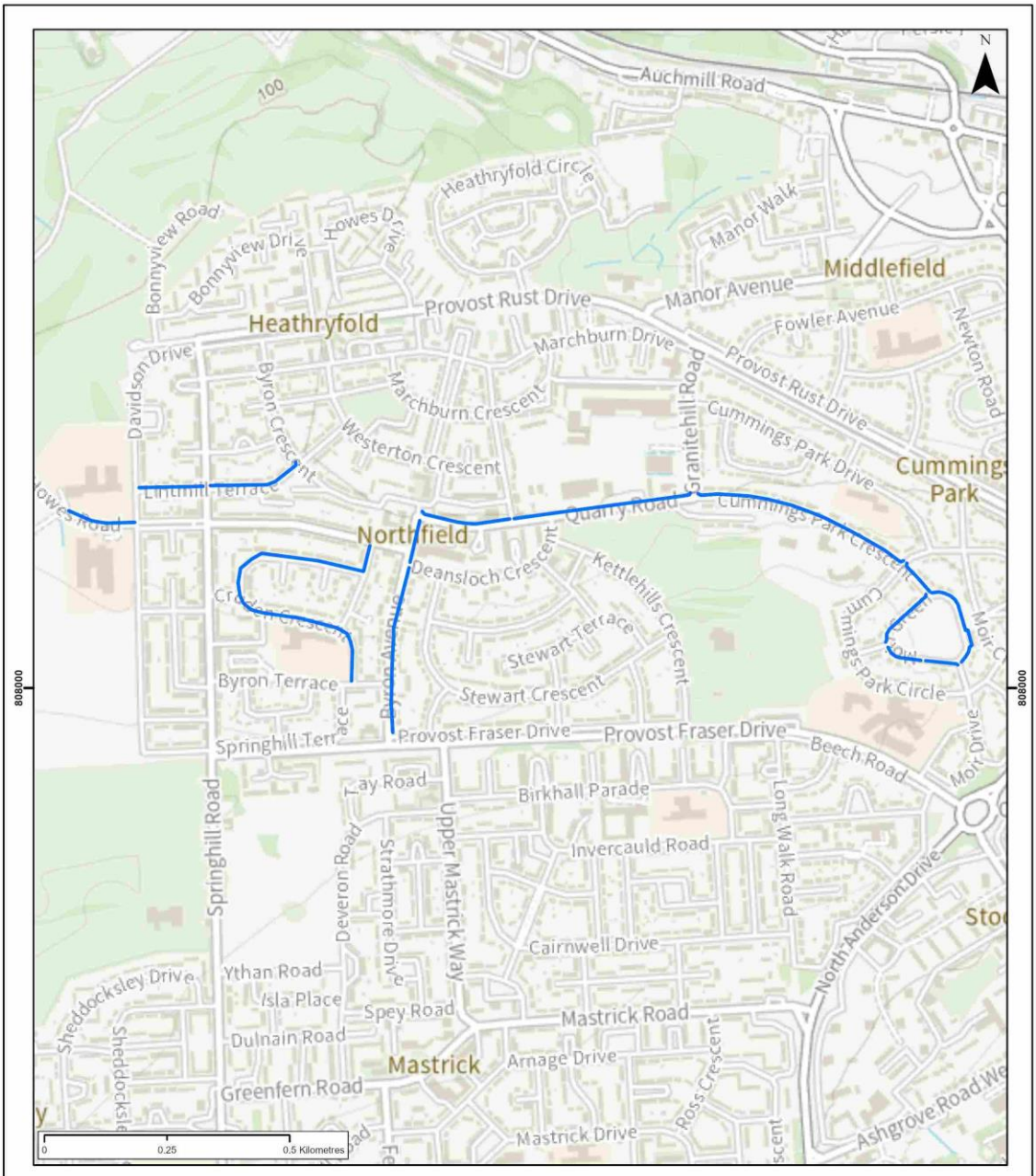
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N
808000
808000
Kingswells Crescent
Derbeth Manor
Derbeth Park
Play Space
Corse Wynd
Corse Avenue
Corse Gardens
Wellside Avenue
Wellside Gardens
Wellside Road
Wellside Circle
Wellside Place
Concraig
Concraig Park
Migvie Avenue
Migvie Grove
Migvie Gardens
Kingswells Avenue
Callum Wynd
Couli Green
Kingswells Drive
Play Space
Bethlin Mews
Comar Gardens
Kingswells
Court Gardens
Crescent
Kingswood Avenue
Playing Field
Kingswood Drive
Broadstone Avenue
Broadykes Avenue
Broadykes Drive
Kingswood Road
Kingswood Crescent
Kingswood Gardens
Huxterstone Drive
Prime Four Crescent
Fairley Road
Kingswells Causeway
Old Lang Stone
0
0.17
0.35 Kilometres
Kintore
Blackburn
Aberdeen
Portlethen
Title
Winter Gritting Routes 2024 - 25
Priority 2 Footway Routes
Area Name: Kingswells
Legend
City Boundary
Footway Routes
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Northfield

Legend

City Boundary

Footway Routes

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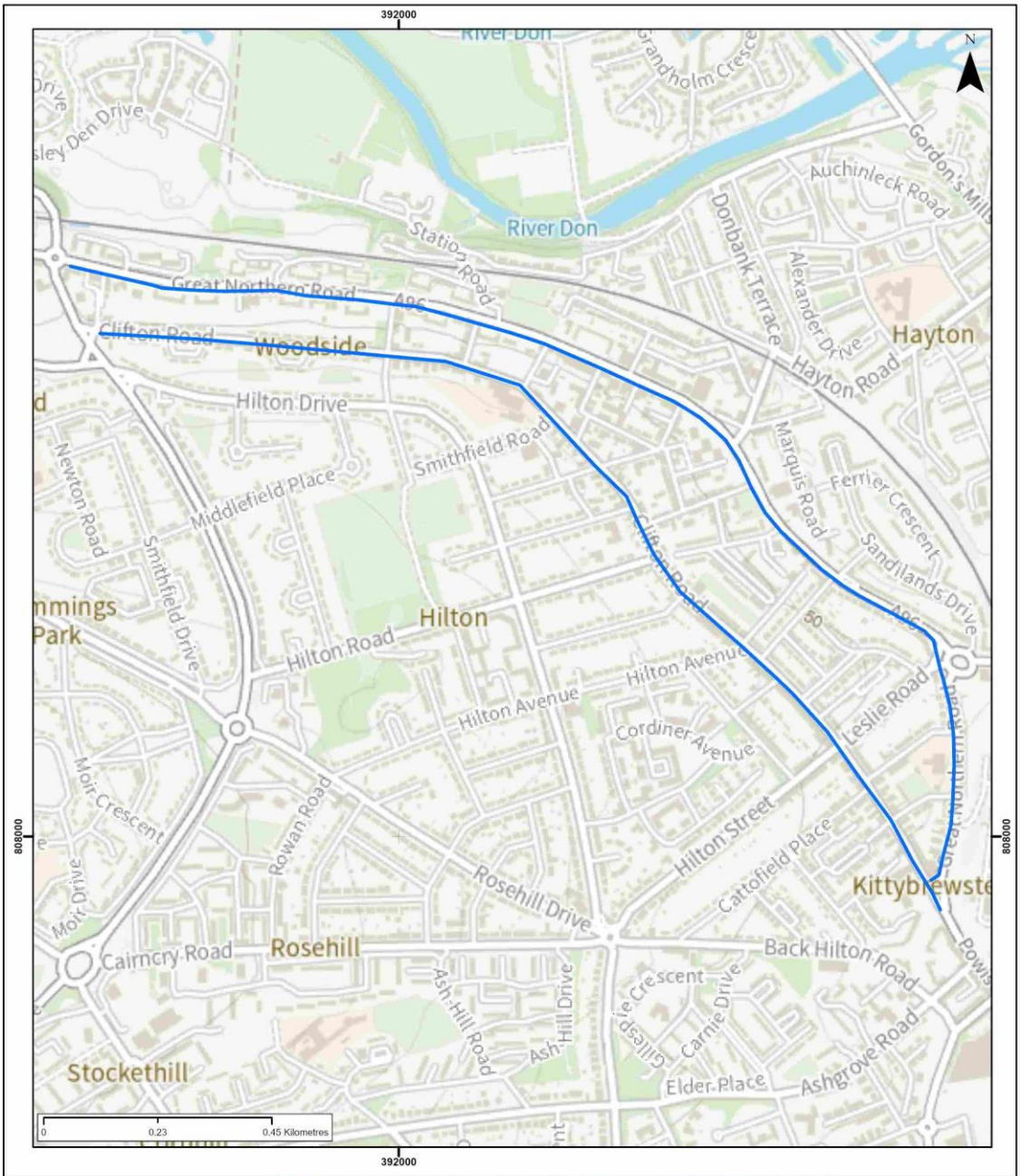
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Woodside

Legend

City Boundary

Footway Routes

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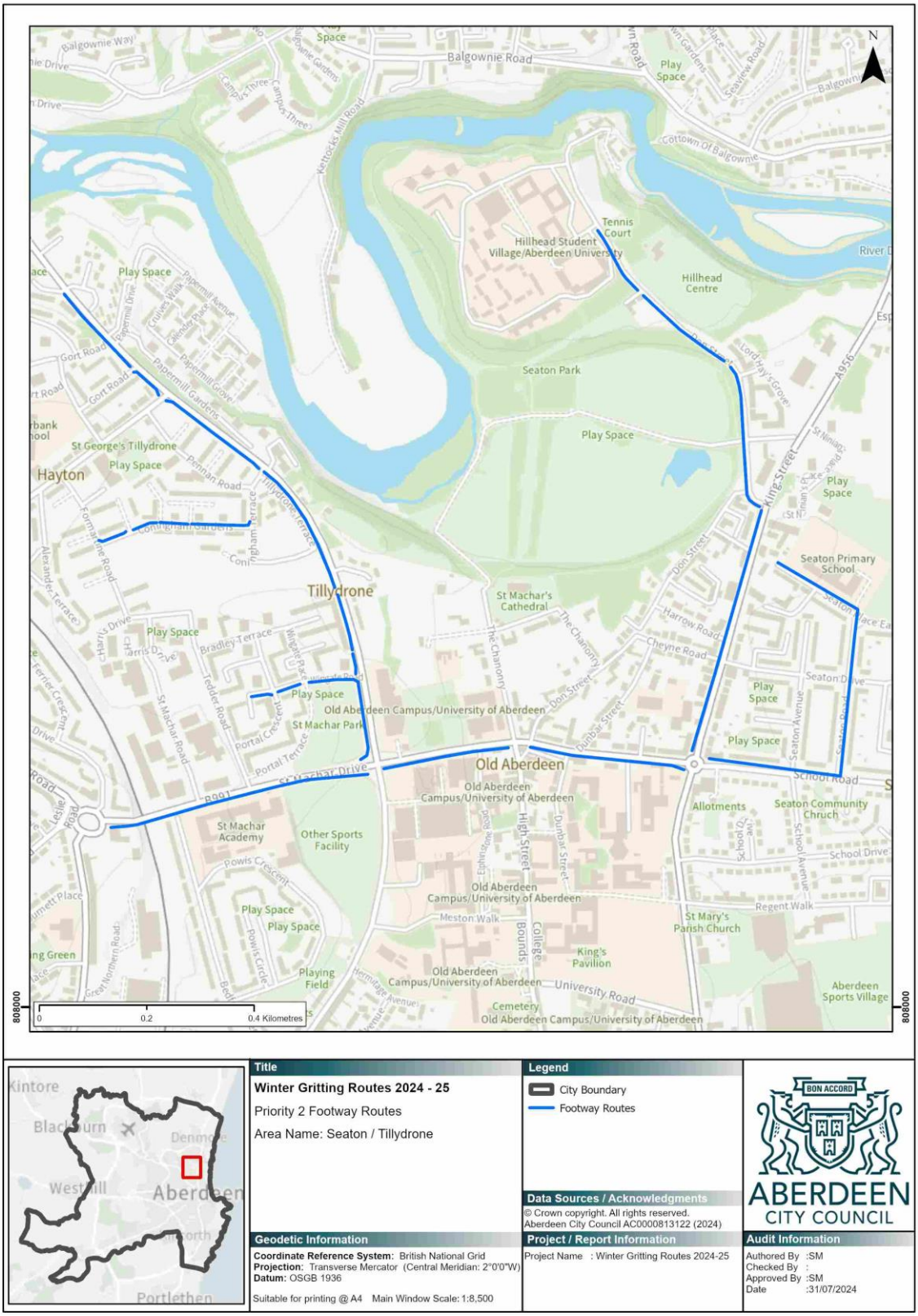
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Seaton / Tillydrone

Legend

City Boundary

Footway Routes

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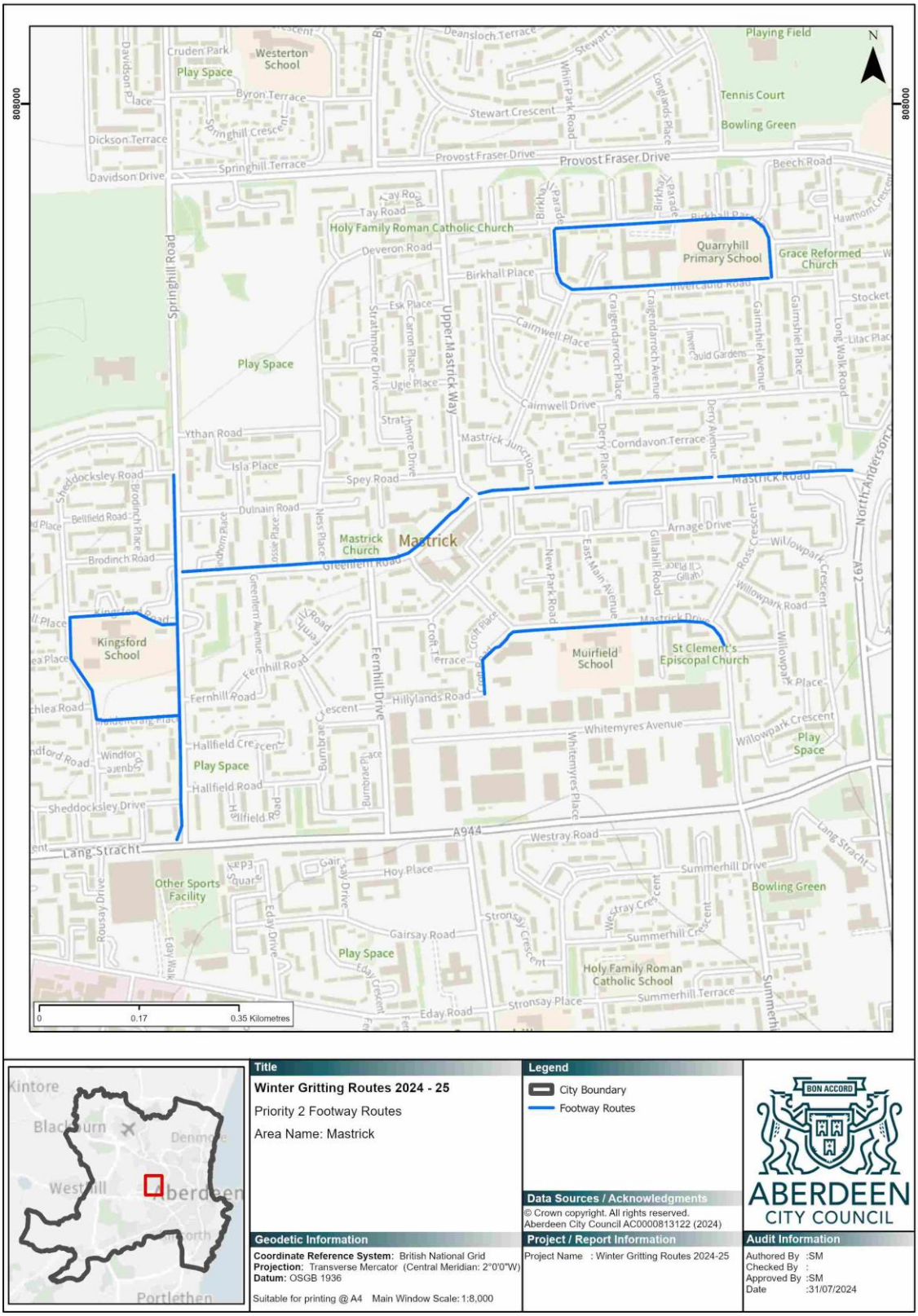
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Mastrick

Legend

City Boundary

Footway Routes

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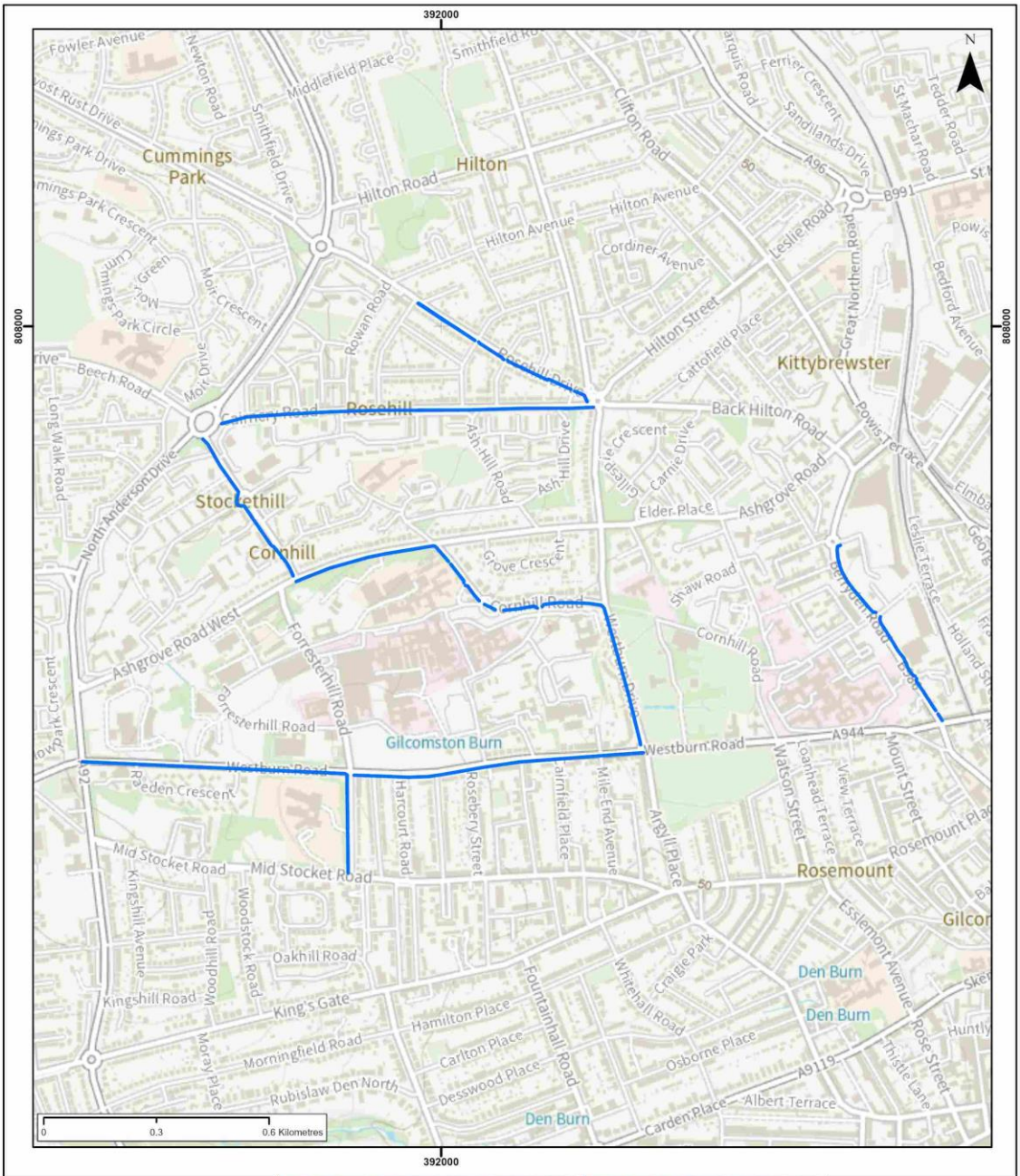
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Cornhill / Cairncry

Legend

City Boundary

Footway Routes

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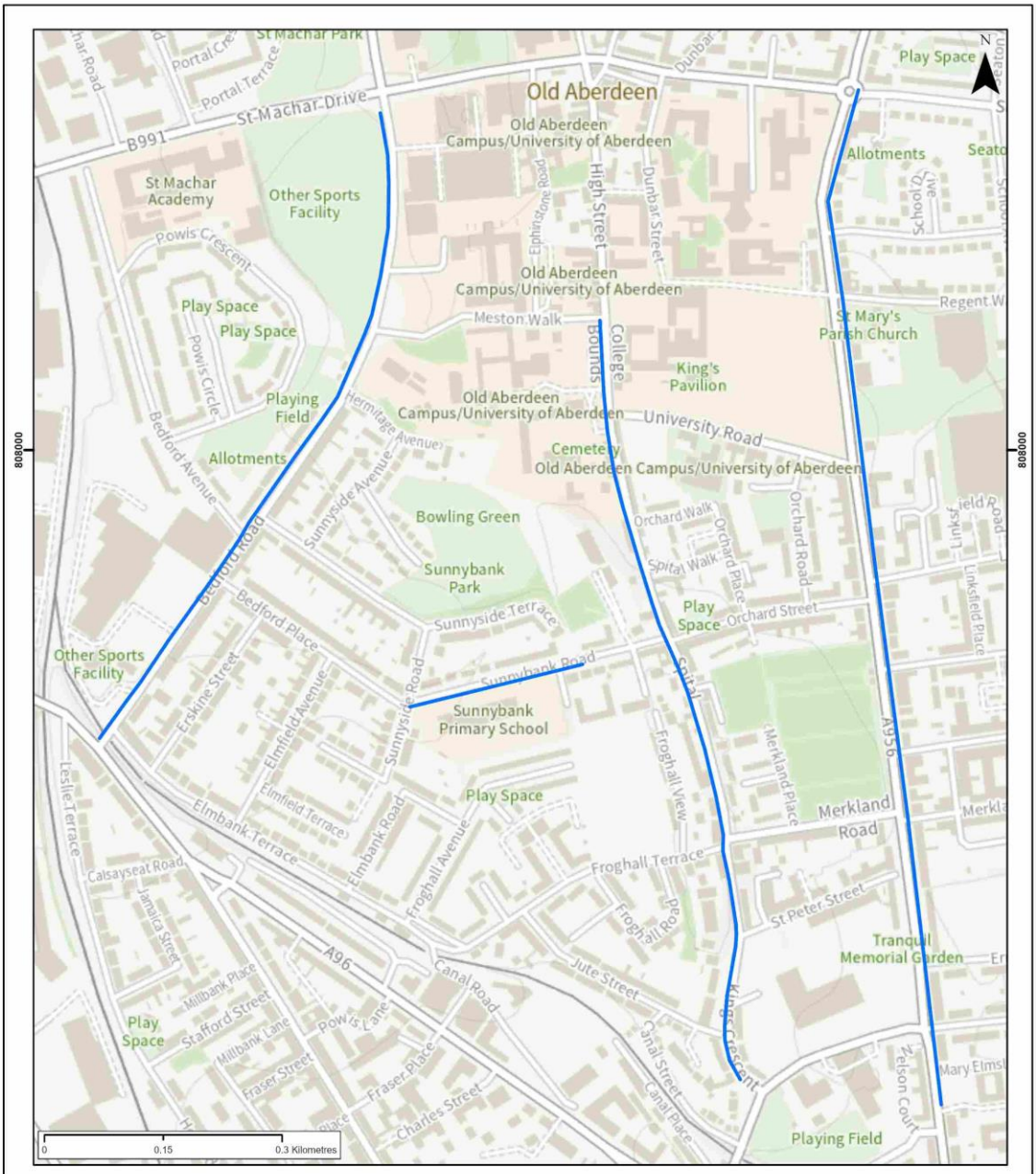
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Old Aberdeen

Legend

City Boundary

Footway Routes

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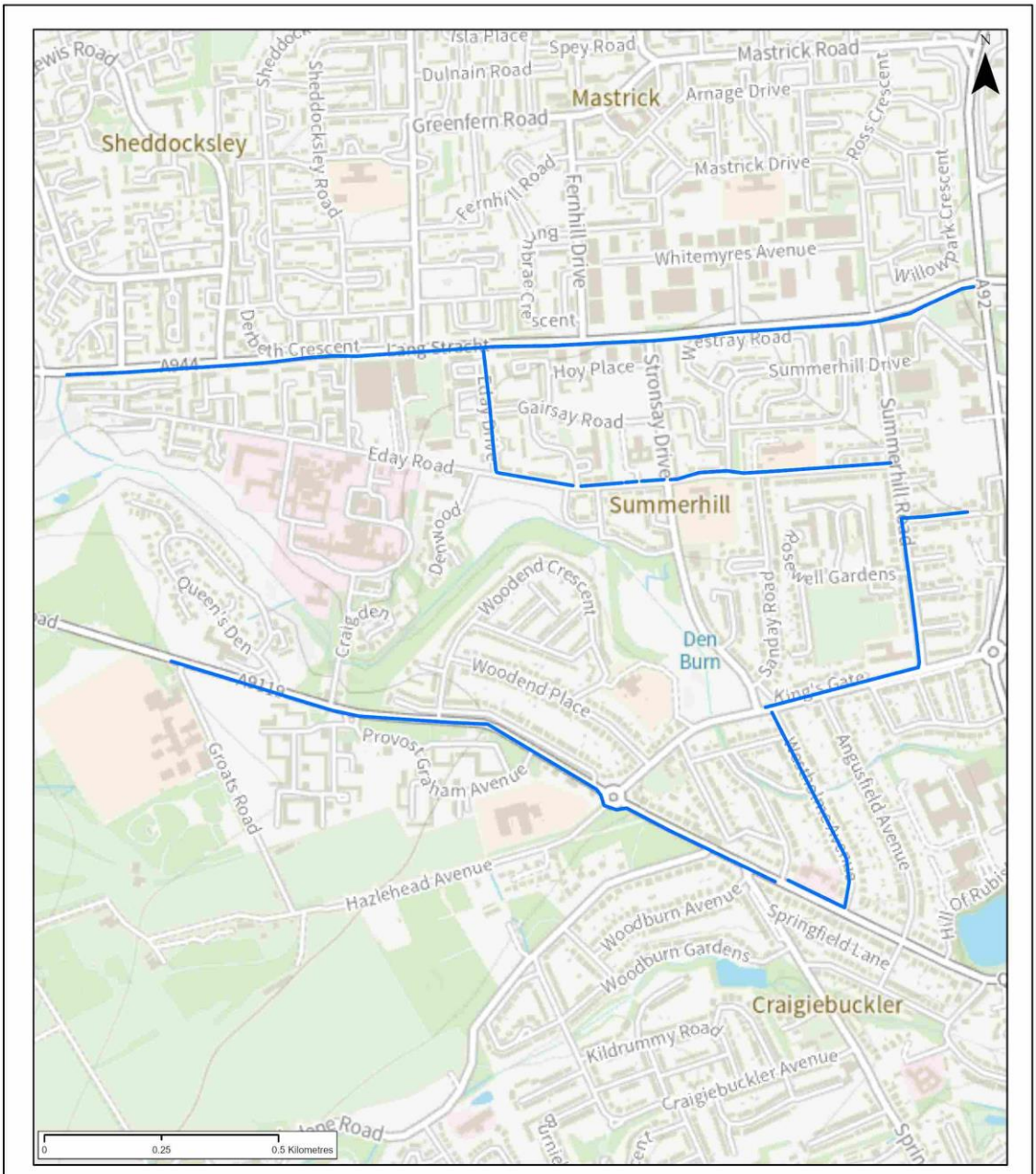
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Woodend / Summerhill

Legend

City Boundary

Footway Routes

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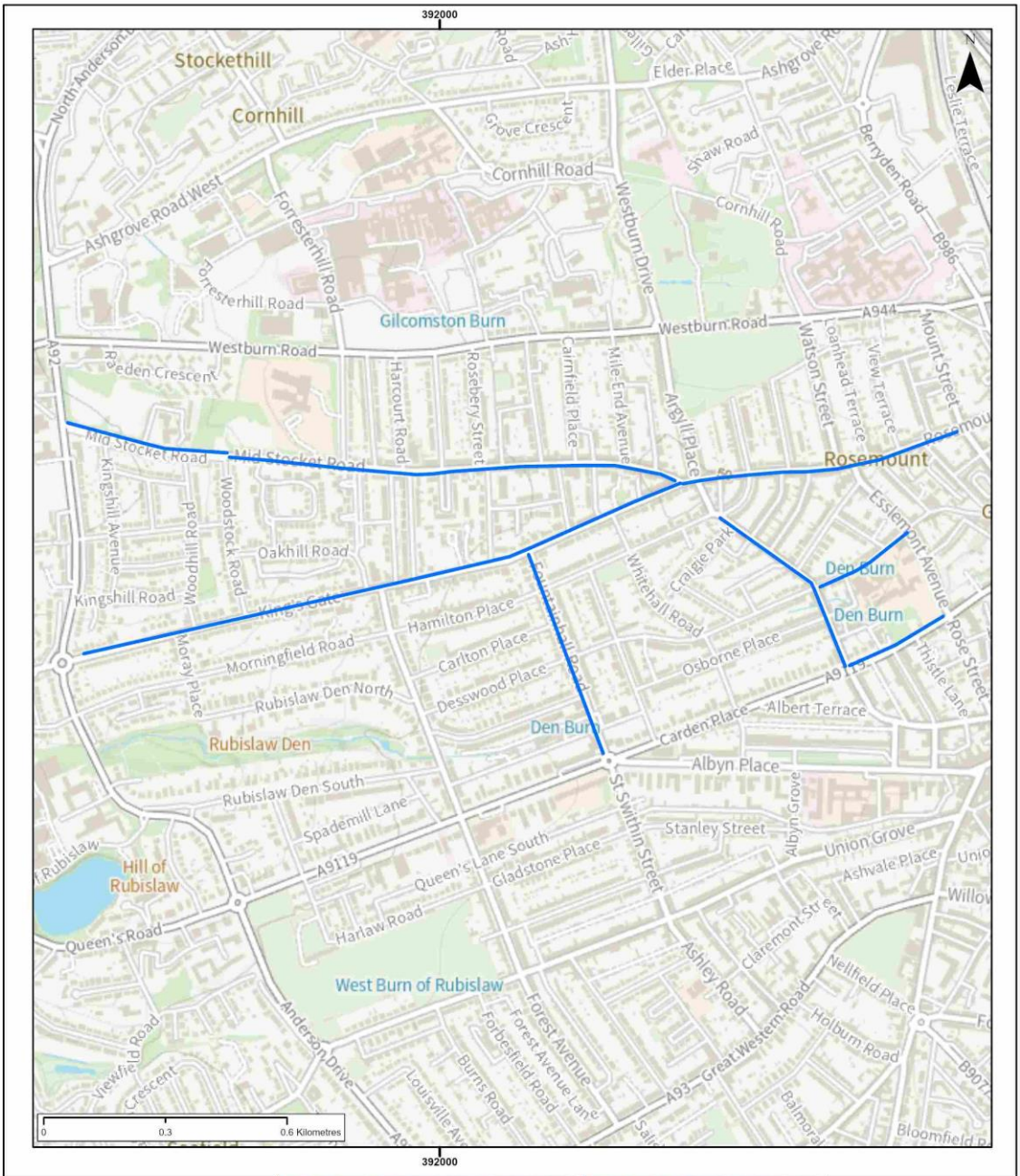
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Mid Stocket / King's Gate

Legend

City Boundary

Footway Routes

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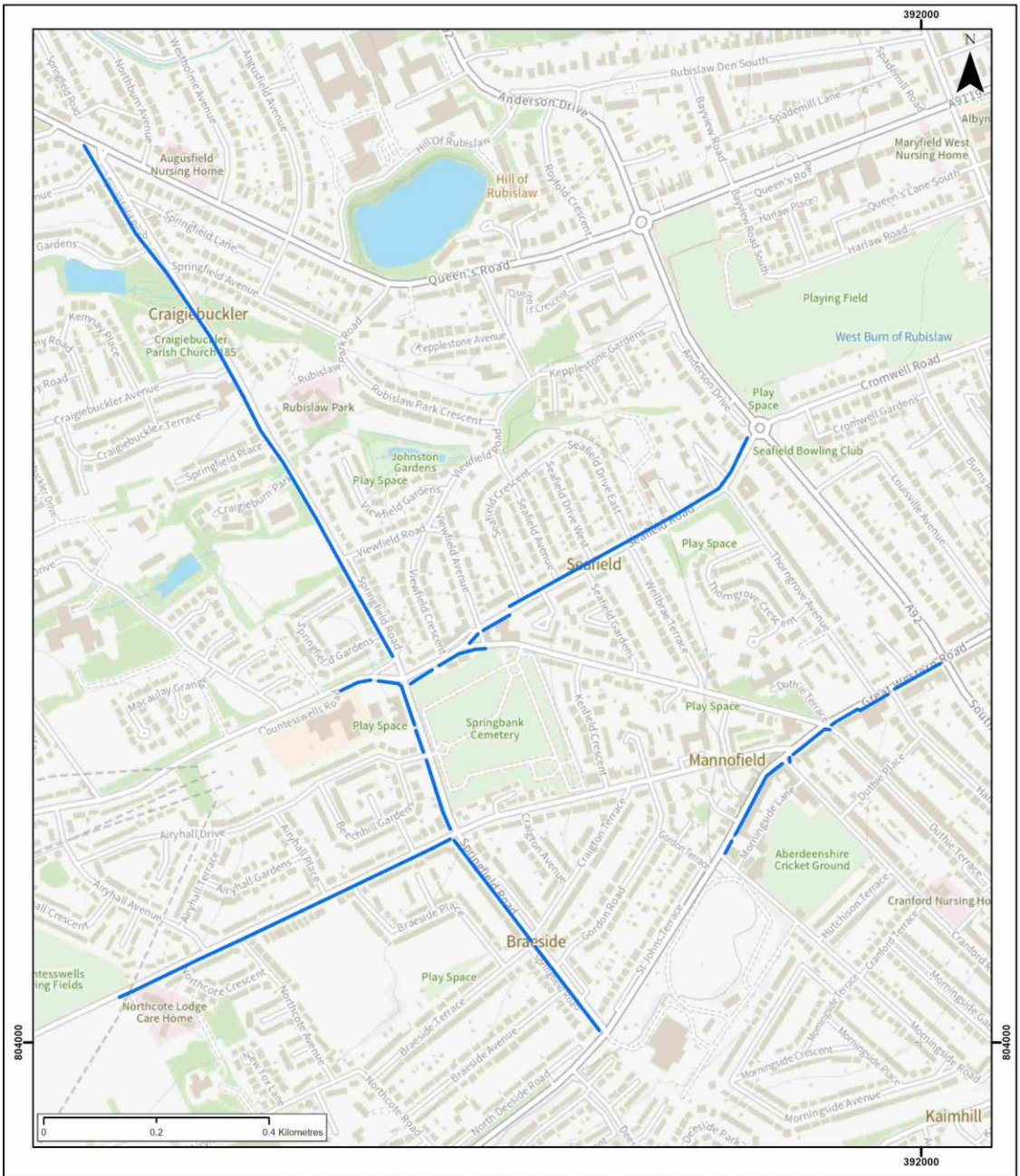
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Hazlehead / Braeside

Legend

City Boundary

Footway Routes

Data Sources / Acknowledgments

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Aberdeen City Council AC0000813122 (2024)

Geodetic Information

Coordinate Reference System: British National Grid
Projection: Transverse Mercator (Central Meridian: 2°0'0"W)
Datum: OSGB 1936

Suitable for printing @ A4 Main Window Scale: 1:9,000

Project / Report Information

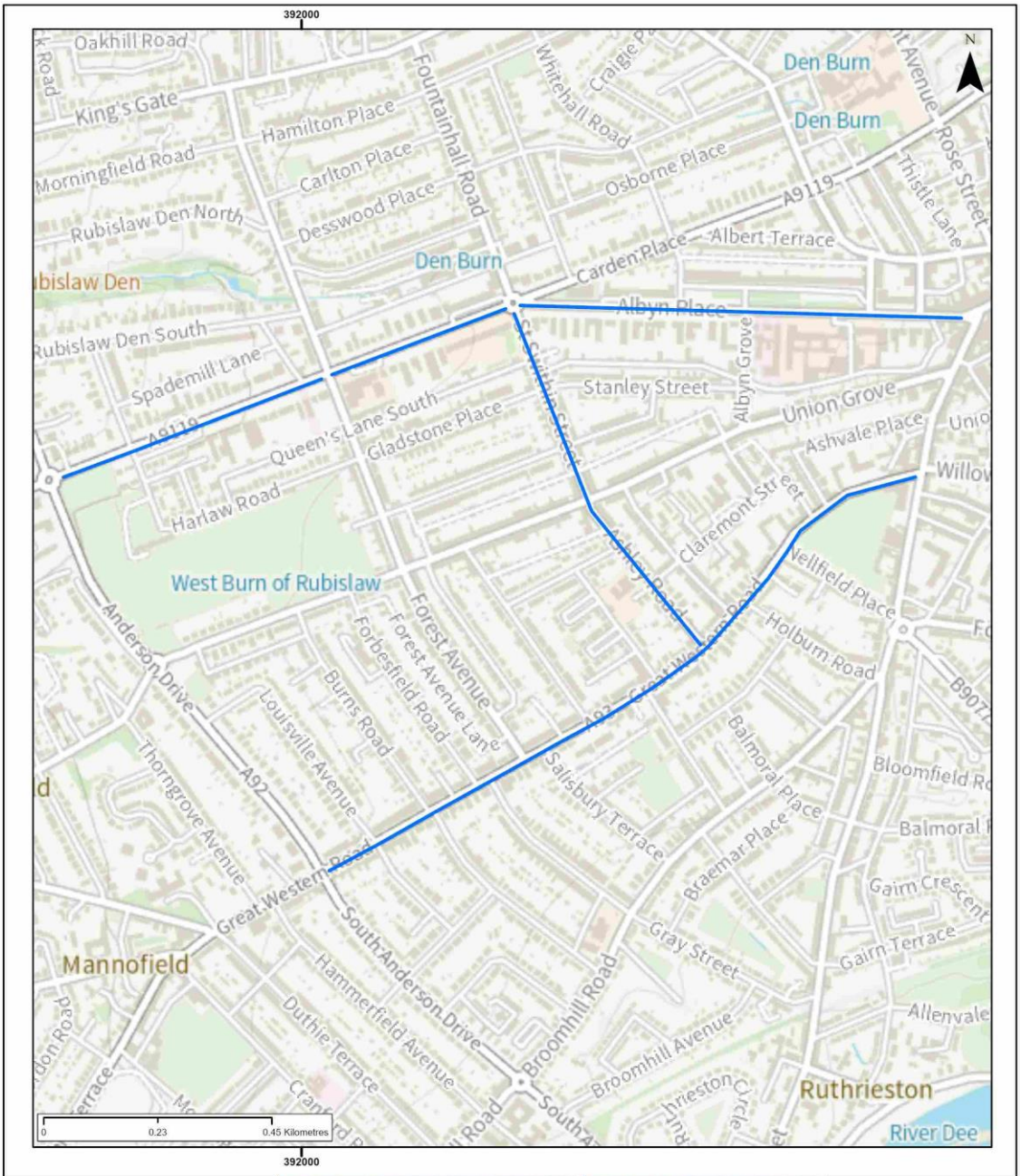
Project Name : Winter Gritting Routes 2024-25

Audit Information

Authored By :SM
Checked By :
Approved By :SM
Date :31/07/2024

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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Holburn / Broomhill

Legend

City Boundary

Footway Routes

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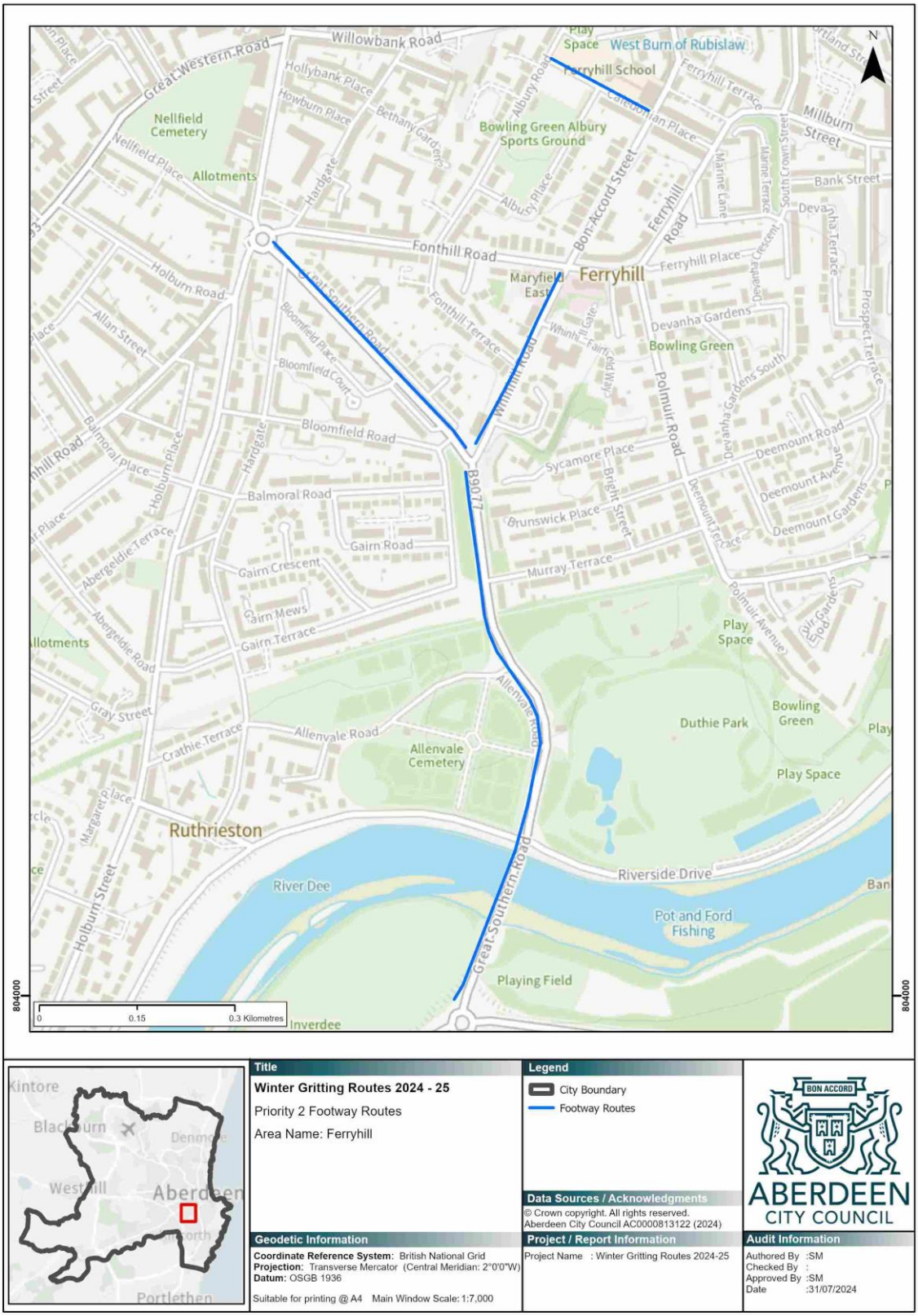
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Approved By :SM
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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Ferryhill

Legend

City Boundary

Footway Routes

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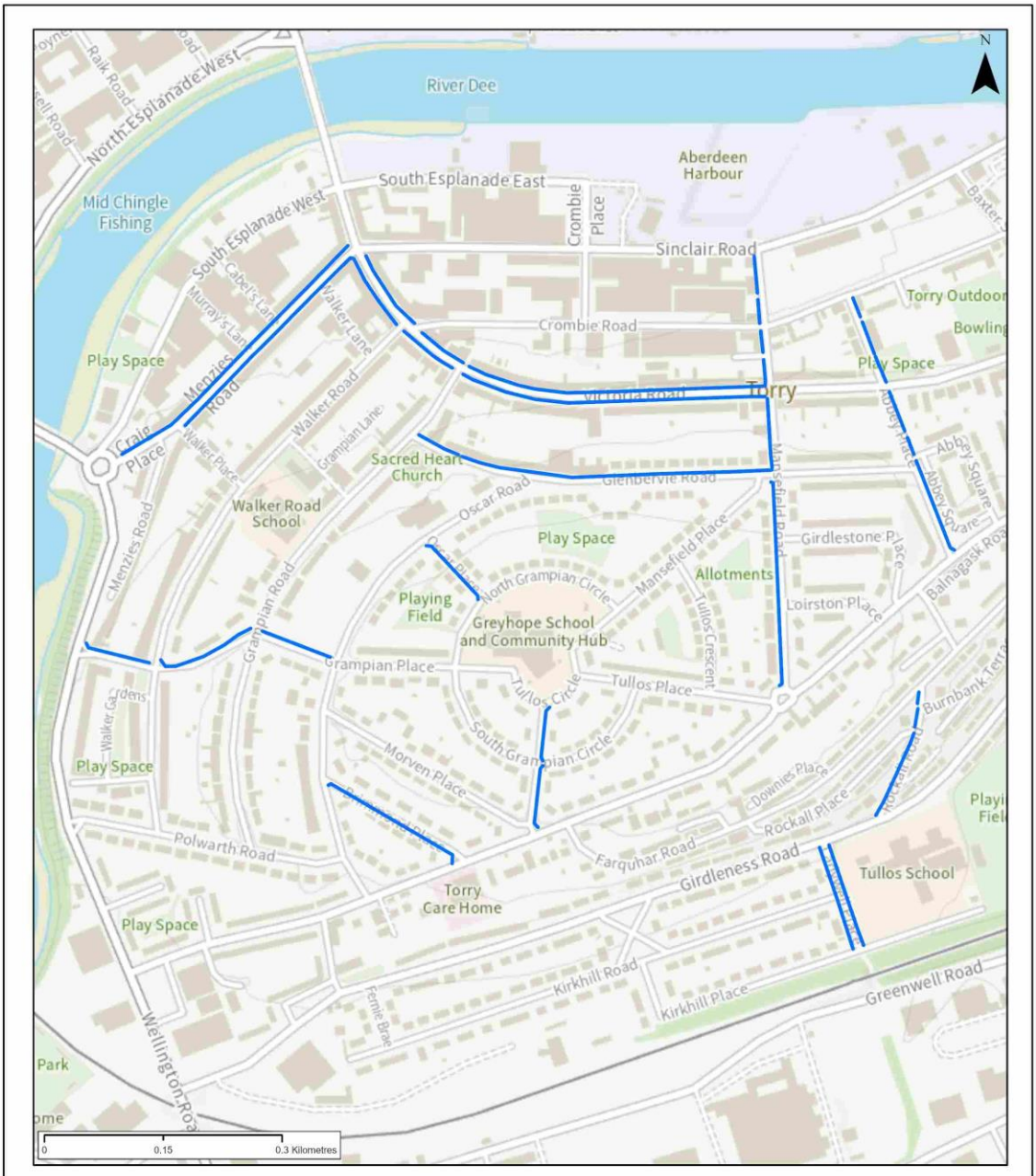
Project / Report Information

Project Name : Winter Gritting Routes 2024-25

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Approved By :SM
Date :31/07/2024

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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Torry

Legend

City Boundary

Footway Routes

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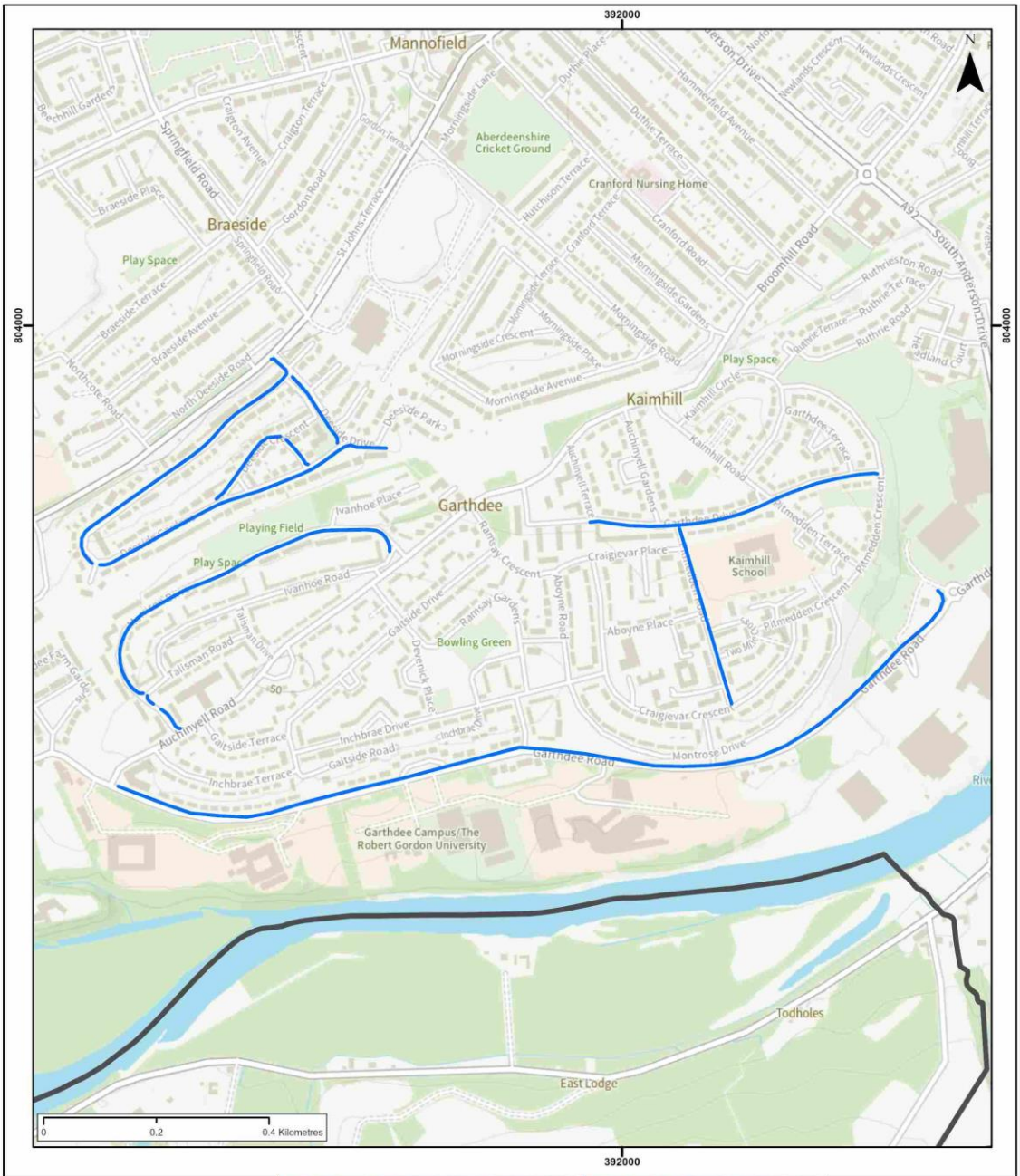
Project / Report Information

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Approved By :SM
Date :31/07/2024

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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Mannofield / Garthdee

Legend

City Boundary

Footway Routes

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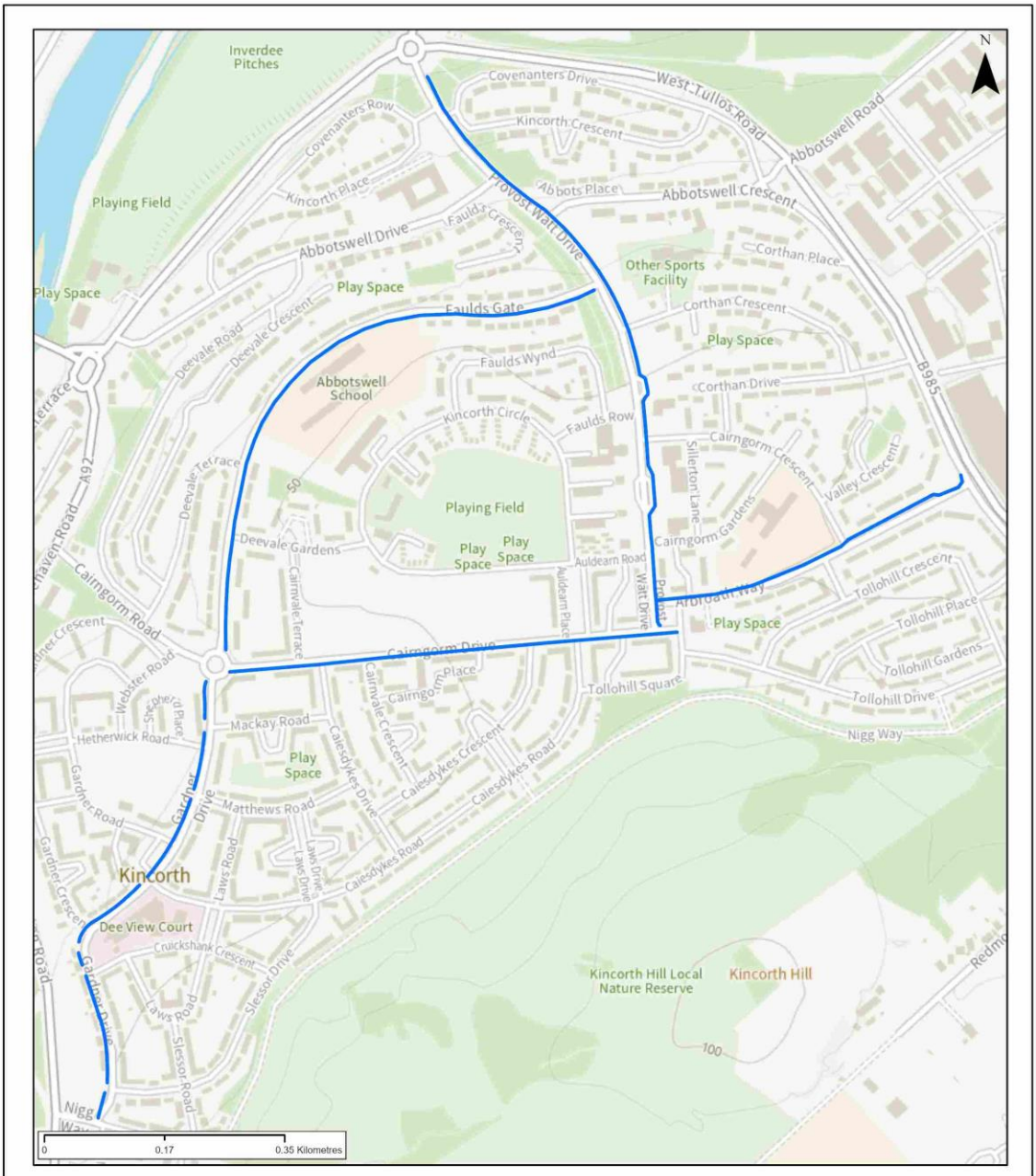
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Date :31/07/2024





Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Kincorth

Legend

City Boundary

Footway Routes

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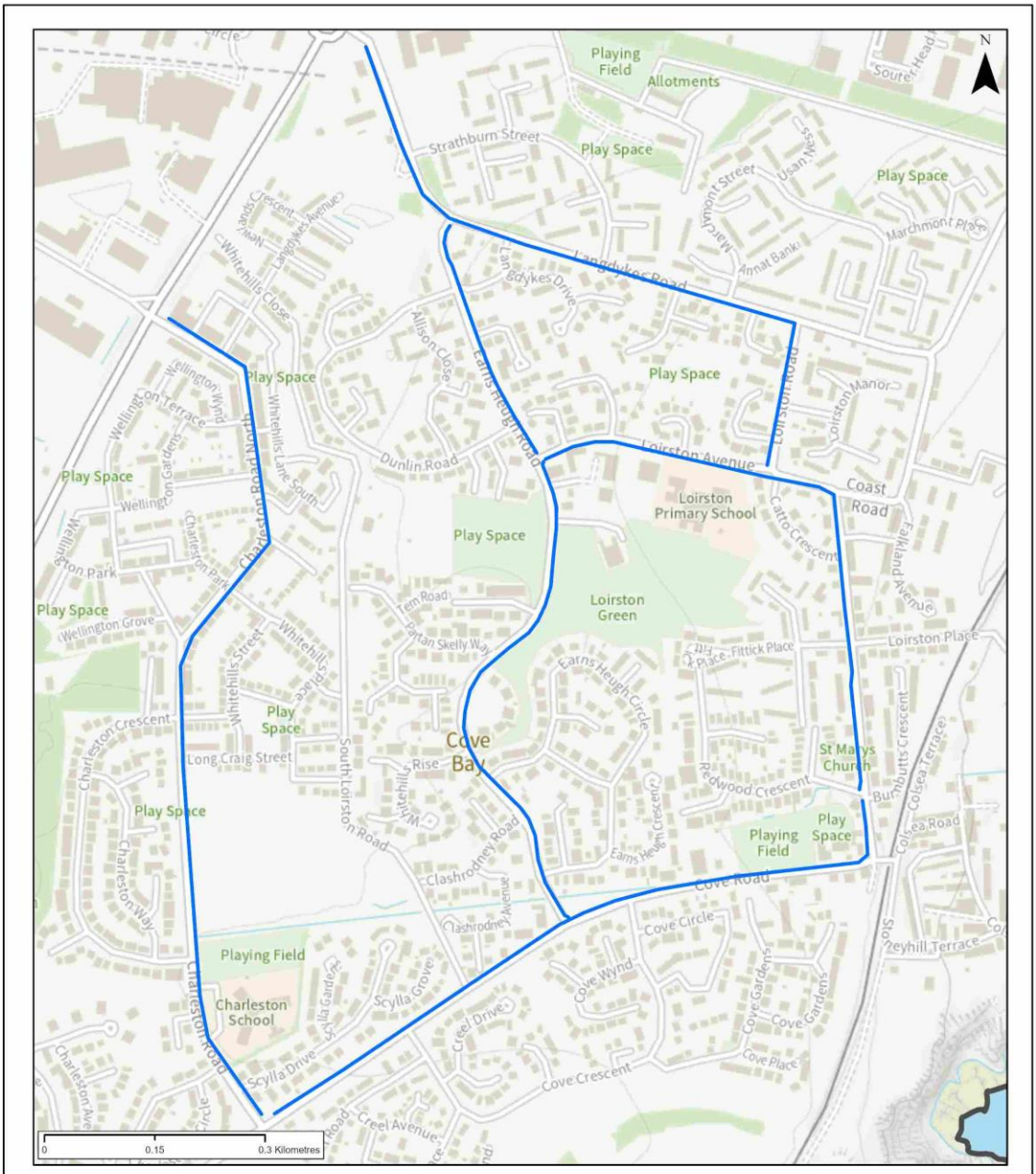
Project / Report Information

Project Name : Winter Gritting Routes 2024-25

Audit Information

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Approved By :SM
Date :31/07/2024

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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Cove

Legend

City Boundary

Footway Routes

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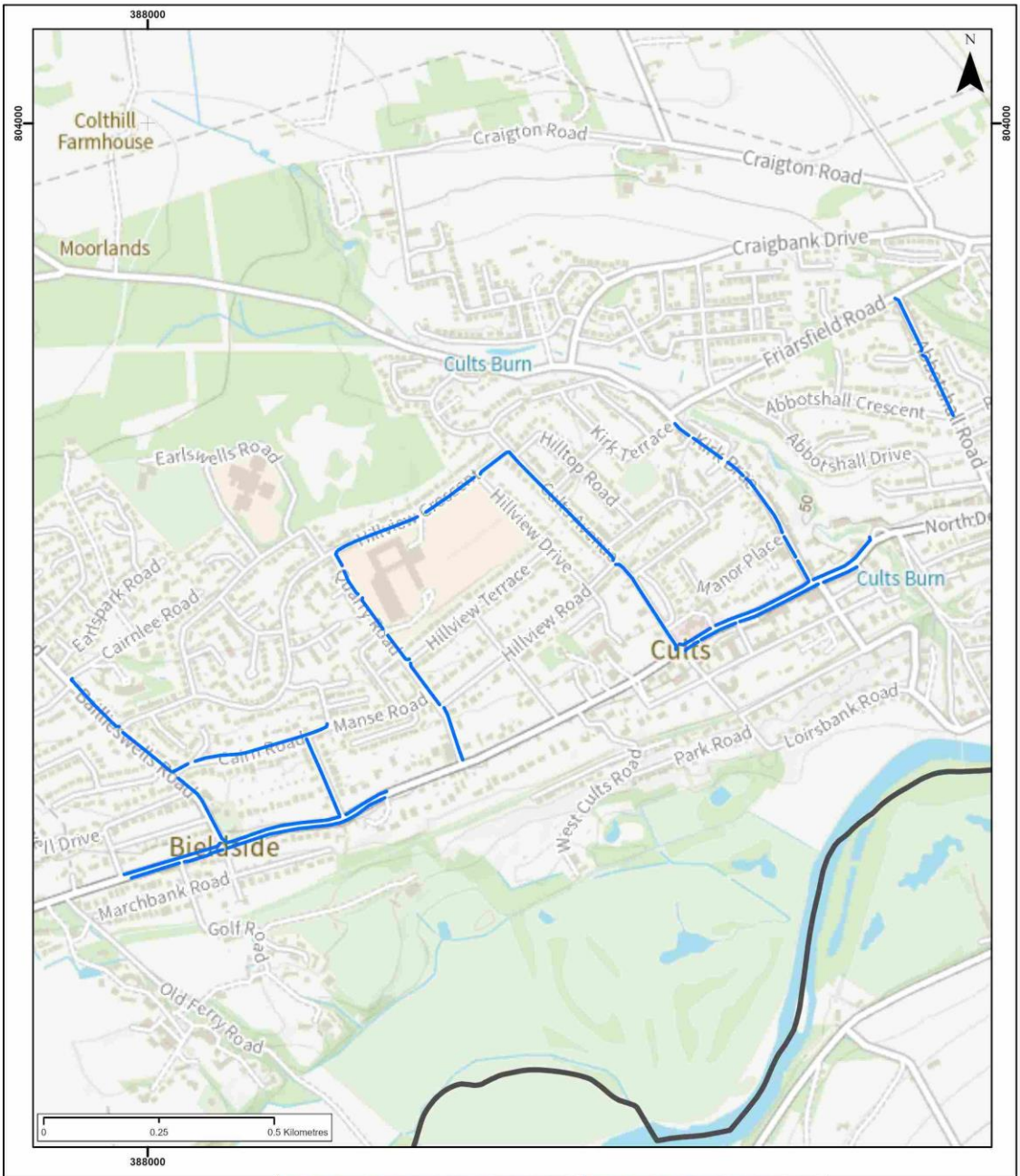
Project / Report Information

Project Name : Winter Gritting Routes 2024-25

Audit Information

Authored By :SM
Checked By :
Approved By :SM
Date :31/07/2024

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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Cults / Bieldside

Legend

City Boundary

Footway Routes

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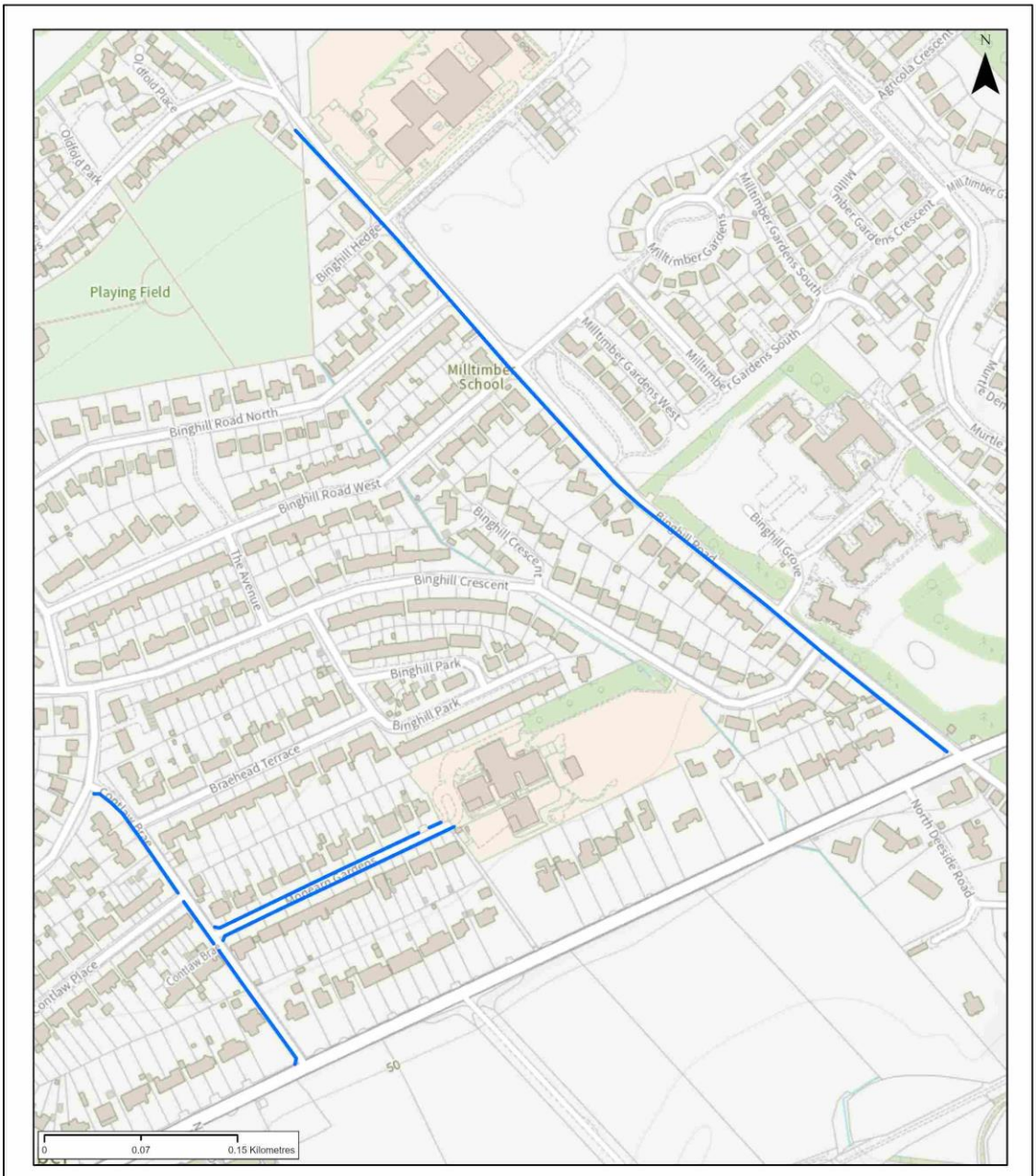
Project / Report Information

Project Name : Winter Gritting Routes 2024-25

Audit Information

Authored By :SM
Checked By :
Approved By :SM
Date :31/07/2024

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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Milltimber

Legend

City Boundary

Footway Routes

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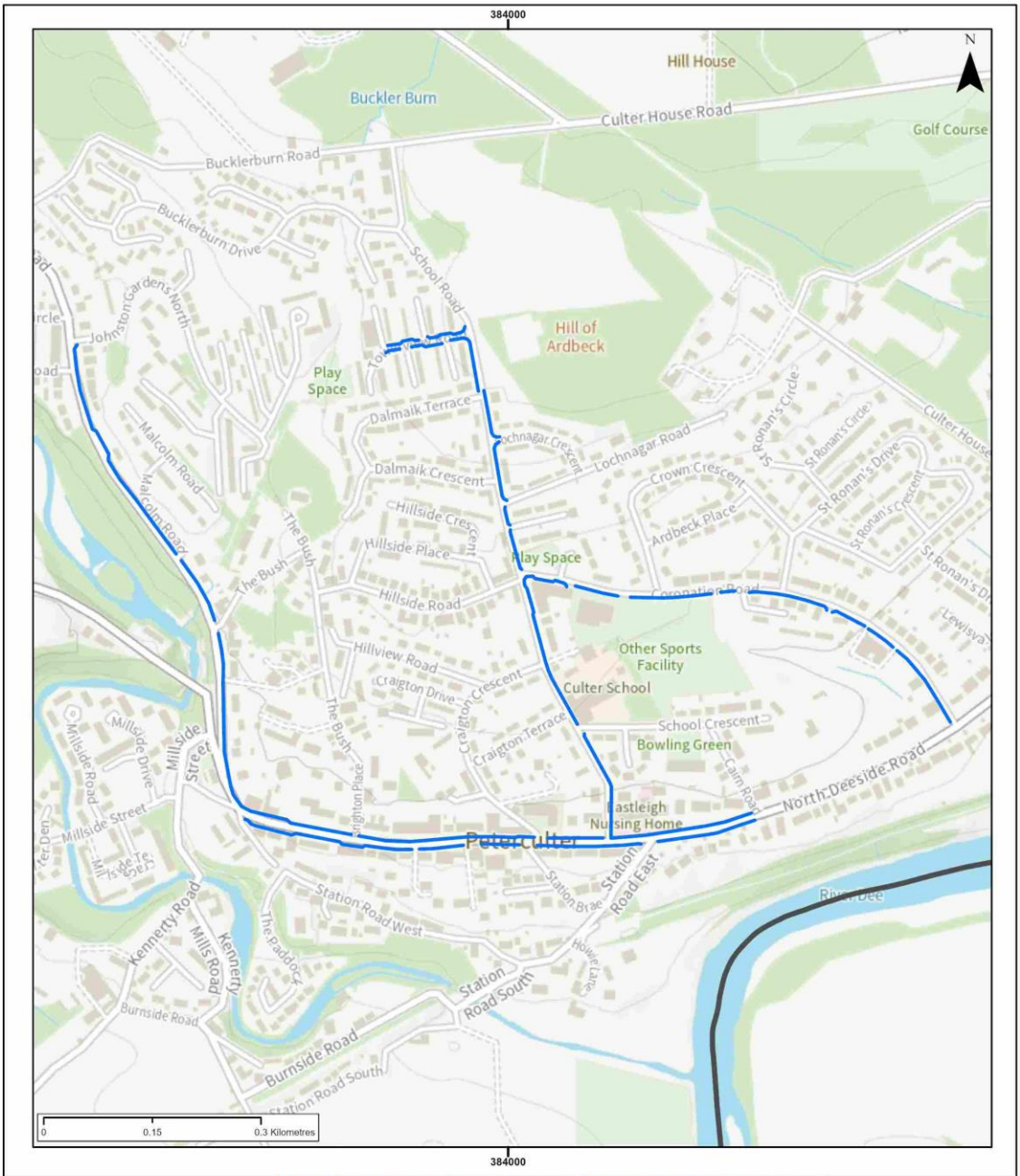
Project / Report Information

Project Name : Winter Gritting Routes 2024-25

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Authored By :SM
Checked By :
Approved By :SM
Date :31/07/2024

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Title

Winter Gritting Routes 2024 - 25

Priority 2 Footway Routes

Area Name: Culter

Legend

City Boundary

Footway Routes

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Project / Report Information

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(f) **STEPS/RAMPS FOR SPECIAL ATTENTION**

Treatment of Priority One Steps/Ramps will be done at the start of continual action.

Priority One

Commerce Street to Castlehill	Steps/Ramp
Crown Terrace to Bridge Street	Steps
Green to Union Street	Steps
Mounthooly	Steps
Skene Terrace to North Silver Street	Steps
Virginia Street to Castle Terrace	Steps
Virginia Street to Marischal Street	Steps
Union Street - Correction Wynd	Steps

Priority Two

Auchmill Road	Steps
Bankhead Road to A947	Steps/Ramp
Beach Boulevard to Castlehill Terrace	Steps
Beach Boulevard to Hanover Street	Steps
Belmont Street – Denburn Road (Patagonian Court)	Steps
Gilbert Road Underpass (both sides)	Ramps
Great Northern Road to Deer Road	Steps / Ramps
Greenburn Underpass (both sides)	Steps/Ramps
Ivanhoe Walk	Steps
Kepplehills Road	Steps at Shops
Mansfield Road	Steps
Morningside Road to Deeside Gardens	Steps
St Johns Road to A947	Steps/Ramp
Sclattie Park	3 Sets Steps
Talisman Walk	Steps

(g) CYCLEWAYS

Cycleways will be treated in line with Priority 2 Footways

The Westhill path (from City boundary to Hazlehead Roundabout)

The Shell path

Cycle paths along Stoneywood Road (section of National Cycle Network)

Cove Road to Duthie Park where cycleway is part of a shared footpath

Wellheads Drive cycle path where cycleway is part of a shared footpath

Cycle paths along Wellington Road where cycleway is part of a shared footpath

(a) Community Grit/Salt Bins.

Small quantities of salt (for use on the public roads and footpaths) are available free of charge to members of the public, subject to them supplying a suitable container and shovel, from the community grit bins sited at the following location.

COMMUNITY	ADDRESS OF COMMUNITY BIN LOCATION	DETAILED LOCATION
Bridge of Don	Park and Ride	In south car park.
City Centre - Crown Terrace	Near St John's Place, junction.	Next to recycling point.
City Centre - Justice Street	Near Recycling Point	Next to recycling point.
City Centre - Kidd Street	Kidd Street, Aberdeen, AB10 1TB	Green Space to rear of Gilcomston Land Flat Block
Countesswells Road	Counteswells Road, Aberdeen, AB15 7RE	Setted surface opposite property number 210
Cove	Loirston Close	Public House car park
Craibstone	Park and Ride	At entrance to south carpark
Danestone	Laurel Drive, AB22 8HB	Tesco car park – next to recycling facilities
Dyce	Netherview Avenue Dyce, Aberdeen, AB217NG	Asda car park – Next to recycling facilities
Garthdee	Garthdee Road, Aberdeen, AB107QA	Asda car park – Next to recycling facilities
Kingswells	Park and Ride	Next to recycling point and bins
Mastrick	Fernhill Drive, AB16 6QT	Near junction with Fernhill Road
Northfield	Byron Square, Aberdeen, AB16 7LL	Byron Square next to bins in carpark
Peterculter	Johnston Gardens North. Peterculter, AB14 0LD	At turning area near number 129
Regent Walk	Near Regent Court	Regent court carpark, near entrance
Rosemount	65 Leadside road, Aberdeen, AB25 1RX	Outside 65 Leadside road next to bins
Seaton Drive	Near King Street Junction	Carpark on entry to Seaton Walk
Tillydrone	Pennan Road, Aberdeen, AB24 2UD	Opposite family centre / library
Torry	Girdleness Road	Layby opposite 223 Girdleness Road
Woodside	Anderson Road, Aberdeen, AB24 4NS	At the top of Anderson Road, next to Stewart Park

(b) – Decision Making Treatment Matrix – Precautionary Treatments

WINTER TREATMENT SPREAD RATE MATRIX SCOTS WINTER SERVICE SUBGROUP ADVICE

Salt Type	Precautionary Treatment for frost / ice	Variation of Well Maintained Highways Appendix H - September 2013					
		Column C	Column D	Column G	Column H	Column K	Column L
		Poor Cover medium Traffic Normal Loss	Poor Cover medium Traffic High Loss	Fair Cover medium Traffic Normal Loss	Fair Cover medium Traffic High Loss	Good Cover medium Traffic Normal Loss	Good Cover medium Traffic High Loss
Dry Salt	RST at or above -2 Degrees and damp road conditions *Table H9 of Code - where the road surface is dry no action is needed even when conditions are below zero*	10(8)	10(8)	10(8)	10(8)	10(8)	10(8)
Pre-wet Salt		10(8)	10(8)	10(8)	10(8)	10(8)	10(8)
Treated Salt		10(7)	10(7)	10(7)	10(7)	10(7)	10(7)
Dry Salt	RST at or above -2 Degrees and wet road conditions	15(13)	20(16)	10 or 15(11)	15(13)	10(8)	10
Pre-wet Salt		15(12)	15(14)	10(10)	15(12)	10(8)	10(9)
Treated Salt		10(10)	10 or 15(11)	10(8)	10(10)	10(7)	10(7)
Dry Salt	RST below -2 deg C and above -5 deg C and damp road conditions	15 or 20(17)	20	10 or 15(14)	20(17)	10 or 15(11)	15(13)
Pre-wet Salt		15 or 20(16)	20(18)	15(14)	15(16)	15(11)	15(12)
Treated Salt		15(12)	15(14)	10 or 15 (11)	15(12)	10(8)	10(10)
Dry Salt	RST below -2 deg C and above -5 deg C and wet road conditions	1 x 20 then monitor & treat as required(2x17)	1 x 20 then monitor & treat as requ'ed(2x20)	1 x 20 then monitor & treat as requ'ed(2x28)	1 x 20 thenmonitor&treatas requ'ed(2x17)	20(20)	1 x 20 then monitor & treat as required(25)

Pre-wet Salt		1 x 20 then monitor & treat as required(2x16)	1 x 20 then monitor & treat as requ'ed(2x18)	1 x 20 then monitor & treat as requ'ed (27)	1 x 20 then monitor & treat as requ'ed(31)	1 x 20 then monitor & treat as requ'ed(21)	1 x 20 then monitor & treat as required(24)
Treated Salt		1 x 20 then monitor & treat as required(24)	1 x 20 then monitor & treat as requ'ed(28)	1 x 20 then monitor & treat as requ'ed (21)	1 x 20 then monitor & treat as requ'ed(24)	1 x 20 then monitor & treat as requ'ed(16)	1 x 20 then monitor & treat as required(19)
Dry Salt	**RST at or below -5 deg C and above -10 deg C and damp road conditions**	1 x 20 then monitor & treat as required(2x16)	1 x 20 then monitor & treat as requ'ed(2x19)	1 x 20 then monitor & treat as requ'ed(27)	1 x 20 thenmonitor&treatas requ'ed(2x16)	20	1 x 20 then monitor & treat as required(24)
Pre-wet Salt		1 x 20 then monitor & treat as required(2x16)	1 x 20 then monitor & treat as requ'ed(2x18)	1 x 20 then monitor & treat as requ'ed(27)	1 x 20 then monitor & treat as requ'ed(31)	1 x 20 then monitor & treat as requ'ed(21)	1 x 20 then monitor & treat as required(24)
Treated Salt		1 x 20 then monitor & treat as required(23)	1 x 20 then monitor & treat as requ'ed(27)	1 x 20 then monitor & treat as requ'ed (20)	1 x 20 then monitor & treat as requ'ed(23)	1 x 20 then monitor & treat as requ'ed(15)	1 x 20 then monitor & treat as required(18)
Dry Salt	**RST below -5 deg C and above -10 deg C and wet road conditions**	1 x 20 then monitor & treat as required(32)	1 x 20 then monitor & treat as requ'ed(2x39)	1 x 20 then monitor & treat as requ'ed(2x27)	1 x 20 thenmonitor&treatas requ'ed(2x32)	1 x 20 thenmonitor&treatas requ'ed(2x20)	1 x 20 then monitor & treat as required(2x24)
Pre-wet Salt		1 x 20* then monitor & treat as required(2x31)	1 x 20 then monitor & treat as requ'ed(2x36)	1 x 20 then monitor & treat as requ'ed2x(27)	1 x 20 then monitor & treat as requ'ed(2x31)	1 x 20 then monitor & treat as requ'ed(2x21)	1 x 20 then monitor & treat as requ'ed(2x24)
Treated Salt		1 x 20 then monitor & treat as req'red(2x23)	1 x 20 then monitor & treat as requ'ed(2x27)	1 x 20 then monitor & treat as requ'ed(2x20)	1 x 20 then monitor & treat as requ'ed(2x23)	1 x 20 then monitor & treat as requ'ed(30)	1 x 20 then monitor & treat as required(2x18)

Key:
( ) = Appendix H recommendations

a. The treatment matrix assumes no residual de-icing material on the carriageway. The presence of residual de-icing material will be taken into account and spread rates adjusted in preparing proposed action plans. Evidence of residual salt should be based on IPS sensor/camera feedback or visual inspection.

b. Particular attention should be given to possibility of water running across carriageways and other surfaces e.g., off adjacent fields after heavy rains, washing off previously deposited salt. Such locations should be closely monitored and may require further treatments

c. If rain is forecast to fall on frozen surfaces then treatment should take place on the dry roads prior to the commencement of the rain and again during the rainfall until

temperatures are above 0^0C, subject to being completed within the council's hours of cover.

d. Salt is less effective when road temperatures are below -5^0C. However salt and grit may be used on sheet ice or hard-packed snow when temperatures are exceptionally low. Where hard packed snow and ice have formed and cannot be removed by ploughing, a salt sand mix can be used in successive treatments at a spread rate of 20 – 40 g/sqm. This aids vehicle traction and acts to break up the snow and ice.

(c) Precautionary Treatment Matrix for Snow Conditions

Salt Type	Precautionary Treatments Before Snow or Freezing rain	Light or Medium Traffic	Heavy Traffic
Dry Salt	Light Snow Forecast <10mm	20g/m^2	20g/m^2
Pre-wet Salt		20g/m^2	20g/m^2
Treated Salt		15g/m^2	15g/m^2
Dry Salt	Moderate/Heavy Snow Forecast >10mm	20g/m^2	40g/m^2
Pre-wet Salt		20g/m^2	40g/m^2
Treated Salt		15g/m^2	30g/m^2
Dry Salt	Freezing rain Forecast	1 x20g/m^2 then monitor	
Pre-wet Salt		1 x20g/m^2 then monitor	
Treated Salt		1 x15g/m^2 then monitor	

(d) Reactive Treatment Matrix for Ice and Compacted Snow Conditions

Non – Precautionary/Reactive Treatments of Snow/Ice		
During snowfall	Salt - 20g/m^2	
Thin layers of Ice < 1mm RST above -5C	Salt - 20g/m^2	
Thin layers of Ice < 1mm RST below -5C	Salt - 20g/m^2	Consider using Mixtures – 20-40g of Sand/Salt
Thin layers of compacted snow/ice up to 5mm thickness.	Mixtures – 20-40g of sand/salt	
Layer of compacted snow/ice greater than 5mm thickness.	Mixtures – 20-40g of sand/salt	Consider using sand only.

(e) Appropriate Salt and Grit Stock Levels

Salt stocks

Winter Period	1st October to 30th March
Core Winter Period	1st November to 1 March
Days Resilience (Overall Winter Period)	9 days
Days Resilience (Core Winter Period)	15 days

Depot Tonnage	Non-Winter stock		Non-Core Winter Period		Core Winter Period	
	Min	Max	Min	Max	Min	Max
Bucksburn	2000	4100	3250	10500	3,750	10750
Tullos	0	250	400	1000	500	1000
Total	2000	4350	3650	11500	4250	11750

Application of resilience measures to be considered at the following stock levels.

All depots	Non-Winter stock	Non-Core Winter Period	Core Winter Period
Tonnes	N/A	2690	4485

The service is to have access to 200 tonnes of grit during the core winter period.

Mutual aid in salt supply and other aspects of winter service and contingency arrangements in advance, are in place through the Salt Cell Group. The 32 Scottish Councils are represented on this group through SCOTS, SOLACE and COSLA. Salt Cell is monitoring salt restock for winter 2020/21.

OPERATIONAL PLAN
APPENDIX E – FLOODING GUIDANCE

Organisations and roles

A number of organisations are involved in managing the risk from flooding in Aberdeen City. The Flood Risk Management (Scotland) Act 2009 places a duty on them to work together to reduce the overall risk. The specific duties on each include.

Scottish Government

- Setting National Policy on Flood Risk Management and Flood Warning.
- Provision of resources to enable authorities to address flood risk.

SEPA – Scottish Environmental Protection Agency.

- SEPA is Scotland's national flood forecasting, flood warning and strategic flood risk management authority.
- SEPA provide advice and work with other organisations to ensure that a nationally consistent approach to flood risk management is adopted. They are also responsible for producing Scotland's Flood Risk Management Strategies.
- SEPA's website(external) contains detailed information on flooding including live flood updates, a frequently asked questions section which includes measures and products that householders would find useful in helping to protect their property from flooding.
- The flood warning system provided by SEPA in conjunction with the Met Office covers the whole of Scotland and is based on Flood Alerts, Flood Warnings and Severe Flood Warnings. Details are available on Floodline (external).
- SEPA also provides a comprehensive map of locations that may be affected by River, Coastal or Surface Water flooding. Flood Map (external).

Scottish Water

- Scottish Water is responsible for dealing with the immediate impact of flooding from sewers. If a flood contains sewage or foul water from a sewer it should be reported to Scottish Water on:

  0800 0778 778 or online at Scottish Water (external)
- In addition to maintaining the public sewer system Scottish Water maintains any public sections of drainage systems through which curtilage water from (roofs and paved surfaces) within a property discharge. The private sections of these systems are the responsibility of the property owner. Scottish Water manage the discharge of this water once it enters the public sewers.
- Working in partnership with the local authority and emergency services.
- Working with other bodies such as SEPA, local authorities and the emergency services during a flood event to alleviate any flooding from public sewers.
- Dealing with any flooding and repairing the resulting damage caused by burst water mains and sewers.
- Not responsible for private guttering within a property boundary, this is the responsibility of the property owner.

Police Scotland

- Co-ordinate the actions of all agencies involved during a **major** incident.
- Will control the scene at its outer limits by setting up cordon points and setting up a traffic management system in conjunction with the Local Authority.

- Responsible for the protection of life and coordinating evacuation of an area if required.
- Contact number 101 or in an emergency 999. Police Scotland (external).

Scottish Fire and Rescue Service

- The Scottish Fire and Rescue service has a duty to save lives in the event of serious flooding.
- Working locally with partner organisations and agencies to ensure effective wider consequence emergency response plans are developed for identified local risks.
- Fulfilling statutory duties in relation to the Civil Contingencies Act 2004 by contribution to the Grampian Local Resilience Partnership and North of Scotland Regional Resilience Partnership.
- Contact number 101 or in an emergency 999. Scottish Fire and Rescue Service (external) .

Maritime and Coastguard Agency.

- Taking the lead role in dealing with incidents at sea and inland water.
- Minimising loss of life amongst seafarers and coastal users.
- Responding to maritime emergencies 24 hours a day.
- Responding to non-maritime incidents such as floods, searches or assisting in evacuating areas.
- Maritime and Coastguard Agency website (external).
- Contact phone number locally - 020 3817 2001.
- Local Aberdeen Coastguard team website (external) phone number - 01224 592334 in emergency call 999 and ask for Coastguard.

Met Office

- Produces weather forecasts to help the UK public make informed decisions about day-today activities.
- Warns people of extreme weather to allow them to mitigate its impacts.
- Provides forecasting services to SEPA.
- Not Aberdeen City Council's winter forecast provider.
- Met office website (external).

Transport Scotland

- Gully (gutter and drain covers) maintenance for trunk roads.
- Trunk road closures.
- Transport Scotland

Landowners

- Have a responsibility for the maintenance of watercourses and other water bodies including repairs and clearing.
- Have a responsibility for private flood defences on their land and maintenance of private drainage systems.

Homeowners

- Responsible for protecting their property from flooding.
- Responsible for acquiring home contents and buildings insurance. Advice regarding flooding insurance is available at FloodRE (external)
- Responsible for taking action to prepare for flooding
- Responsible for maintaining private drainage, including gullies and drains on shared private access roads and courtyards
- Property owners can register with SEPA to have local flood warnings sent directly to their phone. Sign up to Floodline (external)
- Additional flooding advice and support for property owners and community groups affected by flooding can also be obtained through the Scottish Flood Forum (external) on 01698 839021 or at Rain and Flooding (external)

The Aberdeen City Council

The main responsibilities resting with the Operations Roads and Flooding Teams and the actions taken to address these responsibilities:

- Preparation of maps of water bodies and SuDS (Sustainable Urban Drainage Systems).

  Maps of waterbodies are in place on GIS. SuDS maps process in place.

- Assessing water bodies for conditions likely to pose a flood risk.

  The Flooding team in collaboration with Scottish Water have delivered the Integrated Catchment Study (ICS). The ICS identifies flood risk from watercourses. The Flooding team is continuing to deliver a range of additional flood studies. Watercourse assessments are carried out to assess those that may pose a flooding risk.

- Undertake maintenance works in water bodies including the clearance of watercourses where the works will significantly reduce flood risk

  Watercourses inspections are carried out and appropriate actions are taken when there is high flood risk. Priority hakes (trash screens) are being checked and cleaned by Tullos/Roads monthly or on receipt of a flood alert/warning.

- Maintenance of existing flood alleviation schemes.

  The flood alleviation schemes in place are monitored and maintained appropriately (example Stronsay Drive). Checks are carried out by Tullos/Roads on receipt of a flood warning. The most sensitive are monitored using CCTV and actions taken to clear blockages on receipt of a flood alert/warning.

- Maintaining road gullies – while these are not designed to cope with extreme weather events it is still important that they operate efficiently to avoid localised flooding.

  Gullies are checked and cleaned by Tullos/Roads.

- Planning and development management (with flood risk advice from SEPA)

  Flooding team gives advice on those planning applications where a Flood Risk Assessment is required.

- Working with the emergency services in response to severe flooding.

The council responds to incidents providing relevant assistance to emergency services.

- Coordinating reception centres for people evacuated from their homes and arrange temporary accommodation if appropriate.

  Depending on the severity of the incident the council will respond to and assist with evacuation and temporary accommodation.

- Coordinating the aftermath of a flood

  The Flooding Team keep records of any flooding incident, investigate and take the appropriate action (if required). Flooding team deal with PLP's (Property Level Protection funding)

- Dealing with road closures (except on trunk roads).

  Flooding and roads teams monitor SEPA alerts/warning, weather (Radar), river and tides levels and in case of high flood risk raise the issue to the appropriate team for immediate action including closing roads (Tullos/Roads).

- Preparation of local Flood Risk Management Plans (from 2012)

  North Local Flood Risk Management Plans have been prepared in collaboration with SEPA, Aberdeen City Council, Aberdeenshire Council, Moray Council, Scottish Water and Cairngorms National Park Authority.

On receipt of flood alert/warning the following actions are considered:

- Continuous weather, river, and tide levels monitoring
- Priority hakes (trash screens) checking and cleaning
- Media release
- Arranging road closures
- Riverside flood gates closure
- Gullies cleaning
- Flood alleviation schemes monitored and cleaned

On receipt of a Severe Flood warning the roads service will

- Arrange for a team of up to 5 staff members to monitor and react to flooding incidents including a Manager, Team Leader, Technical Officers, Supervisor, Support staff.
- The team will manage and direct frontline resources responding to the flooding event, including supplying receiving and recording identified problem locations, arranging road closures, clearing blockages in road drainage systems, gullies, culverts, ditches, making sand bags available, closure of flood gates, monitoring social media to identify problem locations, assisting emergency services. Monitoring and cleaning flood alleviation systems.
- Make available sandbags for residents who have a property that is in imminent risk of flooding and is not a known flood risk.
- Work with the Duty Emergency Response Coordinators (DERC) Emergency Planning Unit, Local and North of Scotland Resilience Partnerships on major incidents that involve flooding.
- Provide inspection, assessment and enforcement at flooding location following an event.

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ABERDEEN CITY COUNCIL

COMMITTEE	Net Zero Environment and Transport
DATE	3 September 2024
EXEMPT	No
CONFIDENTIAL	No
REPORT TITLE	Draft Aberdeen Local Transport Strategy Consultation
REPORT NUMBER	CR&E/24/258
EXECUTIVE DIRECTOR	Gale Beattie
CHIEF OFFICER	David Dunne
REPORT AUTHOR	Alan Simpson
TERMS OF REFERENCE	8

1. PURPOSE OF REPORT

1.1 The purpose of this report is to present the results from the consultation on the Draft Aberdeen Local Transport Strategy (LTS) and to obtain agreement to progress with the proposed next steps.

2. RECOMMENDATIONS

That the Committee: -

2.1 Notes the results of the consultation on the Draft Aberdeen Local Transport Strategy (Appendix A) and the reasons for the changes to the proposed timescales for developing a final Local Transport Strategy outlined in paragraphs 3.10 and 3.12-3.12.5; and

2.2 Instructs the Chief Officer - Strategic Place Planning to develop a refreshed Draft Aberdeen Local Transport Strategy, appendices and supporting documents and report these back to this Committee at the earliest opportunity to seek Committee approval for a further period of public consultation.

3. CURRENT SITUATION

Background

3.1. The current Aberdeen Local Transport Strategy (LTS) covers the period from 2016 to 2021. Since 2016, a lot has changed with respect to policies, plans, strategies and projects at national, regional and local level while the political, economic, social, technological and environmental context has changed too. All of this impacts upon the Aberdeen transport network and the way people move around and access goods and services. Therefore, an updated Aberdeen Local Transport Strategy is required.

3.2. Work began on a new Local Transport Strategy in 2021. As part of gathering the evidence base for what the new strategy should cover, a Main Issues Consultation took place in October and November 2021. A Draft Local

Transport Strategy was then developed and presented to the Net Zero, Environment and Transport Committee in August 2023. At that meeting Members of the Committee instructed Officers to release the Draft Local Transport Strategy and supporting documents for public and stakeholder consultation.

3.3. The consultation on the draft Aberdeen Local Transport Strategy, appendices and supporting documents took place from Friday 17 November 2023 to Friday 12 January 2024. An online consultation was made available through the Council's Citizen Space platform, with hard copy documents and questionnaires also available in all Aberdeen City libraries and at Marischal College Reception. The consultation was publicised online and in the local press via two newspaper advertisements. Community Councils and Elected Members were also made aware of the consultation. In addition, around 250 stakeholder consultees were contacted about the consultation, and individual sessions were held across three primary schools to actively ensure the views of young people were sought out. The three schools chosen to participate were St Peter's, Kaimhill and Riverbank schools. These schools are currently engaging with, or being supported by, the I Bike Schools programme in Aberdeen, meaning that the I Bike Schools officer was able to assist with the consultation and, being known to the children, would know how best to work with them. The selected schools also allowed a geographical spread across the city.

3.4. In total, 682 people responded to the Draft Local Transport Strategy consultation. Of this number, 536 responses were received to the online self-selecting questionnaire, with 513 of these responses coming from individuals and 18 from organisations (with 5 not specifying). In addition, a further 10 responses were received directly from stakeholders but not in the questionnaire format. 136 young people provided their feedback on the high-level topics discussed in the Draft Local Transport Strategy through the dedicated engagement sessions in schools.

3.5. This total number of responses was higher than expected for a document of this type – the previous Draft Local Transport Strategy when it was consulted on in 2015 received 29 responses in comparison.

3.6. As well as the inclusion this year of the dedicated engagement in schools, officers believe that the high number of responses to the Draft Local Transport Strategy consultation is the product of other more detailed discussions happening at the same time in the press and on social media about individual transportation projects. For example, during the period that the Draft Local Transport Strategy was out for public consultation, consultation was also underway on the Experimental Traffic Regulation Order (ETRO) on City Centre bus priority infrastructure on Market Street, Guild Street, Bridge Street, plus other associated measures. From analysis of the responses received to the Draft Local Transport Strategy consultation, it is officers' view that a large proportion of respondents took the opportunity afforded by the consultation to make specific comments on these detailed traffic management proposals, but not necessarily the wider Strategy for the city.

3.7. Linked to this, and as was the case for the Council's separate consultation on the ETRO measures, during the consultation period on the Draft Local Transport Strategy officers were made aware of a member of the public who had developed and publicised their own questionnaire as an alternative to the Council one. The Council sent out communications stating that this alternative survey was not affiliated with the Council, and that respondents should complete the formal Aberdeen City Council consultation to make sure their views on the Draft Local Transport Strategy were formally documented and assessed. Officers do not have access to the results of this alternative survey and cannot verify its accuracy.

3.8. The consultation questionnaire contained a total of 31 questions. Seventeen of these required a qualitative (provide your written opinion) answer. In total, these seventeen questions attracted 3632 comments. Many of these 3632 comments made multiple points, rather than just commenting on one singular aspect, meaning that there were upwards of 10,000 individual points that had to be analysed by officers within the 3632 comments. To make sure this volume of data could be properly analysed, assistance was sought from a specialist in the Health Determinants Research Collaboration Aberdeen. This led to an adapted Framework Analysis approach being utilised for analysis. More about this process can be found in Section 3.4 of Appendix A.

3.9. Due to the large amount of responses / data, the need to analyse comprehensively, and other resourcing pressures across the team, the analysis process took longer than was first envisaged when the Draft Local Transport Strategy was reported to committee in August 2023.

3.10. The comments received during the consultation period, coupled with updated guidance from Transport Scotland on the preparation of Local Transport Strategies, has identified a need to reconsider our approach to the structure of the next Local Transport Strategy in order to make sure it is more focused and clearer on our place-based priorities. Therefore, this report to committee explains both the comprehensive analysis approach taken, the results of this exercise, and the proposed next steps.

Consultation Results

3.11. The full report on the consultation process, along with the results, can be found in Appendix A. A summary of the results is presented below.

3.12. The stakeholder groups, and those who responded on behalf of organisations, were largely supportive of the Draft Local Transport Strategy. The main comments they made were around:

- The need to make it more explicit to readers who the Local Transport Strategy is for.
- The need to include some more baseline data.
- The need to map out more clearly how the key drivers, challenges and opportunities link to the vision, objectives, outcomes, outputs, topic areas, policies and actions, rather than just showing some of the links.

- More reference to health, inequality, economy – including Aberdeen's role, not just as a local, but a regional, national and international hub - and the need to ensure that people are not too strongly dissuaded from travel.
- The need to think about accessibility rather than just mobility and travel.

3.13. For the individuals who responded to the consultation questionnaire in Citizen Space, the following table summarises the largest groups of respondents.

Most frequently answered demographic characteristics of respondents

Male (50.75%) Female (35.07%)	Over 45 (58.7%) 45 and under (34.51%)	Full time workers (55.97%) Retired (19.96%)	Straight/ Heterosexual (69.78%) Gay (1.31%)	British/ Scottish White (56.53%) Didn't answer (39.73%)	Married/ Civilly Partnered (47.01%) Single (21.83%)
Living in an AB15 postcode (13.2%) AB11 (8.02%) AB12 (8.02%)	Did not have a disability that affected travel (74.63%) Did have a disability that affected travel (11.94%)	Answered as individuals (95.71%)	Not pregnant or on maternity leave (80.41%) Pregnant/ on maternity leave (0.38%)	No voluntary caring responsibilities (58.96%) Voluntary caring responsibilities (26.68%)	Never use Park and Ride (78.36%), Never use train (26.87%), Never use motorcycle (82.28%), Never use car club (85.63%)
Never cycle (55.41%) or use an eBike (78.54%)	Never take the bus (18.47%)	Walk daily (52.05%)	Use a taxi every 6 months (41.61%)	Don't use a plug-in vehicle (78.54%)	Drive daily (40.3%) Never travel as passengers in a car/ van (33.4%)

3.14. The main points from the review of the quantitative (pick an option) questions from Citizen Space responses were that:

- More people disagreed with the Key Drivers, Opportunities, Objectives, Outcomes and Outputs for the Draft Local Transport Strategy than agreed with them.

- More people agreed with the Challenges, Vision and Topic Areas than disagreed with them.

3.15. It was therefore necessary to investigate further what the main issues were that respondents had with the Draft Local Transport Strategy. The first step in doing so was to look at whether there were differences in the way people had answered the quantitative (pick an option) questions around the Key Drivers, Challenges, Opportunities, Vision, Objectives, Outcomes Outputs and Topic Areas depending on their postcode, sex, age, employment status and which types of transport they used most often.

3.16. Despite the Key Drivers, Opportunities, Objectives, Outcomes and Outputs being disagreed with overall (when all respondent answers were considered), there were some differences across the groups.

3.17. In summary, males, full time workers, those aged 56-65, non plug-in car drivers who drove at least once a week and those from the AB16 postcode area were the most critical of the Key Drivers, Opportunities, Objectives, Outcomes and Outputs within the Draft Local Transport Strategy. By contrast, women, people who cycled or used the bus at least once a week, those aged 17-25, those in an AB24 postcode and part time workers were the most in agreement. Of particular note, those who cycled at least once a week and those who took the bus at least once a week had larger numbers who agreed than disagreed overall with the Key Drivers, Opportunities, Objectives, Outcomes and Outputs.

3.18. The next step was to further analyse the qualitative (provide your written opinion) questions. This was split into two areas:

- Themes which were specific to the Draft Local Transport Strategy document itself
- General transport related themes raised by respondents

3.19. For themes that were <u>specific to the Draft Local Transport Strategy</u>, the following was observed:

- Respondents thought there was too much emphasis on National Key Drivers, Environment and Net Zero and questioned the ability to reduce car use due to the geography of Aberdeen
- For Opportunities, there was disagreement with aspects of the City Centre and Beach Masterplan, the Low Emission Zone (LEZ), public transport as an opportunity, and some debate over whether working from home is an opportunity or a challenge.
- The Objectives that were most disagreed with were Modal Shift and Climate and Environment
- For Outcomes, the outcomes relating to a reduction in car use had the most disagreement
- For Outputs, the development and delivery of the Aberdeen City Centre and Beach Masterplan, reallocation of road space, more EV charging and Hydrogen Refuelling Infrastructure and enforcement of the LEZ were the Outputs that people most disagreed with. There was also some concern over how the various Outputs would be funded.

3.20. The following general transport themes were evident across the questionnaire responses:

Moving Around

- Should be more acknowledgement of transport inequalities.
- While it was acknowledged that making it more attractive to cycle is important, it should be recognised that cycling does not work for everyone and climate, rural hinterland and terrain may hamper appetite.

Public Transport

- Public transport needs to be faster, more reliable, cheaper and have a more comprehensive coverage to tempt people away from cars and to truly work. It will also never work for everyone.

Traffic and Parking

- Car is a pivotal part of the transport system and should not be "demonised".
- A perceived "anti-car" stance is damaging and turning public off. The current alternatives are not good enough to tempt people away from cars and don't integrate well enough, so people will instead go to more car friendly places.

Streets and Spaces

- Beach improvements seen as not needed.
- Too much emphasis on climate and environmental factors.

Work and Local Economy

- Perceived inaccessibility of the city centre, primarily by car, is causing people to choose not to visit or go elsewhere. This is detrimentally affecting the city centre economy.
- Concerns over how plans will be funded and that, in funding them, the Council spends money on the wrong things.

Social Interaction

- Concerns that the "20 minute neighbourhood" concept will make it more difficult for people to access some major facilities, and that reducing the need to travel will affect physical and mental health and economy.

Care and Maintenance

- Improving condition of roads and pavements should be a priority.

Influence and Self Control

- Concern that Council are not listening, they are implementing things that go against the wishes of the public and people are losing faith as a result.

3.21. There were also comments on the structure of the Draft Local Transport Strategy document – that it was too long and detailed, there was too much jargon, and that it was a lot to include in one consultation.

Youth Engagement

3.22. As noted above, detailed engagement also took place across three primary schools to ensure that young people were expressly offered the opportunity to comment on the high-level matters being discussed in the Draft Local Transport Strategy. To enable this discussion, primary school participants were asked a series of questions linked to the children's version of the Scottish Government's Place Standard Tool. The points below summarise the responses (the number in brackets shows the total number that responded):

- 55% (55) answered "Okay, some improvement needed" when asked "How does traffic in my place affect me when out and about" (out of 100 children who answered the question). The main feedback was that traffic was an inconvenience that got in the way of them getting places on foot and vehicles often travelled too fast.
- 46% (47) answered "Okay, some improvement needed" when asked "How easy is it to walk, scoot, wheel or cycle to places you want to go?" (out of 102 children who answered the question). The main feedback was that active travel routes could be better maintained, especially in winter, and that more infrastructure, including crossing points, to encourage this, would improve things. However, there was positivity towards active travel.
- 71% (50) answered "Okay, some improvement needed" when asked "When things happen in my Place do people include me in decisions and listen to what I say?" (out of 70 children who answered the questions). The main feedback was that more could be done to involve children and listen to their views but that it is getting better.
- 54% (15) answered "Okay, some improvement needed" when asked "Is it easy for me to get where I need to go by bus, train etc?" (out of 28 children who answered). The main feedback was that children liked buses, especially the new hydrogen and electric ones, but downsides were slippery when wet and some of their fellow passengers spoiling the experience.
- 48% (13) answered "Great, it's as good as it can be" when asked "Do I feel safe in my place?" (out of 27 children who answered). The main feedback was linked to traffic making them feel less safe when crossing roads and that the behaviour of some people could make them feel uncomfortable. More lighting and again crossings were identified as possible improvements.

3.23. The above shows that, although children were reasonably satisfied with the current transport network, some improvements were seen as needed and that these were mainly in relation to active travel provision, traffic speeds and crossing points. There was good support for wanting to travel actively and, while they did feel listened to, they felt there was still improvement to be made too. This feedback generally accords with the Draft Local Transport Strategy overarching Vision and Objectives.

Wider Context

3.24. As noted above, during the same time period that the Draft Local Transport Strategy was out for public consultation, consultation was also underway on the Experimental Traffic Regulation Order (ETRO) on City Centre bus priority infrastructure and, in particular, the introduction of new bus gates on Bridge Street, Guild Street and Market Street were being discussed widely in the press and across social media.

3.25. From analysis of the responses received to the Draft Local Transport Strategy consultation, it is officers' view that a large proportion of respondents took the opportunity afforded by the parallel Local Transport Strategy consultation to make specific comments on these detailed traffic management proposals, but not necessarily the wider Strategy for the city. As such, in order to determine whether the feedback provided on the Draft Local Transport Strategy consultation was illustrative or not of other feedback provided to the Council and others recently on wider aspects of place, connectivity and transportation, the team have looked at a series of other data sources. These include the 2023 Aberdeen City Voice survey, the Nestrans North East Comprehensive Travel Survey (2023), the Local Outcome Improvement Plan consultation (2023), the Aberdeen Walking and Cycling Index (WACI) (2023) and the Experimental Traffic Regulation Order (ETRO) 2 Bus Priority Measures Report (2024), plus the results obtained during the Local Transport Strategy Main Issues Consultation.

3.26. As evidenced in Appendix A (Section 3.6), data from these sources showed more positive attitudes to cycling and bus, a desire to be less car dependent, and a recognition that sustainable and active travel can be good for the local economy, the Council listening to people, and people welcoming the idea of having facilities within an easy walking and cycling distance of their home.

3.27. For example, in the Sustrans Walking and Cycling Index (WACI) (2023) for Aberdeen (answered by 1146 respondents):

- 23% of the 1146 respondents wanted to drive less, yet 39% of respondents often used a car because no other transport options are available.
- Only 34% of respondents thought that their streets are <u>not</u> dominated by moving or parked motor vehicles. Respondents would find fewer motor vehicles on their streets useful to walk or wheel more (54%) and cycle more (51%).
- Respondents generally wanted local streets to be better spaces for people to spend time in. 55% agreed that increasing space for people socialising, walking, wheeling and cycling on their local high street would improve their local area.

3.28. The WACI goes on to predict that the total annual economic benefit from all trips walked and wheeled in Aberdeen is £131 million. This includes trips walked or wheeled for enjoyment or fitness, and trips to destinations by people with and without a car. The total annual economic benefit from all trips cycled

in Aberdeen is predicted as £32.4 million. This includes trips cycled for enjoyment or fitness, and trips to destinations by people with and without a car.

3.29. This study is backed up by the Nestrans Comprehensive Travel Study (2023) which says "The reasons given by residents for not using or owning a bicycle were general traffic levels and congestion in Aberdeen City. In many cases there was no option other than to share road space with cars which was perceived as too dangerous." Around 500 city residents responded to this study.

3.30. The 2023 Aberdeen City Voice Survey also found that:

- 78.9% (out of 445) of respondents in 2023 were aware that parts of Aberdeen City regularly experience poor air quality and that this can be harmful to human health.
- 82.8% of people felt more physically well (out of 442) and 80% (out of 431) more mentally well as a result of walking and wheeling.

Next Steps

3.31. During the time since the Draft Local Transport Strategy was presented to Committee, Transport Scotland has published detailed new guidance on production of future Local Transport Strategy documents. This new guidance, coupled with the responses received to the Draft Local Transport Strategy consultation, has resulted in officers recommending that the Draft Local Transport Strategy be reworked and be subject to a further period of public consultation before a final version is reported back to committee for adoption.

3.32. It is therefore recommended an updated Draft version of the Local Transport Strategy needs to be prepared which will include / consist of:

- A shorter, more place-based document (focusing more on the people, the built environment, and locally-specific characteristics), with any supporting technical background being published separately and only when needed.
- Greater clarity about who the document is for, and a structure which better fits with the Local Outcome Improvement Plan (LOIP) focus on Economy, People and Place.
- More reference to health, inequality and economy – including Aberdeen's role, not just as a local, but a regional, national and international hub.
- Greater emphasis on accessibility rather than mobility and transport.
- A more map-based document, so people can better understand how the strategic plans might impact upon their local areas.
- Being clearer about the Local Transport Strategy aiming to ensure people have a choice of ways to access places.
- Being more explicit about the car's role in the transport network, rather than people perceiving the Local Transport Strategy to be anti-car.
- A better explanation of how the Local Transport Strategy can help to deliver other Council strategies such as the Regional Economic

Strategy, the Local Development Plan and the City Centre and Beach Masterplan.

3.33. The above review is likely to lead to a very different looking Local Transport Strategy, and therefore it is Officers' recommendation that members of this committee receive a report back on the revised draft prior to any future public consultation.

3.34. It is also noted that a number of key technical transport documents are currently being reviewed, and the opportunity should be taken to ensure that the outcomes of these exercises are incorporated in the revised draft strategy. These include a refresh of the Strategic Car Parking Review (SCPR) which is due to be completed by Spring 2025, and the Nestrans review of the Regional Active Travel Network (RATN), which is due to be completed by Autumn 2025.

3.35. Based on the above, a proposed timeline for reporting a revised Draft Local Transport Strategy to committee for approval is outlined below, however this may be subject to change:

Activity	Proposed Timeline
Start work on the next iteration of the Draft Local Transport Strategy	Autumn 2024
Complete work on next iteration of Draft Local Transport Strategy and supporting documents (factoring in time to incorporate key SCPR and RATN principles)	Spring / Summer 2025
Report Revised Draft to NZET Committee	Summer / Autumn 2025
Subject to NZET approval, public and stakeholder consultation on Revised Draft	Autumn / Winter 2025

4. FINANCIAL IMPLICATIONS

4.1 The cost of preparing a revised Draft Local Transport Strategy can be met by existing staff resource budgets.

4.2 Having an approved Local Transport Strategy, which has been robustly developed, is often a key piece of evidence when bidding for external funding for transport schemes. Therefore, ensuring that this Local Transport Strategy continues to able to demonstrate that it has followed a robust process, such as the one proposed, can lead to long term financial benefits to the Council.

5. LEGAL IMPLICATIONS

5.1 Although there is no statutory requirement for a Local Authority to develop a Local Transport Strategy, or for Scottish Ministers to approve a Local Transport Strategy, there are certain discretionary powers which the local authority may only exercise if they have a Local Transport Strategy.

6. ENVIRONMENTAL IMPLICATIONS

6.1 A draft Strategic Environmental Assessment (SEA) was carried out to accompany the previous version of the Draft Local Transport Strategy. Depending on whether the SEA will be affected by changes to the revised Draft Local Transport Strategy, there may be a need to refresh it and republish it. Once the next iteration of the Draft Local Transport Strategy is complete, officers can consult with SEA Gateway, who advise on these matters.

6.2 Although it has been judged that some elements of the Local Transport Strategy could lead to environmental implications it is likely that far more environmental implications could arise from not having a Local Transport Strategy. Transport is also a key social determinant of health that can have significant impacts on both physical and mental health, and the overall wellbeing of people and communities.

7. RISK

7.1 The assessment of risk contained within the table below is considered to be consistent with the Council's Risk Appetite Statement.

Category	Risks	Primary Controls/Control Actions to achieve Target Risk Level	*Target Risk Level (L, M or H) *taking into account controls/control actions	*Does Target Risk Level Match Appetite Set?
Strategic Risk	Risk that the city's transport network will not be able to respond to changes in the environmental, economic, health and social context.	Develop new Local Transport Strategy	L	**Yes**
	Risk that, lengthening the programme for developing the new Local Transport Strategy will lead to a longer period where the Council is without an up to date Local Transport Strategy.	There is a larger risk that, by not taking the time to develop it properly, the Council ends up with a Local Transport Strategy which is not fit for purpose or one which citizens do not believe in.	L	**Yes**

Compliance	The Local Transport Strategy is referenced in the Local Development Plan, which is a statutory document.	Develop new Local Transport Strategy	L	**Yes**
	The Local Transport Strategy is expected to transpose the Regional Transport Strategy for local level.	Develop new Local Transport Strategy	L	**Yes**
	The Council should develop a Local Transport Strategy which is compliant with Transport Scotland guidance.	Develop new Local Transport Strategy which reflects updated Transport Scotland guidance.	L	**Yes**
Operational	Rish of overreliance on private cars and the associated issues that this would bring such as congestion, air quality issues, parking issues and potential impacts on the health of the population.	Develop new Local Transport Strategy which reflects updated Transport Scotland guidance.	L	**Yes**
	Without a Local Transport Strategy, there are certain transport operations which the Council may not be able to undertake.	Develop new Local Transport Strategy	L	**Yes**
Financial	A new Local Transport Strategy will help shape the city's future and investment decisions and prove critical in attracting external funding.	Develop new Local Transport Strategy	L	**Yes**

	Not fully considering the new Transport Scotland Guidance on how to develop a Local Transport Strategy, which was finalised after the Draft Local Transport Strategy was taken out for consultation, could compromise future external funding bids for National funding.	Take time to make sure that the Draft Local Transport Strategy properly reflects what Transport Scotland expect	L	**Yes**
Reputational	Not having a Local Transport Strategy gives residents, visitors and investors the impression that Aberdeen does not care about its transport network and might discourage them from wanting to live in, work in and visit the city. Members of the public do not "buy into" the Local Transport Strategy as they do not understand why the Council are promoting certain ideas	Develop new Local Transport Strategy Ensure that members of the public have the opportunity to comment on any subsequent new Draft Local Transport Strategy before it is adopted.	L L	**Yes** **Yes**
Environment / Climate	Not having a Local Transport Strategy could compromise the Council's abilities to hit Net Zero, air quality and noise quality targets.	Develop new Local Transport Strategy. There is a larger	L	**Yes**

8. OUTCOMES

Council Delivery Plan 2024	
	Impact of Report
Aberdeen City Council Policy Statement **Working in Partnership for Aberdeen**	Complete a Mobility Strategy for the City Invest in road and pavement network, ensuring active and green travel is at the forefront of any new projects and a review of existing transport infrastructure is progressed taking account of the need to expand the city cycle network; Reviewing our cycle and active transport network, and work with Aberdeen Cycle Forum to deliver our shared vision of making Aberdeen a cyclist friendly city and provide covered secure cycle storage in suitable locations across Aberdeen; and Improving cycle and active transport infrastructure, including by seeking to integrate safe, physically segregated cycle lanes in new road building projects and taking steps to ensure any proposal for resurfacing or other long-term investments consider options to improve cycle and active transport infrastructure.
Local Outcome Improvement Plan	
Prosperous Economy Stretch Outcomes	The proposals will help to contribute to the following stretch outcome:- 2. 74% employment rate for Aberdeen City by 2026
Prosperous People Stretch Outcomes	The proposals help to contribute to the following stretch outcomes:- 4.. 90% of children and young people report they feel listened to all of the time by 2026 10. Healthy life expectancy (time lived in good health) is five years longer by 2026.
Prosperous Place Stretch Outcomes	The proposals will help to contribute to the following stretch outcomes 13. Addressing climate change by reducing Aberdeen's carbon emissions by at least 61% by 2026 and adapting to the impacts of our changing climate 14. Increase sustainable travel: 38% of people walking and wheeling and 5% of people cycling as

	main mode of travel and 5% reduction in car miles by 2026.
Regional and City Strategies	At regional level, the proposals within this report support the NESTRANS Regional Transport Strategy by transposing its content to local level, the Health and Transport Action Plan by encouraging sustainable and active travel and access to healthcare, and the Regional Economic Strategy by supporting the efficient movement of goods and people. At local level, the proposals within this report support the Aberdeen Local Development Plan, the Net Zero Aberdeen Route Map, the Net Zero Aberdeen Mobility Strategy, the City Centre and Beach Masterplan, the Aberdeen Core Paths Plan, the Aberdeen City Council Climate Change Plan, the Aberdeen Hydrogen Strategy and Aberdeen Adapts by reducing dependence on the private car through promotion and enabling of a whole range of different transport options, planned in accordance with the sustainable transport hierarchy.

9. IMPACT ASSESSMENTS

Assessment	Outcome
Integrated Impact Assessment	New Integrated Impact Assessment has been completed
Data Protection Impact Assessment	Not required

10. BACKGROUND PAPERS

10.1 The 2023 Aberdeen City Voice Survey
https://communityplanningaberdeen.org.uk/wp-content/uploads/2024/04/CV-48-Report.pdf

10.2 The Nestrans North East Comprehensive Travel Survey (2023)
https://www.nestrans.org.uk/wp-content/uploads/2023/10/AECOM-Report-to-Nestrans-CTS-Final-20-October-23-1.pdf

10.3 The Local Outcome Improvement Plan consultation (2023)
https://communityplanningaberdeen.org.uk/wp-content/uploads/2024/04/Draft-LOIPLP-Engagement-Full-report-Draft.pdf

10.4 The Aberdeen Walking and Cycling Index (WACI) (2023)
https://www.sustrans.org.uk/media/13313/walking-and-cycling-index-2023-aberdeen.pdf

10.5 The ETRO 2 Bus Priority Measures Report (2024)
https://committees.aberdeencity.gov.uk/documents/s159665/ETRO%202%20Bus%20Priority%20Measures%20Report%20CRE21169%20Final.pdf

10.6 The Draft Local Transport Strategy Main Issues Consultation
https://committees.aberdeencity.gov.uk/documents/s148275/Appendix%20A%20-%20Draft%20main%20issues%20report%20consultation%20version.pdf

10.7 Report to Net Zero, Environment and Transport Committee on the Draft Local Transport Strategy, August 2023
https://committees.aberdeencity.gov.uk/mgAi.aspx?ID=100696#mgDocuments

11. APPENDICES

Appendix A - Draft Aberdeen Local Transport Strategy (2023-2030) Consultation Report

Appendix B – Consultation Questionnaire

12. REPORT AUTHOR CONTACT DETAILS

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Appendix A - Draft Aberdeen Local Transport Strategy Consultation Report

1. Developing the Draft Local Transport Strategy

1.1. The Need for a new Local Transport Strategy

1.1.1 The current Aberdeen Local Transport Strategy covers the period from 2016 to 2021. Since 2016, a lot has changed in Aberdeen including:

- The opening of the Aberdeen Western Peripheral Route and Balmedie to Tipperty, South College Street and Haudagain junction road improvements
- Rail improvements including double tracking of the railway between Aberdeen and Inverurie and opening of Kintore Station
- The extension to the Port of Aberdeen in the Bay of Nigg
- The opening of TECA, the new Aberdeen exhibition and conference centre
- Improved active travel infrastructure
- The launch of the Aberdeen Low Emission Zone
- A greater number of people working from home and shopping on line more frequently
- A large increase in the number of plug in vehicles on the roads
- Delivery of aspects of the Aberdeen City Centre Masterplan, including Union Terrace Gardens, Aberdeen Art Gallery, Broad Street and Marischal Square as well as greater walking, wheeling, cycling and bus provision in the city centre core.

1.1.2 In addition, the adoption of the new National and Regional Transport Strategies in 2020 and 2021 respectively, the Regional Economic Strategy in 2023, the refresh of the Aberdeen City Centre Masterplan and its incorporation of the beach in 2022 as well as adoption of Aberdeen's Net Zero Routemap and supporting Mobility Strategy in 2022, all have implications for the city's transport network. A new Local Transport Strategy is needed to respond to these.

1.2 Setting the Direction of Travel

1.2.1 As well as reviewing the 2016 Local Transport Strategy and national, regional and local plans, policies, strategies and projects in order to establish what the new strategy should cover, a "Main issues Consultation" took place in October and November 2021. This was open to all members of the public and key stakeholders. It was imperative that this took place before a draft strategy had been written in order to make sure that the views of the people shaped the document from the start.

1.2.2 All of this work identified the Key Drivers, Challenges and Opportunities that the new Local Transport Strategy should cover along with the development of Objectives to meet these. This was then presented to committee back in August 2023 as part of the Main Issues Report to the Draft Local Transport Strategy https://committees.aberdeencity.gov.uk/documents/s148275/Appendix%20A%20-%20Draft%20main%20issues%20report%20consultation%20version.pdf

1.2.3 In order to develop the Local Transport Strategy a Scottish Transport Appraisal Guidance (STAG) based approach, following the key STAG principles, was adopted. STAG is a Scottish Government tool which represents best practice guidance for transport appraisals. The Scottish Government advise that an appraisal using STAG is required whenever Scottish Government funding, support or approval is needed to change the transport system.

1.2.4 Having identified the problems, opportunities and objectives to meet them, STAG then advocates the generation of approaches that a strategy should take to ensure that the objectives are met and the appraisal of those options to identify the one that best achieves this. This Options Appraisal was then presented to committee back in August 2023 as part of the Draft Local Transport Strategy https://committees.aberdeencity.gov.uk/documents/s148276/Appendix%20B%20-%20Option%20Appraisal%20Report.pdf

2. Draft Local Transport Study - Public and Stakeholder Consultation

2.1. The Process

2.1.1. The consultation on the draft Aberdeen Local Transport Strategy, appendices and supporting documents took place from Friday 17 November 2023 to Friday 12 January 2024. An online consultation was made available through the Council's Citizen Space platform with hard copy documents and questionnaires also available in all libraries and at Marischal College Reception. This report summarises the responses.

2.1.2. The consultation was publicised online and in the local press via two newspaper advertisements. Community Councils and Elected Members were also made aware of the consultation. In addition around 250 stakeholder consultees were contacted about the consultation. Hard copies of the documents were made available in all Aberdeen City Council libraries and in Marischal College reception.

2.2. Consultation Design and Responses

2.2.1. The questionnaire contained a total of 31 questions – these are listed in Appendix B of the committee report. The first thirteen were promoted at individuals and asked them questions about themselves and their travel behaviours. Questions 14,18,24,26,27.28.29.30 and 31 were all completely open, inviting qualitative (written opinion) style responses while questions 15,16,17,19.20,21,22 and 23 all were quantitative (pick an option) with the ability for the respondent to add a qualitative comment if they had answered in the quantitative part that they Slightly or Strongly Disagreed.

2.2.2 In total, **536** respondents responded to the online questionnaire. Of these respondents, 513 were individuals and 18 from organisations with 5 not specifying.

2) Are you answering

Option	Total	Percent
As an individual?	513	95.71%
On behalf of an organisation? If so, please state which.	18	3.36%
Not Answered	5	0.93%
Total	536	100

2.2.3 In addition, a further 10 responses were received directly from stakeholders but not in the questionnaire format.

3. Consultation Results

3.1. "Individual Only" Question responses to the questionnaire

3.1.1. These thirteen questions were made available only to those who were answering as an individual. The most popular answers are marked in green.

1: Please give us the first four digits of your postcode

Post code (first 4 digits)	Area Covered	Number of responses	Percentage of total
AB15	Bieldside, Craigiebuckler, Cults, Hazlehead, Kingswells, Mannofield, Milltimber, Summerhill	71	13.2
AB11	Ferryhill, Torry and the area to the South of Union Street and east of Holburn Street	43	8
AB12	Altens, Ardoe, Banchory Devenick, Blairs, Bridge of Dee, Cove Bay,	43	8

	Kincorth, Maryculter, Nigg, Portlethen, Tullos		
AB21	Blackburn, Bucksburn, Dyce, Fintray, Kinellar, Newmachar, Whiterashes	42	7.8
AB24	Old Aberdeen, Woodside, Tillydrone, Seaton, Bedford, Hanover	42	7.8
AB10	Bridge of Dee, Mannofield, Ruthrieston, City Centre North and West	40	7

3.1.2. The above shows that the top 6 most popular postcode areas for respondents to the survey. The table below shows that the responses from individuals made up the majority of the responses received (95.7%).

3.1.3. In terms of respondents themselves

- The highest number of respondents to the questionnaire were 46-55 years old, and that 58.7% of respondents were aged 46 or over.
- Almost three quarters of the respondents did not have a disability that affected their travel. By contrast, 12% of respondents had a disability that affected their travel.
- The most popular group for respondents were full time workers – almost 56%. Those in employment (full and part time) made up nearly 68% of respondents with retirees being the second highest group of respondents (nearly 20%). Those in employment and those retired accounted for 88% of all respondents. The number of non responses – "I'd rather not say "and "not answered' made up around 13%.
- Male respondents made up just over half of the respondents - 51% - compared with 35% of female respondents.
- Almost 70% of respondents were straight/ heterosexual

For further details, see the tables below

3) Which age bracket do you fall into

Option	Total	Percent
46-55	124	23.13%
56-65	99	18.47%
36-45	98	18.28%
65+	87	16.23%
26-35	66	12.31%
Not answered	22	104.76%
17-25	21	3.92%
I'd rather not say	19	3.54%
Under 16	0	0.00%
Total	536	100.00%

4: Do you have any disabilities which affect your travel?

Option	Total	Percent
No	400	74.63%
Yes	64	11.94%
I'd rather not say	45	8.40%
Not Answered	27	5.04%
Total	536	100%

5: What is your employment status?

Option	Total	Percent
Working full time	300	55.97%
Retired	107	19.96%
Working part time	42	7.84%
I'd rather not say	31	5.78%
Not Answered	24	4.48%
Undertaking full time education or training as a student	12	2.24%
Long-term sick or disabled	11	2.05%
Other	8	1.49%
Full time carer	7	1.31%
Undertaking full time education as a pupil at school	4	0.75%
Unemployed	3	0.56%
Total	549	102.43%
Percentages worked out based on	536	100%
Suggests some people answered more than once. However, percentages based on 536 to reflect this.		

6: What sex do you identify as?

Option	Total	Percent
Male	272	50.75%
Female	188	35.07%
I'd rather not say	50	9.33%
Not Answered	25	4.66%
Other	1	0.19%
Total	536	100

7: What is your sexual orientation?

Option	Total	Percent
Straight / Heterosexual	374	69.78%
Prefer not to say	107	19.96%
Not Answered	37	6.90%

Gay	7	1.31%
Other	6	1.12%
If you prefer to use another term, please state: (Optional)	3	0.56%
Lesbian	2	0.37%
Total	536	100

3.1.4. For ethnicity, nationality and religious beliefs:

- The largest category who answered Question 8, below, were those who did not answer the question (almost 40%). Of those who did answer, White, British and Scottish were the most popular answers. In total 33% were British, 21.7% were Scottish and 50.7% were white.
- The largest category who answered Question 9, below, were also those who did not answer (62.8%)

In both cases only the most popular answers are shown

8: Please indicate your ethnicity and nationality in your own words. (For example, White British) (This question is optional)

Ethnicity and Nationality Type	Total	Percentage
N/A	213	39.74%
British White	163	30.41%
White Scottish	99	18.47%
Scottish	17	3.17%
British	14	2.61%
White	10	1.87%

9: What religion, religious denomination or body do you belong to? (This question is optional)

Religion, Religious Denomination or Body	Total	Percentage
Not answered	337	62.87%
None	93	17.35%
Church of Scotland	31	5.78%
Christian	25	4.66%
Athiest	13	2.43%

3.1.5. For questions around marital status, pregnancy and caring for others

- The largest category who answered Question 10 were married/ civilly partnered, who made up 47% of respondents.

- Just over 80% of respondents answered that they were neither pregnant nor on maternity leave. Less than 1% were pregnant or on maternity leave combined.
- Just under 60% of those who answered Question 12 did not look after or give help or support to people. Less than half of this, around 27%, did.

10: What is your legal marital status?

Option	Total	Percent
Married / Civil partnership	252	47.01%
Single	117	21.83%
Prefer not to answer	89	16.60%
Not Answered	34	6.34%
Divorced	33	6.16%
Widowed	11	2.05%
Total	536	100

11: Are you pregnant or on maternity leave?

Option	Total	Percent
Neither	431	80.41%
Prefer not to say	61	11.38%
Not Answered	42	7.84%
Yes - Pregnant	1	0.19%
Yes - Maternity leave	1	0.19%
Total	536	100

12: Do you look after, or give any help or support to family members, friends, neighbours or others because of either: long-term physical/ mental ill-health/ disability; or problems related to old age? Do not count anything you do as part of your paid employment.

Option	Total	Percent
No	316	58.96%
Yes	143	26.68%
Prefer not to say	42	7.84%
Not Answered	35	6.53%
Total	536	100

3.1.6. In looking at responses to Question 13 (below):

- Over half of respondents walked daily with almost 70% walking at least a few times a week.
- Over half of respondents never cycled with only around 12% cycling at least every 6 months.
- Over three quarters of respondents had never cycled an eBike.
- The most popular answer for bus use was ‘never’ (almost 20%).
- Just over 20% used the bus at least once a week.
- Over three quarters of respondents never used the park and ride.
- The most popular answer for how often respondents use the train was ‘never’.
- The most popular answer for how often people use a taxi was ‘at least every 6 months’.
- The majority of respondents never use a motorbike, moped or motorised scooter, and have never used the car club.
- When added together, those who used their car at least once a week as the driver made up 59% of respondents with 37% using it daily. However, 30% never drove.
- Around 32% of respondents were passengers at least once a week
- Only the most popular responses are shown

13: How often do you use the following modes of transport?

Walking/ Wheeling

Option	Total	Percent
Daily	279	52.05%
A few times a week	93	17.35%
At least once a week	45	8.40%
Never	39	7.28%
Not Answered	33	6.16%

Cycling (standard bike)

Option	Total	Percent
Never	297	55.41%
At least every 6 months	50	9.33%
Not Answered	49	9.14%
Less than once a year	27	5.04%
At least once a fortnight	10	1.87%

Cycling (eBike)

Option	Total	Percent
Never	421	78.54%
Not Answered	67	12.50%

Bus

Option	Total	Percent
Never	99	18.47%
At least every 6 months	80	14.93%
At least once a month	66	12.31%
At least once a year	56	10.45%
Less than once a year	53	9.89%
A few times a week	45	8.40%
At least once a week	39	7.28%
Not Answered	37	6.90%
At least once a fortnight	35	6.53%
Daily	26	4.85%

Park and Ride

Option	Total	Percent
Never	420	78.36%
Not Answered	44	8.21%
Less than once a year	32	5.97%

Train

Option	Total	Percent
Never	144	26.87%
At least every 6 months	108	20.15%
Less than once a year	87	16.23%
At least once a year	84	15.67%
At least once a month	48	8.96%
Not Answered	43	8.02%

Taxi

Option	Total	Percent
At least every 6 months	140	26.12%
Never	127	23.69%
At least once a year	79	14.74%
Less than once a year	63	11.75%
At least once a month	53	9.89%
Not Answered	44	8.21%

Motorbike/Moped /Motorised Scooter

Option	Total	Percent
Never	441	82.28%
Not Answered	50	9.33%

Car Club

Option	Total	Percent
Never	459	85.63%
Not Answered	51	9.51%

Non plug-in car/ van as driver

Option	Total	Percent
Daily	199	37.13%
Never	161	30.04%
A few times a week	96	17.91%
Not Answered	39	7.28%

Non plug-in car/ van as passenger

Option	Total	Percent
Never	179	33.40%
A few times a week	79	14.74%
At least once a week	63	11.75%
Not Answered	58	10.82%
At least once a fortnight	45	8.40%
At least once a month	41	7.65%

Plug-in car/ van as driver

Option	Total	Percent
Never	420	78.36%
Not Answered	62	11.57%

Plug-in car/ van as passenger

Option	Total	Percent
Never	422	78.73%
Not Answered	60	11.19%

3.1.7. In summary, the largest groups of respondents were:

Male (50.75%) Female (35.07%)	Over 45 (58.7%) 45 and under (34.51%)	Full time workers (55.97%) Retired (19.96%)	Straight/ Heterosexual (69.78%) Gay (1.31%)	British/ Scottish White (56.53%) Didn't answer (39.73%)	Married/ Civilly Partnered (47.01%) Single (21.83%)
Living in an AB15 postcode (13.2%) AB11 (8.02%) AB12 (8.02%)	Did not have a disability that affected travel (74.63%) Did have a disability that affected travel (11.94%)	Answered as individuals (95.71%)	Not pregnant or on maternity leave (80.41%) Pregnant/ on maternity leave (0.38%)	No voluntary caring responsibilities (58.96%) Voluntary caring responsibilities (26.68%)	Never use Park and Ride (78.36%), Never use train (26.87%), Never use motorcycle (82.28%), Never use car club (85.63%)
Never cycle (55.41%) or use an eBike (78.54%)	Never take the bus (18.47%)	Walk daily (52.05%)	Use a taxi every 6 months (41.61%)	Don't use a plug-in vehicle (78.54%)	Drive daily (40.3%) Never travel as passengers in a car/ van (33.4%)

3.2. **Responses to the Quantitative Questions**

3.2.1. The 9 quantitative questions (pick an option) were available to both individuals and organisations. These were Questions 15,16,17,19,20,21,22,23,25 and are presented below. For the full list of questions please refer to Appendix B to the committee report. In total, **536** respondents responded to these questions. Of these, 513 were from individuals, 18 were from organisations and 5 did not state which.

3.2.2. The organisations who responded are shown below in the table below:

Institute of Directors	Sustrans Scotland
Sentinel Marine Ltd	Confederation of Passenger Transport Scotland
Ferryhill and Ruthrieston Community Council	Paths for All
Port of Aberdeen	Scotland's Railway
Scotland's Rural College	Co Wheels Car Club
Grandholm Village Residents Association	CoMoUK, the national charity for the public benefits of shared transport
Hurch	Aberdeen City Health and Social Care Partnership
Rosemount and Mile End Community Council	North East Sensory Services (NESS)
Newtonhill Cycling Group	One un-named

3.2.3. The table below shows the answers to the quantitative questions from all respondents. For all questions, respondents were given a choice of 5 answers – strongly agree, slightly agree, neither agree nor disagree, slightly disagree and strongly disagree. Some people also chose not to answer each question. For ease of analysis, these have been grouped into simply agree, disagree or neutral.

3.2.4. Despite only having a sample size of 18, the organisation-only questions were separated from the rest to see if there was a difference in the way they answered. The results, with comment, are shown below:

Question	All respondents (536)	Organisations only (18)	Comment
15. Do you agree with the Key Drivers?			
Disagree	**50.37%**	**16.70%**	For all respondents, the most popular answer is 'disagree' with the key drivers, with just over 50% of the votes. However, on
Agree	**30.78%**	**55.60%**	
Neutral	16.60%	11.10%	

			pulling out the organisational answers only there is a difference of opinion as the most popular answer amongst them was 'agree'.
16: Do you agree with the challenges?			For all respondents, the most popular answer is to 'agree' with the challenges, with just over 50% of the votes and over 78% of the organisation only vote.
Agree	**50.40%**	**77.80%**	
Disagree	**29.70%**	**5.60%**	
Neutral	16.60%	0	
17: Do you agree with the Opportunities?			For all respondents, the most popular answer is 'disagree' with the opportunities, with just under half of the vote. However, on pulling out the organisational answers only there is a difference of opinion as the most popular answer amongst them was 'agree', with 2 thirds of that vote.
Agree	**28.90%**	**66.70%**	
Disagree	**48.50%**	**11.10%**	
Neutral	20%	5.60%	
19: Do you agree with the proposed Vision?			For all respondents, the most popular answer is to 'agree' with the vision, with just under half of the vote, rising to just over ¾ for the organisations only vote.
Agree	**46.60%**	**77.80%**	
Disagree	**36.10%**	**5.60%**	
Neutral	14.40%	0	
20: Do you agree with the Objectives?			For all respondents, the most popular answer is 'disagree' with the objectives, with around 44% of the vote. However, on pulling out the organisational answers only there is a difference of opinion as the most popular answer amongst them was 'agree' with over 77% of the vote.
Agree	**37.50%**	**77.80%**	
Disagree	**44.20%**	**5.60%**	
Neutral	14.20%	0	
21: Do you agree with the Outcomes up to 2030?			For all respondents, the most popular answer is 'disagree' with the outcomes up to 2030, with just over half of the vote. However, on pulling out the
Agree	**32.10%**	**72.20%**	
Disagree	**52.50%**	**11.10%**	
Neutral	0.125	5.60%	

			organisational answers only there is a difference of opinion as the most popular answer amongst them was 'agree', with 72% of the organisations only vote.
22: Do you agree with the Outcomes beyond 2030?			For all respondents, the most popular answer is 'disagree' with the outcomes beyond 2030, with around 46% of the vote. However, on pulling out the organisational answers only there is a difference of opinion as the most popular answer amongst them was 'agree', getting 2/3 of the organisation only vote.
Agree	**31.90%**	**66.70%**	
Disagree	**46.40%**	**16.70%**	
Neutral	18.30%	5.60%	
23: Do you agree with the Outputs?			For all respondents, the most popular answer is 'disagree' with the outcomes beyond 2030, with just under half of the vote. However, on pulling out the organisational answers only there is a difference of opinion as the most popular answer amongst them was 'agree', getting 72% of the organisation only vote.
Agree	**31.90%**	**72.20%**	
Disagree	**47.20%**	**11.10%**	
Neutral	16.60%	5.60%	
25: Do you agree with the 40 topic areas chosen?			For all respondents, the most popular answer, with 37.5% of the vote is 'agree'. This rises to almost 78% when the organisation only vote is taken into account.
Agree	**37.50%**	**77.8%**	
Disagree	**33.21%**	**5.6%**	
Neutral	25.19%	0	

3.2.5. Further analysis was then performed on the above questions, looking to establish if different groups of people answered the questions differently. Despite the Key Drivers, Opportunities, Objectives, Outcomes and Outputs being disagreed with overall (when all respondent answers were considered), there were some differences across the groups.

- Those who cycled (n=70) and took the bus (n=110) at least once a week actually agreed with them all overall.

- Those who drove a non plug-in car at least once a week (n=317) were the ones who agreed least with them. The only area they agreed with overall was the challenges.
- For females (n=188), more of them agreed with all aspects – Key Drivers, Challenges, Opportunities, Vision, Objectives, Outcomes Outputs and Topic Areas – than male respondents. Both sexes disagreed overall with the Key Drivers, Opportunities, Outcomes up to 2030, and Outputs. However, only the men (n=272) also disagreed overall with the Objectives, Outcomes Beyond 2030 and Topic Areas.
- The 17-25 year old age group (n=21) agreed with the most – it was only the opportunities that they disagreed with most. By contrast, the age group that agreed with the least was the 56-65 year olds (n=99) who only agreed overall with the Challenges.
- For postcode areas where the number of respondents was more than 30, those in AB24 (n=42) had the most supportive people, agreeing with everything overall apart from the Opportunities. By contrast, those in AB16 (n=30) disagreed overall with all of the areas.
- Full time workers (n=300) were more critical than part time ones (n=42). Both disagreed overall with the Opportunities but the full timers also disagreed overall with Key Drivers, Opportunities, Objectives, Outcomes and Outputs.
- Males, full time workers, those aged 56-65, non plug in car drivers who drove at least once a week and those in the AB16 postcode area were the most critical. By contrast, women, people who cycled or used the bus at least once a week, those aged 17-25, those in an AB24 postcode and part time workers were the most in agreement.

3.2.6. The results show that, for the individuals responding to the consultation, there are some areas where “disagree” was the most selected option. This was true for the Key Drivers, Opportunities, Objectives, Outcomes – both up to and beyond 2030 – and Outputs. It is therefore necessary to investigate further why this may be the case. To do this, the answers to some of the qualitative question will be further investigated. For questions 15,16,17,19, 20,21,22 and 23 above, respondents were given the option to give comment as to why they picked either “slightly disagree” or “strongly disagree”. These answers will be explored further in Section 3.4.

3.3 Responses from Organisations and Stakeholders

3.3.1 As mentioned previously, 18 organisations responded to the consultation questionnaire. Details of them can be found in section 3.2.

3.3.2 In addition, 10 other stakeholders provided separate written responses to the consultation, not in the questionnaire format. These were:

Nestrans	Aberdeen Airport
NHS Grampian	The ACC Hydrogen Team
Transport Scotland	The ACC Local Development Plan Team
Aberdeen Cycle Forum	University of the West of England
Stagecoach	Cults, Bieldside and Milltimber Community Council

3.3.3 This gave a total of 28 responses from organisations/ stakeholders. The responses from the organisations/ stakeholders had largely followed the structure of the Draft Local Transport Strategy document and can be neatly arranged under it. Several of the comments received did not lead to proposed changes to the document or the content. The main suggestions for amendments are shown in the following sections.

3.3.4 Section One – Introduction. The following changes were suggested:

- Feedback was largely positive with respondents saying it was, clear and easy to follow.
- However, it was suggested that it might be useful to have more detail here around who the LTS is for in order to help people relate to it.

3.3.5 Section Two – Strategic Context. The following changes were suggested:

- Include current mode share figures as baseline when presenting peoples' travel choices
- Update the organogram of the main influencing documents for the new LTS to make it clearer
- Add noise pollution to the list of key drivers for the new LTS.
- Health inequality and transport poverty should be added to the list of "Challenges" as should "Ability of the transport network to deal with unforeseen circumstances such as poor weather and health issues", " People's responsibilities often require a flexible transport system to meet their needs" and "Integration between different modes of transport"
- The "Opportunities" list needs some additions too around "Economic benefits of encouraging tourism", "Growing awareness of the issues

around climate change, air and noise pollution and an acceptance of the need to act".

3.3.6 Section Three – The Overarching Strategy The following changes were suggested:

- Update the "Vision" (changes shown in italics) to - "A safe, resilient, high-quality transport system that is accessible to all, supports a vibrant economy, facilitates healthy living and minimises the negative impact on our environment. Aberdeen's transport network should *enable Aberdeen to function as a local, regional, national and international hub, encouraging* people to live in, work in, *study in, operate in* and visit our city."

- Changes (shown in italics) to the following Objectives were suggested:

  - TPO1 – Climate and Environment - "Reduce the negative impact of transport on the climate and the environment, *not just in the city centre but across Aberdeen.*
  - TP02 – Improve transport opportunities in Aberdeen that help enable and promote healthy lives and give better access to health and social care
  - TPO3 – Safety – Improve the safety of the Aberdeen transport network and reduce safety issues *and concerns* for users *with particular consideration given to the most vulnerable .*
  - TPO4 – Economy – Ensure more efficient movement of people and goods across *Aberdeen City as well as into and from it, enabling it to function as a key local, regional, national and international hub.*
  - TPO7 - Ensure Aberdeen has a transport network that can better adapt to changes in technology, capitalises on existing technological opportunities *and continue to offer benefit to users of the transport network.*

- The following additions to the Outcomes up to 2030 were suggested:

  - Add local living principle to the outcomes
  - Add "More opportunities for people to have access to cars without needing to own one"
  - Add in "Improved noise quality"
  - Reword Outcome 9 to "Improved mental and physical health of the residents of Aberdeen and improved access to health and social care".
  - Add to outcome 12 a recognition that information should be in accessible formats

- The following additions to the Outcomes beyond 2030 were suggested:

    - Add in greater adoption of local living principle to the outcomes
    - Add "Further opportunities for people to have access to cars without needing to own one"
    - Add in “Further Improved noise quality”
    - Reword Outcome M to “Further improved mental and physical health of the residents of Aberdeen and further improved access to health and social care”
    - Add to Outcome N a recognition that information should be in accessible formats

- The following additions to the Outputs were suggested:

    - Split the output for "Aberdeen Rapid Transit (ART) and faster, more frequent and more reliable public transport options to make Could split them to make ART and other public transport two separate outputs
    - Split active travel infrastructure into two part – walking/ wheeling and cycling
    - Outputs needed for "More travel plans" and "Travel information across a larger range of formats"
    - Outputs needed for land use, digital connectivity/accessibility, and freight

3.3.7 Section 4 - Spatial narrative. The following additions were suggested:

- Have freight facilities shown
- Make the mapping clearer

3.3.8 Section 5 - Topic Areas. The following points were made:

There was broad support for all the topic areas chosen. Nestrans, in particular commented that “A broad range of topic areas have been identified and the 40 topic areas that have been identified show the vast breadth in which transport has influence. It is valuable to see at the end of the section the inclusion of a table that shows how each topic area and underlying policies/actions will contribute to achieve the eight objectives that have been identified for the LTS”. They also acknowledged that “The policies under each topic are well constructed and it is welcomed the recognition of the importance of partnership working to make progress on many of these commitments. Sustrans also acknowledged that the topic areas seemed to cover the key issues.

However, there were some suggested amendments which are shown in the sections below.

For Topic 2, Air Quality:

- Some minor wording changes proposed to better reflect how vulnerable active travel users are to poor air quality
- Reference to the fact that people can be fined for idling in the main text of the air quality section of the LTS then. A corresponding action should be added to "Promote ways in which people can people can make changes that will positively impact upon air quality"

For Topic 4, Reducing the need to travel:

- More explanation around the type of travel that should still be encouraged should be there – ie travel for the benefit of mental and physical health
- more examples/ links to case studies about how people can live without cars should be referenced

For Topic 5, Walking and Wheeling:

- The need to enhance and provide better access to green areas by walking and wheeling rather than just making use of them should be referenced

For Topic 6, Cycling:

- An action is needed around gender gap in cycling and more reference should be made to groups like CTC who help with “Try cycling”
- Update the bike hire section
- Better reference the need for better connectivity/ interchange at key destinations

For Topic 7, Bus:

- acknowledge that cyclists and buses sharing space isn’t always the best solution so there is merit in considering routing cyclists through lightly trafficked areas instead of sharing a bus lane with a bus.

For Topic 9, Park and Ride:

- update the action around maximising investment in facilities to include new as well as existing park and ride sites

For Topic 12, Coaches:

- Add a new action to - "Ensure that Aberdeen City continues to encourage and enable both scheduled and tourist coach services, especially to serve key destinations"

For Topic 17, Zero Emission Vehicles:

- Update some hydrogen information and better reflect the opportunities around low and zero emission buses

For Topic 18, Parking:

- Update to better reference the Local Development Plan

For Topic 20, Road Improvements:

- Update with more recent information about projects

For Topic 21, Trunk Road Network:

- Update with more recent information about A96

For Topic 25, Freight:

- Add a harbour specific action to this

For Topic 27, Land Use Planning:

- More reference to the Sustainable Transport Hierarchy needed in the Actions section
- Update wording around contributions to better reflect the size of the development and the situations where mitigation is required

For Topic 32, Enforcement:

- Add another action here to make it clear that the Local Transport strategy will not rely on cameras and sensors alone but acknowledges the importance of having a physical presence by officers/ wardens in communities.

For Topic 33, School Travel and Young People:

- Add an action around low traffic neighbourhoods,
- Add greater mention of the “And she cycles” campaign
- Add actions around girls cycling and I Bike projects

For Topic 34, New Technologies and Initiatives:

- More mention to be included around challenges and opportunities presented by e-scooters and e-mopeds

For the Appendices:

- It was suggested to have a larger appendix document which clearly maps out how the key drivers, challenges and opportunities link to the vision, objectives, outcomes, outputs, topic areas, policies and actions, rather than just showing some of the links
- A Risks and barriers appendix would be beneficial

3.4 Qualitative analysis approach used for consultation comments from Individuals

3.4.1 In total, 515 individual respondents (not from organisations) responded to the online consultation for the draft Local Transport Strategy. In addition to the quantitative responses that were received, and covered earlier on in this report, there were 3632 responses provided to all of the qualitative (open text box) questions. Furthermore, many of these 3632 responses made multiple points, rather than just commenting on one singular aspect, meaning that there were far more individual points that were actually made. These are estimated to be in the region of 10,000. In order to make sense of the large number and variety of comments received, an adapted Framework Analysis approach was utilised.

The Framework Analysis approach

3.4.2 The Framework Analysis approach is a qualitative research method used for the management and analysis of qualitative data.[1][2] It has been used for applied policy analysis and multi-disciplinary health research and provides a systematic, yet flexible approach to qualitative analysis, helping to identify patterns, relationships and themes in the data.

3.4.3 Through expertise within the Health Determinants Research Collaboration Aberdeen (HDRCA) on recent Council consultations, including the Local Outcome Improvement Plan (LOIP) public consultation and the 2023 budget consultation, officers utilised this approach to analyse the qualitative data received. The Health Determinants Research Collaboration Aberdeen (HDRCA) was contacted by senior managers from Strategic Place Planning for advice and assistance on re-analysing the LTS consultation responses in March 2024. This Framework Analysis approach was considered appropriate for use with the LTS consultation.

3.4.4 Through the leadership of an experienced qualitative researcher, the Framework Analysis approach can also be used in teams where not all members have previous experience of conducting qualitative research. The Senior Research Fellow (SRF) from the HDRCA provided guidance on applying the Framework Analysis approach to the LTS consultation responses to team members from Strategic Place Planning from April to July 2024.

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[1] Gale, N.K., Heath, G., Cameron, E. et al. Using the framework method for the analysis of qualitative data in multi-disciplinary health research. BMC Med Res Methodol 13, 117 (2013). https://doi.org/10.1186/1471-2288-13-117

[2] Spencer, L., Ritchie, J., Lewis, J., Dillon, L. National Centre for Social Research. Quality in Qualitative Evaluation: A framework for assessing research evidence. Government Chief Social Researcher's Office, Cabinet Office, 2003.

3.4.5 There are a number of general steps in a Framework Analysis approach. These include:

1. Familiarisation with the data
2. Coding (identifying themes and sub-themes)
3. Charting
4. Mapping and interpretation (understanding relationships within and between themes and sub-themes)
5. Verification
6. Reporting

The Data

3.4.6 Comments received on fifteen of the consultation questions were inputted into Excel. The framework approach was followed, as above.

3.4.7 Firstly, familiarisation with the data took place. The SRF reviewed responses, so too did the lead for the LTS consultation report, who read all 3632 comments received.

3.4.8 Following this familiarisation stage, the wider team, consisting of the SRF, LTS Consultation Report Lead and both Chief Officer and the Policy and Strategy Manager of Strategic Place Planner, was consulted to clarify how to best analyse Questions 15, 16, 17, 19, 20, 21, 22 and 23. For all these questions, respondents were asked how much they agreed with a particular part of the draft LTS - five potential quantitative responses were available for them to choose from ranging from “Strongly Agree” to “Strongly Disagree” - with a follow up qualitative question then asking, if they did not agree, what were the reasons for this. However, in some cases, even those who had not indicated that they disagreed had still left a comment. Following discussion, the wider team agreed that those respondents who had responded to the quantitative part of these questions with ‘slightly disagree’ and ‘strongly disagree’ shave their qualitative responses further analysed. Analysing and combining these responses would provide a more detailed and nuanced understanding from those respondents who ‘did not agree’ with aspects of consultation at these questions.

3.4.9 For all questions, sorting and coding and charting the information followed using colour coded tabs in Excel to code the information received into themes and sub-themes. This process took x weeks and included refining and re-coding the data alongside verification of the themes and sense checking, in conjunction with the SRF.

3.4.10 Given the volume of data received, extra team members were brought in to sort and code questions 15, 18, 26, 27, 28. At this stage, the coding and sorting elements of the approach were conveyed to other teams members who used the same strategy.

3.4.11 As part of the analysis, two different types of theme emerged:

- Themes emerged which were specific to the draft Local Transport Strategy document itself. These will be further explored in Section 3.5
- General transport related themes raised by respondents. These will be further explored in Section 3.6

3.4.12 The latter, general transport themes raised by respondents, were far more numerous and required further analysis. Once all the data had been sorted, coded and charted, the process of mapping and interpreting the themes and sub-themes across this data were further refined.

3.4.13 This time-consuming process enabled the team to understand the content of the comments, identify similarities in content and meaning that came up repeatedly, and collate similar type comments to each sub-theme code. This was repeated across all questions.

3.4.14 The development of these sub-themes provided a condensed overview of the main points and common meanings that recurred throughout the data. By this stage, the content of responses was well understood, patterns were identified and a confident overview of the frequency of the sub-themes and what these meant - i.e. level of importance to respondents, for example, was determined.

3.4.15 By grouping similar types of comments and suggestions (also known as an inductive approach), a range of response sub-themes emerged from the data for each of the questions with 37 cross-question themes emerging across all the questions.

3.4.16 Following this process, a meeting with the wider team took place in June 2024 to discuss progress and the main themes emerging. Subsequently, further verification of the themes and sub-themes occurred in conjunction with the SRF and LTS Consultation Report Lead to further refine the large number of themes. This refinement brought the number of key themes down from 37 to 13 in the data. It was suggested by the SRF that much of the content could potentially be mapped to the macro themes used in the Place Standard Tool (which was used as part of the LOIP consultation). These are presented in Section 3.6.

3.5 Themes Specific to the Draft Local Transport Strategy

3.5.1 The main themes, which were specific to the draft Local Transport Strategy document itself, from the responses from the 515 individual respondents, are posted below. They are grouped by the section of the draft LTS that they refer to. The numbers of comments regarding the points is shown in brackets and some quotes have also been added to demonstrate the nature of the comments being made.

3.5.2 Section 2: Strategic Context:

- Key Drivers
  People thought there was too much emphasis on National Key Drivers, Environment and Net Zero and questioned the ability to reduce car use due to the geography of Aberdeen
  "Stop the hysteria surrounding "Climate Change"".
  "The NE weather for a large period of the year does not allow walking/cycling/bus / train"

- Challenges
  Some people stated they agreed with some of the challenges but not all (n=7). However, the ones contained in the draft LTS that seemed to have the most comments of support were condition of roads, footways and pathways, (n=17) declining public transport patronage (n=19), cost of public transport (n=8), declining city centre patronage (n=46), transport inequalities (n=7). The ones with the most disagreement were "People do not feel safe cycling and feel there is a lack of cycling facilities on routes" (n=22) and General Disagreement (n=21).
  The key challenge is "Condition of roads, footways and pathways in Aberdeen." This should be given more focus.
  "Some are relevant and real others are only applicable to a minority of the city's population"

- Opportunities
  For the opportunities listed in the draft LTS, the most comments were received against the Bus Partnership Fund (BPF) opportunity (n=31), related mainly to bus travel being poor, disagreement with aspects of the City centre and Beach Masterplan (n=58) , disagreement with the Low Emission Zone (n=55), disagreement with the "Locking in strategic improvements" (n=33) opportunity and general disagreement comments (n=47). Some disagreement over whether working from home is an opportunity or a challenge too (n=11).
  "Given the choice between public transport or personal car people will take the ease of the car. You could make buses free for everyone but until they arrive on time and frequently then no one is going to use it".

"The city centre and beach master plans are not going to encourage people to return to the city centre".

3.5.3 Section 3: The Overarching Strategy

- Vision
  The main comments for the Vision in the draft LTS centred around dissatisfaction with the transport system, rather than disagreement with the vision itself (n=51). That said, General disagreement with the vision (n=27), anti-car stance (n=25), feeling dictated to (n=8) and concerns around how the LTS would be funded (n=6) were the most commonly grouped comments.
  "Its word soup. How many buzz words can be ticked off"
  "It's a nice statement but how do you achieve it? Traffic is only a small part of the problems within the city".

- Objectives
  The objectives in the draft LTS which received the most comments were TP08 Modal Shift (n=58) and TP01 Climate and Environment (n=20), with people disagreeing with them. Accessibility (n=10) and Economy (n=7) featured next for disagreement. Comments which were not specific to a particular objective but most numerously referenced were General disagreement (n=31) and comments which disagreed with the execution rather than the TPO itself (n=20).
  " Tp08 private cars suit life style . There is no way this plan can be put into place in a manner that suits working professionals "
  "Again laudable statements but laughable that so much has been done to achieve the opposite in the past 30 years"

- Outcomes up to 2030
  Most comments expressed disagreement around a reduction in car use (n=82) – Outcome 1 - Reduction in number of journeys by car drivers in Aberdeen to less than 50% by 2030 - and Outcome 2 - (A reduction in car km travelled in Aberdeen by 20% compared with 2019 baseline) are the relevant ones for this. Outcome 5 (20% of cars being zero emission) also received some comments against it (n=11).
  "1 and 2 should be thrown away, everyone is sick and tired of the majority - motorists! being persecuted by left wing minority nutters"
  "We are not stupid enough to buy into electric cars as they don't fit normal life in Noth East and to expensive. Not enough infrastructure".

- Outcomes beyond 2030
  As with Outcomes up to 2030, the most comments received concerning the outcomes were for A and B – "More journeys made by active travel and public transport together than by car in Aberdeen" and "A reduction in car km travelled in Aberdeen beyond 20% compared with the 2019

baseline" (n=34). General disagreement had the most comments (n=36) with those around the outcomes being unachievable and leading to the death of the city being the most numerous.
"Again, this is just anti car rhetoric"
"It will not be reached by any stretch of the imagination"

- Outputs
  Development and delivery of the Aberdeen city centre and Beach masterplan (n=26), Reallocation of road space in Aberdeen (n=24), More EV charging and Hydrogen Refuelling Infrastructure and supporting measures in Aberdeen (n=21) and enforcement of the LEZ (n=17) were the outputs that people most disagreed with. There was also some concern over how the outputs would be funded too (n=10)
  "Too late to develop the city centre or the beach- Aberdeen high times have been and gone".
  "We don't have the money to make these changes. Neither personal business or council".

3.5.4 Section 4: Spatial narrative

- In terms of the map itself it was a split - Some agreed with it (n=7), some general comments of disagreement (n=8) were received and some suggested improvements (n=15). Of the suggested improvements, these were mainly around the need to include more detail and to zoom in for more area specific detail
  "Too complex for me to understand this or what it means for me".
  "The map would massively benefit from calling out where each of the neighbourhoods are".

3.5.5 Section 5: Topic Areas

- From the constructive critical comments, the most was that there was too many topics presented and the information should be simplified/more focused on key topics (n=10)
  "Too many, won't deliver"
  Another theme of general constructive critical comments was that an indication of how the topics are to be prioritised would be of value (n=8)
  "Without prioritising these they are pointless"!
- Suggestions for additional topics to consider included: Elderly/ disabled travel (most mentioned), Cost, Private/ Business Vehicles, Tourism, Micromobility/ Last mile, mode shift, splitting climate change and adaption into two topics"
- For existing topics, most comments were received on City Centre and Beach (n=29), mainly reacting with negativity towards traffic restrictions and reducing the need to travel (n=19) with some associating this with restrictions on cars but also pointing out health benefits of people

travelling. Then Climate Change Mitigation and Adaption(n=17) where comments were on the theme of it being a global rather than local issue. For air quality (n=15) comments centred around it not being an issue as Aberdeen, in respondents' minds, is not exceeding limits. Maintenance (n=14) was highlighted as important with some perceiving it should be higher up the list (not realising there is no priority order to the topics). Then bus (n=12) for cost, reliability and lack of coverage.
"Don't understand "reduce the need to travel?" Again, shows a disconnect between objectives and that of encouraging folk into city centre?"
"The climate change is a scam, educate yourself"

- In terms of Actions, the Policies with the most comments against their actions were Policy 17: Low emission vehicles (n=29), Policy 4: reducing the need to travel (n=25) and Policy 18: Parking (n=22) and Policy 20: Road improvements (n=17).
"I just think all this change is rubbish. Electric cars are worse than diesel, do you know how the lithium batteries are made".
"Topic 18 - any actions suggesting the increase of parking charges, restrictions on parking such as only short-term or removal of spaces should be taken out. Rather for the benefit of the city centre we should be encouraging more parking, cheaper parking & more flexible to enable longer stays"

3.6 General transport related themes raised by respondents

Grouping the Themes

3.6.1 The final 13 General Transport related themes raised by respondents are listed below and grouped under the relevant headings from the Place Standard Tool. https://www.ourplace.scot/tool .The Place Standard Tool was chosen as a good transport network is a key component of a successful place and the headings used in the tool itself provide a useful way of presenting data. The Place Standard Tool was also used in other Plans, Policies and Strategies that deal with Place in Aberdeen, such as the Local Outcome Improvement Plan, so it also ensures that a consistent approach for reporting is used. The Place Standard Tool has 14 different areas within it. Of these, the 13 themes raised fitted under 8 of them. These are presented below.

Moving Around

- Should be more acknowledgement of transport inequalities
"Elderly not considered but youngsters are despite acknowledging ageing population?
"Needs to be affordable for all".
- While it was acknowledged that making it more attractive to cycle is important, it should be recognised that cycling does not work for

everyone and climate, rural hinterland and terrain will always hamper appetite.
“Stop ignoring the weather! Very few of us cycle regularly BECAUSE THE WEATHER SUCKS! Cycling is cheap and effective, but it’s not enjoyable in the rain. Even if we had perfect cycle paths, when it rains I’d still get in the car”.
"Not everyone can/wants to cycle”.

Public Transport

- Public transport needs to be faster, more reliable, cheaper and have a more comprehensive coverage to tempt people away from cars and to truly work - currently it does not. It will also never work for everyone.
“We need cars and vans in this city, especially while the public transport system falls so many magnitudes short”.
"Declining public transport usage - reduce the cost”

Traffic and Parking

- Car is a pivotal part of the transport system and should not be demonised.
“Why is there an obsession with stopping people using cars? This is the wrong focus”.
“People are avoiding the city centre because without a car they can not carry their shopping home”.
- Anti car stance is damaging and turning public off. The alternatives are not good enough to tempt people away from cars and don’t integrate well enough so they will instead go to more car friendly places
“The main challenge is ACC aggressive attack on car users so people no longer want to come to the city so go to Portlethen, Stonehaven, Inverurie or Dundee”
“I like my car, it takes me where I want to go when I want to go. It's quicker than a bus, it's warmer than a bus. My car will go north to south and east to west unlike a bus. My car gives me independence and a door to door service. You can't push back to a time when you had to use the bus. People don't have time to stand for 35 mins or longer waiting for a bus to turn up”.

Streets and Spaces

- Beach improvements not needed
“The beach project should not go ahead. The beach is the only part of Aberdeen which is currently very popular. Why change it ? The centre of Union Street is everyone’s main concern”
“Beach master plan remains a vanity project, all it needs a bit of TLC”
- Too much emphasis on climate and environmental factors, given improvements in emissions and contradictions - harbour contribution not acknowledged and closures push problems elsewhere
“No mention of the massive boats churning out diesel smoke into the city centre yet it’s the citizens and motorist who pay the price yet again”
"Greenhouse Gas Emissions are a global problem and should not feature in these challenges”,

Work and Local Economy

- Perceived inaccessibility of the city centre, primarily by car, is causing people to choose not to visit or go elsewhere. Many are scared of being fined because they don't understand where they can and can't go. This is detrimentally affecting the city centre economy
  "You are responsible for the decline of patronage in the city centre, by making it so hard to access & forcing businesses out with high rates"
  "Nobody uses the city centre because it's almost impossible to get to"
- Concerns over how plans will be funded and that, in funding them, Council spends money on the wrong things
  "Very ambitious! Not sure if many outcomes are achievable without significant investment".
  "A waste of money as there will be very little response/feedback and any changes made will be to the detriment of the city and its residents".

Social Interaction

- Concerns that 20 minute neighbourhood concept will make it more difficult for people to access some major facilities and that reducing the need to travel will affect physical and mental health and economy
  "This is a thinly veiled attack on car users. 20 minute communities are an attack on our ability to travel".
  "What is a 20 minute neighbourhood? Are you going to try to prevent people leaving".

Care and Maintenance

- Improving condition of roads and pavements should be a priority
  "The roads badly need repaired as this has seen a great decline over the years".
  "Maintain the infrastructure as your priority"

Influence and Self Control

- Document quite long, some jargon, too much info to take in and a lot to include in one consultation
  "Once again too many words. If you are going to produce soundbites at least make them snappy".
  "This consultation process is incredibly dense and requires a lot from the reader. I would venture that most regular people are not aware of the big-picture headline policy goals. As a result, you're going to get flooded with responses from the mad pro-car brigade who are already circulating their own consultation questions online. This is a real missed opportunity to present the tensions and priorities honestly to people and engage with them".
- Concern that Council are not listening, they are implementing things that go against the wishes of the public and people are losing faith in them as a result
  "Please listen to the residents of the city who by enlarge want the freedom to enjoy and move freely within the city".
  "You will ignore public opinion, your ruled by a few cyclists and the greens"

Further analysis of the themes to inform next steps

3.6.2 These are presented further in the table below. In this table

- The thirteen themes are grouped under the 8 relevant headings from the Place Standard Tool.
- The table has four categories – Barriers, Facilitators, Opportunities and Potential Solutions.
- All of the thirteen themes are areas which respondents have identified as areas for improvement, challenges or things they don't agree with. Therefore, they have been identified as the "Barriers".
- The "Facilitators" are examples of how the Draft Local Transport Strategy and its supporting documents and appendices, as presented for consultation from November 2023 to January 2024, have already acknowledged the theme / barrier in their content. There are suggestions for how to better address the theme / barrier within the next Local Transport Strategy here too.
- The "Opportunities" look at other information sources of note or relevance to the theme / barrier to explain why the Local Transport Strategy proposed a particular course of action and/ or outline other activities which are being undertaken or that exist to further improve the situation.
- The "Proposed Solutions" identify what next steps or suggested changes need to be incorporated to a future draft version of the Local Transport Strategy in order to better address the Barriers / Themes that have been identified in the consultation.

3.6.3 The other information sources, used to inform the Opportunities are from the following sources:

- The 2023 Aberdeen City Voice Survey (445 respondents)
- The Nestrans North East Comprehensive Travel Survey (2023) (500 City respondents)
- The Local Outcome Improvement Plan consultation (2023), (364 respondents
- The Aberdeen Walking and Cycling Index (WACI) (2023 (1146 respondents))
- The ETRO 2 Bus Priority Measures Report (2024)
- The draft Aberdeen Local Transport Strategy (2023-2030) Main Issues Consultation report (387 public and stakeholder responses helped to inform this).

Barriers, Facilitators, Opportunities and Potential Solutions Table

Moving Around			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**
Should be more acknowledgement of transport inequalities	The Draft LTS acknowledges this through the ageing population nationally and transport inequalities nationally in the “Challenges” section, the inclusion of "accessible to all" in the vision, a specific objective "TPO5” for “Accessibility/ inclusivity/ user-friendly", and an Outcome around "Improved accessibility to transport in Aberdeen for all". Although there are not specific policies around inequalities, the policies should be developed to realise the objectives. Therefore, a table shows how the different policies help realise each objective, including TP05. There was also an Integrated Impact Assessment carried out on the draft LTS document.	The Council's Equalities team helped with the development of the IIAs and made sure they were done both for the November 2023 draft strategy and the committee report. Officers will continue to draw upon their skills and knowledge as part of the process and a separate IIA will be done for this committee report.	For the final LTS Stronger messaging around the importance of the LTS being multi-modal, so most people can get around by a mode that works for them. More needs to be included to better show how everything links from the key drivers, challenges and opportunities all the way through to the vision, objectives, outcomes, outputs, policies and actions and exploration of this link throughout in the main document.

While it was acknowledged that making it more attractive to cycle is important, it should be recognised that cycling does not work for everyone and climate, rural hinterland and terrain will always hamper appetite.	The draft LTS currently contains information in the cycling topic area and an action stressing the benefits that trying a cycling journey even once a week can make to health, wellbeing and even finances. The idea was to demonstrate that people weren't expected to cycle all the time but even changing some journeys could make a difference. However, there is a need to be more explicit about this. The STAG Sections of the Main Issues Report – Appendix A - and the Option Appraisal Report – Appendix B – to the LTS both explained the need for the strategy to be "Multi-Modal", essentially promoting a range of different modes to give people the option to get around without one being seen as the most effective. In the draft LTS, this was then reflected in the "STAG Objective, Option Generation and Appraisal" section of the document This therefore acknowledged that people are not expected to only cycle and not all of the time.	Lack of Cycling Infrastructure & Facilities was identified as a current challenge in the LTS Main Issues consultation, that took place in 2021, and Substandard Cycle Network/Short Cycle Lanes/Motorists Parking on Advisory Cycle Lanes/Lack of Segregated Cycle Lanes/Narrow Shared Use Paths as something that did not work well in the same consultation. The 2023 Sustrans Walking and Cycling Index (WACI) for Aberdeen, which has a sample size of 1146 residents aged 16 and above, found that 70% would be more incentivised to cycle by more traffic-free cycle paths away from roads, like through parks or along waterways and 66% by more cycle paths along roads that are physically separated from traffic and pedestrians. 47% said they would like to cycle more. Safety, including road safety and personal safety, is the single largest barrier to cycling. This is backed up by the Nestrans Comprehensive Travel Study (2023) which says "The reasons given by residents for not using or owning a bicycle were general traffic levels and congestion in Aberdeen City. In many cases there was no option other than to share road space with cars	Revised LTS needs to make it clear that, although it is important to improve conditions for cycling, the Council is not suddenly expecting all of the population to cycle and for every journey. Some more messaging can be brought into the final LTS to remind people that it is acknowledged that not everyone can cycle or is expected to. Also a "who is this for" section can be added that, as well as addressing who the audience is for the final LTS, will address the fact that the Council acknowledge that everyone's needs are different and not all journeys are the same.

		which was perceived as too dangerous." Around 500 city residents answered it. So while cycling might not suit everyone, there would appear to be people who would like to cycle if the conditions were right and there is clearly support for better infrastructure.	
Public Transport			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**
Public transport needs to be faster, more reliable, cheaper and have a more comprehensive coverage to tempt people away from cars and to truly work - currently it does not. It will also never work for everyone.	"Declining public transport patronage, exacerbated by COVID-19 restrictions nationally" and "Cost of public transport" are identified as challenges in the draft LTS. The following was included in the "Opportunities" section of the draft LTS - "Bus Partnership Fund– Multi-modal corridor studies are being undertaken to identify opportunities for walking, wheeling, cycling and public transport and funding to develop the business case for Aberdeen Rapid Transit. The fund also offers a mechanism for delivery" "Aberdeen Rapid Transit and faster, more frequent and more reliable	The First Bus Summary (From the ETRO 2 report, including the City Centre bus priority measures, that was taken to Full Council in 2024) outlined that: - "Our passenger volumes have continued to climb from the initial 9% growth back in October 2023 to the 16.5% enjoyed at the end of March 2024. - The bus priority measures have done what we said they would. - Bus speeds have been improved resulting in a more attractive service and significant fare reductions / free travel, giving customers much greater value for money, and delivering modal shift as a result. - All in all, when taking account of all the city centre interventions, so inclusive of	More needed to show the links between the different parts and flow from key drivers to actions. As above, some more messaging should be brought into the LTS to remind people that it is acknowledged that not everyone can use public transport or is expected to. Also a "Who is this for?" section can be added that, as well as addressing who the

	public transport options" are included as Outputs in the draft LTS. Public Transport, Park and Ride and ART have their own Topic Areas, Policies and Actions in the draft LTS. There is also a table in the draft LTS to show how Public Transport, ART and Park and Ride topic areas/ policies contribute to the draft LTS Objectives (which were developed to meet the "Challenges", "Opportunities" and "Key Drivers"	the central section of Union Street, there has been a benefit provided to circa 12 million passenger journeys. - It is essential these journey speeds are maintained on a permanent basis for these benefits to be delivered in the future". Stagecoach summary (From the same ETRO report) from data from early December 2023: – "Across our Aberdeen City network, we have observed an average uplift of passenger numbers by 5% since the bus priority measures went live. – We have also seen a reduction of 10% in the time taken to cross the city centre on service 59, which connects key destinations such as Northfield, Balnagask, and Aberdeen Royal Infirmary. – With fewer buses being held up unnecessarily in city centre traffic, bus journey times are quicker and more predictable. This will have a significant impact on the daily lives of bus commuters and thousands of bus passengers across the North-east who make journeys into Aberdeen."	audience is for the LTS, will address the fact that the Council acknowledge that everyone's needs are different and not all journeys are the same.

		This suggests that creating more bus provision is already improving journey times and reliability and attracting more people to bus travel. Lack of/ limited public transport options and Unreliable/ poor bus services were identified as current challenges in the LTS Main Issues consultation with Continued Lack of Public Transport Options as a future challenge . Therefore, these have emerged as key themes to tackle.	
Traffic and Parking			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**
Car is a pivotal part of the transport system and should not be demonised. Anti car stance is damaging and turning public off. The alternatives are not good enough to tempt people away from cars and don't integrate well	The draft LTS acknowledges in its Travel Awareness and Information topic area that: "It is also important that promoting active and sustainable travel is not "anti-car" but rather it is pro-choice, with people able to use the most appropriate mode for their journey. Cars, and access to them, will still form a very important part of the transport network, especially for those who have certain health issues and disabilities Likewise, active and sustainable transport should be	In the LTS Main Issues Consultation in 2021, "Too Many Cars/Heavy Car-Dependency" and "Continued car dependency" were seen as current and future challenges, along with "Priority Given to Cars/Car-centric Aberdeen" as something that does not work well. "Closure of Union Street" and "Continued closure of Union Street will further exacerbate congestion around the City Centre" were identified as current and future challenges in the Main Issues consultation.	Add a "Car Travel" section in the topic areas of LTS with associated policy and actions. As above, some more messaging can be brought into the final LTS to acknowledge that not everyone can use alternatives to the car or is expected to.

enough so they will instead go to more car friendly places	something that people feel they want to choose rather than being forced to. The message that switching to active travel, even for just some journeys makes a difference to health, wellbeing and the environment should be conveyed too". The draft LTS acknowledges that "Establishing the figure for households without access to a car is difficult. Annual surveys carried out by the Council and Nestrans since 2017, suggest it is around 15%. However, the 2011 Census, now quite outdated but still the most comprehensive data source in Scotland, indicates around 30%. What is known is that this is not a blanket figure across the city. Some of the lowest income areas are in excess of 50%". What this demonstrates is that, as much as car will always be a key component in the transport network. a transport network, built primarily around the car, is unlikely to adequately serve at least 15% of Aberdeen's population and that some areas would be more detrimentally impacted than others if this was the	"Union Street Closure/Spaces for People" was seen as something that worked well in the Main Issues consultation, while "High Number of Vehicles on Union Street" was seen as something that did not. Therefore, there were views for and against to be taken into account. It was also acknowledged that it was "Easy to Navigate City by Car" so this was not something requiring improvement. In the Sustrans Walking and Cycling Index (WACI) (2023, 23% of residents want to drive less, yet 39% of residents often use a car because no other transport options are available. All of this suggests that there is a desire for people to be less car dependent in the city and a support to use other options if they are made more attractive.	Also a "who is this for" section can be added that, as well as addressing who the audience is for the final LTS, will address the fact that the Council acknowledge that everyone's needs are different and not all journeys are the same.

	case, especially those in lower income areas of the city.		
Streets and Spaces			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**
Beach improvements not needed	The Aberdeen Beach Masterplan is already underway and linked to the Aberdeen City centre Masterplan. As a result, the draft LTS, acknowledges these committed projects will have an impact on the Aberdeen transport network. Plus, given their relevance to the whole city and the wider region, it is necessary to consider these at LTS level.	A report to take forward the Aberdeen City Centre and Beach Masterplan has been considered and the programme agreed by elected members at Full Council - https://committees.aberdeencity.gov.uk/documents/s135128/CCMP%20-%20220629%20CCMP%20Update_Recalibrated%20Masterplan%20FINAL%20Report.pdf	The need to better link the City Centre and beach are well documented in the report and the masterplan itself for economic, social, health and environmental reasons. Therefore, enabling this remains a key commitment of Aberdeen City Council, and should feature in the final LTS. The movement of goods and people to, from, around and between these areas will be key to the

			success of this so this area has to stay in the final LTS
Too much emphasis on climate and environmental factors, given improvements in emissions and contradictions - harbour contribution not acknowledged and closures push problems elsewhere	The draft LTS contains a specific Air Quality topic area. Within this, it states that "Although pollution levels have been improving in Aberdeen in recent years, many city centre locations still see regular exceedance or near exceedance of the annual mean NO2 objective. Despite the Port of Aberdeen being located in the city centre, studies carried out in 2011 and 2021 indicated emissions from shipping contributed less than 10% of the total NOx and PM10 concentrations at relevant receptors close to the Port. Road traffic was identified as the main source of emissions both at locations close to the Port and at other congested city centre locations, accounting for	National Commitments around Net Zero by 2045 have been made by the Scottish Government and Councils are expected to follow these. In Aberdeen, the Council declared a Climate and Nature Emergency in February 2023. Transport is Scotland's primary source of air pollution, which leads to 2500 premature deaths in Scotland each year Transport accounted for 25.9% of Scotland's total greenhouse gas emissions in 2020. Within that, road transport made up 66% of transport greenhouse gas emissions with cars accounting for 38% of that total. In Aberdeen, transport's share of CO2 emissions, in comparison with other sectors,	There is a compelling case to ensure that climate and environmental factors continue to be considered within the document

	approximately 50% of the total NOx emissions". Furthermore, Aberdeen has already made commitments around Net Zero, including the publication of a Net Zero Mobility Strategy which have implications for transport. Therefore, a specific topic area with policy and actions has been included in the draft LTS. The need to therefore include these within the LTS and the focus on road transport is suitably evidenced.	has increased from 20% in 2005 to 30% in 2019. This is despite CO2 emissions from transport reducing by 7.5% over this period In the 2023 City Voice Survey, 78.9% of 445 respondents were aware that parts of Aberdeen City regularly experience poor air quality and that this can be harmful to human health. In the 2021 City Voice Survey, 61.2% of 528 respondents agreed that a Low Emission Zone was an appropriate response to poor air quality in the city.	
Work and Local Economy			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**

Perceived inaccessibility of the city centre, primarily by car, is causing people to choose not to visit or go elsewhere. Many are scared of being fined because they don't understand where they can and can't go. This is detrimentally affecting the city centre economy	City centre regeneration is seen as a key topic for the draft LTS to cover. The car parking topic area has the policy "To develop a parking regime for Aberdeen that supports the principle of the city centre functioning as a destination, encourages people to access and move around the city sustainably, facilitates interchange between modes, enhances the economic vitality of the city centre and district shopping centres and still supports people with restricted mobility in accessing facilities". The Aberdeen Western Peripheral Route topic area has the policy "To continue to "lock in" the benefits of the AWPR by encouraging strategic traffic to route from and to it, creating more space for sustainable travel on Aberdeen routes and allowing the city centre to function as a destination rather than a through route. - also policy The Freight topic area has the policy "To work with partners to ensure the efficient movement of freight to, from and within Aberdeen and the wider	"Declining Patronage of the City Centre" and "Further decline of the city centre" are seen as current and future challenges in the Main Issues Consultation for the LTS, carried out in 2021, and were carried through as challenges for the LTS to address. Therefore, this is one of the issues that the document strives to address. There was unanimous approval by Councillors of the Aberdeen City Centre Masterplan in 2015. The Aberdeen Walking and Cycling Index (WACI) 2023 finds that 55% of respondents agree that increasing space for people socialising, walking, wheeling and cycling on their local high street would improve their local area. Furthermore, the total annual economic benefit from all trips walked and wheeled in Aberdeen is £131 million. This includes trips walked or wheeled for enjoyment or fitness, and trips to destinations by people with and without a car. The WACI also states that studies show walking or cycling frees up road space in comparison to driving. This helps to keep Aberdeen moving for all road users. 48,000 return walking and wheeling trips are made daily in Aberdeen by people that	Officers agree with survey respondents that the prosperity of the City and the easy access to, from and around it for people and goods to enable this are, and should continue to be, fundamental principles of the final LTS. The revised draft to make this clearer. Inclusion of a "Car Travel" topic area, to help reassure people that car is still very much regarded as a key access component will assist with this.

	North East of Scotland across different modes". – The City centre and Beach topic area has the policy to "Ensure that the transport network enables Aberdeen City Centre and Beach to function as high-quality, accessible destinations that people wish to live in, visit, use and spend time in. Promote the movement of people ahead of vehicles and ensure that people are encouraged to move between the two areas using sustainable transport" The Walking and wheeling topic area acknowledges that "A better walking environment has been shown to deliver benefits to the economy too. The Pedestrian Pound (2018), demonstrates that on streets where the pedestrian experience has been improved, footfall is shown to increase by 20-35 per cent, bucking a 22 per cent decline in footfall across the UK between 2007- 2017. It also shows that when streets are regenerated to boost walking, there is a corresponding impact on turnover, property values and rental yields. For well-designed projects, sales can increase by 30 per cent or more when	could have used a car. If these cars were all in a traffic jam it would tail back 142 miles equivalent to the distance from Aberdeen to Glasgow. Financially, the WACI finds that the total annual economic benefit from all trips cycled in Aberdeen is £32.4 million. This includes trips cycled for enjoyment or fitness, and trips to destinations by people with and without a car. It also finds that 7,100 return cycling trips are made daily in Aberdeen by people that could have used a car. If these cars were all in a traffic jam it would tail back 21 miles equivalent to the distance from Aberdeen to Banchory. The Nestrans Comprehensive Travel Study (2023) found that residents who did not have access to a vehicle were significantly more likely to use the bus (55%) compared to those who did have access (5%)	

	footfall is boosted.Corresponding bits in draft LTS - challenges - declining patronage of city centre, vision refers to economy objective, table to evidence how topics and policies met objectives. Furthermore, Appendix 5 to the draft LTS is an Economic Endorsement which evidences how the LTS helps to realise the Regional Economic Strategy, backed up by the Council's City Growth Cluster.		

Concerns over how plans will be funded and that, in funding them, Council spends money on the wrong things	External funding is acknowledged as an “Opportunity” in the draft LTS, presented in November 2023 for consultation. The “STAG Objective, Option Generation and Appraisal” section states that “Of the multi-modal options, the “Do maximum” option has been identified as the preferred option. This will require considerable investment to achieve and there are associated risks involved with raising funding, having the necessary resource to deliver the work and being able to deliver the timescales. However, evidence has already shown that considerable external funding exists and, despite the risks, aiming for the “Do maximum” option will best meet the needs of the people and the city”. Therefore, an LTS is an important part of gaining external funding.	The Aberdeen Walking and Cycling Index (WACI) (2023) evidences that residents want more funding for walking, wheeling, cycling and public transport: 51% on walking and wheeling 44% on cycling 67% on public transport 38% on driving	It is important for the LTS to be aspirational in order to demonstrate the city's commitment to change and to provide the evidence when bidding for external funding to improve the transport network
Social Interaction			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**
Concerns that 20 minute neighbourhoods will make it more difficult for people	In the draft LTS, presented for consultation in November 2023, Topic 4, “Reducing the Need to travel” has an action to "Work with partners to ensure that reducing the need to	The Aberdeen Walking and Cycling Index (WACI) (2023), found that - 63% of Aberdeen households are in neighbourhoods of more than 40 homes	Make it clearer in the final LTS that while this is an aspiration, it is acknowledged that not everyone will be

to access some major facilities and that reducing the need to travel will affect physical and mental health and economy	travel is balanced against the need to keep the city "open for business" and considers the mental and physical health of people". Topic 27, "Land Use Planning", quotes straight from National Planning Framework for Scotland (NPF4) that, "For Local Living, new and existing communities should be planned together with homes and the key local infrastructure including schools, community centres, local shops, greenspaces, health and social care, digital and sustainable transport links with the principle of being able to access these within a 20 minute active travel journey. This was done to outline that it is beneficial to ensure that people have easy access to the type of services they are likely to need most regularly but does not prevent them from travelling further afield to access others.	per hectare. These are or can become 20-minute neighbourhoods. These higher-density neighbourhoods with more people can sustain local businesses and public transport routes. - 50% of respondents agree they can easily get to many places they need to visit without having to drive Concerning the question of "What percentage of residents would find more local amenities and services useful to help them walk or wheel more?" - 79% - More shops and everyday services, such as banks and post offices, close to your home - 72% - More government services, such as doctors surgeries and schools, close to your home. - 80% - More parks or green spaces close to your home - 80% - More things to see and do close to your home, like cafés or entertainment venues The WACI also modelled that proportion of households within a 400m radius of the following amenities. This is modelled as a straight-line distance, as opposed to the actual walking distance based on street	able to access all facilities they need within a 20 minute journey and people will not be forced to do so. More mapping to show this concept so that people can see how it relates to their local area is needed.

		layout which is likely to be longer (approximately equivalent to 480m). Based on this: - Food shop 70% - Park or space for recreation 93% - Doctors surgery 24% - Primary school 43% - Post Office 27% - A mix of cultural and leisure venues 75% - Railway station (within 800m) 7% - Bus stop 98% In the 2023 City Voice survey 82.8% of people felt more physically well and 80% more mentally well as a result of walking and wheeling in 2023 (based on 445 respondents)	
Care and Maintenance			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**
Improving condition of roads and pavements should be a priority	This matter is acknowledged in the draft LTS. The "Key Drivers", "Challenges", "Outcomes" and "Outputs" all reference maintenance while both "Road, carriageway and Footway Maintenance" and "Winter Maintenance" have their own topics	One of the most agreed with aspects of the Draft LTS based on the consultation responses.	Ensure this topic remains in the final LTS

	with corresponding “Policies” and “Actions”. Furthermore, despite there not being a “Maintenance” objective (the intention was that it would contribute to many objectives) the table of Objectives vs policies in the draft LTS clearly demonstrates how the maintenance topics/ policies meet the objectives.		
Influence and Self Control			
Barriers	**Facilitators**	**Opportunities**	**Potential Solutions**
Document quite long, some jargon, too much info to take in and a lot to include in one consultation	“Reader friendly” and “At a glance” and “Easy to Read”, “summary versions of the draft LTS were available as part of the consultation documents and were referenced, with corresponding page numbers, in the consultation questionnaire.	Comments will be taken on board in the next version.	A shorter main document with more maps and more “Plain English” writing is needed. More detailed information, currently contained in the current draft LTS, could be moved into an appended supporting document to enable this.

Concern that Council are not listening, they are implementing things that go against the wishes of the public and people are losing faith in them as a result	The draft LTS allowed the public and stakeholders to see what was bring proposed by the Council, based on the evidence gathered to inform it. As well as being informed by other National, regional and Local Plans, Policies and Strategies and a review of the previous LTS, it has also been informed by a Main Issues Consultation which took place in October and November 2021. This took place right at the start of the process, before there was even a draft to comment on. This asked people what they thought were the challenges and the opportunities (current and future), what worked well for transport in Aberdeen, what didn't work and what could be improved, what areas transport should work with and enable most such as economy, environment, health and communities. All of this shaped the content of the LTS and this is clearly explained in the document. The above is summarised in the "Listening to you" section of the draft LTS.	Once the volume and nature of responses to the draft LTS consultation had been established in January 2024, it became clear that more time would have to be set aside and more expertise brought in to ensure a through analysis of the consultation responses.	Make it very clear who the LTS is for at the start of the document, and ensure that it continues to evidence how the public have shaped it. The inclusion of this report on the draft LTS consultation and taking it back to elected members to inform the next steps, is also a key part of this as it further demonstrates the importance of consultation in informing decision making.

3.7 Children and Young People

3.7.1 Feedback was also sought from 136 young people following designated sessions across three primary schools in Aberdeen. This was done using a simplified version of the Place Standard Tool - Place Standard Tool for Children and Young People | Our Place – and asking questions in the following areas:

- How does traffic in my place affect me when out and about?
- How easy is it to walk, scoot, wheel or cycle to places you want to go?
- When things happen in my Place do people include me in decisions and listen to what I say?
- Is it easy for me to get where I need to go by bus, train etc?
- Do I feel safe in my place?

3.7.2 The information was sought from:

- Riverbank school - Roundtable group 8 pupils
- Kaimhill – Classroom sessions with around 120 pupils (Primary 6/7)
- St Peters – Roundatable group with 8 pupils (Primary 6/7)

3.7.3 The three schools chosen to participate were St Peter's, Kaimhill and Riverbank schools. As all three of these schools are currently engaging with, or being supported by the I Bike Schools programme in Aberdeen, this meant that the I Bike Schools officer was able to assist with the consultation and, being known to the children, would know how best to work with them. The selected schools also allowed a good geographical spread across the city.

3.7.4 In terms of the views of the children, they were asked some questions too: The main points, with some quotes from the children, are presented below. Alongside the percentages the number of respondents is shown in brackets:

How does traffic in my place affect me when out and about?

- 55% (n=55) answered "Okay, some improvement needed" when asked "How does traffic in my place affect me when out and about" (out of 100 children who answered the question) . The main feedback was that traffic was an inconvenience that got in the way of them getting places on foot and vehicles often travelled too fast.
  "*Great Northern Road annoying to cross" because of traffic volume".*
  "Speed bumps are too far apart. They should be closer together to slow down the traffic."

How easy is it to walk, scoot, wheel or cycle to places you want to go?

- 46% (n=47) answered “Okay, some improvement needed” when asked “How easy is it to walk, scoot, wheel or cycle to places you want to go?” (out of 102 children who answered the question). The main feedback was that active travel routes could be better maintained, especially in winter and that more infrastructure, including crossing points, to encourage this, would improve things. However, there was positivity towards active travel
  “I like to cycle. It reduces pollution and reduces emotional stress. If I wake up feeling grumpy it makes me feel better.”
  “Pavements are uneven for scooting.”

When things happen in my Place do people include me in decisions and listen to what I say?

- 71% (n=50) answered “Okay, some improvement needed” when asked “When things happen in my Place do people include me in decisions and listen to what I say?” (out of 70 children who answered the questions). The main feedback was that more could be done to involve children but that it is getting better.
  “Sometimes adults know best.”
  “Adults should look past what they think is happening. They should talk to the child first.”

Is it easy for me to get where I need to go by bus, train etc?

- 54% (n=15) answered “Okay, some improvement needed” when asked “Is it easy for me to get where I need to go by bus, train etc?” (out of 28 children). The main feedback was that children liked buses, especially the new hydrogen and electric ones but downsides were slippery when wet and some of their fellow passengers spoiling the experience.
  “Like the hydrogen buses”
  “Like the view from the double decker buses but stairs can get quite slippery”

Do I feel safe in my place?

- 48% (n=13) answered “Great, it’s as good as it can be” when asked “Do I feel safe in my place?” (out of 27 children). The main feedback was linked to traffic making them feel less safe when crossing roads and that the behaviour of some people could make them feel uncomfortable. More lighting and again crossings were identified as improvements
  “*Need higher fines for people that break the rules”*
  “I do not feel safe at crossings due to speed and volume of traffic”

3.7.5 The above shows that, although children were quite satisfied with the transport network, some improvements were needed and that these were mainly in relation to active travel provision, traffic speeds and crossing points. There was good support for wanting to travel actively and, while they did feel listened to, they acknowledged there was still improvement to be made too. The views of the children therefore met with the intentions of the draft LTS.

4. Conclusions

4.1. From the responses analysed it has become clear that the draft LTS will require some reworking before a final version can be reported back to committee for adoption. It is envisaged that this reworking will include:

- A shorter main LTS document with much of the detail, contained in the current one, residing in a new, accompanying background document
- Greater explanation about who the document is for and a structure which better fits with the Local Outcome Improvement Plan (LOIP) structure of Economy, People and Place
- The need to map out more clearly how the key drivers, challenges and opportunities link to the vision, objectives, outcomes, outputs, topic areas, policies and actions, rather than just showing some of the links
- More reference to health inequality, economy – including Aberdeen's role, not just as a local, but a regional, national and international hub and the need to ensure that people are not too strongly dissuaded from travel
- Greater emphasis on accessibility rather than mobility and transport
- More map based so people can better understand how the strategic plans can impact upon their area
- Being clearer about the LTS aiming to ensure people have a choice of ways to access something, rather than feeling car is their only option.
- Being more explicit about the car's role in the transport network, rather than people perceiving the LTS to be anti-car.

Appendix B – Consultation Questionnaire

Draft Aberdeen Local Transport Strategy (2023-2030) consultation

Overview

Aberdeen City Council is developing its Draft Local Transport Strategy which will cover the period from 2023-2030 and we need your help.

What is a Local Transport Strategy?

- A Local Transport Strategy (LTS) is a high-level transport plan which looks at the transport needs of a local authority area.
- It sets out a series of actions and outcomes to meet those needs over a set period of time.
- It considers transport's relationship with wider plans, policies and strategies (including those to do with health, technology, communities, the environment, the economy and land use).
- The Aberdeen LTS focuses on Aberdeen City Council's area but also considers connections into Aberdeenshire Council's area given the important role of Aberdeen at the heart of the wider City Region.
- The Strategy covers the period from 2023 – 2030, but will also look beyond towards 2045 to provide a clear framework for longer-reaching strategic decision making and investment

What is a Local Transport Strategy not?

- The Local Transport Strategy (LTS) is not something which goes into specific detail about schemes. It will not say, for example, that we will put a cycleway down a particular street or how it will be designed.
- The LTS is not purely about roads and traffic. It's about a whole transport network and this includes not travelling at all.
- The LTS is not anti-car. Vehicles have an important place in the transport network.
- The LTS will not show preference to one particular area. This means it will not be trying to improve the economy, communities, the environment, health, technology or land use alone but will consider them all.
- The LTS is not a wish list of schemes but a strategy to improve the transport network backed up by evidence. You've helped to provide this.
- The LTS is not developed without consideration of the wider context. Therefore, it is very important that it continues to benefit and be shaped by yourselves.

What has been done to date?

Consultation took place in October 2021 to help identify the main challenges and opportunities for the Aberdeen transport network and to allow us to get an idea of what doesn't work well, what does, and what could be done to improve things. This, along with looking at how other national, regional and local plans, strategies, and policies have changed since the last LTS was written, has allowed us to put together this Draft Local Transport Strategy and its supporting documents.

What do you think?

Please take a look at the Draft Aberdeen Local Transport Strategy (2023-2030) and its supporting documents and then let us know your thoughts via the questionnaire below. All documents can also be found at https://consultation.aberdeencity.gov.uk/planning/lts/

The consultation period will run for 8 weeks from Friday 17th November 2023 to Friday 12th January 2024.

Your feedback will be used to inform the final version of the Local Transport Strategy.

As part of the consultation, we've also asked some questions about you. This allows us to see if there are any themes coming through from different groups of the population. This can help, not just to inform the Local Transport Strategy but also the projects which stem from it.

If you have any questions, please get in touch at transportstrategy@aberdeencity.gov.uk

To view the privacy notice for this consultation please go to https://consultation.aberdeencity.gov.uk/planning/lts/

Please post back to Transport Strategy and Programmes Team, Aberdeen City Council, Business Hub 4, Marischal College, Broad Street, Aberdeen, AB10 1AB.

There have been two Integrated Impact Assessments (IIAs) done for the draft Local Transport Strategy. One for the document itself and the other for the consultation. These can be found here https://consultation.aberdeencity.gov.uk/planning/lts/ (Dated 29th August 2023)

About you

1. Please give us the first four digits of your postcode

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2. Are you answering

○ As an individual? ○ On behalf of an organisation?

If any organisation, please state which here_____

About you as an individual – If answering on behalf of an organisation, you do not need to answer this part.

These questions will help us identify if different groups have similar responses which identify common needs. For example an analysis of responses may evidence 30% of individuals with a disability who responded disagreed with objective 8. This will assist with the development of the strategy and support compliance with our public sector equality duty.

3. Which age bracket do you fall into?

○ Under 16 ○ 17-25 ○ 26-35 ○ 36-45 ○ 46-55 ○ 56-65 ○ 65+ ○ I'd rather not say

4. Do you have any disabilities which affect your travel?

○ Yes ○ No ○ I'd rather not say

If you do have any disabilities which affect your travel please state them here

_____

5. What it your employment status?

☐ Undertaking full time education or training as a student

☐ Undertaking full time education as a pupil at school

☐ Working full time

☐ Working part time

☐ Unemployed

☐ Long-term sick or disabled

☐ Full time carer

☐ Retired

☐ Other

☐ I'd rather not say

6. What sex do you identify as?

○ Male ○ Female ○ Other ○ I'd rather not say

7. What is your sexual orientation?

○ Straight / Heterosexual ○ Gay ○ Lesbian ○ Other ○ Prefer not to say ○

If you prefer to use another term, please state here: (Optional)

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8. Please indicate your ethnicity and nationality in your own words. (For example, White British) (This question is optional)

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9. What religion, religious denomination or body do you belong to? (This question is optional)
Please answer here

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10. What is your legal marital status?

○ Single ○ Married / Civil partnership ○ Divorced ○ Widowed ○ Prefer not to answer

11. Are you pregnant or on maternity leave?

○ Yes - Pregnant ○ Yes - Maternity leave ○ Neither ○ Prefer not to say

12. Do you look after, or give any help or support to family members, friends, neighbours or others because of either: long-term physical/ mental ill-health/ disability; or problems related to old age? Do not count anything you do as part of your paid employment.

Yes No Prefer not to say

13. How often do you use the following modes of transport?

	Daily	A few times a week	At least once a week	At least once a fortnight	At least once a month	At least every 6 months	At least once a year	Less than once a year	Never
Walking/ wheeling									
Cycling (standard bike)									
Cycling (ebike)									
Bus									
Park and Ride									
Train									
Taxi									
Motorbike/Moped /Motorised Scooter									

	Daily	A few times a week	At least once a week	At least once a fortnight	At least once a month	At least every 6 months	At least once a year	Less than once a year	Never
Car Club vehicle	○	○	○	○	○	○	○	○	○
Non plug-in car/ van as driver	○	○	○	○	○	○	○	○	○
Non plug-in car/ van as passenger	○	○	○	○	○	○	○	○	○
Plug-in car/ van as driver	○	○	○	○	○	○	○	○	○
Plug-in car/ van as passenger	○	○	○	○	○	○	○	○	○

The Draft Aberdeen Local Transport Strategy Document - Section 1 (Introduction and Navigation)

The Introduction and Navigation section can be found on pages 7 and 8 of the Draft Aberdeen Local Transport Strategy (2023-2030) consultation document.

14. Do you have any comments to make on the Introduction and Navigation sections? If so please make them here.

The Draft Aberdeen Local Transport Strategy Document - Section 2 (Strategic Context). Key Drivers.

A number of Key Drivers (considerations) have been identified for the Draft Aberdeen Local Transport Strategy (2023-2030). These are on Page 22 of the main Draft Local Transport Strategy consultation document and pages 5-6 of the "At A Glance" document

15. Do you agree with the Key Drivers (opportunities)?

Strongly agree Slightly agree Neither agree nor disagree Slightly disagree Strongly disagree

If you do not agree, what should be different?

The Draft Aberdeen Local Transport Strategy Document - Section 2 (Strategic Context). Challenges

A number of Challenges affecting the transport network have been identified within the Draft Aberdeen Local Transport Strategy (2023-2030). These are also on Page 23 of the Draft Local Transport Strategy consultation document and Pages 6-7 of the "At A Glance" document

16. Do you agree with the Challenges?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

If you do not agree, what should be different?

The Draft Aberdeen Local Transport Strategy Document - Section 2 (Strategic Context). Opportunities

A number of Opportunities - things already positively impacting transport in the city or things happening more widely that can benefit the Aberdeen transport network - have been identified within the Draft Aberdeen Local Transport Strategy (2023-2030). These can also be found on page 23 of the Draft Local Transport Strategy document and pages 7 and 8 of the "At A Glance" document

17. Do you agree with the Opportunities?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

If you do not agree, what should be different?

The Draft Aberdeen Local Transport Strategy Document - Section 2 (Strategic Context). General)

As well as setting out the Key Drivers, Challenges and Opportunities, Section 2 of the Draft Aberdeen Local Transport Strategy (2023-2030) sets out the Strategic Context for the document and is the evidence base for the sections that follow. You can find in on pages 9-24 of the draft Local Transport Strategy.

18. Do you have any further comments to make on the Strategic Context (In addition to those on the Key Drivers, Challenges and Opportunities)?

The Draft Aberdeen Local Transport Strategy Document - Section 3 (The Overarching Strategy). Vision

A Vision Statement has been created for the Draft Aberdeen Local Transport Strategy (2023-2030). You can find it on page 26 of the draft Local Transport Strategy document and page 8 of the "At A Glance" document)

19. Do you agree with the vision?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

If you do not agree, what should be different?

The Draft Aberdeen Local Transport Strategy Document - Section 3 (The Overarching Strategy). Objectives

Eight Objectives have been identified in order to achieve the Vision for the Draft Aberdeen Local Transport Strategy (2023-2030). These can be found on page 26 of the Draft Local Transport Strategy document and page 8 of the "At A Glance" document)

20. Do you agree with the Objectives?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

If you do not agree, what should be different? Tell us overleaf

The Draft Aberdeen Local Transport Strategy Document (Section 3 – The Overarching Strategy). Outcomes up to 2030

A number of Outcomes (improvements we want to see) have been identified within the Draft Aberdeen Local Transport Strategy (2023-2030) up to 2030. These can also be found on page 27 of the Draft Local Transport Strategy and on page 9-10 of the "At A Glance" document)

21. Do you agree with the Outcomes up to 2030?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

If you do not agree, what should be different?

The Draft Aberdeen Local Transport Strategy Document (Section 3 - The Overarching Strategy). Outcomes beyond 2030

We want to future-proof the document and so a number of longer term Outcomes (further improvements we want to see beyond 2030) have been identified for the Draft Aberdeen Local Transport Strategy (2023-2030). These can also be seen on page 27 of the draft Local Transport Strategy document and pages 10-11 of the "At A Glance" document.

22. Do you agree with the Outcomes beyond 2030?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

If you do not agree, what should be different?

The Draft Aberdeen Local Transport Strategy Document (Section 3 - The Overarching Strategy). Outputs

A number of Outputs (actual things to be delivered) have been identified for the draft Aberdeen Local Transport Strategy (2023-2030). These can also be found on page 28 of the Draft Local Transport Strategy document and pages 11-12 of the "At A Glance" document.

23. Do you agree with the Outputs?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

If you do not agree, what should be different?

The Draft Aberdeen Local Transport Strategy Document - Section 4 - The Spatial Narrative

The Spatial Narrative is a map showing what the strategic transport network in Aberdeen should aspire to look like by 2030. To view the map and its key, please see pages 30-32 of the Draft Local Transport Strategy document)

24. Do you have any comments to make on the Spatial Narrative? If so, please make them here

The Draft Aberdeen Local Transport Strategy Document - Section 5 (The Topic Areas)

A total of 40 topic areas have been identified within the Draft Aberdeen Local Transport Strategy (2023-2030). Topic areas are the more detailed subject areas that the Strategy will need to focus on in order to deliver the Vision, Objectives, Outcomes and Outputs identified earlier. To see the 40 topic areas, please go to Pages 34-115 of the main Draft Local Transport Strategy and pages 12-16 of the "At A Glance" document.

25. Do you agree with the 40 topic areas chosen?

Strongly agree Slightly agree Neither agree or disagree Slightly disagree Strongly disagree

26. Do you have any general comments to make on the topic areas? (E.g. Should any be added, deleted, changed and, if so, how?)

The Draft Aberdeen Local Transport Strategy Document - Section 5 (The Topic Areas). Policies

Each of the 40 topic areas for the Draft Aberdeen Local Transport Strategy (2023-2030) has a specific Policy attached to it. This Policy shows what should be achieved for each topic area by 2030. These, and the evidence for them, can also be found on pages 34-115 of the Draft Local Transport Strategy and the same list of policies can be found on pages 12-16 of the "At a Glance" document.

27. Do you have any general comments to make on the Policies? (E.g. Should any be added, deleted, changed and if so, how?)
Please answer overleaf

The Draft Aberdeen Local Transport Strategy Document - Section 5 (The Topic Areas). Actions

Under each of the 40 policies sit a series of Actions. These are more focused/ detailed things which will have to be achieved to achieve the policy. These Actions can be found in a table at the end of each of the 40 topic area sections of the Draft Aberdeen Local Transport Strategy (2023-2030) (pages 34-115).

28. Do you have any general comments to make on the Actions? (E.g. Should any be added, deleted, changed and if so, how?)

The Draft Aberdeen Local Transport Strategy Appendices

The Draft Aberdeen Local Transport Strategy (2023-2030) has a series of appendices. These can be found here.
https://consultation.aberdeencity.gov.uk/planning/lts/

Appendix A - The Main Issues report

Appendix B - The Options Appraisal Report

Appendix C - The Policies vs Objectives and Outcomes table

Appendix D - The Monitoring Plan

Appendix E - The Air Quality Action Plan

29. Do you have any comments to make on these? If so, please make them overleaf and let us know which document your comments refer to.

The Draft Aberdeen Local Transport Strategy - Supporting Documents

The Draft Aberdeen Local Transport Strategy (2023-2030) is supported by the following supporting documents. These provide summarised versions of the document itself as well as supporting assessments and endorsements. These are;

- The Draft Aberdeen Local Transport Strategy “At a glance” document
- The Draft Aberdeen Local Transport Strategy “Easy Read” document
- The Draft Aberdeen Local Transport Strategy Strategic Environmental Assessment
- The Draft Aberdeen Local Transport Strategy Habitats Regulation Assessment
- The Draft Aberdeen Local Transport Strategy Health Impact Assessment
- The Draft Aberdeen Local Transport Strategy Integrated Impact Assessments
- The Draft Aberdeen Local Transport Strategy Economic Endorsement

These can be found here https://consultation.aberdeencity.gov.uk/planning/lts/ .(The Strategic Environmental Assessment is only available online or in Marischal College and the Integrated Impact Assessment is only available online or by hard copy on request).

30. Do you have any comments to make on any of these? If so please make them overleaf and let us know which document your comments refer to.

Final Comments

Do you have any further comments to make on the draft Aberdeen Local Transport Strategy (2023-2030), its supporting documents and the consultation itself?

31. If you have any further comments, please make them here.

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Exempt information as described in paragraph(s) 8 of Schedule 7A
of the Local Government (Scotland) Act 1973.

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