Corporate Project Management Toolkit

# Outline Business Case

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| **Project Name** | Aberdeen Cross City Transport Connections | | |
| **Authors** | Jacobs | **Date** | 27/04/2022 |
| **Sponsoring Cluster** | Strategic Place Planning | **Version** | 1 |

## Contents

## 1. Introduction and Project Overview

*Briefly describe the basic project concept. Describe the current business situation as it relates to the problem or opportunity that gave rise to the idea, including any other drivers such as regulatory or legal compliance requirements*

*If taking no action may have a negative effect on the organisation, then also describe what will happen if the project is not undertaken.*

The Aberdeen Cross City Transport Connections project is a study of potential sustainable transportation interventions being progressed by Aberdeen City Council, Aberdeenshire Council & Nestrans. The purpose of the project is to examine transport connections between new areas of development on the periphery of Aberdeen, and in areas of Aberdeenshire close to the Aberdeen City boundary with the aim of providing viable, attractive and direct linkages, as an alternative to the private car.

The aim of project is focussed on connecting major planned developments and to maximise the sustainable transport based accessibility associated with the developments.

In 2013, Aberdeen City Council published the Aberdeen City Strategic Infrastructure Plan (SIP). The SIP focusses on the delivery of the Strategic and Local Development Plans and identifies five key infrastructure goals around housing supply, digital connectivity, skills and labour, transport and providing a better image for Aberdeen. In relation to transport, the SIP identified a new project: Cross City Transport Connections, which is necessary to 'lock in' the benefits of the new Aberdeen Western Peripheral Route and to tackle issues of congestion, pollution and connectivity between new housing and business park developments set out in the current Local Development Plan.

Additionally, the project concept sits within the context of recent policy developments with implications for transport, particularly regarding decarbonisation. The need to move away from reliance on fossil fuels towards greener methods of transport and reducing the need to travel, with the desired goal of achieving Scotland's target of net zero by 2045, is a key objective of the National Transport Strategy 2 (NTS2), published in 2020. In addition to the NTS2, the Strategic Transport Projects Review 2 (STPR2) establishes the overarching strategic objectives for Scotland's transport system and the associated investment programme.

The Climate Change (Scotland) Act 2009 places duties on the public sector to reduce greenhouse gas emissions. Without the interventions, there will be a lack of active travel infrastructure for people living in new developments on the periphery of Aberdeen and accessing the city for work. As a result, people will be more likely to use unsustainable methods of transport, such as private vehicle, thereby increasing greenhouse gas emissions and pollution. Other negative impacts in the absence of the project could include a reduction in journey quality, an increase in road traffic accidents, and congestion which could in turn have a negative impact on economic productivity and on the Council's infrastructure assets.

In December 2016, a Part 1 STAG Appraisal was undertaken by Aberdeen City Council, Aberdeenshire Council & Nestrans which set eight Transport Planning Objectives (TPOs) and assessed a long list of 25 public transport options and 33 active travel options against these as well as the STAG appraisal criteria. Following the initial sift, these options were reduced to nine for public transport and 21 for active travel to be taken forward for assessment in a Part 2 STAG Appraisal in April 2019. A further review

and revision of the options scoring for the Part 2 STAG Appraisal was undertaken in January 2022.

All the public transport options would require a subsidy to operate, given the predicted levels of demand, and further development work would need to consider the challenges of generating enough demand to make the services commercially viable. Accordingly, this business case is focused on the active travel options under consideration, as shown on Figure 1.

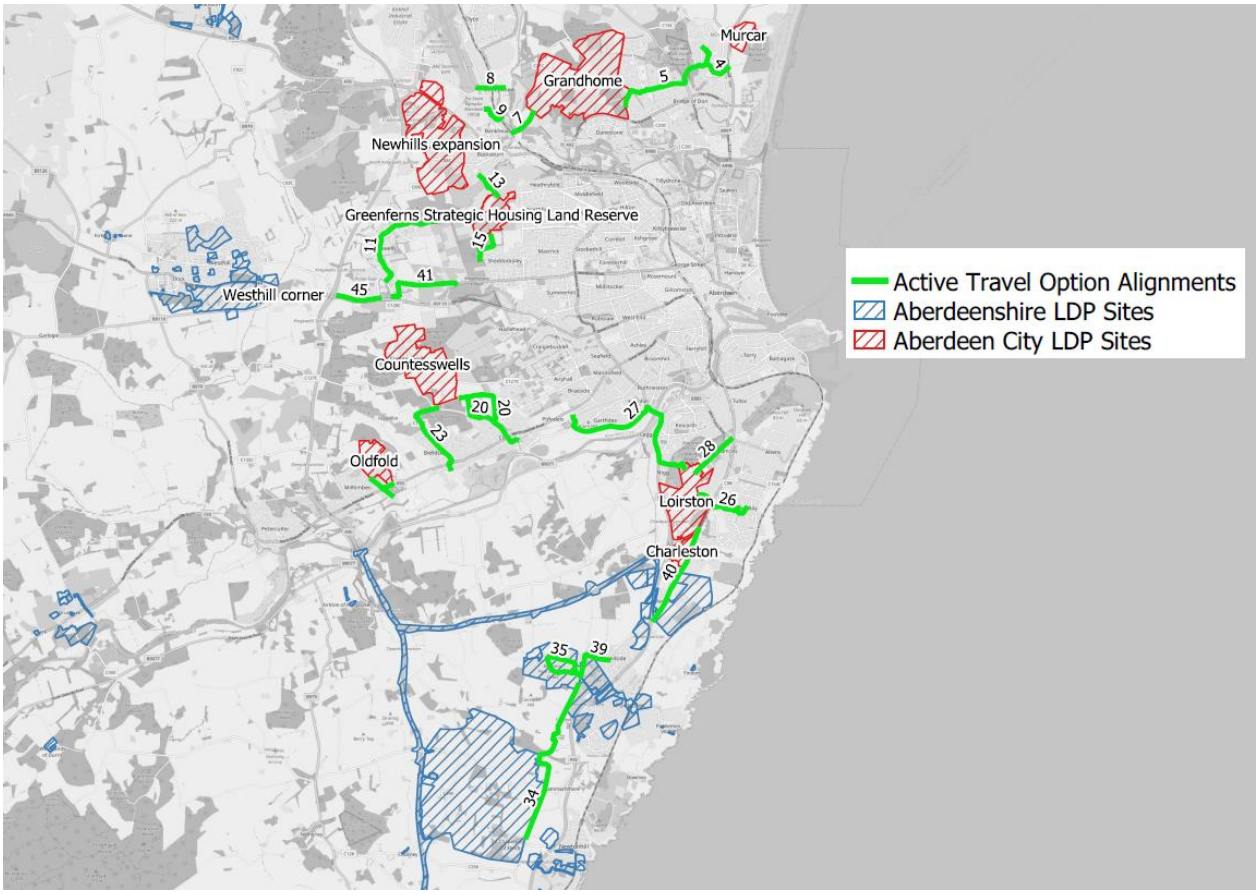


Figure 1: Map illustrating STAG Part 2 appraisal active travel routes

## 2. Executive Summary

*Provide a clear, concise summary of the key features of the business case, briefly describing what the project will deliver, any key decisions associated with it, the expected costs and the funding position (showing any budgets already identified/ expected and the ask of Capital). Include an outline of the benefits, and any dis-benefits, what risks and assumptions are associated with the project, and summarise planned or agreed dates and time constraints. Indicate who is the project sponsor and how the project will be owned and governed and what form the project board will take.*

The Aberdeen Cross City Transport Connections project is a study of potential sustainable transportation interventions being progressed by Aberdeen City Council, Aberdeenshire Council & Nestrans. The aim of project is focussed on connecting major planned residential and business developments and to maximise the active travel based accessibility associated with the developments. The project will contribute to the aims

set out within the relevant LDPs and regional transport strategies in relation to reducing carbon emissions, improving air quality, facilitating improvements in placemaking, providing connectivity, reducing congestion, and encouraging mode shift to active travel. Many of these outcomes have associated health and wellbeing benefits for the population. Furthermore, there is clear demand in Aberdeen for improved active travel infrastructure, as demonstrated in the results of the travel choices/behaviours survey undertaken as part of the STAG 2 appraisal.

The project has progressed through a STAG Part 1 and STAG Part 2 appraisal, which produced a long list of 22 active travel routes for consideration. Of these 22 options, five have been taken forward for further consideration and the business case is based on the evaluation of these. Key decisions will be around selection of the options to be taken forward for implementation, particularly in relation to Option 7 for which high benefits have been identified but is also high risk due to cost required for the bridge crossing.

The cost of the five options is set out in the table below:

| Option Number | Total CAPEX Costs (2022 prices) | Total CAPEX Costs (2022 prices with 15% OB) | 30 year maintenance costs (2022 prices) | 30 year maintenance costs (2022 prices with 15% OB) |
|---|---|---|---|---|
| **7** | £1,473,000 | £1,696,000 | £3,200 | £3,700 |
| **8** | £321,000 | £369,000 | £0 | £0 |
| **9** | £319,000 | £367,000 | £600 | £700 |
| **11** | £715,000 | £822,000 | £5,400 | £6,200 |
| **20** | £321,000 | £369,000 | £0 | £0 |

At this stage it is unknown how funding for the options will be secured.

Potential benefits have been considered as relevant to all options and the key benefits are as follows:

- Journey time savings and improved journey amenity;
- Increased levels of physical activity, and resulting health and wellbeing benefits;
- Improved accessibility to local amenities and facilities; recreational areas and open space; and opportunities, enhancing social cohesion and integration;
- Enhanced access to opportunities and facilities for people living in deprived areas, with resulting health benefits and improvements to social cohesion;
- Improved accessibility to employment and resulting improvement to socio-economic outcomes;
- Improved economic resilience in Aberdeen, uplift in GVA and a possible clustering effect;
- Enhanced connectivity for existing business and land proposed for business development, resulting in economic growth and improved resilience;
- Reduction in road traffic accidents due to a mode shift away from private vehicle;
- Increased update of active travel modes by minority groups who may not previous have felt safe travelling by these modes (e.g. women, older people);
- Improved integration between modes, enabling a shift towards sustainable travel;

- Air quality improvements as a result of reduced congestion, resulting in improved health outcomes, particularly for people sensitive to poor air quality (e.g. children, older people, pregnant women);
- Improved sense of satisfaction with the neighbourhood as a result of amenity improvements from better air quality, lower levels of noise, and less congestion.

Potential problems and opportunities have been identified relate to the potential future problems that could arise if the sites are build out with no provision for sustainable transport access mode, and the opportunity to mitigate against these future problems. These could include:

- Additional road congestion;
- Environmental impacts;
- Increased safety risk for all road users if heavy reliance on private vehicle remains;
- Community severance; and
- Reduces access to employment, services, retail and leisure facilities.

There is therefore a clear opportunity to provide sustainable transport accessibility to create modal shift away from car and reduce the potential impact of the identified problems.

The project is dependent on the new developments proposed in the Aberdeenshire and Aberdeen City Council LDPs that the various options are proposed to link into. The implementation of the options is dependent on the final designs and timing of the completion of these developments. Some of the options are dependent on connecting into other proposed transport interventions, and there are some uncertainties around the impact of other developments on the land available for the proposals (e.g. the new Aberdeen Football Stadium).

Key risks identified in relation to the realisation of the project are as follows:

- Supply chain: As a result of several exogenous factors (COVID-19 pandemic, Brexit, and conflict in Ukraine) there has been various shocks to the construction market. With significant delays in supply chains resulting in an increase in the cost of raw materialise. This would impact on both the programme delivery dates as well as the overall costing of the scheme.
- Statutory: Planning consent for the active mode proposals is challenged or refused, this could result in delays to programme and cost increases whilst design modified.
- Economic: Failure to secure funding from funding bodies for the construction of the proposals leading to delays whilst funding gaps bridged.
- Costs: Cost estimates have been developed without potential conflict with utilities being considered. Land acquisition was assumed to be unnecessary but if detailed design requires it then this may alter the cost.
- Flood risk: There has been no flood risk assessment of the River Don in terms of probability of flood event or magnitude of impact. Considering recommended option 7 includes a new bridge over the River Don, this is a potential risk to the benefits realised and costs incurred maintaining the option.

- Design changes: There is potential for the scheme designs to change at subsequent stages of project development which could have cost implications.

Risk Reduction Register contains detailed information on risks and mitigation for each option that do not feature here.
In relation to the timing of the project, an indicative outline programme is set out in the Programme Delivery Plan document. The key milestones include:

- Detailed design completed by 27/3/23
- Full Business Case by 1/8/23
- Statutory approvals completed by 1/12/23
- Contractor tendered and procured by 30/4/24
- Construction completed by 31/8/25
- Post construction monitoring and evaluation completed by 31/9/25

The project is being taken forward in a partnership comprising Aberdeen City Council, Aberdeenshire Council and Nestrans.

## 3. Strategic Fit

*This section will consider how the project fits with the list of projects identified in the Local Outcome Improvement Plan). Firstly, state if the project is identified within the LOIP. If it is not, how does it work with the Council's strategic objectives such as:*

- *Prosperous Economy*
- *Prosperous People (Children & Young People)*
- *Prosperous People (Adults)*
- *Prosperous Place*

The project is not identified within the LOIP. However, the project fits with the Council's strategic objectives, as follows:

<u>Prosperous Economy</u>

- The project will facilitate provision of active and sustainable transport, which is the preferred mode of transport for people on lower incomes. Providing this infrastructure will improve accessibility and promote equality of access to economic opportunities. Reducing levels of poverty in Aberdeen through inclusive economic growth is a key outcome of the LOIP.
- The project aims to provide better integration between travel modes, resulting in reduced journey times and cost savings. Options 6 and 7 provide an opportunity to link into the National Cycle Network Route 1 (NCN 1), and accessibility to bus stops for pedestrians along a number of the routes.
- The project will link planned development sites identified within the Aberdeen Local Development Plan 2017 at Blackdog, Dubford, Stoneywood, Newhills, Maidencraig, Countesswells, Friarsfield, Oldfold Farm, Chapelton of Elsick, to

existing employments centres as well as employment centres to be developed at Murcar, Dyce Drive, and Kingswells.

Prosperous People (Children & Young People)

- Improvements facilitated by the project would be particularly advantageous to those without access to a private vehicle e.g. young people below license age; and those on low incomes who may not be able to afford a private vehicle.
- The project would result in improvements in access to employment, education and healthcare facilities. Journeys made by active and sustainable means involve greater levels of physical activity, which would improve peoples' health and wellbeing.
- Improvements in active travel infrastructure facilitated by the project would encourage uptake of this mode by young people as a means to travel to school. The LOIP sets out the 'child friendly city' taking into account impacts on children and young people in decision making as a key outcome.

Prosperous People (Adults)

- Improvements facilitated by the project would be particularly advantageous to those without access to a private vehicle e.g. young people below license age; and those on low incomes who may not be able to afford a private vehicle.
- The project would result in improvements in access to employment, education and healthcare facilities. As set out in the Aberdeen Local Development Plan (LDP) 2017, it is important that all sectors of the community enjoy access to a wide range of facilities which support and enhance health, safety and the overall quality of life by providing essential services, resources and opportunities.
- Journeys made by active and sustainable means involve greater levels of physical activity, which would improve peoples' health and wellbeing. Improving healthy life expectancy is a key outcome of the LOIP.

Prosperous Place

- Alignment with the Council's wider policy and land use plans around connectivity between developments on the periphery on the city and the city centre. In alignment with Policy T2 of the Aberdeen LDP 2017, new developments must demonstrate that sufficient measures have been taken to minimise traffic generated and maximise opportunities for sustainable and active travel.
- Encourage mode shift away from private vehicle to active and sustainable means, reducing congestion and improving amenity of the urban realm.
- Increase the mode share of sustainable travel and contribute towards the realisation of Aberdeen's climate change targets through reducing carbon emissions, both of which are key outcomes of the LOIP.
- The project would support the vision of the Aberdeen LDP 2017, which sets out that prioritisation of sustainable and active travel and well connected links to development as key components of successful placemaking (refer to Policy T3).
- Support improvements to the environment in relation to air quality through reducing pollutions; the Aberdeen LDP 2017 identifies that infrastructure which encourages access by walking, cycling and public transport are key to ensuring

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| that new development is sustainable, enhances air quality, manages exposure and reduces overall emissions. |

## 4. Business Aims, Needs & Constraints

### 4.1 Provide an overview of the sponsoring organisation

*Provide an overview of the sponsoring organisation and explain how the project supports the existing policies and strategies, and how it will assist in achieving the business goals, aims and business plans of the organisation. Include any relevant information about the current business situation, such as the organisational structures, business model, buildings, processes, teams and technology currently in place.*

4.1 As outlined above, the project will support the existing policies and strategies set out in the LOIP and LDP in relation to:

- Reducing carbon emissions and realisation of climate change targets;
- Facilitating improvements in placemaking and urban realm in Aberdeen and the peripheral areas;
- Providing connectivity between new housing developments and employment areas, thereby improving accessibility to employment;
- Encouraging mode shift to active and sustainable means of transport, thereby improving the health and wellbeing of the population;
- Reducing journey times and provide better integration between travel modes;
- Reducing congestion and improving air quality in the city and surrounding area.

The 'cross city transport connections' project is identified in the Aberdeen City Council Strategic Infrastructure Plan: '*The construction of the Aberdeen Western Peripheral Route will assist in addressing some of the City's transport challenges. The Council is already working with Nestrans and Aberdeenshire Council to look at how best to "lock in" the benefits of the AWPR, including opportunities for improving internal connectivity once the AWPR is open. We will carry out a feasibility study and start to investigate ways to maximise connectivity between new developments arising from the Local Development Plan.'*

The project aligns with the vision of the supporting partner, Nestrans, whose purpose is *'to develop and deliver long-term regional transport strategy and take forward strategic transport improvements that support and improve the economy, environment and quality of life across Aberdeen City and Shire.'*

The project supports one of the key policies set out in Nestrans Regional Transport Strategy for the North East of Scotland, with regards to *'increasing the number of people travelling actively for health and the environment'.* The project would contribute to the desired policy outcomes including facilitating an increase in active travel mode share, improving perceptions of safety, and a decrease in carbon emissions.

The Aberdeen Local Transport Strategy 2016 - 2021[1] sets out improvements to cycling infrastructure as a key component of provision of sustainable transport across the city and encouraging mode shift. The objective in relation to cycling is *'to foster a cycling culture in Aberdeen by improving conditions for cycling in Aberdeen so that cycling becomes an everyday, safe mode of transport for all.'* The project is intended to provide

[1] Aberdeen City Council is developing the next Aberdeen Local Transport Strategy which was open for consultation from October to November 2021.

safe active travel corridors through the city between key residential and business destinations, thereby contributing to the realisation of this objective.

### 4.2 Project purpose

*Describe the purpose of the project, why it is needed, establishing a compelling case for change based on business needs, e.g. demand for services, deficiencies in existing provision etc. Where are we now and where do we need to get to.*

4.2 The aim of project is focussed on connecting major planned developments and to maximise the sustainable transport based accessibility associated with the developments.

The development sites under consideration are predominantly greenfield sites which are either yet to be developed or at a very early stage of development. Therefore, there is no existing active travel provision connecting to these sites presently.

Potential problems and opportunities have been identified relate to the potential future problems that could arise if the sites are build out with no provision for sustainable transport access mode, and the opportunity to mitigate against these future problems. These could include:

- Additional road congestion;
- Environmental impacts;
- Increased safety risk for all road users if heavy reliance on private vehicle remains;
- Community severance; and
- Reduces access to employment, services, retail and leisure facilities.

There is a clear opportunity to provide sustainable transport accessibility to create modal shift away from car and reduce the potential impact of the identified problems.

The STAG Part 2 Report presented research undertaken in 2018 to enable refinement of forecast changes in demand caused by each option based on locally collected primary data, in relation to people's 'willingness to change mode' and the travel choices/behaviours of people occupying new residential properties, and how these evolve in the period following the property being occupied. Key findings in relation to demand and deficiencies in relation to existing active travel services were as follows:

- Around 60% of respondents make walking trips of more than 5 minutes over 4 days a week but if improvements were made this figure increased to 75% with 52% indicating they'd like to walk more;
- 11% of respondents make cycling trips over 2 days a week but if improvements were made this figure increased to 40% with 40% indicating they would like to cycle more; and
- Respondents noted that improved surfacing and off-road routes would encourage them to walk or cycle more.

In relation to travel choices/behaviours of people in new residential properties, the most popular proposed walking and cycling improvements were found to be (>=75% support) new off-road walking and cycling routes around the periphery of Aberdeen, new off-road walking and cycling routes to the city centre and lighting of off-road routes. Similarly,

around 84% of respondents said that the stated walking and cycling improvements might encourage them to increase their use of public transport if implemented.

As shown by the survey results, there is clear public demand for active travel infrastructure, with residents indicating they are keen to make more trips by walking and cycling if safety and amenity improvements are made and new routes are provided. Deficiencies in existing provision identified relate to poor lighting and road surfacing and proximity of traffic.

In addition to supporting the land use policies outlined in the Aberdeenshire and Aberdeen City Council LDPs, increasing provision and uptake of sustainable transport supports national, regional and local objectives in relation to climate change targets and air quality and environmental objectives. A mode shift to active travel would also increase levels of physical activity, which would have beneficial effects on health and wellbeing of the population and reduce reliance on the Council's health and care services.

**4.3 Constraints**

*4.3 Identify any constraints, e.g. timing issues, legal requirements, professional standards, planning constraints. What assumptions have been made, and any linkages and interdependencies with other programmes and projects should be explained, especially where the proposed project is intended to contribute to shared outcomes across multiple Clusters.*

4.3 It will be appropriate to consider if the safest and most direct routes can be achieved through the reallocation of road space in the first instance. Only then will the need for land acquisition or verge widening be considered. Should land acquisition be required, the legal requirements of Compulsory Purchase Order shall be adhered to. Likewise, the relocation of parking and the reduction of driving speeds, which can create the conditions for better on-road options where space is constrained, will also be a viable option when developing the preliminary concept designs, which would require regulatory change.

Professional standards will be adhered to in relation to guidance setting out the appropriate type of provision for walkers, wheelers and cycle users, including (but not necessarily limited to):

- Designing Streets
- National Roads Development Guide
- Roads for All: Good Practice Guide for Roads
- Cycling by Design 2021
- Sustrans Traffic-Free and Greenways Design Guide
- Green Infrastructure Design and Placemaking
- Design Manual for Roads and Bridges
- Traffic Signs Regulations and General Directions 2016
- Traffic Signs Manuals
- Aberdeen City Council Supplementary planning guidance and technical advice
- Aberdeen City Council Active Travel Action Plan

As advised in Cycling by Design, acknowledging this is not directly applicable to pedestrians, the aspiration will be to achieve a high level of service for all users which will involve meeting or exceeding design requirements set out in relevant guidance.

**4.4 Impact on business as usual**

*4.4 State what impact the project will have on business as usual, e.g. temporarily reduce capacity or divert resources.*

4.4 The project is not envisaged to have a noticeable impact on business as usual within the partnership organisations of Aberdeen City Council, Aberdeenshire Council and Nestrans. Resources will be required to facilitate the project management and delivery of the schemes but as the schemes are identified in the Strategic Infrastructure Plan and form part of the LDPs, it is expected that capacity is built into the organisations to deliver these.

## 5. Objectives

*List the project's objectives. Make these tangible and clear as they will influence which option is recommended and will be used to monitor project progress and success.*

Taking cognisance of the policy context and the key problems identified during the study, Transport Planning Objectives (TPOs) were set and agreed with the Client Group and are shown in Figure 2. These objectives covered the broader STAG appraisal work undertaken as discussed in Section 1, including the public transport element.

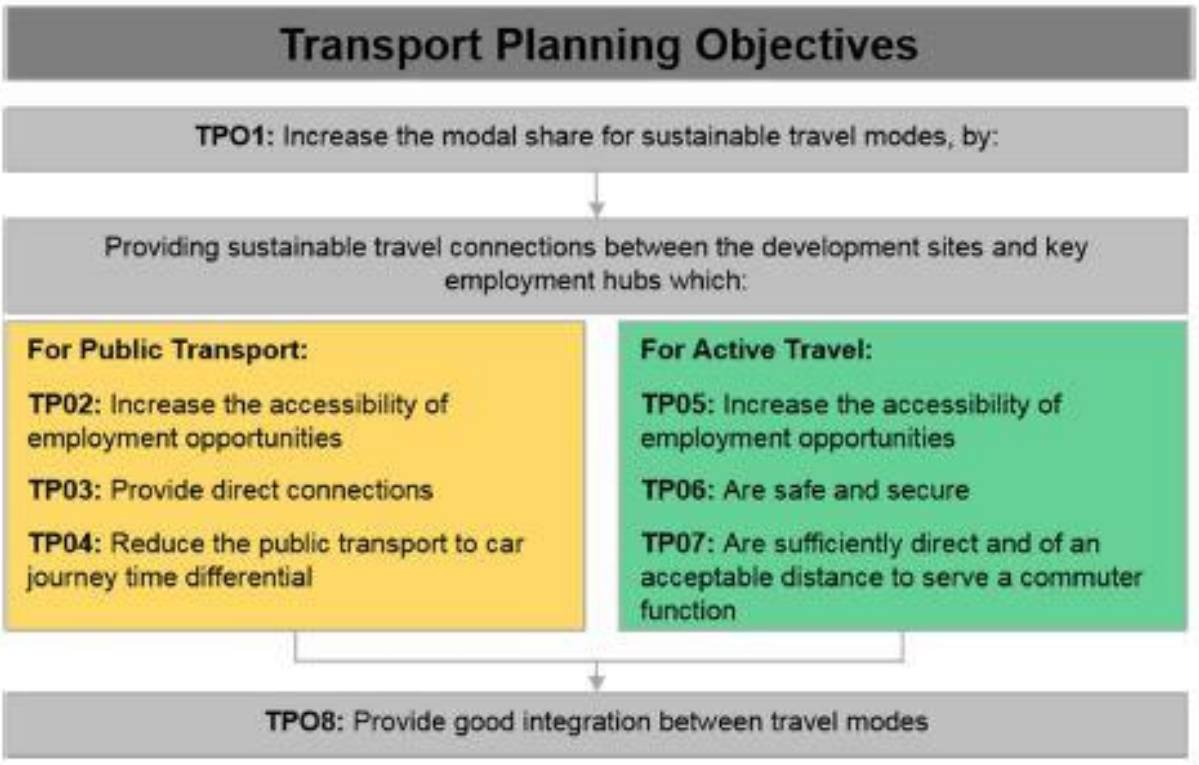


Figure 2: Transport Planning Objectives from STAG 2 Report

The five objectives specific to the active travel component of the appraisal that are relevant to this project are as follows:

- *TP01: Increase the modal share for sustainable travel modes.*
- *TP05: Increase the accessibility of employment opportunities.*
- *TP06: Are safe and secure.*
- *TP07: Are sufficiently direct and of an acceptable distance to serve a commuter function.*
- *TP08: Provide good integration between travel modes.*

The STAG criteria of environment, safety, economy, accessibility and social inclusion, and inclusion, and integration, and the other agreed criteria of feasibility, affordability, and public acceptability are also considered as part of the options appraisal process.

## 6. Scope

*What will the project produce? What are its outputs?*

*Consider what business services, processes, people and environments will be delivered, affected or changed by the project.*

*Also define the work the project will carry out to make the transition from the project to 'business as usual' – the handover period.*

*State the project success criteria.*

The project will implement five 'high priority' active travel schemes to connect major planned developments in Aberdeen City and Aberdeenshire.

The people most impacted by the project are likely to be the residents of the new housing developments and the employees working in the new business developments that the active travel schemes will provide connectivity into. Residents of the new housing developments may experience a positive impact on health and wellbeing from increased uptake of active travel. Business services at new business development sites may experience a positive change from increased uptake of active travel among staff, improving levels of health and wellbeing and potentially productivity/reduced sickness absence. The wider population of the city are also likely to experience these benefits, though to a lesser extent.

Positive impacts on the environment are expected, such as improvements to air quality and climate change, and potentially lower traffic noise levels. Sustainable transport projects also reduce community severance, improve amenity and enhance the urban realm.

The success of the project will be measured by the extent to which it facilitates increased walking and cycling user trips in the city, resulting in a mode shift away from private vehicle. Penetration of development areas and potential improvement to public transport integration are also important determinants of project success.

| 6.1 Out of Scope |
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| *List any notable exclusions, those areas that may be viewed as associated with the project or the affected business area, but which are excluded from the scope of the project.* |
| As previously stated, the project does not include the public transport options presented at Parts 1 & 2 of the STAG appraisal.<br>Only five of the 22 options presented below will be taken forward for implementation. |

## 7. Options Appraisal

| | Description | Expected Costs | Expected Benefits | Risks / Viability |
|---|---|---|---|---|
| **Do Nothing / Do Minimum** | No sustainable / active travel provision implemented to connect new developments at Blackdog, Dubford, Stoneywood, Newhills, Maidencraig, Countesswells, Friarsfield, Oldfold Farm, Chapelton of Elsick, to existing employments centres as well as to new employment centres to be developed at Murcar, Dyce Drive, and Kingswells. | No costs anticipated as no intervention would take place. | Disbenefits from a lack of connectivity to key employment and residential locations, including longer journey times.<br>Environmental and road safety disbenefits from continued reliance on private vehicle.<br>Loss of potential health and wellbeing benefits from increased physical activity through use of active travel. | |

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| **Route 4** | ▪ Provide a crossing facility on the A90 to link Murcar site to AP (Aspirational Path) 1.<br>▪ Provide AP1 between the A90 and Denmore Road.<br>▪ Provide crossing on Denmore Road.<br>▪ Provide connection on Greenbrae Drive between Denmore Road and existing informal path.<br>▪ Formalise and upgrade existing path between Greenbrae Drive and Seaview Drive.<br>▪ Upgrade existing path between Seaview Drive and Provost Mitchell Circle. | Approx. £360,000 (inc. 15% contingency) capital costs and £2,000 maintenance costs over 30-year period. | Routes 4 and 5 could be considered together to connect Grandhome and Murcar. With only one or the other there is an incomplete route between substantial residential and employment development areas.<br>Workshop comments included that previous Council consideration previously explored a cycle route from the A90 to Denmore Road (route 4) but that there were potential landownership issues. | Limited risk given use of existing roads and pathways. Main uncertainty regards changes in geometry at Greenbrae Drive / Denmore Road junction and what type of crossing will be possible. |
| **Route 5** | ▪ Provide a connection between Option 4 and Jesmond Drive.<br>▪ Provide connection between the existing dual use path on Jesmond Drive and the start of the primary active travel route within the Grandhome development near Whitestripes Avenue. | £1,000 (inc. 15% contingency) capital costs and £0 maintenance costs over 30-year period as route along existing carriageway. | | Limited risk given use of existing roads and pathways. Main uncertainty regards the implementation of a crossing on Whitestripes Avenue from the Grandhome development, with assumption being this is provided by the developer. |

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| **Route 7** | ▪ Provide a new connection between Grandhome and Stoneywood – provide a new bridge crossing over River Don.<br>▪ Provide a new connection between new bridge over the River Don and Stoneywood Terrace. | Approx. £995,000 in capital costs and £3,400 maintenance costs over a 30-year period (all costs inc. 15% contingency) | Route provides a very high level of benefit under all the criteria considered. This option requires the implementation of a new bridge over the River Don to directly connect between the Grandhome and Stoneywood sites. The option should be explored as a stand-alone active travel option (with the new bridge as a foot and cycle bridge only). | High risk and uncertainty given the route requires a new bridge of the River Don. |
| **Route 8** | ▪ Upgrade and extend CP (Core Path) 101 to meet new bridge (see Option 7) and Stoneywood development. | Approx. £1,000 (inc. 15% contingency) capital costs (no significant maintenance costs). | Provides a link into the area around Dyce and the employment opportunities at Dyce and Kirkhill.<br>There are no major constraints, e.g., land, and requires low cost, feasible upgrades on Stoneywood Terrace. Market street is quiet and residential which has limited options for improvements due to on street parking. There is the potential to link into Route 7 via Stoneywood development street network or NCN1. | Limited risk given use of existing roads. |

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| **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.<br>▪ Upgrade section of CP4 through park.<br>▪ Upgrade on road section of CP4 on Waterton Road. | Approx. £80,000 (inc. 15% contingency) capital costs and £1,000 maintenance costs over 30-year period | Provides a link into the area around Dyce and the employment opportunities at Dyce and Kirkhill.<br>This route has no major constraints, and it is being recommended to substitute route 39. Although route 9 ranks lower than 39, it serves a greater benefit to the wider active travel network. Therefore, as a standalone option, route option 9 is determined to be more feasible and it also compliments route options 7 and 8 to potentially create a high-quality active travel network within Bucksburn. | Requirement for new footbridge and upgrade of bypass to the west of the route. |

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| **Route 11** | ▪ On-road link on Fairley Road from Newhills to Kingswells Crescent.<br>▪ Upgrade section of off-road path near Bucks Burn adjacent to Kingswells Crescent.<br>▪ Upgrade path adjacent to Kingswells Crescent and Kingswood Drive.<br>▪ Provide new section of path and dropped kerb to connect to existing footways.<br>▪ Upgrade section of CP31 which passes through park between Kingswood Mews and Kingswood Drive.<br>▪ Upgrade CP31 between Kingswood Drive and Kingswood Drive (near Fairley Street).<br>▪ Upgrade path adjacent to Kingswood Drive including widening. | Approx. £535,000 (inc. 15% contingency) capital costs and £6,000 maintenance costs over 30-year period. | Links into the areas allocated for residential development at Newhills and Greenferns, and facilitates active travel routes to Brimmond School, Bucksburn Academy and Bucksburn Swimming Pool. The route also links into the wider area around Dyce and the employment opportunities at Dyce and Kirkhill.<br>There are no major constraints, e.g., land, and requires low cost, feasible upgrades on Stoneywood Terrace. Market street is quiet and residential which has limited options for improvements due to on street parking. There is the potential to link into Route 7 via Stoneywood development street network or NCN1. | Some risk due to the need to provide some new pathways and need for an earth / retaining wall at southern end of the route into the Park and Ride. Risk at the northern end of the route is reduced due to the route utilising a planned connection between Kingswood Crescent and the AWPR. |
| **Route 13** | ▪ Upgrade CP44 Newhills Avenue Spur. Southern route section. | Approx. £80,000 (inc. 15% contingency) capital costs and £1,000 maintenance costs over 30-year period. | Provides a link into the area around Dyce and the employment opportunities at Dyce and Kirkhill. | Limited risk given use of existing pathway. |

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| **Route 15 (a)** | ▪ Provide a connection across the eastern end of Sheddocksley Playing Fields.<br>▪ Upgrade section of CP45 between 15.1 and Maidencraig. | Approx. £105,000 (inc. 15% contingency) capital costs and £2,000 (Option 15A) maintenance costs over 30-year period. | Has negative environment performance. Route option not essential for delivery of other schemes or developments. | Steep gradients which may cause difficulties for some users. |
| **Route 15 (b)** | ▪ Provide a connection across the centre of Sheddocksley Playing Fields.<br>▪ Upgrade section of CP45. | Approx. £185,000 (inc. 15% contingency) capital costs and £3,000 (Option 15B) maintenance costs over 30-year period. | Route option not essential for delivery of other schemes or developments. | Steep gradients which may cause difficulties for some users. Requires path widening and resurfacing. |
| **Route 19** | ▪ Upgrade CP87 from western end of Craigton Road to Cults Barn. Route would connect with Route Option 20.<br>▪ Provide a connection between Countesswells and CP87. | Approx. £78,000 (inc. 15% contingency) capital costs and £1,000 maintenance costs over 30-year period. | Route options 19 and 20 could be considered together as they form a north-south route to Deeside Road (an alternative to Option 23).<br>Farm road access but appears to require a link between Counteswells development therefore potential for land purchase. | No existing plan to link Counteswells and Friarsfield developments due to concerns about encouraging traffic through movements. Needs explored and managed if option taken forward. |

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| **Route 20** | ▪Provide connection on Kirk Brae from Friarsfield to Sunnyside farm access track.<br>▪ Provide connection on Kirk Brae.<br>▪ Provide connection on North Deeside Road between Kirk Brae and St Devenick's Place.<br>▪ Provide connection on St Devenick's Place and St Devenick's Terrace to meet with the Deeside Way. | Approx. £2,000 (inc. 15% contingency) capital costs and £0 maintenance costs over 30-year period. | This route would make use of the alternative route at its northern section, making use of the internal network of the CALA development which is accessed from Friarsfield Road. The route onto Craigton Road has a relatively steep gradient and potential land issues through the former school site. The progression of this route would have the potential for linking into Countesswells development subject to the progression of Route 19 further north. | Uncertainty surrounding routing through Friarsfield development and how it links with Countesswells. Discussions needed with owner and Waldorf School site. Width of Kirk Brae between Kirk Place and Sunnyside Livery creates risk for cyclists which may need mitigated or consider alternatives. |
| **Route 23** | ▪ Provide connection on Kirk Brae from Friarsfield to Sunnyside farm access track.<br>▪ Provide connection on Kirk Brae.<br>▪ Provide connection on North Deeside Road between Kirk Brae and St Devenick's Place.<br>▪ Provide connection on St Devenick's Place and St Devenick's Terrace to meet with the Deeside Way. | Approx. £205,000 (inc. 15% contingency) capital costs and £3,000 maintenance costs over 30-year period. | Suggested roadway widening to be considered but would require removal of some woodland, which would have a negative environment effect. | Uncertainty regarding road width at northern end of the route (Ladyhill Road only 4.7m wide). |

| | | | | |
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| **Route 24** | ▪ Provide on-road cycle facility between entrance to Oldfold Farm and start of CP72.<br>▪ Provide a connection on CP72 between North Deeside Road and the Deeside Way.<br>▪ Upgrade access point linking CP72 to the Deeside Way.<br>▪ Provide connection on Binghill Road. | Approx. £3,000 (inc. 15% contingency) capital costs and £100 maintenance costs over 30-year period as route along existing | Some scope to make use of grass verge on east side but likely to be intermittent without land purchase therefore carriageway use more likely.<br>Could improve road markings at A93 junction and signing generally. | Concern around safety of cyclists once housing developments are built out. |
| **Route 26** | ▪ Provide AP3 between Loirston development and Wellington Road.<br>▪ Provide appropriate crossing facilities on Wellington Road.<br>▪ Provide AP3 between Wellington Road and Loirston School. | carriageway. | Crossing needed on Earn Heughs Road to continue to Health Centre and primary school.<br>Improvement required to crossing of dual carriageway (A956 Wellington Road).<br>Feasible route to south of Balmoral industrial estate.<br>Feasible route through residential estate and Dunlin Park. | No major constraints arising from ground conditions or obstacles on the route. |

| | | | | |
|---|---|---|---|---|
| **Route 27** | ▪ Upgrade CP65 on Garthdee Road. Provide route to Deeside Way across field. | Approx. £480,000 in capital costs and £6,000 maintenance costs over a 30-year period (all costs inc. 15% contingency) | There are no major constraints on this route with the improvements likely to comprise using the southern footway and widening on the northern side of Garthdee Road, accommodated in the existing verge. At the eastern extents of Garthdee Road this route could tie-in to any committed proposals adjacent to the retail premises. This option has the potential to create a high-quality route in a busy area with access to local supermarkets and Robert Gordon University. | Uncertainty around feasibility and space for widening. Detailed investigations required to establish feasibility during design stage. |
| **Route 28** | ▪ Provide connection on Redmoss Road. | Approx. £205,000 in capital costs and £10,000 maintenance costs over a 30-year period (all costs inc. 15% contingency). | Potential to develop route as part of Redmoss development. | Limited risk as route being developed on an existing road. |
| **Route 34** | ▪ Upgrade Causey Mounth route between Chapelton site and Badentoy Road. Adjacent equestrian route. | Approx. £300 in capital costs and £0 maintenance costs over a 30-year period (all costs inc. 15% contingency). | Land required for path alongside the golf course.<br>Potential crossing needed on Badentoy Road.<br>Significant gradients at southern extents. | Significant financial risk to due capital costs (£1.7m). |

| | | | | |
|---|---|---|---|---|
| **Route 35** | ▪ Provide a connection on Badentoy Road, Badentoy Avenue and Badentoy Crescent. | Approx. £1.7million in capital costs and £27,000 in maintenance costs over a 30-year period (all costs inc. 15% contingency). | Pedestrian demand predicted to be low so shared footway possible option within industrial estate loop road.<br>Potential raised tables across access points. | Further investigation required to establish feasibility of the route due to number of parked HGVs and ability to provide safe cycling provision. |
| **Route 39** | ▪ Upgrade northern section of Causey Mounth route between Badentoy Road and unnamed road. Adjacent equestrian route.<br>▪ Provide connection between northern extent of Causey Mounth and existing<br>shared use footway on unnamed road. | Affordability Approx. £1,000 in capital costs and £0 in maintenance costs over a 30-year period (all costs inc. 15% contingency). | There are no major constraints on this route, and it is part of NCN 1 cycle route. However, it is recommended that this short route could only reasonably be taken forward as a group alongside adjacent route options. As a standalone option it is unlikely to provide the significant benefits. | No major risks or uncertainty identified. |
| **Route 40** | ▪ Provide connection from Portlethen P&R along Old Stonehaven Road.<br>▪ Provide a connection from Old Stonehaven Road, along Wellington Road, to roundabout at Gateway Drive.<br>▪ Provide connection between roundabout at Gateway Drive and Cove Road.<br>▪ Provide a connection between Wellington Road/A956 to meet with existing dual use facility on southern carriageway of A956. | Approx. £270,000 in capital costs and £3,000 in maintenance costs over a 30-year period (all costs inc. 15% contingency) | Land required to provide segregated facility on east side of Wellington Road.<br>Land potentially required on Old Stonehaven Road to widen facility accordingly. | Some uncertainty around feasibility of space to provide complete off-road link. Needs considered in greater detail at design stage. |

| | | | | |
|---|---|---|---|---|
| **Route 41** | ▪ Provide a connection between Maidencraig and Fairley Road.<br>▪ Provide a connection on Fairley Road and Old Skene Road. | Approx. £545,000 in capital costs and £7,000 in maintenance costs over a 30-year period (all costs inc. 15% contingency) | Feasible and low cost, tying into existing facilities to the west on A944. | Limited risk or uncertainty. |
| **Route 45** | ▪ Upgrade existing dual use facility on the A944 between Prime 4 development site and B9119, including provision of appropriate crossing facilities where the AWPR crosses the A944. | Approx. £100,000 in capital costs and £0 in maintenance costs over a 30-year period (all costs inc. 15% contingency). | Links between Kingswells and Westhill and provides greater access to the employment opportunities within both locations, as well as integration between bus and active travel modes at Kingswells Park & Ride site. This option was highly favoured in the public engagement.<br>According to the 2019 STAG Part 2 appraisal, this route is well used, and parts of the existing paths have already been upgraded to shared-use paths, although requires further improvements to create a consistent high-quality shared use path. Potential land constraints can be mitigated through utilising the carriageway and / or the central reserve of the A944. | Some uncertainty due to impact of new Aberdeen Football Stadium and space available for widening the route. |

## 7.1 Scoring of Options Against Objectives

Table 4.1: STAG seven-point scale

| -3 | -2 | -1 | 0 | 1 | 2 | 3 |
|---|---|---|---|---|---|---|
| Major Cost or Negative Impacts | Moderate Cost or Negative Impact | Minor Cost or Negative Impact | No Benefit or Impact | Minor Benefit | Moderate Benefit | Major Benefit |

The active travels options that have been identified have been scored against the TPO's and wider objectives from the STAG guidance. These objectives are listed out in the Table below. The routes have been scored from -3 – 3 on a STAG seven-point scale. Justification of these scores is presented within STAG part 2 appraisal and Jacobs Review of STAG part 2. The scoring Table for each of the routes is presented below:

| Objectives | Routes Scoring Against Objectives | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 4 | 5 | 7 | 8 | 9 | 11 | 13 | 15a |
| Increase the modal share for sustainable travel | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 |
| Increase the accessibility of employment opportunities | 2 | 2 | 3 | 2 | 2 | 2 | 1 | 1 |
| Are safe and secure | 2 | 1 | 3 | 1 | 2 | 3 | 3 | 3 |
| Are sufficiently direct for commuters | 3 | 2 | 2 | 3 | 3 | 2 | 2 | 2 |
| Provide good integration between moves | 2 | 2 | 3 | 3 | 3 | 3 | 1 | 1 |
| Environment | 1 | 1 | 0 | 1 | 0 | 1 | 1 | -1 |
| Safety | 1.8 | 1 | 3 | 1 | 2.3 | 2.8 | 3 | 3 |
| Economy | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Integration | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Accessibility | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Risk and uncertainty | -1 | -1 | -3 | -1 | -2 | -2 | -1 | -2 |
| Affordability | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 3 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Public acceptability | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| | | | | | | | | |
| **Total** | 24 | 21 | 25 | 24 | 24 | 25 | 24 | 21 |
| **Ranking** | 9 | 12 | 3 | 6 | 5 | 4 | 6 | 12 |

| **Objectives** | **Routes Scoring Against Objectives** | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **15b** | **19** | **20** | **23** | **24** | **26** | **27** | **28** |
| Increase the modal share for sustainable travel | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 1 |
| Increase the accessibility of employment opportunities | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Are safe and secure | 3 | 3 | 2 | 1 | 1 | 3 | 3 | 1 |
| Are sufficiently direct for commuters | 2 | 2 | 1 | 1 | 2 | 2 | 3 | 3 |
| Provide good integration between moves | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Environment | 0 | 1 | 1 | 0 | 1 | 1 | 1 | 0 |
| Safety | 3 | 3 | 2.2 | 1 | 1.1 | 3 | 3 | 1 |
| Economy | 2 | 2 | 2 | 2 | 2 | -1 | 2 | -1 |
| Integration | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| Accessibility | 2 | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| Risk and uncertainty | -2 | -2 | -2 | -1 | -1 | -2 | -2 | -1 |
| Affordability | 2 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| Public acceptability | 2 | 3 | 3 | 2 | 2 | 2 | 3 | 2 |
| | | | | | | | | |
| **Total** | 21 | 23 | 21 | 17 | 20 | 20 | 26 | 18 |
| **Ranking** | 12 | 10 | 11 | 21 | 16 | 17 | 1 | 20 |

| **Objectives** | **Routes Scoring Against Objectives** |
|---|---|

| | 34 | 35 | 39 | 40 | 41 | 45 |
|---|---|---|---|---|---|---|
| Increase the modal share for sustainable travel | 1 | 1 | 1 | 1 | 2 | 2 |
| Increase the accessibility of employment opportunities | 3 | 2 | 3 | 3 | 2 | 2 |
| Are safe and secure | 2 | 3 | 3 | 3 | 1 | 3 |
| Are sufficiently direct for commuters | 2 | 1 | 1 | 2 | 2 | 3 |
| Provide good integration between moves | 3 | 3 | 3 | 3 | 3 | 3 |
| Environment | 0 | 1 | 1 | 0 | 1 | 1 |
| Safety | 2 | 3 | 3 | 3 | 1 | 3 |
| Economy | -1 | -1 | -1 | -1 | 2 | 2 |
| Integration | 3 | 3 | 3 | 3 | 3 | 3 |
| Accessibility | 1 | 1 | 1 | 1 | 2 | 1 |
| Risk and uncertainty | -3 | -2 | -1 | -2 | -1 | -2 |
| Affordability | 1 | 3 | 2 | 2 | 3 | 2 |
| Public acceptability | 3 | 2 | 2 | 2 | 3 | 3 |
| **Total** | 17 | 20 | 21 | 21 | 24 | 26 |
| **Ranking** | 21 | 17 | 12 | 12 | 6 | 1 |

## 7.2 Recommendation

*Using evidence based on the options appraisal and the objectives scoring, clearly articulate the recommended option, showing the best fit against the project's stated objectives, and balancing cost, benefits and risk. The recommendation should not be made on objectives scoring alone but the table can be used to eliminate those options that score poorly as a first stage, with the second stage being a more detailed analysis of the remaining options. Bear in mind:*

- *Investment Appraisal*
- *Assumptions*
- *Constraints*
- *Dependencies*

The above table presents the output of a revised scoring exercise undertaken in 2022, which reviewed the scoring of the STAG Part 2 appraisal and reassessed based on the routes are worthy of further consideration. The methodology employed during the STAG Part 2 appraisal was used, with each route appraised against the relevant transport planning objectives (set and agreed with the client team), the STAG criteria of environment, safety, economy, accessibility and social inclusion, and inclusion, and integration, and the other agreed criteria of feasibility, affordability, and public acceptability.

Following the outcome of this exercise, it is recommended that the following routes be taken forward to the concept design stage:

- Route 7 – A bridge crossing over the River Don has been noted as a feasible option through the preliminary engineering assessment. It has been identified by the Council as a standalone active travel route that will make adjacent routes more feasible in providing a continuous route between the Grandhome development to Stoneywood and Dyce. This option scores a Moderate benefit on affordability.
- Route 8 - There are no major constraints, e.g., land, and requires low cost, feasible upgrades on Stoneywood Terrace. Market street is quiet and residential which has limited options for improvements due to on street parking. There is the potential to link into Route 7 via Stoneywood development street network or NCN1. This option scores a Major benefit on affordability.
- Route 9 - This route has no major constraints, and it is being recommended to substitute route 39. Although route 9 ranks lower than 39, it serves a greater benefit to the wider active travel network. Therefore, as a standalone option, route option 9 is determined to be more feasible and it also compliments route options 7 and 8 to potentially create a high-quality active travel network within Bucksburn. This option scores a Major benefit on affordability.
- Route 11 - There are no major constraints identified. The route would require upgrading of an internal path network. As noted in the 2019 STAG Part 2 appraisal, this option provides the ''greatest benefits'' and ties with Kingswells Park and Ride and links northwards to the Newmills development area. Several uncontrolled crossings along the route could be

upgraded to provide a high-quality continuous route. This option scores a Moderate benefit on affordability.

- Route 20 - According to the 2019 STAG Part 2 appraisal, this route is well used, and parts of the existing paths have already been upgraded to shared-use paths, although requires further improvements to create a consistent high-quality shared use path. Potential land constraints can be mitigated through utilising the carriageway and / or the central reserve of the A944. This option scores a Major benefit on affordability.

## 8. Benefits

*Identify the key benefits the project will deliver.*

*All benefits need to be measurable, realistic and have a baseline or comparable starting point. These benefits will be monitored during and after the project close to gauge project success and value for money. If a benefit is more subjective, then that should be supported by, for example, staff or customer surveys taken **before and after** the project.*

*Give an idea of the total financial benefits, if these exist.*

*List any dis-benefits where appropriate, e.g. the loss of a disposal receipt where it is proposed to utilise a surplus building instead of selling it.*

### 8.1 Customer Benefits

| Benefit | Measures | Source | Baseline | Expected Benefit | Expected Date | Measure Frequency |
|---|---|---|---|---|---|---|
| Increase the modal share for sustainable travel | Number of people accessing community facilities and recreational/ open space by active means | Survey on journey trip frequency to certain destinations along scheme route. | Population for 92,000 relevant areas[2] (Electoral ward – National Record of Scotland).<br>There are currently 20 community centres within Aberdeen City, with route 11 located in the vicinity of the Kingswells Community Centre and route 20 located within the vicinity of the WRI Hall and Cults Kirk Centre. | Improved accessibility to local facilities and recreational/open space, enhancing social cohesion and integration.<br>Cycling is affordable transport and an extended cycle network should improve access to services to all,[3] enhancing inclusivity within the community. Social exclusion can result in feelings of loneliness. Loneliness, whether infrequent or persistent, has large and significant negative impacts on | Year 1 | Year 1, Year 3 |

[2] Five Electoral Wards intersect with the routes: Dyce / Bucksburn / Danestone; Bridge of Don; Kingswells / Sheddocksley / Summerhill; Hazlehead / Queens Cross / Countesswells; and Lower Deeside.

[3] Technopolis Group (2016). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509391/evaluating-economic-social-impacts-cycling-infrastructure-evaluation-framework.pdf Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | life satisfaction.[4] UK Green Book Supplementary Guidance: Magenta Book values a change on a scale from moderate loneliness to mild loneliness at between £5,900 - £12,960.[5] Better accessibility to local facilities can enhance social cohesion and integration, and improve overall wellbeing. | | |
| | Levels of physical activity – percentage of population living adjacent to routes meeting MVPA guidelines on physical activity[6] | Survey on levels of physical activity along scheme routes. | In 2019, 66% of all adults met the MPVA guidelines for physical activity.[7] | Increased levels of physical activity from cycling result in health and wellbeing improvements and reducing risk of serious illness. Physical activity is associated with a reduction of all-cause mortality of 30%, as well as a reduction in the risk of all long-term conditions (LTCs), except respiratory conditions, of | Year 5 | Year 5 |

[4] HM Treasury (2021, p.61). Wellbeing Guidance Appraisal: Supplementary Green Book Guidance. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005388/Wellbeing_guidance_for_appraisal_-_supplementary_Green_Book_guidance.pdf Accessed March 2022.

[5] HM Treasury (2021, p.61). Wellbeing Guidance Appraisal: Supplementary Green Book Guidance. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005388/Wellbeing_guidance_for_appraisal_-_supplementary_Green_Book_guidance.pdf Accessed March 2022.

[6] Moderate of Vigorous Physical Activity (MPVA) guidelines recommend 150 mins/week of moderate physical activity, 75 mins vigorous physical activity, or an equivalent combination of these.

[7] Scottish Government (2020) Scottish Health Survey 2019 – Volume 1: Main Report.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | between 20-40% as well as contributing to maintaining an energy balance, functional health and metabolic balance. [8] | | |
| Increase the accessibility of employment and education opportunities | Number of people accessing employment by cycling | Survey on journey trip frequency to certain employment destinations along scheme route. | In 2019, 2% of adults in Aberdeen City travelled to work by cycling, compared to 2.7% of adults in Scotland overall.[9] | Improved cycling infrastructure makes it easier for people to reach a larger number of workplaces without a car<br>as well as widening access to employment opportunities for people on low incomes who may not be able to afford to drive or travel by public transport.[10] Better access to employment can improve socio-economic status and overall wellbeing.<br>Gaining employment has been found to improve the life satisfaction of individuals. Well established benchmarks from the HM Treasury Green Book estimate that a move from unemployment to employment | Year 1 | Year 1, Year 3 |

[8] Technopolis Group (2016, p.33). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.

[9] Transport Scotland (2020) Transport and Travel in Scotland 2019: Results from the Scottish Household Survey (Local Authority Tables). Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/statistical-tables/ Accessed April 2022.

[10] Technopolis Group (2016, p.23). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | could result in wellbeing values of £5,980 per year per person. | | |
| | Change in unemployment rates within the scheme corridor | Business Register and Employment Survey | As per Claimant Count Data (February 2022), 4% of individuals in Aberdeen are in receipt of out of work benefits. This figure is higher than the Scotland average of 3.9%. [11] | By improving accessibility to employment opportunities individuals could enter the labour market, reducing the claimant count. Public Health Scotland underlined that local inclusive growth has multiple positive effects on health and inequalities, therefore active travel infrastructure that maintains or improves footfall or spending is good for the economy.[12]<br>Gaining employment has been found to improve the life satisfaction of individuals. Well established benchmarks from the HM Treasury Green Book estimate that a move from unemployment to employment | Year 5 | Dependent on when new data published |

[11] NOMIS (2022). Local area labour market profile. Available at: Labour Market Profile - Nomis - Official Labour Market Statistics (nomisweb.co.uk) Accessed March 2022.

[12] Public Health Scotland (2022, p.13). The impact of reallocating road space to increase provision for walking, wheeling and cycling on health-related outcomes. https://publichealthscotland.scot/media/12262/the-impact-of-reallocating-road-space-to-increase-provision-for-walking-wheeling-and-cycling-on-health-related-outcomes-a-rapid-review.pdf. Access March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | could result in wellbeing values of £5,980 per year per person.<br>As individuals move from unemployment to employment, Aberdeen could benefit from a productivity increase measured through a GVA uplift of £59,260 per individual gaining employment. | | |
| | Number of new cycle businesses opening in Aberdeen | Survey of local businesses / online search | There are approximately 22 cycle businesses operating in Aberdeen City (sales, repairs, tours) as identified on Google (March 2022). | The cycling industry is a large area of economic activity; in 2010 the industry saw sales of 3.7 million new bikes, which had an estimated value £1.62 billion across the UK. [13] The Covid-19 pandemic increased demand for bikes further. In the UK, sales of bicycles, including accessories, services and components, were up by 41% in January 2021, compared with a year before, a similar pace of growth to the 45% recorded in 2020 as a whole according to the Bicycle Association.[14] By increasing the | Year 5 | Dependent on when new data published |

[13] Technopolis Group (2016,). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.

[14] The Guardian (2021). Cycling boom rolls on amid struggle to meet UK demand during Covid. Available at: https://www.theguardian.com/business/2021/mar/21/cycling-boom-rolls-on-amid-struggle-to-meet-uk-demand-during-covid Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | numbers of cyclists within the scheme corridor, the demand for bikes and accessories is also likely to rise, creating demand for bicycle retail shops. These shops could also provide a wide range of services including servicing and repairs.<br>However, it should be noted that many new bikes and parts are imported from other countries such as China and Taiwan and as a result the benefit to the local economy may be marginal. | | |
| | Number of children and students travelling to school along the routes by active means | Survey of pupils at schools connected to / adjacent to routes | In Aberdeen City in 2020, 4.6% of pupils in full time (school) education travelled to school by bicycle, compared to 3.8% for Scotland overall[15]. | Better cycle infrastructure and safety could encourage more parents and children to cycle to school. This would increase in levels of physical activity, resulting in health and wellbeing improvements for children. The National Institute for Health Research found that children who switched to walking and cycling to school between the ages of 7 and 14 had healthier | Year 1 | Year 1, Year 3 |

[15] Sustrans (2020). Hands Up Scotland Survey Final Results. Available at: https://www.sustrans.org.uk/our-blog/projects/uk-wide/scotland/hands-up-scotland-survey Accessed April 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | body weights than those who continued to travel by car. The findings also suggest that the beneficial effects of walking or cycling may be greater for children from the most deprived areas.[16] Additionally, children who walk or cycle to school tend to be more attentive and achieve better results.[17] | | |
| | Levels of absenteeism among workers (number of days lost due to sickness absence) | Survey of employers and businesses connected to / adjacent to routes | The number of people employed in affected population in the electoral wards of Dyce/Bucksburn/Danestone; Bridge of Don; Kingswells/ Sheddocksley/ Summerhill; Hazlehead/Queen's Cross/Countesswells; and Lower Deeside was 44,231 at | There is the potential for increased uptake of cycling to have beneficial economic effects for businesses due to a reduction in employee absenteeism. There is evidence that people who cycle to work take fewer days sick than those who do not, with work by Sustrans reporting that workers who cycle take on average 2 days a year less sick leave (average 2.5 days a year) as | Year 3 | Year 3, Year 5 |

[16] National Institute for Health Research (2021). Schoolchildren who switch to walking or cycling may have a healthier body weight. Available at: https://evidence.nihr.ac.uk/alert/walking-cycling-to-school-linked-healthier-body-weight/#:~:text=Researchers%20found%20that%20children%20who,from%20the%20most%20deprived%20areas. Accessed March 2022.

[17] Raje and Saffrey (n.d, p.3) The value of cycling. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509587/value-of-cycling.pdf Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | the 2011 Census[18] (69% of the population)[19]. | compared with the average for all workers in the UK.[20] | | |
| Routes are safe and secure | Number of pedestrian/cycle accidents reported along the routes | CrashMap data https://www.crashmap.co.uk/Search | In 2019[21], there were two pedestrian and cycle accidents with 500m of routes 8 and 9, and one pedestrian casualty within 500m of route 10. There were no casualties within 500m of routes 7 and 11.[22] | There could be a reduction in road traffic accidents along the routes due to mode shift away from private vehicle. Safety concerns prevent many people from choosing to cycle; in the Bike Life Dundee Report, 65% of men and 71% of women surveyed responded that they thought cycle safety needed improving.[23] Improvements to road safety and perceptions of road safety could further facilitate a mode shift towards active travel, particularly for minority groups who may not previous have felt safe travelling | Year 1 | Dependent on when new data published |

[18] These data are the most recent available showing employment at the granularity of ward level. It should be noted that as this data was collected >10 years ago it is unlikely to be wholly representative of the current situation and it is recommended that the baseline is updated following publication of Scotland's 2021 census data.

[19] National Records of Scotland (2011). Table KS601SC – Economic activity.

[20] Technopolis Group (2016, p.43). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.

[21] The year 2019 has been used as the baseline as representative of traffic conditions prior to the Covid-19 pandemic.

[22] CrashMap (2021). CrashMap Data – Year 2019 Pedal Cycle Casualty and Pedestrian Casualty.

[23] Sustrans (2020, p.4) Bike Life Dundee. Available at: https://www.sustrans.org.uk/media/5948/bikelife19_dundee_web.pdf Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | by these modes (e.g. women, older people). | | |
| | Number of pedestrian/ cyclists along the routes | Non-motorised count data along the scheme corridor. | Population for 92,000 relevant areas[24] (Electoral ward – National Record of Scotland). | The delivery of the new enhanced active travel infrastructure is likely to result in journey quality benefits for both existing and new users. This stems from individuals now using dedicated enhanced active travel infrastructure. Public Health Scotland's recent review of evidence concluded that reallocating road space to active travel infrastructure leads to an increase in cycling and walking. [25] | Year 1 | Year 3, 5 |
| Routes are sufficiently direct for commuters | Change in journey times for commuters attributable to improved accessibility and | Travel in Scotland 2019: Results from the Scottish Household Survey | In 2019, 2% of people in Aberdeen cycled to work, compared to 3% for Scotland overall.[26] | Good cycling infrastructure can make it easier for people to reach a larger number of workplaces without a car as well as widening access to employment opportunities for | Year 1 | Year 1, Year 3 |

[24] Five Electoral Wards intersect with the routes: Dyce / Bucksburn / Danestone; Bridge of Don; Kingswells / Sheddocksley / Summerhill; Hazlehead / Queens Cross / Countesswells; and Lower Deeside.

[25] Public Health Scotland (2022, p.13). The impact of reallocating road space to increase provision for walking, wheeling and cycling on health-related outcomes. https://publichealthscotland.scot/media/12262/the-impact-of-reallocating-road-space-to-increase-provision-for-walking-wheeling-and-cycling-on-health-related-outcomes-a-rapid-review.pdf. Access March 2022.

[26] Transport Scotland (2020) Transport and Travel in Scotland 2019: Results from the Scottish Household Survey (Local Authority Tables). Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/statistical-tables/ Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | a modal shift to cycling | (Transport Scotland, 2020)<br><br>Roadside surveys / NMU count surveys along scheme vicinity | In 2019, 19% of employees in Scotland had a commute of 31 – 60 minutes and 5.5% had a commute of 61+ minutes.[27] | people on low incomes, who may not be able to afford or justify the higher costs of commuting over slightly longer distances, even by public transport by improving the connectivity of peripheral neighbourhoods to train stations, cycling infrastructure investments can improve access to job opportunities in other locations beyond one's place of residence.[28] | | |
| Routes provide good integration between modes | Use of local bus services in the previous month | Travel in Scotland 2019: Results from the Scottish Household Survey (Transport Scotland, 2020) | In 2019, 9% of adults in Aberdeen used local bus services once a week, 16% used 2 or 3 times a week, and 7% used every day. [29] | Improving integration between modes could enable a mode shift towards sustainable travel. Routes 7 and 8 provide an opportunity for linking into NCN 1 and there are a number of bus stops along Routes 11 and 20 and accessibility to these for pedestrians will be improved. Mode shift away from private | Year 1 | N/A |

[27] Transport Scotland (2020) Transport and Travel in Scotland 2019: Results from the Scottish Household Survey (Percentage of journeys to work by duration of journey, 2012-2019 ). Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/table-td6a-duration-percentage-of-journeys-to-work-by-duration-of-journey-2012-2019/ Accessed March 2022.

[28] Technopolis Group (2016, p.23). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.

[29] Transport Scotland (2020) Transport and Travel in Scotland 2019: Results from the Scottish Household Survey (Local Authority Tables). Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/statistical-tables/ Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | Survey of residents in wards along proposed routes | | vehicle towards active travel and public transport has wider wellbeing and socio-economic benefits for the population. | | |
| Better cities and neighbourhoods | Levels of air pollutants (nitrogen dioxide and particulate matter) along the routes and changes in levels of cycling | Air Quality Annual Progress Report 2021 (Aberdeen City Council, 2021)<br>NMU count surveys along scheme vicinity | Baseline pollutant concentration levels from 2020 for nitrogen dioxide and particulate matter at locations DT67, DT24 (adjacent to routes 7, 8 and 9) available from the Air Quality Annual Progress Report 2021. | There is scientific consensus that exposure to air pollution is harmful to people's health in terms of premature mortality and morbidity, mainly related to respiratory and cardiovascular disease. It is widely accepted that outdoor air pollution causes damage to human health across a wide range of conditions, from pre-birth to old age.[30] Air quality improvements through reductions in nitrogen dioxide and particulate matter could occur as a result of reduced congestion, facilitated by a mode shift to active travel. This could in turn result in improved health outcomes, particularly for people sensitive to poor air quality (e.g. children, older people, pregnant women). | Year 1 | Dependent on when new data published |

[30] Scottish Government (2020). Cleaner Air for Scotland 2: consultation. Available at: https://www.gov.scot/publications/cleaner-air-scotland-2-draft-air-quality-strategy-consultation/pages/6/. Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | | The impact pathways approach (IPA) can be used to appraise the societal costs associated with relatively small impacts on air quality. DEFRA has published 2020 pollutant damage costs[31] (£/t) to be used in IPA, at £6,385 for $NO_x$ and £73,403 for $PM_{2.5}$.[32] | | |
| | Levels of $CO_2$ emissions along routes. | AADT flows on routes of interest. | Data from Aberdeen Council indicates that in 2019 1073.21 $ktCO_2$ emissions were recorded. With the largest contributor the transport and domestic use sector. | With less individuals now using their vehicles and adopting more sustainable modes of transport such as walking and cycling, there could be a reduction in the $C0_2$ emissions along the routes of interest. This reduction in $C0_2$ emissions will not only help the Council meet their own goal of becoming a net zero city by 2045, it will also directly contribute to the national legally binding target of achieving a Net Zero economy by 2045. | Year 3 | Year 3 and 5 |

[31] Damage costs are a set of impact values, measured per tonne of emission by pollutant, which are derived using the more detailed IPA. These values estimate the societal costs associated with small changes in pollutant emissions. Combine them with emission change forecasts to provide an approximate valuation of the aggregate impacts of a policy. (DEFRA, 2021).

[32] DEFRA (2021). Air quality appraisal: damage cost guidance. Available at: Air quality appraisal: damage cost guidance - GOV.UK (www.gov.uk) Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | Changes in population size through migration | Mid-year population estimates, National Records of Scotland | The baseline population within the electoral wards intersected by the routes is 92,000.[33] | Cycling interventions help to make an area more attractive for people to live in and for businesses to operate in. More attractive places can contribute to inward migration of people and businesses – and a reduction in outward migration – thereby contributing to an expansion in both employment and economic output and an expansion in the local market for products and services.[34] | Year 5 | Dependent on when new data published |
| | Level of satisfaction with neighbourhood | Survey of residents in wards along proposed routes | Baseline affected population comprises the electoral wards of Dyce/Bucksburn/Danestone; Bridge of Don; Kingswells/Sheddocksley/ Summerhill; Hazlehead/Queen's Cross/Countesswells; and Lower Deeside. | Improved sense of satisfaction with the neighbourhood as a result of amenity improvements from better air quality, lower levels of noise, and less congestion. The importance of neighbourhoods and place is highlighted in the National Planning Framework 4 Position Statements, emphasising the importance of place-based approaches to urban | Year 1 | Year 1, Year 3 |

[33] National Records of Scotland (2021). Electoral Ward Population Estimates. Available at: https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/2011-based-special-area-population-estimates/electoral-ward-population-estimates. Accessed March 2022.

[34] Technopolis Group (2016, p.19). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | Between April 2021 and March 2022, residents of Aberdeen reported a life satisfaction score of 7. 2/10, lower than the UK average of 7.4/10.[35] | development and movement with a developing consensus of the importance of a community approach, which balances movement needs with the full range of activities at a local level.[36] People, location and resources combine to create a sense of identity and purpose and is at the heart of addressing the needs and realising the full potential of communities.[37] As per benchmark studies, belonging to a neighbourhood is valued at £3,753[38]. This impact could accrue across baseline population within the scheme vicinity. | | |
| | Residential property values in wards | Scottish Government | Average residential property values in 2018[39] for the wards intersected by the routes: | Cycle infrastructure can make neighbourhoods more attractive places to live in, and this would | Year 5 | Year 5 |

[35] Office for National Statistics (2022). Personal well-being in the uK: April 2020 to March 2021. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/bulletins/measuringnationalwellbeing/april2020tomarch2021#personal-well-being-data-time-series Accessed March 2022.
[36] Glasgow City Council (2021). Liveable Neighbourhoods. Available at: https://storymaps.arcgis.com/stories/5d034673c6a24faeab4596b92f01c07d Accessed March 2022.
[37] Ibid.
38 HM Treasury (2021, p.61). Wellbeing Guidance Appraisal: Supplementary Green Book Guidance. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005388/Wellbeing_guidance_for_appraisal_-_supplementary_Green_Book_guidance.pdf Accessed March 2022.
[39] Scottish Government (2022). House prices. Available at: https://statistics.gov.scot/slice?dataset=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fhouse-sales-prices&http%3A%2F%2Fpurl.org%2Flinked-data%2Fcube%23measureType=http%3A%2F%2Fstatistics.gov.scot%2Fdef%2Fmeasure-properties%2Fmean Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | intersected by routes | House Price Statistics | Dyce/Bucksburn/Danestone: £203,000<br>Bridge of Don: £195,800<br>Kingswells/Sheddocksley/Summerhill: £201,600<br>Hazlehead/Queen's Cross/Countesswells: £266,900<br>Lower Deeside: £355,800 | be reflected in higher property prices as a result of increased convenience and desirability.[40]<br>A Dutch study modelled traffic volume and residential property values and found that a 50% drop in traffic volume corresponds to an uplift in value by 1% (Ossokina and Verweij, 2014). [41] It is also reported that revealed preference analysis shows strong favour among potential buyers for "walkable" neighbourhoods, particularly amongst women (Litman, 2010).[42] | | |
| | Perception of neighbourhood safety | Survey of residents in wards along proposed routes | Baseline affected population comprises the electoral wards of Dyce/Bucksburn/Danestone; Bridge of Don; Kingswells/Sheddocksley/ | Increased cycling has been linked to greater feelings of safety and security through increased passive surveillance (i.e. having more people around).[43] The concept of 'crime | Year 1 | Year 1, Year 3 |

[40] Technopolis Group (2016, p.19). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.
[41] Raje and Saffey (n.d., p.240). The Value of Cycling. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509587/value-of-cycling.pdf Accessed March 2022.
[42] Raje and Saffey (n.d., p.240). The Value of Cycling. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/509587/value-of-cycling.pdf Accessed March 2022.
[43] Technopolis Group (2016, p.33). Evaluating the economic and social impacts of cycling infrastructure: considerations for an evaluative framework.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | Summerhill; Hazlehead/Queen's Cross/Countesswells; and Lower Deeside. | prevention through environmental design' has been championed in guidelines developed in Queensland, Australia. The guidelines set out key principles for how cycling infrastructure can play an important role in maximising passive surveillance and enhancing feelings of safety.[44] | | |
| Promoting inclusivity | Proportion of demographic and socio-economic groups who cycle at least once a week | Survey of residents in wards along proposed routes | In the BikeLife Dundee Report, Sustrans reported that 5% of women surveyed cycled once a week compared to 17% of men; 3% of disabled people compared to 14% of non-disabled; 11% of white people compared to 12% from ethnic minority groups and 5% of people aged 66+ compared to 15% of people ages 46 – 55.[45]<br>None of the routes are located within the bottom | Barriers to cycling can be more pronounced for different demographic and socio-economic groups. Mobility for many people is not easily accessible and people who do not have a car can find it challenging to reach services where there may not be travel alternatives available.[47] New cycle infrastructure offers an opportunity to enhance equality and access to opportunities for different groups, improving | Year 1 | Year 1, Year 3 |

[44] Queensland Government (2021). Crime Prevention Through Environmental Design. Available at: https://www.police.qld.gov.au/sites/default/files/2021-07/Crime%20Prevention%20Through%20Environmental%20Design%20-%20Guidelines%20for%20Queensland%202021%20v1.pdf Accessed March 2022.

[45] Sustrans (2019). Bike Life Dundee Report. Available at: https://www.sustrans.org.uk/media/5948/bikelife19_dundee_web.pdf Accessed March 2022.

[47] Sustrans (2019). Bike Life Dundee Report. Available at: https://www.sustrans.org.uk/media/5948/bikelife19_dundee_web.pdf Accessed March 2022.

| 8.1 Customer Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Benefit** | **Measures** | **Source** | **Baseline** | **Expected Benefit** | **Expected Date** | **Measure Frequency** |
| | | | 20% of deprived data zones on the Scottish Multiple Index of Deprivation.[46] | socio-economic outcomes and wellbeing. | | |

[46] Scottish Index of Multiple Deprivation (2020). Interactive map. Available at: https://simd.scot/#/simd2020/BTTTFTT/13/-2.1564/57.1417/ Accessed March 2022.

## 9. Costs

*Costs must include capital investment and where relevant any ongoing revenue costs incurred by the project or as a result of the project.*

*The source/basis of any estimates should be clearly identified.*

*Refer to the Government Green Book and the Supplementary Guidance on Optimism Bias for information on determining costs. Outline any assumptions in estimating costs in Section 17,* ***and*** *confirm in the Checklist that you have followed this guidance.*

*Green Book Supplementary Guidance Optimism Bias (under 'Other Guidance and Reference Documents')*

*HM Treasury The Green Book (under 'Other Guidance and Reference Documents')*

*Costs should be considered at least over a 5-year period. It is an estimate of the resources and capabilities (people, physical resources, and funding) needed to deliver the project and sustain the benefits. The estimates need to cover both the direct project costs and the ongoing (business as usual) costs for the lifetime over which the benefits are to be considered.*

*Include information on where the budget will come from.*

*Full costs breakdown to be included.*

*Any impact on business as usual or service delivery.*

Optimism bias is a factor applied to benefits and costs in recognition of a systematic tendency for project appraisers to be overly optimistic. Therefore, to prepare a robust cost estimate, an optimism bias of 15% has been applied to the costs. This is based on STAG recommended level of optimism bias for an Outline Business Case of a project involving roads and bicycle facilities (Table 13.4). The level of optimism bias reflects that this is the second CAPEX costing exercise relating to these options (7, 8, 9, 11, and 20) meaning the uncertainty surrounding the estimates does not warrant the upper band of 44% that is recommended in Green Book guidance.

As with the cost estimates outlined in the STAG report, most items under each option are assumed to fall under the regular maintenance of road infrastructure and therefore included within current budget. The 30 year maintenance costs outlined in the table below fall outwith the regular road maintenance budget and are assumed to take place once within the 30-year period. These have been taken from the STAG Part 2 assessment and have been uprated from 2018 prices using the Treasury GDP deflator.

The table below presents the costs with the 15% contingency applied for the 5 preferred options in both 2022 and 2010 price years. It is assumed that the CAPEX costs are incurred within the opening year and therefore do not need to be discounted over time. The maintenance costs are relatively small and, if discounted over time would be furthered reduced in present value cost therefore are presented undiscounted.

**9.1**

| Option Number | Total CAPEX Costs (2022 prices) | Total CAPEX Costs (with 15% OB) | 30 year maintenance costs (2022 prices) | 30 year maintenance costs (with 15% OB) |
|---|---|---|---|---|
| **7** | £1,473,000 | £1,696,000 | £3,200 | £3,700 |
| **8** | £321,000 | £369,000 | £0 | £0 |
| **9** | £319,000 | £367,000 | £600 | £700 |
| **11** | £715,000 | £822,000 | £5,400 | £6,200 |
| **20** | £321,000 | £369,000 | £0 | £0 |
| **Option Number** | **Total CAPEX Costs (2010 prices)** | **Total CAPEX Costs (with 15% OB)** | **30 year maintenance costs (2010 prices)** | **30 year maintenance costs (with 15% OB)** |
| **7** | £1,187,000 | £1,366,000 | £2,600 | £3,000 |
| **8** | £258,000 | £297,000 | £0 | £0 |
| **9** | £257,000 | £296,000 | £500 | £600 |
| **11** | £575,000 | £662,000 | £4,300 | £5,000 |
| **20** | £258,000 | £297,000 | £0 | £0 |

| 10. Key Risks | |
|---|---|
| **Description** | **Mitigation** |
| **Supply chain:**<br>As a result of several exogenous factors (COVID-19 pandemic, Brexit, and conflict in Ukraine) there has been various shocks to the construction market. This has come in the form of significant delays in supply chains and increased cost of raw materials. This would impact on both the programme delivery dates as well as the overall costing of the scheme. Given the programme indicates construction would take place over 2024 and 2025, it is possible that effects of the current shocks to supply chain are still being felt. | Within funding and procurement process, ensure that contingencies are in place for potential change in pricing and programme due to delays/increases in costs. |
| **Statutory:**<br>Planning consent for the active mode proposals is challenged or refused, this could result in delays to programme and cost increases whilst design modified. | Ensure all necessary consents are obtained in a timely nature. The Programme Delivery Plan has accounted allowed for 10 months for these to be obtained. |
| **Economic:**<br>Failure to secure funding from funding bodies for the construction of the proposals leading to delays whilst funding gaps bridged. | Secure funding as soon as possible by initiating funding process when OBC is finalised. |
| **Costs:**<br>Elements of cost may not have been considered due to working assumptions such as no land acquisition and no utilities work required. Unknown cost elements may be incurred due to onsite overruns. | At detailed design stage, investigate if land acquisition or utilities work is required and update costs accordingly. |
| **Flood risk:**<br>Proximity to the River Don means that flooding is a possibility and this has not been assessed in detail when it comes to design of option 7. | Conduct a flood risk assessment. |
| **Design changes:**<br>There is potential for the scheme designs to change at subsequent stages of project development which could have cost implications. For example, the width of the bridge crossing of the River Don may be subject to change which could | Undertake a further review of costs following scheme design updates at each stage in the project lifecycle. |

| | |
|---|---|
| increase/decrease the cost of materials and construction. | |

Risk Reduction Register covers more granular route level risk such as topographic survey not available within the programme and maintenance cleaning of cycleways is restricted due to width.

## 11. Procurement

*If this project will involve the procurement of products or services, describe the approach that will be taken based upon the recommended option.*

It is assumed that the Council will use their existing frameworks to undertake procurement of contractor services. The Programme Delivery Plan outlines a potential procurement approach in terms of complying with Aberdeen City Council, Aberdeenshire Council and The Highland Council Joint Procurement Strategy. Interpretation of the procurement regulations shall be undertaken by the Commercial and Procurement Shared Services (C&PSS) team, supported as necessary by in-house and external legal advice.

Agreed approaches will be informed through Best Practice and Lessons Learned from previous projects of comparable complexity by implementing a collaborative approach and facilitating cross-project knowledge sharing.

It is anticipated that a dedicated resource may be required to manage and support the various procurement streams. This will be considered and developed as part of the activities during Programme set up.

## 12. Time

### 12.1 Time Constraints & Aspirations

*Detail any planned or agreed dates, any time constraints on the project or the affected business areas and any other known timescales.*

Programme Delivery Plan sets out an indicative timeline for the project. Potential constraints could arise during design, funding, approval, procurement, or construction process but likely constraints have been identified at this stage. The milestone of obtaining funding has the largest potential to significantly influence the project timeline as delays to funding may influence procurement and in turn construction. Detailed design will be required to access funding and the funding itself may have a strict deadline attached, therefore, influencing timeline before the funding is obtained.

Overall, the project is anticipated to take approximately 3 years, commencing August 2022 and finishing August 2025.

### 12.2 Key Milestones

| Description | Start date | Target date |
|---|---|---|
| Detailed design | 01/08/2022 | 27/03/2023 |
| Full business case | 01/02/2023 | 01/08/2023 |
| Funding award | - | 01/10/2023 |
| Statutory approvals | 01/02/2023 | 01/12/2023 |
| Contractor/procurement | 01/10/2023 | 30/04/2024 |
| Construction | 01/05/2024 | 31/08/2025 |

| | | |
|---|---|---|
| Post construction | 01/09/2025 | 30/09/2025 |

## 13. Governance

*Include any plans around the ownership and governance of the project and identify the people in the key project roles in the table below.*

The project is being taken forward in a partnership comprising Aberdeen City Council, Aberdeenshire Council and Nestrans.

One of the recommended options identified during the STAG process is new bridge over the River Don, to provide a connection between the Grandhome and Stoneywood development sites. The STAG Part 2 Report recommends this option should be explored as a standalone active travel option (with the new bridge as a foot and cycle bridge only) and in tandem with one of the identified public transport route options. It is highlighted that this should be explored as a standalone active travel bridge only, in this instance. Engagement with the developers of the Grandhome and Stoneywood sites, the relevant landowners, and businesses located to the west of the River Don (where the new bridge would be required to 'land') will be necessary when developing a concept design. A detailed Flood Risk Assessment in this area is also required to ascertain the requirement for compensatory storage provision.

| Role | Name |
|---|---|
| **Project Sponsor** | Client Group: Aberdeen City Council, Aberdeenshire Council and Nestrans. |
| **Project Manager** | Tbc |
| **Other Project Roles** | Project Delivery Team |

## 14. Resources

| Task | Responsible Service/Team | Start Date | End Date |
|---|---|---|---|
| Progress from outline business case to beginning detailed design and full business case | Aberdeen city council (ACC) | 01/05/22 | 01/08/22 |
| Detailed design | ACC/Consultant | 01/08/22 | 27/03/23 |
| Full business case | ACC/Consultant | 01/02/23 | 01/08/23 |
| Obtain funding | ACC | - | - |
| Statutory approvals | ACC/Consultant | 01/02/23 | 01/12/23 |
| Contractor Procurement | ACC | 01/10/23 | 30/04/24 |
| Construction | ACC/Contractor | 01/05/24 | 31/08/25 |

| | | | |
|---|---|---|---|
| Post-construction | ACC/Contractor/ Consultant | 01/09/25 | 30/09/25 |

## 15. Environmental Management

*Fully explain any impacts the project will have on the environment (this could include, e.g. carbon dioxide emissions, waste, water, natural environment, air quality and adaptation). Include both positive and negative effects and how these will be managed. Include details on how this has been assessed, giving an idea of the cost implication if this exists.*

An initial, high-level assessment of the potential environmental impact of the routes has been undertaken using professional judgement and experience on transport projects of a similar scale. It is expected that an environmental assessment will be scoped and potentially undertaken as part of the statutory approval process. This is separate to this business case for the routes that are to be progressed. The environmental assessment could incur a cost if consultants are engaged to undertake this work although the scale of it will be proportionate to the scale of the interventions.

**Carbon dioxide emissions**

- During construction there may be a negative impact on carbon dioxide emissions due to the construction traffic and machinery required to build the routes. It is expected that an appropriate Construction Environmental Management Plan (CEMP) will be developed and implemented by the Contractor for the works which will outline measures to mitigate these effects, for example use of low emission vehicles / machinery where practicable.
- The project is expected to have a positive effect on carbon dioxide emissions once it is operational, as a result of reduced congestion and mode shift to active travel.

**Waste**

- During construction the project is likely to have a negative impact on waste due to excavation, disposal of old materials, and import of new materials required to construct the routes. It is expected that an appropriate Site Waste Management Plan will be developed and implemented by the Contractor for the works which will outline measures to mitigate these effects, for example reusing/recycling materials on site where practicable.
- There may be a minor positive effect on waste during operation of the project from the expected mode shift away from private vehicles towards active travel, which could reduce demand for new cars.

**Water**

- During construction of the project there may be negative impacts on the water environment as a result of construction activities, e.g. pollution run-off to watercourses from vehicles and machinery. This may be a particular issue for Option 7 which involves construction of a crossing over the River Don. It is expected that an appropriate CEMP will be developed and implemented by the

Contractor for the works which will outline measures to mitigate these effects, for example following best practice Scottish Environmental Protection Agency guidance for site works.

- The project may have a minor positive effect on the water environment once it is operational from the expected mode shift to active travel, resulting in less pollution run-off to watercourses from vehicles. There may be negligible impacts on the water environment during any bridge maintenance works required for Option 7 over the project lifecycle, however these would be mitigated through appropriate management plans.

**Natural environment**

- While the routes are predominantly located in urban areas, during construction there may be temporary negative impacts on the natural environment, as a result of land-take required to facilitate construction of the routes and on construction activities. Such impacts could be disturbance/removal of trees and vegetation, and resulting effects for the species using these habitats. It is expected that an appropriate CEMP will be developed and implemented by the Contractor for the works which will outline measures to mitigate these effects, for example retaining vegetation or providing a replacement where practicable, and only undertaking construction activities at certain times of the year to avoid disturbing certain species.
- The project provides opportunities for enhancement of the natural environment, through ecological and landscape planting along the routes to encourage biodiversity and amenity. Such measures would be considered as part of the detailed design of the routes.

**Air quality**

- During construction there may be a temporary negative impact on air quality due to the construction traffic and machinery required to build the routes. It is expected that an appropriate CEMP will be developed and implemented by the Contractor for the works which will outline measures to mitigate these effects, for example use of low emission vehicles / machinery where practicable.
- The project is expected to have a positive effect on local air quality (nitrogen dioxide and particulate matter concentrations) once it is operational, as a result of reduced congestion and mode shift to active travel. This positive impact will be more significant than the carbon dioxide emissions due to the role vehicular road traffic has on local air quality compared to the contribution to overall greenhouse gas emissions.

| **16. Buildings Checklist** | **Yes** | **No** |
|---|---|---|
| | ☐ | ☒ |
| Is a Buildings Checklist being completed for this project ?If No, what is the reason for this? | | |
| It is a road infrastructure project, not a building. | | |

## 17. Stakeholders

*List the key interested individuals, teams, groups or parties that may be affected by the project or have an interest in it, including those external to the organisation. Show what their interest would be and their level of responsibility. Also note any plans for how they will be engaged including the use of any existing communication channels, forums or mechanisms already in place.*

*In the event the Business Case projects a total capital expenditure of more than £10 Million, stakeholders should include "ACC Bond Investors" who may require to be communicated with through the London Stock Exchange.*

An online-survey was initiated in 2018 to under a public consultation exercise towards the end of the Part 2 Appraisal stage. This survey was distributed through the Council's own communication mediums. This survey was also shared directly to the following stakeholders who were involved in the Part 1 stage of the study:

- Environmental Groups;
- Active travel groups and organisations;
- Community Councils;
- Local elected officials; and
- Business groups

Generally the comments through the engagement process were positive with individuals and groups supportive of the active travel options. Full details of the consultation undertaken to date are outlined within the STAG Part 2 Appraisal Report.

It is expected that further consultation will be undertaken as part of the design and statutory planning process, and will include engagement with relevant environmental organisations and active travel bodies (e.g. Sustrans) as well as local communities. There may also be the requirement to undertake an Equality Impact Assessment to evaluate how the proposals may affect people with protected characteristics (as defined in the Equality Act 2010), such as disabled people and children.

A stakeholder engagement plan will be developed by Aberdeen City Council to identify appropriate project milestones to undertake consultation as well as the stakeholders likely to be involved and setting out methods for engaging with them.

## 18. Assumptions

*Document the high-level assumptions that have been made during the development of the Business Case and any other unanswered questions that may be significant. Refer to the Supplementary Guidance on Optimism Bias and detail the assumptions you have made in constructing the costs and business case.*

It is assumed that obtaining funding is possible within the 3 year project timeline.

These key cost assumptions are explained in more detail in the cost section 9:

- CAPEX costs are incurred in year 0 and therefore do not require discounting.
- An optimism bias of 15% has been applied to costs based on STAG recommended level of optimism bias for an Outline Business Case of a project involving roads and bicycle facilities.
- Costings do not include land acquisition and utilities work, original designs did not require these but detailed designs may highlight a need.
- It is assumed that because the majority of the interventions are on-road, maintenance of these interventions is included within the current maintenance budget.
- The maintenance costs included in section 9 are assumed to reflect one instance of resurfacing over the 30 year assessment period.

As no modelling of vehicular movements has taken place, it is not possible to produce quantitative assessment of journey time improvements in the area. Assessment of the benefits has been qualitative and therefore no assumptions have been made in terms of the present value of benefits delivered by the scheme.

## 19. Dependencies

*Document any projects, initiatives, policies, key decisions or other activities outside the control of the project that need to be considered or which may present a risk to the project's success, or on which this project depends.*

The project is dependent on the new developments proposed in the Aberdeenshire and Aberdeen City Council LDPs that the various options are proposed to link into. The implementation of the options is dependent on the final designs and timing of the completion of these developments.

Some of the options are dependent on connecting into other proposed transport interventions, and there are some uncertainties around the impact of other developments on the land available for the proposals (e.g. the new Aberdeen Football Stadium).

The project may be influenced by stakeholder engagement and feedback in relation to the design, which may then have cost implications.

The project is dependent on the availability of funding for the Client Group to develop and construct the routes.

## 20. Constraints

*Document any known pressures, limits or restrictions associated with the project.*

It was assumed that land acquisition was not required for these options to be implemented. It is possible that the detailed design may identify land required to reach

an optimal outcome in terms of costs and benefits. Some of the original options were not viewed as feasible due to land acquisition requirements.

Funding constraints may exist and exert pressure on the milestones in the proposed Programme Delivery Plan but these are unknown at this moment in time.

As section 3 and 4 highlight, active travel infrastructure throughout Aberdeen will deliver many strategic aims such as improving connectivity, decreasing safety risk, and reducing carbon emissions/improving air quality. These policies and aims have been part of the Local Development Plan since 2017 and therefore pressure will be mounting to realise these policies.

| **21. ICT Hardware, Software or Network infrastructure** | | |
|---|---|---|
| **Description of change to Hardware, Software or Network Infrastructure** | **Enterprise Architecture Approval Required?** | **Date Approval Received** |
| None | | |

| **21. Change Controls Issued by the Project** | | |
|---|---|---|
| **Change Ref ID & Date** | **Approval Route** | **Description** |
| | | |

**23. Support Services Consulted**

The minimum **consultation period for Outline/Full Business Cases is 10 working days** unless the Programme Board Chair agrees there are exceptional circumstances that require a shorter turnaround time.

**Note:**

- **It is mandatory for Capital projects to consult with the full list below.**
- If any services are not consulted, this should be indicated in the Comments section, along with the reason why. All comments received should also be noted, or reasons given for discounting them.
- It is a legal requirement for the Council to carry out an Equality and Human Rights Impact Assessment (EHRIA) to evaluate the impact our decisions have on our customers.

***The relevant consultees will be consulted as per agreed procedure.***

| **24. Document Revision History** | | | |
|---|---|---|---|
| **Version** | **Reason** | **By** | **Date** |

| | | | |
|---|---|---|---|
| | | | |

| 25. Decision by Capital Board | Date |
|---|---|
| * Approved/Not Approved to: | |

* Insert approval decision from Capital Board.