



Aberdeen Rapid Transit Strategic Business Case

On behalf of **Nestrans**

Project Ref: 12345/001 | Rev: AA | Date: March 2025

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 3rd Floor, Randolph House, 4 Charlotte Lane, Edinburgh, EH2 4QZ
T: 0131 297 7010 E: info.edinburgh@stantec.com

Document Control Sheet

Project Name: Aberdeen Rapid Transit

Project Ref: 3326 11665

Report Title: Strategic Business Case – Strategic Dimension

Date: April 2025

	Name	Position	Signature	Date
Prepared by:	Emily Seaman	Director, Transport Planning	ES	
	Cesar Garcia-Torres	Senior Associate Transport Planner	CGT	
	Scott Leitham	Director, Transport Planning	SL	
Reviewed by:	Scott Leitham	Director, Transport Planning	SL	
Approved by:	Scott Leitham	Director, Transport Planning	SL	
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
1	22/03/25	Revised Draft	ES / SL / CGT	SL	ES
2	25/04/25	Final Report	ES / SL / CGT	SL	ES

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

Executive Summary	1
1 Introduction.....	10
1.1 Overview.....	10
1.2 What is ART and how did the proposals emerge?.....	10
1.3 Approach to SBC.....	12
1.4 SBC Structure.....	14
2 Strategic Dimension.....	15
2.1 Overview.....	15
2.2 Strategic Context.....	16
2.3 The Case for Investment.....	35
2.4 Transport Planning Objectives.....	87
2.5 Project Scope.....	90
2.6 Risks, Constraints and Dependencies.....	98
3 The Economic Dimension	100
3.1 Overview.....	100
3.2 Appraisal Context and Caveats.....	100
3.3 Option Development.....	100
3.4 Workstream 1: Form of ART Options Appraisal - Long list.....	102
3.5 Workstream 2: Options for ART Routeing (network) - long list.....	165
3.6 Option Sifting.....	179
3.7 Short-listed Options and Preferred Way Forward.....	188
4 Commercial Dimension.....	190
4.1 Overview.....	190
4.2 Commercial Viability.....	190
4.3 Local Authority Powers to Deliver ART.....	191
4.4 Pathways to Delivery.....	203
4.5 Infrastructure Procurement.....	214
4.6 Maintenance.....	220
5 Financial Dimension.....	221
5.1 Introduction.....	221
5.2 Infrastructure costs.....	221
5.3 Vehicles and Depots.....	232
5.4 Revenue.....	232
5.5 Delivery Pathways – Set up Costs and Financial Risks.....	232
5.6 Further scheme development costs.....	235
5.7 Funding.....	236
6 Management Dimension	237
6.1 Introduction.....	237
6.2 Review of Urban Infrastructure Projects in Aberdeen and Scotland.....	237
6.3 Project Framework.....	242
6.4 Achievability of the ART Project.....	251

6.5	Carbon Management.....	265
6.6	Recommended Next Steps	266

Figures

Figure 1:1: Overarching SBC Process	13
Figure 2:1: Governance Structure	18
Figure 2:2: Policy Context	20
Figure 2:3: Population Density (2021) (per km sq)	37
Figure 2:4: Employment (number of jobs, datazones)	38
Figure 2:5: Retail Floor Space	39
Figure 2:6: Other Key Trip Generators and Attractors	40
Figure 2:7: Future Development.....	42
Figure 2:8: Scottish Index of Multiple Deprivation (2020)	43
Figure 2:9: Traffic on trunk and local authority road in Aberdeen City and Aberdeenshire	45
Figure 2:10: Percentage households with one or more cars (Source: Scottish Household Statistics,2022, Table LA4).....	46
Figure 2:11: Percentage aged 17+ driving every day or at least three times a week (Source: Scottish Household Statistics,2022, Table LA5)	46
Figure 2:12: Usual Method of Travel to Work – Employed Adults (Source: Scottish Household Statistics,2022, Table LA1).....	47
Figure 2:13: Passenger journeys on local buses (Scottish Transport Statistics 2023, Table 2.2b)	48
Figure 2:14: Vehicle kilometres served by local buses (Scottish Transport Statistics 2023, Table 2.3c)	48
Figure 2:15: Bus Circle of Decline ³	50
Figure 2:16: Bus Network – Overview – Aberdeen (as of early 2025).....	52
Figure 2:17: Bus Network – Overview - Aberdeenshire (as of early 2025).....	53
Figure 2:18: Bus Priority Measures	55
Figure 2:19: Bus Network – Service Frequencies	61
Figure 2:20: Bus Network – Service Frequencies – Stops served by 6 or more buses per hour	62
Figure 2:21: Bus Service connections from Bridge of Don (A956).....	64
Figure 2:22: Bus Service connections from Great Northern Road / Muggiemoss (A96)	64
Figure 2:23: Bus Service connections from Kingswells (A944).....	65
Figure 2:24: Bus Service connections from Great Southern Road (B9077)	65
Figure 2:25: Bus Service connections from Wellington Road (A956)	66
Figure 2:28: Bus to Car Journey Time Difference (0600-0900): Arnhall Business Park (Westhill).....	69
Figure 2:29: Bus to Car Journey Time Difference (0600-0900): Robert Gordon University	69
Figure 2:30: Bus to Car Journey Time Difference (0600-0900): Altens Industrial Estate	70
Figure 2:31: Bus to Car Journey Time Difference (0600-0900): Foresterhill Health Campus	70
Figure 2:32: Households (all zones, and those with SIMD 20% most deprived) within access time bands for travel by public transport (in relation to travel time by car) to key locations	71
Figure 2:33: Bus Punctuality and Reliability (2010 – 2023)	75
Figure 2:35: Park & Ride Site Services (as of January 2025).....	78
Figure 2:36: Park & Ride Utilisation (2015 – 2024).....	79
Figure 2:36: Park & Ride – Daily Cars Parked (2015 – 2024)	79
Figure 2:37: Relative Cost of Travel by mode (2000 Q1 – 2024 Q2, indexed against 2000 Q1 figures) ¹⁰²	83
Figure 2:38: Links between STPR2 Objectives to ART TPOs and identified problems.....	88
Figure 2:39: ART TPOs, supply side changes to achieve the TPOs, and the metrics against success will be measured.....	89
Figure 3:1: Option Development and Appraisal Process	102
Figure 3:2: Belfast Glider tram-style vehicle at stop (Photo courtesy of Translink)	108
Figure 3:3: Belfast Glider tram-style vehicle - interior (Photo courtesy of Translink)	108
Figure 3:4: ART Network – for Form of ART options appraisal.....	113
Figure 3:5 STPR2 North East Scotland – With and Without Policy Scenarios (Annual Road Traffic vehicle-kilometres)	115
Figure 3:6: Tasks to inform ART routeing	166

Figure 3:7: ART corridors under consideration	166
Figure 3:8: North Corridor Tests (Core, B1 and B2)	170
Figure 3:9: North-West Corridor Tests (Core, A1 and A2)	170
Figure 3:10: West Corridor Tests (Core, C1 and C2)	171
Figure 3:11: South Corridor Tests (Core and D1)	171
Figure 3:12: Alternative cross-city routeing test (Core and Test E)	172
Figure 3:13: Alternative cross-city routeing test (Core and Test F)	172
Figure 3:14: Inner and Mid Cordon locations	173
Figure 3:15: Recommended ART Network	178
Figure 4:1: Delivery Pathways	204
Table 4:6: Procurement options - Sifting	219
Figure 5:1: Infrastructure RAG Mapping	226
Figure 6:1: Trams to Newhaven top level governance structure (<i>Trams to Newhaven Full Business Case</i>)	240
Figure 6:2: Energy From Waste – Governance Structure	241
Figure 6:3 Proposed structure for the ART Project Board	246
Figure 6:4: Proposed preliminary structure for the Project Team	249
Figure A:1: A956 (King Street) / A90 (North) – Bus services, existing bus lanes and future development sites (as of Spring 2022)	271
Figure B:1: A96 – Bus Services, existing bus lanes and future development sites (as of Spring 2022)	275
Figure C:1: A944 – Bus Services, existing bus lanes and future development	279
Figure D:1: A956 / A92 / A90 – Bus Services, existing bus lanes and future development	283
Figure E:1: Birmingham Sprint - 'Target' and 'Minimum' standards	290
Figure F:4: Belfast Glider tram-style vehicle at stop (Photo courtesy of Translink)	305
Figure F:5: Belfast Glider tram-style vehicle - interior (Photo courtesy of Translink)	305
Figure G:3: North-West Corridor (Eastern end) - Routeing Considerations	310
Figure G:4: West Corridor Considerations	311
Figure G:5: West Corridor Considerations - Routeing into city centre from A944	312
Figure G:6: South Corridor Considerations	313
Figure H:1: Core Test – Routeing and city centre interchange	314
Figure H:2: Test A1 – Routeing and city centre interchange - <i>Airport routeing</i>	315
Figure H:3: Test A2 – Routeing and city centre interchange - <i>Craibstone and Airport routeing (ART both clockwise and anti-clockwise at western terminus)</i>	316
Figure H:4: Test B1 – Routeing and city centre interchange - Cloverhill	317
Figure H:5: Test B2– Routeing and city centre interchange – Blackdog	318
Figure H:6: Test C1– Routeing and city centre interchange - Westhill	319
Figure H:7: Test C2– Routeing and city centre interchange – A9119 Routeing	320
Figure H:8: Test D – Routeing and city centre interchange – Routeing via Holburn Street / Great Southern Road / West Tullos Road / Wellington Road	321
Figure H:9: Test E – Routeing and city centre interchange – Changed cross-city connectivity	322
Figure H:10: Test F– Routeing and city centre interchange – Three ART lines variant	323
Figure I:1: Proportion of residents in 20% most deprived areas able to access key employment sites in less than 30, 45, and 60 minutes (2045, AM)	330
Figure J:1: Flow Difference Diagrams (Option 5, 'with policy')	342

Tables

Table 2:1: Summary of early engagement around the scheme concept	25
Table 2:2: Estimated Bus Passengers in the North East (2019 –23)	49
Table 2:3: Outcomes of Market Research Exercise – Dissatisfaction (top three factors)	58
Table 2:4: Park & Ride Site Available Spaces	78
Table 2:5: Bus day ticket and parking price comparisons (as of April 2025)	83
Table 2:6 Required outputs of the ART project	93
Table 2:7 How ART can address the identified problems	96
Table 3:1: ART – Design Principles	104
Table 3:2: ART Broad Options Approaches (Form of the Network)	112
Table 3:3: Modelling Assumptions	117

Table 3:4: STAG Appraisal in SBC	118
Table 3:5: Five core distinguishing elements of the options which influence accessibility	120
Table 3:6: TPO1: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve equality of opportunity – Summary	122
Table 3:7: TPO2: Increase public transport mode share in Aberdeen to support placemaking and the North East's Net Zero ambitions – Key Points	124
Table 3:8: TPO2: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve inclusive equality of opportunity – Summary	128
Table 3:9: Environmental Appraisal	130
Table 3:10: Climate Change Appraisal.....	133
Table 3:11: Health, Safety and Wellbeing Appraisal	138
Table 3:12: Transport Economic Efficiency (TEE)	141
Table 3:14: Economy Appraisal	146
Table 3:15: Equality and Accessibility – Key Network Features Discussion and Appraisal	148
Table 3:16: Market Research – Broad Approaches discussed	152
Table 3:17: Public Acceptability Appraisal	156
Table 3:18: Appraisal Summary	158
Table 3:19: Option Delivery Mechanism – High Level Appraisal	163
Table 3:20: Routeing Tests	168
Table 3:22: General Road Traffic 12-hour flow across the cordons (All Tests) - 2030.....	174
Table 3:23: Daily (24hr) Vehicular Kilometres (All Tests)	175
Table 3:24: Option Sifting	180
Table 4:1: ART options carried forward and the preferred way forward	190
Table 4:2 Analysis of the regulatory environment against the project's key workstreams and required outputs	198
Table 4:3: Typical procurement risks	214
Table 4:4: Preliminary procurement objectives	216
Table 4:5: Procurement options	217
Table 5:1: ART Network – Capital Infrastructure Cost Estimates	225
Table 5:2: ART Network – RAG Mapping of Costs – Significant Cost Locations	226
Table 5:3: ART Network – Capital Infrastructure Costs – Option 5 – By Mode	230
Table 6:1: Proposed ART Project Functions	247
Table 6:2: ART service risks and uncertainties	252
Table 6:3: Foundational Measures (approx. 0-2 years)	261
Table 6:4: Early Implementation Measures (approx. 3-5 years)	262
Table 6:5: Full Implementation Measures (approx. 6- 10 years).....	264
Table A:1: A956 (King Street) / A90 (North) – Bus Service Details (as of Spring 2022)	272
Table A:2: A956 (King Street) / A90 (North) – Future Development	273
Table B:1: A96 – Bus Service Details (as of Spring 2022).....	276
Table B:2: A96 – Future Development	277
Table C:1: A944 – Bus Service Details	280
Table C:2: A944 – Future Development.....	281
Table D:1: A956 / A92 / A90 – Bus Service Details	284
Table D:2: A956 / A92 / A90 – Future Development.....	285
Table E.1: Institute for Transportation & Development Policy (ITDP) - <i>Evaluation Toolkit for UK-based BRT schemes – Scorecard</i>	288
Table E:2: ART Key Success Factors: Commentary on and categorisation of the success factors...	296
Figure G:1: North Corridor - Routeing and Terminus Considerations.....	308
Figure G:2: North-West Corridor (Western end) - Routeing and Terminus Considerations	309
Table I:1: IND1: Access to employment - % increase in population able to access employment sites in less than 45 minutes (2045, AM Peak)	324
Table I:2: IND1: Access to employment - % increase in population able to access employment sites in less than 45 minutes – 20% most disadvantaged (2045, AM Peak).....	327
Table I:3: Accessibility to Foresterhill Health Campus (2045, AM Peak)	331
Table I:4: Accessibility to Key Education Campuses (2045, AM Peak)	331
Table J:5: IND1: Access to employment - % increase in population able to access the city centre in less than 45 minutes (2045, AM Peak)	333
Table J:1: Modal Shift and change in vehicle kilometres (0700-1900)	334

Table J:2: Journey Time Comparisons.....	336
Table J:3: Cross-city Car to Public Transport Travel Time Differentials	337
Table J:4: Journey Time Variability (2045, IP vs PM period)	339
Table J:5: Greenhouse Gas Benefits (for future year 2045, as estimated through TUBA)	344
Table J:6: IND7 - Quality Appraisal	346

Appendices

Appendix A	North Corridor
Appendix B	North-West Corridor
Appendix C	West Corridor
Appendix D	South Corridor
Appendix E	Derivation of BRT Success Factors
Appendix F	Form of the ART Network – Additional Detail
Appendix G	Routeing Analysis: Corridor Overview
Appendix H	Routeing Tests – Modelled Tests
Appendix I	TPO1 Analysis
Appendix J	TPO2 Analysis
Appendix K	Delivery Pathways - Discussions with other local authorities

DRAFT

This page is intentionally blank

Executive Summary

Overview

This Strategic Business Case (SBC) report sets out the process undertaken to develop the conceptual proposals (the 'ART Vision') as promoted in RTS:2040 and encapsulated in Transport Scotland's STPR2 Recommendation 13 to a point where a *preferred way forward* is identified for more detailed scheme development and appraisal in an Outline Business Case (OBC). The SBC is a gateway document seeking approval from decision makers to proceed to the OBC.

Why is ART needed?

The vision for the North East of Scotland, as articulated in the Regional Economic Strategy is for 'a regional economy that enables us to thrive. It is leading a just energy transition, diversifying our economy, enabling entrepreneurship and innovation, and delivering a wellbeing economy for our people – a post fossil-fuel future.' It seeks to achieve this through a thriving, innovation driven economy, an outstanding natural environment, a healthy and skilled population and a strong community and cultural identity.

The economy of Aberdeen and Aberdeenshire has been negatively affected by the move away from oil and gas in recent years and is now in a period of 'just transition' to a more broad-based economy. A reimagining of the region and Aberdeen city centre in particular is a key part of this transition and a range of developments are planned, through the City Centre and Beach Masterplan (CCBMP), to reposition the city centre as a key regional centre for culture, retail, leisure and tourism.

More broadly, local and national targets for net-zero require significant decarbonisation of our transport systems as well as a reduction in vehicle kilometres travelled. Improving the health and wellbeing of our population and reducing inequalities are also key to delivering the vision of the Aberdeen City Council Local Outcome Improvement Plan vision of Aberdeen as 'a place where all people can prosper' and Aberdeenshire Council's priorities for reducing poverty, health and wellbeing, and connected and cohesive communities. Successful city regions rely on high quality public transport provision which can support the delivery of these wider social, environmental, planning, social inclusion, carbon, energy and economic aims. In the north east, buses form the backbone of our public transport system, with around 24 million passengers in 2023 compared to only around 820 thousand rail passengers¹ travelling within Aberdeen / Aberdeenshire.

The Regional Transport Strategy sets a target of 50% of journeys to be undertaken by sustainable modes by 2040. The CCBMP also includes proposals to reduce the car-dominance of the urban realm in the city centre, so the provision of high quality, sustainable connectivity to the city centre is an essential component of the plan. Improved connectivity in this way will encourage and enable people from across the region to use and visit the city centre more, increasing footfall and hence supporting the viability of new city centre enterprises.

However, bus currently accounts for only 12% of commuting trips in Aberdeen and 3% in Aberdeenshire. Whilst road traffic levels have grown, bus use (passengers) and bus services (bus km) across the region have been in decline for the last 20 years and are falling at a time when the direction of national, regional and local policy requires sustained growth. The trend of increasing car use and declining public transport is reducing the ability of the city region to develop as a low carbon economy and place, limiting the realisation of the aims of the CCBMP, Local Development Plans and the wider Regional Economic Strategy. The root causes of this long-term decline in bus use have been identified through this SBC as being around: service frequencies, limited cross-city connectivity, long journey times, poor punctuality and reliability, the quality of park and ride options, the standard of bus stop and other infrastructure, the level of fares and the integration of services.

¹ Scottish Transport Statistics 2024, Table 7.6c

A step change in provision of public transport in and around Aberdeen has the potential to reverse this decline, supporting many wider national, regional and local aims and objectives and to help those across the wider region to access employment, education, health and leisure destinations across the city.

In response to the issues set out above, two Transport Planning Objectives (TPOs) have been set for ART as follows:

- TPO1: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve equality of opportunity
- TPO2: Increase public transport mode share in Aberdeen to support placemaking and the North East's Net Zero ambitions

What is the Preferred Way Forward?

The SBC has evidenced that the *preferred way forward* for ART is as follows:

- Two cross-city lines serving the major destinations across the City and into Aberdeenshire, operating on-street north-west to south and west to north, serving the length of Union Street and Union Square with seamless interchange between the two lines, operating with a turn-up-and-go frequency across a long operating day
- Extensive bus priority over general traffic to deliver fast and reliable journey times, primarily through the allocation of a lane of traffic to buses and signal priority at junctions
- New multi-doored zero-emission tram-style vehicles providing improved comfort and passenger security, accessible level boarding and more flexible floorspace for wheelchairs, buggies, luggage etc.
- High quality mobility hubs to provide a step change in interchange opportunities for those travelling from Aberdeenshire or further afield
- Off bus ticketing to reduce boarding and alighting times, delivering fast and reliable journey times
- High quality, more secure halts placed at key locations but with longer distances between halts to deliver fast and reliable journey times
- Real time information and simplified ticketing to make travel by ART as accessible and straightforward as possible
- A review and adjustment of the wider bus network in the context of new ART services will also be required, providing a fully integrated and effective service where connectivity is improved or maintained for all residents of Aberdeen and Aberdeenshire

Through these key elements, ART will deliver a significant step change in the quality of public transport in and around Aberdeen.

Ten service / route / terminus point permutations (informed through engagement and modelling) were analysed to determine the best routes for ART. The current recommended network is shown opposite.



Taken together, the proposed ART network runs over approximately 50km of carriageway, covers works at over 70 junctions, and the construction of three new Mobility Hubs.

What benefits will ART Deliver?

The ART proposals were developed in response to a range of problems with the current public transport 'offer' in and around Aberdeen which were identified through the RTS:2040 development process and other supporting workstreams.

The table below sets out these problems together with how it is anticipated that ART will address them.

Problem Description	Benefit of ART
There is a perception amongst many that current bus services are a low-quality travel option	ART would address the problem through the provision of a high quality, comfortable, contemporary and effective means of transport
There can be long wait times at bus stops	ART would address this with a consistent, frequent and understandable service pattern across the day, with services anchored at Park & Ride sites. Bus priority measures would provide much improved punctuality, preventing bunching of buses.
Limited cross-city bus connections leading to longer journey times making travel by bus unattractive and acting as a barrier to use for those with mobility issues	ART would significantly improve this by providing high frequency cross city connections and convenient interchange to the other key corridors
Travel times by bus are not competitive with those by car and therefore those with access to a car are much more likely to travel by car	ART services would significantly reduce bus journey times through extensive bus priority measures along the corridors, longer distances between halts (so fewer stops) and the use of off-bus ticketing to reduce dwell times at halts
Punctuality / journey time reliability and service cancellations are a key concern of the public	ART would address this through greater consistency of journey times and higher frequency services
The current Park & Ride 'offer' is ineffective and under used	ART would see a substantial improvement through redeveloped P&R / new mobility hub sites and high frequency, reliable services

Problem Description	Benefit of ART
The quality of on street and other supporting bus infrastructure is often poor	ART would address this by providing a consistent, high-quality service across the city's main corridors – secure and sheltered bus halts, real time information, level boarding etc.
Bus fares are perceived to be high and offering poor value for money	ART could address this by controlling fares and improving ticketing as part of a wider reform of bus operations around Aberdeen
Conventional buses offer limited floorspace flexibility and capacity , and there are some security concerns with double-deckers	ART would provide large single decker, low floor tram style vehicles with flexible floorspace for standing, prams, wheelchairs, luggage etc.
The level of integration between buses and other forms of travel is limited and inconsistent, including journey information and ticketing	ART would provide a service which is designed to be fully integrated with other modes across the city and could offer integrated ticketing across operators and modes

Connectivity analysis has confirmed that the faster journey times and frequent cross city services would reduce public transport journey times to a range of key destinations, providing new opportunities for many and some of Aberdeen's more deprived communities in particular, to more easily access employment / education / training opportunities, healthcare etc.

Earlier modelling work confirmed that the preferred way forward would generate **significant quantifiable benefits** to existing bus users and increase the number of people using public transport through people switching from car to ART. These outcomes would support Net Zero ambitions and have the potential to return a positive benefit to cost ratio.

This modelling at that stage also showed that the level of bus priority modelled and the associated reallocation of roadscape may cause some **traffic re-routeing** away from ART corridors – the minimisation and mitigation of any identified adverse impacts as result of this will be a key issue as the designs are refined.

The SBC has also identified that supporting measures that further **manage the demand for car travel** would improve the predicted benefits of ART in terms of greater public transport use, reducing vehicle kilometres and greenhouse gas reductions. Further work will need to be carried out, within the context of the Local and Regional Transport Strategies and the wider regional policy framework, to identify and assess the most appropriate solutions for the North East in terms of managing the demand for car travel to support wider policy objectives.

How might ART be delivered?

Bus services in and around Aberdeen are currently delivered almost entirely on a commercial basis with a minimal role for the public sector in the planning of services. The risk associated with any approach to the delivery of ART where there is substantial public expenditure on bus infrastructure, without guarantees that the current bus market alone would deliver the required service, ticketing and quality enhancements, makes this approach unacceptable. A change in the way that bus services are planned / delivered in and around Aberdeen will therefore be required, bringing a range of delivery complexities.

Two main mechanisms have been considered which could be used to deliver ART (and any changes to the wider bus network), both of which use powers made available through the Transport (Scotland) Act 2019. These are:

- Through a **Bus Services Improvement Partnership (BSIP) Agreement** – a partnership with bus operators – drawing on experience from delivery of Enhanced Partnerships and BSIPs in England, the BSIP is conventionally used for the delivery of options that are unlikely to cause significant changes to revenue on existing services or significantly impact on existing operators' commercial businesses. As ART does imply both of these things, there is uncertainty as to the

extent to which the BSIP model could deliver all or parts of the full vision for ART as well as the changes required to the wider bus network. It is however a mechanism that is readily available for delivery in the short term with Aberdeen City Council and Aberdeenshire Councils currently developing a BSIP 'Plan' – this will provide the over-arching framework for an ART specific 'Scheme'. In progressing ART through a BSIP approach, the Council would need to consider the extent to which investing under the framework of a partnership would deliver the intended outcomes under the ART vision with enough certainty.

- Through a **Franchising Framework** - under which the local authority would have the power to determine and control some or all bus services in and around Aberdeen. This fundamental change in the planning and delivery of bus services would be a complex, time-consuming and likely costly process which will require to consider the bus network as a whole across the city and potentially the wider region. No franchising scheme has been implemented to date in Scotland, although schemes are in place and being developed in England. The management, expertise and administrative effort required by the LTA (Local Transport Authority) to comply with the provisions of the 2019 Act, the potential operator opposition, and the likely need for the LTA to take on the financial (revenue) risk of all services operating within the franchise area (and potentially beyond if there are knock on implications for the commercial viability of services outwith a franchised area) mean that franchising, while feasible, is a major and largely unproven undertaking. The case for franchising would need to be made separately to the ART Business Case and be based on the benefits that it could bring to the bus network as a whole. It does however provide a delivery mechanism that provides certainty and control for the LTA over delivery.

It is important to note that, in contrast to England, there is limited published guidance regarding the Transport (Scotland) Act 2019 at present.

There are costs involved in setting up the delivery framework in which ART will be delivered. Delivery through a **BSIP approach** is likely to require significant discussion and negotiation with operators, and a major Network Review exercise including a first principles review of operator networks, market research, service planning, legal support and completion of a robust Competition Test, possibly including responding to any legal challenge by affected parties.

The challenges involved in establishing a **franchising framework** are much more significant. The management, expertise and administrative effort required by the local authority to comply with the provisions of the 2019 Act, the potential for hostility and lack of co-operation from incumbent operators and the financial modelling and management required mean that franchising, while feasible, is still difficult and costly. Estimates, based on admittedly limited experience of the few schemes that have been pursued thus far in the UK, suggest a **timescale of up to seven years for delivery**, and while noting the differences in population size and the larger area coverage of other franchise schemes, estimates from elsewhere **suggest the cost of establishing franchising to be anywhere between £4m and £20m**.

How much might ART cost?

There are three main components of potential cost – construction, vehicles & depots and revenue support.

Construction costs: At this SBC stage, given the way the project has evolved via a number of workstreams to date, a broad construction cost envelope has emerged, as outlined below.

Transformational options for Aberdeen's main radial corridors (covering most of the proposed ART routes) were initially developed through a series of Multi-Modal Corridors Studies (MMCS) in the context of Transport Scotland's Bus Partnership Fund. The commencement of these MMCS somewhat preceded the ART project and the ART project has therefore adopted these designs to date. The scope of the MMCS included significantly improved active travel (particularly cycling), in addition to bus priority, and the resulting designs therefore include a high level of provision for **walking, wheeling and cycling**, the latter often in the form of a two-way segregated cycle track. Given the additional roadspace required to accommodate both bus priority and segregated cycling,

this significantly increases the capital costs compared to a set of designs which focussed, for example only on bus priority measures.

It is not straightforward at this stage to estimate the scheme costs attributable to each mode. However, to provide an indication of this, and to highlight the cost of including the proposed high-quality cycling infrastructure on ART routes, assumptions have been applied to estimate the cost attributable by mode. It is estimated that **the proposed cycling infrastructure across the network accounts for around 40% of the overall cost**, primarily associated with the need to build beyond the current highway boundary.

Furthermore, a key feature of the proposed bus priority is at junctions where the designs reflect **maximised bus priority**. Ongoing design reviews will determine the optimal balance of costs and benefits associated with different junction layouts which may reduce costs.

The four scenarios outlined below provide an early indication of construction costs.² This encompasses junction and link modifications, the building of mobility hubs at Portlethen, Westhill and Blackdog, and the provision of high-quality pedestrian access to the ART network.

Bus Priority	Cycling	Cost Estimate (£m)
Full MMCS-derived package of highest level bus priority across the full ART network	Segregated cycle provision integral to the full ART network	£323m
Full MMCS-derived package of highest level bus priority across the full ART network, but excluding selected 'big ticket' elements ³	Segregated cycle provision integral to the full ART network	£286m
Full MMCS-derived package of highest level bus priority across the full ART network	Assumed that cycle provision is mainly delivered on alternative routes off the main ART corridor (not costed as part of this business case)	£205m
Full MMCS-derived package of highest level bus priority across the full ART network but excluding selected 'big ticket' elements	Assumed that cycle provision mainly is delivered on alternative routes off the main ART corridor (not costed as part of this business case)	£167m

Vehicle costs: The preferred way forward includes new tram-style vehicles which will likely require new depot facilities. It has been assumed at this stage that 18m articulated vehicles would operate the ART routes (similar to the Glider system in Belfast). A similar tram-like vehicle, such as the 'Irizar e-mobility ie tram'⁴ costs approximately £840,000 (2024 prices). It is estimated that 36 such vehicles would be needed to operate the two cross city ART routes, at an approximate cost of £30.2m (2024 prices). The financing of new vehicles, and by whom, needs further consideration as the ART



² Note that these costs include 'Optimism Bias' at 44% (see <https://www.transport.gov.scot/publication/stag-technical-database/section-13/>) which has been applied to the construction cost estimate plus 'preliminaries'.

³ Some corridors could include new infrastructure which would add significant cost – the value for money of these individual schemes will be established at a later stage (See Section 5.2)

⁴ <https://irizar-emobility.com/en/vehicles/irizar-ie-tram>

scheme and delivery mechanism become clearer, although this is likely to be a revenue / leasing cost rather than capital cost.

The scope and cost of any depot construction / acquisition and potential depot upgrades to accommodate new vehicles has not been estimated at this stage.

Revenue support: A key issue for ART is (i) whether the ART services could operate on a commercial basis or whether they would require subsidy, and (ii) whether the rest of the city's services could operate on a commercial basis or whether subsidy would be required. The scale of any subsidy requirement will clearly be a key issue for the public sector and the potential delivery pathways for ART, and the commercial position with respect to ART and the supporting network will likely influence operators' willingness to engage through the two delivery models.

Initial analysis of the preferred way forward suggested that a new city-wide bus network (ART and the supporting network) **could be introduced with a net operating surplus – i.e., without revenue support**. However, recognising that the revenue estimates have been derived from initial modelling outputs, detailed analysis of the revenue impacts will be undertaken in the OBC to provide confidence in the likely revenue impacts, and thus any potential subsidy / revenue risk implications.

What are the key uncertainties and risks?

The SBC has identified a wide range of risks and uncertainties which are typical of a project of this complexity involving as it does construction, network planning and contractual / regulatory change. The headline risks and uncertainties are set out below:

- ART in full **may not be deliverable via a BSIP** process - there is a risk of a requirement for franchising which would have significant time and cost implications
- ART and other bus services in and around Aberdeen may require **revenue support** to operate – the risk here depends on whether the revenue risk sits with operators or the councils
- There is uncertainty around **funding** streams – the risk being that funding is not available or ART has to be curtailed to fit a reduced funding envelope
- The **approach to cycling provision** along the corridors and the impact of this on project cost – the risk being that aiming to provide for both greatly increases project scope and capital costs making the project unaffordable
- Aspects of the scheme such as the **reallocation of roadspace** away from general traffic and parking pose a public / stakeholder acceptability risk
- The level of **mitigation** (traffic calming etc.) required to counter undesirable traffic re-routeing away from ART corridors onto less suitable roads is uncertain – the risk is that such re-routeing and associated mitigation may not be acceptable to the public and stakeholders
- The additional **traffic demand management measures** which would support ART may not be acceptable to the public and stakeholders

An extensive Risk Register has been developed and will be maintained and updated as the project progresses.

Next Steps

The key next steps, primarily associated with addressing the above uncertainties and risks are set out in the table below.

Development Stage	Topic	Next Steps
Developing the preferred way forward	Routeing	Further work, including connectivity modelling, will be undertaken to finalise the details of the two ART lines, and their potential phasing
	Vehicles	There will be further consideration of vehicle types including depots and revenue protection issues
	Infrastructure	- MMCS infrastructure designs will be reviewed and refined to ensure proportionality, maximise value for money and provide consistency across the corridors - Alternative provision for cyclists on parallel corridors and integration of ART corridors into the wider active travel network will be considered through the development of the Regional Active Travel Network
	Other bus services	- Analysis will be undertaken through the BSIP Scheme Network Review to revise the non ART bus services whilst at least maintaining current bus connectivity in and around Aberdeen - There will be further consideration of how services to / from Aberdeenshire are accommodated on the ART corridors
	Mitigation	The implications of the infrastructure designs on traffic will be analysed and measures will be developed to mitigate against any undesirable re-routeing
	Supporting policies	The scope for supporting traffic management measures to support ART will be considered
Quantification of benefits and value for money	Connectivity	Granular timetable-based analysis will be used to quantify and visualise the travel time and connectivity benefits of ART at the full postcode level
	Benefits	Detailed multi-modal modelling will be undertaken to estimate ART's benefits and revenue in line with Guidance
	Value for Money	This will be used together with the costs to determine the overall value for money of ART in the form of a Benefit Cost Ratio
Delivery Mechanisms	BSIP	- Agree and complete BSIP process - Undertake Network Review - Develop ART partnership proposals
	Franchise	Further develop understanding of the suitability of franchising as a means to deliver ART
Costing of options	Capital	Infrastructure costs will be updated as the proposals are further developed
	Revenue	- Further work is required to determine the funding options around new vehicles and depots - Further work is required to better estimate whether ART and other bus services in and around Aberdeen will require revenue support

The mechanism for progressing these issues to a point where a well-defined, deliverable programme / project is fully scoped out is the OBC, which will follow this SBC. Here, in line with guidance, the preferred way forward will be appraised in the context of other options to determine a **preferred option** for ART, covering the network of services, vehicles and depots, infrastructure, value for money, costs and funding, the delivery mechanism and the management arrangements.

Given the scale of the project, there may be benefits in adopting a **programme-level approach** to the OBC, in the form of a 'Programme OBC'. By doing this, ART would be treated as an overarching programme that would be the umbrella under which individual projects are later developed. The Programme OBC would seek to further develop the proposals, and identify the preferred form and delivery pathway for ART, including phasing. Adopting this 'programme' approach would also present

a benefit with regards to the costs of the next stage, as workstreams like site investigations and detailed legal inputs would only be required once individual projects (e.g., vehicles, depots, infrastructure, ticketing, mobility hubs etc.) are progressed as individual business cases nested under the Programme OBC.

1 Introduction

1.1 Overview

1.1.1 This report sets out the Strategic Business Case (SBC) for the proposed Aberdeen Rapid Transit (ART) project. The SBC starts from the position that the broad concept of ART has been established, and the purpose of the SBC is to develop this concept into a *preferred way forward* for the purposes of the subsequent Outline Business Case (OBC). Ultimately, this SBC is a gateway document seeking approval from decision makers to proceed to the OBC.

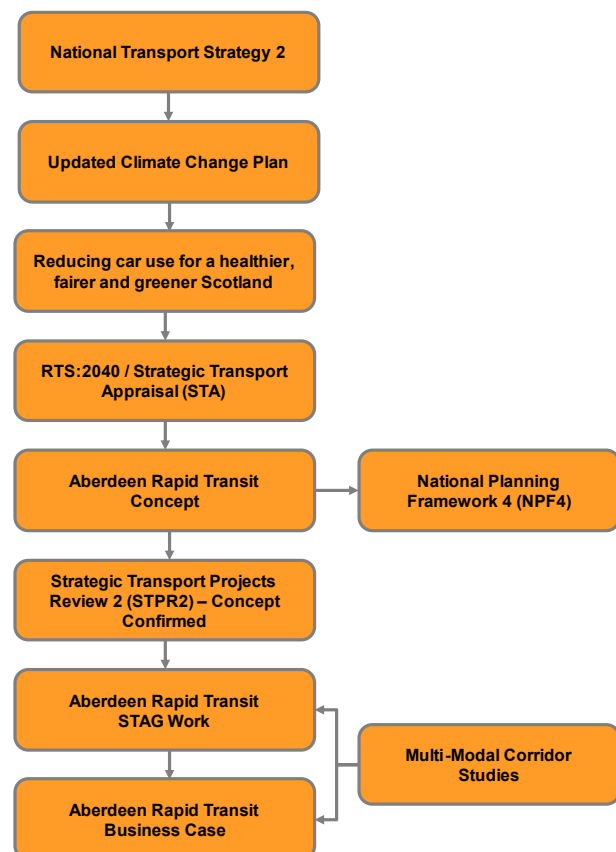
1.1.2 While the development of this Business Case has been commissioned by Nestrans, the project is being driven by the North East Bus Alliance partners, (Nestrans, Aberdeen City Council (ACC), Aberdeenshire Council (AC), First Bus, Stagecoach Bluebird and Bains Coaches) as a partnership approach to ensure the development of a transformational and achievable scheme.

1.2 What is ART and how did the proposals emerge?

1.2.1 This section briefly sets out the sequence of events which have led to the ART proposals.

1.2.2 Scotland's *National Transport Strategy 2 (NTS2)*⁵ was published in 2020 and set out the national action plan for improving and developing transport across the whole of Scotland. It aims to deliver the following priority outcomes: **reducing inequalities; taking climate action; ensuring inclusive economic growth; and improving health and wellbeing**. NTS2 also features a 'Sustainable Travel Hierarchy' and 'Sustainable Investment Hierarchy' which **promote public transport** in preference to single occupancy car use.

1.2.3 The *Updated Climate Change Plan*,⁶ also published in 2020, sets out ambitious actions to end Scotland's contribution to climate change by 2045 aligned to NTS2, including targets to **reduce car kilometres** by 20% and phase out the need for petrol and diesel vehicles, both by 2030. The Scottish Government then published its initial route map to achieve this 20% reduction in car kilometres by 2030 in the *Reducing car use for a healthier, fairer and greener Scotland*⁷ publication in which **investment in the public transport network** features prominently.



1.2.4 The Nestrans *Regional Transport Strategy (RTS)*, RTS:2040⁸ was therefore produced in the context of this new policy context and this drew heavily on a regional *Strategic Transport*

⁵ [National Transport Strategy 2 | Transport Scotland](#)

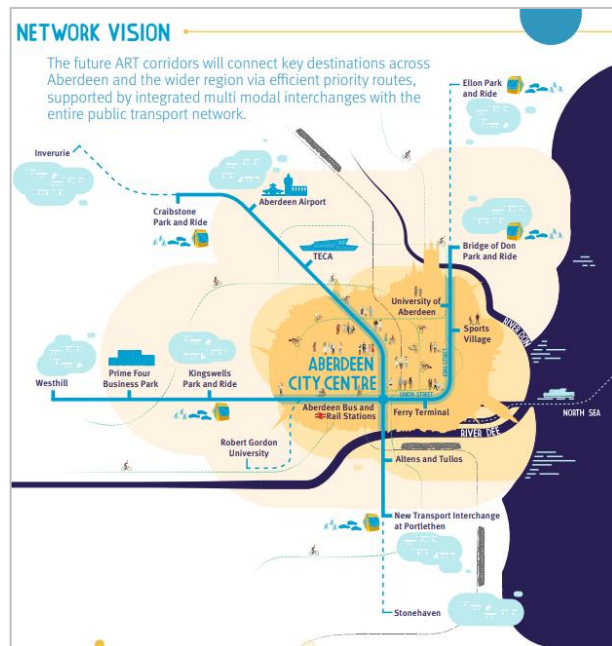
⁶ [Securing a green recovery on a path to net zero: climate change plan 2018–2032 - update - gov.scot \(www.gov.scot\)](#)

⁷ [A route map to achieve a 20 per cent reduction in car kilometres by 2030 | Transport Scotland](#)

⁸ [Documents – Regional Transport Strategy 2040 | NESTRANS](#)

Appraisal (STA)⁹, undertaken via the Aberdeen City Region Deal. The STA scoped out the transport requirements to support the Aberdeen City Region for the next 20 years including a range of transport options focussed on developing Aberdeen city centre as the key regional centre for commerce, leisure, and tourism. This included a '**Strategic Public Transport Corridor**' scheme featuring new public transport priority schemes on the key radial transport corridors into Aberdeen. Options for 'mass transit' were considered including new Bus Rapid Transit (BRT)¹⁰, trams, tram-train and light rail. The benefits, capital costs and implementation timescales for a tram, tram-train, or light rail-based solution were explored compared to a bus-based scheme. This appraisal work, alongside analysis of Belfast's bus-based Glider system and others, informed the inclusion of '**Aberdeen Rapid Transit**' concept as a policy in the RTS:2040 – this being 'a *high capacity 'tram-like' solution that can achieve the performance and benefits of more expensive modes, whilst being achievable and deliverable*'. The RTS set out that the scheme was envisaged to take the form of an **on-street BRT** system based on two cross-city 'lines', broadly north west to south and west to north.

- 1.2.5 The ART concept was then appraised and essentially validated in Transport Scotland's national *Strategic Transport Projects Review 2* (STPR2)¹¹ with the resulting Recommendation 13 for continued working with local partners in developing plans for a bus-based rapid transit system for Aberdeen. It was noted that the project would support all five of the STPR2 objectives, these being: *a sustainable strategic transport system that contributes significantly to the Scottish Government's Net Zero emissions target; an inclusive strategic transport system that improves the affordability and accessibility of public transport; a cohesive strategic transport system that enhances communities as places, supporting health and wellbeing; an integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland; and a reliable and resilient strategic transport system that is safe and secure for users.*
- 1.2.6 ART (Urban Mass / Rapid Transit Network) was also then designated as a 'National Development' in the *National Planning Framework 4* (NPF4) (published in 2023) with this designation meaning that '*the principle of the development does not need to be agreed in later consenting processes, providing more certainty for communities, businesses and investors*'.
- 1.2.7 Further appraisal and engagement were then undertaken in the form of three **STAG-based workstreams** – the Case for Change, Preliminary Options Appraisal and Detailed Options Appraisal studies (2021-23) which developed the scheme from its initial concepts in RTS:2040 / STPR2, appraising the resulting options with a mix of qualitative and quantitative approaches. A particular challenge for ART is that **bus services in and around Aberdeen**



⁹ [City Region Deal – Strategic Transport Appraisal | Nestrans](#)

¹⁰ As defined by the Urban Transport Group, BRT refers to rubber-tyred public transport systems, which deliver a higher quality passenger experience than conventional street running buses. BRT covers a wide array of schemes, ranging from targeted improvements such as high-quality bus stops and consistent branding, to large scale investment in new segregated busways. Common to all BRT schemes is the aim to improve passengers' experience and perception of public transport, be it through faster journey times and greater reliability, to the use of real time passenger information and improved ride comfort.

¹¹ [Strategic Transport Projects Review 2 | Transport Scotland](#)

are operated almost wholly commercially by First and Stagecoach, meaning that the operators have control over which services they operate. The fundamental reshaping of the City's bus network implied by ART therefore brings a range of delivery issues explored in the STAG and this subsequent business case work.

- 1.2.8 In parallel with the STAG work, several **multi-modal corridor studies** (MMCS) were undertaken to develop transformational active travel and bus priority options for the main radial corridors around Aberdeen, including much of the proposed ART corridors. The resulting infrastructure proposals now form a part of the ART proposals. As noted, the scope of these MMCS included provision for significantly improved infrastructure for **active travel** along the corridors, in addition to bus priority. The ART project has, in the first instance adopted these designs, which therefore include a high level of provision for walking and cycling. **This SBC is however solely concerned with the business case for ART and not the active travel component of these proposals.**
- 1.2.9 This **SBC** therefore draws on and develops the previous work to provide a single narrative for ART, succinctly setting out (i) the Case for Investment and the associated objectives of the project; (ii) an appraisal of the different forms that a BRT scheme such as ART could take; (iii) the preferred way forward for the proposals into the OBC; and (iv) an initial view of how the project can be delivered and managed and the financial and risk landscape in which the project would sit.

1.3 Approach to SBC

- 1.3.1 This SBC has been developed to be compliant with the Scottish Public Finance Manual (SPFM)¹², the HM Treasury *Guide to Developing the Project Business Case*¹³, and Transport Scotland's *Guidance on the development of Business Cases*¹⁴. These guidance documents outline the evidence required for each of the **five Business Case 'dimensions'** and ensure the development of a balanced, robust, and consistent Business Case. Note that within the guidance documents, the Strategic Business Case is referred to by differing names, sometimes being called (as in the HM Treasury Guidance) the Strategic Outline Business Case. Within this Business Case, the term Strategic Business Case (SBC) has been adopted but Strategic Outline Business Case and Strategic Business Case should be considered as interchangeable.
- 1.3.2 The purpose of the SBC stage in the Business Case development process is to confirm the strategic context for the project, and to make the case for investment and determine 'the preferred way forward'. However, given the nature and scale of the potential scope of the project, the approach to developing the Financial, Commercial and Management dimensions have gone somewhat beyond what is typically required at SBC stage. This is because the scheme may be *dependent on* the viable delivery model – so this issue needs to be considered in more detail at an earlier stage. This is particularly pertinent given the significant transfer of costs and financial risks that could occur depending on the delivery mechanism chosen, with the way the scheme is delivered also influencing the extent to which improvements can be achieved.
- 1.3.3 Therefore, this SBC focusses on making the case for a step change improvement in public transport through a bus based rapid transit system, and the regulatory framework required to deliver this.
- 1.3.4 The scope of the SBC will broadly follow the process set out in the diagram below.

¹² [Scottish Public Finance Manual - gov.scot \(www.gov.scot\)](http://gov.scot/www.gov.scot)

¹³ [Guide to developing the Project Business Case](#)

¹⁴ [j422084.pdf \(transport.gov.scot\)](#)



Figure 1:1: Overarching SBC Process

- 1.3.5 This SBC will provide information to inform whether the desired step change improvements through ART are broadly affordable, acceptable to the public and stakeholders, acceptable in terms of risk, and deliverable within the institutional framework of the north-east.

1.4 SBC Structure

- 1.4.1 This report is structured with a chapter covering each of the five business case dimensions. The focus, given the SBC stage of the project, is on the Strategic and Economic Dimensions but with, as noted above, the detail provided in the Commercial, Financial and Management Dimensions goes beyond what is typically required at this stage:
- **Strategic Dimension:** describes how ART will contribute to achieving strategic priorities and how it aligns with existing portfolios, programmes and projects across government and in the North-East Scotland region. It seeks to make a compelling, evidence-based case to demonstrate why a step change in public transport is needed.
 - **Economic Dimension:** identifies and appraises the options for the delivery of ART and recommends the option that is most likely to offer best Value for Money to society, including wider social and environmental effects as well as economic value. At SBC stage, the option appraisal process identifies and appraises a wide range of realistic and possible options (the long list) – thereby identifying a ‘preferred way forward’ as opposed to a preferred option (which is identified at OBC stage)
 - **Commercial Dimension:** focussed on the key contractual and delivery arrangements for ART. It sets out the potential financial implications of the proposed procurement strategy. It presents evidence on risk allocation and transfer, contract timescales and implementation timescales as well as details of the capability and skills of the team delivering ART and any personnel implications arising from ART. At SBC stage, the focus is on:
 - the potential commercial operational viability of the proposed services across the ART network
 - the potential service operation delivery pathways for the proposed services across the ART network – taking cognisance of the anticipated commercial viability of the services
 - the procurement and contract management of a significant capital investment infrastructure project
 - the ongoing management of the maintenance of new scheme infrastructure
 - **Financial Dimension:** The purpose of the Financial Dimension of the business case is to demonstrate the affordability and funding of the preferred option, including the support of stakeholders and customers, as required. At SBC stage, with a more significant weighting on the Strategic and Economic Dimensions, the Financial Dimension provides an overview of the estimated capital infrastructure and vehicle costs (at a high level) of the scheme, costs associated with the potential delivery mechanisms and explores fundability for further scheme development.
 - **Management Dimension:** The Management Case outlines the robust framework and methodologies that will be employed to ensure the successful delivery of ART. It details the governance structures, project management strategies, risk management processes, and stakeholder engagement plans that will be implemented. At SBC stage, this Dimension considers future development stages of the project, the delivery of infrastructure, and the delivery of new services, but with a focus on scoping out the work required to progress the scheme in these regards at OBC stage.

2 Strategic Dimension

2.1 Overview

- 2.1.1 The strategic dimension describes how ART will contribute to achieving strategic priorities and how it aligns with existing portfolios, programmes and projects across government and in the North-East Scotland region. It seeks to make a compelling, evidence-based case to demonstrate why a step change in public transport is needed.
- 2.1.2 The Strategic Dimension of the SBC covers two core elements:
- **the Strategic Context:**
 - provides an overview of the governance / organisational context and considers the wider social and economic context, using evidence, to demonstrate how ART fits with the strategic priorities of the organisation, wider government ambitions and local and regional strategies
 - Describes how ART interacts with planned and existing strategic portfolios, programmes and projects in the North-East
 - **the Case for Investment (Cfi):** outlines the current situation, identifies a clear rationale for the transport intervention and provides a logical, objectively supported, and evidence-based process of change to determine how the ART vision, ambitions and intended outcomes will be achieved. The Cfi section will:
 - Set the overarching context through consideration of the region's current population, employment, the location of significant trip attractors and generators, sites for planned development, and areas of deprivation
 - Set out current travel trends, in relation to all general traffic and public transport, including information relating to the bus network, services, frequencies, connections, Park & Ride facilities, fares, vehicles and infrastructure, public views on the bus network and discussion on a range of external challenges facing the bus industry and bus operators
 - Define a set of succinct transport problems stemming from the above
 - Set out the ART vision for addressing the identified problems and 'closing the gap'
 - Stemming from the transport problems and vision for ART, determine a set of Transport Planning Objectives to 'close the gap'
- 2.1.3 The Strategic Dimension also considers the risks and constraints associated with the delivery of ART within the current and future environment, as well as the dependencies on other projects and programmes. This includes the development of a risk register for the scheme and the setting out of clear governance for the project. An overview of communications and engagement on the ART proposals to date is also provided.
- 2.1.4 The breadth of work undertaken to date and reported through the RTS:2040, STA, the various multi-modal corridor studies, and work developing a case for change for ART, has provided a significant volume of material and evidence to support the development of the Strategic Dimension. These documents have been drawn upon as appropriate within this Business Case.

2.2 Strategic Context

Governance and Organisational Overview

Overarching Governance

Bus Partnership Fund

- 2.2.1 This project was initially funded through Transport Scotland's Bus Partnership Fund (BPF).
- 2.2.2 The **North East Bus Alliance** (a voluntary Quality Partnership between Aberdeen City Council (ACC), Aberdeenshire Council (AC), First, Stagecoach Bluebird, Bains Coaches and Nestrans) submitted an application to the BPF which was successful, with £12million in funding awarded in June 2021. The funding has been used across a range of projects, including delivering significant bus priority in the city centre, and for the development of several multi-modal corridor studies on strategic routes into the city, as well as to develop and appraise options for an urban mass / rapid transit network in Aberdeen.
- 2.2.3 A **BPF Programme Board** was set up to provide overview of the BPF Programme and delivery across the region. The Board included senior management from Aberdeen City Council, Aberdeenshire Council, and Nestrans. The BPF Programme Board reported to the Aberdeen City Council Committees, Aberdeenshire Council Committees, and Nestrans.
- 2.2.4 The **BPF Programme Board** also reported to the **North East Bus Alliance Board**, made up of an independent chair, and management representatives from both Aberdeen City and Aberdeenshire Councils, Nestrans, bus operators and Bus Users UK. The North East Bus Alliance Board has oversight of all BPF workstreams and has influence over all reports and decision making prior to Committee. The **North East Bus Alliance Executive and BSIP Development Group** feeds into the North East Bus Alliance Board and includes Bus Operator representation with ownership of the Bus Action Plan. They are engaged with on all BPF projects with influence over project progress and recommendations. They also have responsibility for the development of a Bus Service Improvement Partnership (BSIP) Agreement, the development of which was a stipulation of the BPF funding.
- 2.2.5 Up until a pause in BPF funding in March 2024, the Nestrans Board and both Councils reported progress to Transport Scotland through regular meetings and Gateway Reviews encompassing appropriate decision points in the projects. These meetings were also attended by representatives providing corporate governance to Transport Scotland in administering the BPF fund.

Aberdeen City Region Deal

- 2.2.6 Despite the pause in BPF funding in March 2024, there was a strong desire to continue work. As such, project funding now comes through the **Aberdeen City Region Deal (ACRD)**.¹⁵
- 2.2.7 The ACRD is the agreement between the UK Government and the Scottish Government with Aberdeen City Council, Aberdeenshire Council and Opportunity North East (ONE) as one delivery mechanism for the Region's economic vision which focuses on transformational investment supporting the evolution of the region's key sectors, sustainable business growth and creating green jobs for the future.
- 2.2.8 The **Aberdeen City Region Deal Joint Committee** was established by Aberdeenshire and Aberdeen City Councils (the "Constituent Authorities") and consists of elected representatives of both Councils and members of a private sector led economic leadership board, ONE. The Joint Committee drives and governs the implementation of the City Region Deal programme and its links to the Regional Economic Strategy. It works to maximise the economic benefits of

¹⁵ <https://www.gov.uk/government/publications/city-deal-aberdeen-city-region>

the Deal. The Constituent Authorities determine the powers delegated to the Joint Committee under legislation, and as such, only the Constituent Authorities can amend its powers and Terms of Reference. The Aberdeen City Region Deal Joint Committee reports to both Scottish Government and UK Government as joint ACRD funders.

- 2.2.9 Given the change in funding, the BPF Programme board now also reports to the **Aberdeen City Region Deal Transport Working Group**. The working group has overview of the City Region Deal (ACRD) Transport programme including risks, budgets and timescales and includes representation from Transport Scotland, Scottish and UK Governments. The working group reports to the **Aberdeen City Region Deal Programme Board** comprised of a Senior Management team which includes representatives of the two Councils and the private sector. The Programme Board advise on the overall direction of the ACRD and delivery of the key interventions and outputs. It provides advice on the overall strategic direction to ensure that the economic benefits from the Programme are maximised across other regional economic developments and infrastructure delivery. The Programme Board reports into the Aberdeen City Region Deal Joint Committee discussed above.
- 2.2.10 In March 2024, Aberdeen City Council appointed a **dedicated Programme Manager** to manage and coordinate all the studies that had been progressed through funding from the BPF. This encompassed managing the aforementioned range of ongoing multi-modal studies commissioned by Aberdeen City Council and Nestrans, as well as this study which is commissioned through Nestrans (all with original funding through the BPF). The Programme Manager has responsibility for study Business Case development, engagement and communications plans, and seeking input as appropriate from Nestrans and Aberdeenshire Council officers, and bus operators. The Programme Manager initiates, coordinates and chairs monthly Project Team meetings and regular meetings with consultants working on the now ACRD funded projects. The Programme Manager reports directly to an **ART Programme Board** (formerly the BPF Programme Board) and North East Bus Alliance Board and sits on the BSIP Development Group.
- 2.2.11 This overarching governance structure is set out in the figure below.

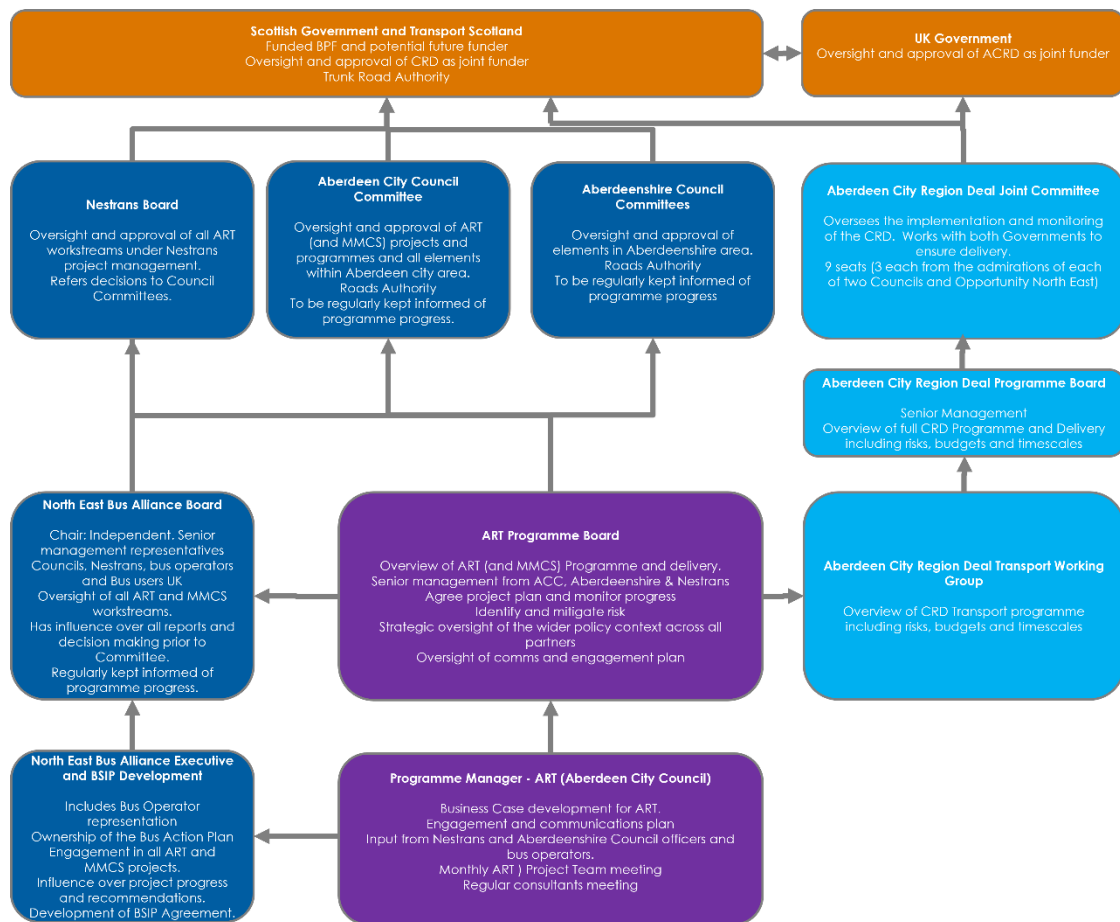


Figure 2.1: Governance Structure

Alignment to existing policies and strategies

- 2.2.12 This section sets out the strategic policy, legislative and funding context in which the ART proposals sit, demonstrating that the vision for public transport in the region aligns with a wide range of local, regional, and national policies and strategies.
- 2.2.13 While improving public transport aligns with national, regional, and local transport policy and strategies, it also supports a wealth of further local and wider regional aims and objectives, often acting as a core catalyst to their delivery. In this regard, improved public transport has an important role in the successful delivery of wider social, environmental, planning, social inclusion, carbon and energy, and economic policy.
- 2.2.14 As set out in the introductory chapter, the need for a step-change in public transport provision in the North East emerged through the Nestrans RTS, RTS:2040 which reflects the national policy context as set out in Scotland's *NTS2⁵* and the *Updated Climate Change Plan*. The work undertaken to develop the RTS:2040 involved engagement and consultation across a range of stakeholders and the public, with the ART scheme concept being presented as part of regional transport plans and with '*Delivering Aberdeen Rapid Transit*' as a core policy within the strategy. Furthermore, as also set out in the introductory chapter, a rapid transit system in Aberdeen already has national recognition within *STPR2* (as a high-quality bus-based rapid transit system) and *NPF4* (as an Urban Mass / Rapid Transit Network). The development of *STPR2* and *NPF4* also included a wide range of engagement during their development, with the ART scheme covered within this.
- 2.2.15 Alongside the core underpinning *NTS2*, *Updated Climate Change Plan*, and *RTS:2040* documents, the recognition of a rapid transit system to support the region, as acknowledged in

STPR2 and *NPF4*, should be viewed as fundamental in providing the foundation for the case for investment presented within this SBC. This confirms that ART aligns with these key national strategies.

- 2.2.16 Figure 2:2 below sets out the range of national, regional and local policies, strategies and plans that ART would contribute to - recognising that, as the regional centre with a wide hinterland, these benefits would extend beyond the city and be felt by those throughout Aberdeenshire who also travel into the city for employment, education, health and leisure and to access onward travel opportunities.
- 2.2.17 In this regard, the desired step change in public transport delivered through ART is a regional, and not just Aberdeen-focussed proposal.



Figure 2:2: Policy Context

National Context

- 2.2.18 Alongside the underpinning NTS2, *Climate Change Plan*, *STPR2*, and *NPF4*, there are a range of other policies and strategies to which ART is well aligned. These are set out below alongside legislative and funding context.

Transport (Scotland) Act 2019 (Legislation)

- 2.2.19 The ***Transport (Scotland) Act 2019***¹⁶ came into force in June 2022 providing new opportunities for Local Authorities including, powers to implement greater control and operation of local bus services as well as enhanced partnership working arrangements, enforcement of Low Emission Zones and discretionary powers to introduce a Workplace Parking Licensing scheme, all aimed at improving sustainable transport and reducing car use. The Act specifies the following mechanisms for delivery of local bus services in a Local Transport Authority (in this case Aberdeen Council and Aberdeenshire Council, as the Local Transport Authorities) area:

- Bus Service Improvement Partnership
- Bus Franchising
- Municipal Ownership

- 2.2.20 There are clear opportunities through the act to deliver significant improvements to public transport, with different levels of public sector influence and control. Each mechanism has an associated level of costs that may be incurred in set-up and operation, financial risk allocation to local authorities and bus operators, and the potential for legal challenge. As of January 2025, statutory guidance to support Councils in the application of these powers has yet to be published by Scottish Government.

- 2.2.21 It is worth noting that Strathclyde Partnership for Transport approved plans in March 2024 to begin work to establish local bus franchising, in line with the requirements of the Transport (Scotland) Act 2019. Furthermore, acting under the similar Bus Service Act 2017 in England, several Mayoral Combined Authorities in England have declared intentions to explore or develop bus franchising in their region including West Yorkshire, the West of England and Liverpool City Region. Ahead of others, Greater Manchester Combined Authority began the first phase of franchising in the region in September 2023.

How is ART aligned with this?: the powers delivered by the 2019 Act provide a range of potential delivery mechanisms for ART through a single mechanism, or through a combination of the mechanisms, stated above.

Scottish Government's Programme for Government (Strategy)

- 2.2.22 The ***Scottish Government's Programme for Government (PfG) (2024-25)***¹⁷, published in September 2024, focusses the Government's efforts and resources on our four key priorities: eradicating child poverty, growing the economy, tackling the climate emergency, and ensuring high quality and sustainable public services.
- 2.2.23 While the PfG focusses very little on bus itself, within the PfG, are actions to support achieving net zero through supporting households and communities with reducing their emissions – in a way that can save households, businesses, and the public sector money. This includes progressing the Government's ambition of a 20% reduction in car use by 2030, with a route map including a timeline for implementing 'demand management'. Actions also include £2.5bn in the 2024/25 financial year to support public transport services. The PfG also sets out the *Climate Change (Emissions Reduction Targets)* Bill to establish a carbon budget approach to

¹⁶ [Transport \(Scotland\) Act 2019 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2019/10/contents/enacted)

¹⁷ <https://www.gov.scot/publications/programme-government-2024-25-serving-scotland/>

target setting and notes the intention to make provision for a new *Climate Change Plan* to be published that reflects these carbon budgets. The ultimate target of net zero by 2045 remains and the Government will retain annual reporting on emissions and a commitment to just transition principles.

How is ART aligned with this?: the aims of ART are well aligned with the current PfG and the previous PfG provided the legislative context to deliver the scheme.

Scotland's National Strategy for Economic Transformation – Delivering Economic Prosperity (Strategy)

- 2.2.24 Published in March 2022, *Scotland's National Strategy for Economic Transformation – Delivering Economic Prosperity*¹⁸, sets out the priorities for Scotland's economy as well as the actions needed to *maximise the opportunities of the next decade to achieve our vision of a wellbeing economy*. The strategy recognises NTS2 as part of a suite of plans and strategies to support resilient national infrastructure that can support a high productivity economy. The Programme of Action includes a commitment to *'deliver STPR2 to help make Scotland more accessible for residents, visitors and businesses; create better connectivity with sustainable, smart and cleaner transport options; and highlight the vital contribution that transport investment can play in enabling and sustaining Scotland's economic growth'*. As noted above, a bus-based rapid transit system for Aberdeen is a recommendation within STPR2. With regards to a *'skilled workforce'* the strategy also notes the opportunity that *'Providing people with the opportunities to develop skills, irrespective of who they are and where they live, is key to ensuring everyone has the opportunity to participate fully in the labour market....we must address the barriers faced by some, including transport'*.

How is ART aligned with this?: the strategy refers to the delivery of STPR2, from which ART is a recommendation and specifically notes that barriers to transport need to be addressed

Transport Just Transition Plan (Strategy)

- 2.2.25 The development of a **Transport Just Transition Plan (TJTP)**¹⁹ by the Scottish Government has been launched through a discussion paper, designed to support engagement on the Plan. It recognises that *our future transport system can be more equitable, making sure everyone's needs are met and helping to reduce existing inequalities*. The Plan also states that *'transport alone makes up the largest source of emissions in Scotland (31% in 2019), with cars producing most of the transport emissions (39% in 2019)'*.²⁰ The draft Plan is still to be published but will provide an action plan and route map outlining the key steps needed to deliver a fair transition in this sector. The Plan will complement Transport Scotland's existing commitments and the vision defined in the NTS2. The discussion paper proposes a set of outcomes that articulate the National Just Transition Planning Framework specifically for transport and cover:

- Jobs, Skills and Economic Opportunities
- Communities and Places
- People and Equity
- Environment, Biodiversity and Adaptation

¹⁸ [Scotland's National Strategy for Economic Transformation - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/scotland-national-strategy-economic-transformation/pages/2-introduction.aspx)

¹⁹ [Just transition for the transport sector: a discussion paper - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/just-transition-transport-sector-discussion-paper/pages/2-introduction.aspx)

²⁰ [Section B. Results – Net Sources of Scottish Greenhouse Gas Emissions - Scottish Greenhouse Gas Statistics 2020 - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/scottish-greenhouse-gas-statistics-2020/pages/2-introduction.aspx)

- 2.2.26 The paper highlights priority areas for transformational progress with Themes 1 and 2 focussing on demand management, whilst Themes 3 and 4 cover maximising economic opportunities.

How is ART aligned with this?: ART strongly supports Themes 1 and 2 by providing accessible, sustainable, and competitive travel by public transport supporting reduced car use to reducing inequalities through reducing car use, facilitate viable alternatives to car use, capture the opportunities from investment, trade and innovation in the transport transition and provide skills and jobs in the transport transition

Scottish Government's Cleaner Air for Scotland 2 (Strategy)

- 2.2.27 The **Scottish Government's Cleaner Air for Scotland 2**²¹ publication sets out an air quality policy framework for the next five years and a series of actions to deliver further air quality improvements. The framework notes NTS2's recognition that Scotland's current transport system is a significant contributor to poor air quality, and that there is a need to reduce vehicle journeys, reduce the need to travel unsustainably and accelerate sustainable modal shift. Indeed, the framework states that *'buses are arguably the single most important mode for reducing transport related air pollution due to their central role in reducing congestion, improving journey time reliability, and as a key component of future Mobility as a Service (MaaS) solutions'*.

How is ART aligned with this?: ART provides an opportunity to deliver a zero emission rapid transit system which will deliver an attractive alternative to car use.

Scottish Zero Emission Bus challenge fund (Funding)

- 2.2.28 Progress in decarbonising Scotland's bus fleet is already underway. The **Scottish Zero Emission Bus challenge fund** (ScotZEB¹¹) opened to applications in 2021 with the aim to support swift and significant change in the bus market in favour of zero-emission technologies. By supporting the transition to zero emission vehicles and infrastructure, the fund is helping to achieve targets to reduce greenhouse gas emissions, contribute to the delivery of Low Emission Zones, and encourage inward investment and growth in the supply chain of zero carbon vehicles.
- 2.2.29 The first round of funding saw £62million awarded to nine bus operators and local authorities (including First Aberdeen and Stagecoach Bluebird). A second and final round of the ScotZEB funding saw a further £42million awarded (including to Stagecoach) and available for drawdown through to 2025/26.²²

How is ART aligned with this?: ART should be delivered using zero emission vehicles. ScotZEB, or its successors, could be a source of funding

Scotland's Road Safety Framework to 2030 (Strategy)

- 2.2.30 The Scottish Government's **Scotland's Road Safety Framework to 2030**²³ was published in February 2021. The Framework sets out a vision for Scotland to have the best road safety performance in the world by 2030 and an ambitious long term goal where no one is seriously injured or killed on our roads by 2050. The framework's first Delivery Plan (2021-2022) set out targets by mode including in relation to pedestrians, cyclists and road users, and notes a strategic Action to *ensure road safety remains a key focus of active and sustainable travel in Scotland*.

²¹ [Cleaner Air for Scotland 2 - Towards a Better Place for Everyone - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/cleaner-air-for-scotland-2/pages/2-towards-a-better-place-for-everyone/)

²² [Scottish Zero Emission Bus Challenge Fund \(ScotZEB 2\): FOI release - gov.scot](#)

²³ [Road Safety Framework to 2030 | Transport Scotland](#)

How is ART aligned with this?: ART was noted within STPR2 to support the objective for a *reliable and resilient strategic transport system that is **safe and secure for users***. Through system design that promotes safety and encourages modal shift, and with appropriate and safe integration with other sustainable modes, ART has the potential to support the targets set within the *Road Safety Framework*.

Scotland's Accessible Travel Framework (Strategy)

- 2.2.31 Scotland's Accessible Travel Framework²⁴ was created in 2016 as a 10-year plan. The final Delivery Plan 2024 – 2026 was published in October 2024 and seeks to improve the door to door journeys for disabled people and many others who might, at any time, have difficulty when travelling in and around Scotland.
- 2.2.32 The final Delivery Plan, and the priorities within it, were agreed in co-production with the National Transport Accessibility Steering Group the *Mobility and Access Committee for Scotland (MACS)*, and by policy officials from across Transport Scotland and Scottish Government. Of relevance to ART are activities noted in relation to bus in the Passenger Experience workstream within the Delivery Plan. This includes: analysing whether evidence supports work to promote driver and station staff disability awareness and disability equality training; support for the Public Service Vehicle Access Regulations (PSVAR) review; and identifying other priorities for disabled bus users and look for opportunities to incorporate them into Transport Scotland specific programmes. The workstream considering journey planning, ticketing and wayfinding aims to ensure that digital and non-digital information resources, are fit for purpose so that disabled travellers can make more journeys, and that travel information is accessible and fit for purpose should enable more disabled people to make more successful journeys.

How is ART aligned with this?: A core ART aim is to ensure equal access for all, aligning firmly with the ambitions of the Accessible Travel Framework.

Regional Context

Aberdeen City Region Deal (Strategy and Funding)

- 2.2.33 As noted previously, the need for a step change in public transport provision emerged through a transport appraisal undertaken via the **Aberdeen City Region Deal (ACRD)**. The ACRD is one delivery mechanism for the Region's economic vision and between 2018 and 2028 UK Government, Scottish Government and local leaders are committed to a £826 million funding package for the ACRD to address the challenges currently facing the region and to capitalise on the substantial regional opportunities.
- 2.2.34 The ACRD made a commitment to scope out the transport requirements to support the area for the next 20 years – as undertaken and reported as the STA. The STA encompassed the development and appraisal of a range of transport options which sought to promote and develop Aberdeen city centre as the key regional centre for commerce, leisure, and tourism. One such option was a *Strategic Public Transport Corridor Scheme(s)* as a regional scheme.

How is ART aligned with this?: the ART project stems in part from the ACRD, and is a key enabler of the economic objectives of the Deal.

RTS:2040 (Strategy)

- 2.2.35 Clearly the **RTS:2040** strategy document is the core catalyst for the development of public transport improvements, and as noted previously, it drew on the STA and further recognised that to encourage modal shift to achieve environmental, economic, placemaking and social objectives, a fresh approach to public transport was necessary. RTS:2040 includes key

²⁴ [going-further-scotlands-accessible-travel-framework-summary.pdf \(transport.gov.scot\)](https://www.transport.gov.scot/publications/going-further-scotlands-accessible-travel-framework-summary.pdf)

priorities which focus on improving journey times; reducing carbon emission to support net-zero aim; ensuring accessibility for all; achieving a 50:50 mode split between the car and sustainable modes; improving air quality; and achieving no fatalities on the road network. As part of the *RTS:2040*, Nestrans also prepared a series of equalities assessments to support the strategy.

- 2.2.36 The work to develop the *STA* and *RTS:2040* involved engagement across a range of stakeholders and the public with the early ART scheme concept being discussed as part of the wider region and has included: the City and Shire Councils (and their Elected Members): the North East Bus Alliance, Bus Operators, Aberdeen International Airport, the two universities and North East Scotland College, Scottish Enterprise, NHS Grampian, Sustrans and Paths for All, accessibility groups, local cycle and walking groups and partnerships, the Chamber of Commerce and businesses, the emergency services, climate action groups, and community councils and the general public. Details of the activities undertaken are noted in the table below.

Table 2.1: Summary of early engagement around the scheme concept

Strategy / Study	Stage	Who	When	Form of Engagement
City Region Deal – Strategic Transport Appraisal	Initial Appraisal: Case for Change ²⁵	Stakeholders	October 2017 – February 2018	Face-to-face interviews and one-to-one telephone calls
	Preliminary Options Appraisal ²⁶	Stakeholders	November 2019	Workshop
RTS:2040	Draft Strategy ²⁷	Stakeholders and public	August 2020	Virtual exhibition, workshops and online survey (which include a series of equalities assessments published as supporting documents to the draft Regional Transport Strategy as part of the public consultation)

How is ART aligned with this?: ART is a flagship project of *RTS:2040*

Regional Economic Strategy (Strategy)

- 2.2.37 As noted above, the *ACRD* is one delivery mechanism for the region's economic vision. The Aberdeen City Council, Aberdeenshire Council and Opportunity North East (ONE) **Regional Economic Strategy (RES)**, published in 2015, identified potential investment opportunities including regenerating the city centre, developing infrastructure, improving the deployment of low carbon transport, and accelerating the transition to a more balanced economy.
- 2.2.38 The review and update of the *RES* in 2022/23²⁸ reflected the ambitions of the Scottish *National Strategy for Economic Transformation* and the *Just Transition* and the changed economic environment as discussed above. The updated strategy, 'A sustainable economic future for the North East of Scotland'²⁹ was published in February 2024 and sets out a long-term plan for North East Scotland to transform its economy over the next decade and beyond'. The strategy states that '...since 2016, the domestic and global context within which the North

²⁵ [Aberdeen-STAG-Pre-Appraisal-Interim-Report_LoRes.pdf \(nestrans.org.uk\)](#)

²⁶ [Aberdeen-City-Region-Deal-Strategic-Transport-Appraisal-Preliminary-Options-Appraisal_Final.pdf \(nestrans.org.uk\)](#)

²⁷ [Documents – Regional Transport Strategy 2040 | Nestrans](#)

²⁸ [Regional Economy | ONE \(opportunitynortheast.com\)](#)

²⁹ [Regional Economic Strategy 2035 FINAL.pdf \(investaberdeen.co.uk\)](#)

East's economy operates has fundamentally changed. The full scale and impact of the climate emergency is now being realised, and our responsibility to rapidly decarbonise and play a leading role in a just transition to net zero is more urgent than ever.'

- 2.2.39 The RES notes 'We can take advantage of the changing demand for city and town centres and the change to hybrid-working to transform our public spaces, digital, and transport infrastructure, to ensure everyone has the opportunity to be connected, and to take part in our cultural experiences'.
- 2.2.40 The strategy sets out four 'programme areas': A Thriving, Innovation Driven Economy; An Outstanding Natural Environment; A Healthy and Skilled Population; and A Strong Community and Cultural Identity
- 2.2.41 The strategy notes NPF4's identification of an Urban/Mass Transit network in Aberdeen, and states '**there is clear support for Aberdeen Rapid Transit proposals and bus priority measures**'. The strategy notes that '*physical and digital connectivity to key national and international centres of business activity is crucial*'. The impact of the COVID19 pandemic on Aberdeen is also reflected upon, noting it was hit particularly badly with an impact upon the wider economy and with several indicators pointing to further decline in the city centre. The strategy therefore states that '**Recent trends in the region highlight the increased importance of the.....City Centre and Beach Masterplan to support town/city centre recovery**'.
- 2.2.42 In the strategy's Programme Areas, an action to 'Implement the Regional Transport Strategy and Action Plan' is stated.
- 2.2.43 A Regional Economic Partnership (REP)³⁰ is also proposed. The REP is to be created to deliver on the objectives and ambitions of the new RES and work is ongoing to create this to ensure a central place within the region to develop and deliver on regional economic projects.
- How is ART aligned with this?:** ART is clearly a key component of the RES, in particular supporting net zero and regeneration ambitions

Aberdeen City Centre and Beach Masterplan (CC&BMP) (Strategy)

- 2.2.44 Recognised in the RES (as noted above), there is a wealth of ongoing change within Aberdeen itself, focussed on the **Aberdeen City Centre and Beach Masterplan (CC&BMP)**³¹, a 20-year regeneration blueprint that is transforming the city centre while conserving its proud heritage. It identifies a series of projects that will support future economic growth and will secure more benefits and opportunities for the communities of Aberdeen City and Aberdeenshire, making Aberdeen a better place to live, work, visit and do business.
- 2.2.45 The goal is greater prosperity, a better quality of life for all, and encouraging people to walk or cycle more. The Masterplan was approved by Aberdeen City Council in June 2015, with a review undertaken and agreed in May 2021.
- 2.2.46 Eight objectives feed through the Masterplan: to change perceptions; grow the city centre employment base; introduce a metropolitan outlook; create a living city for everyone, made in Aberdeen; reveal the waterfronts; become technologically advanced; environmentally responsible; and be culturally distinctive.
- 2.2.47 The Masterplan contains over 50 projects split across areas: the city centre including Union Street and the West End; Aberdeen Market; Queen Street; the beach area; and combined city and beach area. The projects range from delivering enhanced civic space to helping support new events.
- 2.2.48 The proposed masterplan interventions will change the way that current and potential future residents and visitors experience and view the city, acting as a catalyst to increase visitor

³⁰ [Regional Economic Partnerships - Scottish Hub For Regional Economic Development](#)

³¹ [City Centre Masterplan | Aberdeen City Council](#)

spend in the city centre's existing retail, leisure, and hospitality businesses, and could encourage more people to live in and invest in the city.

- 2.2.49 The policies and proposals in the *CC&BMP* seek to address the link between changes in land-use and transport, ensuring that both existing and future communities are accessible by a comprehensive, safe and effective transport network.
- 2.2.50 The *CC&BMP* seeks to revitalise the city centre (with Union Street being the central 'pillar') and identifies actions including implementing bus-only streets on key city centre corridors and introducing bus gates on the approach to city centre junctions to lessen the impact of congestion on journey times. In 2022 the central section of Union Street was made bus-only, and in 2024 a bus priority route was created with a bus and taxis-only section on Bridge Street, Guild Street (east of Wapping Street), and Market Street (north of Guild Street). Clearly there is the potential for further 'step change' improvements in public transport to capitalise on this increased level of bus priority, with both Union Street and Union Square key destinations and transport hubs within the city centre.
- 2.2.51 The *CC&BMP* also seeks to capitalise on the built and natural assets of the Beach area which is a tourism priority in its own right. The beach area is also an intrinsic component of the Aberdeen Coastal Trail, and the wide variety of tourism offer that includes nature, golf, maritime history, and dolphin watching. Plans include a new home for Aberdeen Football Club (although a longer term aspiration), a makeover for the Beach Ballroom and a brand new urban park. Links between the city centre and the beach area form part of the masterplan proposals, but the area itself has the potential to become a core destination within the city and needs consideration when developing public transport improvements, as a future destination to be appropriately served.
- 2.2.52 To complement the Masterplan, Aberdeen City Council developed a ***Sustainable Urban Mobility Plan***³² (*SUMP*) for the city centre. The *SUMP* was developed to:
- Identify interventions that will help realise the city centre elements of the revised roads hierarchy, in particular the principles of reducing the volume of through-traffic and improving accessibility and permeability of the area for people walking, cycling and using public transport
 - Complement, and further develop, the transport principles and proposed projects identified in the *CC&BMP*
 - Identify some enabling infrastructure that may be required to support the success of other projects such as the city centre Low Emission Zone and bike hire scheme
- 2.2.53 Core elements of the *SUMP* vision include:
- Improve the public transport experience to, from and within the city centre, particularly in terms of achieving shorter and more reliable journey times
 - Improve connectivity between key destinations in and around the city centre by sustainable modes of transport

How is ART aligned with this?: The planned growth and placemaking aspirations of the *CC&BMP* need to be accompanied by an increase and improvement in public transport access which can stimulate economic growth, create jobs, promote equality, reduce congestion and create a more attractive urban realm. It's a key component of a sustainable and prosperous economy in both Aberdeen and Aberdeenshire.

³² <https://www.aberdeencity.gov.uk/sites/default/files/2020-01/Final%20Aberdeen%20SUMP.pdf>

North East Bus Alliance – State of the Bus Network (Research and Strategy)

- 2.2.54 The North East Bus Alliance is a voluntary Quality Partnership Agreement between Nestrans, Aberdeen City Council, Aberdeenshire Council, First Aberdeen, Stagecoach Bluebird and Bains Coaches. A Passenger Charter, set out in the signed agreement states that ‘...bus operators in the Partnership will provide a modern, accessible, and high quality fleet. They will also ensure that drivers go through recognised customer care and disability awareness training. Operators will individually strive to ensure that their ticketing strategy is focused on customers value for money, to increase the bus market, to fund future investment and ensure the long term viability of services.’ The agreement further states that ‘Public sector partners will implement policy, infrastructure and traffic management measures that will benefit buses by improving reliability, reducing journey time variability and/or reducing current journey times. This will include more schemes that will give people using buses greater priority. They will also provide high quality and accessible passenger waiting areas. Public sector partners shall seek to support socially necessary routes in relevant areas through conventional scheduled service and demand responsive services and they will ensure that an increasing proportion of these routes are provided using quality and accessible vehicles.’
- 2.2.55 In June 2019, the Bus Alliance produced a *State of the Bus Network* report³³ and, in April 2020, published a *Bus Action Plan* which was updated in both 2021 and 2022 (with a subsequent report in 2025, see next paragraph). The report sets out the Partnership’s priorities for bus services across the region. The Partnership agreed a prioritised list of corridors (linked to the existing Park & Ride sites) as its focus for delivering improvements to bus services to be supported by a form of statutory agreement(s) e.g., a Bus Service Improvement Partnership(s). The Bus Alliance agreed to take forward multi-modal corridor studies for the corridors: the *Ellon to Garthdee Multi-modal corridor study*³⁴, the *A96 Multi-modal corridor study*³⁵, the *A944 / A9119 Multi-modal corridor study*³⁶, the *Wellington Road Multi-modal corridor STAG study*³⁷ and the *Aberdeen-Laurencekirk Multi-modal Study*³⁸.
- 2.2.56 A subsequent *State of the Bus Network* report was published early 2025. The report conveyed progress since the 2019 report was published and highlighted that clear progress had been made. However, funding was noted as a continual concern across the public and private sector, and interventions were required to reduce congestion, improve journey times, and enhance the punctuality and reliability of services. The report concluded that the partners of the Bus Alliance would work together to enter into a BSIP to *strive forward towards improving bus travel in the region*. Going forward, the report will be kept under continuous review.

How is ART aligned with this?: ART will significantly advance the aspirations of the existing voluntary Quality Partnership Agreement. The outputs from the multi-modal studies are an essential input to the ART proposals with the options developed under each informing the design and costings as presented in this SBC.

North East Road Hierarchy (Strategy)

- 2.2.57 The *North East Road Hierarchy*³⁹ (2019) provides a system that reflects the updated emphasis on Aberdeen city centre as a destination and makes the most effective use of the Aberdeen Western Peripheral Route (AWPR) for distributing traffic around the city and reducing the extent of cross-city traffic movement. The objectives of the hierarchy included, amongst others, ‘*reducing bus journey times to make them more competitive with car journey times*;

³³ *Assessing the State of the Bus Network in Aberdeen and Aberdeenshire*, North East Bus Alliance, 2019, 5aapp-State-of-the-Network-Report_Final.pdf (nestrans.org.uk)

³⁴ *Ellon P&R to Garthdee Transport Corridor – STAG Based Appraisal – Problems, Issues, Opportunities and Constraints*, Aecom, November 2020

³⁵ *A96 Multi-modal Corridor Study*, A96 Multi-modal Transport Study - Problems and Opportunities Technical Note, Stantec, April 2022

³⁶ *A944-A9119 Case for Change*, Stantec, August 2020

³⁷ *Wellington Road Multi-modal corridor study*, STAG Part 1 report, Aecom, April 2018

³⁸ *Aberdeen-Laurencekirk Multi-modal Feasibility Study*, Initial Appraisal: Case for Change, Aecom, October 2020

³⁹ nestrans.org.uk/wp-content/uploads/2019/06/North-East-Scotland-Roads-Hierarchy-Study-2019.pdf

improving reliability to make public transport more attractive, ensuring effective and efficient movement of goods to the city centre and harbour; facilitating the removal of air quality management areas (AQMAS), ensuring effective use of the post-AWPR transport network, and maximising the benefits by 'locking-in' the additional capacity created by committed road schemes towards sustainable transport modes'.

How is ART aligned with this?: ART will be a key measure meeting the hierarchy's objectives to reduce bus journey times and improve reliability. Its delivery is enabled by the implementation of the Roads Hierarchy and is a key part of 'locking-in' the additional capacity for sustainable modes.

Active Travel Network (Strategy)

2.2.58 Nestrans has developed a **Regional Active Travel Network**⁴⁰, which they adopted in February 2025 and covers Aberdeen, Principal Towns in Aberdeenshire, and Regional Links. The network is intended to:

- Provide good quality links for the journeys that many people want to make
- Help make communities nicer places to live, work in and visit
- Work with other parts of the transport network, to help people make connections to/from bus, train and other modes of transport
- Complement the other plans and proposals of the Local Authorities and their partners for improving transport in the region
- Enable the region's roads to still do all the other things they need to do: provide access for buses, lorries, vans and cars, and ensure people can access their homes and businesses

2.2.59 The network has been developed taking cognisance of the outcomes of the MMCS and aspirations for ART. On some of the principal routes into Aberdeen, the often constrained roadspace, especially closer to the city centre, allows for a broader appreciation of ART in the context of active travel provision. Careful consideration and integration between modes is required to ensure the benefits of improvements to public transport can be fully realised, while providing attractive, accessible, and viable routes for active travel. The network is formed of important routes in built-up areas, with regional connectors which link the region's communities, providing solutions that are appropriate to the different geographies and different types of people across the region.

2.2.60 The RATN sets out seven standards of provision which might be appropriate in different locations across this network and which are developed from best practice guidance including *Cycling by Design*⁴¹ and *The National Roads Development Guide*⁴². These standards of provision should be used to assist in identifying the appropriate level of active travel provision on ART corridors.

How is ART aligned with this?: the ART infrastructure proposals incorporate consideration of walking, wheeling and cycling, in line with the Sustainable Transport Hierarchy and in line with the aims of the RATN. Effective connections to the ART network should also be developed to ensure integration between ART and the wider active travel network

⁴⁰ [19/02/2025 Board Papers | Nestrans](#)

⁴¹ [Cycling by Design | Transport Scotland](#)

⁴² scotsnet.org.uk/_data/assets/pdf_file/0035/45998/National-Roads-Development-Guide.pdf

Health and Transport Action Plan (2024 – 2029) (Plan)

- 2.2.61 The Health and Transport Action Plan (2024 – 2029) covering the Grampian region (Aberdeen, Aberdeenshire and Moray) sets out a vision, high level objectives and key priorities to guide partnership working between all those with an interest in the better co-ordination of health and transport services, alignment of strategies and improvement of health outcomes. It provides a framework for organisations to work collaboratively towards the visions agreed and the objectives set out and priority actions committed to.
- 2.2.62 The initial plan was developed in 2007/8 and reviewed in 2013, with a more recent review undertaken in 2023/24 and the plan subsequently updated for the period 2024-29. The plan sets a Future Vision incorporating:
- **Transport and Public Health:** Promote active travel (walking, wheeling, cycling) to improve population health and reduce health risks associated with the transport network.
 - **Access to Health and Social Care:** Ensure everyone can access necessary health and social care services conveniently and affordably, while minimising environmental impacts
- 2.2.63 There are also four Strategic Objectives set:
- **Increase Active Travel:** Enhance infrastructure and promote the benefits of physical activity
 - **Reduce Health Risks:** Address air pollution, noise, road safety, and social isolation
 - **Improve Access:** Identify and resolve gaps in access to health and social care services
 - **Sustainable Transport:** Promote sustainable modes of transport and reduce travel where possible
- 2.2.64 The Action Plan recognises the relationship between health and transport. The Plan notes *‘The transport system facilitates access to jobs, education, shops, leisure, and other essential services, including health services. As well as having a key role in the wider economy, access to these daily essentials is of vital importance to an individual’s physical and mental wellbeing, socio-economic status, and levels of social inclusion. Therefore, availability of accessible, affordable transport choices is regarded as a key aspect of place and a determinant of health.*

How is ART aligned with this?: ART clearly has a role in supporting, in particular, sustainable transport access to the Foresterhill Health Campus, as well as other health facilities across the proposed network. In addition, through encouraging the use of sustainable modes, ART can support the HTAP objectives relation to public health i.e. through increasing levels of personal physical activity.

Other Strategies

- 2.2.65 Nestrans has also published a range of further strategies including an **Active Travel Action Plan**⁴³, **Freight Distribution Strategy**⁴⁴ and **Assessment of Freight in Aberdeen and Aberdeenshire**⁴⁵ and has a strategic role in supporting aviation, access to health, maintenance, maritime, strategic roads and travel behavioural change. Recognising the importance of freight in supporting the economy of the region needs to be carefully considered and managed as public transport improvements are considered, especially recognising the impact of roadspace reallocation on both freight movement within Aberdeen and deliveries.

⁴³ [AcTrAP_FINAL.pdf \(nestrans.org.uk\)](https://nestrans.org.uk/AcTrAP_FINAL.pdf)

⁴⁴ [PORTIS-4ABZ3-Freight-Distribution-Strategy-finalised-1.pdf \(nestrans.org.uk\)](https://nestrans.org.uk/PORTIS-4ABZ3-Freight-Distribution-Strategy-finalised-1.pdf)

⁴⁵ [Final-Assessment-of-Freight-in-Aberdeen-Report.pdf \(nestrans.org.uk\)](https://nestrans.org.uk/Final-Assessment-of-Freight-in-Aberdeen-Report.pdf)

- 2.2.66 Nestrans recognises that Aberdeen International Airport is a key part of the North-East's transport infrastructure and vital to the North East economy, providing connectivity for multiple industries⁴⁶ and that journeys to and from the airport are important to air passengers. To this end, it is recognised that working with Aberdeen International Airport and taking cognisance of the *Surface Access Strategy* contained within the **Aberdeen International Airport Masterplan**, to support prioritising sustainable travel and improving accessibility for all is required. The airport itself, as a key destination for the region requires careful consideration within any proposals to improve public transport in the city.

How is ART aligned with these?: provision for active travel and freight will be key design considerations of the ART scheme. ART is intended to serve Aberdeen Airport.

Local Context

Local Transport Strategies

- 2.2.67 The **Aberdeen Local Transport Strategy (LTS)**⁴⁷ is currently being developed. Consultation undertaken to inform the LTS highlighted the lack of / limited public transport options as one of the weaknesses with the Aberdeen transport network along with public transport integration and interconnection. Policy 8, 'Aberdeen Rapid Transit,' within the draft strategy highlights how a mass transit network can support improvements beyond just improving the current bus services. The policy highlights the need 'to work with partners including Nestrans, Transport Scotland and the North East Scotland Bus Alliance to develop an integrated Mass Transit 'step-change' public transport solution offering quick, attractive access to, from and across the city'. The Policy highlights the opportunities for other modes of transport to interchange with such a mass transit network.

Aberdeenshire Council is also currently finalising the **Aberdeenshire Local Transport Strategy**⁴⁸ and note it is *possibly going to be the most ambitious, bold and far reaching of the Council's Local Transport Strategies to date*. As part of the strategy development, Theme Paper 2 sets out the key issues for public transport and places strong emphasis on the need to improve services in areas such as connectivity, area deprivation, and transport poverty. The Paper notes the projected increase in population in Aberdeenshire of 15% by 2041. It is projected that there will be a 29% increase in people of pensionable age presenting challenges requiring a public transport system suitable to meet the health and wellbeing needs of this group. The Paper also notes the need to deal with climate emergency issues. Aberdeenshire Council is also currently progressing an update to their **Aberdeenshire Passenger Transport Strategy**⁴⁹ which is reviewing and updating their policies with respect to the delivery of passenger transport, including potential links with an Aberdeen-based mass transit system. The Strategy sets out three Strategy Outcomes, of which one is to *increase bus use by encouraging a shift in travel from car to passenger transport*.

How is ART aligned with this?: the concept of ART is an integral part of Aberdeen's LTS. In addition it will contribute to the ambitions of the Aberdeenshire LTS, particularly with regards to the 'Travel Effectively' theme – which notes that 'Public transport is one of the most efficient methods of travel and efforts will be made to improve access to bus and rail services.' ART supports the Aberdeenshire Passenger Transport Strategy and its Strategic Outcome to increase bus use through enabling opportunities for those resident in Aberdeenshire to access, by bus, the regional facilities located in Aberdeen, and other onward transport connections from Aberdeen.

⁴⁶ [Aviation | Nestrans](#)

⁴⁷ <https://www.aberdeencity.gov.uk/services/roads-transport-and-parking/local-transport-strategy>

⁴⁸ [Local Transport Strategy 2023 | Engage Aberdeenshire](#)

⁴⁹ [Draft Passenger Transport Strategy 2025](#)

Local Development Plans

- 2.2.68 The **Aberdeen Local Development Plan (LDP) 2023** represents Aberdeen City Council's land use strategy for 10 years from 2022. Its aim is to support the Council's vision of creating a sustainable and socially equitable future for the city. The plan highlights the Scottish target of achieving Net Zero by 2045 and states that to achieve this all aspects of society and the economy must be mobilised to reduce emissions across all sectors. The Plan has been developed to ensure housing, leisure and work are co-located where possible and encourage active or public transport in place of the car. The Plan notes the need for enhanced public transport service provision to support planned development and highlights transport interventions to support this through developing cross city services and optimisation of services including new bus priority infrastructure.
- 2.2.69 Work started on producing the next Aberdeen LDP in 2023. The Aberdeen LDP 2028 will replace the existing local development plan, and the new Plan will be taken into consideration in the context of ART as it progresses, with ART referenced in the Evidence Report.
- 2.2.70 The **Aberdeenshire LDP 2023** includes policy outcomes *to make efficient use of the transport network, and reduce the need to travel and promote walking, cycling, and public transport*. The Plan also notes the need to make sure that new developments take place alongside where the transport system is either suitable for dealing with the increased travel demand or can be improved. Like the Aberdeen LDP, work has also started on plan preparation for the Aberdeenshire LDP 2028, covering the period 2028 – 2038. Both the Aberdeen and Aberdeenshire 2028 LDPs will be prepared to accord with the new guidance on local development planning⁵⁰ published by the Scottish Government to support reforms made in the Planning (Scotland) Act 2019⁵¹. The new Aberdeenshire LDP 2028 will also be taken into consideration in the context of ART as details of the Plan emerge.
- 2.2.71 Both Aberdeen and Aberdeenshire development sites are presented spatially in Figure 2:7. The figure shows developments located close to the key arterial routes into Aberdeen, with significant development proposed to the north of Aberdeen at Cloverhill, Blackdog, Balmedie and in Ellon, and to the north-west around Craibstone and the airport as well as sites in Aberdeenshire around Kintore and Inverurie. To the west, development is shown close to the A944 with the large site at Countesswells as well as development at Maidencraig and at the Prime Four business park, and Westhill. There are also developed sites to the south at Chapelton of Elsick and Loriston.
- 2.2.72 In addition, *Local Living*⁵² and *NPF4* are emphasising the use of brownfield sites for the next 2028 LDPs, and many of these types of sites are in or near the proposed ART corridors.

How is ART aligned with this?: the ART network is broadly aligned to the spatial strategies in both LDPs, and presents the opportunity to support and encourage sustainable transport access to and from the sites.

Aberdeen Economic Report (Research and Strategy)

- 2.2.73 In 2017, Aberdeen City Council approved the appointment of an **Economic Policy Panel** to provide independent commentary on the state of the Aberdeen economy. The 2023 report⁵³ notes the changing demographics of the region that will *'exert an ever greater influence on the underlying health and shape of the North East economy in the years to come. At a national level, the Census highlighted the changing structure of Scotland's population. In particular, the average age of Scotland's population is increasing. Those aged 65 and over now outnumber those aged under 15'*. It also notes that *'the importance of cities being both an attractive place to live and work has gained added impetus since COVID-19, in part due to changes in where many people live, work and shop as well as the impact on hospitality and tourism'*.

⁵⁰ [Local development planning guidance - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/local-development-planning-guidance/pages/1-1-introduction.aspx)

⁵¹ [Planning \(Scotland\) Act 2019 \(legislation.gov.uk\)](https://www.legislation.gov.uk/ukpga/2019/12/part/2/schedule/1/paragraph/1)

⁵² [Local living and 20 minute neighbourhoods: planning guidance - gov.scot](https://www.gov.scot/publications/local-living-and-20-minute-neighbourhoods/pages/1-1-introduction.aspx)

⁵³ [Aberdeen Economic Report 2023 1.4 \(002\)_0.pdf \(aberdeencity.gov.uk\)](https://www.aberdeencity.gov.uk/media/1002/0.pdf)

- 2.2.74 The report recommends the importance of creating a greater sense of identity and purpose for Aberdeen and the need for bold decisions to support an accelerated Just Transition toward new and green energies. Clear articulation is also recommended around the role of The Event Complex Aberdeen (TECA) and its wider assets in driving growth for the region by supporting tourism and business and leisure events. Diversification is noted as a key part of the overall regional economic strategy and the importance of the Energy Transition Zone and Aberdeen South Harbour are noted.
- 2.2.75 **How is ART aligned with this?:** Clearly improvements to public transport provision in the city can play an underpinning role in the achievement of the above through enabling equality of accessibility, supporting the CC&BMP and providing connectivity between people and employment.

Net Zero Aberdeen Routemap (Strategy)

- 2.2.76 The Panel report discusses Net Zero and the **Net Zero Aberdeen Routemap**⁵⁴, with a pathway set out towards Aberdeen becoming net zero by 2045. The route map states that *‘to meet Net Zero by 2045, a rapid change is required in the transportation network, alongside the development of actions towards more sustainable travel’* and that *‘a modal shift is needed from the currently private car dominated system to one of increased active travel, public transport, car sharing, echoing the National Transport Strategy’s Sustainable Transport Hierarchy.’* The Plan’s Strategic Aim is to *‘reduce travel demand, play a key role in enabling a transition to low / zero emission vehicles and facilitate more walking, wheeling and use of public transport to reduce emissions while increasing the safety of road user’*. A strategic objective is to *‘increase public transport options to encourage low carbon travel’* and ART is noted in the route map as a ‘game changer’ for public transport. Furthermore the Routemap notes the desire to maximise investment in the existing and new Park & Ride facilities, deliver significant bus priority which ensures competitive, consistent and reliable journey times on all key routes, and encourage a better balance of road space.

How is ART aligned with this?: ART would clearly contribute to net zero ambitions through mode shift from car to public transport.

Local Outcome Improvement Plans

- 2.2.77 The **Local Outcome Improvement Plans** (LOIP) for both Aberdeen and Aberdeenshire, set overarching priorities within the Local context. LOIPs for Aberdeen and Aberdeenshire have been developed through the Aberdeen and Aberdeenshire Community Planning Partnerships respectively.
- 2.2.78 Community Planning Aberdeen is a local partnership of public, private and third-sector organisations and communities all working together to improve people’s lives across Aberdeen City. The partnership’s **Aberdeen Local Outcome Improvement Plan**⁵⁵ (2016 – 2026) was refreshed in 2024 and sets out how Community Planning Aberdeen will improve outcomes for and with local people and communities. The vision set out in the Aberdeen LOIP is that Aberdeen will be ‘a place where all people can prosper’ by 2026, with everyone in the city to have the same opportunities, regardless of their background or circumstances. Community Planning Aberdeen have set out 16 ‘stretch outcomes’ and 97 improvement aims that they are seeking to achieve by 2026, set across four themes of Economy, People, Place, and Community Empowerment. Outcomes under the Place theme include reducing carbon emissions in the city, and increasing sustainable travel (walking, cycling and reducing car use).
- 2.2.79 Similarly, Aberdeenshire’s Community Planning Partnership has developed **Aberdeenshire’s LOIP** (2017-2027), with the Plan’s priorities reviewed in 2020. The LOIP vision is *Working together for the best quality of life for everyone in Aberdeenshire* and the Aberdeenshire LOIP

⁵⁴ [Net Zero Aberdeen Routemap & Enabling Strategies | Aberdeen City Council](#)

⁵⁵ [Home - Community Planning Aberdeen](#)

has six guiding principles of inclusion, accountability, partnership, evidence-based, sustainability and efficiency.

How is ART aligned with this?: By providing attractive and accessible transport options, ART will provide new opportunities for residents to achieve the aims set out in the LOIPs.

Active Travel

2.2.80 Aberdeen City Council have an **Aberdeen Active Travel Action Plan (2021 – 2026)**⁵⁶. The Plan was approved by the City Growth and Resources Committee in February 2021. It sits as a supplementary document to the Aberdeen LTS to further develop the active travel aspirations of that strategy. The Plan notes the significant risk that the benefits of the recent billion-pound investments in transport (including the AWPR) will gradually erode should the council not take steps to 'lock in' these benefits. Particularly noted is the importance of *'using the freed-up road capacity afforded by the opening of the AWPR and other schemes to give more priority to sustainable modes of transport, particularly walking and cycling'*. The 2021 – 26 Plan notes, in terms of progress since the previous Plan that *early indications are that traffic flows within the City have already been altered and there is now less congestion within the City which allows us to carry forward a number of projects to reshape traffic in the City in favour of Active Travel modes*.

2.2.81 Aberdeenshire Council have a **Walking and Cycling Plan**, published in 2009. Note that both the Regional Active Travel Network being developed (discussed above) and the **Aberdeenshire Integrated Travel Towns (ITT)** project⁵⁷ (supported by Sustrans and Paths for All) supersede the 2009 document. The ITT project sets out several proposals, from infrastructure developments designed to support more active and integrated travel, to softer interventions such as mapping, signage, events and promotional activities, which are hoped will have a wider community benefit. The ITT project is feeding into the Regional Active Travel Network development. Good modal interchange between active travel and bus is important in ensuring the benefits of improved public transport in Aberdeen can benefit those in Aberdeenshire.

How is ART aligned with this?: The ART network will need to accommodate and integrate with proposals and plans for active travel, with recognition that walking and wheeling are a fundamental component of any bus trip.

Working in Partnership For Aberdeen

2.2.82 It is worth noting that, Aberdeen adopted the "Working in Partnership for Aberdeen" statement in 2022.⁵⁸ The statement outlines the collaborative efforts between the SNP and Liberal Democrat groups to address various challenges and improve the quality of life in the city.

2.2.83 The statement noted under a *Greener Transport, Safer Streets, Real Choices* theme a desire for *a good quality and environmentally friendly transport network where people have real choices about how to travel is vital for any modern city. Sadly, many of Aberdeen's roads and pavements are in very poor condition, many roads are unfriendly to cyclists, and some communities are either poorly served or not served at all by bus services*.

2.2.84 The actions noted to tackle this challenge included *working with the Scottish Government and Nestrans to improve the city's bus network, including considering options for an Aberdeen Rapid Transit network, with the support of the Scottish Bus Fund, and consider options for council-run services in the city*.

⁵⁶ <https://committees.aberdeencity.gov.uk/ieListDocuments.aspx?CId=618&MId=7687&Ver=4>

⁵⁷ [Integrated Travel Towns - Aberdeenshire Council](#)

⁵⁸ [WorkinginPartnershipPolicyStatement.pdf](#)

How is ART aligned with this?: the joint statement clearly sets out a political desire across parties for continued development of the ART scheme.

Alignment with Policy - Summary

- 2.2.85 A step change in public transport in Aberdeen has the potential to support many wider national, regional and local aims and objectives as set out above. ART would have a multi-faceted role in ensuring delivery of not only transport policy but wider social, environmental, planning, social inclusion, carbon and energy, and economic policy.
- 2.2.86 At the heart of this is the potential for a step change in public transport provision to support:
- meeting Scottish Government climate change targets
 - underpinning the ambitions in the *Net Zero Aberdeen Route map*
 - realising economic benefits
 - reducing inequalities
 - improving health and well-being
- 2.2.87 Improving the sense of ‘place’ within the city, both in the centre and its urban communities, reducing severance between communities and the wider region, and improving opportunities for active and sustainable travel, all underpin improved health, wellbeing and equality outcomes.
- 2.2.88 Importantly, sustainable and equitable public transport has a core role in supporting the delivery of the CC&BMP and unlocking development on the region’s three identified growth corridors radiating out from the city centre. Through supporting the delivery of the regeneration plans and ambitions as set out in the RES and LDPs, a step change in public transport provision can support the economic recovery and transition of the city and region, helping broaden labour markets, tackle inequalities of access, and encourage leisure in the city centre.

2.3 The Case for Investment

2.3.1 The Case for Investment section:

- Provides an overview of the current situation in the city region covering demographics, economics and transport / travel trends
- Sets out the range of transport supply side problems which contribute to the trends
- Provides a summary of the trends and problems as a link to the setting of objectives
- Through the three bullets above, sets out the Case for Investment in ART

Current Situation

- 2.3.2 The information presented here draws on and updates the STAG-based ART Case for Change (CfC), reported in March 2022.⁵⁹ The report identified a range of transport problems and opportunities, and from these the rationale for the development of a rapid transit scheme, and associated Transport Planning Objectives (TPOs). The CfC built on the problems and opportunities as defined through the RTS:2040 and STA documents, as well as the MMCS

⁵⁹ *Aberdeen Rapid Transit - Options Appraisal - Case for Change, Stantec, March 2022*

covering the A90 / A956 (north), A96 (north-west), A944 / A9119 (west), and A92/A956 (south) into Aberdeen.

- 2.3.3 The MMCS provide detailed consideration of the strategic corridors into Aberdeen and explored the transport problems and opportunities along each corridor. Analysis from these reports is set out in Appendices A, B, C, and D, with the key points highlighted where relevant in the following sections.
- 2.3.4 A range of engagement activities were undertaken across the MMCS to inform the identification of problems and opportunities including a range of stakeholder and public engagement activities. With stakeholders this included face-to-face meetings, telephone interviews and workshops as well as the issuing of briefing notes. For the public this included focus groups, online engagement and social listening. The outcomes of these activities have also been drawn on to evidence the transport problems as set out within this SBC.

Spatial and Socio-Economic Context

- 2.3.5 By definition, mass transit / BRT should cater for the **highest volume movements** in an urban area. This section therefore sets out the situation with regards to population and employment in the Aberdeen area and by extension the key trip generators and attractors. This helps establish the main places and focus of where people need to connect between. In addition, data from the Scottish Index of Multiple Deprivation (SIMD) is also presented to identify those areas more affected by deprivation, and for whom opportunities are more likely to be negatively impacted by poor public transport connectivity.
- 2.3.6 This has been done through consideration of population density, the locations of jobs, and retail floor space across the city (and into Aberdeenshire), as well as mapping of other key locations: business parks; industrial estates; schools (primary and secondary); colleges; universities; hospitals; leisure centres and transport hubs (rail stations and the bus station).
- 2.3.7 Population density (persons per km²) is presented in Figure 2:3, with employment mapping (number of jobs) presented in Figure 2:4, and retail floor space presented in Figure 2:5.



⁶⁰ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/small-area-population-estimates-2011-data-zone-based/mid-2021>

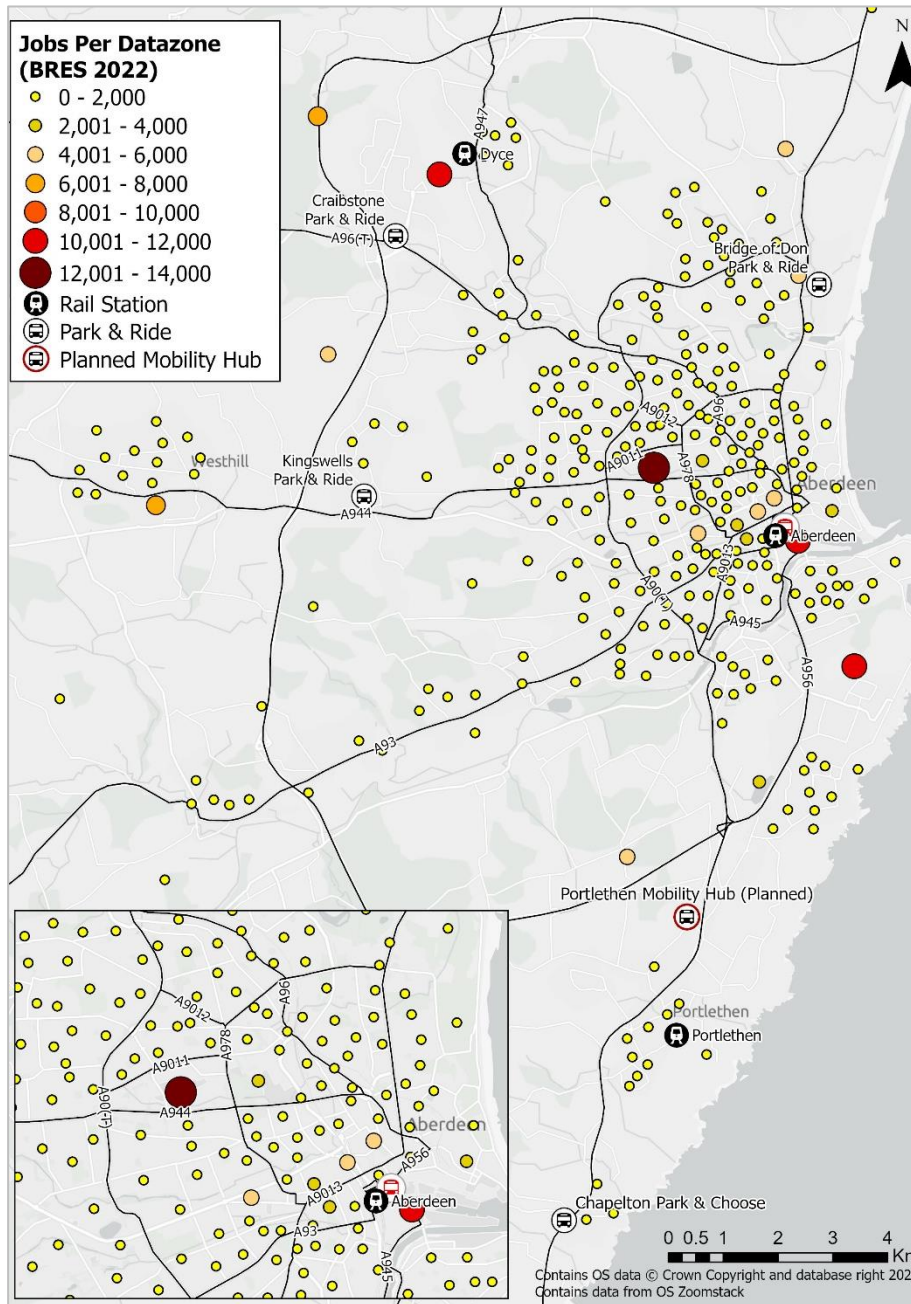
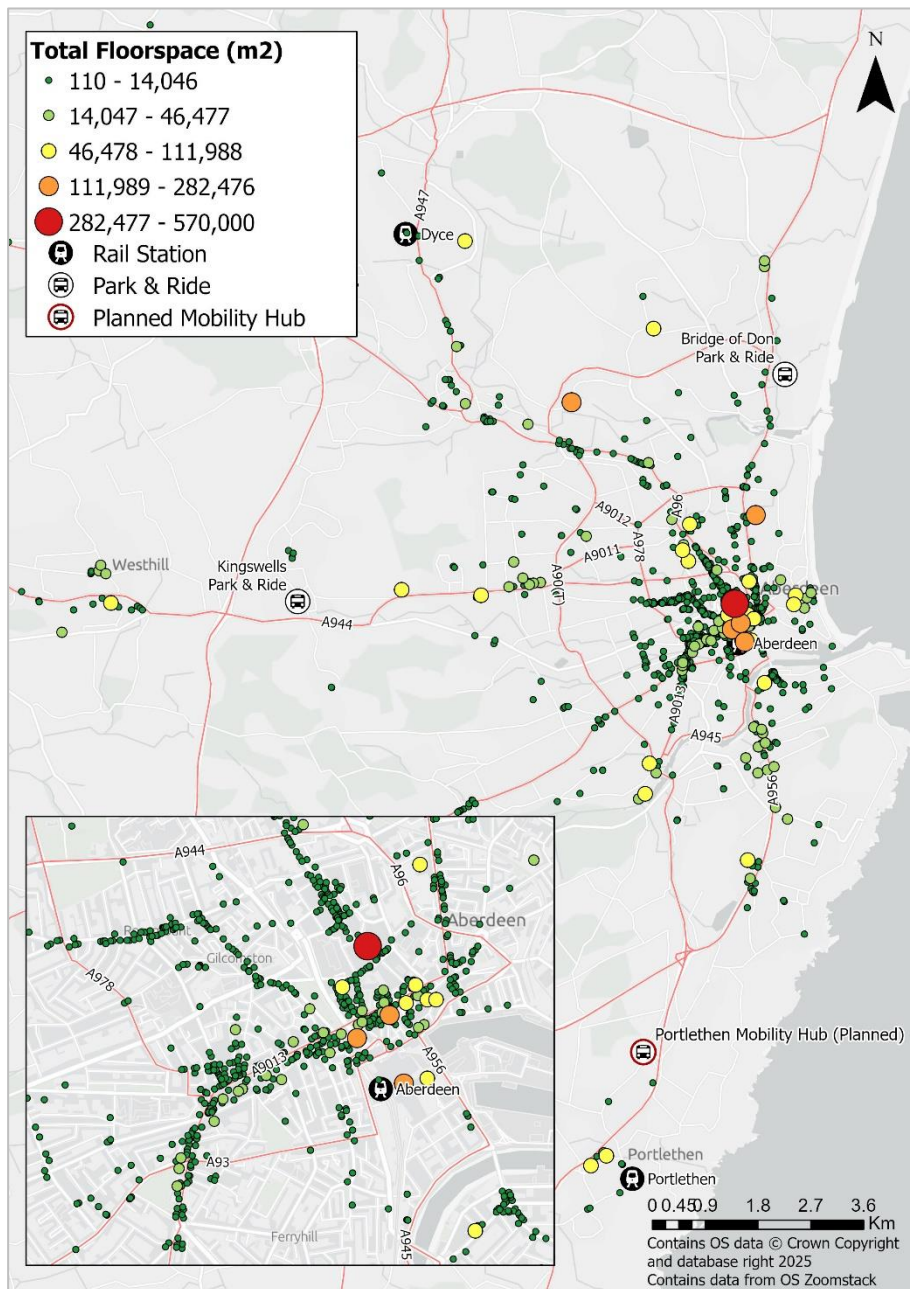


Figure 2.4: Employment (number of jobs, datazones)⁶¹

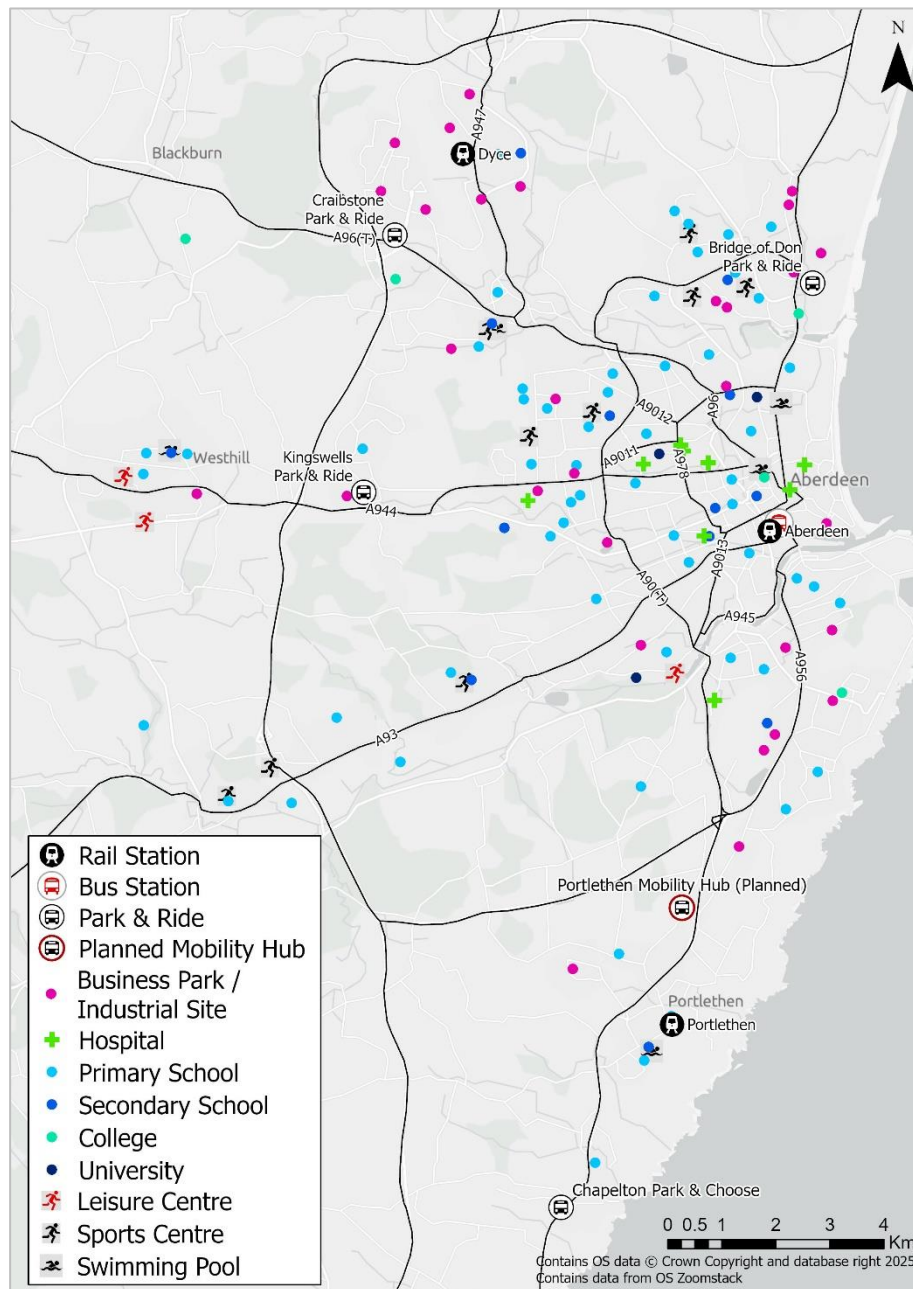
- 2.3.9 The mapping highlights some core locations where jobs are concentrated. These include the city centre and harbour area, at the Foresterhill Health Campus (including Aberdeen Royal Infirmary) and Aberdeenshire Council offices at Woodhill House, and in Westhill (Arnhall Business Park) – all located along the A944 corridor. Kirkhill industrial estate / the airport, the West End, the area around the Bridge of Don, and the Altens and East Tullos Industrial estate located between the new Aberdeen South Harbour and the A956 Wellington Road, are also highlighted as locations with higher employment concentrations.

⁶¹ BRES (2020)

Figure 2.5: Retail Floor Space ⁶²

- 2.3.10 The figure shows the retail core within the city centre, as well as other core retail locations around George Street and the Kittybrewster Retail Park, at Garthdee (Garthdee Retail Park), within Arnhall Business Park (at Westhill), and at the Balmoral Business Park (directly west of Cove). Furthermore, the major supermarket facilities at Persley (Tesco Extra), and Asda and Aldi (in west Portlethen) are also noted.
- 2.3.11 Reflecting the above, the figure below shows the range of major trip generators and attractors located along and close to the primary road routes into Aberdeen.

⁶² CoStar (2025)



2.3.12 Aside from employment and retail facilities in the city centre itself, the key trip generators and attractors, grouped below by their closest strategic road corridor include:

- **A92 (North):** Industrial estates at Denmore, Murcar, and Bridge of Don as well as the Aberdeen Energy & Innovation Parks, the University of Aberdeen campus (King Street), North East Scotland College (at Gallowgate), Beach Boulevard Retail Park, Aberdeen Aquatics Centre, Aberdeen Sports Village, as well as the Bridge of Don Park & Ride site.
- **A96:** Aberdeen airport, TECA, industrial estates at Kirkhill, Raith, Pitmedden Road, Wellheads, Stoneywood, Muggiemoss Road, Northfield, and St. Machar, Craibstone Business Park, D2 Business Park, North East Scotland College (at Gallowgate),

⁶³ Google Maps, NHS Grampian, Sport Aberdeen <https://www.sportaberdeen.co.uk/>, Live Life Aberdeenshire <https://www.livelifeaberdeenshire.org.uk/sport-and-physical-activity/venues/>, Aberdeenshire Council and Aberdeen City Council websites, <https://www.uk-universities.net/>

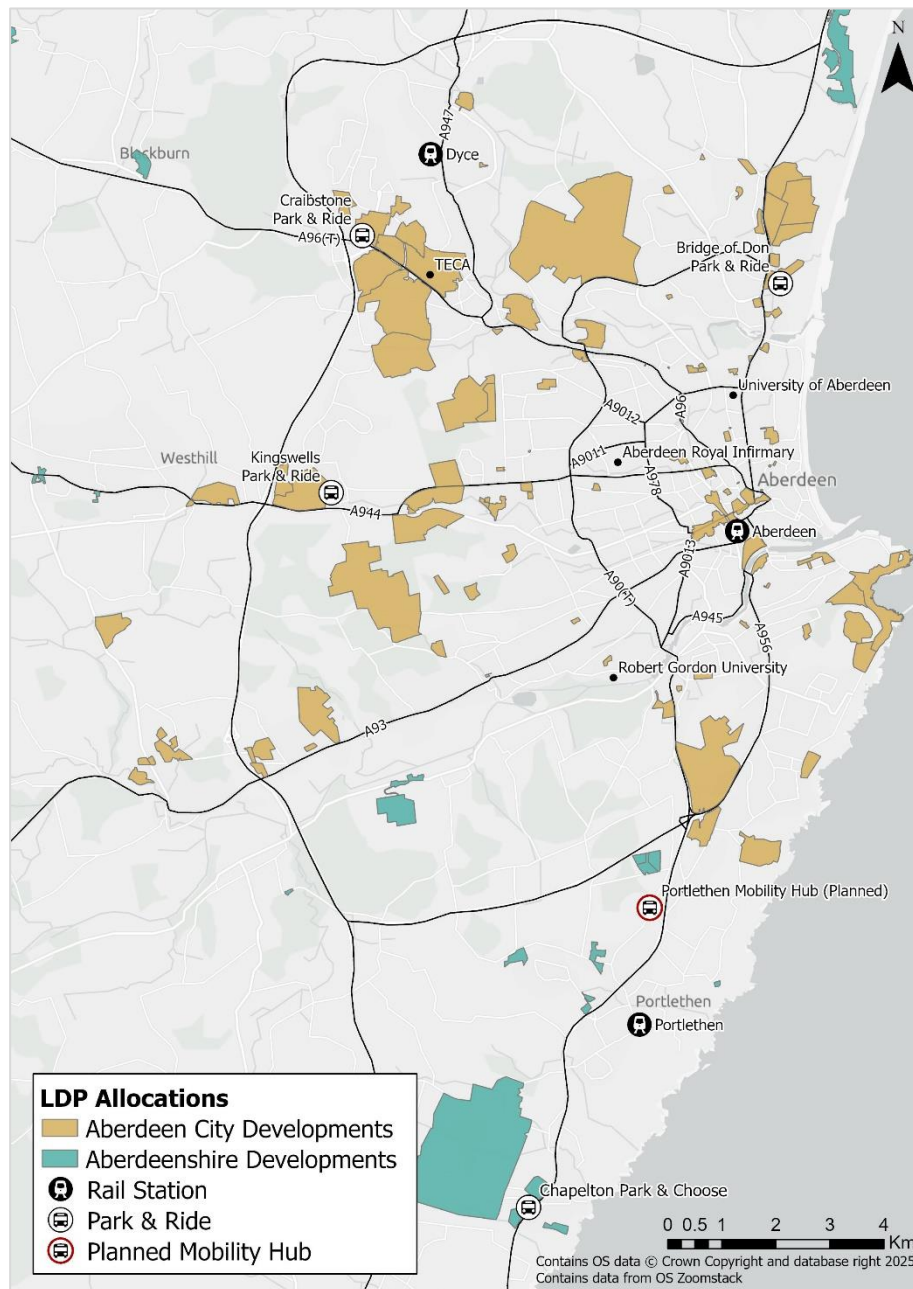
Berryden Retail Park, Kittybrewster Retail Park, Bucksburn Academy, St. Machar Academy, as well as the Craibstone Park & Ride site.

- **A944:** Arnhall Business Park at Westhill, Prime Four Business Park at Kingswells, Woodend Hospital, Foresterhill Health Campus (Royal Aberdeen Children's Hospital, Aberdeen Royal Infirmary, Aberdeen Maternity Hospital), and Cornhill Hospital (specialising in mental health problems).
- **A9119:** Hill of Rubislaw Business Park, Woodend Hospital, Albyn Hospital (private hospital), Hazlehead Academy, Harlaw Academy, and Aberdeen Grammar School as well as numerous business premises located on the roads parallel to the A9119 between the A9119 / A92 junction and the city centre.
- **A93:** Cults Academy, International School Aberdeen, and Robert Gordon University as well as planned residential development to the north of the road just east of the AWPR.
- **A92 (South):** Badentoy industrial estate, Robert Gordon University, Cairn Robin industrial park, and the (planned) Park & Ride site to the north of Pottlethen. There is also a small Park & Choose site (Chapelton Park & Choose) immediately west of Newtonhill serving the both the Newtonhill and Chapelton of Elsie communities.
- **A956:** Marywell Commercial Park, Cairn Robin industrial park, Balmoral Business Park, CityView Business Park, Altens and East Tullos industrial estates, Aberdeen South Harbour, and Lochside Academy.

Key Point: the corridors defined in the ART Vision broadly reflect the location of population, jobs, retail and leisure facilities in and around Aberdeen. They are therefore well aligned with the likely location of the highest volume movements. There are a number of sports centre facilities located close to the A93, but it is noted this corridor is served by a strong existing bus market. In addition, while there are several business parks / industrial areas located close to Dyce (not served by ART), this area is served by the rail network. As ART develops, consideration is required to ensure connectivity between the ART network and key employment and residential areas (not directly served by ART) through 'feeder' bus connections to ART and also through good connectivity with walking, wheeling and cycling networks.

Planned Future Development

- 2.3.13 The North East Bus Alliance's '*Assessing the State of the Bus Network in Aberdeen and Aberdeenshire*' report (published June 2019) defined several priority corridors. These corridors cover all three of the Strategic Growth Areas identified in the 2020 Aberdeen City and Shire Strategic Development Plan - the A90(S), A90(N) and A96 corridors. Development is planned along all these three broad corridors as shown in Figure 2:7 below which presents an overarching view of future development across Aberdeen and into Aberdeenshire.
- 2.3.14 Development can be seen along the A90(S) around Stonehaven and at Chapelton of Elsie (Aberdeenshire) as well as significant residential development planned to north of the Charleston junction and commercial development around Aberdeen South Harbour. On the A96 there is significant commercial and residential development planned around Craibstone, both north and south of the A96 and the airport (Rowett North and South) as well as sites in Aberdeenshire around Kintore and Inverurie. On the A90(N) there is development at shown at Cloverhill, Blackdog, Balmedie and in Ellon. Furthermore there is other development noted close to the A944 with the large site at Countesswells as well as development at Maiden Craig and at the Prime Four business park.

Figure 2.7: Future Development⁶⁴

- 2.3.15 It is worth reflecting that providing a step change in public transport provision across the Aberdeen City Region could increase the viability of these sites by increasing land value. Such positive impacts were generated close to Edinburgh's tram line and in proximity to the Belfast Glider scheme. Since the Edinburgh trams began operating in 2014, the average house price along tram routes has grown from £199,171 to £218,350⁶⁵. This growth of 10% is almost four times faster than in the two years before the line opened, when the average price grew by 3%. Furthermore, Estate Agents in Belfast note that while it's hard to quantify if the Glider has had a direct effect on increasing house prices, the proximity of properties close to the route is

⁶⁴ Aberdeen Local Development Plan 2023, Aberdeenshire Local Development Plan 2023

⁶⁵ [Research finds new tram routes in cities boost nearby house prices - PropertyWire](#)

frequently cited when advertising properties and the Glider has made longer commuting distances feasible and increased customers' search areas when looking to buy.⁶⁶

Key Point: many of the main land allocations in and around Aberdeen are in the strategic corridors identified in the ART Vision. A step-change in public transport provision would likely increase land values and improve the viability of these sites. Indeed, ART could help facilitate the delivery of these sites, particularly if the mitigation of development traffic impacts presents a delivery challenge.

Deprivation

- 2.3.16 The Scottish Index of Multiple Deprivation (SIMD) is the Scottish Government's standard measure to identify areas of multiple deprivation in Scotland and is a relative measure of deprivation across all Scottish datazones. SIMD looks at the extent to which an area is deprived across seven 'domains': income, employment, education, health, access to services, crime and housing, and reports these individually or as a composite measure.
- 2.3.17 The figure below sets out the SIMD deciles ranking for each datazone in Aberdeen, and into Aberdeenshire.

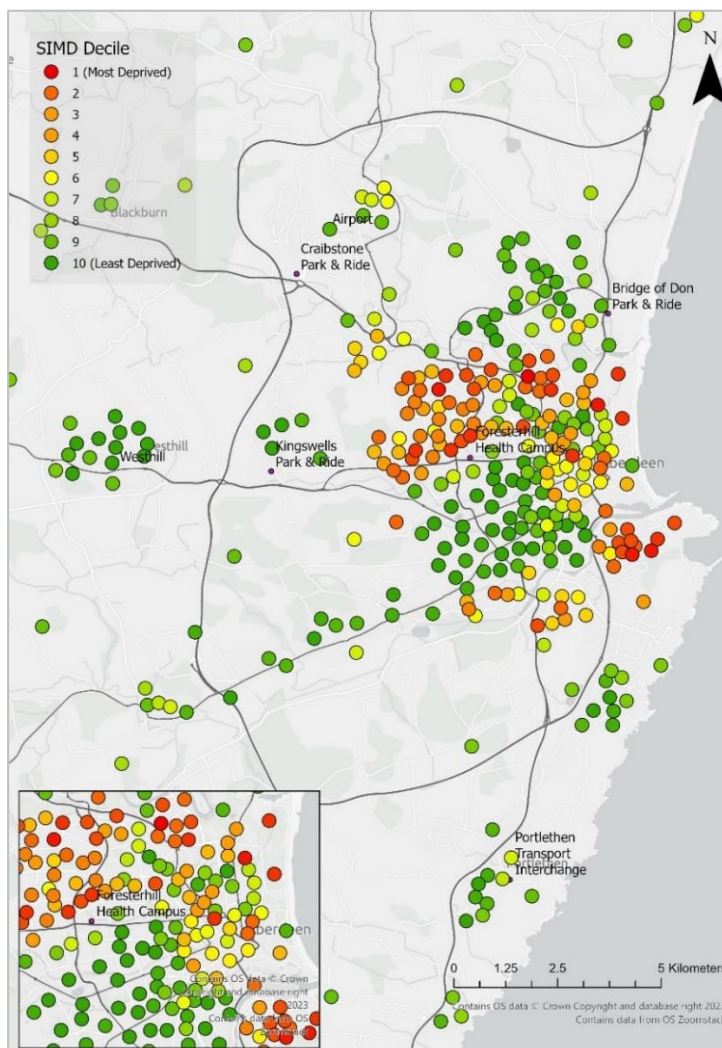


Figure 2.8: Scottish Index of Multiple Deprivation (2020)

⁶⁶ [Belfast Glider: Decision time for planned new routes - BBC News](#)

- 2.3.18 This mapping highlights the most deprived areas (those ranked amongst the 20% most deprived in Scotland) are located at Torry (south of the city centre east of the A956), Kincorth (south of the city centre located between the A92 and A956), Tillydrone and Middlefield (close to the A96), Stockethill and Mastrick (north of the A944) and Seaton (close to the A956 north of the city centre).
- 2.3.19 Nestrans, in partnership with Aberdeenshire Council and Aberdeen City Council, and with funding from Paths for All, Smarter Choices, Smarter Places Open Fund, commissioned a Comprehensive Travel Survey⁶⁷ (CTS) study in the North East of Scotland. The findings of the study were reported in 2023 and considered bus use across different areas. The analysis found that 24% of those who live in an area of high deprivation used a bus at least weekly, compared to 17% who live in an area with low deprivation, highlighting the **greater reliance on the bus network by those living in more deprived areas**.
- 2.3.20 Furthermore, the CTS found that 71% of residents who live in an area of high deprivation had access to a car or van, while 91% of residents in the least deprived areas had access to a car or van, again highlighting the greater reliance on other modes of transport in more deprived areas.

Key Point: the corridors identified in the ART Vision cover some of Aberdeen's most deprived communities, especially on the A96. Such communities are typically more reliant on public transport. The design of ART should prioritise such communities.

City Centre Vitality

- 2.3.21 As Scotland's third largest city, Aberdeen is an important centre for commerce, culture, retail and leisure for those within the city and across the wider Aberdeenshire region. In economic terms the Aberdeen City Region has gone through many transformational periods and moved its economic focus to embrace opportunity as it arises.
- 2.3.22 However, over the last decade the economic performance of Aberdeen has declined. From a thriving economy in 2010, real Gross Domestic Household Income per head fell by 6.7% by 2021⁶⁸, and in 2023, Aberdeen was one of only two UK cities that had fewer jobs than in 2010. Around 30% of jobs in the city's export base is directly related to the oil and gas industry and, consequently, Aberdeen's total Gross Value Added (GVA) has tracked changes in the international price of these commodities and activity in the North Sea, which have been falling. As a result, it is estimated that between 2010-2022 the city lost around 9,000 jobs because of the oil and gas sector's downturn.
- 2.3.23 This hit the retail sector particularly hard, with a 30% reduction in retail jobs (2010 – 2022) – the national decline was just 6%. The decline in employment opportunities also impacted on net migration, with nearly 14,500 people leaving the city between 2010 and 2022 in part leading to a 16% reduction in 20-29 year olds.
- 2.3.24 An update to the Regional Economic Strategy (undertaken in 2022/23 and discussed earlier) recognised the changed economic position in the North East and the range of new challenges and opportunities. It notes that *'Aberdeen City has the highest retail vacancy rates among Scotland's four largest cities and has experienced a larger increase in vacancy rates'* and *'that Aberdeen faces an even more acute impact on the commercial office market, having the highest commercial office vacancy rates of the biggest four cities in Scotland'*

Key Point: Aberdeen city centre has seen a decline in retail and commercial activity in recent years and this is recognised in a raft of new policies and initiatives aimed at reversing this decline focussing on the CC&BMP. The City is also in a process of transitioning away from its reliance on oil and gas. A step change in public transport would provide a significant boost to

⁶⁷ [AECOM-Report-to-Nestrans-CTS-Final-20-October-23-1.pdf](#)

⁶⁸ [Aberdeen's lost decade: What went wrong? | Centre for Cities](#)

these regeneration efforts by providing people with an attractive and accessible means to easily access the city centre.

Travel and Trends

- 2.3.25 This section presents a high-level summary of trends in car and public transport usage at both the Scottish and regional level. The data presented considers changes in car use, car ownership (including comparison with other Scottish cities), method of travel to work, trends in bus patronage, operating challenges, and comparisons to trends in rail use and investment in the rail network.

General Traffic Trends

- 2.3.26 Road traffic has increased in the North East, with traffic slowly increasing since the financial crisis of 2008-09, peaking at around 4.8 billion vehicle kilometres in 2019 prior to the COVID-19 pandemic.⁶⁹ Traffic grew by 22% over this period, far higher than the Scotland figure of 12%.
- 2.3.27 The latest available Scottish Transport Statistics 2023⁷⁰ (STS) was published in March 2024. The figure below shows the number of vehicles on trunk and local roads at the Aberdeen City and Aberdeenshire local authority level.

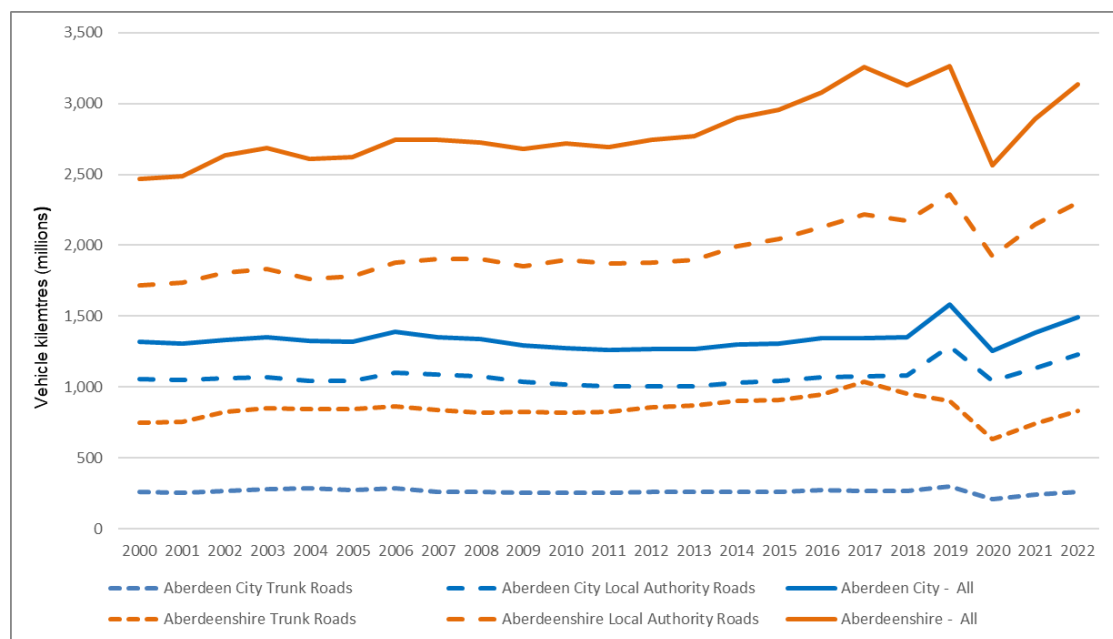


Figure 2.9: Traffic on trunk and local authority road in Aberdeen City and Aberdeenshire

- 2.3.28 The figure shows traffic levels in 2022 increasing again towards pre-COVID19 pandemic levels with the total figure for 2022 being 95% of the 2019 peak figure.
- 2.3.29 In Aberdeen and Aberdeenshire, car ownership is generally high, with 88% of households in Aberdeenshire, and 77% of households in Aberdeen having one or more cars available, with both figures higher, and the Aberdeenshire figure significantly higher, than the Scotland wide average.⁷¹ The Aberdeen City figure is significantly higher than other Scottish cities as shown in the figure below.

⁶⁹ https://www.nestrans.org.uk/wp-content/uploads/2021/12/Nestrans-RTS_PUBLISHED.pdf

⁷⁰ [Scottish Transport Statistics 2023 | Transport Scotland](#)

⁷¹ Scottish Household Statistics, 2022, Table LA4

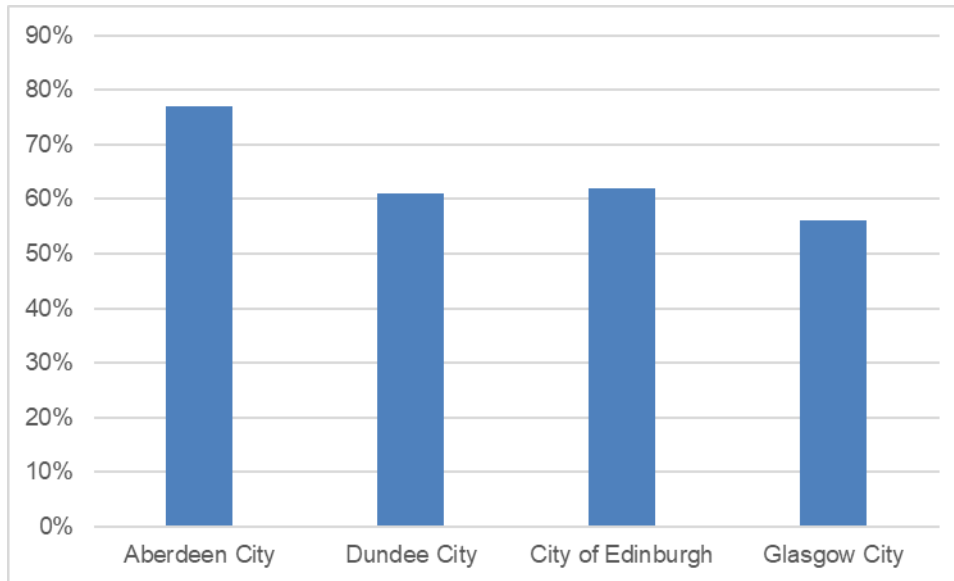


Figure 2:10: Percentage households with one or more cars (Source: Scottish Household Statistics,2022, Table LA4)

- 2.3.30 Compared to other Scottish cities, Aberdeen residents also have a higher driver trip frequency, with 58% of those aged 17+ driving every day or at least three times a week, as shown in the figure below. Furthermore, the recent Comprehensive Travel Study⁶⁷ reported that 88% of Aberdeen City residents and 93% of Aberdeenshire residents used a car or van at least once a week.

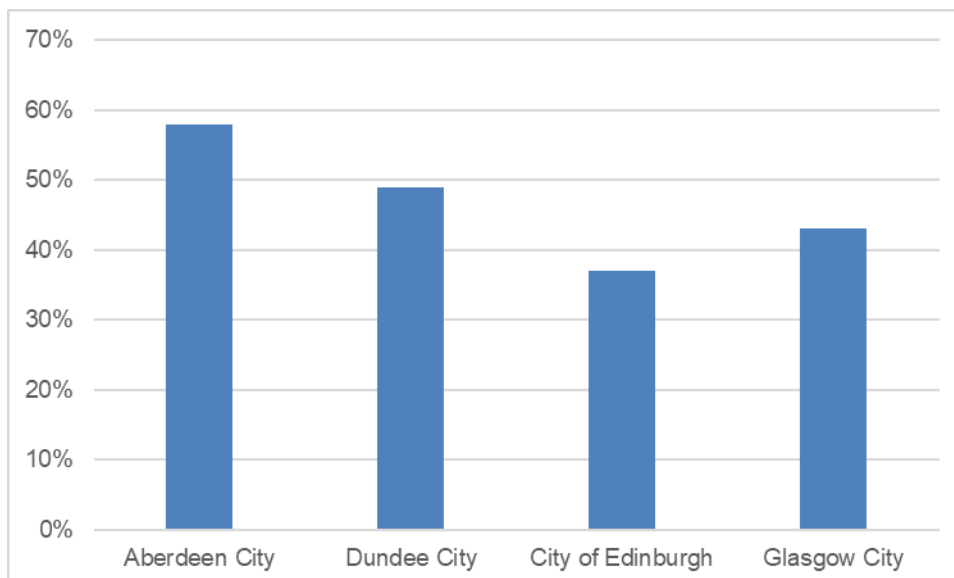


Figure 2:11: Percentage aged 17+ driving every day or at least three times a week (Source: Scottish Household Statistics,2022, Table LA5)

- 2.3.31 Reflecting the high car ownership levels, commuting to work by private vehicle in Aberdeen City accounted for around 69% of trips in 2022, considerably greater than in Edinburgh and Glasgow (as shown in Figure 2:12) – although noting the impact of the COVID-19 pandemic may have still been having an impact at this time. Commuting by bus to work was also much lower compared to Edinburgh and Glasgow. The mode share for those in Aberdeenshire commuting to work as either a driver or passenger in a car / van stood even higher at 72%.

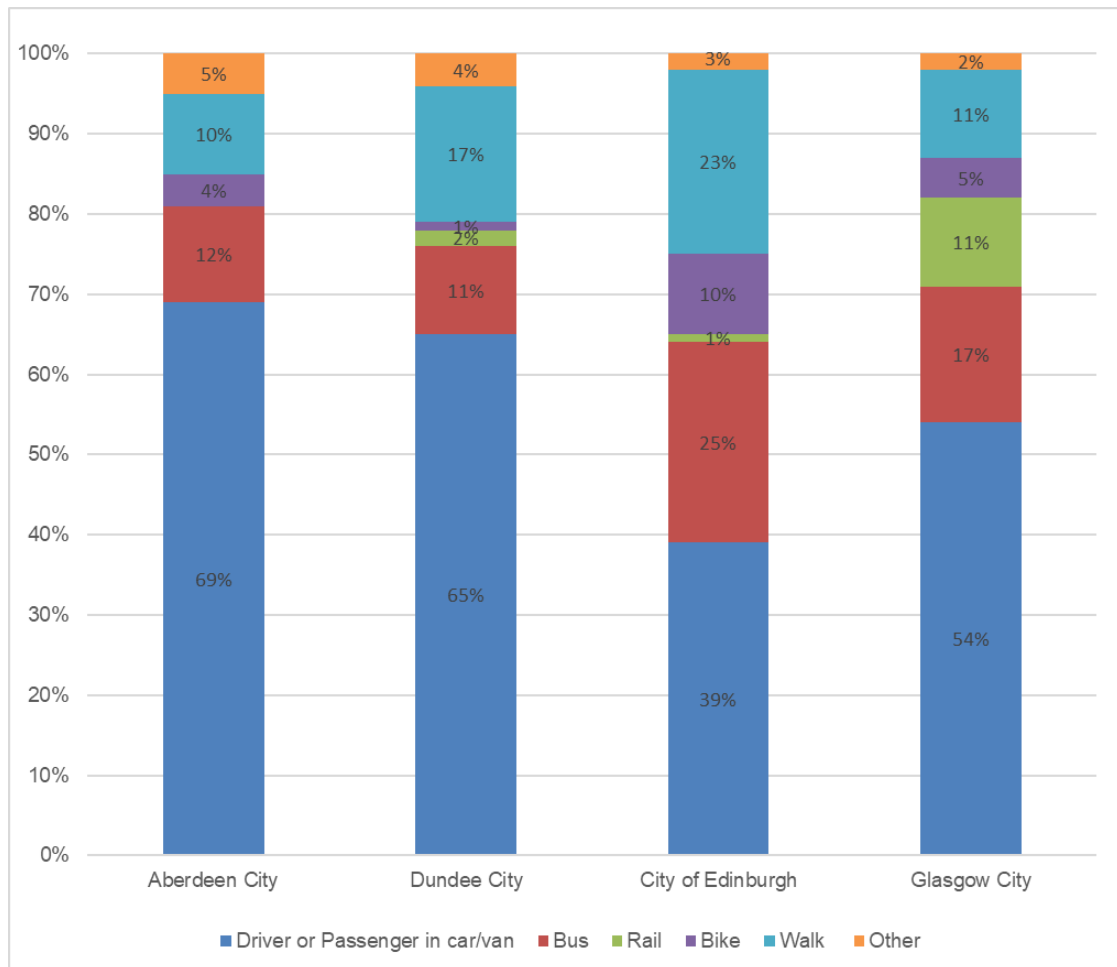


Figure 2:12: Usual Method of Travel to Work – Employed Adults (Source: Scottish Household Statistics, 2022, Table LA1)

Key Point: Road traffic levels in the north east (both the city and the shire) grew higher than for Scotland as a whole in the decade prior the pandemic. Car ownership and use is also higher than Scotland's three other major cities. While being mindful of the difference in city size and demographics, bus use is however far lower in Aberdeen than in Edinburgh and Glasgow.

Public Transport Trends

- 2.3.32 Figure 2:13 presents passenger journeys on local bus services across four Scottish regions indexed against 2004, and shows that bus patronage has been declining in Scotland since a peak around 2008/9. Figure 2:14 presents corresponding information in relation to the vehicle kilometres provided by local buses over the same period.
- 2.3.33 While the Aberdeen and Aberdeenshire region fall into a wider 'North East, Tayside and Central' category (covering Perth and Kinross, Stirling, Aberdeen City, Aberdeenshire, Angus, Dundee City) it is however useful to consider the trend in both the national and regional data.

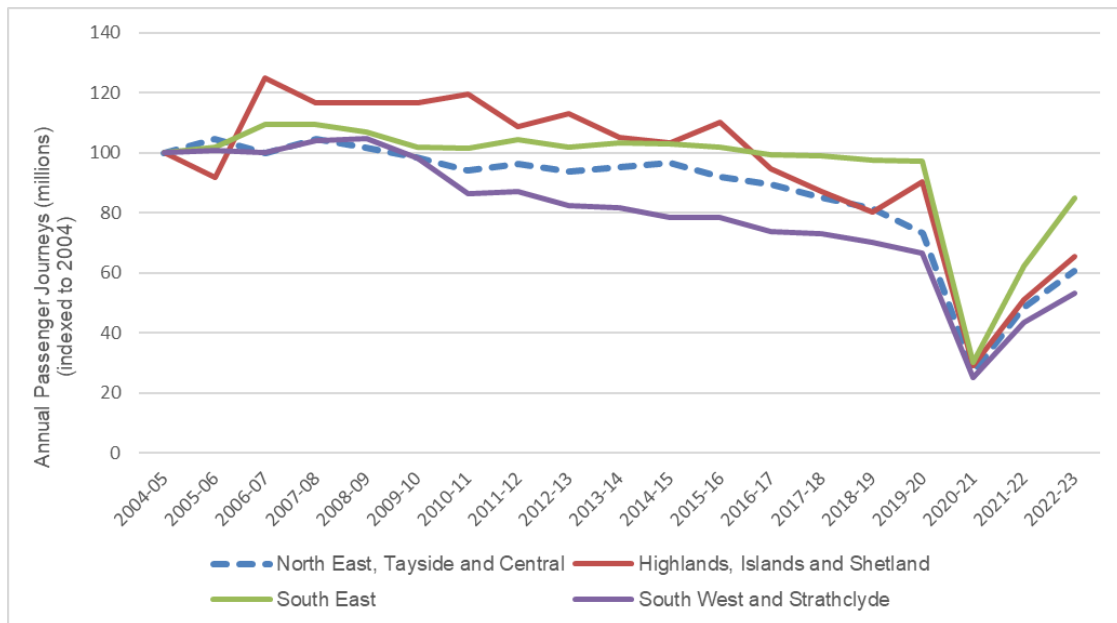


Figure 2.13: Passenger journeys on local buses (Scottish Transport Statistics 2023, Table 2.2b)

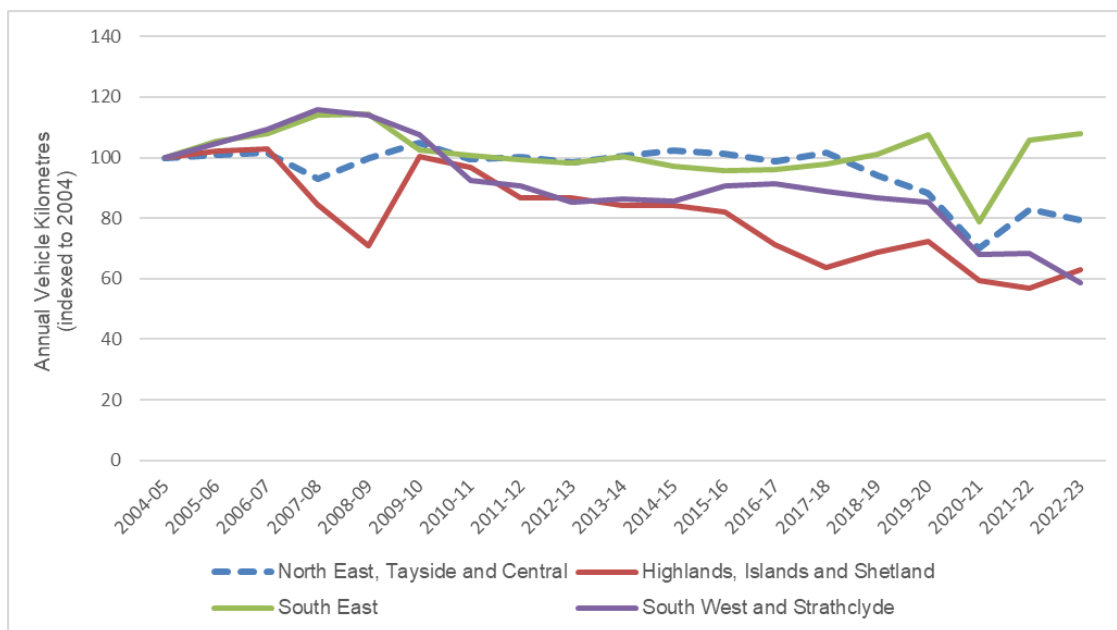


Figure 2.14: Vehicle kilometres served by local buses (Scottish Transport Statistics 2023, Table 2.3c)

2.3.34 At the Scottish level, there was a reduction in annual bus patronage of 158 million trips between 2004/05 and 2022/23. Total passenger journeys in the North East, Tayside and Central region fell from 65 million passenger journeys per annum in 2004/5 to just 39 million in 2022/23, a fall of 40%. Over the same period, local bus vehicle kilometres in the North East, Tayside and Central region fell from 55 million per annum in 2004/5 to just 44 million in 2022/23, a fall of 21%.

2.3.35 More regionally focussed data, covering just the Aberdeen and Aberdeenshire region, is set out in the table below, for 2019 to 2023 (in calendar years), showing total bus patronage and highlighting the proportion of concessionary fare passengers. Note that the introduction of the Young Person's Bus Travel scheme in January 2022, which provides free bus travel for all those under 22 years of age, will be the driver behind the large jump in the number and proportion of concessionary passengers between 2021 and 2022. This rise has offset an

ongoing suppressed (due to the lingering concerns around the pandemic) use of buses by older passengers with concessionary passes.

Table 2.2: Estimated Bus Passengers in the North East (2019 –23)⁷²

Year	Total Patronage (millions)	Number of Concessionary Passengers (millions)	Proportion of Concessionary Passengers
2019	25.3	10.3	41%
2020	11.7	4.7	40%
2021	12.4	4.9	40%
2022	20.5	10.5	51%
2023	23.6	13.3	56%
Change 2019 to 2023	-1.7	+3.0	+15 percentage points

- 2.3.36 The data shows that, at the Aberdeen and Aberdeenshire regional level, there has been a reduction in passengers of 1.7million between 2019 and 2023, a drop of approximately 7%. While presented for the financial (as opposed to calendar) year, as a longer-term comparison, the figure for 2015/16 (as presented in the *State of the Bus Network Report*,⁷³ Table 3.4) was 29.9 million passengers, thus implying a drop between 2015/16 and 2023 of 6.3 million passengers (a 21% reduction).
- 2.3.37 The data also shows the impact of the introduction of the Young Person Bus Travel Scheme, with the proportion of non-fare paying passengers on the network significantly increasing in recent years and now making up more than half of passengers on the network.

Key Point: Bus use (passengers) and bus services (bus km) across the wider region including the north east have been in decline for the last 20 years. In 2023, bus passenger numbers in the north east were still 7% below pre-pandemic levels despite the widening of eligibility for free bus travel to the under 22s.

Operating Challenges

- 2.3.38 In November 2017, the Confederation of Passenger Transport⁷⁴ (CPT) published research on Scottish bus patronage trends. The report concluded that, despite bus industry efforts to boost passenger numbers, a range of external factors have hampered this including: rising car ownership and use, traffic congestion, changing shopping habits and reduced public sector investment, as well as operational issues due to rising fuel costs (which has in part impacted on passenger fares) and challenges with driver retention. Despite now being seven years since the report was published, the external factors noted remain in 2024, with many exacerbated by the COVID-19 pandemic.
- 2.3.39 The report states that **congestion had increased average bus journey times** by 10% over the last decade. This increases journey times and reduces the reliability and punctuality of services leading to increased operating costs and a less attractive service for passengers. In the *The impacts of congestion on bus passengers*⁷⁵ report produced by *Greener Journeys*, it

⁷² Provided by Nestrans - Nestrans -figures show total passengers travelling on the two key bus operators in the region: First Aberdeen and Stagecoach

⁷³ [5aapp-State-of-the-Network-Report_Final.pdf \(nestrans.org.uk\)](#)

⁷⁴ [KPMG releases report on Scottish bus decline - CBW \(cbwmagazine.com\)](#)

⁷⁵ [TTBusReport_Digital.pdf \(greener-vision.com\)](#)

notes that to mitigate against the impact of congestion on bus operations, operators can either:

- reduce service frequency to maintain operational costs, likely resulting in fewer passengers
- try to maintain service frequency by operating additional services with increased operational costs (which may include additional vehicles, drivers, fuel, tyre and overall maintenance costs) likely leading to higher passenger fares.

2.3.40 Under both the above scenarios, the Greener Journey report notes that longer passenger journey times due to the congestion negatively impact on patronage, and states that elasticity of demand suggests that, in the long run:

- a 10% decrease in operating speeds leads to an 8% increase in operating costs - if this is passed on to passengers through higher fares it results in a 5.6% fall in patronage
- A 10% deterioration in operating speeds would lead to a 10% reduction in frequency and 5% fewer passengers

2.3.41 Taking on board the response passengers have to spending longer on board buses, the report notes this would lead to a further 5% fall in passengers, and *the net result is a direct correlation between operating speeds and patronage: a 10% decrease in speeds reduces patronage by at least 10%.*⁷⁵

2.3.42 NTS2 articulates the downward spiral of bus decline that congestion can cause (see Figure 2:15). Worsening congestion ultimately makes the bus network less attractive leading to fewer passengers, increased fares and more cars on the network, further increasing congestion. **Reducing congestion, or providing bus priority and protection from the worst congestion on the network is important to breaking this circle of decline.**

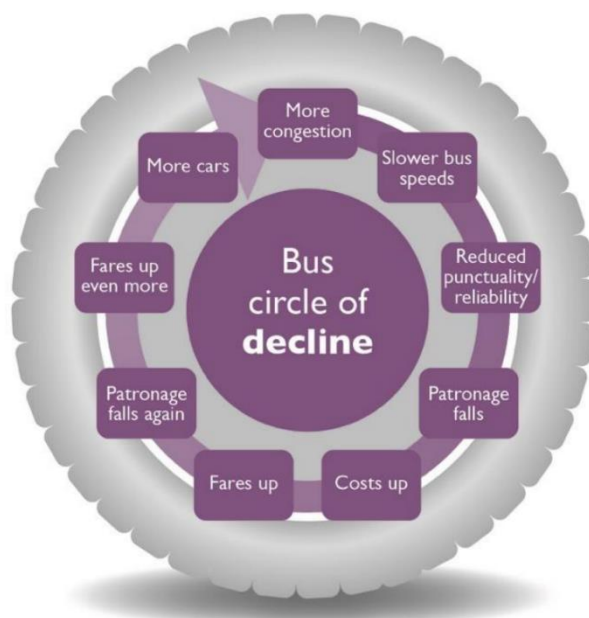


Figure 2:15: Bus Circle of Decline⁵

2.3.43 Between 2004/05 and 2021/22, across Scotland, bus fares increased by 88% (in current prices). This has largely reflected increasing operating costs per bus-kilometre which have increased by 98% (again, in current prices). Over this period, the operating cost per

passenger has increased by 215% (in current prices and reflecting the reduction in passenger numbers).⁷⁶

- 2.3.44 High driver turnover had historically been recorded among many bus operators but as the COVID19 pandemic was ending, the Scottish bus industry faced an unprecedented **shortage of drivers**⁷⁷. Driver shortages affect the reliability of services and leave passengers and members of the public dissatisfied with the bus network.
- 2.3.45 Since Autumn 2021 driver turnover has been exacerbated by increased rates of attrition, labour shortages, with further impacts caused by Brexit and the effects of the pandemic.⁷⁸ As reported by the *Transport Scotland Bus Taskforce* (set up in 2022 over 10 months to support this transition of the bus sector from the additional government support provided during the pandemic to a more sustainable future) this shortage was particularly acute during 2022 and posed a significant barrier to bus operators and their ability to recover from the pandemic. A key issue was that with employment at a record high, and many other industries facing similar issues, there was, and continues to be, intense competition to attract new employees. Operators acted to make employment in the industry more attractive, with a significant modernisation taking place across many operators to improve pay, terms and conditions and the overall employment offering.
- 2.3.46 The CTA report also noted that an **increase in online shopping** means fewer people are travelling to high streets and shopping centres. This trend was estimated to have cut bus journeys by seven million over the four year period (2013 – 2017). Given the CTA report was published in 2017, the impact of the pandemic will have further accelerated the growth in home working, the increase in online shopping and deliveries.

Key Point: The bus industry has faced many challenges which contribute to the decline in patronage seen in last 20 years. A key factor in this is traffic congestion which adds to the costs of bus operators with a range of implications as outlined above. Bus priority measures can have a positive impact on breaking this cycle.

Bus Services - Supply Side

- 2.3.47 The data and narrative presented below helps identify and evidence the problems, issues, opportunities, and constraints within the current bus network. The analysis is presented at a broad regional level, but also on four strategic corridors into Aberdeen: north; north-west; west; and south. These corridors were defined in the North East Bus Alliance 'Assessing the State of the Bus Network in Aberdeen and Aberdeenshire' report as priority corridors.

Bus Network and Services

- 2.3.48 At present, bus services in Aberdeen are delivered under the deregulated model specified in the Transport Act 1985 whereby bus operators determine the services that they wish to provide on a commercial basis and the Councils (Aberdeen Council and Aberdeenshire Council, as the Local Transport Authorities) are responsible for procuring services that are deemed socially necessary but are not provided by the market. Almost all services in Aberdeen are operated commercially by the two main operators, with First services focussed on the City and Stagecoach providing services extending into Aberdeenshire. The public sector, at present, therefore, has a minimal role in planning or supporting services (noting that Aberdeenshire Council does subsidise several socially necessary bus services).
- 2.3.49 The extent of bus network coverage is broadly shown in the figure below to provide an overview of areas served.

⁷⁶ Scottish Transport Statistics, Tables 2.5, 2.6 and 2.7

⁷⁷ [Driver Shortages Sub-Group | Transport Scotland](#)

⁷⁸ [bus-taskforce-summary-report.pdf \(transport.gov.scot\)](#)

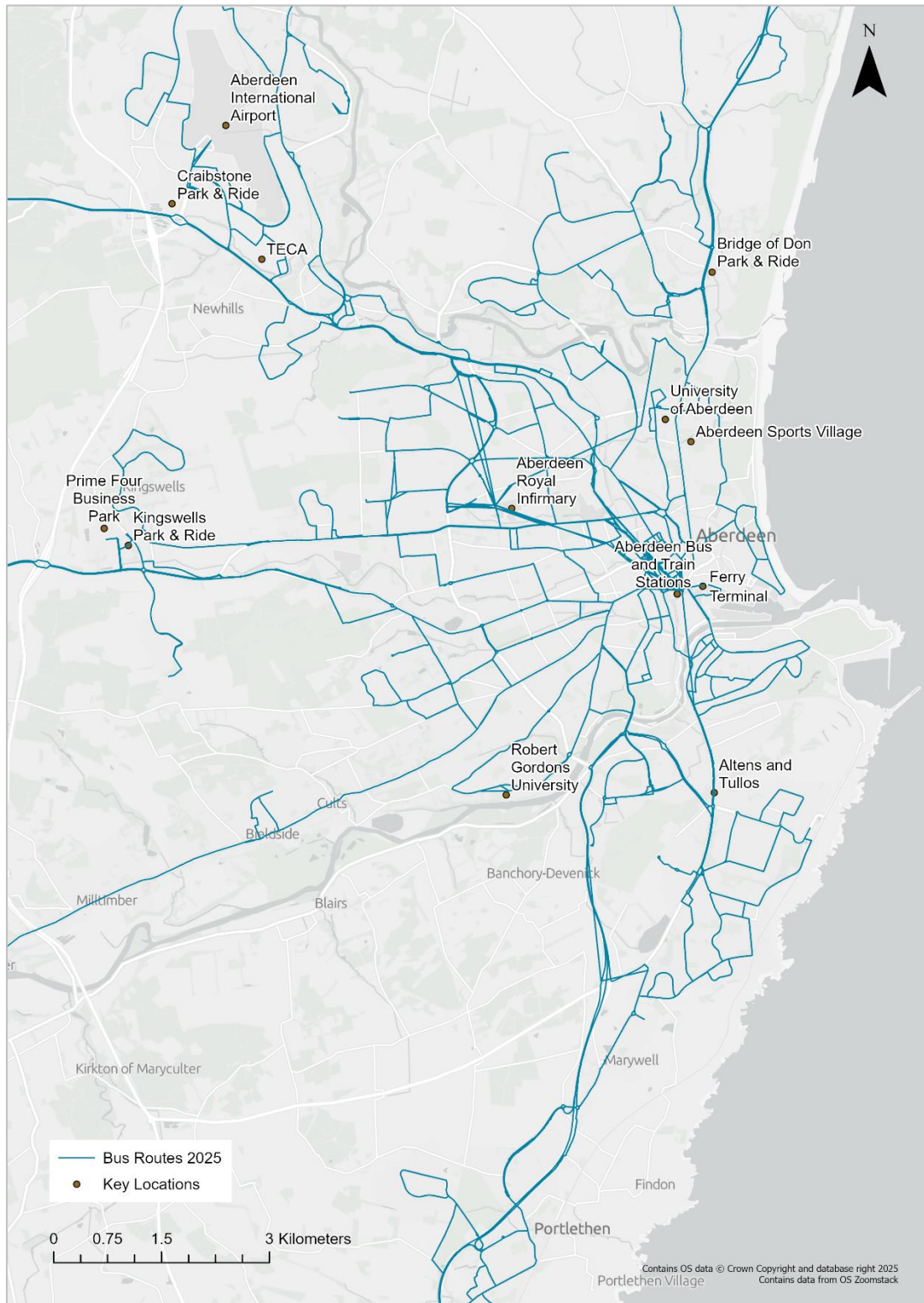


Figure 2:16: Bus Network – Overview – Aberdeen (as of early 2025)



Figure 2:17: Bus Network – Overview - Aberdeenshire (as of early 2025)

2.3.50 The network covers the strategic routes into and out of Aberdeen linking to towns and villages in Aberdeenshire. The network across the city serves Aberdeen's residential suburbs and connects to employment hubs. Most services are arterial in nature, operating into and out of the city centre. Services operate into the city from Aberdeenshire towns, including Ellon, Peterhead and Fraserburgh to the north, Kintore, Inverurie and Huntly to the north-west, Westhill, Banchory and Aboyne to the west, and Portlethen, Newtonhill and Stonehaven to the

south. As well as direct services, the Park & Ride sites at Ellon, Kingswells and Chapelton offer those from the north, west and south of the city the opportunity to access Aberdeen centre by bus (with the site at Craibstone providing similar opportunities from Huntly, Inverurie, Kintore etc. when it was operational, and the temporarily closed site at Bridge of Don providing additional opportunity from north of the city).

Bus Priority Measures

- 2.3.51 There are bus priority measures on several of the key routes into and within the city centre, in the form of bus lanes / bus gates – these are shown in the figure below. These offer some priority for services operating in the city and provide benefit to services into the city from the wider Aberdeenshire region.

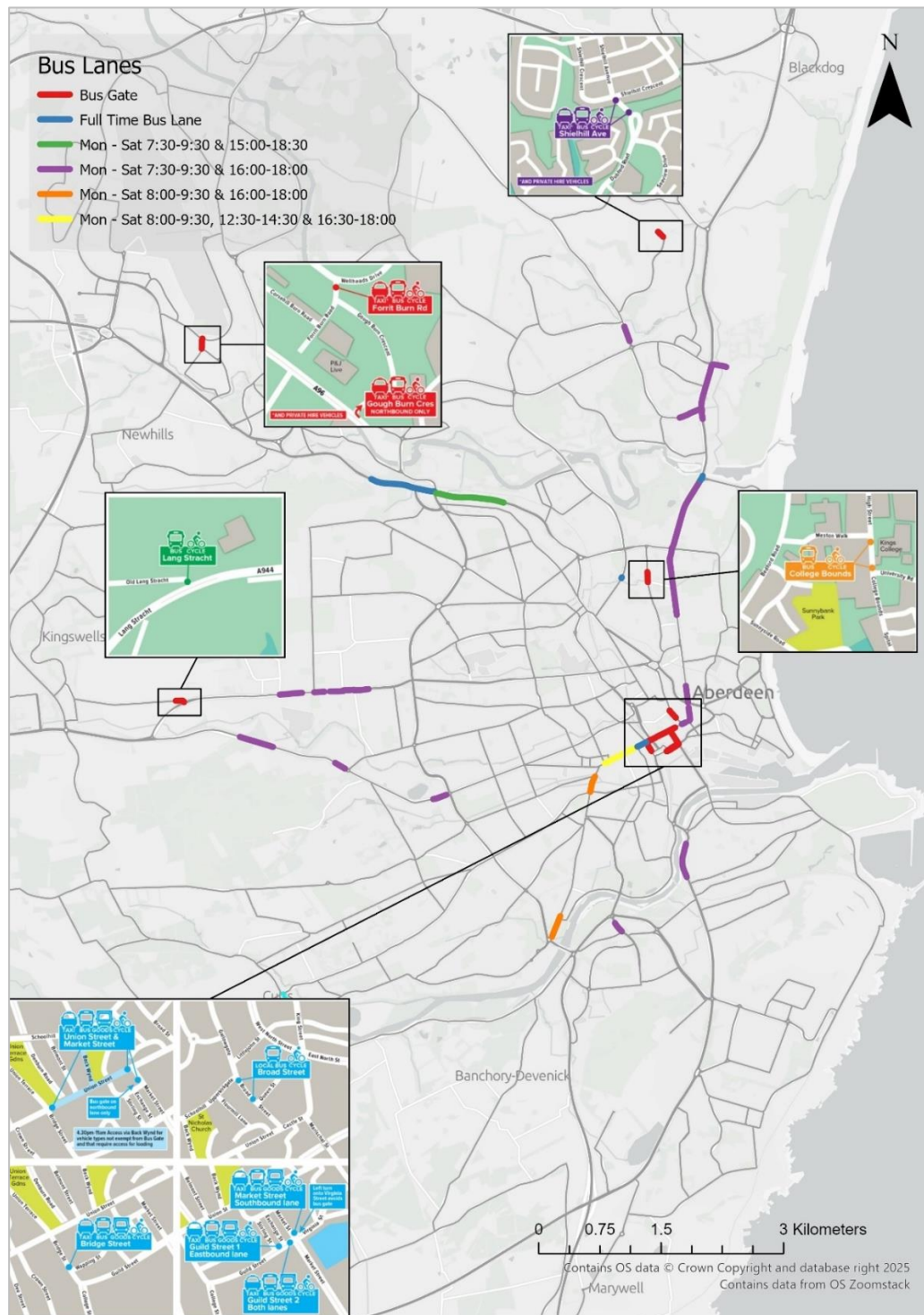


Figure 2:18: Bus Priority Measures

2.3.52 As can be seen in the figure, bus priority is fairly limited and focused on specific junctions or short sections of carriageway, with some bus lane inconsistencies in hours of operation across the city. Bus gates are located on:

- Broad Street (local buses only)
- Bedford Road
- College Bounds (Buses and Cycles only)

- Gough Burn Crescent, TECA (Buses, taxis and cycles)
- Forrit Burn Road (Buses, taxis and cycles)
- Shielhill Avenue (Dubford) (also open to taxis)
- Lang Stracht
- Union Street/Market Street (between its junctions with Hadden St and the Adelphi). Also open to taxis exiting from Back Wynd and cyclists
- The east side of Guild Street
- Bridge Street, between Wapping Street and Windmill Brae

2.3.53 It should be noted that the introduction of the bus priority measures along the central section of Union Street in 2022, and the bus priority route created in 2024 on Bridge Street, Guild Street (east of Wapping Street), and Market Street (north of Guild Street) provide strong city centre measures on which to further build to support the delivery of ART. The bus priority measures here have been the subject of several Elected Member debates since their original implementation through an Experimental Traffic Order with the final scheme agreed in early 2025.

Vehicles – Fleet and Fuelling

- 2.3.54 Since 2010, bus operators have made significant investments in their vehicle fleets, installed new electronic ticket machines, made website and app developments, introduced contactless payment methods and invested in new fuel technologies. The introduction of real time passenger information across Aberdeenshire in 2015, along with the upgrade of at-stop screens has ensured comprehensive real time information at the main bus stops, complemented by QR codes and web based real time information for all stops and services across the region.
- 2.3.55 There has also been investment in the introduction of Europe's largest fleet of 10 hydrogen fuelled buses with a refuelling station at Kittybrewster. In 2021, First Bus announced their commitment to purchase no diesel buses after 2022 and to operate a fully zero-emission fleet by 2035⁷⁹ and further to a successful ScotZEB application, it introduced 24 single deck electric vehicles in Aberdeen. In September 2021, Stagecoach announced an £11.2 million investment in 22 electric buses for Aberdeen, supported by £4 million from the Scottish Government Ultra-Low Emission Bus Scheme.⁸⁰ The 22 buses are now operational on the Aberdeen network and have sufficient charge to operate all day and re-charge overnight.⁸¹
- 2.3.56 As of January 2024, First Bus was operating 24 electric buses and 25 hydrogen powered buses, which made up approximately 40% of the overall bus fleet in Aberdeen. The electric buses take around three hours to charge and have a range of approximately 370km, with First's King Street depot upgraded with 16 dual-headed fast chargers. Electric vehicles operate on First's 12, 20 and 23 bus routes^{82, 83}. The hydrogen powered buses take less than 10 minutes to refuel and offer a greater range than the electric. They operate on the 17, 18 and 19 routes^{84,85}

⁷⁹ <https://cbwmagazine.com/first-bus-to-trial-new-arrival-bus>

⁸⁰ [Aberdeen bus routes set to power up | Stagecoach \(stagecoachbus.com\)](#)

⁸¹ [Electric Buses in Aberdeen | Stagecoach \(stagecoachbus.com\)](#)

⁸² [First Aberdeen bus fleet now 40% emission free | FirstBus Scotland News](#)

⁸³ [Electric Buses | First Bus](#)

⁸⁴ [The world's first hydrogen-powered double decker bus arrives in Aberdeen \(lowemissionzones.scot\)](#)

⁸⁵ [Hydrogen Buses | First Bus](#)

- 2.3.57 In July 2024, BP Aberdeen Hydrogen Energy Limited (the joint venture between BP and Aberdeen City Council) announced that the final investment decision for its Aberdeen Hydrogen Hub project had been agreed. The planned hub will feature a hydrogen production, storage and distribution facility, located at Hareness Road, Aberdeen, which will be powered by electricity generated at a solar farm installed on the former Ness landfill site. Targeting production from 2026, once operational the hub will have the potential to deliver up to around 300 tonnes of green hydrogen a year through the initial phase of the project, enough to fuel 25 buses and a similar number of other fleet vehicles per day.
- 2.3.58 As of June 2024, Stagecoach Bluebird operate 35 electric buses in Aberdeen. They are used on urban services, with the 59 and 727 (airport) routes being fully electric.⁸⁶
- 2.3.59 Ember launched a new Edinburgh to Aberdeen service in October 2024 which serves the Bridge of Dee and Bridge of Don (at a frequency of 20 services per day), operating using all electric vehicles.
- 2.3.60 Almost all operating vehicles are ‘conventional’ double decker vehicles, but of particular note, First operates single decker articulated buses on student routes serving the university campuses. The buses offering additional standing capacity and First note they are favoured by more elderly and less mobile passengers who prefer / or who cannot make their way onto the upper deck of a conventional bus if seating downstairs is unavailable. Boarding on the buses is from the front of the vehicle with tickets purchased on board from the driver. At particularly busy times, First staff are sometimes in situ at core stops to enable ticket purchase before boarding to speed up the overall boarding process. Existing stop infrastructure does not consistently support the longer articulated vehicles at certain locations, where passengers cannot alight the vehicles through the second set of doors due to street furniture.

Existing Supply Side Transport Problems

- 2.3.61 Reflecting on the trend and supply side information as set out above, and presenting further data and analysis as required, a range of transport problems (denoted ‘PR’ below) relating to the current situation are defined and discussed below.
- 2.3.62 Many of the problems discussed are further evidenced and reflected in both bus passenger and non-bus user views of the current network and services and an overview of public views on bus services across the region is provided first. This overview helps point towards the reasons and barriers for the bus network not being more heavily used. In this regard, perceptions, and specifically negative perceptions, of the current bus network and services is itself a problem.

Public view of bus network and services

- 2.3.63 Bus travel being poorly perceived is often a key reason for not travelling by bus, and it is therefore important to establish the views of Aberdeen City and Aberdeenshire residents (not just passengers) with respect to their bus services. Various engagement activities undertaken across a range of studies touched on in the narrative above, have been drawn on to establish these views, including:
- market research undertaken via online and phone-based surveys across the region to establish a broadly representative sample of bus users and non-bus users, and Aberdeen City and Aberdeenshire residents⁸⁷
 - perceptions and views expressed through the Scottish Household Survey⁸⁸

⁸⁶ [Stagecoach passes six million zero-emission rides in Aberdeen - routeone \(route-one.net\)](https://routeone.net/)

⁸⁷ Aberdeen Rapid Transit – Detailed Options Appraisal, Stantec, 2023

⁸⁸ [Transport and Travel in Scotland 2022 | Transport Scotland](https://www.transport.scot.nhs.uk/transport-scotland/)

- the outcomes of the CTS⁶⁷

Market Research

- 2.3.64 In the market research exercise, respondents were asked to rate how satisfied or dissatisfied they were with different aspects of the bus services available to them. The table below shows the top three factors which each group expressed dissatisfaction with (either 'dissatisfied' or 'very dissatisfied').

Table 2.3: Outcomes of Market Research Exercise – Dissatisfaction (top three factors)

Rank	Aberdeen City Bus Users	Aberdeen City Non Bus Users	Aberdeenshire Bus Users	Aberdeenshire Non Bus Users
1	quality of bus stops / shelters (21%)	reliability of the bus turning up on time (39%)	facilities at Park & Ride sites (31%)	time of first and last services (39%)
2	access to information regarding services (for journey planning) (16%)	quality of bus stops / shelters (38%)	reliability of the bus turning up on time (29%)	frequency of service (35%)
3	facilities at Park & Ride sites (15%)	range of destinations which you can reach without changing bus (36%)	access to information regarding services (for journey planning) (24%)	overall door-to-door journey time by bus (34%)

- 2.3.65 Bus non-users are significantly more dissatisfied than bus users, given that they do not use the bus. For non-users, these views will likely be based on perceptions – although addressing these perceptions is clearly vital if more people are to use public transport.
- 2.3.66 Over the whole sample, the ranking below shows the factors that people were most dissatisfied with, in descending order:
- 1 Reliability of the bus turning up on time
 - 2 Quality of bus stops / shelters
 - 3 Range of destinations which you can reach without changing bus
 - 4 Access to information regarding services (for journey planning)
 - 4 Time of first and last services
 - 6 Frequency of service
 - 6 Facilities at Park & Ride sites
 - 8 Level of personal security at bus stops and on buses
 - 9 Overall door-to-door journey time by bus
 - 10 Reliability of journey time onboard the bus
 - 11 Quality of bus vehicle
 - 12 Length of time taken boarding and alighting the bus
 - 13 Convenience of buying tickets

Scottish Household Travel Diary

2.3.67 The Scottish Household Travel Diary⁸⁹ reports on the percentage of people who agree / disagree with various statements regarding public transport. For Aberdeen City residents, the statements that the fewest people agreed with were:

- 'the fares are good value' (55%)
- 'it's easy changing to other forms of transport' (57%)
- 'buses are environmentally friendly' (69%)
- 'buses are on time' (76%)
- 'the service is stable and isn't regularly changing' (78%)

2.3.68 This data suggests that **addressing factors around reliability, service quality and network coverage would improve satisfaction with bus services** in and around Aberdeen, for both bus users and those who do not currently use the bus.

Comprehensive Travel Survey

2.3.69 The CTS⁶⁷ also considered the satisfaction of bus users, with the findings noting that 61% of Aberdeen residents and 64% of Aberdeenshire residents were either 'very satisfied' or 'satisfied' with their bus experience. Furthermore, 21% of Aberdeen residents and 16% of Aberdeenshire residents were either dissatisfied or very dissatisfied with their bus experience.

2.3.70 Furthermore, Focus Groups undertaken to inform the CTS found that bus reliability, cost and a lack of convenience were the main reasons cited as reason not to use the bus more often. Further barriers to use were noted as:

- A lack of trust in service reliability with a perceived risk around using buses for multi-modal journeys, with concerns regarding the reliability of connections
- Bus frequency and levels of service were said to be reducing 'all the time' (note that this does however conflict with the SHS survey point as noted in 2.3.67 above)
- A lack of trust in real-time information and information available on online apps
- A lack of orbital bus services operating routes around Aberdeen City, causing people to travel to the city centre first before travelling to their final destination
- Lack of express or direct buses to Aberdeen City from Aberdeenshire
- Crowding and over-capacity on buses as they leave Aberdeen City, adds risk to Aberdeenshire residents that a bus may be unavailable
- A lack of evening bus services led to the perception that bus is not an option for late night travel home
- Safety concerns when buses are used by large groups of young people, especially in the evenings

2.3.71 The CTS also found that over a quarter (27%) of North East region residents could switch from car to bus for travel to work, with most of these residents living in Aberdeen City. Furthermore:

⁸⁹ [Transport and Travel in Scotland 2022 | Transport Scotland](#) (Table LA14a)

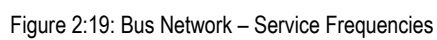
- In Aberdeen, 25% of workers who drove to work felt switching to bus would be easy; 55% felt it would be difficult and 15% felt it would be impossible (4% neither easy nor difficult)
- In Aberdeenshire, 12% of workers who drove to work felt switching to bus would be easy; 51% felt it would be difficult, 31% felt it would be impossible (4% neither easy nor difficult)

2.3.72 These outcomes highlight the ability of some to switch modes, but with the factors as outlined above in terms of user and non-user satisfactions likely inhibiting, and creating barriers to, the switch.

PR1: Public perceptions of the bus services as a low quality travel option: Service reliability, service quality, network coverage and fares feed into a poor perception of bus travel for some in the community and therefore a perception that travel by bus is a low-quality travel option. There is a perpetual negative perception of bus travel amongst a cohort of the population leading to a reluctance to use the bus, and the image of bus travel needs to be improved to address this. Problems to be addressed include uncompetitive journey times, poor bus travel time reliability, stability in the network, the cost of travelling, poor interchange facilities and stop infrastructure, and difficulties in access for vulnerable users.

Bus Service Frequencies

2.3.73 Services operate across the city and into Aberdeenshire with varying frequencies. The figure below shows the frequency of services at each bus stop between 0600 and 2300, with the figure thereafter showing which corridor routes in the city broadly operate with what could be considered a 'turn up and go' frequency – considered here as at least a bus every 10 minutes i.e. 6 or more buses per hour. Note though that the frequency of buses at the stops does not relate to any one individual bus route and also not necessarily with bus frequencies evenly spaced across each hour. However, it does provide a broad appreciation of service provision at each stop and along routes into the city.



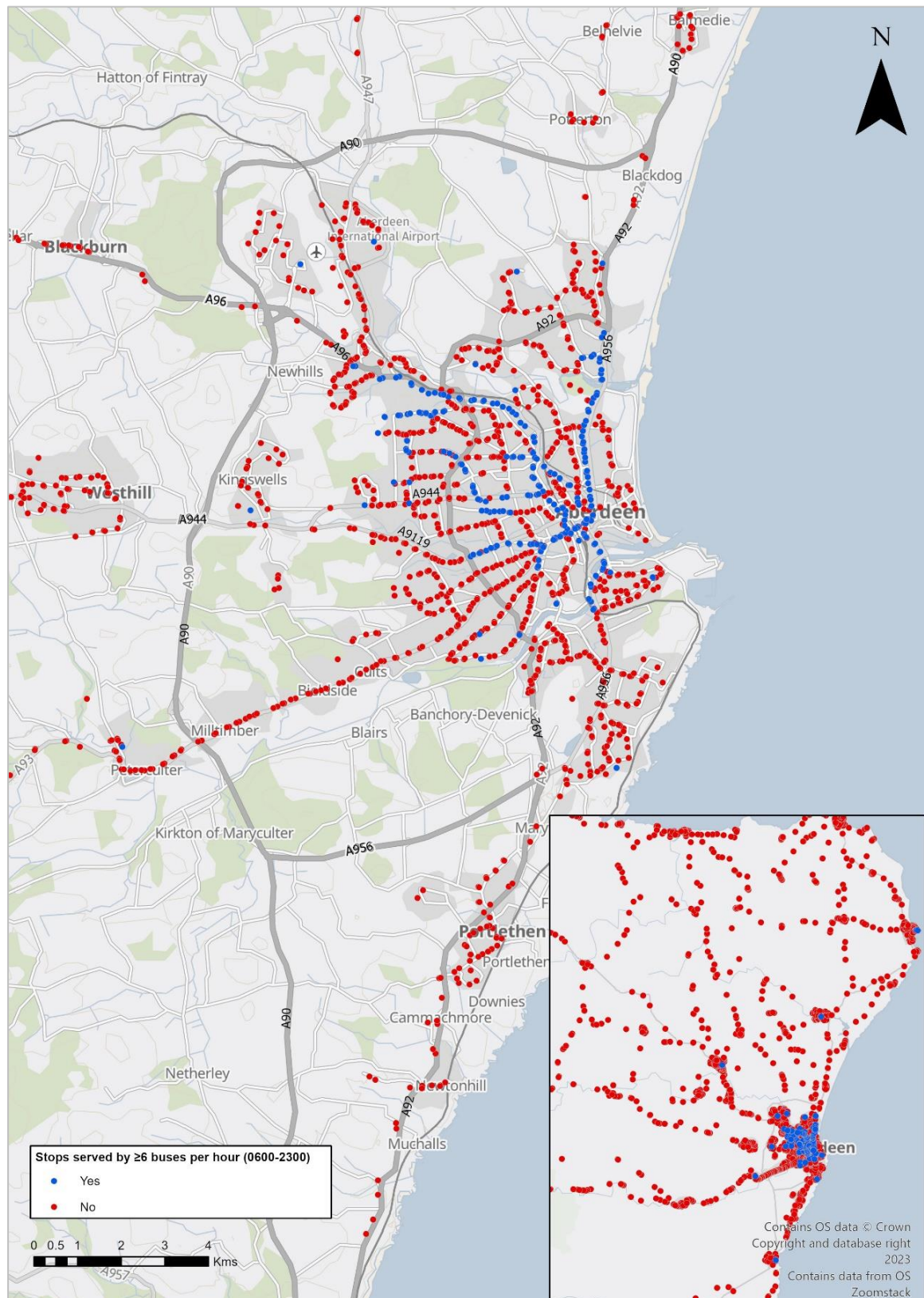


Figure 2:20: Bus Network – Service Frequencies – Stops served by 6 or more buses per hour

2.3.74 The figure shows the greater frequency of buses on King Street (A956) and the Great Northern Road (A96), Westburn Road / Lang Stracht (A944), Queens Road (A9119) and on the northern part of Wellington Road (A956). The mapping also highlights the relative infrequency of services to both Kirkhill and Altens Industrial estates, as well as to the towns of

Westhill and Portlethen located in Aberdeenshire but close to the city. In terms of stops and routes operating with a 'turn up and go' type frequency, Figure 2:20 highlights Union Street, King Street and Great Northern Road operating with such frequencies, but key routes into the city from the south and west do not offer this. From a Park & Ride perspective, services along these corridors into the city need to provide such a frequency to encourage use of the sites.

- 2.3.75 Frequency of services is often cited as a reason for dissatisfaction with bus services in the region as noted above. During Focus Groups undertaken to inform the CTS it was noted that a barrier to bus use was that bus frequency and levels of service were said to be reducing 'all the time'. In addition, through a region-wide market research exercise, over a quarter of non-bus users in Aberdeen city noted that low bus frequency was a deterrent to them travelling by bus.

PR2: Long wait times at bus stops: Bus service frequency is often cited as a reasons for dissatisfaction with bus services across the region, and a barrier to greater use. Lack of 'turn up and go' service frequency at stops will be detracting from use of the bus, especially use of services into Aberdeen from Park & Ride sites.

Cross-City Connections

- 2.3.76 Most bus services into and within Aberdeen operate radially into the city centre, with limited 'cross city' routeing. The following figures highlight this and present, across four of the strategic routes into the city, the routes of all bus services passing through a point on the corridor. The 'bandwidth' indicates the number of buses on the network across the day.

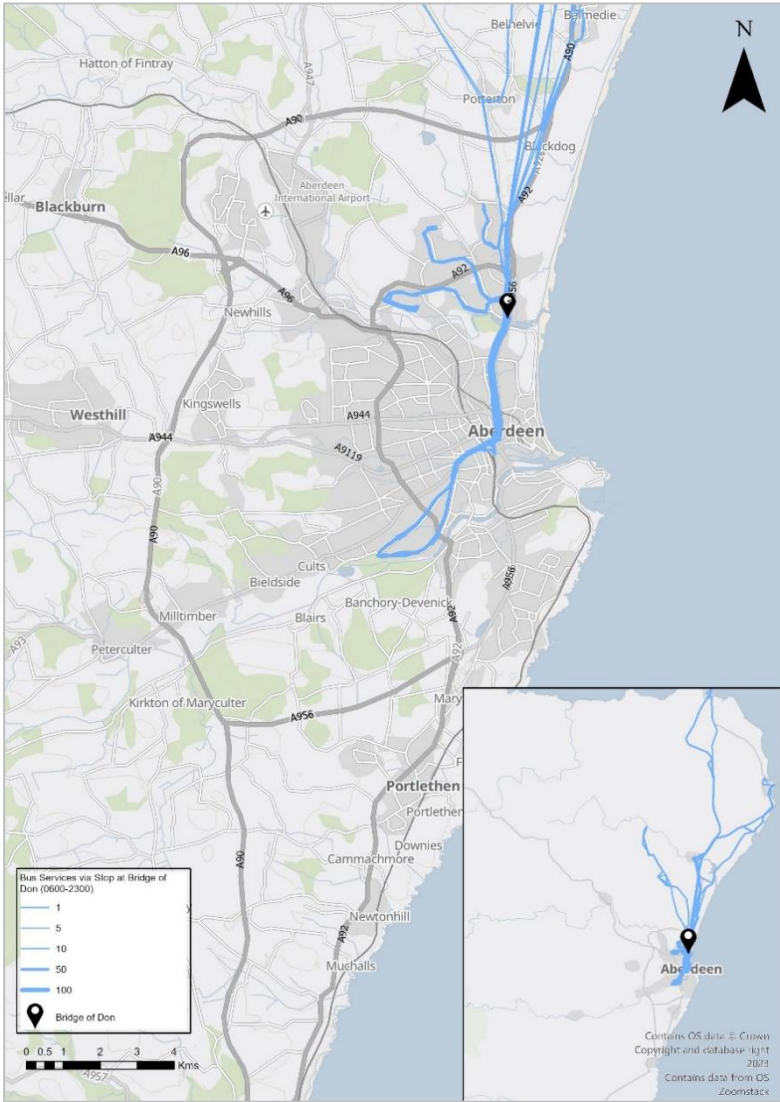


Figure 2:21: Bus Service connections from Bridge of Don (A956)

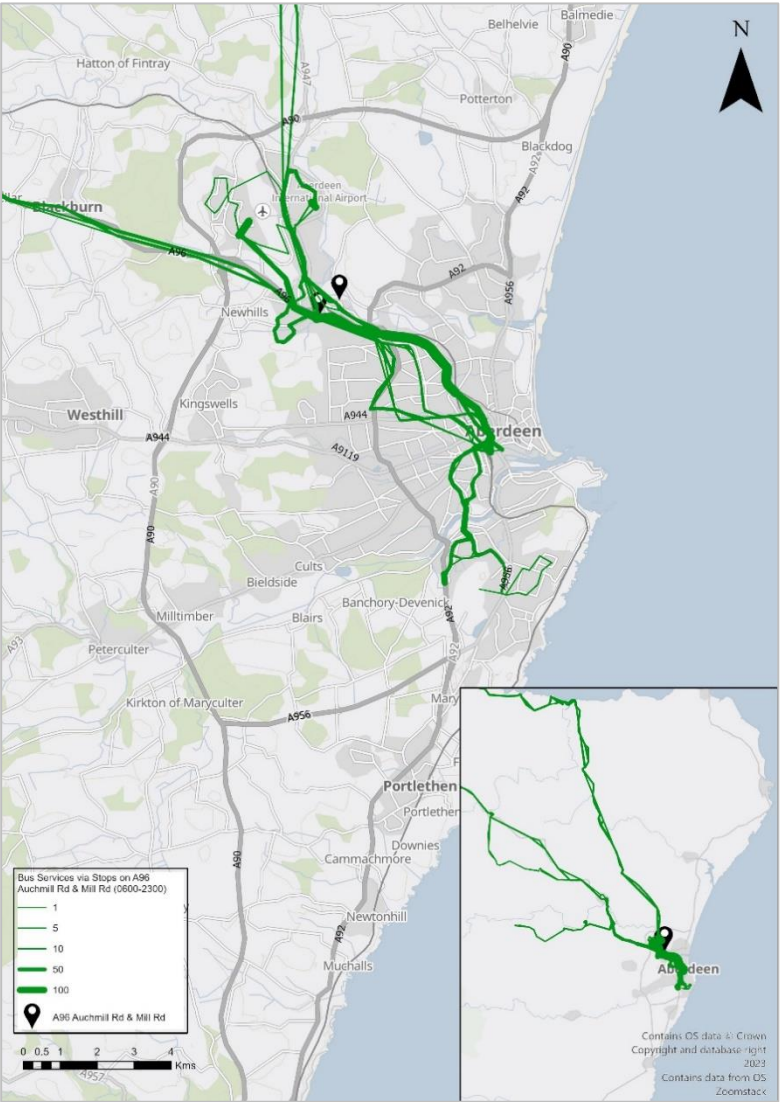


Figure 2:22: Bus Service connections from Great Northern Road / Muggiemoss (A96)

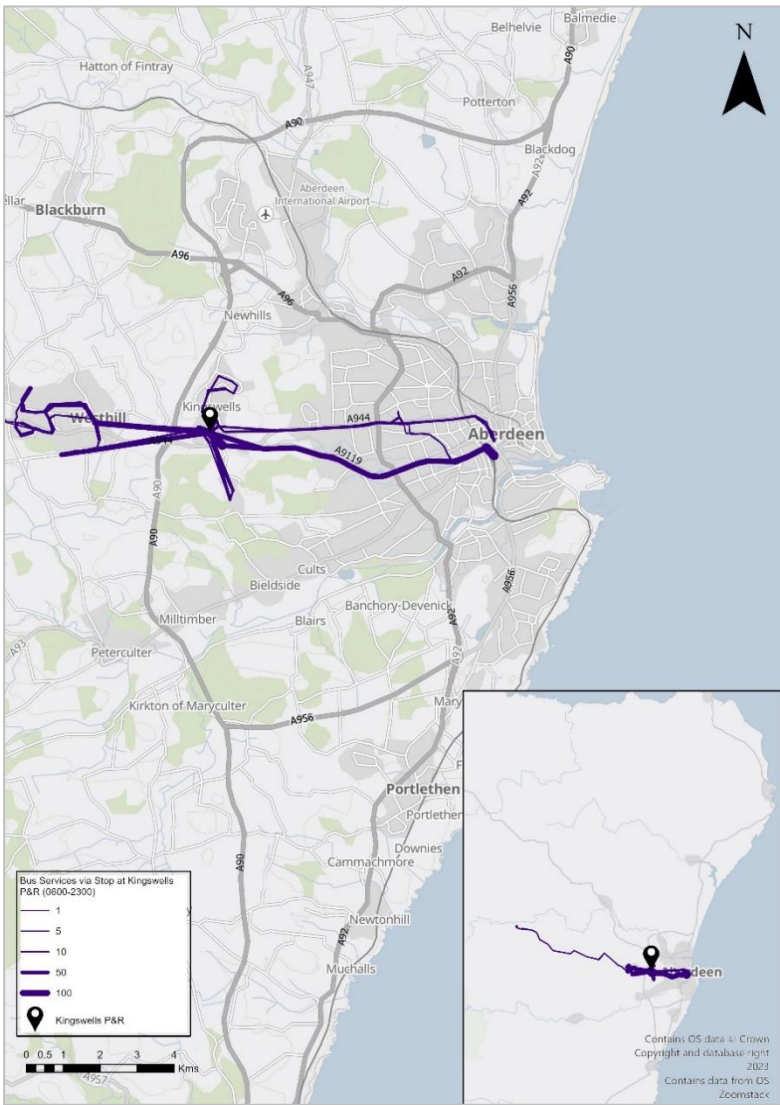


Figure 2:23: Bus Service connections from Kingswells (A944)

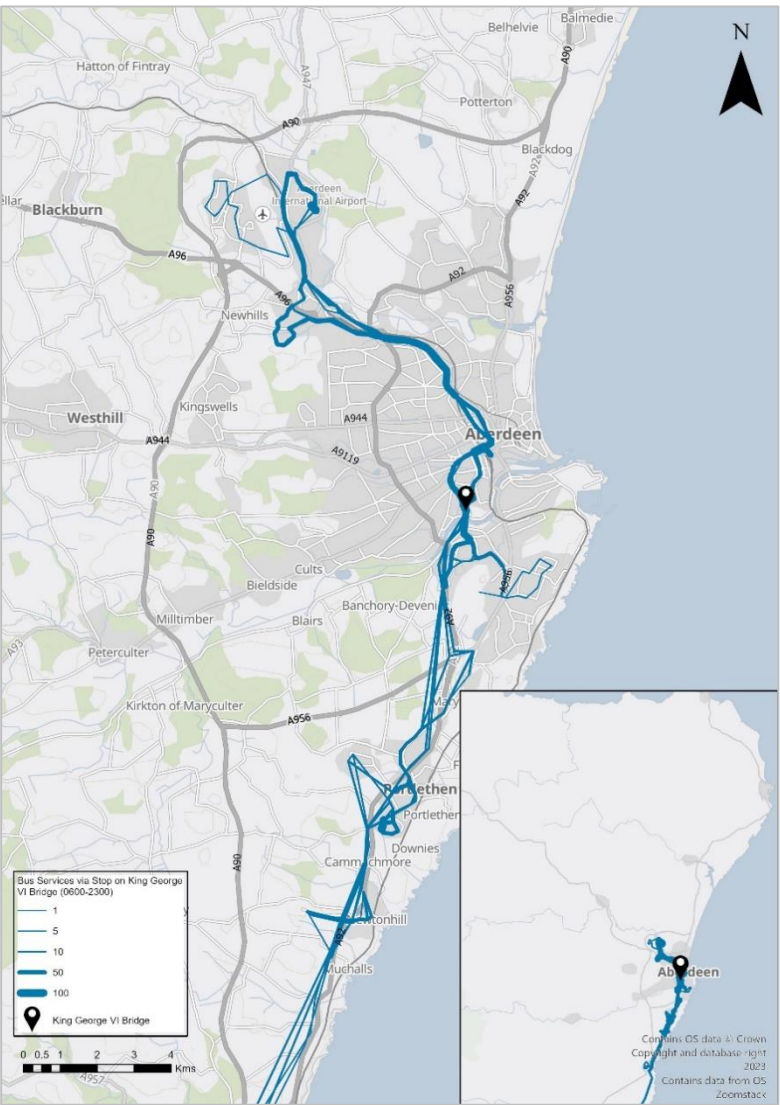


Figure 2:24: Bus Service connections from Great Southern Road (B9077)

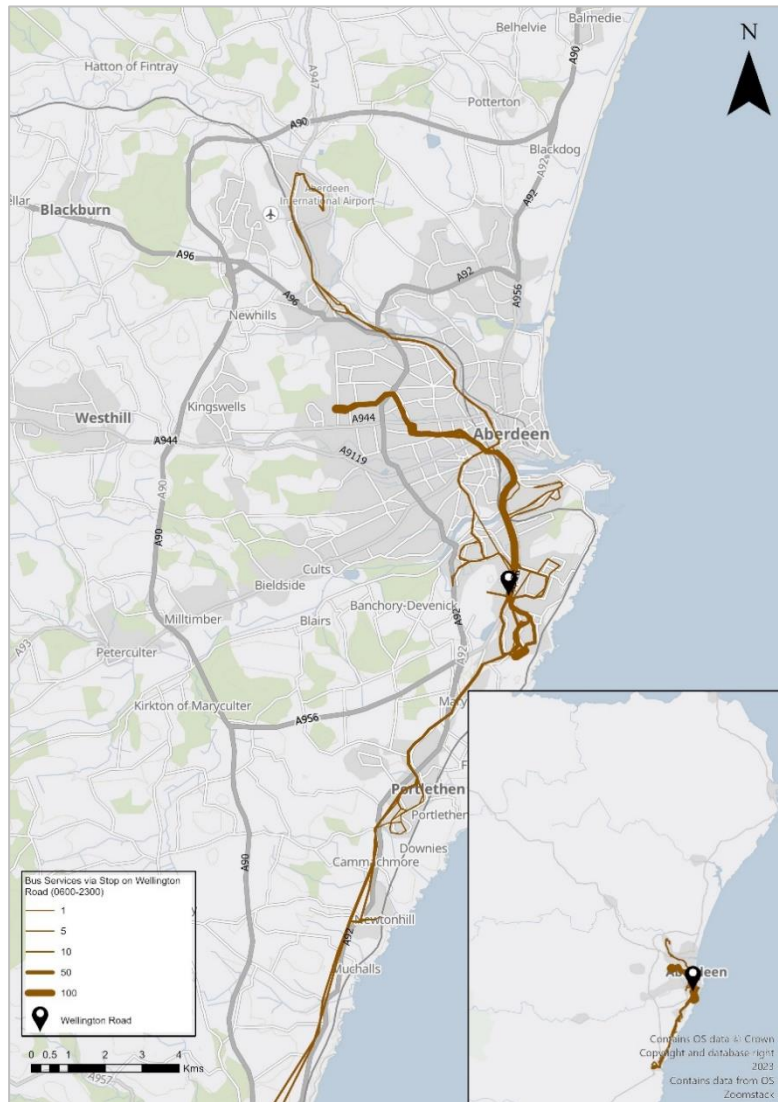


Figure 2:25: Bus Service connections from Wellington Road (A956)

PR3: Limited cross-city bus connections leading to longer journey times making travel by bus unattractive and acting as a barrier to use for those with mobility issues: Most bus services into and within Aberdeen operate radially into the city centre. Relatively few operate 'cross city' and those which do generally only link to one other strategic corridor. No corridor offers services linking into and across the city to all other strategic corridors. In addition, there are no orbitally operating services (although such routes have been trialled in the past without success). Interchange between services is therefore often required to access 'cross city' locations, increasing access time and cost, and making these journeys less attractive to current non-bus users and more difficult for those with mobility issues. These trips will sometimes involve more than one bus operator, with interchange between services often requiring a wait time between services.

Bus to Car Travel Time differences

- 2.3.77 While some bus routes have seen improvements in journey times since the opening of the AWPR in 2018/19, the proportional improvement in bus journey times has been, in general, less than that for general traffic⁹⁰, making the bus even less attractive in relation to the car. The region-wide market research exercise undertaken found around 20% of non-bus users in Aberdeen were dissatisfied with door-to-door bus journey times.
- 2.3.78 Analysis has been undertaken to highlight the difference in bus to car travel times (plotted at postcode level) to several key destinations across the city. Bus travel times were derived from Conveyal⁹¹ software, with car travel times obtained from Google API data.
- 2.3.79 Average bus to car travel time differences⁹² have been plotted (for the morning period 06:00 – 09:00) and are presented in the mapping below for travel from each postcode location to:
- the city centre (at Union Square) - around 26,000 jobs in datazones covering Union Square and Union Street
 - Aberdeen Airport – around 5,000 jobs in datazone
 - Foresthill Health Campus - around 8,000 jobs in datazone
 - Arnhall Business Park (Westhill) - around 5,000 jobs in datazone
 - Altens Industrial Estate - around 7,000 jobs in datazone
 - Robert Gordon University
- 2.3.80 The figure following the maps quantifies the number of households within each time-banding within the mapping and presents the outputs for all households (in Aberdeen and Aberdeenshire) as well as separately for those within the 20% most deprived SIMD datazones covering the same regional geography. Note however that the only datazones in Aberdeenshire in the SIMD 20% most deprived category are located in Peterhead and Fraserburgh, a significant distance from the ART network and as such, these were excluded from consideration. Therefore, the 20% most deprived zones as presented in the analysis relate to locations within Aberdeen.

⁹⁰ [Monitoring-report-2020.pdf \(nestrans.org.uk\)](#)

⁹¹ [Conveyal - Evaluate changes to your public transportation system](#) – April 2024 using 50% percentile

⁹² The bus and car journey times are not available at the same geographical level. Bus travel times in Conveyal were calculated at postcode level and the car journey times from Google API at Datazone level (using the population weighted centroid and applied to all postcodes within that datazone). While the Bus to Car ratio is presented at postcode level there may be some anomalies where the Car journey time actually represents an average of the nearby postcodes.

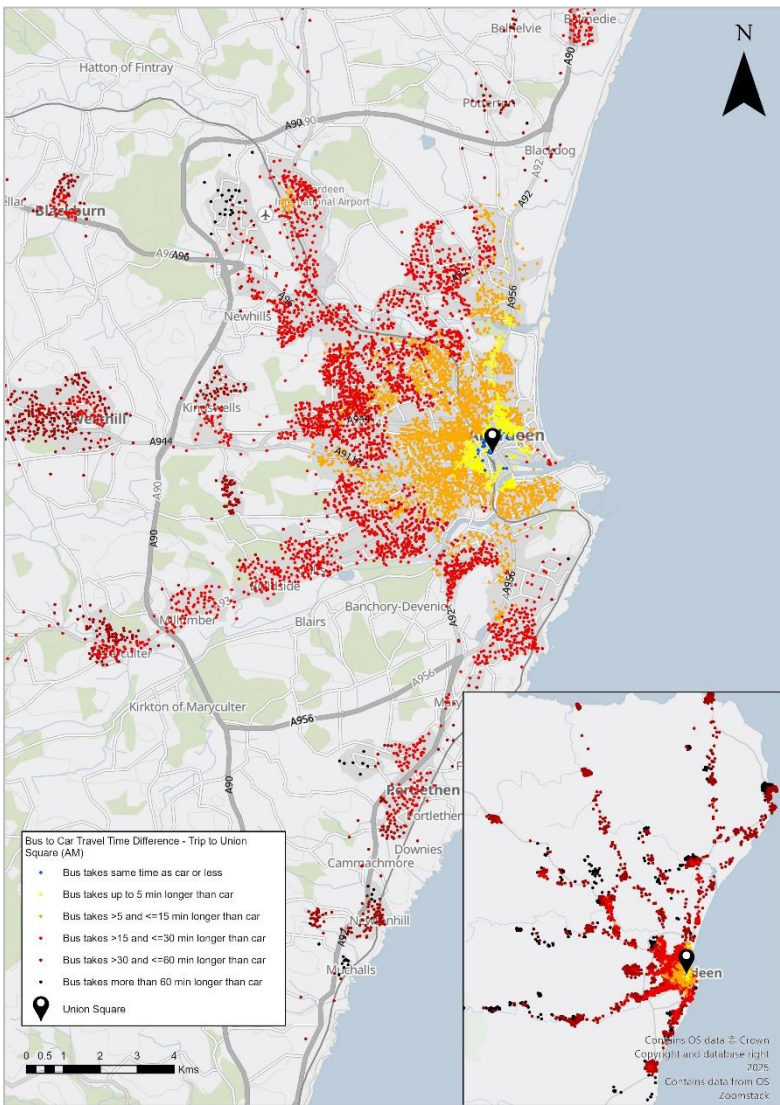


Figure 2:26: Bus to Car Journey Time Difference (0600-0900): City Centre at Union Square

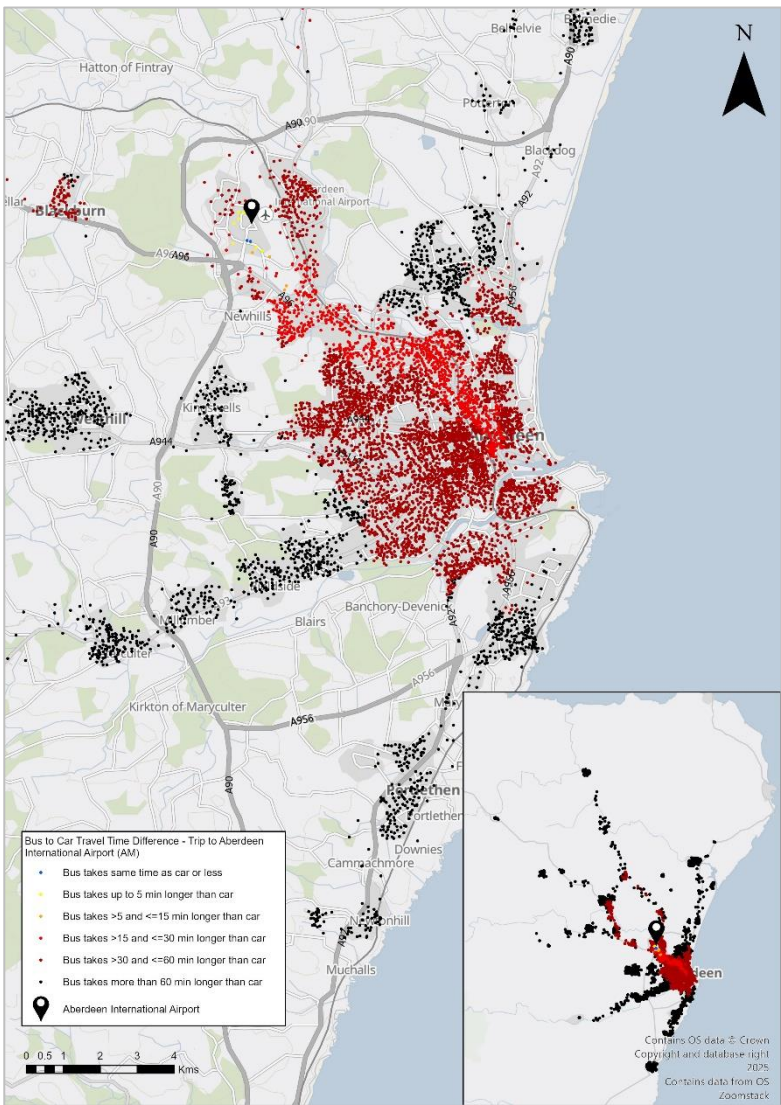


Figure 2:27: Bus to Car Journey Time Difference (0600-0900): Airport

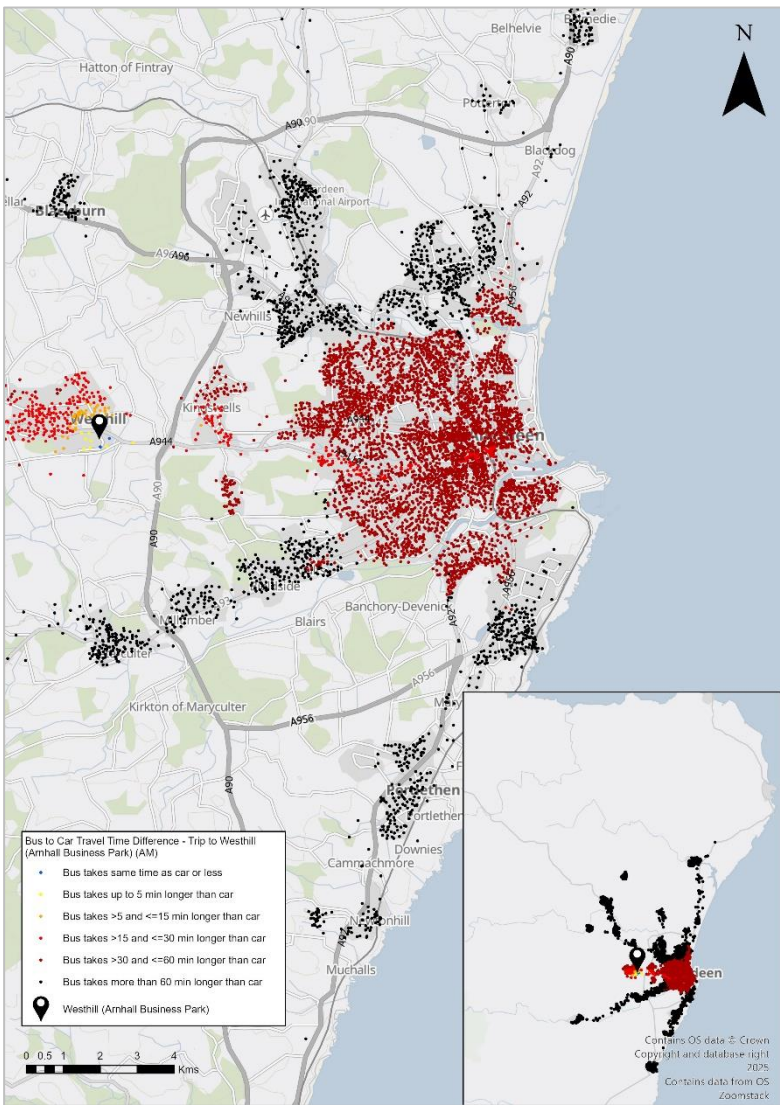


Figure 2:28: Bus to Car Journey Time Difference (0600-0900): Arnhall Business Park (Westhill)

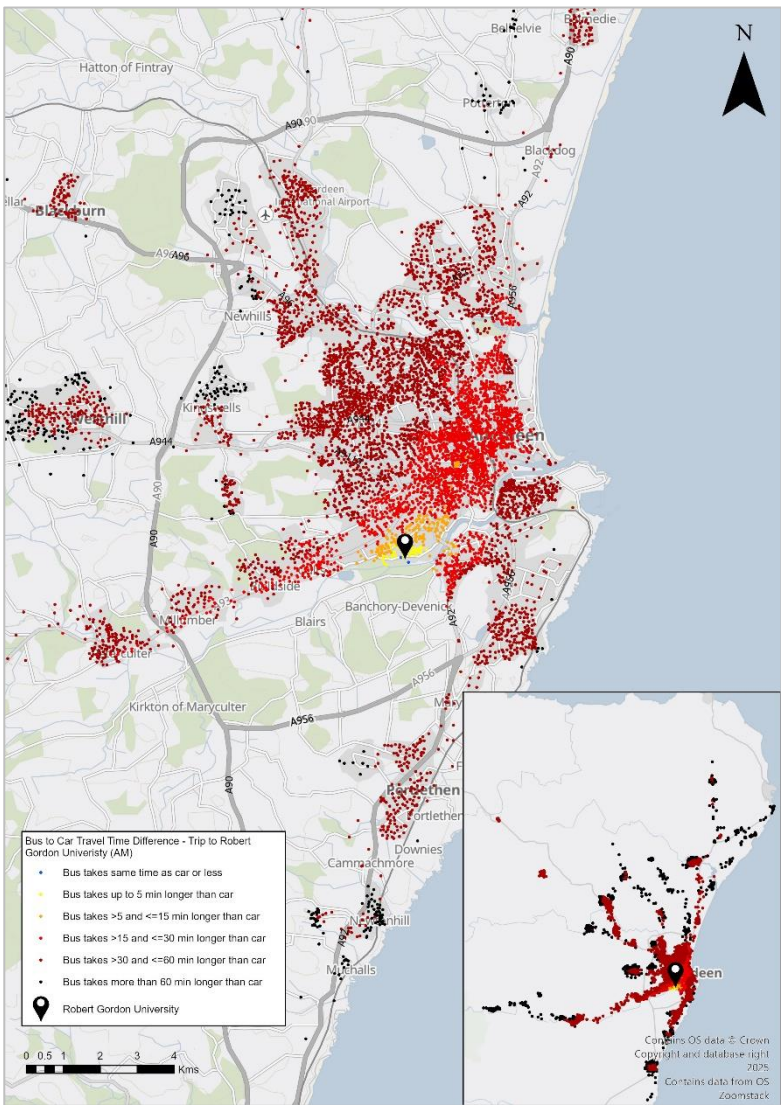


Figure 2:29: Bus to Car Journey Time Difference (0600-0900): Robert Gordon University

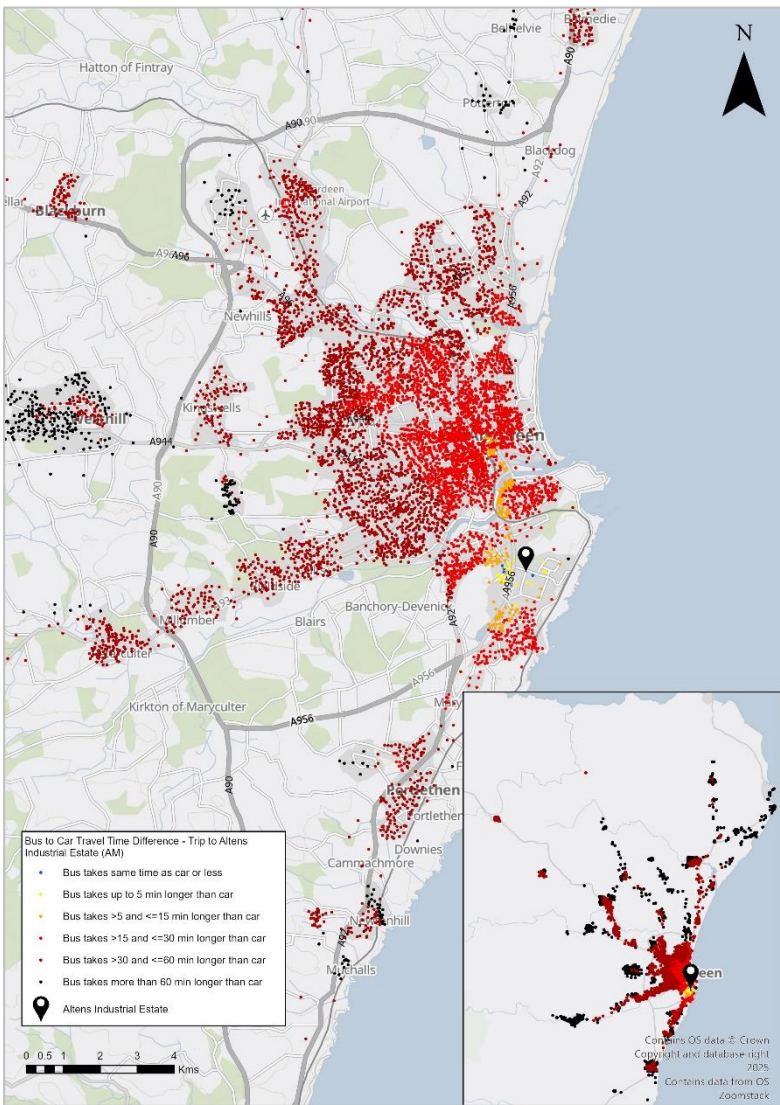


Figure 2:30: Bus to Car Journey Time Difference (0600-0900): Altons Industrial Estate

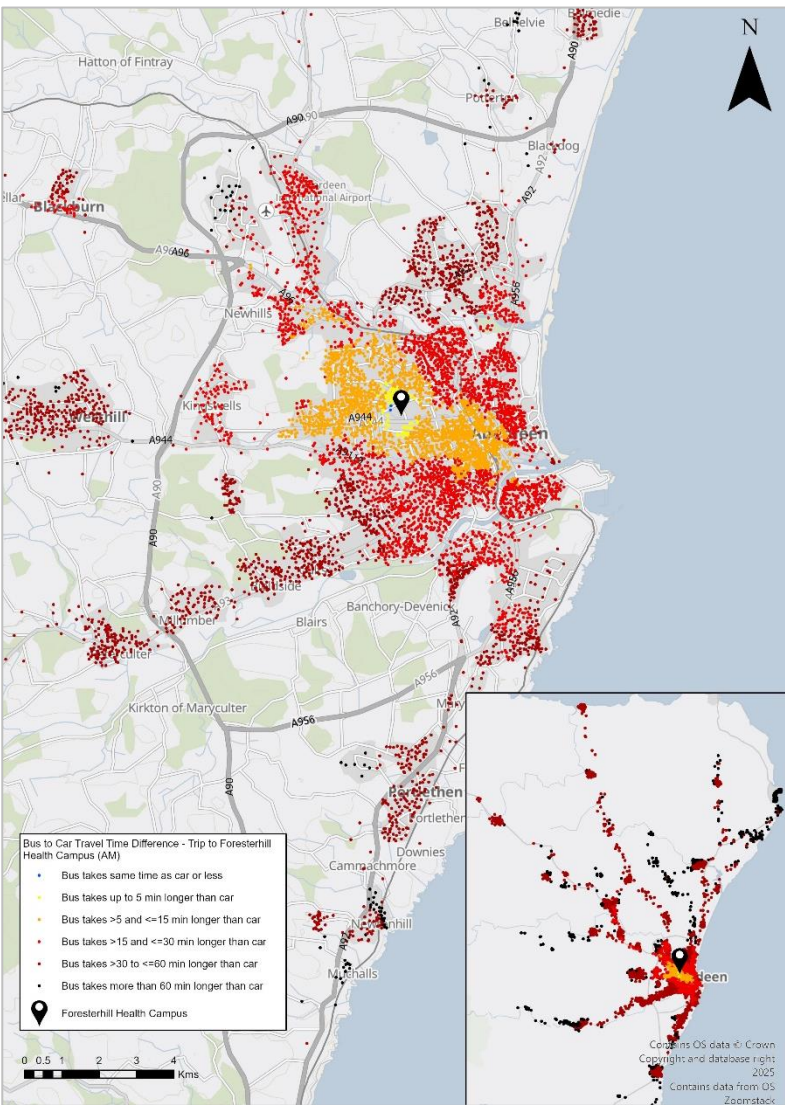


Figure 2:31: Bus to Car Journey Time Difference (0600-0900): Foresterhill Health Campus

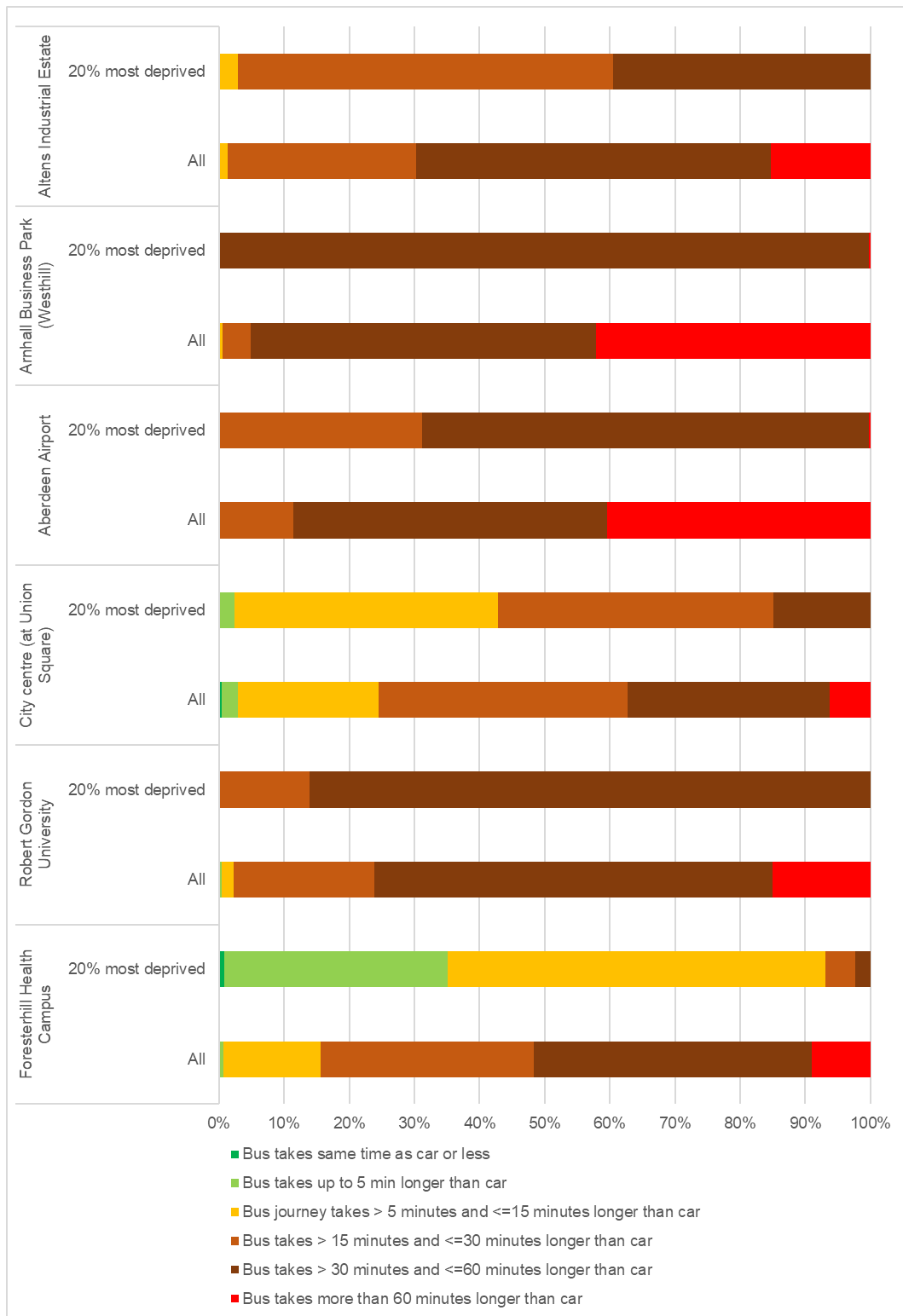


Figure 2.32: Households (all zones, and those with SIMD 20% most deprived) within access time bands for travel by public transport (in relation to travel time by car) to key locations

2.3.81 The travel time mapping and analysis as presented in the figures above shows:

- Almost always a trip by bus to all the destinations considered is longer than the car – unless the trip origin postcode is immediately adjacent to the destination being considered

- The general pattern of lower bus to car travel time difference to the key locations considered when the origin and destination are located along the same strategic route within the city, highlighting the arterial nature of bus services, and the lack of cross city connections between many of the corridors
- For much of Aberdeen, the much lower journey time difference between bus and car travel in access to the city centre. However, on the periphery of the city, and from communities just outside of Aberdeen in Aberdeenshire (Westhill, Portlethen, Peterculter and Blackburn), journey times by bus can be significantly longer – with considerably differentials given the reasonably short distances involved. The railway station at Portlethen should be noted, offering a ten minute journey into Aberdeen, although the service only operates around once an hour.
- Access to the airport by bus is considerably longer than by car for many, especially for those not located close to the A96 corridor or within the city centre. Even for many of Aberdeen's residential suburbs, the travel time by public transport is up to an hour longer than the car, and for communities along the A93 corridor (Bieldside, Miltimber and Peterculter), and those along the A92 south of Aberdeen (Cove and Portlethen) the travel time to the airport by bus is over an hour longer than that by car. Particularly stark is that for those in Westhill and Kingswells, as well as in Middelton Park, the travel time by bus is also over an hour longer than by car, despite their proximity to the airport.
- Access to Arnhall business park in Westhill by bus from many locations in the city generally takes up to 30 minutes longer than by car. Current bus routes serving Arnhall route along the A9119 (Skene Road / Queen's Road) as can be seen in the lower difference between bus and car travel times for locations along that corridor. From the other strategic corridors and, of particular note, from communities along the A96 and A93 not located far from Arnhall, the travel time difference between car and bus is often more than an hour, indicating the need to travel via the city centre if travelling by bus.
- The difference in travel time access between bus and car is lower to Robert Gordon University by bus from locations along the A93 corridor and from a broad city centre corridor encompassing Union Street and King Street – again reflecting the arterial nature of bus services and the existing First service linking Aberdeen University (located on King Street) and Robert Gordon University Campuses.
- Access to Altens Industrial Estate can take 15 – 30 minutes longer by bus than by car, even from the closely located Cove community to the south, and from Torry located just north. From the communities located along the suburban edge of Aberdeen, the travel time by bus is often up to an hour longer than by car.
- The difference in travel time access between bus and car is lower to Foresterhill Health Campus from locations along Westburn Road / Lang Stract (A944), and to the north of the A944, between the A944 and A96 (Great Northern Road). From Westhill, located further west on the A944, travel by bus to the health campus can be up to 60 minutes longer than by car, reflecting the fact that services from Westhill to the centre route along the A9119 arterial route as opposed to the A944 where the Health Campus is located. From many locations along other strategic corridors into the city, bus travel to the health campus can be up to 60 minutes longer by bus than car.
- When considering the 20% most deprived zones, the general more city centre location of these areas, means they often have better bus access times than when considering access across all zones.

2.3.82 Analysis undertaken to inform the multi-modal corridor studies also highlighted that:

- North (A956 / A90):

- First Bus identified (in 2019) that the A956 King Street southern section of the corridor represents 13% of the entire First Bus network delay in Aberdeen³⁴
- The average speed by car was noted during the Ellon to Garthdee multi-modal corridor study to be significantly faster along the corridor, at 21.5mph, compared to 12.7mph by bus³⁴
- The time taken to board and alight buses was noted (during engagement on the Ellon to Garthdee multi-modal study) to slow buses down as well as ticketing options adding further to the delay at bus stops³⁴ – all passengers require a degree of driver / card reader interaction when boarding buses across the region
- North-West (A96):
 - Journey times along the corridor between Aberdeen and Inverurie can vary by up to 20 minutes at peak times³⁶
 - Bus journey times are almost twice as long as rail, with a bus from Inverurie to Aberdeen taking 54 minutes, the same trip by rail taking 28 minutes, and the journey by car varying between 30-50 minutes depending on the time of travel³⁶
- West (A944 / A9119):
 - Arnhall Business Park and PrimeFour Business Park (located along the corridor) cannot be reached by bus by approximately 40% of Aberdeen City Region postcodes within the three hour AM peak period³⁶ highlighting the lack of competitiveness of bus travel to these sites compared to the car
- South: (A956 / A92 / A90):
 - Peak congestion occurs along Wellington Road, and particularly city-bound in the PM peak affecting all traffic – private vehicles, HGVs and buses. Backed up traffic on other routes such as West Tullos Road, Great Southern Road, Queen Elizabeth Bridge/South College Street/Esplanade roundabout, and Market Street contributes to congestion issues on Wellington Road⁹³. This congestion impacts on bus journey times with Figure 2:18 highlighting the lack of bus priority on the corridor
 - Public transport accessibility analysis undertaken as part of the Cumulative Transport Appraisal (CTA)⁹⁴ provides predictions of public transport accessibility relative to the car in the future and provides comparisons of travel time to reach the city centre from across the North East region by road and public transport in 2037. Despite the improvements to public transport that are assumed as part of a future scenario, there remains a stark contrast in public transport travel times compared with car (with travel times by car of 10 minutes from Cove and 30 minutes from Laurencekirk to Aberdeen city centre, compared with equivalent times of up to 2 hours by public transport from parts of the corridor¹⁵²).

2.3.83 Figure 2:18 highlighted the intermittent or absent bus priority along the corridors. In addition, bus lanes are often only operational at certain times of day, with inconsistent (and therefore confusing) operating hours across the day. Given this, buses are often delayed in general traffic congestion, especially at peak times.

2.3.84 The locations at which buses are most delayed by congestion are well known and understood. The *Accessing the State of the Bus Network* report identified 38 locations on the road network

⁹³ Wellington Road Multi-modal corridor study, STAG Part 1 report, Aecom, April 2018

⁹⁴ Aberdeen and Aberdeenshire Strategic Development Plan, Cumulative Transport Appraisal, SYSTRA, May 2019

in the region where congestion commonly causes delays to buses. Eighteen of these are on the north, north-west, west and south strategic corridors or city centre locations³³. (Note that the bus priority implemented in late 2023 has reduced the issue around the bus station and Union Street, including Guild Street, Market Street and the Bridge Street area.⁹⁵)

PR4: Travel times by bus are not competitive with those by car and therefore those with access to a car are much more likely to travel by car: Travel by bus throughout the city is almost always significantly longer than by car, with bus travel time impacted by limited bus priority, service stop frequency, ticketing methods and routeing. Bus to car travel time differences to the key locations considered across the city are always lower from areas located along the same radial corridor into the city, highlighting the arterial nature of bus services, and the relative lack of cross city connections. Travel time between relatively closely located places can be over an hour longer by bus than by car if the places are not located on the same corridor. This will make travel by bus very unattractive compared to the car for those who have access to a car, as well as reducing opportunities for those without access to a car. These journeys often necessitate interchange making journeys more challenging for those with reduced mobility.

Service Punctuality and Reliability

- 2.3.85 Bus journey times can be made unreliable by two factors: the bus not turning up at the stop at its timetabled time; and / or the bus being delayed on route beyond its scheduled travel time. This perceived unreliability undermines the attractiveness of bus use and passenger confidence.
- 2.3.86 Aberdeen City Council, Aberdeenshire Council, First Aberdeen and Stagecoach Bluebird have been involved in a voluntary Quality Partnership for public transport since April 1998, (which has been strengthened as other partners have joined). However, despite the joint efforts of the Quality Partnership over many years, bus punctuality has not improved.
- 2.3.87 Across the network both Stagecoach and First services do not achieve the 95% punctuality metric set by the Traffic Commissioner and this is highlighted in Figure 2:33 which shows punctuality (running to time) and reliability (cancellations) comparisons for First and Stagecoach services between 2010 and 2023 (with investment in real time tracking systems allowing for more precise monitoring).⁹⁶ The data shows the percentage of services starting their journeys on time experiencing no significant improvement over time.

⁹⁵ [City centre bus priority routes \(bus gates\) | Aberdeen City Council](#)

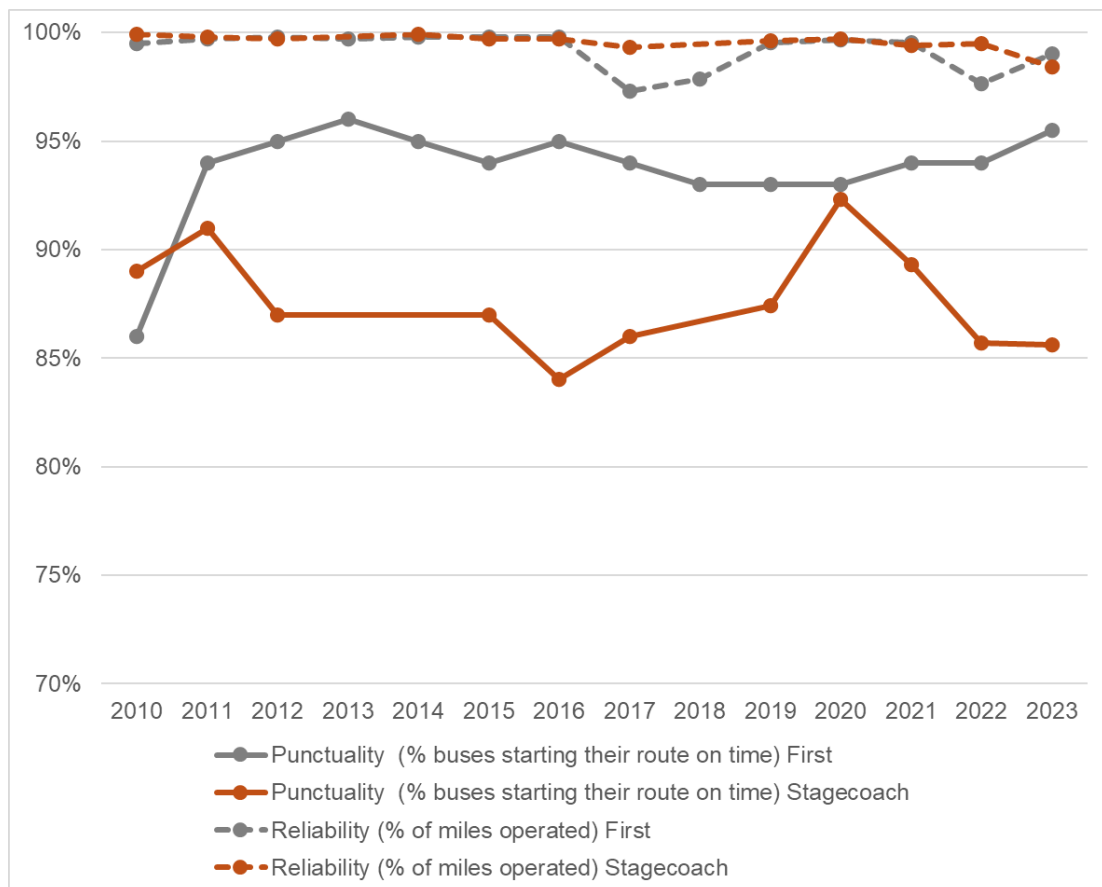


Figure 2.33: Bus Punctuality and Reliability (2010 – 2023)⁹⁶

- 2.3.88 Over the 2010 to 2020 period, to provide consistency for the user, operators had to extend their scheduled journey times in recent years because of traffic congestion.³³ Several city bus routes saw peak period operating times extend by more than a third in the decade to 2016.⁹⁷ This means that, when not delayed, buses pause at stops to allow services to catch up with the timetable, which is frustrating to the user.
- 2.3.89 The Bus Alliance *State of the Bus Network* report³³ (draft, 2024), presents more recent punctuality and reliability data, which provided the data presented for both First and Stagecoach in the graph above (for the years 2021, 2022 and 2023). The report states that *although reliability (i.e. the number of services operated) remains high for both large operators, punctuality across the network over the last five years as a whole has predominantly been below the target of 95% of buses departing on time set by the Traffic Commissioner. Regarding punctuality (% services departing intermediate time points on time), increase in passengers and traffic following Covid-19 has led to a reduction since 2020. Also, the volume of roadworks as local authorities catch up following Covid-19 also is a factor.*
- 2.3.90 As set out earlier in this section, congestion can have a significant impact on bus operations through lengthening journey times and reducing reliability and punctuality of services, in turn leading to commercial decisions to either reduce service frequencies, or maintain service frequencies with increased operational costs and therefore higher fares. Both outcomes are likely to negatively impact on patronage, and the cost to operators of ensuring punctuality targets are met when operating in a congested network are inevitably passed on to the user, increasing the cost of bus travel.

⁹⁶ Nestrans RTS Monitoring Report, 2020 and Bus Alliance *State of the Bus Network* report³³ (draft, 2024)

⁹⁷ North East Bus Alliance, Bus Partnership Fund Application, 2021

- 2.3.91 Where services are frequent, from a passenger perspective it is perhaps more about **journey time consistency** rather than service punctuality. Users want to board a service at a given time of day and know that that journey will always take say 20 minutes. A large variation in travel time for the same journey leads users to perceive journeys as unreliable. Where services are infrequent though, it is important that buses arrive when timetabled and have a consistent in vehicle journey time.
- 2.3.92 Analysis undertaken to inform the MMCS (supplemented with information from discussions in January 2025 with Stagecoach and First) highlighted that delay impacts operations across the network with delay at junctions as well as inconsistent bus lane provision along with a lack of bus lane enforcement being key drivers of bus delay⁹⁸. More details are provided below:
- **North (A956 / A90):**
 - The A956 King Street (A956) corridor represents 13% of First Bus network delay in Aberdeen, as identified during 2019.³⁴ Data analysis undertaken in relation to Stagecoach services shows the most congested areas of the corridor are around Ellon Park & Ride site and along King Street. First noted the difficulties experienced in exiting their King Street depot, with buses unable to easily access the bus lanes which start some distance (around 200m) from the depot itself. This can be a particular issue for buses travelling northbound from the depot. Some short sections of existing bus lane are also ignored with bus drivers noting frequent parking. Furthermore, the narrow width of the King Street bus lanes can reduce bus speeds, especially given the high volume of HGV movements along the route.⁹⁸
 - **North-West (A96):**
 - There is wide variation (70%) in journey times between Mounthooly Roundabout and Clifton Road (westbound) in the PM period highlighting congestion on this stretch of carriageway in which buses have no priority³⁵. The single carriageway section between Powis Terrace and Clifton Road is a key location causing traffic congestion.
 - There is around a 45% variation in general traffic travel time (between the average quickest and average longest time) between Inverurie and Kintore (eastbound), in the AM and PM periods. Stagecoach service 37 from Inverurie to Aberdeen has an off-peak travel time of just under 70 minutes whereas the journey at peak time can take almost 90 minutes, around a 20 minute increase in travel time due to delay in the network.
 - For bus travel between Inverurie and Aberdeen, there is travel time variation in different periods across the day, with some services noted to be consistently behind schedule and other services at times ahead of schedule³⁵
 - Traffic congestion on the A96 around Craibstone can be exacerbated by TECA event traffic when the build up to the event coincides with weekday peak hour traffic. This congestion can then bring associated delays to buses and create unreliability.
 - **West (A944 / A9119):**
 - The vast majority of First and Stagecoach services³⁶ using the corridor typically run within 5 minutes of their timetabled arrival, indicating that bus timetables already account for routine congestion. This was evidence during engagement where it was noted that buses often pause at stops to allow services to catch up with the timetable, causing user frustration.³⁶
 - The piecemeal bus lane provision on the A944 (Lang Stracht) between Maidencraig and North Anderson Drive causes delay to buses. Road markings and a number of

⁹⁸ Bus Operator discussions, January 2025

road width changes, as well new housing developments and increased traffic through this section have created a more difficult bus operating environment in recent years.⁹⁸

- Operators noted the increase in journey time reliability between Westhill and Kingswells since the opening of the AWPR junction, with buses often delayed through the junction.⁹⁸

■ **South: (A956 / A92 / A90):**

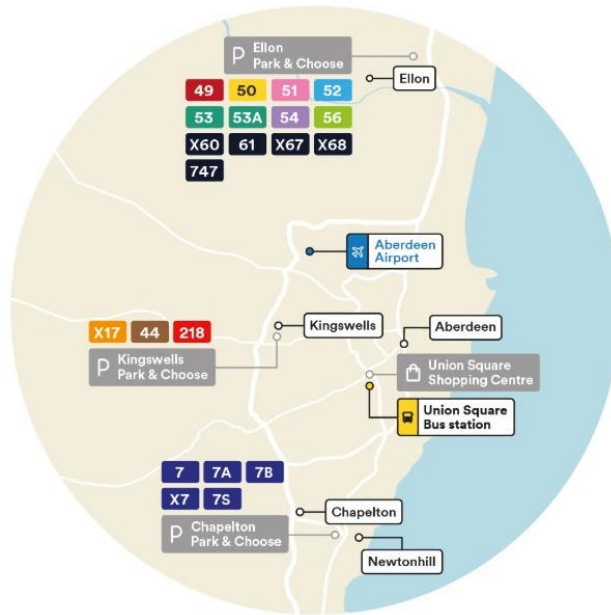
- Congestion is a major issue affecting the Wellington Road (A956) section of the corridor³⁸, particularly city-bound in the PM peak and affecting all traffic
- Queued traffic on other routes such as West Tullos Road, Great Southern Road, Queen Elizabeth Bridge / South College Street / Esplanade roundabout, and Market Street contributes to congestion on Wellington Road. This is caused by the cumulative impact of constrained land at the former Craiginches Prison site, inadequate crossing points across the River Dee (and the weight restriction on the Bridge of Dee), the northbound bus lane ending too far south of the Queen Elizabeth Bridge Roundabout and new housing and office developments. With limited bus priority, buses are caught up in this congestion. Indeed, increased adherence to the existing northbound bus lane means that the traffic queue can extend back and buses face long queues to access the bus lane³⁸, ironically, contributing to bus delays.

2.3.93 Unreliable bus journey times across the corridors were quoted in the MMCS engagement as a key reason for the poor perception of travel by bus, a key barrier to bus use and source of frustration amongst bus users. This issue is also clear from the market research results⁸⁷ where '*Reliability of the bus turning up on time*' was noted as the factor that people were most dissatisfied with. Furthermore, the CTS found that 21% of Aberdeen residents and 16% of Aberdeenshire residents were either 'dissatisfied' or 'very dissatisfied' with their bus experience, with bus reliability quoted as one of the main reasons cited not to use the bus more often.

PR5: Bus services are not meeting punctuality metrics and punctuality / journey time reliability and service cancellations are a key concern of the public. Despite the joint efforts of both the public sector and operators over many years, bus punctuality has not improved over the last decade. Poor reliability of services is one of main factors people in the region are most dissatisfied with and is often cited as a reason not to use the bus more often. The fundamental cause of this is road congestion with limited or no bus priority.

Park & Ride Facilities

2.3.94 Aberdeen city is served by Park & Ride sites at Ellon, Bridge of Don, Craibstone, and Kingswells, and a smaller Park & Choose site at Newtonhill close to Chapelton of Elsick, as shown in the figure below. Note that Craibstone Park & Ride (located just south of Aberdeen Airport) and the Bridge of Don Park & Ride (located just south of the AWPR / A90 junction north of Aberdeen) are missing from the figure below – Craibstone is currently not served by any buses, and the Bridge of Don site has only very recently (October 2024) started to be operational again and is now served by a long distance Edinburgh to Aberdeen service (note however that this is only an hourly service).

Figure 2:34: Park & Ride Site Services (as of January 2025)⁹⁹

2.3.95 The number of spaces at each site as of 2024 is set out in the table below. This has remained consistent over time, except for at Ellon where an additional 19 spaces became available in 2016 (taking the total spaces to 282).

Table 2:4: Park & Ride Site Available Spaces¹⁰⁰

Site	Approx. distance from city centre (km)	Spaces (as of Summer 2024)
Bridge of Don	6.0	532
Ellon	27.0	282
Kingswells	10.0	915
Craibstone	9.0	996
Newtonhill	17.5	46
Total	N/A	2771

2.3.96 The utilisation of the sites between 2015 and 2024 is set out in the figure below, with details of the estimated average daily number of cars parked at each site (as estimated through Nestrans detailed in the figure thereafter). The very low figures for 2020 and 2021 reflect the impact of the COVID-19 pandemic. Also note that the site at Craibstone did not become operational until 2017.

⁹⁹ [Aberdeen Park & Ride Bus Routes, Times & Tickets | Stagecoach](#)

¹⁰⁰ Nestrans

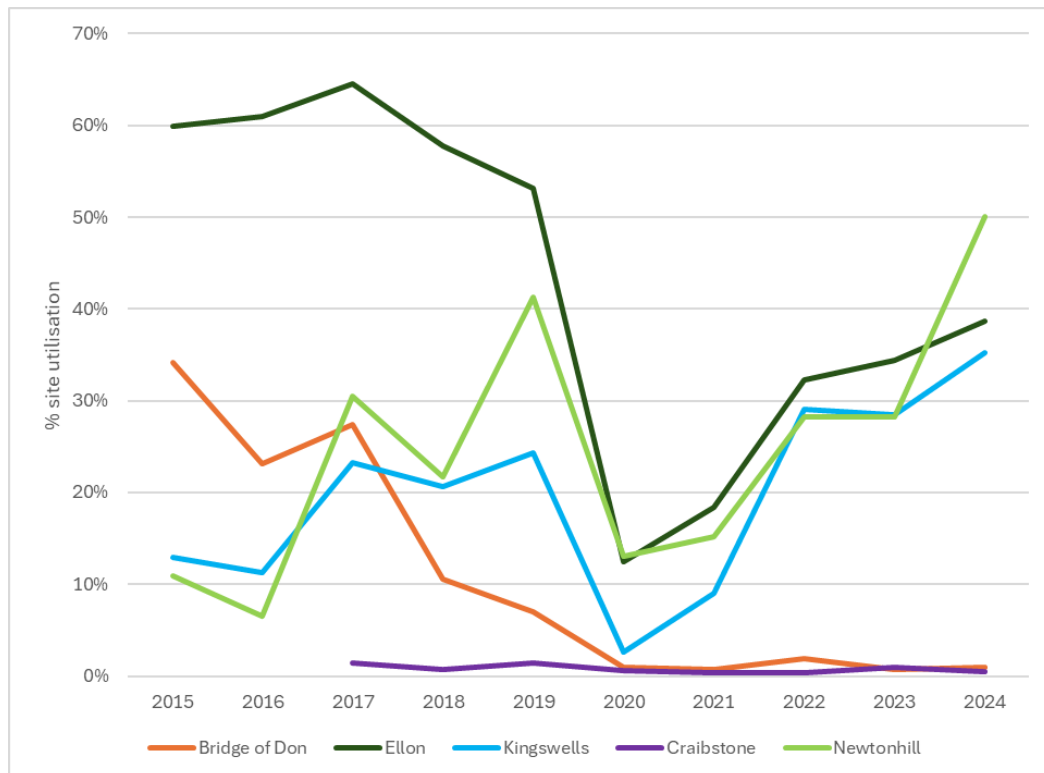


Figure 2:35: Park & Ride Utilisation (2015 – 2024)¹⁰¹

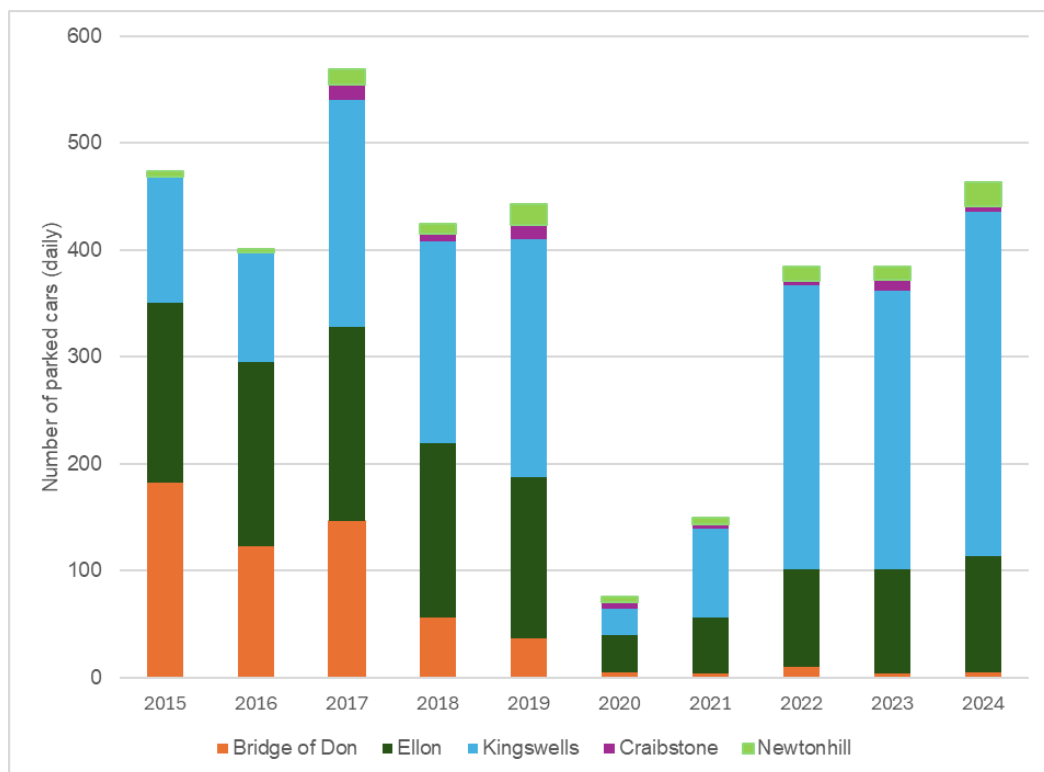


Figure 2:36: Park & Ride – Daily Cars Parked (2015 – 2024)¹⁰²

¹⁰¹ Nestrans

¹⁰² Nestrans

- 2.3.97 The figures show the generally declining use of the sites over time, with total utilisation across all sites at a peak of 27% in 2015 (noting at this time the site at Craibstone was not operational). While use of the sites dramatically reduced during the pandemic (as can be seen in the figures above), use has risen between 2022 and 2024, although use at all sites is only around 17% in 2024, lower than that in 2015.
- 2.3.98 Ellon, north of Aberdeen, is within daily commuting distance of Aberdeen, with the **Ellon Park & Ride site** (282 spaces as of Summer 2024) linking to **Aberdeen, Peterhead, Fraserburgh** and other locations on the A90 corridor, as well as to **Inverurie**. The site is served by predominantly express services. Pre-pandemic, the Park & Ride site was reasonably well used at around 50%-65% daily utilised capacity between 2015 and 2019 (with a peak of 182 parked cars recorded on the spot check day in 2017) which led to enhancements being made to increase capacity. However usage is lower in recent years recent years and site utilisation was at around 39% in 2024.
- 2.3.99 The larger **Park & Ride site at Bridge of Don** (650 spaces) located on the same strategic route (as the Ellon Park & Ride site) into Aberdeen from the north has had declining use, exacerbated post pandemic, although the site was at only 7% utilisation in 2019 (37 parked cars daily), reducing to just 1% in 2023 (10 cars daily). As of Summer 2023, **services no longer serve the site, other than the newly introduced (October 2024) longer distance Aberdeen to Edinburgh coach service provided by Ember**.
- 2.3.100 **Craibstone Park & Ride site** (996 spaces) opened in 2017 and is located close to Aberdeen Airport on the A96 with services (pre-pandemic) connecting to Aberdeen, Inverurie, and other locations on the A96 corridor. On opening, up to 10 buses per hour operated from the site, but with minimal patronage and with less than 1% utilisation in both 2018 (7 cars daily) and 2019 (14 cars daily). Due to the downturn in bus patronage during the pandemic, **the site was temporarily closed in early 2022, and remains so, with no buses serving the site**. When the site was operational, journey times to the city centre were cited as negative factors for users (due to insufficient bus priority between the site and the city centre).¹⁰³
- 2.3.101 There is a **Park & Ride site at Kingswells** (915 spaces) on the A944 to the west of Aberdeen linking to **Westhill, Alford, Foresterhill Health Campus and Aberdeen**. The site was operating at just 13% capacity in 2015 (nearly 120 cars daily), and while suffering a dip through the pandemic, utilisation of the site had increased to 35% in 2024 (over 320 cars daily), although some of this use is linked to the adjacent Prime Four business park.
- 2.3.102 On the approach to Aberdeen from the south, there is one bus-based **Park & Choose facility**, a relatively small site, located on the west side of the A92 at **Newtonhill**, which was provided by the developer of Chapelton of Elsie. The site links to **Aberdeen** in the north and **Stonehaven** in the south. The site has 46 spaces, a large bus shelter and a small number of cycle racks. Usage data indicates the site is operating under capacity, but utilisation has increased post pandemic, with utilisation at 28% in 2023, but rising to 50% (23 cars daily) in 2024.
- 2.3.103 The limited bus priority from the Park & Ride sites into the city centre means there is a lack of incentive for the car-available public to use the sites as they do not offer an attractive alternative to the private car. The relative ease and low cost of parking in Aberdeen city centre is a further factor.
- 2.3.104 A lack of fast, recognisable, branded express services also means the availability of services at the operating Park & Ride sites is not well understood. At present, there are limited express services serving the sites (noting however that the BuchanXpress service is arguably express from Ellon into Aberdeen). The limited bus priority between the sites and the city centre has been cited as a key reason by operators for withdrawal of services.¹⁰⁴

¹⁰³ A96 Collective Travel Study (Aecom, April 2018)

¹⁰⁴ Source: First Aberdeen

2.3.105 As presented above, through the market research exercise, facilities at Park & Ride sites were ranked amongst the top factors with which bus users in Aberdeen were dissatisfied. Aberdeenshire bus users ranked this factor as the factor with which they were most dissatisfied.

2.3.106 During MMCS engagement, it was stated that more direct, quicker, more frequent buses from the Park & Ride sites is essential to increase bus travel on the corridors, and that services from Park & Ride sites into the city centre need to be seen to be quicker than the car to encourage their use. Points noted included:

- From Kingswells Park & Ride there is insufficient bus priority along the A944 and A9119 with buses being caught in congestion as well as having to make a large number of stops, which reduces competitiveness with the car (a bus trip from the Park & Ride site to the city centre takes substantially longer than the car-based equivalent)³⁶
- The availability of low-cost or free car parking in Aberdeen City Centre and at workplaces, detracts from Park & Ride site use
- There is circuitous access to the Bridge of Don Park & Ride for all users, and (previous) poor frequency of services at the site with no express services³⁴
- A perceived lack of vehicle security at the sites, including issues relating to lighting and personal security
- A perceived lack of information on payment methods and permitted length of stay. For instance, the parking meters at the Craibstone Park & Ride site (when operational) were noted as potentially reducing user convenience of the facility and gave the impression that it costs to park there.³⁵ It was however advised that the machines are necessary in order to satisfy the requirements of the Penalty Charge Notice (PCN) procedure, whereby a physical PCN is issued to an offending vehicle (one which overstays the 36hr max stay parking limit). It should further be noted that there existed some compromise between the maximum length of stay at Craibstone and the need to protect parking revenue for airport parking.
- Height restrictions at the Park & Ride sites, implemented to stop illegal use of the sites, can prevent vehicles with roof mounted cycles or visiting campervan / motorhomes from accessing the sites³⁵

2.3.107 Overall, the sites represent a significantly underutilised asset but a step change in their offering would be required to turn these assets into a success.

PR6: The current Park & Ride ‘offer’ is almost wholly ineffective. Existing Park & Ride sites represent significantly underutilised assets, with dissatisfaction with the sites and their use expressed by bus users and operators. Improved bus priority from the sites into the city, branded express services, clearer information, and improved security and access would help facilitate use of the sites. A step change in their offering would be required to turn these assets into a success while providing much improved car-based access to the city centre from the wider region.

Supporting Infrastructure

2.3.108 As presented in the discussion on the market research exercise, the quality of bus stops / shelters was ranked as the top factor (of 13 factors) with which bus users in Aberdeen were most dissatisfied. Aberdeen non-bus users also ranked this quality factor as the second highest dissatisfaction factor, and over the whole regional sample, the quality of bus stops / shelters was ranked as the second highest factor with which both users and non-users were dissatisfied.

2.3.109 Corridor audits were undertaken as part of the MMCS with evidence of a range of issues associated with poor quality bus infrastructure. These include:^{34,35,36,37,38}

- Wide variation in bus stop provision in terms of shelters (only 49% of stops in Aberdeen have a shelter³³) impacting on user demand in inclement weather and generally creating an unattractive waiting environment and deterring potential users
- Lack of provision of real time information at bus stops, causing user frustration and increasing perceptions around bus unreliability although recent investment has increased provision
- Bus stop infrastructure provision is often historic and while it may have satisfied the standards of the time, it often falls below current standards
- Stops lacking Kassel kerbs (57% of stops lack raised kerbs in Aberdeen³³) making it more difficult for disabled people and those with mobility issues to board the bus
- Bus marked out 'cages' which are not present at all stops and when they are present are very worn meaning general traffic may not adhere to them, constraining efficient stopping of buses
- Bus stops located on narrow and sometime signed shared pavements causing conflict with other footway users including pedestrians and cyclists. This can create unsafe conditions for cyclists given these footways are often immediately adjacent to the road carriageway.
- Poor pavement quality (in part due to cars parking on pavements but also from a lack of maintenance) creating potential trip hazards and difficulty in safely accessing bus stops
- Indiscriminate parking at bus stops making bus access to stops difficult and creating an unsafe boarding and alighting environment for pedestrians
- Drainage issues at some bus stops with water collecting where passengers board meaning they are vulnerable to splashing

2.3.110 The CTS highlighted that 17% of North East residents felt their activities were limited due to a health problem or disability, which has lasted or will last at least 12 months. These residents are:

- less likely to have access to a car or a van (75% compared to region-wide figure for those without any limitations of 91%)
- more likely to use a bus at least weekly (33% compared to region-wide figure for those without any limitations of 15%)

2.3.111 The above highlights the greater reliance on travel by bus for those who feel their activities are limited due to a health problem or disability. Such individuals are more likely to be negatively impacted by poor quality bus stop infrastructure.

PR7: The quality of on-street and other supporting bus infrastructure is generally poor: Poor quality bus stop infrastructure (including shelters, timetable information, lighting and space) makes bus travel a less attractive prospect if it involves waiting at stops with only basic stop infrastructure. Market research has highlighted the quality of bus stops / shelters to be the factor which Aberdeen city bus users are most dissatisfied with. The existing poor provision can impact on comfort and feelings of safety, and restricts travel choices for those with mobility impairments.

Fares

2.3.112 Between 2005 and 2020, while passenger journeys across Scotland fell by 24%, fares increased by 30% in real terms.¹⁰⁵ Increasing fares is one of several factors responsible for the decline in passenger journeys, alongside the range of external challenges facing operators, discussed above.

2.3.113 At the UK level, between 2000 and 2024, the relative cost of travel by bus has risen more than travel by train and by car, as shown in the figure below¹⁰⁶. In addition, the cost of travel by bus (and indeed rail) has risen significantly more than the Retail Price Index for All Items over this period, whilst the cost of motoring has increased below the level of general inflation, contributing to the shift away from public transport to car.

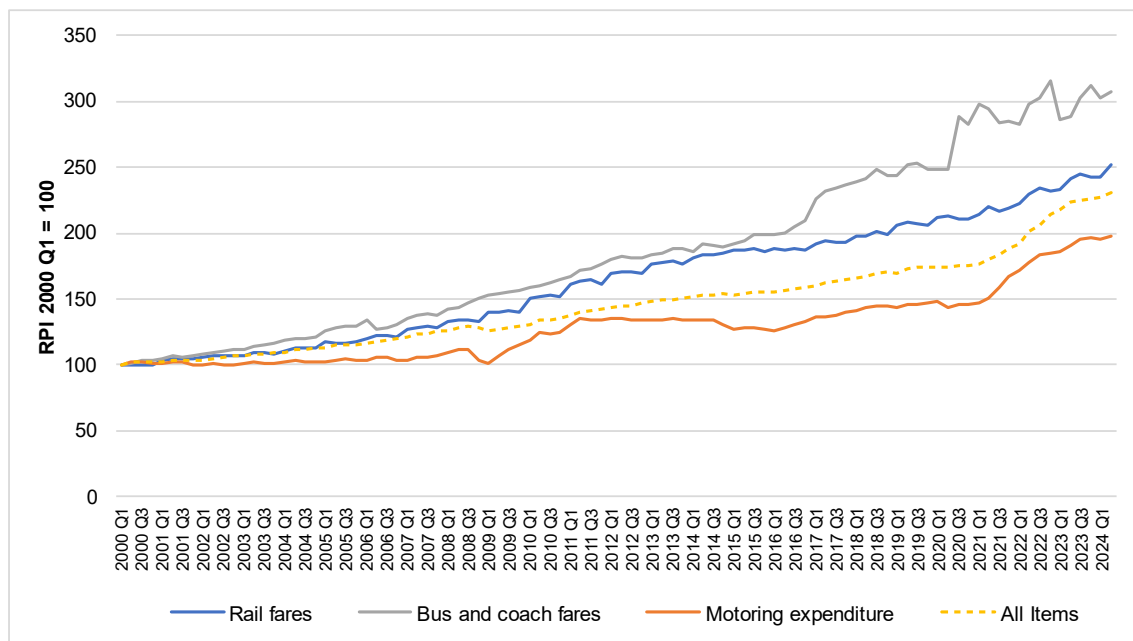


Figure 2.37: Relative Cost of Travel by mode (2000 Q1 – 2024 Q2, indexed against 2000 Q1 figures)¹⁰⁶

2.3.114 Bus fares in Aberdeen have historically been higher than other Scottish cities, although the gap is narrowing. A comparison of the price of a day ticket in Scotland's main cities is shown in the table below, alongside the cost of both 3hrs and a full day's parking (in Council operated and privately operated car parks) in the respective city centres.

Table 2.5: Bus day ticket and parking price comparisons (as of April 2025)

	City	Bus Return Ticket*	Bus Day Ticket	3 hours city centre parking charge	Full day city centre parking charge
Edinburgh	Council – on street city centre parking	£4.40	£5.00	£24.60	-
	NCP - Castle Terrace			£27.80	£35.95
Glasgow	Council – on street city centre parking	£4.20 - £13.40 (depending on zone)	£5.90	£10.50	-
	NCP - George Street			£23.95	£23.95

¹⁰⁵ Glasgow & Strathclyde Transport Act Scoping Study, Options Assessment Study, Final Report, SYSTRA

¹⁰⁶ Office for National Statistics

	City	Bus Return Ticket*	Bus Day Ticket	3 hours city centre parking charge	Full day city centre parking charge
Dundee	Council – on street city centre parking	£4.00	£4.20	£4.70	£10.70
	NCP – Bank Street			£5.30	£12.00
Aberdeen	Council - Council – on street city centre parking	£4.90	£5.55	£4.80	£13.50
	NCP - Shiprow			£14.95	£14.95

*generally not available as a product so cost of two single tickets used

2.3.115 Table 2:5 shows an Aberdeen bus day ticket price is similar to Edinburgh and Glasgow, but more expensive than Dundee. However, parking charges in Aberdeen are significantly cheaper than those in Edinburgh and Glasgow, and 3 hours parking in the city centre remains cheaper than a bus day ticket. It is also worth noting that there is a significant volume of (free) non-residential private parking in Aberdeen city centre.

2.3.116 The cost of public transport was noted in the various engagement exercises as being too expensive and one of the main barriers to use. It was also noted during public consultations that the Park & Ride site at Bridge of Don had become a less attractive choice due to charges at the site being by passenger rather than by car³⁴. Group fares provided by First and Stagecoach address this to some extent, and travel with children is now cheaper due to the introduction of the Scotland wide under-22 free bus travel scheme in January 2022.

2.3.117 There is also a reported lack of understanding of the current ticket options / prices among non-bus users, which is likely to be hindering bus usage. Lack of knowledge of the various ticketing options including the multi-operator GrassHOPPER¹⁰⁷ ticket and the integrated rail / bus PlusBus¹⁰⁸ ticket was also clear in the public engagement exercises undertaken across the various studies, although it is recognised this may become less of an issue going forward with contactless capping.

2.3.118 Scottish Household Travel Diary (2022) results showed that amongst Aberdeen residents, ‘the fares are good value’ was the statement people least agreed with (just 55% agreed, with the figure for Aberdeenshire residents lower at 52%). In the long run, elasticity of demand suggests rising fares leads to a fall in patronage, as is articulated in the bus circle of decline image shown above in Figure 2:15.

2.3.119 Also to note is that for those with a car, they perceive only the ‘out of pocket’ costs rather than the true cost of travel, given that the vehicle purchase is a ‘sunk’ cost, as is to some extent maintenance, insurance etc. From this perspective, bus travel is always at a disadvantage, especially when there is more than one person in the car.

2.3.120 It is worth noting that with the introduction of the Young Person’ Free Bus Travel Scheme in January 2022, a significant proportion of bus users (those under 22 and those over 60 through the already existing concession scheme), over 50%, no longer directly pay for bus travel.

PR8: Bus fares are perceived to be high and offering poor value for money (VfM): Over the last 20 years, the relative cost of travel by bus has risen more than travel by train and by car. There are two main operator fares regimes with complex fares and a lack of understanding and awareness of multi-operator tickets. Bus fares are a factor often cited by residents across the region with which they are least satisfied, and which is one of the main barriers to bus use. Over time rising fares lead to a fall in bus patronage.

¹⁰⁷ [Grasshopper tickets | First Bus](#)

¹⁰⁸ [PLUSBUS | about PlusBus](#)

Vehicles

- 2.3.121 As noted earlier in this section, since 2010, bus operators and Scottish Government have made significant investments in the vehicle fleet through the addition of new electric and hydrogen vehicles. Despite the upgrades to the bus fleet in recent years, through the market research exercise discussed above, around 15% of both Aberdeen and Aberdeenshire residents were dissatisfied with the quality of bus vehicles. It is worth noting that non-bus users in Aberdeen were more dissatisfied (20%) with vehicle quality than bus users, suggesting a perception issue amongst non-users.
- 2.3.122 In addition, First note their more elderly and less mobile passengers preference for single level articulated buses but note the existing stop infrastructure is not always capable of accommodating such vehicles. The use of single deck articulated vehicles across some of the busiest routes in the city (those connecting to the university campuses) is noted to support the greater capacity required on such routes, with the potential for a much larger volume of standing passengers, as well as the faster alighting time (with passenger alighting via the rear set of doors away from boarding passengers).

PR8: Conventional buses offer limited floorspace flexibility and capacity: Conventional buses offer limited floorspace flexibility, and capacity with limited space for those with mobility issues (i.e. requiring space for a wheelchair) or those travelling with children/ buggies and large luggage, and with passenger capacity on an upper deck inaccessible to some. The limited space can lead to an uncomfortable and difficult traveling experience.

Integration between Modes

- 2.3.123 Aberdeen's bus network is not well integrated with other modes of transport, including with the active travel network, and to some degree even with car-based interchange at the Park & Ride sites.
- 2.3.124 All bus journeys require active travel as a component of the journey, in accessing the origin stop and after alighting the bus and travelling onwards to the destination. As noted above with regards to bus stop infrastructure, poor pavement quality creates potential trip hazards and difficulty in safely accessing bus stops, particularly problematic for those with mobility issues. A general over-use of barriers and guardrails also makes accessing bus stops more problematic and often requires pedestrians to walk far further than the pedestrian desire line. At large junctions, pedestrian routes often involve convoluted crossings, and pedestrian islands are often too narrow for those with prams or wheelchairs creating additional safety risk. There is also a lack of tactile paving at crossings, making accessing stops difficult for the blind and partially sighted to safely access bus services. Bus stops are sometime located 'mid-block' and require additional walk distance to access from streets adjacent to the main bus corridors.
- 2.3.125 It is not just poor integration in terms of integrated trip making, but also, and importantly in terms of integrated infrastructure. Bus stops are often located on narrow pavements, with no widening of the footway at stops, leaving little space for pedestrians to pass. In some instances, stops are located on signed shared-use footways but their placement creates a hazardous environment with conflict for passing cyclists and pedestrians / bus users given the narrow width and often other street furniture (railings, communal bins etc.).
- 2.3.126 While there are bus services serving some of the Park & Ride sites, the onward offering from these sites is, based on their current under-utilisation, not sufficient to encourage use of the sites. In addition, the circuitous access to the (temporarily closed) Bridge of Don P&R site detracted from use of the site, and there is a lack of active travel provision linking the site to the bus stops on Ellon Road. While there are electric vehicle charging points at the Ellon, Craibstone and Kingswells Park & Ride sites, there are none available at the Bridge of Don or Chapelton (Park & Choose) sites. This lack of integration of car charging infrastructure facilities at the sites is a potential disincentive to use for those with electric vehicles.

2.3.127 Aberdeen bus station is integrated in the Union Square development, where the city's railway station is also located. A bus stop is also located adjacent and opposite to the train station on Guild Street. Both the bus and railway station are also located within walking distance of Aberdeen harbour which provides ferry connections to Orkney and Shetland. The route to the ferry terminal by foot or bike is around 500m and using a controlled crossing over the busy A956 (Market Street) and a walk or ride along Commercial Quay.

PR10: The level of integration between buses and other forms of travel is limited and inconsistent, including journey information and ticketing: A lack of high-quality integration between active travel and bus, as well as bus and car at Park & Ride sites is detracting from use of the bus and not supporting utilisation of the existing Park & Ride assets.

Current Situation - Summary

- 2.3.128 The evidence presented in this section has shown that car ownership and use is higher than other Scottish cities. The number of passenger bus journeys and bus service vehicle kilometres operated have been declining since a peak (in the North East, Tayside and Central region) in 2007/8. Despite bus industry efforts to boost passenger numbers, a range of external factors have hampered this.
- 2.3.129 There is currently limited bus priority across the city, limited public transport connectivity between strategic routes, and journey times by bus are significantly longer than by car. These factors make travel by bus unattractive and less competitive compared to the car, as borne out in public perceptions around travel by bus. The ease, and relatively low price, of driving is also influencing travel choice.
- 2.3.130 Overall, the trend of increasing car use and declining public transport use will be reducing the ability of the city to develop as a low carbon economy and place, and limiting the realisation of the aims of the CC&BMP and the wider RES.
- 2.3.131 The discussion above, and the analysis and commentary with regards to the strategic corridors (as set out above and detailed in the appendices), has enabled a concise list of **10 transport problems** to be identified. These are set out below.
- **PR1:** Poor public perceptions of the bus network and services as a low quality travel option
 - **PR2:** Insufficient bus service frequencies
 - **PR3:** Limited cross-city bus connections leading to longer journey times making travel by bus unattractive and acting as a barrier to use for those with mobility issues
 - **PR4:** Travel times by bus are not competitive with those by car and therefore those with access to a car are much more likely to travel by car
 - **PR5:** Bus services are not meeting punctuality metrics and punctuality / journey time reliability and service cancellations are a key concern of the public
 - **PR6:** The current Park & Ride 'offer' is almost wholly ineffective
 - **PR7:** The quality of on-street and other supporting bus infrastructure is generally poor
 - **PR8:** Bus fares are perceived to be high and offering poor value for money
 - **PR9:** Conventional buses offer limited floorspace flexibility and capacity
 - **PR10:** The level of integration between buses and other forms of travel is limited and inconsistent, including journey information and ticketing

2.3.132 The data presented in this section has clearly highlighted high levels of car ownership and decreasing bus use, with reducing bus vehicle kilometres and passengers. Passenger numbers are falling at a time when the direction of policy requires sustained growth. The above ten transport problems identified are considered the *root causes* of this.

2.4 Transport Planning Objectives

- 2.4.1 As set out in the introductory chapter, a recommendation for a bus-based rapid transit system (i.e. ART) was made in STPR2. There, it is noted that the project supports all five of the STPR2 objectives: *net zero emissions; affordable and accessible public transport; places, health and wellbeing; sustainable inclusive growth; and increasing safety and resilience in the transport system*. STPR2 itself, is helping to deliver the vision, priorities and outcomes that are set out in NTS2.
- 2.4.2 Given this, the objectives developed for ART have been set to align with STPR2 (and by association with NTS2) and specifically taking account of the STPR2 north-east sub-objectives, while taking cognisance of the ART Vision and aims and the set of problems identified as set out above in the Case for Investment.
- 2.4.3 As set out in the Strategic Context section above, at the heart of the need for a step change in public transport in Aberdeen is to support meeting national climate change targets, the ambitions in the *Net Zero Aberdeen Route map* and realising social and economic benefits for the city and region.
- 2.4.4 Reflecting on this, ART is seeking to deliver two core elements, focussed around *widening opportunity* and enabling opportunities to be *accessed sustainably*:
- **Improved sustainable transport connectivity** – to enable greater access for all to opportunities. That greater access seeks to both support *economic growth* and provide *inclusive opportunity through enhancing accessibility*
 - **Increased sustainable transport mode share** – supporting *Net Zero ambitions* as well as *creating healthier, safer, more efficient and more attractive places* (both across the ART network, and importantly within the city centre to support the CC&BMP)
- 2.4.5 With the above in mind, two Transport Planning Objectives (TPOs) have been set for ART. These mirror the pertinent STPR2 north-east sub-objectives and reflect the 10 problems identified in the Case for Investment set out above.
- 2.4.6 The TPOs are:
- **TPO1: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve equality of opportunity**
 - **TPO2: Increase public transport mode share in Aberdeen to support placemaking and the North East's Net Zero ambitions**
- 2.4.7 The link between the STPR2 objectives, the ART TPOs and the 10 problems is shown in the diagram below. The diagram thereafter presents these objectives and (reflecting the 10 problems) sets out the supply side change required to deliver the objectives, alongside the metrics against which success will be measured.

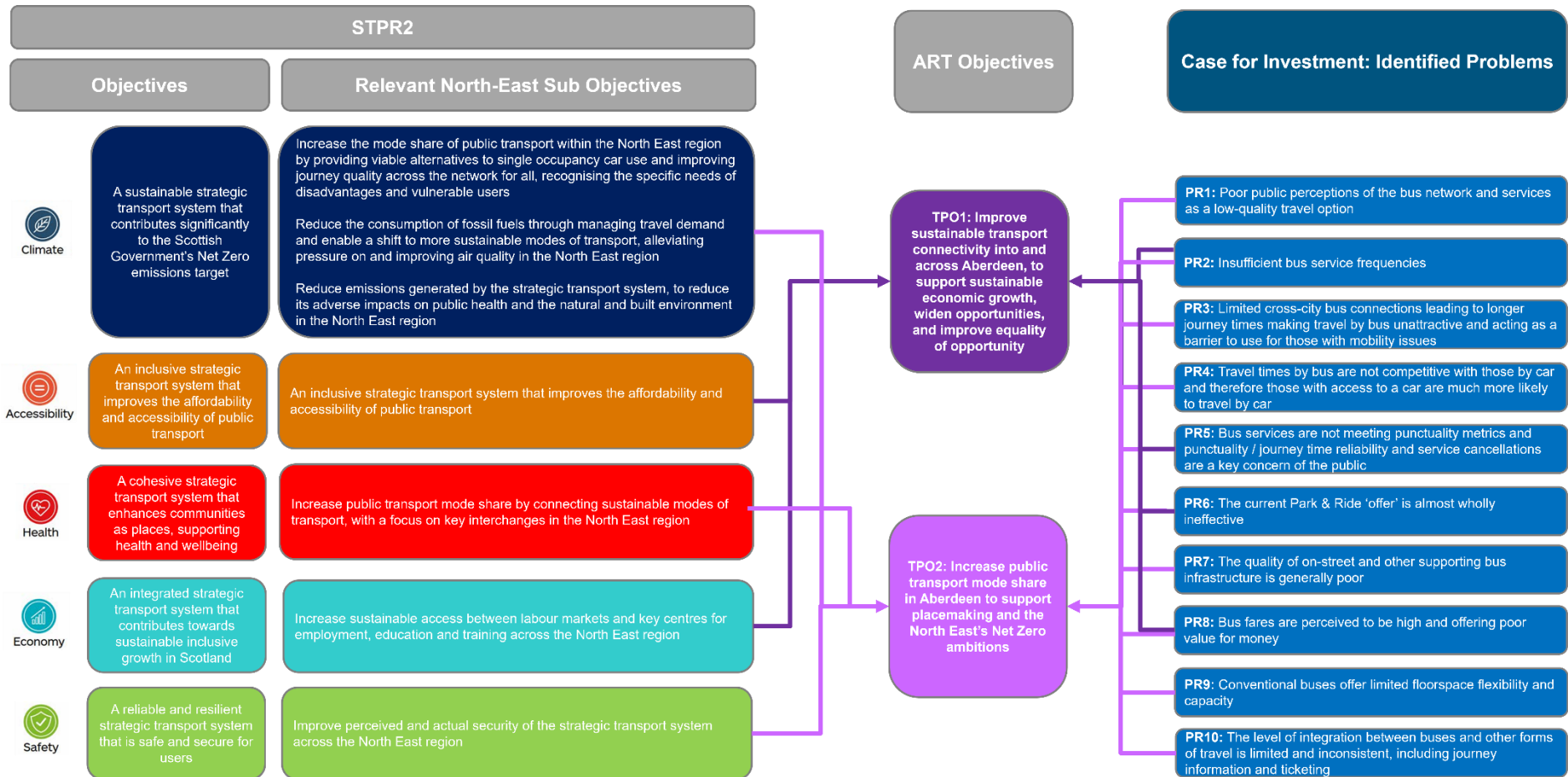


Figure 2:38: Links between STPR2 Objectives to ART TPOs and identified problems

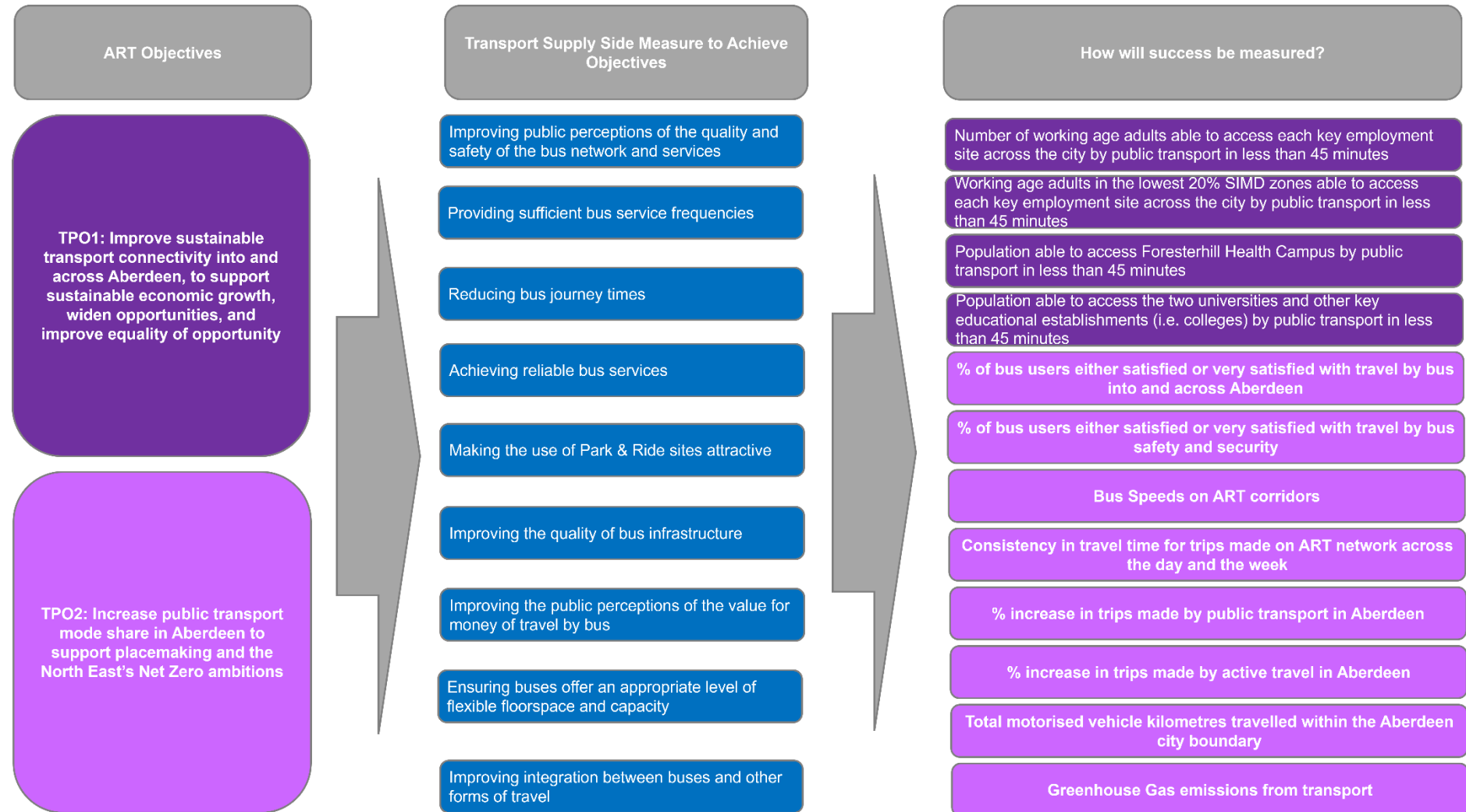


Figure 2:39: ART TPOs, supply side changes to achieve the TPOs, and the metrics against success will be measured

2.5 Project Scope

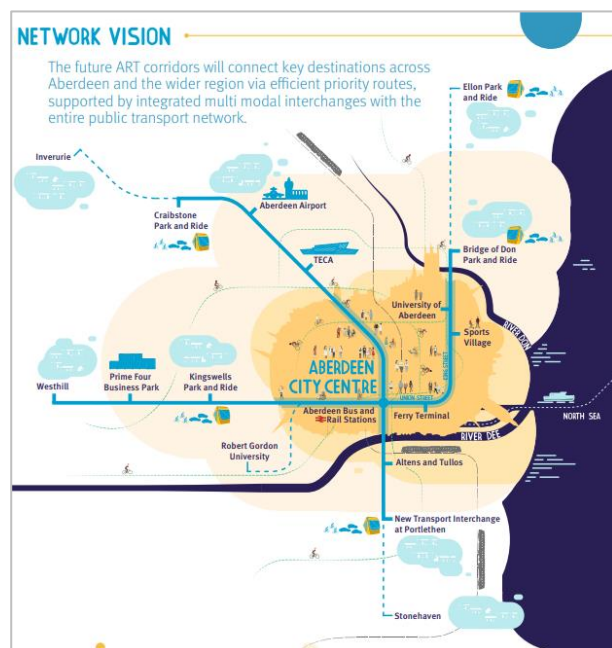
- 2.5.1 It is clear from the identified problems and the subsequent transport and societal consequences that a step change in public transport provision in Aberdeen has a key catalytic role to play in enabling and supporting the realisation of local, regional and national policy ambitions. **Passenger numbers are falling at a time when the direction of policy requires sustained growth.** This includes the Local Outcome Improvement Plans (LOIP) of both Aberdeen and Aberdeenshire Council, and the Aberdeen CC&BMP, as well as providing sustainable and equitable access to / from and within the city that helps facilitate the regeneration plans and ambitions as set out in the RES.
- 2.5.2 Despite investments made by the bus industry over the last decade there has still been a considerable decline in bus patronage, exacerbated by the structural changes brought about by the pandemic. **Simply continuing with the Status Quo is clearly not going to provide the change required** to reverse this decline and both enable and encourage more trips by bus. Nor would continuing with the status quo support the industry in playing its part in reducing car kilometres in line with the Scottish Government's current 2030 reduction target and with meeting the RTS:2040 target to achieve at least 50% of journeys across the region by more sustainable travel means.
- 2.5.3 A much greater step-change solution is required, to take advantage of the opening of the AWPR and the development of the new roads hierarchy, reverse the decline in bus patronage, alter perceptions of bus travel, and support positive social, environmental and economic performance of the city and region.
- 2.5.4 As noted in the introductory chapter and further in Section 2.2.35, the STA and RTS:2040 are the core catalysts for the development of public transport improvements. As set out earlier in this report, the STA appraisal included an option (Option 9) which was a 'Strategic Public Transport Corridor' scheme. The STA noted that Option 9 covered a scheme had the potential to provide a real step-change in public transport provision, providing high-quality, efficient mass transport. Overall the purpose of such a scheme was to provide high volume, higher quality services which provide a step-change compared to a conventional bus service. It was noted that such a 'mass transit' option would be aimed at the highest volume corridors, connecting major employment and residential centres while connecting with the city centre, and with the intention of having a material impact on mode share and steering the local economic geography. The option '*Mass transit provision, such as Bus Rapid Transit, on high demand corridors, anchored with a ring of Park & Ride sites*' was set out in the appraisal conclusions under a 'City Connectivity' theme.
- 2.5.5 Further developing the concept of mass transit set out in the STA, the RTS:2040 recognises that to encourage modal shift to achieve the strategy's environmental, economic, placemaking and social objectives, a fresh approach to public transport was necessary. Drawing on the STA work as an underpinning input and evidence base, the strategy includes a policy heading '*Delivering Aberdeen Rapid Transit (ART)*' and set out Nestrans's ambitions to *develop a high quality, high frequency mass transit network across the city on key corridors and linking key destinations, anchored by Park & Ride facilities on each corridor*. This ambition sits within the wider strategy which sets out an action plan for improving transport across the North East region.
- 2.5.6 The ART 'Vision' is set out below.

ART Concept

2.5.7 The concept of ART was initially expressed through an **Aberdeen Rapid Transit (ART) vision** to deliver an integrated Mass Transit ‘step-change’ solution to support positive social, environmental, and economic performance of the City and Region.

2.5.8 The vision for ART is to deliver:

- Improved travel times for public transport users to support growth across all economic sectors
- A high quality, contemporary and effective means of connectivity across the City and Region
- An integrated solution, creating seamless connections with other public transport, cycling and walking networks



2.5.9 Through this, ART has the potential to deliver both transport behavioural change and positive societal impacts. The ART proposals are a key component to supporting long-term more sustainable growth in the region and addressing local priorities and challenges including:

- Supporting the targeted reduction in transport emissions to net zero by 2045
- Increasing active travel and supporting healthy lifestyles
- Enhancing connectivity
- Providing affordable and integrated ticketing
- Creating a healthier environment in the city and enabling the redesign of public spaces
- Ensuring equal access for all.

2.5.10 There are many ways in which the ART vision could be delivered, ranging from purely infrastructure implementation through to service changes (including enhanced and existing service integration and revision), through to operational issues such as vehicle and ticketing types.

2.5.11 Accepting the emergence of ART through the STA and RTS:2040 as a **bus-based** rapid transit system, and its recognition as such in national documents, key to setting out the possibilities for ART is first determining what is meant by Bus Rapid Transit (BRT). The *Institute for Transportation and Development Policy* defines BRT as:

...a high-quality bus-based transit system that delivers fast, comfortable, and cost-effective services at metro-level capacities. It does this through the provision of dedicated lanes, with busways, off-board fare collection, and fast and frequent operations.

2.5.12 In short, BRT (and therefore ART) should deliver:

- **High Segregation** - through the infrastructure provided – dedicated road space, priority at signals etc.
- **Fast Services** - through the dedicated infrastructure provided including improved / rationalised stops and an appropriate seamless ticketing method
- **Frequent Services** - ‘turn up and go’ service levels utilising the infrastructure
- **High Capacity** - through the frequency and type of vehicles that operate on the network

High Segregation

- 2.5.13 High segregation for ART means a dedicated right of way for bus over much, if not all, of the day. With the right infrastructure, ART should be able to avoid the causes of delay that typically slow local bus services.
- 2.5.14 This dedicated right of way would include priority over other traffic at signals with junction treatments such that ‘buses only stop at bus stops’. This high level of segregation would ensure reliability in public transport operations. In this regard, ART can be viewed as akin to a train service, where the time between stations is consistent across the day, no matter the time of travel. High levels of segregation will also make it easier to deliver autonomous vehicle systems in future, with the associated cost savings.
- 2.5.15 High segregation could be achieved in several ways using dedicated, continuous, bus lanes (ideally with the bus lanes extended to junction stop lines to provide dedicated full route length segregated lanes to operate within, or through a busway (where a ‘closed’ dedicated two-way road for the use of authorised buses only is provided). The aim is to provide this level of priority over up to 100% of the routes but may need to be reduced to less where the network cannot accommodate this due to competing road user needs or the physical space available.

Fast Services

- 2.5.16 Fast operating bus services are achieved through the highly segregated and priority infrastructure such that ‘buses only stop at bus stops’. Additionally, other measures such as off-board / no driver interaction seamless ticketing, improved stop infrastructure to enable quick and level boarding, stop rationalisation, and multi-door vehicles to enable passengers to efficiently board and alight public transport vehicles are key features which further speed up services. The location and layout of P&R sites is also a key factor which can enable faster services through quick and easy bus access to the sites, with minimal routeing away from the ART corridors.

Frequent Services

- 2.5.17 Frequent services mean enabling a ‘turn up and go’ offering on the ART routes with no more than 10 minutes between departures. ART passengers should not need to consult timetables but know that when arriving at a stop, a service will arrive shortly and that the gap between services is even.

High Capacity

- 2.5.18 To ensure high capacity in the ART system, sufficiently sized vehicles are required to enable the *mass* movement of passengers. The size of the vehicles will be determined through the forecast demand but should be of a size that enables future growth in passengers due to modal shift from general traffic and from increasing demand from future residential and employment demand along the corridors, as well as increased city centre activity. Larger vehicles, with multi-door operation enabling quicker boarding and alighting as noted above.

Alternatively, high capacity could be achieved using smaller vehicles operating at higher frequencies, perhaps where cost viability is achieved using autonomous driverless vehicles.

Project Workstreams and Required Outputs

- 2.5.19 The overall scope of the ART project has been further broken down in Table 2:6 below, identifying the main areas of change that will need to be addressed to deliver the ART concept as the project develops.

Table 2:6 Required outputs of the ART project

ART Project	Outline description
ART routes	The adequate integration of the routes with other programmes and projects (i.e., City Centre and Beach Masterplan, Berryden Corridor Improvement Project, Regional Active Travel Network), development proposals and major trip attractors will directly impact modal shift to public transport. Therefore, it could help address some of the risks around future demand predictions.
Integration of non-ART services	The ART project has the potential to introduce a very competitive service into a well-established network, effectively putting pressure on non-ART local and regional services operating into the ART corridors. These services could be subject to significant operational and financial pressure resulting from passenger abstraction and increased operating costs, ultimately leading to poorer public transport outcomes and potentially services which are commercially marginal being withdrawn or service levels reduced. There are conversely benefits gained through the introduction of new 'feeder' services to connect to the ART network, enabling greater access to fast, reliable bus services in, out and across the city.
ART infrastructure	The delivery and phasing of infrastructure (bus lanes, junction upgrades, new stops, mobility hubs and interchange facilities, improved network access route etc.) will be a major element of the ART project and one of the key drivers for the required capital investment. The main infrastructure elements that will likely form part of ART are: ▪ Bus priority, i.e., bus lanes, signals, junctions etc. ▪ Bus stops ▪ Ticketing infrastructure ▪ Depots and charging infrastructure ▪ Mobility hubs, park and ride and interchange facilities (see 2.3.94 onwards) ▪ Active travel and placemaking It is worth noting that the delivery of new infrastructure will likely require consents such as the Traffic Regulation Order (TRO) and planning approval, as well as potential land acquisition, either negotiated or by Compulsory Purchase Order.
Mitigation and supporting measures	The introduction of changes to the current street layout along the ART corridors will likely have an impact on other operations, particularly on on-street parking provision and motorised traffic. The planning, design and modelling of mitigation measures will extend, among others, to: ▪ The need to identify adjacent routes for active travel when space constraints along the ART corridors limit the potential provision ▪ The effect of any traffic restraint measures such as the review of parking provision on the ART corridors ▪ Loading and unloading, waiting, business servicing and other kerbside activities (waste collection etc.) ▪ The effects on general traffic and the impact on adjacent neighbourhoods ▪ Changes to junctions ▪ Air quality, noise and vibration, including during construction ▪ The effects on greenhouse gas emissions ▪ Drainage, flooding risk, the historic environment and landscape

ART Project	Outline description
ART vehicles	The vehicles operating across the ART network will be a key feature of the success of the ART project in terms of benefits realisation, including: ▪ Market readiness to provide the required vehicles and technology ▪ The commercial arrangements for the provision of the ART vehicles, and the respective roles of the LTA and operators including, if applicable, any arrangements for transfer at the end of any contractual period ▪ The vehicle standards for the ART services and, if applicable, the phased introduction of these, including for type and size of vehicles, emissions and on-board facilities Resolving any uncertainties around the type and number of vehicles required (and how they are powered) will dictate the design of supporting infrastructure such as stops and halts, fare collection systems, depot requirements etc.
Network identity and branding	The ability to provide a service that is perceived by the public as a real 'step change' will be influenced by the ART brand being presented as a distinct product (see the relevant transport problems in paragraphs 2.3.63 to 2.3.72). Particular aspects of ART associated with the delivery of a strong network identity may include: ▪ Logos and colour schemes ▪ Branding (for tickets, buses, marketing etc.) ▪ Publicity material ▪ The numbering system for individual services
Fares and ticketing	The potential for achieving a unified fare structure with seamless integrated local ticketing between operators and across all types of transport, as well as the capacity of the LTA to retain control over maximum fares will have a direct impact on the financial viability of the ART project, as well as its commercial attractiveness and public acceptability. Similarly, the ability to enable off-bus ticketing (including revenue protection mechanisms) will have an impact on the effectiveness of ART as a rapid transit system. Any ticketing products should be marketed to provide a ticketing offer to passengers that covers ticket types, marketing, fares information and ticketing technology. Finally, consideration should be given to the potential for changes to fares over time and how these may be introduced.
Provision of information	Clear and sufficient information on all aspects of using the bus services may contribute to create a seamless, integrated experience for passengers. Information should include, among others: ▪ Timetables and real time information ▪ Ticket availability and pricing ▪ How to access customer support
Market appetite	Delivering the ART vision will probably require some form of involvement of private sector partners. However, the appetite within the private sector to participate and, potentially, invest in the ART project, will depend on the commercial attractiveness of the proposed network and delivery model, including the potential payment mechanisms and risk apportionment for the delivery and operational phases.
Contracts	Delivering and operating ART will require putting in place contractual arrangements between the public and private sectors. Some of the key contractual issues likely to have a bearing on the viability of ART are: ▪ The approach to procuring the required contracts ▪ The duration and structure of the contract(s) and any break clauses ▪ The contractual roles and responsibilities for both the service provider(s) and the procuring authority ▪ The payment / charging mechanisms, including the contract prices, fares, incentive payments etc. ▪ Treatment of change events (for the introduction of new operational or service requirements)

ART Project	Outline description
	▪ The agreed allocation of risk ▪ The potential remedies in the event of failure on the part of the service provider to deliver the contracted services on time, to specification and price ▪ Measurement of operational performance, including the contract administration elements of the terms and conditions of service ▪ Compliance with the appropriate regulations ▪ Options at the end of the contract
The regulatory environment	The appraisal of potential delivery pathways should be undertaken within a thorough assessment of the legislative framework in which local bus services can be operated in Scotland. This should consider the core deregulation legislation established by the Transport Act 1985 and successive legislation, and specifically the application of the powers derived from the Transport (Scotland) Act 2019, i.e., the Bus Services Improvement Partnership (BSIP) and the local services franchises. It is worth noting that Transport Scotland are yet to provide additional statutory and non-statutory guidance on the application of these powers. This includes how these powers may be applied geographically, potential phasing, exemptions, implementation of contracts including risk apportionment (revenue etc.), treatment of cross-boundary and non-ART services, multi-modal integration etc. Additionally, any review of potential delivery pathways should be cognisant of the requirements of competition law, as applied to bus services, and particularly the use of Competition Tests to satisfy the Competitions and Market Authority.
Funding and capital spending – infrastructure	There is an expectation that the majority of the infrastructure costs may be covered by a mix of Scottish Government and local authority funding, although it is recognised that these funding options are currently constrained. However, there may be an opportunity to mobilise private sector investment if a financially attractive proposition can be developed.
Funding and capital spending – vehicles	An understanding of the vehicle costs may only be developed once the type, quantity and specification for the vehicles have been confirmed. This should consider the need for any new charging infrastructure etc. Funding for the purchase and leasing of the vehicles and the possible alternative financing methods should be explored.
Other set up and implementation costs	Besides the capital investment requirements for the infrastructure and vehicles, there could be significant design, development and legal costs involved in setting up the ART operation.
Revenue spending	Revenue spending will typically include any revenue received (including fare box income, contractual payments etc.), any additional costs incurred (such as electricity costs, service enhancements and fares reductions) and: ▪ Staff costs ▪ Operating costs such as fuel costs, leasing or purchasing assets, marketing and branding and, if applicable, any savings from reduced journey times achieved through bus priority ▪ Bidding and administration costs, whether this is for contracts or to operate any partnership arrangements with local operators
Scheme affordability	Scheme affordability – and any risks around it – will ultimately require a financial model that includes, among others: ▪ The proposed funding structure and funding schedules ▪ Cashflow projections ▪ Capital, operating, running, management and overhead costs ▪ Financial risks and mitigation plans, particularly to any forecast income and including any quantified impacts ▪ Assumptions around inflation ▪ Cash-releasing benefits derived from demand predictions, mainly the expected fare revenues ▪ Any borrowing and financing costs

ART Project	Outline description
	Financial guarantees for both capital and revenue costs
LTA control	The Council's desired level of control over the operation of the ART scheme – maximum fares, quality of service etc. – will have an impact on the suitability of the potential delivery pathways detailed in the Commercial Dimension.
Operational management resource	Similar to the above, the required resources the Council will need to deploy to manage the ART operations will depend on, among others: - The desired level of control - The preferred delivery pathway - The complexity of the contractual arrangements
Benefits realisation	Arrangements should be put in place, including roles and responsibilities, to ensure the ART project delivers the benefits identified in the strategic and economic cases.
Future operational changes	Future operational changes may be required to react to unexpected market outcomes or deliver further improvements post implementation. A change management strategy extending to the operational stage should be put in place and will need to be built into any contractual arrangements as part of the delivery pathway.

Addressing the identified problems

2.5.20 As shown in the following table, the ART concept can directly address the 10 identified transport problems as set out above.

Table 2:7 How ART can address the identified problems

Problem Description			Benefit of ART
PR1	Poor public view of bus network and services as a low quality travel option	There is a negative perception of bus travel amongst a cohort of the population leading to a reluctance to use the bus, and the image of bus travel needs to be improved (by reducing or removing the problems identified here) to address this.	ART will address the problem through the provision of a high quality, contemporary and effective means of transport
PR2	There can be long wait times at bus stops	Bus service frequency is often cited as a reason for dissatisfaction with bus services and a barrier to greater use. Lack of 'turn up and go' service frequency at stops will be detracting from use of the bus, especially use of services into Aberdeen from Park & Ride sites.	ART will address this with a consistent and understandable service pattern across the day, with services anchored at Park & Ride sites
PR3	Limited cross-city bus connections leading to longer journey times making travel by bus unattractive and acting as a barrier to use for those with mobility issues	Most bus services into and within Aberdeen operate radially into the city centre. Relatively few operate 'cross city' and those which do generally only link to one other strategic corridor. No corridor offers services linking into and across the city to all other strategic corridors. In addition, there are no orbitally operating services (although such routes have been trialled in the past without commercial success). Interchange between services is often required to access 'cross city' locations, increasing access time and making these journeys less attractive to current non-bus users and more difficult for those with mobility issues. These trips will sometimes involve	ART will significantly improve direct cross city connections and interchange to the other key corridors

Problem Description			Benefit of ART
		more than one bus operator, with interchange between services often slow and unreliable.	
PR4	Travel times by bus are not competitive with those by car and therefore those with access to a car are much more likely to travel by car	Travel by bus throughout the city is almost always significantly longer than by car, with bus travel time impacted by limited bus priority, service stop frequency, ticketing methods and routeing. Bus to car travel time differences to the key locations considered across the city are always lower from areas located along the same radial corridor into the city, highlighting the arterial nature of bus services, and the relative lack of cross city connections. Travel time between relatively closely located places can be over an hour longer by bus than by car if the places are not located on the same corridor. This is very likely to be making travel by bus very unattractive compared to the car for those who have access to a car, as well as reducing opportunities for those without access to a car. These journeys often necessitate interchange making journeys more challenging for those with reduced mobility.	ART services will significantly reduce bus journey times through segregation from general traffic, a more efficient stopping pattern and the use of off-bus ticketing
PR5	Bus services are not meeting punctuality metrics and punctuality / journey time reliability and service cancellations are a key concern of the public	Despite the joint efforts of both the public sector and operators over many years, bus punctuality has not improved over the last decade. Poor reliability of services is one of main factors people in the region are most dissatisfied with and is often cited as a reason not to use the bus more often. The fundamental cause of this is road congestion with limited or no bus priority.	ART will address this through greater consistency of journey times and higher frequency services
PR6	The current Park & Ride 'offer' is almost wholly ineffective	Existing Park & Rides sites represent significantly underutilised assets, with dissatisfaction with the sites and their use expressed by bus users and operators. Improved bus priority from the sites into the city, branded express services, clearer information, and improved security and access would help facilitate use of the sites. A step change in their offering would be required to turn these assets into a success while providing much improved car-based access to the city centre from the wider region.	ART will see a substantial improvement through redeveloped P&R / mobility hub sites and high frequency services
PR7	The quality of on-street and other supporting bus infrastructure is generally poor	Poor quality bus stop infrastructure (including shelters, timetable information, lighting and space) makes bus travel a less attractive prospect if it involves waiting at stops with only basic stop infrastructure provided. Market research has highlighted the quality of bus stops / shelters to be the factor which Aberdeen city bus users are most dissatisfied with. The existing poor provision can impact on comfort and feelings of safety, and restricts	ART would address this by providing a consistent, high quality service across the city's main corridors - bus halts, information, security etc.

Problem Description			Benefit of ART
		travel choices for those with mobility impairments	
PR8	Bus fares are perceived to be high and offering poor value for money	Over the last 20 years, the relative cost of travel by bus has risen more than travel by train and by car. There are two main operator fares regimes with complex fares and a lack of understanding and awareness of multi-operator tickets. Bus fares are a factor often cited by residents across the region with which they are least satisfied, and which is one of the main barriers to bus use. Over time rising fares lead to a fall in bus patronage	ART could address this by controlling fares as part of a wider reform of bus operations around Aberdeen
PR9	Conventional buses offer limited floorspace flexibility and capacity, and there are some security concerns with double deckers	Conventional buses offer limited floorspace flexibility, and capacity with limited space for those with mobility issues (i.e. requiring space for a wheelchair) or those travelling with children/ buggies and large luggage, and with passenger capacity on an upper deck inaccessible to some. The limited space can lead to an uncomfortable and difficult traveling experience	ART will provide large single decker, low floor tram style vehicles with flexible floorspace for prams, wheelchairs, luggage etc.
PR10	The level of integration between buses and other forms of travel is limited and inconsistent, including journey information and ticketing	A lack of high-quality integration between active travel and bus, as well as bus and car at Park & Ride Facilities is detracting from use of the bus and not supporting utilisation of the existing Park & Ride assets.	ART will provide a service which is designed to be fully integrated with other modes across the city and could offer integrate ticketing across operators and modes

2.5.21 As noted above, almost all services in Aberdeen are operated commercially. The ART concept however is likely to require a degree of public sector participation through a partnership approach or to model where services are ultimately planned and franchised by the public sector, with the public sector likely to take the revenue risk. This is explored through the options development and appraisal process as set out in the Economic Dimension, with more detailed consideration within the Commercial Dimension.

2.6 Risks, Constraints and Dependencies

- 2.6.1 Delivering ART will likely introduce new regulatory, commercial, financial and operational challenges to how bus services are currently operated in Aberdeen and Aberdeenshire. These challenges, which have been outlined in Table 2:6, across the key workstreams and required outputs of the ART project, constitute the main areas of risk and uncertainty at this stage.
- 2.6.2 A Project Risk Register (in spreadsheet format) has been initiated and is being maintained and updated as a live document by the Programme Manager at Aberdeen City Council. Risks, as well as Constraints and Dependencies are split between appraisal, political and engagement, financial, delivery, and governance categories.
- 2.6.3 The Risk Register presents each risk with a description of the risk, the current owner of the risk, the controls in place to manage the risk, the anticipated likelihood of the risk and its impacts, and the actioned planned to minimise or remove the risk as the study progresses. The spreadsheet should be consulted for greater information on all the live project risks.

- 2.6.4 A programme level ART risk register has been developed. The register incorporates the risk registers developed across the individual multi-modal corridor studies in relation to each respective project but does not (as yet) in detail incorporate specific design risks identified through the multi-modal corridor studies). An overview of the most significant risks is presented in the Management Dimension chapter.

3 The Economic Dimension

3.1 Overview

3.1.1 The purpose of the Economic Dimension is to identify and appraise options for the delivery of ART and to recommend the option that is most likely to offer best Value for Money to society.

3.1.2 This is achieved in two steps:

- Here, at **SBC stage**: by identifying and appraising a wide range of options (the long list) – thereby identifying a '**preferred way forward**', then subsequently
- At OBC stage: by identifying and appraising this reduced number of possible options in further detail (the short-list) – thereby identifying a 'preferred option'

3.1.3 This chapter therefore presents the first of these steps in the following sections:

- A description of the option development process capturing the different forms that ART could take, and the options taken forward for appraisal
- An appraisal of these options based on the STAG Preliminary and Detailed Options Appraisal work
- As the bus market is currently provided on a commercial basis in Aberdeen, the delivery of a proposal such as ART is complex – the broad delivery pathways are then considered
- A more detailed appraisal of the routing of ART services
- An option sifting process together with the identification of the *preferred way forward*

3.2 Appraisal Context and Caveats

3.2.1 An overview of the project timeline was provided in Chapter 1. This timeline has a particular implication for the quantitative analysis reported here, which stems from the STAG work completed in early 2023.

3.2.2 Key elements of the scheme have been further developed since this STAG work concluded including routing, the design of bus priority infrastructure and estimates of capital costs.

3.2.3 Whilst quantitative appraisal (including Benefit to Cost ratios) is not strictly required at SBC stage, much of the analysis from the STAG is reported here, as these STAG reports are already in the public domain, and it provides a guide to the relative benefits of the options modelled. However, as the scheme has 'moved on' since that time, **the quantitative results reported here should be regarded as indicative only and viewed accordingly, and in the context of the more detailed caveats reported** in the relevant sections.

3.2.4 Extensive new quantitative analysis will be undertaken at the OBC stage.

3.3 Option Development

3.3.1 As noted above, ART as expressed in the Vision is largely conceptual. The first task is therefore to develop the concept into a set of tangible options for the purposes of meaningful appraisal.

3.3.2 However, the ART Vision combines implied substantial capital spending on infrastructure with the provision of new cross city services using tram-like vehicles, and the main challenges

associated with this were set out in Table 2:6. In the context of a commercial bus market, this raises a range of delivery issues as such a commitment from the public purse would require significant commitments and guarantees from operators to provide the services envisaged. This is a challenge in a deregulated market where there are range of competition / regulatory issues. In addition, as noted in the introduction, the term 'BRT' is broadly defined and can therefore take many forms. **The approach taken in developing options has therefore taken a wide view, seeking to 'stress-test' the ART Vision definition of a BRT via a number of other options which would deliver elements of the ART Vision with fewer regulatory / competition issues.**

3.3.3 The option development process comprised two workstreams:

Workstream 1 (Section 3.4): Developing options for the form of ART (infrastructure, services and vehicles) (STAG work):

3.3.4 The options were developed assuming broadly the same underlying network geography with variations around:

- scope and scale of supporting infrastructure
- nature of the vehicles used and associated ticketing strategies
- bus stop / halt arrangements including distance between stops
- the services which deliver ART
- accompanying changes to other existing services
- supporting policy environment
- delivery pathways

Workstream 2 (Section 3.5): Developing options for the potential routes on which ART services could operate, for options where new routes are core to the option (undertaken subsequent to the STAG work)

3.3.5 This focussed on the detail of the potential ART services (start and end points, routeing, interchange etc.) within the ART corridors and the city centre, assuming the same quality of infrastructure and vehicles.

3.3.6 Together, the two work-streams provide options for the ART scheme in terms of both its structure and form as well as the service operated and their routeing.

3.3.7 The two option development streams, including option development and appraisal, are discussed below, before being brought together to then:

- Appraise options against the TPOs and the STAG criteria– drawing on key aspects of the appraisal supplemented by early consideration of commercial, financial and management dimensions (Section 3.6)
- Present a recommendation for a *preferred way forward* and other options to carry forward into OBC (Section 3.7)

3.3.8 The above approach is set out in the figure below.

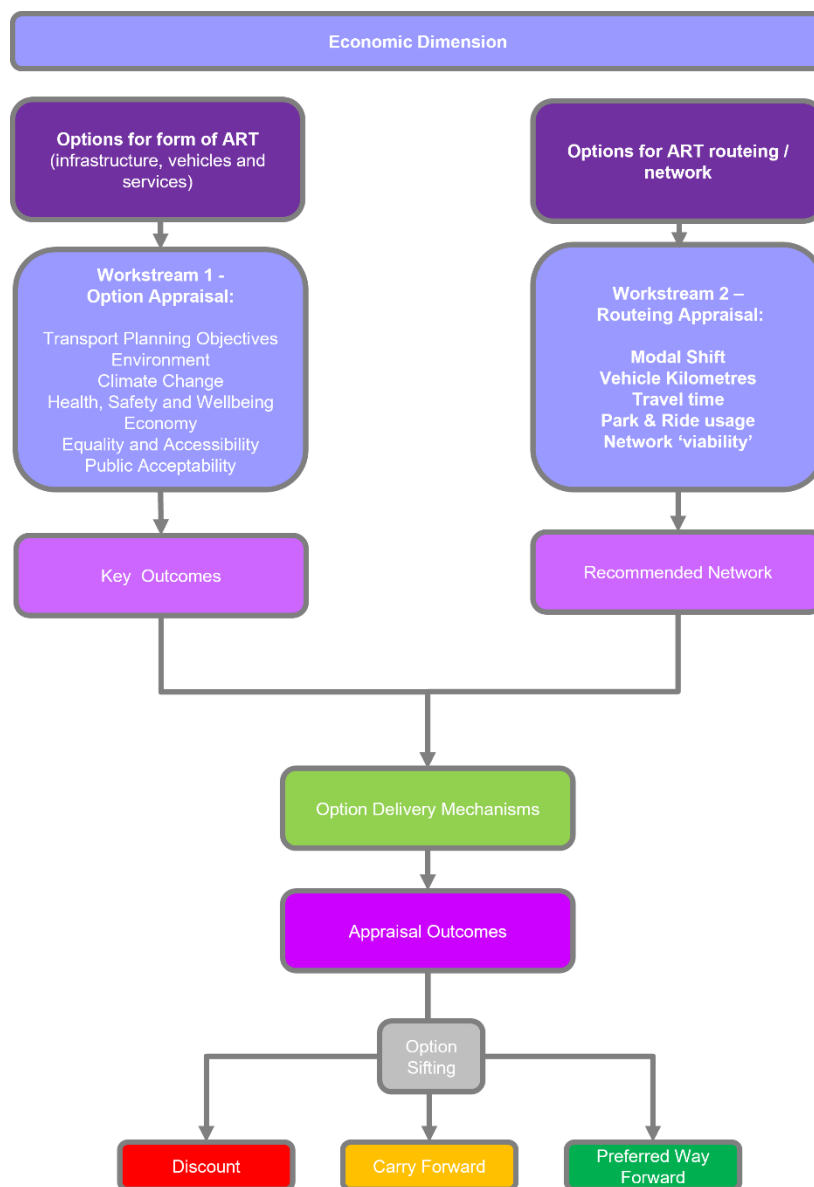


Figure 3.1: Option Development and Appraisal Process

3.4 Workstream 1: Form of ART Options Appraisal - Long list

Inputs to Option Development Process

- 3.4.1 The option development process has been developed through the development of 'BRT success factors' (i.e., what makes a successful BRT) and associated Design Principles. These are set out below.

BRT Success Factors

- 3.4.2 These have been derived through¹⁰⁹:

- **A review of UK and European based Bus Rapid Transit (BRT)-type schemes** - setting out why some schemes have been more successful than others. Discussions

¹⁰⁹ Appendix E provide greater details

were held with officers from two of these schemes (Birmingham Sprint and Bristol Metro Bus) to understand the success factors for these schemes, as well as understanding why schemes were potentially not as successful as hoped. Importantly, any associated enabling measures / policies implemented alongside each scheme which formed part to their success or otherwise have also been explored

- **A review of the Institute for Transportation & Development Policy’s *Evaluation Toolkit for UK-based BRT schemes*** – which is based on international best practice which seeks to ensure BRT has a common definition and standard.
 - A review of the ‘*Targets and Minimum Standards*’ set by Sprint in Birmingham
 - A case study of the **Belfast Glider** project and discussion with Translink, the public corporation providing public transport in Northern Ireland
 - A **client group workshop** to discuss the key success factors derived from the above and further develop these. Invitees to this workshop included representatives from the North East Bus Alliance and a representative from Bus User Scotland.
- 3.4.3 Consideration of the successful **Belfast Glider** scheme (implemented with a capital cost of around £100m and operated by Translink) has been particularly beneficial. A 2020 report,¹¹⁰ set out how Glider has become a unique brand capable of generating public transport benefits – with bus patronage growth and associated social benefits noted. Translink puts the success down to the **reliability** of the service – a result of bus priority infrastructure as well as vehicle design (services are operated by 18m long three-door vehicles with a mixture of seating and standing capacity and with a more ‘tram-style’ feel), ticketing arrangements and halt designs.
- 3.4.4 The service’s unique branding and vehicles are also key factors in its success with the Glider seen as a standalone distinct product – users refer ‘taking the Glider’, not ‘taking the bus’¹¹¹. However, it is the multi-door vehicles used and the off-bus ticketing that significantly reduce dwell times at halts and give the service its ‘rapid feel’. Despite early concerns from residents and businesses in relation to new bus priority and reduced parking, evidence shows that the retail economy along the Glider corridors has grown. Since the priority infrastructure began to be rolled out in 2014, to the end of September 2019 (one year after Glider operation began), modal shift from the private car to public transport is estimated at around 8-9% on Glider routes. Combined factors of reliability, ease of off-bus ticketing, good accessibility, a long operating day, and cross-city connectivity are seen as the core reasons for scheme success.
- 3.4.5 The differing operating environment between that in Aberdeen and in Northern Ireland should however been borne in mind. Translink, as the public corporation responsible for public transport in Northern Ireland, has control over the bus network and services, vehicle procurement and revenue risk, and in adapting other bus services accordingly to support Glider. This operating environment is therefore very different to the existing environment in Aberdeen where buses are still operating in a deregulated market.
- 3.4.6 The resulting set of BRT success factors was discussed at a client group workshop with these factors being classified into the following seven sub-categories (see table in Appendix F):
- Political Support & Policy Compliance
 - Demand
 - Regulatory Framework & Funding

¹¹⁰ [How Belfast Glider became a blueprint for BRT success \(route-one.net\)](https://route-one.net/)

¹¹¹ Discussion with Translink in March 2025

- Highway Operating Environment
 - Vehicles
 - Supporting Measures
 - Technology
- 3.4.7 The success factors, when combined and if achieved, represent 'what makes a bus service / network excellent'. Maximising success across *all* these factors (i.e., 'shifting the dial' from a 2/5 or 3/5 score against *some* of the factors, to a 5/5 score against *all* factors) would represent achieving the vision ART is seeking to deliver.
- 3.4.8 The *Institute for Transportation & Development Policy (ITDP) - Evaluation Toolkit for UK-based BRT schemes – Scorecard* places 'dedicated right-of-way' at the top of the scoresheet, with junction treatments and platform level boarding also scoring highly. The standards developed for the Birmingham Sprint scheme require that the scheme should have dedicated bus lanes (rigorously enforced), full signal priority and laybys for local bus services to reduce / remove delay to Sprint services where routes overlap with local services.

Design Principles

- 3.4.9 Given the above, the following overarching **Design Principles** for ART have been set, as detailed in the table below.

Table 3.1: ART – Design Principles

Design Principle	Overarching Guidance
Bus Priority: Maximise bus priority along links and at junctions (with reallocation of road space from general traffic to public transport to facilitate this)	Dedicated bus lanes should be in place across the network where possible, with all bus lanes implemented through the reallocation of road space from general traffic lanes with no 'new tarmac'. Hours of operation would ideally be 24hour or could be reduced to cover a shorter period where kerbside waiting and loading provisions are required however they should be operational over a sufficiently long period to provide the feeling of permanence and be less likely to be abused. An effective traffic management enforcement regime should be in place across the network and used to deter non-compliance and support reliability in public transport operations. This should include both parking or moving violations related to the miss-use of bus lanes or bus gate. This should be undertaken by the Council's parking enforcement with on-site patrols or at locations that require continuous monitoring, via CCTV cameras. Where possible, bus lanes should extend to junction stop lines. However, the inclusion / regulation of bus lanes should not be implemented at the detriment to the urban realm or pedestrian or cyclist safety i.e. through narrowing footways etc. and should take cognisance of business servicing needs. ART vehicles should receive priority at signals - using a signalling 'hurry call' and green extensions to reduce / remove the need for buses to stop at signals. The level of priority given at signals should be adaptive to ensure a strict adherence to timetable or service headway i.e. late buses would be given a priority call but those running to timetable would not
Bus Stop Accessibility: Make bus stops fully accessible and provide safe and	Distinctive ART 'platforms' (or significantly enhanced bus stops) to be provided - to ensure all stops are fully accessibility compliant. Stops would offer an improved and secure waiting environment with appropriate seating and shelters and CCTV surveillance.

Design Principle	Overarching Guidance
attractive waiting areas at bus stops	Level platforms would reduce boarding and alighting times and therefore bus journey times. In addition, all stops would provide secure cycle parking as well as real time and route planning information. The distance between halts would be greater than for conventional services to improve journey times – recognising that users would likely be prepared to walk further to access faster, more reliable and frequent running services. This rationalisation would be required to comply with the Equality Act to ensure no section of the community would be disproportionately impacted. More detailed discussion on distinctive ART platforms is presented in Appendix F
Bus Stop Connectivity: Provide good connections to / from bus stops	Walking, wheeling and cycling trips at the start and end of bus journeys should be viewed as part of the overall journey. Ensuring safe, well lit, level, smoothly surfaced and well maintained connections to stops that have effective surface water drainage and include trees and seating to provide shelter and resting places across the ART network is important to enhance the overall bus user experience. Convenient and safe crossing facilities should be provided (controlled or uncontrolled) as appropriate to ensure paired bus stops are connected and also support safe and protected access to stops. Bus stops should be located along the corridor to reduce walking distances and thereby maximising catchment areas. New developments along the ART corridors should be designed with high quality walking, wheeling and cycle routes to the closest ART bus stops.
Terminus Points: Easily accessed route terminus points (P&R and mobility hubs)	It is essential that ART network terminus points are easily accessible such that they minimise the time required to serve the sites. This should ensure both the bus and general traffic access points are conveniently located off the main corridor but also that these movements have separate and dedicated routes to the bus interchange for ART services and car parking for car drivers. This will reduce the interchange time penalty, making the ART services more attractive to use. The development of new mobility hubs would follow recognised guidance, such as Mobility Hubs Guidance¹¹² and ensure that the hubs are recognisable places with an offer not just connected ART services but other transport modes supplemented with enhanced facilities and information features to both attract and benefit the traveller. P&R and mobility hubs should be well sign-posted from the wider road network and sites should be sites more visible from the road network to encourage use, with potential variable messaging signs to support their use (e.g. as used in Cambridgeshire¹¹³). The sites should offer safe and secure parking (bike and car) at all times and the interchange building provide a safe and comfortable waiting environment with good levels of visibility from the waiting area. The building should include a help-point, toilets and separate driver welfare facilities while the site should provide electric vehicle charging points for private cars and ART services (if required), cycle parking and lockers, and with suitable walking, cycling and wheeling links connecting to the site.
ART Routing: ART services operating across the network would be direct and would not divert off the corridors	Services operating across the ART network, especially for those joining the services at Park & Ride sites / Mobility hubs, are likely to be far more attractive if they provide a direct service across the network. Service design needs to therefore incorporate integration of other services enabling the required connectivity and interchange to the ART network.

¹¹² [Document > Mobility hubs guidance](#)

¹¹³ [Cambridge to upgrade VMS system | Traffic Technology Today](#)

Design Principle	Overarching Guidance
Cycle Routes: Incorporate cycle route infrastructure where an alternative parallel route is not provided	As noted above, walking, wheeling and cycling trips at the start and end of bus journeys should be viewed as part of the overall journey experience , with consideration of these modes incorporated into the ART network where possible. The ART corridors should incorporate a higher level of service for cycling as defined in Cycle by Design ¹¹⁴ where possible. Where this not possible, an attractive alternative parallel route should be provided. Ensuring consistent, direct, and continuous active travel provision is essential and simply providing cycle provision across the ART network where space allows will not facilitate this. A corridor length approach to provision, with a further holistic view of the city wide active travel network is required to ensure connectivity by cycle across the city.
Road Safety and Public Health: Adopt Vision Zero ¹¹⁵ (safety) and Healthy Streets ¹¹⁶ principles	Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. Healthy Streets is a human-centre framework for embedding public health in transport, public realm and planning. Adopting the Vision Zero and Healthy Streets principles when developing the ART network design should be at the heart of the design process. This applies not only to active travel infrastructure design but to the whole network design to ensure an attractive and safe environment for all road users.
Highways Maintenance: Take cognisance of highway maintenance costs when considering new infrastructure	An overarching design feature of ART is to enable a high level of segregation for ART services. A key feature of this is providing services with priority at junctions, as this is often where most time is lost. Enabling such priority through signal control is more easily achieved through providing a bus lane up to the junction stop line. However, this requires a reconfiguration of junction layouts and new and increased levels of traffic signal infrastructure. The increased junction size and the complexity of the traffic signal control will need an increase to the Council's highway maintenance budget to ensure these junctions operate safely and reliably at all times. For example, there are locations on the ART network where existing (uncontrolled) roundabouts require conversion to signalised junctions which would significantly increase highways maintenance cost. Furthermore, the designs for ART incorporate cycle routes providing a high level of service for cycling, as defined in Cycling by Design, along or parallel to the ART corridors. Incorporating both bus priority and cycling route infrastructure at junctions further increases the complexity of the traffic signal infrastructure and highway maintenance liabilities. While there are options to reduce highway maintenance liabilities across the ART network associated with bus infrastructure this is less achievable for the infrastructure required to deliver the cycle routes. Using the more conventional approach of setting bus lanes back from junctions, while not providing buses full access to the stop line, does avoid the need for significant road widening and additional traffic signal infrastructure to accommodate and hold left turning traffic next to the bus lane. Cycling by Design does not allow a similar reduction to the level of services for the cycle route because of the road safety implications related to segregated cycle route provision ending and cyclists having to mix with high speed / high flow traffic on the road or pedestrians in shared-use areas. Given the current and likely future constraints on Council highway maintenance budgets the liability impacts associated with the proposed ART

¹¹⁴ [Cycling by Design | Transport Scotland](#)

¹¹⁵ [What is Vision Zero? | Vision Zero Network](#)

¹¹⁶ [Healthy Streets | Making streets healthy places for everyone](#)

Design Principle	Overarching Guidance
	infrastructure will be balanced against level of service to ensure the network is affordable to maintain in the future.
Urban Realm: Facilitate a high-quality public realm in urban areas	Of particular importance is the need to balance the level of bus priority with the impact on the urban realm, with the principle that ART infrastructure implemented to maximise bus priority should never be at the expense of the urban realm . This recognises that the quality of the urban realm is part of the user environment, and connections to bus stops, and the waiting environment are all part of ART and important in encouraging use of the network. When considering the design of infrastructure across the network, it is therefore important not to consider the 'in vehicle' user experience alone.

Vehicles

- 3.4.10 The vehicles operating across the ART network are a key feature of the scheme.
- 3.4.11 As noted above, conventional buses offer limited floorspace flexibility, and capacity with limited space for those with mobility issues (i.e. requiring space for a wheelchair) or those travelling with children/ buggies and large luggage, and with passenger capacity on an upper deck inaccessible to some.
- 3.4.12 The ART vision is to deliver an integrated Mass Transit 'step-change' solution. The type of vehicles operating across the ART network, in this regard, have the potential to provide:
- a visual difference and in their offering compared to the existing bus network, through vehicle type and branding, raising perceptions of quality in the network and generating a feeling of a real 'step change'
 - improved vehicle functionality i.e. multi-door vehicles and / or single deck vehicles offering speed, accessibility benefits, and greater 'mass transit' potential (discussed further below)
 - improved ride comfort and manoeuvring around the vehicle
- 3.4.13 The above reviews suggested that multi-door vehicles are an essential element in ensuring scheme success due to the significant part such vehicles play in reducing dwell times at stops through enabling large numbers of passenger to board and alight simultaneously and by removing the need for interaction with the driver (dependent on the ticketing system).
- 3.4.14 As part of the 'step change' solution, the vision is for single deck multi-door tram-style vehicles to be operational across the ART network, similar to the Belfast Glider system, which operate with 18m tram-style Van Hool ExquiCity¹¹⁷ articulated buses and are as shown in the figures below.

¹¹⁷ [Exqui.City18 Electric | Van Hool](#)



Figure 3.2: Belfast Glider tram-style vehicle at stop (Photo courtesy of Translink)

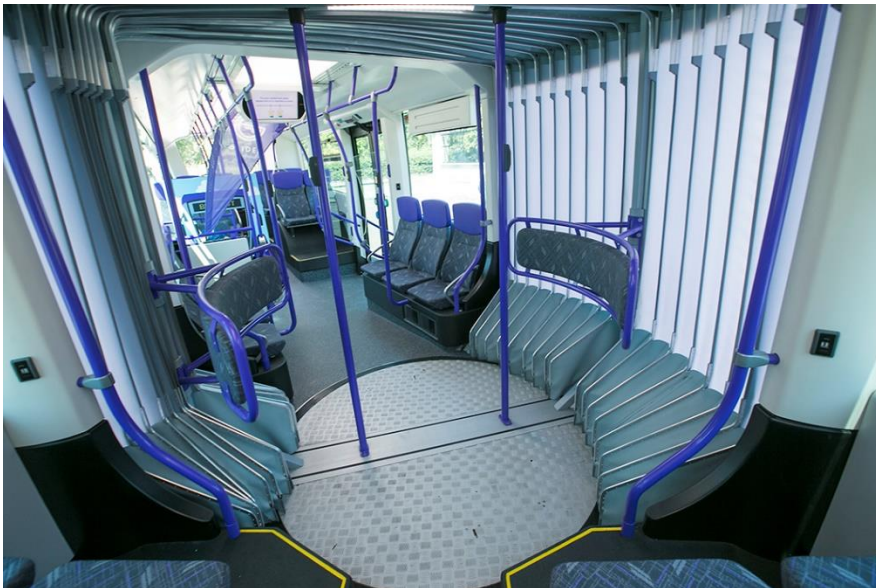


Figure 3.3: Belfast Glider tram-style vehicle - interior (Photo courtesy of Translink)

3.4.15 Each Glider vehicle operates with three doors, and the vehicles:

- have a mixture of seating and standing, with designated space for wheelchairs and prams
- have free Wi-Fi and USB charging sockets
- display real-time visual and audible information
- are covered by on-board security CCTV

3.4.16 While the Glider vehicles use what was the best available low-emission technology in terms of value-for-money (diesel-electric hybrid engines), it is assumed for ART that due to technological advances, the vehicles will use zero-emission technology, contributing to the decarbonisation of the region's transport network and improving local air quality.

- 3.4.17 Significant infrastructure changes would likely be required at the depots of the ART operators for overnight fuelling and/or recharging as well as for undertaking maintenance, cleaning etc. of the new fleet of vehicles.
- 3.4.18 As well as operating across the Glider network, these specific vehicles are also operating in many European cities, including those with similar or smaller populations to that of Aberdeen. Examples include Malmö in Sweden (population: 336k), Metz in France (population: 113k), Parma in Italy (population: 335k), and in the further larger cities of Hamburg (Germany), Barcelona (Spain), and Geneva (Switzerland).
- 3.4.19 However, it is recognised that, as a trade-off, high-quality conventional buses could be used, with ART branding used to provide some identity separate from the existing network. This also recognises: (i) the potential challenges in operating with a tram-style vehicles (e.g. infrastructure design, depots, maintenance etc) and (ii) the investment made to date by existing operators in improving fleet quality and low emission technology. Given this, the options being developed for ART encompass the breadth of vehicle types that could be used.
- 3.4.20 It is worth noting that the type of vehicles / ticketing to be operated across the network have a bearing on ticketing as well as **revenue protection** - and therefore also on operating costs if revenue protection officers are required either on the buses themselves or across the network. On this aspect, discussion with Translink highlighted that revenue protection on the Glider vehicles was not a significant concern and while permanent revenue protection officers were in place on scheme opening, this has now been reduced. It was recognised that an element of fare evasion was likely occurring, but that it was a trade-off between the major benefit of reduced stop dwell times and ticket purchases.

Option Development

- 3.4.21 Five broad option approaches have been developed which deliver all, or elements of, the ART Vision identified above. The option appraisal therefore seeks out to determine whether delivering only elements of the ART Vision, potentially via more straightforward delivery pathways could deliver the step change in the quality of public transport in and around Aberdeen required to (i) support the transformation of the city centre (CCBMP) and (ii) deliver a range of benefits aligned with regional and national priorities.
- 3.4.22 The five broad options range from **Option 1**, requiring the **least change from the existing position** with new bus priority infrastructure but no changes to services or vehicles, to **Option 5**, which reflects the **most changed position**, essentially the ART Vision. The key thing for the appraisal is the scope and scale of the potential benefits and costs of each, in delivering some, or all of the ART Vision.

Main Options

- 3.4.23 All 'do something' options assume the same enhanced bus priority infrastructure on the ART corridors, developed in line with the Design Principles above. The infrastructure design will provide the high segregation required to underpin ART and enable fast services.
- 3.4.24 The options are set out in Table 3:2 below with the key differentiators between the options being (as described in more detail above):
- Bus services, either:
 - Current bus services
 - Current bus services with increased frequency on the key services which operate in large part on ART corridors

- Current bus services with increased frequency on the key services which operate in large part on ART corridors and a revised supporting network to feed ART defined services
- New cross-city routes operated at a high frequency across the day
- New cross-city routes operated at a high frequency across the day, and a revised supporting network to (i) remove services which largely duplicate ART routes and (ii) provide feeder connections to ART services
- Bus stops, either:
 - Current bus stops, upgraded for ART defined services
 - New distinctive high-quality ART halts providing level boarding, off-bus ticketing and located around every 800m to improve journey times
- Vehicles, either:
 - Conventional single and double decker buses, upgraded to zero emission over time
 - Tram-style articulated single decker buses

Sensitivity Option

- 3.4.25 ART would provide significant benefits to journey times and reliability, while, through the reallocation of road space, dis-benefitting travel by car thereby incentivising people to switch modes. However, there are further supporting measures which can drive this behavioural change and realise its benefits, particularly the wider environmental and socio-economic benefits including national climate change targets, vehicle kilometre reduction targets and improved equality of access.
- 3.4.26 Consultation with the Birmingham Sprint scheme and Bristol Metrobus network teams as set out in Appendix E noted that supporting measures adopted alongside the schemes were significant in increasing bus patronage:
- For the Birmingham Sprint scheme the key supporting measure was **city centre segmentation**, meaning that driving through the centre of Birmingham was made more difficult than before – with drivers required to route out and around the centre to access another area of the city centre. This has led to reduced car use within the centre which was felt to be the greatest benefit to the Sprint scheme.
 - For the Bristol Metrobus scheme, the key supporting measure was city centre **parking policy** changes (long stay is now expensive) and this is borne out in the passenger loadings profile for MetroBus.
- 3.4.27 Given the above, a ‘sensitivity option’ has been added to the options. The option, named **Option 5P**, is a sensitivity on Option 5 and assumes that a level of additional traffic restraint is applied in the city. Measures could be like those as implemented in Birmingham and Bristol or could include changes to parking restrictions, consideration of the implementation of a Workplace Parking Licensing scheme or through road user charging.
- 3.4.28 For the purpose of modelling, an illustrative doubling of Aberdeen city centre parking charges has been applied within the model, to provide some indication of the scale of the potential modal shift to ART that may be achieved under such an illustrative policy.

3.4.29 The options table below also shows how the options deliver BRT defining features, as identified in the ART Vision.

Table 3.2: ART Broad Options Approaches (Form of the Network)

Option	Extensive bus priority	Services	Bus Stops	Stop Spacing	Vehicles	Traffic Restraint Measures	BRT Feature			
							High Segregation	Fast	Frequent	High Capacity
1	✓	Current ART corridor services	Conventional, Upgraded	No change	Conventional	No change	✓✓✓	✓	✗	✗
2	✓	Current ART corridor services with increased frequency	Conventional, Upgraded	No change	Conventional	No change	✓✓✓	✓	✓	✗
3	✓	Current ART corridor services with increased frequency Integration of other services to feed ART corridor services	Conventional, Upgraded	No change	Conventional	No change	✓✓✓	✓	✓	✗
3A	✓	Current ART corridor services with increased frequency Integration of other services to feed ART corridor services	Platform style	800m	Conventional ART branded	No change	✓✓✓	✓✓	✓	✗
4	✓	New ART cross-city services Current services remain as at present	Platform style	800m	Tram-style	No change	✓✓✓	✓✓	✓✓✓	✓✓✓
5	✓	New ART cross-city services Integration of other services to feed ART services	Platform style	800m	Tram-style	No change	✓✓✓	✓✓✓	✓✓✓	✓✓✓
5A	✓	New ART cross-city services Integration of other services to feed ART services	Platform style	800m	Conventional ART branded	No change	✓✓✓	✓✓	✓✓✓	✓✓
Sensitivity (5P)	✓	New ART cross-city services Integration of other services to feed ART services	Platform style	800m	Tram-style	Increased parking controls	✓✓✓	✓✓✓	✓✓✓	✓✓✓

ART Network Routes

3.4.30 For the purposes of the STAG appraisal, it was assumed that all options operated across broadly the same corridors, which broadly represents that set out in the ART Vision (and as shown in the figure below):

- **West to North route:** Kingswells P&R to Bridge of Don P&R (via the city centre)
- **North-West to South route:** Craibstone P&R to Portlethen (planned) P&R (via the city centre)

3.4.31 The infrastructure in place across these corridors was taken as that developed through the MMCS studies, and reflected as much as possible, the Design Principles as set out above.



Figure 3:4: ART Network – for Form of ART options appraisal

3.4.32 Assuming all options operated across broadly the same corridors allowed for consistency and comparison between options in the appraisal. The routes as defined above are not a settled view on the final form the network and services may take. This has been considered in detail through the Routeing Option analysis discussed later in this chapter.

Option Appraisal Approach

3.4.33 The five broad option approaches, as well as a 'Business as Usual' (BAU) option, have been appraised against the TPOs and the criteria set out in the STAG.

- 3.4.34 As noted before, the option appraisal (and option sifting) process has been informed by, and draws on, work undertaken and reported in *Aberdeen Rapid Transit – Options Appraisal – Preliminary Option Appraisal Report, Stantec, June 2022*, and *Aberdeen Rapid Transit - Detailed Options Appraisal - Technical Report – Final, Stantec, March 2023*.⁸⁷
- 3.4.35 The appraisal has also been informed by: existing study appraisals to date (including the MMCS – which as noted above provided the basis for infrastructure assumptions across the network at this stage); considering BRT schemes elsewhere (as discussed in Section 3.4.2, with Appendix E providing further detail); through a modelling exercise (discussed below), a market research exercise (discussed below); and through professional knowledge and consensus (through internal appraisal and client team workshops).
- 3.4.36 **The information presented below does not seek to replicate the appraisal contained in these reports. Rather it draws on the pertinent elements of work to date to set out clearly the key benefits and impacts** of the options being considered, and subsequently supporting in the option sifting process. Where appropriate, signposting is provided to existing reporting where greater detail can be found.

Modelling of ART

- 3.4.37 The regional strategic multi-modal Aberdeen Sub-Area Model (ASAM19) has been a key component in the appraisal and has provided a range of quantitative outputs to inform various elements of the STAG appraisal.
- 3.4.38 It should be noted that at the time of use, the ASAM19 development had only just been completed and was still subject to Audit. However, it was considered the best available model at the time, given it provided the most up-to-date strategic modelling tool for the region, well aligned to use in the appraisal of a significant transport scheme such as ART. The model is validated with post-Aberdeen Western Peripheral Road (AWPR) opening (February 2019) travel flows and patterns.
- 3.4.39 Outputs from the testing of the options in ASAM19 have informed an understanding of public transport journey time changes, ART patronage estimates, abstraction from existing bus services, modal shift, changes in greenhouse emissions, impacts on general traffic and traffic re-routing and connectivity impacts, as well as feeding into the economic appraisal of the options and ultimately cost to government and value for money estimates (the latter two using the DfT's TUBA (Transport Users Benefit Appraisal) software). The outputs are noted in the following options appraisal narrative and tables as appropriate against the relevant TPO or appraisal criteria.
- 3.4.40 ASAM19 has a 2019 Base year and outputs from 2030 and 2045 forecasts were used in the appraisal. ASAM19 uses a set of forecast scenarios derived for 2020 – 2045 from the Transport Model for Scotland (TMfS), and its associated land-use model (TELMoS).
- 3.4.41 TMfS forecasts were developed as part of STPR2 and to reflect a range of future uncertainties, a methodology for an *Approach to Scenario Planning* was developed and published as Appendix F of the STPR Technical Report.¹¹⁸ Two key scenarios were developed, capturing 'without policy ambition' and 'with policy ambition' levels of travel by mode. The 'with policy' scenario reflects some of the current policy ambitions¹¹⁹ of the Scottish Government, including:
- a 20% reduction in car kilometres by 2030
 - the phase out the need for new petrol and diesel cars and vans by 2030

¹¹⁸ [Final technical report - December 2022 - STPR2 | Transport Scotland](#)

¹¹⁹ Note that the measures to deliver these policy ambitions are not identified

- net zero carbon emissions by 2045

3.4.42 These scenarios present very different views of the future, and the figure below, recreated from the STPR2 technical report, helps illustrate the difference, showing how the forecast road traffic diverges. The 'without policy' scenario has around 35% more veh-km than the 'with policy' scenario by 2045. This therefore represents a very different view of the future and the conditions on the city region's road network.

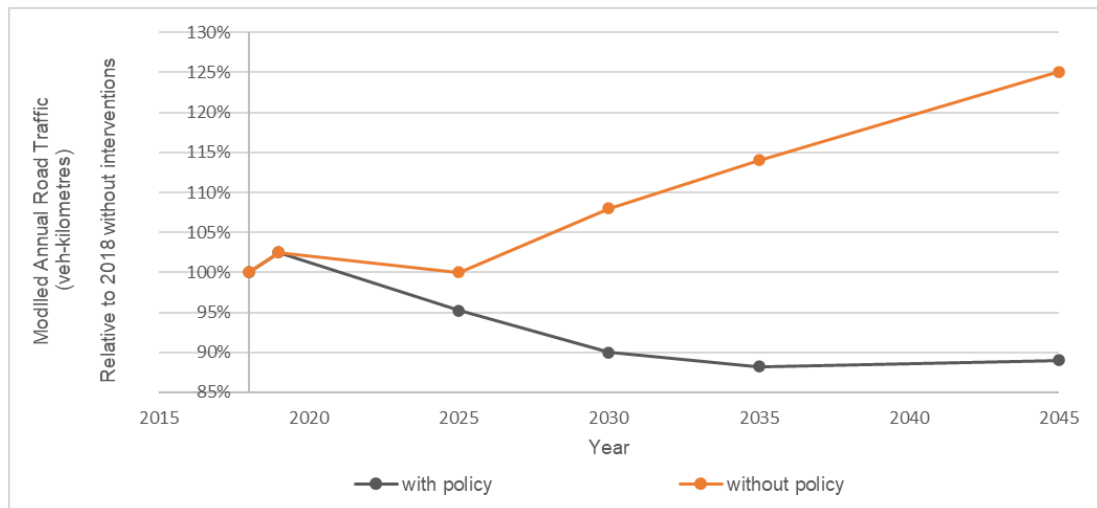


Figure 3:5 STPR2 North East Scotland – With and Without Policy Scenarios (Annual Road Traffic veh-kilometres)¹²⁰

3.4.43 The two scenarios are designed to present a potential spectrum into which the future may fall and it is important to understand the benefits and impacts of ART under these differing potential futures. Understanding this, while introducing an element of uncertainty into decision making, also provides decision makers with a clearer picture of the potential risks in scheme implementation should a certain future come to transpire. As such, modelling has been undertaken under both the 'with policy' and 'without policy' scenarios.

With Policy Scenario

3.4.44 In this scenario, road traffic volumes (trips) in ASAM19 reduce by 10% in 2030, and 12% by 2045, so traffic congestion is reduced from 2019. Given this, public transport services are operating within a road network with reduced delay (compared to 2019). The benefits of bus priority interventions are likely to be lower than if set against a forecast scenario with higher traffic levels. This should be borne in mind when interpreting the outputs.

Without Policy Scenario

3.4.45 In this scenario, by 2045 road traffic volumes (trips) are forecast to be around 20% higher than those in the 'with policy' scenario, and 9% higher than 2019, implying that the road network will be more congested than at present. Due to this, the reductions in journey time delivered through bus priority would be expected to be greater than under the 'with policy' scenario. As noted in relation to the issues raised for the 'with policy' scenario above, this should be borne in mind when interpreting the outputs.

¹²⁰ recreated from the STPR2 technical report, North-East Detailed Appraisal Summary Table, Annex C

Modelling Undertaken

3.4.46 To provide a robust but proportionate approach to modelling to inform the appraisal a selection of the options was modelled reflecting a lower and upper end of the scale in terms of change from the current position.

3.4.47 The options were therefore treated as follows:

- Modelling of options with the ‘with policy’ scenario – given that this reflects the current policy ambitions of the Scottish Government, with:
 - Modelling of Option 2 – given this reflects a position with all the priority infrastructure in place and with a limited approach to changes in services operating across the network
 - Modelling of Options 5 – given this reflects the full ART Vision with all the priority infrastructure in place, as well as new stops, cross-city services and vehicles
 - Modelling of Options 5A – to understand the difference between the Option and Option 5 – and therefore the benefits derived through the use of multi-door vehicles (with Option 5 using new multi-door ‘tram-style’ vehicles and ART operation in Option 5A with ‘conventional’ bus vehicles)
 - Modelling of the sensitivity test 5P modelled – to understand the impact if other supporting measures were implemented alongside the ART scheme
- Modelling of Option 5 (given Option 5 represents the most ambitious ART vision position) with the ‘without policy’ scenario – to provide an understanding of the different future position for the option under this more congested road network
- Modelling of Option 1 (just the infrastructure implemented) was **not undertaken**, with the likely outcomes considered similar to Option 2 in terms of transport journey time changes and traffic re-routing (given the similar infrastructure) but with anticipated lower patronage estimates, potential abstraction from existing bus services, modal shift, changes in greenhouse emissions, and connectivity impacts given no changes to services are included in Option 1
- Modelling of Options 3 and 3A was **not undertaken** with the likely outcomes considered to be in the range between those of Options 2 and Option 5 given their proposals in terms of infrastructure (similar to all), enhanced services (similar to Option 2), an integrated network (similar to Option 5) and with branding (in Option 3A) reflecting Option 5A.
- Modelling of Option 4 was **not undertaken** with likely outcomes inferred from Option 5, given Option 4 is the same as Option 5 but without any changes to existing services i.e. ART is added ‘on top’ of the existing network

3.4.48 Note that the ASAM19 Reference Case forecast models represent BAU, representing the future transport network across the area including committed schemes and land use assumptions. Bus services are based on 2019 timetables.

Modelling Assumptions

3.4.49 Assumptions were applied to reflect the options, as set out in the table below.

Table 3.3: Modelling Assumptions¹²¹

Element	Option	Assumption
Bus priority infrastructure	All modelled options	Assumed the same under all options and in line with MMCS outcomes and Design Principles (as set out in Table 3.1) across the network. Where feasible, dedicated bus lanes and bus priority at signals were assumed across the ART network. All bus lanes are implemented through the reallocation of road space from general traffic lanes with no 'new tarmac'.
Services	Option 2	Increased frequency on services 1B, 7B, 14 and 727 with frequencies to every 10 minutes No new (cross city) services
	Option 5	Two new cross city services operating between Bridge of Don Park & Ride and Westhill (serving Kingswell Park & Ride), and Craibstone Park & Ride and Portlethen Park & Ride, operating with 'turn up and go' frequency (at least a bus every 10 minutes or less)
	Option 5A	
	Option 5P (sensitivity)	
Vehicles	Option 2	As per BAU (recognising recent and further operator investment in zero-emission vehicles over time)
	Option 5	New 'tram-style' multi-door vehicles operating on the new cross-city services – added as a different vehicle type within the model
	Option 5A	As per Option 2
	Option 5P (sensitivity)	As per Option 5
Stops and Stop Spacing	Option 2	As per BAU (around 400m apart, or less)
	Option 5	New ART platforms approximately every 800m.
	Option 5A	As per Option 5
	Option 5P (sensitivity)	As per Option 5
Stop Dwell times	Option 2	As per BAU
	Option 5	Reduced stop dwell times to reflect the much faster boarding and alighting times due to the use of multi-door vehicles on the new services. The model includes a dwell time of 25 seconds at bus stops. This was reduced to 17 seconds at each stop (2/3 of the current dwell time) for the new cross-city services.
	Option 5A	As per BAU
	Option 5P (sensitivity)	As per Option 5
In-vehicle weighting	Option 2	As per BAU (factor of 1.4)
	Option 5	A reduction in the 'in vehicle time weighting factor' used to calculate perceived time to reflect the improved in-vehicle experience of the new tram-style vehicles. Therefore time in a new ART vehicle is felt to be less than that in a 'conventional' bus vehicle. A figure was chosen (1.2) halfway between that applied for bus services (1.4) and rail services (1.0).
	Option 5A	As per BAU (factor of 1.4)
	Option 5P (sensitivity)	As per Option 5

¹²¹ See *Aberdeen Rapid Transit - Detailed Options Appraisal - Technical Report – Final*, Stantec, March 2023 and the associated Supporting Technical Note, *ART Detailed Options Appraisal - Supporting Technical Note E - Transport Modelling*, Stantec, March 2023 for more details.

Element	Option	Assumption
Existing bus network	Option 2	No further changes to existing network over and above increased frequency on specific services (as noted above)
	Option 5	Changes to several existing services where the new ART services were noted to duplicate entirely or to a large degree existing routes, with some services removed, reduced or altered – see <i>ART Detailed Options Appraisal - Supporting Technical Note C – Integration of Existing Bus Network</i> , Stantec, March 2023. Note that the changes made to the existing bus network were to establish an illustrative bus network for the purposes of modelling and testing the option. This will require refinement as the ART project progresses.
	Option 5A	
	Option 5P (sensitivity)	
Traffic Restraint Measures	Option 2	As per BAU
	Option 4	
	Option 5	
	Option 5A	
	Option 5P (sensitivity)	Parking charges in the city centre doubled as a proxy to represent a level of traffic management aiming to reduce car travel in the City.

Option Appraisal

- 3.4.50 The option appraisal is summarised below highlighting the key benefits and impacts of the five broad approaches, including the two sub options and the sensitivity option. The option appraisal scoring has been undertaken considering the benefits of the options relative to one another, and not as an absolute scoring. Applying a relative scoring approach enables decision makers to understand how the options perform compared to one another.
- 3.4.51 This multi-criteria appraisal is based on approaches set out in STAG. The table below shows the various components of STAG and where these are covered in this SBC.

Table 3.4: STAG Appraisal in SBC

STAG Section		SBC	Chapter of Report
Appraisal against TPOs		Economic Dimension	Chapter 3
Appraisal against STAG Criteria	Environment	Economic Dimension	Chapter 3
	Climate Change	Economic Dimension	Chapter 3
	Health, Safety and Wellbeing	Economic Dimension	Chapter 3
	Economy	Economic Dimension	Chapter 3
	Equality and Accessibility	Economic Dimension	Chapter 3
	Affordability / Cost to Government	Financial Dimension	Chapter 5
	Public Acceptability	Economic Dimension	Chapter 3
	Feasibility	Commercial and Management Dimensions	Chapter 4 Chapter 6
	Risk and Uncertainty	Management Dimension	Chapter 6

Appraisal against the TPOs

TPO1: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve equality of opportunity

- 3.4.52 Several metrics (Indicators (IND)) were set out in Figure 2:39 on how success against this TPO would be measured:
- **IND1: Access to employment (all):** Population able to access each key employment site across the city by public transport in less than 45 minutes
 - **IND2: Access to employment (most disadvantaged):** Population in the lowest 20% SIMD zones able to access each key employment site across the city by public transport in less than 45 minutes
 - **IND3: Access to Healthcare:** Population able to access Foresterhill Health Campus by public transport in less than 60 minutes
 - **IND4: Access to Education:** Population able to access the two universities and other key educational establishments (i.e. colleges) by public transport in less than 45 minutes
 - **IND5: Access to City Centre:** Population able to access the city centre by public transport in less than 45 minutes (with access to Market Street / Union Street taken as a proxy for this)
- 3.4.53 These metrics have been considered for the BAU and the options, and draws on data from the ASAM modelling exercise undertaken.
- 3.4.54 The analysis is presented in detail in Appendix I with a high-level summary with key findings presented below.
- 3.4.55 Across all the metrics considered there are six core distinguishing elements of the options which influence connectivity:
- **Bus priority infrastructure:** increasing connectivity through providing dedicated infrastructure to reduce bus journey times
 - **Increased service frequency:** increasing connectivity through increasing the number of opportunities for travel and reducing wait times
 - **New direct connections:** increasing connectivity through reducing journey times by reducing or removing the need for interchange
 - **Bus stop dwell times:** increasing connectivity by reducing bus stop dwell times and therefore overall journey times, using multi-door vehicles to speed up boarding and alighting
 - **Increasing stop spacing:** increasing connectivity by reducing the number of stops and therefore overall journey time
 - **Changes to the underlying bus network:** influencing accessibility both positively and potentially negatively, through removing bus congestion on the ART network, but also removing some locally running services (although this should be done so as to maintain accessibility at a level commensurate to existing).
- 3.4.56 These are listed in the table below against the options to which they apply.

Table 3.5: Five core distinguishing elements of the options which influence accessibility

	Bus priority infrastructure	Increased frequency	New direct Connections	Reduced stop dwell time	Fewer stops	Changes to underlying bus network
BAU						
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	✓					
Option 2: Enhanced existing commercial services using enhanced infrastructure	✓	✓				
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	✓	✓				✓
Option 3A: As per Option 3 but with vehicle branding and new ART 'halts' with approximately 800m spacing	✓	✓			✓	✓
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	✓	✓	✓	✓	✓	
Option 5: New ART services and vehicles with revised / integrated existing services	✓	✓	✓	✓	✓	✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	✓	✓	✓		✓	✓

3.4.57 The options which provide the greater number of 'ticks' against the core elements in the table above are likely to offer the greater connectivity benefits. This is borne out in the result presented in Appendix I which shows that Options 5 and 5A provide some significant improvements in connectivity.

3.4.58 Across the metrics considered for TPO1:

- **Option 5 and 5A** (and by inference Option 4 given the option also includes many of the core elements noted in the table above) provide significant improvements in access to key employment sites, education sites, the regional healthcare campus at Foresterhill, and the city centre
- There are significant improvements in the public transport accessibility of **sites located on the periphery of Aberdeen** including Arnhall in Westhill (over 350% increase in population able to access Arnhall Business Park in under 45 minutes) and the airport (approximately 140% increase in access), as well as to Foresterhill Health Campus (12-15% increase under Option 5) and to the Scottish Rural Agricultural College located at Craibstone (around a 350% increase the population able to access the site in less than 45 minutes)
- The analysis shows that while many city sites are already within a 45 minute catchment of the most deprived areas (given there generally more city centre location), there are significant improvements in accessibility such that more residents of these areas can access opportunities in 30 minutes or less. This includes to the city centre (Union Street) with an increase from under 30% able to access the centre in less than 30 minutes in the Status Quo, to over 55% with access in less than 30 minutes under Option 5.

- Accessibility improvements under (modelled) **Option 2**, and by inference under **Options 1 and 3** given the options also do not contain many of the core elements noted in the table above, are noted to be generally only modest compared to the Reference Case. Improvements under **Option 3A** are likely to lie between those of Option 2 and 5 given the elements included in the option.

Table 3.6: TPO1: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve equality of opportunity – Summary

Option	Indicator					Overall Impact
	IND1: Access to employment (all)	IND2: Access to employment (most disadvantaged)	IND3: Access to Healthcare	IND4: Access to Education	IND5: Access to City Centre	
BAU	-	-	-	-	-	-
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	✓	✓	✓	✓	-	✓
Option 2: Enhanced existing commercial services using enhanced infrastructure	✓	✓	✓	✓	-	✓
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	✓	✓	✓	✓	-	✓
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	✓✓	✓	✓✓	✓✓	✓	✓✓
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	✓✓✓	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓
Option 5: New ART services and vehicles with revised / integrated existing services	✓✓✓	✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	✓✓✓	✓✓	✓✓	✓✓	✓	✓✓

TPO2: Increase public transport mode share in Aberdeen to support placemaking and the North East's Net Zero ambitions

3.4.59 Several metrics have been used to test success against this TPO:

- IND1: % increase in trips made by public transport in Aberdeen
- IND2: Bus Speeds on ART corridors
- IND3: Consistency in travel time for trips made on ART network across the day and the week
- IND4: General traffic volumes on and around ART corridors
- IND5: Total motorised vehicle kilometres travelled within the Aberdeen city boundary
- IND6: Greenhouse Gas emissions
- IND7: % of bus users either satisfied or very satisfied with travel by bus into and across Aberdeen
- IND8: % of bus users either satisfied or very satisfied with travel by bus safety and security
- IND9: % increase in trips made by active travel in Aberdeen – note that this metric has not been analysed at this stage but will be considered in greater detail at OBC stage

3.4.60 These metrics have been considered for a BAU future year (2045) Reference Case and for the options. The full detailed analysis is presented in Appendix J with a summary presented in the table below.

Table 3.7: TPO2: Increase public transport mode share in Aberdeen to support placemaking and the North East's Net Zero ambitions – Key Points

Indicator	Influenced by	Key Option Outcomes
IND1: % increase in trips made by public transport in Aberdeen	Influenced by IND2 and 3 as well as through perceptions of quality (captured in part though narrative in IND7 and 8) – including the 'in-vehicle' experience – greater in Options 4 and 5	Greatest modal shift achieved in Option 5 (12-14%), reducing to 8% in Option 5A, and at only 2% in Option 2. Reducing bus dwell time at stops is essential in encouraging modal shift to public transport. If ART is implemented with complementary supporting measures, such as parking policy, greater scheme success can be realised.
IND2: Bus Speeds on ART corridors	- Bus priority infrastructure – same across all options - Stop spacing – fewer stops in Option 3A, 4, 5 and 5A - Bus dwell time at stops – lower in Options 4 and 5 through use of new multi-door vehicles	The <i>Bus Rapid Transit Planning Guide</i> (Institute for Transportation & Development Policy, 4th edition) notes that a Gold Standard BRT system speed will be roughly 20kph [12mph] in a 'downtown' area and about 25 kph [16mph] on a major urban arterial. Designers of BRT systems should aim to engineer a network which can achieve average urban vehicle speeds of 25 kph [16mph] or higher, and a similar aspiration is held for ART. As such, consideration of each options potential to achieve a 25kph [16mph] average speed has been considered. The analysis shows: - Option 2 is forecast to facilitate speeds of between 16kph [10mph] and 24kph [15mph] in urban areas – not meeting the desired 25kph [16mph] speeds - Option 5 is forecast to facilitate speeds of between 20kph [12mph] and 31kph [19mph] in urban areas (similar but slightly reduced in Option 5A) meeting the desired 25kph [16mph] speeds on two of the four ART network routes into the city and estimated at 24kph [15mph] one a third corridor and 20kph [12mph] on the fourth. From comparison with the Option 2 results, given both use the same priority infrastructure, it is clear that a significant part the journey time reduction achieved is gained through reduced stopping patterns, with further reduction gained through reduced bus dwell time at stops (achieved through the use of a multi-door vehicles). The slightly higher speeds achieved in Option 5 compared to Option 5A highlights the benefits of the 'multi-door' vehicles. A comparison of journey time reductions for the full cross-city journeys (not just individual corridors) against the (future year) Reference Case travel times by car and public transport has been undertaken for Option 5 and 5A - where new cross city services are introduced. The analysis, as presented in Appendix J shows the significant benefit in introducing cross-city services, with public transport journey time savings of 31-33 minutes expected between the Airport and Portlethen P&R and 20-21 minutes between Kingswells and Bridge of Don.

Indicator	Influenced by	Key Option Outcomes
IND3: Consistency in travel time for trips made on ART network across the day and the week	- Bus priority infrastructure – same across all options - Stop spacing – fewer stops in Option 3A, 4, 5 and 5A - Bus dwell time at stops – lower in Options 4 and 5 through use of new multi-door vehicles	Variation in journey times between the Interpeak and PM peak period has been used to consider journey time consistency. The greatest improvement is seen for Option 5 and highlights journey time consistency will be aided by new bus priority infrastructure and wider stop spacing, in addition to the use of distinctive multi-door vehicles and off-vehicle ticketing, both of which will reduce dwell time at stops. In addition, integration of the existing bus network will reduce any potential delay due to bus congestion across the network.
IND4: General traffic volumes on and around ART corridors	- Bus priority infrastructure – same across all options - Modal Shift (IND1) – higher in Options 4, 5 and 5A	Traffic volumes across the ART network and wider Aberdeen city road network have been considered to understand the impacts of the reallocation of roads space to enable the bus priority proposed for ART. All the options are based on essentially the same quantum of roads space reallocation, and the impacts of the different options in this regard will be similar, albeit the scope for negative impacts is reduced somewhat where modal shift to bus is greater (see IND1). The mapping of traffic flows across the city, as provided in Appendix J shows significant traffic reductions on the ART corridors where general traffic capacity has been reduced. The reduction in traffic across the ART network will create a much improve urban realm environment along these main arterial routes in the city centre, where there will be reduced traffic related noise and vibration and improved air quality. In terms of traffic reductions across the ART network, the greatest reductions will occur for those options generating the greatest modal shift. As such, the benefits are anticipated to be greatest for Options 4, 5 and 5A. Across the options overall, traffic re-routeing generates increases in traffic on less strategic and minor roads including alternative routes between the ART corridors. However, while the analysis highlights extensive traffic redistribution it should be recognised that at this stage the ART network has not been modelled with any allowance made through mitigation to manage this re-routing, and its potential negative impacts - including those in relation to the environment such as increased noise, vibration and tail pipe pollution on less strategic routes and within residential areas. The impacts observed are therefore an estimate of the impacts on the network if no further measures were implemented to manage the impact. In this regard it represents an unlikely outcome but is nonetheless helpful in understanding what the potential impacts requiring mitigation are likely to be. It is crucial that further work is undertaken as the ART scheme develops to mitigate against the impacts of traffic redistribution across a wider area due to delay on the ART corridors. Such mitigation may include right turn bans, street point closures etc. and consideration of traffic calming, in tandem with traffic restraint measures such as parking policy etc. It is noted that metrics to monitor the impact of such measures (e.g. city centre footfall) would be required to fully understand the impact of any such mitigating and traffic restraint measures. In summary, enabling bus priority through significant road space reallocation has the potential to reduce traffic volumes across the ART network and significantly enhance the sense of 'place' on the key routes into the city, and within the city centre. However, without any mitigation to prevent it, there may be additional delay and traffic re-routeing onto less appropriate local roads with the subsequent negative environmental impacts cause significant disbenefits to general traffic.

Indicator	Influenced by	Key Option Outcomes
		While generating adverse impacts to general traffic should not be viewed wholly as negative in the context of the study (and Scottish Government policy) objectives, it is crucial that mitigation is developed as the ART scheme progresses to minimise / remove such adverse impacts.
IND5: Total motorised vehicle kilometres travelled within the Aberdeen city boundary	- Bus priority infrastructure – same across all options - Modal Shift (IND1) – higher in Options 4, 5 and 5A	The 12 hour (0700 – 1900) daily change in road vehicle kilometres from the Reference Case is presented in Appendix J and shows: - The greatest reduction in vehicle kilometres occurs under Option 5 (a reduction of over 50,000 kilometres) – <i>with a significant further reduction (to over 75,000) in the 5P sensitivity test</i> - The reduction under Option 2 is less than half that achieved under Option 5 – with a reduction of just over 22,000 vehicle kilometres It is again noted that if traffic redistribution impacts are further mitigated against, this will likely encourage further modal shift to public transport and support an increased reduction in vehicle kilometres.
IND6: Greenhouse Gas emissions	Positively influenced by IND1 and IND5 – emissions higher where modal shift is lower	Greenhouse gas emissions (as reported through the analysis of the ASAM19 modelling outputs in the Department for Transport's (DfT's) Transport Users Benefit Appraisal (TUBA) software), have been considered to estimate the carbon impacts of the modelled options and are presented in Appendix J . The results show: - Under Option 2: the modal shift achieved <i>does not</i> outweigh the additional greenhouse gas 'cost' of the reducing road space for general traffic and subsequent traffic re-routing. As a result traffic greenhouse gas emissions are expected to increase overall, with a Greenhouse Gase Benefit of -£1.2m (monetised and discounted over the 60-year appraisal period) - Under Options 5 and 5A: the benefits of modal shift <i>do</i> outweigh the greenhouse gas 'cost' of the reducing road space for general traffic (which causes traffic re-routing and associated increased carbon emissions). As a result traffic greenhouse gas emissions are expected to decrease overall, with a Greenhouse Gases Benefit of +£1.6m (monetised and discounted over the 60-year appraisal period). <i>The benefit rises to +£5.1m under the sensitivity test 5P – evidencing the additional benefits of ART that could be derived if further supporting traffic restraint measures were implemented in tandem with the ART scheme or incorporated as part of the ART scheme.</i>
IND7: % of bus users either satisfied or very satisfied with travel by bus into and across Aberdeen	- Positively influenced by IND2 and 3 - Positively influenced by new vehicles used (Options 4, 5, and 5A) and new platforms (Options 3A, 4, 5, and 5A)	The Case for Investment highlighted (across both Aberdeen and Aberdeenshire) that bus reliability (turning up on time), quality of bus stops / shelters, and the range of destinations served without requiring interchange, were the three factors that people were most dissatisfied with. Facilities at Park & Ride sites was noted as the top factor existing Aberdeenshire bus residents were most dissatisfied with. Option 1, 2, and 3 from a quality perspective, are likely to appear similar to the BAU, and as such are unlikely to significantly alter bus or non-bus user satisfaction in the bus network – albeit the introduction of bus priority will improve bus journey times and should have a significant impact on journey time reliability. An audit of the existing quality of the bus network across a range of factors is presented in Appendix K alongside how these factors would change in the options. It shows the higher number of quality factors in Options 4, 5 and 5A. The factors include

Indicator	Influenced by	Key Option Outcomes
		'new interchange facilities'. Recognising that existing P&R sites would be upgraded and reconfigured (to ensure both ease of car and bus access), and a new Mobility Hub provided north of Portlethen (and potentially elsewhere to facilitate interchange (such as at Westhill and Blackdog (see the Routeing Analysis appraisal later in this chapter), consideration has been given to P&R / mobility hub use in the modelled options. The results show: - Under Option 2, occupancy across all P&R / mobility hub sites rises to 10% - Under Option 5, occupancy rises to 31% <i>and slightly higher to 32% under the sensitivity test 5P</i>. Under Option 5A occupancy is 26%. The much higher use of P&R / mobility hubs in the Option 5 variants reflects both the new ART cross city services and the faster journey times, as well as the higher attractiveness of travel using the new 'tram-style' vehicles. Anchoring the ART network to existing (rebranded) P&R sites and the new proposed mobility hubs would support greater use of the currently underutilised sites, with the provision of high frequency cross city services from the sites significantly encouraging greater use.
IND8: % of bus users either satisfied or very satisfied with travel by bus safety and security	Positively influenced through: - New vehicles (Options 4, 5, and 5A) - Stop enhancements (Options 1, 2 and 3) - New Platforms (Options 3A, 4, 5, and 5A) - Access to stops (same across all options)	The associated number of road accidents and injuries across the ART and wider city road network will depend on the extent of the modal shift achieved. Options which can generate greatest modal shift (e.g., Options 5, see IND1) will generate greater road safety benefits. There is however the potential for an increase in casualties where traffic re-routes onto less suitable routes – if this not mitigated against. In terms of security, ART stops will be upgraded under all Options, although the extent of improvement will vary by option: - Under Options 2 and 3, existing bus stops will be enhanced to provide better lighting, improved shelters which offer good natural surveillance and Real Time Information screens to confirm how long users should expect to wait for their service. - Under Options 3A, 4, 5, and 5A, new state-of-the-art ART 'platforms' will be provided which will additionally provide CCTV, and 'help points' to allow users to request assistance if they feel concerned. This would offer improved security over the current situation which includes stops that are poorly lit (often only relying on street lighting levels), positioned in secluded locations and/ or where visibility to and from the stop is obscured by street furniture, parked cars or highway structures

Table 3:8: TPO2: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve inclusive equality of opportunity – Summary

Option	Indicator								Overall Impact
	IND1: % increase in trips made by public transport in Aberdeen	IND2: Bus Speeds on ART corridors	IND3: Consistency in travel time for trips made on ART network across the day and the week	IND4: General traffic volumes on ART corridors	IND5: Total motorised vehicle kilometres travelled within the Aberdeen city boundary	IND6: Greenhouse Gas emissions	IND7: % of bus users either satisfied or very satisfied with travel by bus into and across Aberdeen	IND8: % of bus users either satisfied or very satisfied with travel by bus safety and security	
BAU	✗	✗	✗	-	✗	✗	-	-	✗
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	✓	✗	✓	✓✓	✗	✗	✓	✓	✓
Option 2: Enhanced existing commercial services using enhanced infrastructure	✓	✗	✓	✓✓	✗	✗	✓	✓	✓
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	✓	✓	✓	✓✓	✗	✗	✓	✓	✓
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	✓✓	✓✓	✓✓	✓✓	-	-	✓✓	✓✓	✓✓
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	✓✓✓	✓✓✓	✓✓	✓✓✓	✓	✓	✓✓✓	✓✓✓	✓✓✓
Option 5: New ART services and vehicles with revised / integrated existing services	✓✓✓	✓✓✓	✓✓	✓✓✓	✓	✓	✓✓✓	✓✓✓	✓✓✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	✓✓	✓✓✓	✓✓	✓✓✓	✓	✓	✓✓	✓✓	✓✓

Appraisal Against STAG Criteria

- 3.4.61 The tables below highlight the key advantages and disadvantages of each of the options against Environment, Climate Change, Health, Safety and Wellbeing, Economy, Equality and Accessibility, Cost to Government, Public Acceptability and Risk and Uncertainty criteria.

Environmental Appraisal

- 3.4.62 The primary impacts considered are traffic related, mainly through (i) mode shift from car to ART and (ii) the impact of the reallocation of roadspace away from general traffic to ART on general traffic routing in and around Aberdeen - both of which could impact on Air Quality and Noise and Vibration in particular.
- 3.4.63 As the bus priority infrastructure primarily involves the reallocation of road space, in most instances, as opposed to building of new carriageway, it is unlikely there will be any significant impacts on biodiversity and habitats, geology and soils, water, drainage and flooding, historic environment, or landscape. There may be some minor impacts during road improvement works. Junction changes, including junction widening, may be required to accommodate new signal control to enable public transport priority through the signals, and in some locations, existing roundabouts may require to be altered to signalised junctions. In some localised areas some properties, gardens etc. may be affected.

Modal Shift

- 3.4.64 Change in modal shift under the modelled options was set out as a key indicator (IND1) for assessment under TPO2 above. The key point noted from the result was

that reducing boarding bus dwell time at stops is essential in encouraging modal shift to public transport and that if ART is implemented with complementary supporting measures, such as parking policy, greater modal shift can be realised.

Traffic Re-routing

- 3.4.65 Whilst the absolute volume of car travel is important, it is the distribution of this traffic which will determine its impact on Air Quality and Noise and Vibration. Potential benefits and impacts of traffic flow changes and traffic redistribution was discussed in the relevant indicator (IND5) against TPO2 above. The analysis highlighted that enabling bus priority through significant road space reallocation has the potential to:
- Provide significant benefits across the ART network through reduced traffic volumes, reducing noise and vibration and improving local air quality
 - Cause significant disbenefits to general traffic, with additional delay and traffic re-routing onto local roads with the subsequent negative environmental impacts. While generating adverse impacts to general traffic should not be viewed wholly as negative in the context of the study (and Scottish Government policy) objectives, **it is crucial that mitigation is developed as the ART scheme progresses to minimise / remove such adverse impacts**. As noted above, mitigation may include right turn bans, street point closures etc. and consideration of traffic calming, in tandem with traffic restraint measures such as parking policy etc.
- 3.4.66 The appraisal against the environment criteria, considering the assessments discussed above, is set out in the table below.

Table 3:9: Environmental Appraisal

Option	Assessment against Environmental Criteria	Impact
BAU	No change from existing operations and no significant impacts assumed. However, if the current downward trend of reducing bus kilometres and patronage continues, it is likely that greater car use will in lead to worsening associated air quality, noise and vibration impacts. No new infrastructure and therefore no impacts on biodiversity and habitats, geology and soils, water, drainage and flooding, historic environment, or landscape.	x
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	Likely to generate a level of modal shift and remove cars from the road with the associated air quality improvements. However, increased congestion across the ART network (and potentially surrounding streets if traffic re-routes and mitigation is not provided to prevent this) due to roadspace reallocation may increase pollutants in these areas (this will worsen the climate (CO2) impacts but to a lesser extent health (NOX) impacts because these emissions may occur away from the most populated areas). Traffic rerouting onto other roads may disperse the issue across a wider area (including additional noise and vibration impacts). Further detailed analysis would be required to understand both the benefits and impacts (and impact mitigation). The infrastructure being developed is considering the reallocation of road space, in most instances, as opposed to building new carriageway. It is therefore unlikely there will be any significant impacts on biodiversity and habitats, geology and soils, water, drainage and flooding, historic environment, or landscape. There may be some minor impacts during road improvement works with temporary environmental impact during construction, including increased noise and vibration. Junction changes, including junction widening, may be required to accommodate new signal control to enable public transport priority through signals and existing roundabouts may be required to be altered to signalised junctions. Some properties, gardens etc. may be affected.	✓
Option 2: Enhanced existing commercial services using enhanced infrastructure	Similar to Option 1 but with a likely greater modal shift from car to bus (noted above as a 2% increase in public transport trips compared to the future year BAU Reference Case and translating to approximately 1,700 people changing mode), offsetting to some degree the potential air quality and noise and vibration impacts. P&R site occupancy is also noted to be 2% higher than in the BAU. Further detailed analysis would be required to understand both the benefits and impacts.	✓
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	Similar to Option 2 but the additional integration of the existing bus network would remove 'parallel running' bus vehicles (and hence emissions, noise etc.) across the ART network. Further detailed analysis would be required to understand both the benefits and impacts.	✓
Option 3A: As per Option 3 but with vehicle branding and new ART 'halts' with	Note the branding of buses in Option 3A and implementation of ART platforms is likely to further increase modal shift from car to bus, with the associated positive environmental benefits.	✓

Option	Assessment against Environmental Criteria	Impact
approximately 800m spacing		
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	Similar to Option 3 but without integrating the existing bus network there will be more bus vehicles (and hence emissions, noise etc.) across the ART network. Providing uniquely branded vehicles and providing a very visually different offering to existing services is likely to generate greater modal shift and remove additional traffic from the road with the associated air quality improvements. New distinctive ART vehicles are likely to be zero emission, alternative fuel - Hydrogen, Liquified Petroleum Gas, Compressed Natural Gas or fully electric – all supporting improved air quality strategies. However, given the current improvements in the vehicle fleets, this positive impact would not necessarily provide significant benefit over existing operations.	✓
Option 5: New ART services and vehicles with revised / integrated existing services	Similar to Option 4 but with the additional integration of the existing bus network which would remove bus vehicles (and hence emissions, noise etc.) across the ART network. Public transport usage is anticipated to increase the highest of all options (noted above as a 12% increase in public transport trips - translating to approximately 8,900 people changing mode - compared to the future year BAU). P&R occupancy also increases from 8% to 32% under this option. Further detailed analysis would be required to understand both the benefits and impacts.	✓✓✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	Similar to Option 5 but with an anticipated lower public transport modal shift (noted above as a 9% increase in public transport trips - translating to approximately 6,400 people changing mode - compared to the future year BAU Reference Case). P&R occupancy also increases from 8% to 26% under this option.	✓✓

Sensitivity Test Option

- 3.4.67 Consideration of the sensitivity test 5P where a doubling of parking charges was included within the modelling exercise as a proxy for an additional level of traffic restraint (a potential scheme *supporting measure*), compared to all the options resulted in greater modal shift, the greatest impact in reducing vehicle kilometres and the highest P&R site occupancy.
- 3.4.68 It was made clear through discussion with the officers involved in the Birmingham Sprint scheme and Bristol Metrobus network that supporting measures adopted alongside the schemes were significant in increasing scheme patronage.
- 3.4.69 Given the above, **it is strongly recommended that supporting measures, such as on and off-street public and private parking measures and workplace parking licensing are considered and incorporated in tandem with the ART scheme.** Other measures such as congestion or road user charging would also be worthy of exploration.

Key Points: Supporting measures, such as on and off-street public and private parking measures and workplace parking licensing should be considered and incorporated as part of the ART scheme to boost patronage and increase mode shift from car.

Climate Change Appraisal

- 3.4.70 Climate Change appraisal includes three sub-criteria: Greenhouse Gas Emissions; Vulnerability to Effects of Climate Change; and Potential to Adapt to Effects of Climate Change. This section focusses on Greenhouse Gas Emissions only. The other two sub criteria are more relevant to the engineering design of the network and infrastructure and will be addressed as the infrastructure design work for the scheme progresses through OBC stage.
- 3.4.71 The Climate Change Scotland Act (2019) includes a target date of 2045 for achieving net zero. Improvements to bus infrastructure and the reallocation of road space should encourage modal shift from the car to more sustainable modes, which in turn should reduce traffic related levels of carbon emissions and contribute to the aspirations for net zero carbon by 2045.
- 3.4.72 Greenhouse gas emissions (as reported through the analysis of the ASAM19 modelling outputs in TUBA), and the modelled option's impact on vehicle kilometres across the Aberdeen road network were presented as key indicators (IND5 and IND6) under TPO2. The analysis showed that under Option 5 and 5A the benefits of modal shift outweigh the greenhouse gas 'cost' of reducing road space (causing traffic rerouting and increased carbon emission) for general traffic.

Table 3:10: Climate Change Appraisal

Option	Assessment against Climate Change Criteria	Impact
BAU	No change from existing situation, although (as noted above) buses across existing operator fleets in Aberdeen and Aberdeenshire are already progressing towards lower carbon emissions. There is however likely to be a continuing decline in the number of bus passenger journeys and bus service vehicle kilometres operated across the network and as such a modal shift towards the car (with car ownership, car trip frequency and car driver and passenger travel to work mode share in Aberdeen remaining higher than in other Scottish cities).	x
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	Greenhouse gas impacts are likely to be worse than in Option 2 (see below), given that no service enhancements are included in this option and a lower modal shift is anticipated.	x
Option 2: Enhanced existing commercial services using enhanced infrastructure	Modelling estimates -£1.2m in greenhouse gas 'benefits' (i.e., disbenefits) but a reduction in vehicle kms (the smallest reduction of all options). This indicates that while modal shift has occurred (as noted in the Environment section above), the reduction in vehicle kilometres is not enough to outweigh the impact of additional re-routeing emissions. Bus km, and hence emissions from buses will also increase through the provision of increased service provision on the ART corridors, with no changes to other services.	x
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	Similar to Option 2, but an integrated existing bus network would reduce overall bus carbon emissions across the network through the reduction of bus congestion across the ART network. Nevertheless, it is estimated that Option 3 will generate a disbenefit in terms of greenhouse gas emissions.	x
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	Anticipated to generate greater modal shift than Option 3 through bus branding and new ART platforms generating a more perceived step change in public transport and an improved offering. In addition, increased stop spacing and fewer stop-start movements should reduce greenhouse gas emissions from buses. This greater modal shift should reduce vehicle kilometres more greatly than under Option 3, offsetting additional emissions due to traffic redistribution across the network, but this may not be enough to outweigh the additional emissions and generate a positive greenhouse gas overall benefit.	-
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	Anticipated modal shift greater (and hence carbon emissions lower) than Option 3 given the new ART cross-city services operating with distinctive fully accessible vehicles, but a lower carbon emissions benefit than Option 5. As noted above, this greater modal shift should reduce vehicle kilometres more greatly than under Option 3 and 3A, offsetting additional emissions due to traffic redistribution across the network. However, bus km, and hence emissions from buses will also increase through the provision of new ART services across the network but with no changes to existing services.	-

Option	Assessment against Climate Change Criteria	Impact
Option 5: New ART services and vehicles with revised / integrated existing services	Generates the greatest modal shift of all options and provides similar greenhouse gas benefits under both the 'with policy' and 'without policy' scenario, but vehicle kilometres are more reduced (compared to the corresponding scenario BAU Reference Case) in the 'without policy' forecast scenario. TUBA indicates that the option will generate +£1.6m in greenhouse gas emission benefits under both the 'with policy' and 'without policy' scenarios. Further reductions in carbon emissions may result from the earlier introduction of zero emission ART vehicles. The estimated emissions reduction supports the project outcome for a targeted reduction in transport emissions to net zero by 2045. <i>Under the Option 5 sensitivity test (Test 5P) vehicle kms and greenhouse gases reduce considerably more than the options, resulting in a higher greenhouse gas benefits of +£5.1m under the 'with policy' scenario. This is not unexpected given the higher modal shift achieved under this option compared to other options. This again reinforces the importance of considering supporting measures as part of the ART scheme.</i>	✓✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	Shows a substantial reduction in vehicle km relative to Option 2, and TUBA modelling indicates that in the 'with policy' scenario, modest greenhouse gas emissions benefits of approximately +£0.6m can be expected. The estimated overall emissions reduction supports the project outcome for a targeted reduction in transport emissions to net zero by 2045.	✓

Health, Safety and Wellbeing Appraisal

3.4.73 Safety, in terms of accidents and security was discussed as a key metric in TPO2.

Health Outcomes

3.4.74 Most journeys by public transport involve an element of active travel and if modal shift can be delivered, this will encourage more active lifestyles by building in additional walking or cycling as part of the overall trip. The additional provision of safe and secure cycle parking at ART platforms under Options 3A, 4,5 and 5A, would encourage the use of cycling to access the ART network while the main footway route will be made fully accessible with pedestrians provided priority over motorised traffic where needed.

3.4.75 Although modal shift from walking trips to ART is considered unlikely, there is some potential for cyclists switching to bus, but as cycle improvements are proposed on, or parallel to all ART corridors, the scale of this shift is expected to be low. The potential to cycle to join public transport would be well integrated in Options 3A, 4, 5 and 5A where the new ART platforms would incorporate cycle parking where possible.

3.4.76 Public Health Scotland published *Road space reallocation in Scotland: A health impact assessment*¹²² in 2022. The research concluded that **road space reallocation is likely to benefit health and equity through multiple pathways**, including:

- positive impacts on health by reducing overall levels of private motorised traffic, encouraging walking, wheeling and cycling, realising benefits from alternative uses of space and supporting local businesses

- the potential for positive impact on public transport if space is reallocated to prioritise buses, but bus users can also be disadvantaged if bus routes are diverted or stops impeded
- reallocation can improve transport and health equity if it increases support for modes other than car use, but disabled people may be disadvantaged if the reallocated space, and alternative modes, are not accessible for them.

3.4.77 In addition, Public Health Scotland published *Transport Poverty: a public health issue*¹²³, in early 2024. The publication defines transport poverty in terms of the availability of transport options, the reliability of transport options, the affordability of transport, the accessibility of transport, and the safety and healthiness of travel conditions. The report states that if any of these aspects are not met there is a risk of transport poverty and provides an overall definition that *transport poverty is the lack of transport options that are available, reliable, affordable, accessible or safe that allow people to meet their daily needs and achieve a reasonable quality of life*.

3.4.78 The report states that *in addition to the direct influence of the transport system, spatial planning, service delivery, individual sociodemographic and household conditions can also contribute to transport poverty*. Importantly, the report notes that the causes of transport poverty are underpinned by a wider car culture in which *car use is perceived to be the default way to travel*.

3.4.79 The publication sets out how transport poverty can affect health in various ways, including reducing access to health and care services, and increasing exposure to transport-related health harms, such as pollution and injury from collisions.

3.4.80 The report states that eliminating transport poverty can help to improve health, reduce health inequalities, and support the just transition to a net-zero and climate-resilient Scotland. Action to

¹²² [Road space reallocation in Scotland - Publications - Public Health Scotland](#)

¹²³ [Transport poverty: a public health issue. Summary](#)

achieve this should be delivered by a range of sectors and be part of a wider approach to implementing the sustainable transport hierarchy. Key actions to support this include increasing investment in sustainable transport options to improve the frequency, reliability, accessibility, integration, affordability and safety of services and infrastructure. ART is fully aligned with this action and can play a significant role in addressing some of the causes of transport poverty. The options providing the greatest improvement in terms of journey times, reliability, accessibility and safety are more likely to provide the greatest benefit i.e. Option 5 is more likely to provide a greater benefit than Option 2. As the ART network connects directly to the Foresterhill Health Campus, the main regional centre for healthcare, it directly improves access to core health and care services (with access improvements discussed for each option against *TPO1 – IND3: Access to Healthcare: Population able to access Foresterhill Health Campus by public transport in less than 60 minutes.*)

Access to Health and Wellbeing Infrastructure

- 3.4.81 Aberdeen Royal Infirmary (ARI), located within the Foresterhill Health Campus, is the largest hospital in the NHS Grampian region and provides tertiary care for approximately 600,000 people residing in Aberdeen City, Aberdeenshire and Moray meaning that people travel to ARI from as far west as Forres and as far south as Laurencekirk.
- 3.4.82 Under **Option 2, 3 and 3A**, the frequency of services on the A944 corridor part of the ART network (existing 14 bus route) will be increased to one every ten minutes (currently around 1-2 per hour), which will improve access to Aberdeen's main health facilities including the ARI and also Aberdeen Maternity Hospital, and Royal Aberdeen Children's Hospital, as well as Royal Cornhill Hospital. Increased frequency on the 14, 727 and 7B services (the other enhanced existing services in these options) would additionally improve access to the following parks and sports facilities, supporting healthy lifestyles: Curl Aberdeen and Aberdeen Indoor

Bowling Club adjacent to the A944, Bucksburn Swimming Pool and Woodside Sports Complex adjacent to the A96 and Duthie Park, Kincorth Football Pitches, Bridge of Dee Park and Goals Aberdeen adjacent to the B9077.

- 3.4.83 Under **Options 4, 5 and 5A**, the new ART services would connect Westhill with Bridge of Don, routeing directly past Aberdeen's main healthcare facilities as noted above, providing at least a bus every 10 minutes per direction per hour (current modelled assumption), shortening journey times and also providing direct connectivity with the Bridge of Don (and the employment focus within the area), which does not exist at present. ART platforms would be located to provide good access to the Foresterhill Health Campus and to local parks and green open spaces that encourage recreational and play activities, such as:
- the Aberdeen Aquatics Centre, Aberdeen Sports Village and Royal Aberdeen Golf Club located close to the A956(N),
 - Woodside Sports Complex along the A96,
 - Curl Aberdeen, Aberdeen Indoor Bowling Club and Aberdeen Tennis Centre, Westburn Park and Victoria Park along the A944
 - Duthie Park, Kincorth Football Pitches, Bridge of Dee Park, and Goals Aberdeen adjacent to the B9077
 - Burnside Park in Portlethen itself.
- 3.4.84 Modelling data has been interrogated to identify how each of the modelled options may affect the number of people who could reach ARI within one hour, by road and by public transport during the AM Peak in 2045. The results were summarised in the appraisal against TPO1 as a key indicators (IND3) and showed that (under the 'With Policy') scenario, Option 5 performs the best, allowing an additional 28,000 (+14%) people access to ARI within 60 minutes by public transport, and similar results are seen under the 'without policy' scenario.

Visual Amenity

- 3.4.85 The ART network implementation will facilitate modal shift from car to ART. This will reduce traffic on the ART corridors and reduce the intensity of traffic movements along the corridors, providing benefit to those living and working along the corridors. The reallocation of road space from general traffic would also further reduce the traffic intensity on the corridors. All of this would improve visual amenity.
- 3.4.86 It is however noted that there may be disbenefits to other roads / routes if there is traffic re-routing, rat running due to the road space reallocation on the corridors. This would have negative impacts on those residing away from the corridors from whom traffic levels may increase, especially in neighbourhoods where the road network is not suitable for higher traffic volumes. In such instances, this should be mitigated against, with the mitigation being considered in greater detail at OBC stage once a preferred option has been agreed.
- 3.4.87 Finally, under Options 2 and 3, existing bus stops will be upgraded and under Options 3A, 4, 5 and 5A, new ART platforms will be installed, and existing bus stops removed on ART corridors. More attractive, modern bus stopping infrastructure should improve visual amenity and under these options will also reduce street clutter and increase space for pedestrians by approximately halving the number of stops.

Table 3:11: Health, Safety and Wellbeing Appraisal

Option	Assessment against Health, Safety and Wellbeing Criteria	Impact
BAU	A continuation in the existing downtrend trend in bus passengers and service kilometres will likely result in greater car use. Increased car use is likely to increase personal injury collisions . This does not align with the ART vision.	✗
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	Modal shift from car to bus and the reallocation of road space will reduce traffic across the ART network which should result in a reduction in personal injury collisions . Any reduction in accidents would provide savings to the public purse from the reduced social-economic cost. All public transport-based journeys inevitably involve an element of active travel and if modal shift can be delivered, this will encourage more active lifestyles by building in additional walking or cycling as part of the overall trip and improving health outcomes compared to the BAU.	✓
Option 2: Enhanced existing commercial services using enhanced infrastructure	Similar to Option 1 but with enhanced services across the ART network likely encouraging greater modal shift and therefore a greater reduction in personal injury collisions and an increased benefit in health outcomes . The option is expected to provide a minor improvement in terms of the accessibility of health infrastructure, parks and green spaces. 5% (11,000) more people will be able to access the ARI within one hour by public transport.	✓✓
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	Anticipated to be similar to Option 2.	✓✓
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	Option 3A introduces new distinctive ART platforms. Platforms would be well lit, offer good levels of natural surveillance and likely to include CCTV and/ or help points. This would offer improved security over current stops which can be poorly lit and positioned in secluded locations and/ or where visibility to and from the stop is obscured by street furniture, parked cars or highway structures. Additionally, stops on ART corridors will be rationalised, which will reduce street clutter and create greater pedestrian space. There is anticipated to be a greater reduction in personal injury collisions and an increased benefit in health outcomes than in Option 2 as a greater modal shift is anticipated.	✓✓
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	Anticipated modal shift greater (and hence a greater reduction in personal injury collisions and an increased benefit in health outcomes .) than Option 3 and 3A given the new ART cross-city services operating with distinctive fully accessible vehicles. Access to ARI by public transport is anticipated to improve more greatly than in Option 2 given the operation of cross-city services removing the need for interchange between services to the site for many. The anticipated benefits support the project outcome for an increase in active travel and supporting healthy lifestyles, equal access for all, and a healthier environment in the city and enabling redesign of public spaces .	✓✓

Option	Assessment against Health, Safety and Wellbeing Criteria	Impact
Option 5: New ART services and vehicles with revised / integrated existing services	Similar to Option 4 but with an even greater modal shift anticipated (and hence a likely greater reduction in personal injury collisions and an increased benefit in health outcomes). The option will benefit from modern rationalised stops, yielding benefits to security and visual amenity as noted under Options 3A, in addition to high specification tram-style vehicles which provide audio and visual announcements, two sets of doors suitable for wheelchair boarding/alighting, a wider corridor and more internal space for wheelchairs and prams. All of these factors will support inclusion and ease access to healthcare facilities. Given the shorter travel times which can also be delivered by the Options 5 an additional 28,000 people (14%) should be able to access ARI within one hour by public transport, under the modelled 'with policy' scenario. Under the 'without policy' scenario, Options 5 is expected to increase the ARI one hour public transport catchment by 27,000 people, (13%). The anticipated benefits support the project outcome for an increase in active travel and supporting healthy lifestyles, equal access for all, and a healthier environment in the city and enabling redesign of public spaces.	✓✓✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	The option will benefit from modern rationalised stops, yielding benefits to security and visual amenity as noted under Options 3A, 5 and 5. Option 5A is estimated to improve the one hour public transport catchment of ARI by approximately 12% (+24,000 people), the benefit being driven by both the proposed infrastructure and new cross-city services reducing interchange requirements. The anticipated benefits support the project outcome for an increase in active travel and supporting healthy lifestyles, equal access for all, and a healthier environment in the city and enabling redesign of public spaces.	✓✓

Economy

3.4.88 The assessment of the economic benefit of the options has included consideration of:

- The economic context of Aberdeen and Aberdeenshire and the economic benefits ART could deliver
- Transport Economic Efficiency
- Wider Economic Benefits
- Impact on existing services
- Indication of Benefit to Cost Ratios

Economic Context

3.4.89 As set out in the introduction, as Scotland's third largest city, Aberdeen is an important centre for commerce, culture, retail and leisure for those within the city and across the wider Aberdeenshire region. An update to the RES in 2022/23 recognised the changed economic position in the North East and the range of new challenges and opportunities. The strategy states that *'recent trends in the region highlight the increased importance of the Town Centre Regeneration Plans and the City Centre and Beach Masterplan to support town/city centre recovery'*.

3.4.90 The RES recognises the wealth of ongoing change within Aberdeen itself, focussed on the CC&BMP¹²⁴, a 20-year regeneration blueprint that is transforming the city centre while conserving its proud heritage. Included in the CC&BMP objectives are objectives **to grow the city centre employment base**, as well **be environmentally responsible**. Therefore, the planned growth

in the CC&BMP area needs to be accompanied by an increase and improvement in public transport access which can stimulate economic growth and create jobs, reducing city centre congestion and allow more people to access these opportunities. ART has a clear role in this with the improved accessibility provided by ART offering greener, and increased, connectivity to jobs. **Options 4, 5 and 5a** have been shown to generate the greatest increase in connectivity to jobs (TPO1 – IND1), and the labour market / economic benefits derived through this, with cross-city services providing faster access and reducing and removing the need to interchange.

3.4.91 As noted in the Case for Investment, the Aberdeen City and Shire SDP focusses development in four strategic growth areas aligned with the region's strategic transport corridors and include the A90 to both the north and south of Aberdeen and the A96 corridors, to which the ART network is aligned in the north, south and north-west. ART therefore has an underpinning role to play in help catalyse the unlocking of development on these corridors through the provision of fully accessible, sustainable transport alternatives.

Key Point: Improved public transport has a major and multi-faceted role in ensuring successful delivery of not only transport policy but wider social, environmental, planning, social inclusion, carbon and energy, and economic policy. Importantly, sustainable and equitable public transport has a core role in supporting the delivery of the CC&BMP and unlocking development on the region's three identified growth corridors radiating out from the city centre.

¹²⁴ [City Centre Masterplan | Aberdeen City Council](#)

Transport Economic Efficiency

3.4.92 The assessment of the economic benefit of the options has included deriving the **Transport Economic Efficiency** (TEE) monetised impact of the modelled options on both road traffic and public transport using TUBA. In line with guidance, these figures reflect a 60-year appraisal period with all monetary values discounted to 2010 values and prices. Public transport benefits primarily arise through monetised changes in travel times. Given the significant road space reallocation under the options and the associated traffic re-routing, the TEE analysis also provides a monetised estimate of this impact.

3.4.93 Section 3.2 set out a range of **caveats** which are expanded on here:

- **Routing:** The results were derived prior to the detailed appraisal of ART routing set out in Section 0. The network used in the analysis and the resultant outputs therefore do not align precisely with the network now recommended for progressing with through OBC.
- **Infrastructure:** The ART infrastructure assumed in the testing reflected the position at that time, when some of the MMCS were still in progress. Therefore, assumptions around infrastructure were required in places. In addition, as the MMCS designed for public transport and active travel modes, in places (especially where road space was constrained) decisions were taken (before the emergence of ART) to prioritise active travel provision over public transport. This means there are locations where the assumed infrastructure has a negative impact on ART and the benefits are reduced i.e., where a bus lane cannot be provided or has even been removed to enable the provision of continuous active travel infrastructure.

- **Mitigation:** The testing was undertaken without any measures to mitigate against traffic re-routing across the network – given both the potential scale of this exercise and because the corridor studies were progressing independently. The scale of traffic re-routing is borne out in the results below. However, with such mitigation measures in place, re-routing would be reduced, and it is likely that such mitigation measures would further encourage modal shift to public transport and potentially benefit active travel, likely increasing public transport TEE benefits (but also potentially increasing general traffic disbenefits).

3.4.94 It is important to recognise that the quantitative economic impacts presented here only represent a part of the overall appraisal picture and **the monetised benefits the options therefore only present a partial picture of the scheme at that time in terms of the overall policy landscape**. The modelling of updated routing, infrastructure and modelled behavioural response / mitigation will form a key part of the **OBC and therefore the picture presented here may change substantially**.

Table 3:12: Transport Economic Efficiency (TEE)

Scenario	Option	TEE (millions)		
		Road	Public Transport	Overall TEE benefit
With Policy	2	-£233	+£111	-£122
	5	-£210	+£196	-£14
	5A	-£220	+£156	-£64
	5P (sensitivity)	-£180	+£201	+£21
Without policy	5	-£307	+£182	-£125

- 3.4.95 The table shows there are both significant benefits to public transport users as well as significant disbenefits to general traffic under all modelled options. There are significantly higher disbenefits to general traffic for Option 5 under the 'without policy' scenario where traffic levels are higher and there is more congestion in the BAU Reference Case - indeed **general traffic disbenefits are nearly £100m higher in the 'without policy' forecast situation.**
- 3.4.96 The Option 5 'with policy' and 'without policy' results both show a similar public transport journey time benefit. However, given the differing underlying BAU Reference Case scenarios, this benefit has a different composition with:
- A greater proportion of the benefits derived under the 'with policy' scenario result from existing bus users transferring to ART services – a larger number of people benefit by a smaller amount
 - More of the benefit generated through new bus users in the 'without policy' scenario – a smaller number of people benefit to a larger amount
- 3.4.97 It can be surmised that the benefits for Option 3 would lie closer to that of Option 2, and those of Option 3A and 4 closer to that of Option 5A. The benefits of Option 1 (Do Minimum) are likely to be lower than Option 2.
- 3.4.98 It should be borne in mind that disbenefits to general traffic should be viewed in the policy context where reductions in car-km are sought – an aim of many transport policies and initiative. Behavioural change requires both 'pull' factors (through the provision of high quality and efficient public transport) but also 'push' factors, such as increased car journey times to make travelling by car less attractive. The potential adverse impacts to freight traffic are however acknowledged, and future engagement with the freight sector is required to ensure the movement of

goods, and the potential impacts on businesses, are understood and mitigated against.

Key Point: At the time of the STAG work, ART generated significant public transport benefits as well as significant disbenefits to general traffic. Under all options, and with the assumptions used at that time, disbenefits to general traffic outweigh the benefits to public transport users, meaning the overall TEE impact was negative. Disbenefits to general traffic are substantially higher under the higher traffic, 'without policy' scenario.

It is however inevitable that a project which reallocates roadspace away from general traffic will have a negative impact on general traffic and this is something seen regularly, and is accepted in urban areas across the country where certain policy directions are followed. The OBC will address this key issue by: (i) sensitivity testing around the ASAM19 model's representation of modal choice in response to improved public transport, and (ii) developing mitigation measures to deter re-routing and encourage more modal shift from car to ART. We therefore anticipate that the scale of disbenefits will reduce as the proposals are developed further.

Sensitivity Test Option

- 3.4.99 The sensitivity test 5P is as per Option 5, except it is assumed that parking costs are doubled in the city centre as a proxy for traffic restraint measures. By increasing the cost of car use (i.e., making the BAU 'worse'), this boosts the relative attractiveness of bus travel and results in an overall TEE benefit of £21m. This **highlights the additional benefits that ART could achieve if appropriate supporting measures, such as parking policy, were implemented alongside the scheme.** Indeed, the sensitivity test is the only option where the benefits to public transport are greater than the disbenefits to general traffic – therefore generating a positive TEE overall.

Wider Economic Benefits - Narrative

- 3.4.100 Large transport projects can accrue benefits which are not captured by traditional cost benefit analysis. For example, wider labour market catchments for businesses and changes in property values through improved accessibility. These wider impacts are additional and separate to standard transport user benefits.
- 3.4.101 The analysis presented against the indicators for TPO1 highlighted a range of connectivity improvements to key employment sites.
- 3.4.102 Furthermore, both static and dynamic agglomeration benefits are likely to be accrued as the ART scheme would increase the effective 'economic density' of Aberdeen. Agglomeration impacts are the productivity benefits which result from businesses being located in closer proximity to each other (i.e., clustered):
- *Static agglomeration* effects occur where there is no change in location of residences or workplaces (i.e., not change in spatial concentration), but the cost of interaction between workers, businesses and consumers decreases
 - *Dynamic agglomeration* reflects the situation where transport improvements make an area more attractive to live, shop or do business, which can result in people and businesses relocating to that area. This will increase the effective economic density of that area and so yield positive productivity impacts; however, there may be a corresponding decrease in economic density elsewhere which generates negative productivity impacts.
- 3.4.103 Agglomeration is particularly relevant in an environment like Aberdeen where there is a high concentration of businesses and employees working within the energy industry. Shorter travel times (which ART would provide) mean lower transport costs, and a larger potential pool of jobs and employees to support businesses i.e. there are static agglomeration benefits.

3.4.104 It is considered unlikely that significant dynamic agglomeration will occur as a result of ART, given the nature and scale of proposals, but some minor dynamic impacts are anticipated.

3.4.105 While the value of agglomeration benefits has not been quantified to date (this will be done in the OBC), the Full Business Case for the Edinburgh Tram York Place to Newhaven Project (February 2019) notes that "*the inclusion of [agglomeration] benefits for public transport projects in large urban areas (UK, outside London) typically adds in the range of 15% to 40% above conventional transport benefits*" (albeit as a sensitivity test).

Indication of Benefit to Cost Ratio

3.4.106 An assessment of the Benefit to Cost Ratio (BCR) of the options was undertaken in the STAG work, with inferences then made as to the likely BCR of the options not modelled. This is not normally undertaken as SBC stage, but is included here as these reports are in the public domain. It should be noted however that the BCR assessment is subject to the same caveats as set out in Section 3.4.92 as well as these additional points.

3.4.107 **Scheme Costs – Active Travel:** The estimated scheme costs used in the BCR calculation in the STAG work were derived from the MMCS, where designs were developed for bus and active travel modes. As such, they include costs associated with the provision of both ART *and* active travel infrastructure. Design decisions (such as junction specification, signalling etc., as well as the removal of the central reservation, kerb lines etc.) were undertaken to accommodate both modes within the available space and the most 'expensive' design elements reflect the need to accommodate active travel infrastructure. As such, the cost used in the BCR is significantly higher than it would be if ART had been designed as a single mode project. Additionally, in line with the 'transformational' approach to corridor design employed in the MMCS, the active travel infrastructure costs could also be viewed

as of the highest standard and therefore a 'worst case' in terms of costs.

3.4.108 **Benefits – Active Travel:** This SBC has been developed focussed on ART, with benefits considered for public transport (and general traffic) and no inclusion or consideration of active travel benefits derived from this infrastructure. As such, the BCR does not reflect the full benefits of the infrastructure to which the costs relate.

3.4.109 These issues are discussed further in the Financial case.

3.4.110 **Date of Scheme Costs:** Lastly, to ensure consistency with the STAG work, scheme costs used in the BCRs presented here are those derived at that time (2021 prices). Revised network costs are presented in the Financial Dimension, with these costs derived on the final recommended network and using the latest design drawings for the corridors.

3.4.111 Notwithstanding the noted caveats, the BCRs from the STAG work are presented to provide an initial indication of the Value for Money (VfM) of the scheme, as modelled at that time and to provide a focus for subsequent OBC work. **Given the range of caveats set out here, these BCRs should therefore not be taken as indicative of the likely BCRs at OBC stage** where much greater in-depth assessment is required to monetise and capture, as far as possible, the wide range of scheme benefits, with more detailed modelling required with includes allowance for mitigation to prevent undesired general traffic redistribution.

BCR Estimates

3.4.112 The work undertaken to inform the BCR considered:

- **monetised benefits** in relation to travel time, fuel and vehicle operating costs, greenhouse gases and indirect tax associated with spend on fuel changes (as derived through TUBA as set out above and in the Climate Change appraisal)

- **cost estimates for the ART infrastructure** given the available information from the ongoing infrastructure design work at the time of the assessment (with optimism bias included as appropriate).
- **operating cost estimates** – including variable costs (staff, maintenance, fuel and tyres), semi-variable costs (vehicles, finance and operational costs such as insurance and cleaning) and fixed costs such as overheads. In the modelled options where the underlying bus network has been integrated into the ART network (Options 5 and 5A), the overall operating costs for the city-wide bus network is lower than under Option 2 (where additional services are provided on the ART corridors), despite the addition of the new cross-city services, although these costs are still increased relative to the base position.
- **vehicles** – where it was assumed that vehicle costs are depreciated over the life of the vehicle as per accounting conventions. This means that vehicle costs represent an annual operating cost, borne by the operator. However, the financing of new vehicles, and by whom, needs further consideration as the ART scheme and delivery mechanism become clearer. The assessment included the additional cost to acquire the new tram-style vehicles and some further cost likely required at maintenance depots (in Options 5 and 5A). Furthermore, where the option includes the integration of existing services with the ART network (as in modelled Options 5 and 5a) there is then a lesser vehicle requirement for existing services. This will offset vehicle costs.
- **revenue** – modelled outputs were utilised within TUBA to generate an estimate of changes to public transport revenue including both lost revenue from integration of existing bus network, any increased revenue existing services, and ART revenue. More detailed revenue modelling will be required at OBC stage.

3.4.113 The monetised capital and revenue costs when compared with scheme benefits, provide an indication of the benefit to cost ratio (BCR), or 'value for money', of each option.

Table 3:13: Present Value of Benefits and Costs and Benefit to Cost Ratio

Scenario	Option	Present Value of Benefit (PVB) (millions)			Present Value of Cost (PVC) (millions)	BCR Road and PT
		Road	PT	Total Benefit		
With Policy	2	-£244	+£49	-£195	£84	-2.3
	5A	-£228	+£218	-£10	£91	-0.1
	5	-£216	+£272	+£56	£91	+0.6
	Sensitivity Test 5P	-£176	+£285	+£109	£91	+1.2
Without policy	5	-£318	+£263	-£55	£91	-0.6

3.4.114 The results indicate:

- ART will generate significant public transport benefits
- The benefits to users of public transport are offset by the disbenefits to general traffic. Under the 'with policy' scenario, with general traffic disbenefits included, the BCRs range from approximately -2.3 (for Option 2) to +0.6 (for Option 5). Future scheme development should seek to minimise these impacts for essential traffic and mitigate the impacts of any re-routing.
- The potential value for money increases further should supporting traffic restraint measures also be introduced (as

per Sensitivity Test 5P), with the BCR estimated at +1.2. This **reaffirms the additional benefits that ART could achieve if the appropriate supporting traffic restraint measures, such as parking control policy, were implemented as part of the scheme.**

- As demonstrated, through the testing of Option 5P (Sensitivity Test), supporting measures that further manage the demand for car travel would improve the predicted benefits of ART in terms of mode shift, car kilometre and greenhouse gas reduction. Further work will need to be carried out, within the context of the Local and Regional Transport Strategies and the wider regional policy framework, in order to identify and assess the most appropriate solutions for the North East in terms of managing the demand for car travel. It is unlikely that simply doubling car parking charges within Aberdeen (used as proxy in the model for wider demand management measures) will be an effective means of achieving this outcome. It is not the role of this Business Case to undertake that option development and appraisal but rather for it to identify the additional benefits that such measures could bring and the risks to ART and wider council priorities of not pursuing such supporting measures.

Table 3:14: Economy Appraisal

Option	Assessment against Economy Criteria	Impact
BAU	Does not support the CC&BMP objectives to grow the city centre employment base , as well as be environmentally responsible .	✗
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	It is assumed that the TEE benefits for Option 1 (Do Min) would be less than that of Option 2 given the lower anticipated modal shift meaning a lower public transport benefit but with similar road disbenefits.	✗
Option 2: Enhanced existing commercial services using enhanced infrastructure	TEE analysis indicates that Option 2 will generate an overall TEE dis-benefit of £122m. This disbenefit, when compared with scheme costs, generates a BCR of -2.3.	✗
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	It can be surmised that the TEE benefits for Option 3 would lie close to that of Option 2 given the similar infrastructure proposals but greater anticipated modal shift under the option. Given this, a BCR figure of around -2 is anticipated. Option 3 also includes the integration of the existing bus network and the economic impacts on the operator and on passengers if services are removed or reduced as a result would need to be carefully managed (if the bus network continued to be operated under the existing commercial bus model).	✗
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	It can be surmised that the TEE benefits for Option 3 would lie somewhere between those of Option 2 and 5A given the similar infrastructure proposals but greater anticipated modal shift under the option than in Option 3 given the new ART platforms and vehicle branding. Given this, a BCR figure of between -2 and 0 is anticipated. Similar to Option 3, the option also includes the integration of the existing bus network and the economic impacts on the operator and on passengers if services are removed or reduced as a result would need to be carefully managed (if the bus network continued to be operated under the existing commercial bus model).	✓
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	It is assumed that the TEE benefits for Option 4 would be similar to Option 5 given the similar proposed new services, vehicles and platforms generating similar journey time benefits. However, no change to the underlying bus network is proposed and as such the cost of operation of ART 'layered' on to the existing network is likely to impact on the viability of both existing services and the new ART services , likely resulting in significant economic disbenefits through the overall network delivery cost. More detailed consideration and modelling of the potential impact of this at OBC stage is required if this option is to progress (the recommendation here is that it does not progress for this reason). Given this, a BCR figure of less than 0 is anticipated.	✗
Option 5: New ART services and vehicles with revised / integrated existing services	The public transport benefits are only slightly lower than road disbenefits, resulting in an overall TEE benefit of -£14m and a BCR of approximately +0.6 is estimated. It is considered likely that with appropriate traffic mitigation to prevent re-routeing (and in doing so encourage greater modal shift) an overall positive TEE benefit could be achieved. More detailed consideration and modelling of mitigation at OBC stage is required to confirm this.	✓✓

Option	Assessment against Economy Criteria	Impact
	As noted above, the operating costs for the city-wide bus network (with new ART services and an integrated underlying network) is lower than under Option 2 (where enhanced services are provided on the ART network). The change in operator revenue under these options (taking account of gained revenue from ART services and lost revenue from the underlying network) is greater than the change in operating costs. Based on the model outputs, ART could be introduced with a net operating surplus. <i>The potential value for money increases further should supporting traffic restraint measures also be introduced (as per Sensitivity Test 5P), with the BCR estimated at +1.2. This reaffirms the additional benefits that ART could achieve if the appropriate supporting traffic restraint measures, such as parking control policy, were implemented as part of the scheme.</i>	
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	The public transport benefits are lower than road disbenefits, resulting in an overall TEE dis-benefit of -£64m and an estimated BCR of -0.1. It is considered that with appropriate traffic mitigation to prevent re-routeing (and in doing so encourage greater modal shift) an overall positive TEE benefit could be achieved. More detailed consideration and modelled of mitigation at OBC stage is required to confirm this.	✓

Equality and Accessibility

3.4.115 The ART vision states that ‘ART will need to support connectivity with other forms of transport, meet specific accessibility needs and recognise that not all users benefit from access to the internet and smart technologies.’ An **Equality Impact Assessment (EIA) Screening** exercise undertaken to support the options appraisal can be referred to for greater detail (see *ART Detailed Options Appraisal - Supporting Technical Note I - Equality Impact Assessment – Screening, Stantec, 2023*). Discussions with the Aberdeen Disability Equity Partnership and various Aberdeenshire Access Panels have also informed this appraisal. Furthermore, targeted questions on specific features of the potential ART network were asked during the market research exercise discussed in Chapter 2.

3.4.116 Various features of the options pertinent to equality and accessibility are discussed in the table below.

Table 3:15: Equality and Accessibility – Key Network Features Discussion and Appraisal

Feature	Commentary	Benefit / Impact	Option in which feature included							
			BAU	1	2	3	3A	4	5	5A
Vehicles	New tram-style vehicles, alongside new ART platforms would provide completely level boarding and alighting (like that experienced at a tram stop) via multiple sets of doors, with the vehicles providing a wider corridor for manoeuvring and space to accommodate numerous wheelchairs, pushchairs and prams. ART vehicles would also be covered by on-board CCTV and have real-time visual and audible information, ensuring the information is appropriately communicated to all. Drivers of ART vehicles will also receive enhanced training, above and beyond that received by most bus drivers, and will be able to provide help those who require support with boarding and alighting	Benefit						•	•	•
Platforms	All options propose improvement to bus stop infrastructure, but specifically options proposing new ART platforms would provide highly visible and well-lit stops and feature CCTV, helping to deter anti-social behaviour and/or harassment of stop users. Stops will provide seating arrangements and shelter for waiting passengers, as well as real-time information screens which will notify users of how long they will have to wait until the next bus. Such improvements will offer benefits to those with a long-term illness or disability, the elderly and children, women and some ethnic minority groups (who are more likely to be subject to hate crimes and discrimination) through improving both safety and security at stops as well as through the improved physical waiting environment	Benefit					•	•	•	•

Feature	Commentary	Benefit / Impact	Option in which feature included							
			BAU	1	2	3	3A	4	5	5A
Stop Spacing	It is recognised that certain groups will be impacted disproportionately by wider stop spacing (with stops up to 800m apart – bus stops at present are located between approximately 150m – 400m apart depending on location). The wider spacing will necessitate a longer walk to access bus stops. This is particularly pertinent for the elderly, disabled and those with children, and in places where the removal of parking (to enable road space reallocation) would increase walking distances between cars and homes. This can adversely affect the elderly, disabled, and those with children (although it is noted that the corridor studies are also considering active travel and, as part of this, improving the walking environment which encompasses improvements in walking routes to bus stops). Ongoing and continuous dialogue with equalities groups and local communities is fundamental as the scheme progresses, with improved walking access to bus stops considered as part of the ART project. A balance is needed between bus stop spacing to reduce journey times alongside ensuring accessibility to the ART network for all.	Impact					•	•	•	•
Integration of the underlying network	Some options include the integration of the existing bus network to minimise the duplication of services and associated operating costs and 'bus congestion', while maximising the potential for a financially viable bus network across the city and wider region. The reduction or removal of any existing 'local' buses is likely to impact those less able to easily access the ART network and is likely to disproportionately impact those with a disability or mobility problem, the aged and those with children. Engagement with local communities as the study progresses will be vital to fully understanding the potential impacts once a greater understanding of where any changes required is more firmly known.	Impact					•		•	•
Cross-city services	Some options provide cross-city services which do not currently exist, reducing the waiting and interchange requirements of these trips and benefitting those with mobility problems.	Benefit						•	•	•
Ticketing	Various options for ticketing for the ART scheme have been explored (discussed in <i>ART Detailed Options Appraisal - Supporting Technical Note D - Ticketing_V2</i> , Stantec, March 2023). It is noted that any changes to ticketing should ensure simple fare scales, multiple options for ticket duration and specific products aimed at key user groups, ensuring balanced affordable fares. Advantage would be taken of the latest	Benefit			•	•	•	•	•	•

Feature	Commentary	Benefit / Impact	Option in which feature included							
			BAU	1	2	3	3A	4	5	5A
	developments in electronic ticket system technology while maintaining accessibility for users who rely on cash. As such, ticketing across the ART network should be accessible to all, and it is expected that all concession cards will be valid on ART services									
Shorter journey times	With reduced bus journey times and increased car journey times, the travel time differential between the two modes will decrease. This will increase accessibility by public transport and expand the number of jobs, educational opportunities, and services within reach of those living, working and visiting the city. This will help to 'level the playing field' in terms of opportunity, between those who do and do not have access to a car. The impact will be more greatly felt under Option 5, 5A and 5P where the journey time benefits to public transport are greater, and this is borne out in the journey time improvements discussed above with regards to TPO1, where significant benefits for cross-city travel by public transport are noted.	Benefit		•	•	•	•	•	•	•
Affordability	The Affordability or otherwise of travel by bus in Aberdeen is currently a result of the commercially set fares in the area. As a core assumption, any new ART services would not be priced as a premium product. Only through a Franchising arrangement could fares be set by a public authority and this is considered further in the Commercial Dimension.	-								
Overall scoring given benefits and impacts			-	✓	✓	✓	✓	✓	✓✓	✓

Public Acceptability

3.4.117 Stakeholder and public engagement undertaken to inform this SBC is set out in Chapter 2, with the engagement activities and outcomes from these used to underpin the Case for Investment and evidence the identified problems that ART seeks to address. Furthermore, the Management Case (Section 6) presents details of rolling marketing and communications work undertaken, the aim of which was undertake an engagement and communications campaign to start to raise awareness, develop understanding, and build widespread support for ART, thus removing a major potential barrier to its successful delivery. **This marketing and communications work focussed on the ART vision and the sought outcomes, and did not cover any specifics with regards to the options developed and appraised within this SBC.**

3.4.118 The outcome of these early activities highlighted:

- There is much positivity surrounding the development of ART. Almost all stakeholders that were engaged with, and a large proportion of members of the public, would welcome ART coming to Aberdeen
- There is a strong groundswell of ambition to see it delivered
- There is an understanding of ART amongst target audiences that is generally in line with the Vision

- Few adverse comments or complaints have been made to Neustrans to date
- 66% of people stating a view felt that ART would be good for Aberdeen

3.4.119 Separate to the marketing and communications workstream, and as discussed in Section 2.3, a **market research** exercise was undertaken via online and phone-based surveys across the region to establish a broadly representative sample of bus users and non-bus users, and Aberdeen City and Aberdeenshire residents. This was undertaken in December 2022 and surveyed 400 Aberdeen City and Shire residents. The research exercise covered two main elements:

- Consideration of the existing bus network and services – with respondents asked to rate how satisfied or dissatisfied they were with different aspects of the bus services available to them. This was discussed in Section 2.3 to support the identification of problems and to underpin the Case for Investment.
- Consideration of the factors which would encourage modal shift – and asking about main elements of the options being appraised, with opinions on an ART ‘approaches’ which broadly aligned with Option 2 and Option 5 as set out in the table below.

Table 3.16: Market Research – Broad Approaches discussed

Approach	Aligned with	Factors Included					
		Bus lanes and bus priority at junctions ensuring segregation from general traffic and congestion	Faster and more reliable bus journeys	Turn up and go bus frequencies with a bus at least every 10 minutes	New cross city services, providing new connections to the Park & Ride sites / new mobility hub	New tram style multi-door low emission vehicles	New stops with safe, secure and comfortable waiting environments
1	Option 5	✓	✓	✓	✓	✓	✓
2	Option 2	✓	✓	✓			

3.4.120 The outcomes from this research are presented here to provide an indication of public support on the ART concept. Note that while the research exercise itself did not use explicitly use the option names, these are used below to more clearly set out public opinion around the options.

3.4.121 Of the 400 residents interviewed:

- nearly 40% stated they would be either ‘extremely likely’, or ‘likely’, to change their travel behaviour if ART (as per Option 5) were implemented (this dropped to 27% under Option 2). This highlights the greater propensity for modal shift under an option which provides new cross city services, new vehicles and new stops (as in Options 4, 5, and 5A)
- 70% stated they would be either ‘willing’ (33%) or ‘maybe willing’ (37%), to walk further to a more comfortable ART stop – as in Options 3A, 4, 5 and 5A
- 72% stated they would be either ‘willing’ (43%) or ‘maybe willing’ (29%), to walk further to catch a faster bus – as in Options 3A, 4, 5 and 5A
- 66% stated they would be ‘willing’ (39%) or ‘maybe willing’ (27%) to accept that general traffic on the main roads where ART services would operate would need to be more restricted to achieve bus service journey time and reliability improvements – as in all the options
- 81% stated they thought ART would be ‘good’ (59%) or ‘maybe good’ (22%) for Aberdeen, with ART being a good news story for the city, providing improvements in access to the hospital and airport, and reducing carbon emissions being key reasons for this view.

3.4.122 Despite the positive outcomes of engagement on the ART concept, it is highly likely that ART will be met with some opposition, particularly by those affected by the reallocation of roadspace and parking space removal or relocation. Consultation undertaken as part of the MMCS, and another recent consultation in Aberdeen on proposals (along Queen Street) involving the reallocation of roadspace to provide space for cycling infrastructure, were

met with strong opposition from some residents and local businesses - although it is important to note the low number of respondents to the consultation and the demographics of respondents overall – which was far from representative of the overall regional demographics. In this regard, **ensuring future engagement on ART gathers a robust sample of fully representative views, especially from those who will benefit as well as disbenefit, is vitally important as ART progresses.**

- 3.4.123 The *Belfast Rapid Transit Phase 2 – Consultation Report*¹²⁵ published in October 2022 noted that the reallocation of road space was an emotive issue, particularly in the retail sector where there were concerns that access to and from their businesses, both for suppliers, staff and customers, would be adversely affected (including any loss of on-street parking). Consultation undertaken as part of the MMCS indicates that this is likely to be a concern within Aberdeen too, with consultation with businesses on King Street, as a recent example, highlighting this as a major concern. However, the Belfast Rapid Transit report highlights that the retail economy along the Glider routes has actually grown, with the Glider service making access to the retail area easier and bringing increased footfall.
- 3.4.124 Changes in on-street parking are likely to be particularly contentious. This was noted by officers involved in the Birmingham Sprint scheme as being very unpopular and a factor which resulted in some design changes to one of the schemes. 'Fly' parking was also a concern from the public living close to the scheme, i.e., people parking on side roads to catch the Sprint bus. The Bristol metrobus scheme ensured no parking was removed outside of shops. Such decisions will need to be closely identified and the impacts understood and discussed with the public as the project progresses in OBC stage. Furthermore, any additional measures to be implemented to support ART (as reflected through the sensitivity test 5P) have the potential to be met with challenge from the public.
- 3.4.125 It is also worth reflecting on the introduction of the bus priority measures along the central section of Union Street in 2022, and the bus priority route created in 2024 on Bridge Street, Guild Street (east of Wapping Street), and Market Street (north of Guild Street) which have been met with resistance from some city centre businesses and members of the public and as such have been the subject of several Elected Member debates since their original implementation.
- 3.4.126 Concerns from both businesses and the general public need to be understood and fully considered as the ART project progresses with appropriate evidence presented to underpin the decision making process. While public acceptability is identified as a high level project risk, it will be important to ensure the project is not undermined by vocal minority interests .**
- 3.4.127 In this regard, it is worth noting the wide range of local community engagement activities undertaken by the Birmingham Sprint team (under a 'Sprint' banner) in the run-up to scheme implementation. This included public realm improvements, local neighbourhood projects and tree planting to create a positive image of Sprint and raise awareness of the scheme and was felt to be highly beneficial in public acceptance of the scheme and implementation success.
- 3.4.128 Freight industry groups also highlighted concerns about loss of road space during consultation undertaken as part of the MMCS. Freight movements will suffer journey time increases where road space is reallocated to public transport, but they obviously do not have the option of switching to public

¹²⁵ [Belfast Rapid Transit Phase 2 – Consultation Report | Department for Infrastructure](#)

transport. **Care will be needed to ensure the needs of the freight industry are understood and that the primary routes into the city are maintained at a level which facilitates the effective movement of goods.**

Benefits and Impacts of ART on Protected Groups

3.4.129 Certain features of the ART network and services could have specific impacts, both positive and negative, on different sections of the travelling public. The EIA Screening exercise discussed above in relation to the Equality and Accessibility criteria, and the meetings were held with Aberdeen Disability Equity Partnership, the South Aberdeenshire Access Panel and the Aberdeenshire Central Access Panel have informed the likely acceptability of these proposals by those with protected characteristics.

3.4.130 The following points were noted as likely to be **less acceptable** by protected characteristic groups:

- **longer walking distances to bus stops** for the **elderly and disabled** – with the need to ensure benches and ‘places to perch’ on routes to stops if longer walking distances were required
- **reduced parking** which would increase walking distances between cars and homes, adversely affecting the **elderly** and **those with children**
- **new platforms** which did not offer suitable infrastructure ((e.g. hand rails, sheltered seating, ticket machines at suitable and reachable height) and other supporting elements (e.g. audio announcements, real time information) to support those with **mobility issues, those in wheelchairs** and those with **visual impairments**, as well as **those with young children / prams etc.**
- **ticket purchase options** which did not provide appropriate purchase options for **those less confident with using technology / apps**
- **restricted or no ability to engage with the driver**, if help is needed getting on / off services, or while in vehicle, especially an issue for those with **mobility issues** and **visual impairments**
- **restrictions on car use** such that those who require access to the city by car (as using the public transport is not an option due to a **disability or long term health condition**), and are unable to do so / caught up in traffic which makes a journey either impossible or unacceptably long
- **Additional interchange requirements at Park & Ride Sites / Mobility Hubs**, dependent on the integration of services running into Aberdeen from Aberdeenshire, especially impacting those **less physically able** for whom interchange is challenging or impossible. The potential wait time at P&R sites if interchange was required was a concern, especially given the generally far less frequent running of services in Aberdeenshire

3.4.131 The above points require careful consideration as the scheme progresses with ongoing communication with access groups, and wider engagement with other protected characteristic groups to ensure the ART network benefits all and does not unfairly disbenefit specific groups within society. In particular, it is worth noting the approach adopted for Belfast Glider (understood through discussion with Translink in March 2025) where disability groups were invited to view the vehicles, with some changes subsequently adopted to accommodate concerns, as well as such groups being involved

in halt design. It is however recognised that some of the points noted above cannot be fully addressed without changes to the ART vision. In particular, the likely longer distances to access bus stops, and potential interchange requirements from local buses onto the ART network.

3.4.132 Furthermore, access to employment by public transport for the most disadvantaged (those in the 20% most deprived areas) was set out in IND2 for TPO1. People residing in such areas are often more reliant on public transport than those in less deprived areas. The analysis showed that while there were only minor improvements in public transport access to jobs located within and close to the city centre (given generally the most deprived areas are also close to the city centre), there were notable improvements in access to employment opportunities at more peripheral sites to the city. There were significant improvements in access to Foresterhill Health Campus, Aberdeen International Airport and Arnhall Business Park under Options 5 and 5A.

Table 3:17: Public Acceptability Appraisal

Option	Assessment against Acceptability Criteria	Impact
BAU	The market research exercise, and other public engagement, as presented in Section 2.3 and consolidated as PR1, highlights poor public perceptions of the existing bus network and services as a low quality travel option. Therefore continuing with the Status Quo is unlikely to be acceptable to the public.	✗
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	Significant new bus priority across the ART network is likely to be welcomed by bus users who will experience improved journey times and service reliability. However, public perceptions around quality are unlikely to be unchanged. Non-public transport users, residents and businesses along ART routes may experience some inconvenience due to loss of road space and on-street parking. Recent engagement activities across the city (as noted above) suggest there could be significant challenge to proposals which involve the reallocation of roadspace and loss of parking. As a result, there may be dissatisfaction with the scheme amongst some, especially if the measures inconvenience drivers and if the scheme is unable to deliver bus patronage growth. This aspect and is a key risk (applicable across all the options) and requires careful management as the study progresses, with ongoing positive messaging and clear explanation of the benefits of ART to the public and stakeholders.	✓
Option 2: Enhanced existing commercial services using enhanced infrastructure	Similar to Option 1 but noting that bus users would also benefit from increased existing service frequencies across the ART network. The outcome of the market research exercise is noted, with 27% of respondents noting they would be either 'extremely likely', or 'likely', to change their travel behaviour if such an option were implemented. The potential significant challenge to the proposals due to the reallocation of roadspace and loss of parking, as noted under Option 1, is still relevant here.	✓
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	Similar to Option 2 but noting that the integration of the existing bus network may be met with resistance from users of the current network. However, any changes to existing services would ensure a maintained level of accessibility to the bus network – and in many cases the increased frequency of services across the ART network should be likely to outweigh any minor disbenefit that may arise from network integration. The potential significant challenge to the proposals due to the reallocation of roadspace and loss of parking, as noted under Option 1, is still relevant here.	✓
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	Similar to Option 3 but noting that new ART platforms and wider stop spacing are provided. The new platforms will provide benefits to existing and new users through providing a sheltered and comfortable waiting experience with appropriate lighting and CCTV improving security, and these new platforms and ART branded (and more) frequent services are likely to impact positively on public perceptions around the quality of the bus network. The discussion above with regards to protected characteristic groups, and particularly those with mobility issues, in relation to increased stop spacing is noted and this aspect may be met with resistance by such groups, and the potential significant challenge to the proposals due to the reallocation of roadspace and loss of parking, as noted under Option 1, is still relevant here.	✓

Option	Assessment against Acceptability Criteria	Impact
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	Similar to Option 5, but the inclusion of ART without any changes to the existing bus network may impact on public perceptions of travel by bus. Bus users may welcome the additional services but an 'over provision' of services and bus congestion may occur at bus stops and non-bus users may have concerns over delay to general traffic caused by this over provision.	✓
Option 5: New ART services and vehicles with revised / integrated existing services	The option includes the introduction of new branded cross-city services, operating using new vehicles which modelling indicates will be better able to deliver greater journey time savings greater than the other options (see TPO1). This will support favourable perceptions of ART delivered as per this option Similar to Option 3 and 3A, the option includes some integration / revision of existing services across and close to the ART network which may be met with some resistance from users of the current network. The point noted in Option 3 with regards to the increased stop spacing impacting on those with mobility issues is also relevant for this option The outcome of the market research exercise showed that 40% of respondents stated they would be either 'extremely likely', or 'likely', to change their travel behaviour if such an option were implemented (a significantly higher figure than under Option 2 – which was 27%), suggesting a more favourably public view of this option. The significant challenge to the proposals due to the reallocation of roadspace and loss of parking, as noted under Option 1, is still relevant here.	✓✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	Similar to Option 5, but with use of branded 'conventional' buses as opposed to new distinctive vehicles may detract from public perceptions of a 'step change' in provision and quality across the network.	✓

Appraisal Summary

3.4.133 The table below summaries the criteria and the benefits awarded against each option.

Table 3:18: Appraisal Summary

Option	Transport Planning Objectives		Appraisal Criteria					
	TPO1: Improve sustainable transport connectivity into and across Aberdeen, to support sustainable economic growth, widen opportunities, and improve inclusive equality of opportunity	TPO2: Increase public transport mode share in Aberdeen to support placemaking and the North East's Net Zero ambitions	Environment	Climate Change	Health, Safety and Wellbeing	Economy	Equality and Accessibility	Public Acceptability
BAU	-	✗	✗	✗	✗	✗	✗	-
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	✓	✓	✓	✗	✓	✗	✗	✓
Option 2: Enhanced existing commercial services using enhanced infrastructure	✓	✓	✓	✗	✓✓	✗	✗	✓
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	✓	✓	✓	✗	✓✓	✗	✗	✓
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	✓✓	✓✓	✓	-	✓✓	✓	✓	✓
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	✓✓✓	✓✓✓	✓	-	✓✓	✗	✗	✓
Option 5: New ART services and vehicles with revised / integrated existing services	✓✓✓	✓✓✓	✓✓✓	✓✓	✓✓✓	✓✓	✓✓	✓✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services	✓✓	✓✓	✓✓	✓	✓✓	✓	✓	✓

Appraisal Key Outcomes

3.4.134 Several key points are noted from the appraisal:

Network and Services

- Shorter public transport journey times is an essential requirement of ART, with the vision for ART services to run with average speeds of at least 25kph [16mph]. The appraisal highlighted that the combination of reduced stopping patterns and short bus stop dwell times enables bus speeds of over 20kph [12mph] on all ART corridors and over 25kph [16mph] on two of the four corridors considered. As examples, when reduced stopping patterns and reduced dwell times through the use of multi-door tram-style vehicles are introduced (as per Option 5) a public transport journey time savings of approximately 12 minutes is estimated between Aberdeen airport and the city centre. As another example under Option 5, the public transport journey time between the Bridge of Don and the city centre is reduced by 7 minutes. **Just delivering the bus priority infrastructure (without new stops, stopping patterns, and vehicles – as per Option 1 (Do Min) would not deliver the sought after bus speeds, with journey time reductions of 5 minutes at most between Park & Ride sites and the city centre envisaged.**
- Providing **new cross-city services (as per Options 4, 5 and 5a) facilitates a significant reduction in public transport travel time** for many cross-city movements and removes the need for interchange between services, greatly enhancing cross-city connectivity to jobs, education healthcare and other essential services for residents across the region. As an example, there are significant public transport journey time savings of 31-33 minutes estimated between the Airport and Portlethen P&R (a 39% reduction in travel time) and 20-21 minutes between Kingswells and Bridge of Don (34% reduction in travel time).
- **Reducing the amount of time a bus spends at each bus stop (dwell time)** is an essential part of speeding up journeys, making them more reliable and encouraging modal shift to public transport **(as per Options 4 and 5 which provide faster boarding and alighting through the use of off bus ticketing and multi-door vehicles)**
- **Bus priority infrastructure (as per all options) supports the delivery of services which are more reliable** providing consistency in travel time regardless of the time of day. The scale of benefit associated with bus priority is higher when introduced into a more congested network. Such measures therefore provide long-term future-proofing against traffic growth and provide a highly visual statement of the importance of bus travel.
- Providing a **uniquely branded and visually different offering (as per Options 3A, 4, 5 and 5A)** to existing services, with improved stops, vehicles, and on-board facilities is more likely to improve perceptions of the quality of bus travel.
- The delivery of **ART services will have a significant impact on the underlying bus network which will require more detailed modelling and assessment (as per Options 3A, 4, 5 and 5A).** There would be a substantial transfer of passengers from existing services which will therefore require amendment to integrate with or avoid duplication with ART services, with analysis suggesting around 75% of trips on the ART network are abstracted from existing services. The implications of passenger abstraction need to be carefully considered through more detailed work to understand the financial implications to non-ART commercial and supported services, and to ensure that the accessibility and connectivity of the bus network across the city is maintained.
- **Anchoring the ART network to the P&R sites (as per all options) would support greater use of the currently under-employed sites**, extending the benefits of ART to those travelling into Aberdeen from Aberdeenshire and further afield, with the provision of high frequency cross city services from the sites significantly encourages greater use.

The analysis shows occupancy at P&R sites of around 8% in the future year baseline scenario, rising to just 10% under Option 2, but rising to 31% under Option 5 – when the ART cross-city services are operating.

- **Significant reallocation of road space away from general traffic is required (as per all options)** along the ART corridors to achieve quicker and more reliable bus journeys. Without mitigation, this will cause traffic to re-route onto less appropriate roads, potentially increasing trip distances and hence carbon emissions (if not suitably off-set by reduced carbon emissions from modal shift to public transport). It is therefore crucial that further work is undertaken to fully understand the impacts and to mitigate against this. It is recognised that mitigation measures (such as banning right turns, point closures, and the traffic calming may be met with some resistance by the public. This is recognised as a key risk.
- **Adopting supporting traffic restraint measures alongside the ART scheme is likely to provide additional benefit (as seen through the sensitivity test 5P)** and help ensure scheme success. Such measures will generate greater modal shift, greater overall public transport benefits and as such, will generate the greatest impact in reducing vehicle kilometres. It has also been made clear by the Birmingham Sprint and Bristol Metrobus teams that supporting measures adopted alongside the schemes were significant in increasing scheme patronage. Given the above, **it is clear that supporting traffic restraint measures, such as increased parking controls, would significantly enhance the likely success of ART. Public resistance to such measures is noted as a key risk.**
- The ART vision states that *'ART will need to support connectivity with other forms of transport, meet specific accessibility needs and recognise that not all users benefit from access to the internet and smart technologies.'* Some elements of ART have the potential to both negatively and positively impact members of society with particular protected characteristics. New 'tram-style' vehicles and platforms would provide fully accessible public transport and provide enhanced customer-friendly passenger waiting areas. However, wider stop spacing, the removal / relocation of some on-street parking, and the integration of the existing bus network (to minimise the duplication of services and associated city-wide bus operating costs) could impact certain groups disproportionately due to the requirement to walk longer distances to bus stops and to reach facilities. **Ongoing dialogue with equalities groups and local communities is fundamental as the scheme progresses, with improved walking access to bus stops considered as part of the ART project.** In general, increased accessibility by public transport to work, education, healthcare and social and leisure facilities, supports **'levelling the playing field' in terms of opportunity, between those who do and do not have access to a car.** It is expected that all current bus concession schemes will be valid on ART services.

Monetised Benefits, Costs and Scheme Value for Money

- 3.4.135 The travel time impacts of ART have been estimated and monetised for both road traffic and public transport, albeit the monetised benefits are heavily caveated at this stage. The estimates show that **ART would generate significant public transport travel time benefits as well as significant negative impacts to general traffic.** Greater modal shift to public transport will reduce negative impacts for general traffic and supporting traffic restraint measures, if implemented alongside the scheme, have the potential to further increase the public transport travel time benefits.

Service Delivery

- 3.4.136 As noted at the outset, there are complexities around the delivery of a project such as ART which set it apart from most transport projects. This section sets out the potential mechanisms available under current legislation to deliver the options. A fuller exploration of the pathways that could be followed to implement ART through these mechanisms is provided in the Commercial Dimension.

BAU

3.4.137 At present, bus services in Aberdeen are delivered under the deregulated model specified in the Transport Act 1985 whereby bus operators determine the services that they wish to provide on a commercial basis and the Councils are responsible for procuring services that are deemed socially necessary but are not provided by the market. Almost all services in Aberdeen are operated commercially by the two main operators, with First services focussed on the City and Stagecoach providing services extending into Aberdeenshire. The public sector, at present, therefore, has a minimal role in planning or supporting services (noting that Aberdeenshire Council does subsidise several socially necessary more rural bus services).

3.4.138 It is therefore not conceivable to deliver the scale of public sector investment to support the delivery of ART without guarantees that the market would deliver ART. A change in the way that bus services are planned / delivered in and around Aberdeen is therefore required. This is discussed in greater detail in the Commercial Dimension in Section 4.

3.4.139 The options developed here represent a series of potential steps away from this commercial operating environment through a partnership approach, to one where services are ultimately planned and franchised by the public sector, where the public sector is also likely to take the revenue risk.

Delivery Mechanisms for the Options

3.4.140 In addition to the deregulated model described above, the Transport (Scotland) Act 2019 specifies the following mechanisms for delivery of local bus services in a Local Transport Authority Area (LTA) area:

- Bus Service Improvement Partnership (BSIP)
- Franchising
- Municipal Ownership

3.4.141 In contrast to England, there is limited published guidance regarding the Transport (Scotland) Act 2019. In particular, it is not clear what role a LTA is permitted to play in facilitating agreements within a BSIP. More specific guidance will be required before a definitive position can be established on the extent to which a partnership approach could be used to deliver ART.

Bus Service Improvement Partnership

3.4.142 A BSIP is defined in the Transport (Scotland) Act 2019. The Act enables a local authority, or local authorities jointly, to introduce a BSIP Plan if it considers it appropriate to do so and to then make one or more BSIP schemes that impose service standards on local bus services and specify facilities and/or measures to be provided by the local authority. Service standards that an LTA may agree as part of a BSIP scheme are:

- Route service standard – frequency and/or timing of a service
- Operational service standard – any other matter including:
 - Vehicles
 - Maximum fares
 - Ticketing

- Pricing of multi-operator travel cards
- Information provision
- Service change dates

3.4.143 The BSIP model is a good fit for the delivery of options that are unlikely to cause significant changes to revenue on existing services or significantly impact on existing operators' commercial businesses.

Bus Franchising

3.4.144 Bus Franchising – where services are defined by the LTA, or local authorities jointly, with commercial decision-making, service planning and potentially, revenue risk all passing to the LTA, with operators becoming contracted suppliers, dependent on a net or gross (minimum subsidy or minimum cost) contract. This would represent a radical change in bus service planning and delivery in and around Aberdeen.

3.4.145 To date, **no franchising scheme has actually been implemented in Scotland.**

3.4.146 Bus Franchising in Greater Manchester Combined Authority commenced in Autumn 2023. This, and other schemes under preparation, will provide useful lessons for subsequent schemes and franchising now looks more feasible than previously. This is further discussed in the Commercial Dimension.

3.4.147 The **challenges involved in establishing a franchising framework are though still significant.** The management and administrative effort required by the LTA to comply with the provisions of the 2019 Act, the potential hostility and lack of co-operation from incumbent operators and the likely need for the LTA to take on the financial (revenue) risk mean that franchising, while feasible, is still a major and largely unproven undertaking.

Municipal Ownership

3.4.148 The 2019 Act restored the power of an LTA to “*provide a service for the carriage of passengers by road using vehicles that require a PSV operator's licence to do so*”, provided that the LTA is satisfied that this will contribute to the implementation of its relevant general policies. This had previously been prohibited by the 1985 Act.

3.4.149 Whereas the previous models represent different delivery frameworks for ART, the municipal ownership model is not, in itself, **a delivery option but could be combined either with a BSIP or franchising.**

3.4.150 The feasibility of this course of action would seem to depend largely on resources and funding: resources, in respect of satisfying the PSV Operator's Licence requirements, particularly by employing a transport manager who “*effectively and continuously manages the transport activities of the undertaking*” and funding to a sufficient degree to launch and then maintain the operation on an ongoing basis.

3.4.151 There are two principal means of establishing a bus undertaking in this context:

- Establish a new bus undertaking:
 - Set up an arms-length company with social value objectives related to public transport and the authority's general policies
 - Acquire assets (a depot and some public service vehicles) and appoint a Transport Manager, then apply for an Operator's Licence from the Traffic Commissioners. These tasks would have to be done “at risk” financially

- Begin to tender for local bus service contracts (or bus franchises), recruit staff to operate those services (some staff might be available via TUPE) and secure a workload that allows the company to consolidate and grow as contracts are awarded.
 - Where gaps in the current bus service provision are identified and the municipal operator believes it can make a reasonable return, new commercial services could be registered and operated.
- Acquire an existing bus operator's assets and business.
- 3.4.152 The first option suggests growth would be gradual depending on the timing of new contract or bus franchise start dates, and on the ability of the undertaking to recruit sufficient qualified staff and fund investment in fleet etc.
- 3.4.153 Conversely, the second option could result in a more sudden and significant entry into the market, but it would depend on the existence of willing sellers.
- 3.4.154 It is also perfectly possible to combine the two approaches with expansion coming both from acquisition of existing businesses and organic growth, in both cases depending on market opportunities.
- 3.4.155 Preliminary engagement with operators indicated that a public sector bus company would face the same market pressure than private sector operators do, i.e., recruitment and retention of drivers and qualified maintenance staff, input cost inflation, lead times for new vehicle orders and volatile fuel prices.

Options: Delivery Mechanisms Appraisal

- 3.4.156 BSIP and Bus Franchising as potential delivery mechanisms, alongside the potential for Municipal Bus Ownership are described fully in the Commercial Dimension with commentary on the pathways that could be followed to implement ART through these mechanisms.
- 3.4.157 An indication of the applicability of the BSIP and Bus Franchising delivery mechanisms to the ART options is set out below and determines which mechanisms are feasible or appropriate for each option. Where a '?' is noted reflects the uncertainty as to whether the delivery mechanism could be used to deliver the option – with this then discussed in detailed in the Commercial Dimension. Overall however, the table below indicates the confidence in delivering ART through a bus franchising mechanism, but with uncertainty remaining on whether the scheme could be delivered through a BSIP.

Table 3:19: Option Delivery Mechanism – High Level Appraisal

Option	Likely Delivery Mechanism	
	BSIP	Bus Franchising
Option 1 (Do Min): Existing commercial services using enhanced infrastructure	✓	-
Option 2: Enhanced existing commercial services using enhanced infrastructure	✓	-
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure	?	✓
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing	?	✓
Option 4: New ART services and vehicles in addition to existing services, sharing enhanced infrastructure	?	✓

Option	Likely Delivery Mechanism	
	BSIP	Bus Franchising
Option 5: New ART services and vehicles with revised / integrated existing services	?	✓
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services		

3.5 Workstream 2: Options for ART Routeing (network) - long list

- 3.5.1 While the form of the network appraisal above presented options with regards to infrastructure, services and vehicles, this was undertaken across the options, to allow for comparison, across a single network.
- 3.5.2 A separate workstream has considered and compared network permutations, comparing options for the ART network through consideration of routeing and terminus points. The outcome of the analysis was to set out a recommendation for a preferred ART network.
- 3.5.3 Note that to compare the different networks, the same form of ART was assumed across each network permutation, namely Option 5 (significant bus priority across the network, with two new cross-city services operating using new distinctive vehicles and new distinctive ART platforms with increased stop spacing). Full details of the routeing analysis work undertaken can be found in *Aberdeen Rapid Transit - Routeing Analysis - Report - FINAL*, Stantec, May 2024. An overview of the key activities, appraisal outcomes and subsequent recommendations are presented here.

Routeing Options

- 3.5.4 Two core strands of work were undertaken to work towards a recommendation for the routeing of ART:
- Engagement:
 - with Nestrans and Council officers
 - with bus operators
 - with Elected Members
 - Modelling using the Aberdeen Sub Area Model (ASAM19) to provide quantitative analysis to compare routeing options and inform decision making

Engagement

- 3.5.5 Engagement with Nestrans and Council officers and the bus operators was undertaken to inform the routeing tests to be modelled in ASAM19. Engagement with Elected Members was undertaken to provide further feedback into the process to inform the routeing decisions, with the overall process as shown in the figure below.

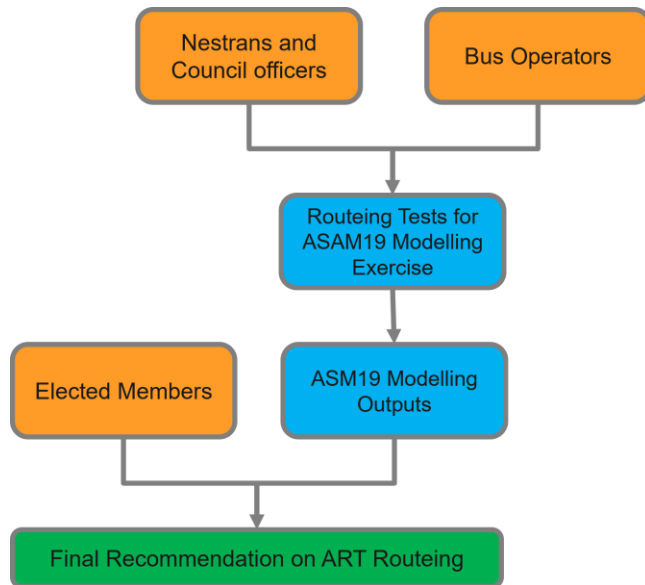


Figure 3.6: Tasks to inform ART routing

- 3.5.6 Across the Aberdeen wide area, **routes** and **terminus points** for ART were considered along broadly north, north-west, west, and south corridors as shown in the figure below, and broadly reflect the ART vision document. Appendix G provides a detailed discussion across each of the broad corridors considered and the main points raised during the discussions with Nestrans and Council officers, Elected Members, and the two main bus operators in the region, First and Stagecoach.



Figure 3.7: ART corridors under consideration

Options for modelling and modelling assumptions

- 3.5.7 Given the feedback gain through the engagement, 10 routeing tests were determined.
- 3.5.8 A 'core' test was chosen from these, with each subsequent test changing just a single variable (route or terminus) from the core test. In this way, the impact of each test could be more easily compared.
- 3.5.9 The core test, and the nine subsequent tests are shown in the table below and subsequent (high level) figures (Appendix I presents figures of each individual test - which also detail the interchange location where the ART routes would cross given the routeing and cross-city connectivity assumed under each test). The orange text in the table below indicates what has changed in each test from the core test.
- 3.5.10 Note that based on the outcomes of the previous analysis undertaken on the ASAM matrices during earlier work (*Aberdeen Rapid Transit - Options Appraisal - Preliminary Options Appraisal Report, Stantec, June 2022*), a test where ART operates as four (non cross-city) services interconnecting in the city centre is not considered further. The earlier analysis highlighted the poor performance of this in terms of estimated demand and revenue (due to the lack of new direct cross city connectivity).
- 3.5.11 Each test was modelled in the ASAM19 **2030 'without policy'** model scenario.
- 3.5.12 A set of indicative changes were made to the existing bus network based on the extent to which ART services overlap with the existing bus network, while seeking to maintain overall accessibility to the bus network across Aberdeen. As noted in relation to Option 5 above, this exercise by no means sought to establish the exact nature of any changes to the underlying bus services if ART were implemented as per any of the tests.
- 3.5.13 The work has also fed into an understanding of the potential commercial implications across the tests to bus operations in terms of ensuring an efficient and more commercially viable bus network for Aberdeen and into Aberdeenshire. The more precise nature of changes that may be required to the existing network needs greater consideration once a preferred ART network has been agreed, and in consultation with operators. The assumption made with regards to the underlying bus network, differing for each test, for the purposes of the routeing modelling exercise can be found in *Supporting Technical Note B: ART Routeing Analysis – Bus Network Changes (Stantec, March 2024)*.
- 3.5.14 Similar assumptions as applied previously for the form of the network options appraisal with regards to 'in-vehicle weighting', bus stop spacing and stop dwell times were assumed.

Aberdeen Rapid Transit – Strategic Business Case

Table 3:20: Routeing Tests

Test	ART Service Routes	Routeing	Purpose of Test
Core	North to West: Bridge of Don P&R to Kingswells P&R North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound) South: Market Street / Victoria Bridge / Wellington Road	N/A
A1	North to West: Bridge of Don P&R to Kingswells P&R North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Changed routeing at airport. Outbound: TECA → airport → Craibstone P&R Inbound: Craibstone P&R → city centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound) South: Market Street / Victoria Bridge / Wellington Road	Changed routeing at airport. Gauge comparative benefits of routeing inbound directly from Craibstone P&R site
A2	North to West: Bridge of Don P&R to Kingswells P&R North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Changed routeing at airport. Clockwise (every other service): city centre → TECA → airport → Craibstone P&R → city centre Anti-clockwise (every other service): city centre → Craibstone P&R → TECA → city centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound) South: Market Street / Victoria Bridge / Wellington Road	Changed routeing at airport. Gauge comparative benefits of routeing both clockwise and anti-clockwise at Craibstone P&R / airport. Routeing would provide direct (and attractive) inbound routeing from P&R to city centre, as well as direct (and attractive) inbound routeing from Airport to city centre. Would enable trips from P&R to airport. Frequency of P&R to city centre <i>direct</i> service only every other ART service
B1	North to West: Cloverhill via Bridge of Don P&R to Kingswells P&R North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound) South: Market Street / Victoria Bridge / Wellington Road	Gauge benefits of routeing beyond Bridge of Don P&R to new housing development site (400 housing units assumed built out by 2030 and represented as such in ASAM19 2030 Do Min model)
B2	North to West: Blackdog and Cloverhill via Bridge of Don P&R to Kingswells P&R	North: Ellon Road / King Street	Gauge benefits of routeing beyond Bridge of Don P&R to the Blackdog development site (580

Test	ART Service Routes	Routeing	Purpose of Test
	North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound)) South: Market Street / Victoria Bridge / Wellington Road	housing units built out by 2030 and represented as such in ASAM19 2030 Do Min model)
C1	North to West: Bridge of Don P&R to Westhill North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound)) South: Market Street / Victoria Bridge / Wellington Road	Gauge benefits of extending western corridor to Westhill rather than Kingswells P&R
C2	North to West: Bridge of Don P&R to Kingswells P&R North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A9119 (Queen's Road / Skene Road) / A944 South: Market Street / Victoria Bridge / Wellington Road	Gauge benefits of routeing via A9119 instead of via A944 between city centre and A9119/A944 junction
D	North to West: Bridge of Don P&R to Kingswells P&R North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound)) South: Holburn Street / Great Southern Road / West Tullos Road / Wellington Road	Gauge benefits of routeing south via Holburn Street / Great Southern Road / West Tullos Road / Wellington Road
E	North-West to West: Craibstone P&R (via airport and TECA) to Kingswells P&R North to South: Bridge of Don P&R to Portlethen P&R / Mobility Hub	North: Ellon Road / King Street North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound)) South: Market Street / Victoria Bridge / Wellington Road	To gauge benefits of alternative combination of cross city services to compare to Core Test, i.e., NW-W and N-S Note: North to South provides direct routeing but North-West to West connection is far longer than straight line routeing (see mapping)
F	North to South (RGU): Bridge of Don P&R to Robert Gordon University	North: Ellon Road / King Street North-West: Craibstone -> airport -> TECA routeing (both inbound and outbound) with Powis Place / Gallowgate route into centre West: A944 (via Blackfriars St (inbound) and Rosemount Viaduct /Skene St (outbound))	To gauge benefits of alternative combination of cross city services to provide connectivity to RGU and Beach masterplan area as part of ART network

Aberdeen Rapid Transit – Strategic Business Case

Test	ART Service Routes	Routeing	Purpose of Test
	West to East (Beach): Kingswell P&R to beach via Union Street North-West to South: Craibstone P&R (via airport and TECA) to Portlethen P&R / Mobility Hub	East: Justice Street / Beach Boulevard South (Portlethen P&R): Market Street / Victoria Bridge / Wellington Road South (RGU): Holburn Street / Garthdee Road	



Figure 3:8: North Corridor Tests (Core, B1 and B2)



Figure 3:9: North-West Corridor Tests (Core, A1 and A2)

Aberdeen Rapid Transit – Strategic Business Case



Figure 3:10: West Corridor Tests (Core, C1 and C2)



Figure 3:11: South Corridor Tests (Core and D1)

Aberdeen Rapid Transit – Strategic Business Case



Figure 3:12: Alternative cross-city routing test (Core and Test E)

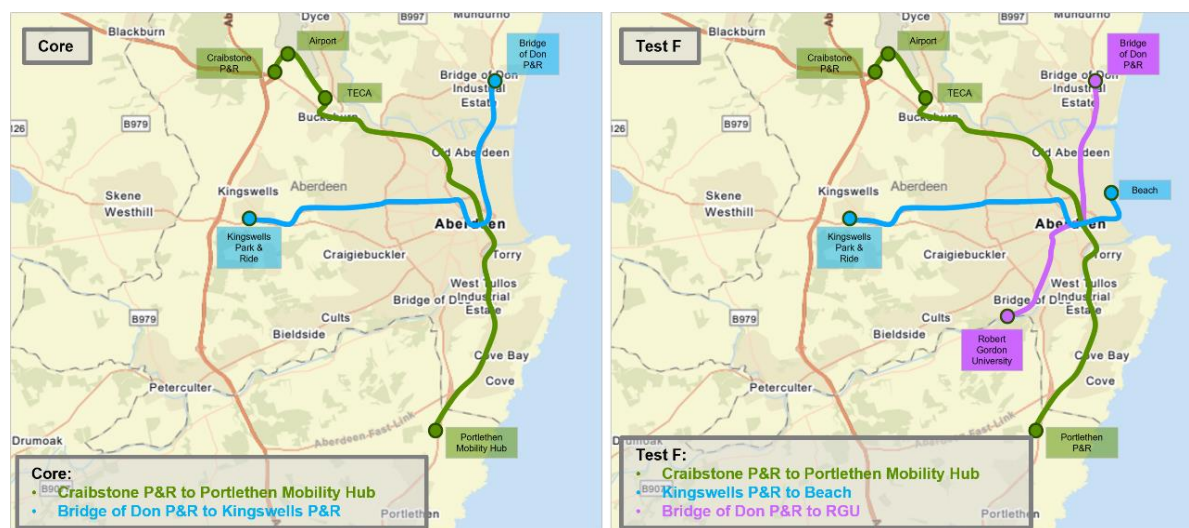


Figure 3:13: Alternative cross-city routing test (Core and Test F)

Routeing Options Appraisal

3.5.15 A range of modelling outputs were considered to compare the route, including:

- Passenger flow changes
- Road Traffic flow changes
- Changes in travel time by public transport
- Changes in travel time for road traffic
- Modal shift – across an ‘inner’ and ‘outer’ cordon
- Changes in Park & Ride / Mobility Hub use

3.5.16 A summary of the core findings is presented below, but full details can be found in *Aberdeen Rapid Transit - Routeing Analysis - Report - FINAL, Stantec, May 2024*.¹²⁶

Modal Shift

3.5.17 Modal shift has been considered across two cordons as shown in the figure below.



Figure 3.14: Inner and Mid Cordon locations

3.5.18 The modal shift results from the two cordons are presented below with bus passenger flows and general road traffic flows across the cordons presented in Table 3:21 and Table 3:22 respectively.

¹²⁶ [Appendix-1_Aberdeen-Rapid-Transit-Network-Routeing-Analysis-Report-Final.pdf](#)

Table 3:21: Bus Passenger 12-hour passenger flow across the cordons (All Tests) - 2030

Cordon	Direction	% difference from Ref Case									
		Core	A1 - Craibstone P&R (direct inbound)	A2 - Craibstone P&R (alternating)	B1 – to Cloverhill	B2 – to Blackdog	C1 - Westhill via A944	C2 - Kingswells P&R via A9119	D - Portlethen Mobility hub (via West Tullos Rd)	E – Alternative cross-city routeing	F – Three cross-city routes
Inner	In	6%	6%	6%	6%	8%	8%	4%	7%	5%	8%
	Out	6%	6%	6%	6%	8%	8%	4%	7%	5%	8%
	Tot	6%	6%	6%	6%	8%	8%	4%	7%	5%	8%
Mid	In	14%	14%	14%	13%	16%	17%	9%	15%	13%	13%
	Out	10%	10%	10%	10%	12%	13%	6%	11%	9%	12%
	Tot	12%	12%	12%	11%	14%	15%	8%	13%	11%	12%

Table 3:22: General Road Traffic 12-hour flow across the cordons (All Tests) - 2030

Cordon	Direction	% difference from Ref Case									
		Core	A1 - Craibstone P&R (direct inbound)	A2 - Craibstone P&R (alternating)	B1 – to Cloverhill	B2 – to Blackdog	C1 - Westhill via A944	C2 - Kingswells P&R via A9119	D - Portlethen Mobility hub (via West Tullos Rd)	E – Alternative cross-city routeing	F – Three cross-city routes
Inner	In	-3.0%	-3.0%	-3.0%	-2.0%	-3.0%	-3.0%	-3.0%	-3.0%	-3.0%	-2.0%
	Out	-1.0%	-2.0%	-2.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	0.0%
	Tot	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-2.0%	-1.0%
Mid	In	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-4.0%	-3.0%	-4.0%	-4.0%	-4.0%
	Out	-7.0%	-7.0%	-7.0%	-7.0%	-7.0%	-7.0%	-7.0%	-6.0%	-7.0%	-7.0%
	Tot	-5.0%	-5.0%	-6.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%	-5.0%

Total Vehicle Kilometres

- 3.5.19 Changes in total vehicle kilometres under each test are presented below, split out by change in Aberdeen city, Aberdeenshire and on the Aberdeen Western Peripheral Route (AWPR) itself. The figures provide an indication of traffic re-routeing under the tests. Note that modal shift to bus under each test will differ and will be impacting on these figures i.e. greater modal shift to bus equates to reduced vehicle kilometres.

Table 3:23: Daily (24hr) Vehicular Kilometres (All Tests)

Geography	Veh km	Reference Case	Core	A1 - Craibstone P&R (direct inbound)	A2 - Craibstone P&R (alternating)	B1 – to Cloverhill	B2 – to Blackdog	C1 - Westhill via A944	C2 - Kingswells P&R via A9119	D - Portlethen Mobility hub (via West Tullos Rd)	E – Alternative cross- city routing	F – Three cross-city routes
City	Veh km (000's)	2,773	2,819	2,811	2,814	2,825	2,818	2,817	2,813	2,822	2,827	2,819
	% change from Ref Case	N/A	1.6%	1.4%	1.5%	1.9%	1.6%	1.6%	1.4%	1.8%	1.9%	1.7%
Shire	Veh km (000's)	8,100	8,085	8,086	8,086	8,088	8,084	8,083	8,085	8,091	8,100	8,085
	% change from Ref Case	N/A	-0.20%	-0.20%	-0.20%	-0.10%	-0.20%	-0.20%	-0.20%	-0.10%	0.00%	-0.20%
AWPR	Veh km (000's)	806	820	820	817	820	821	819	817	818	819	821
	% change from Ref Case	N/A	1.8%	1.7%	1.3%	1.7%	1.8%	1.6%	1.3%	1.5%	1.5%	1.9%

- 3.5.20 The comparisons show all tests increasing vehicle kilometres overall but with an increase within Aberdeen City and a decrease in Aberdeenshire. To provide a proportionate approach to the modelling undertaken at this early stage, no mitigation to prevent inappropriate re-routing was modelled during this modelling exercise. As such these results should be viewed as providing an indication of what *could* happen if this important element of ART was not designed for.
- 3.5.21 Whilst the number of vehicles crossing the cordons reduces in all tests, overall vehicle-km increases. The assumption here is the reduction in vehicle-km caused by mode shift from car to bus (witnessed on the cordons) is outweighed by traffic re-routing around Aberdeen as a result of the reduction in capacity on the ART corridors (due to road space reallocation). While some of this re-routing may be deemed acceptable e.g. traffic routing via the AWPR, further and more detailed analysis of any negative re-routing impacts on local communities, and identification of appropriate mitigation will be required as the study progresses to OBC.

Routeing Option Recommendations

3.5.22 Given the main points raised during engagement and the evidence provided through the modelling outcomes, as presented in the body of this report, it is concluded that the optimum network for delivery at this time is two cross-city routes:

'Red Line' - Blackdog to Kingswells / Westhill:

- ART services from the west into the city centre are recommended to route via the A944 (Lang Stracht and Westburn Road) and into the city via Skene Square and Union Terrace to Union Square (to integrate with onward rail travel). Modelling outputs indicate this provides a greater modal shift to public transport and faster journey times into the city centre than if the route was via the A9119 (Queen's Road). The A944 is less constrained and has the space required to accommodate the proposals.
- Running ART beyond Kingswells to Westhill is anticipated to increase modal shift to bus and could provide improved access to and from the town with a significant residential population and employment at Arnhall business park. A suitable Mobility Hub (MH) would be required as a terminus point in Westhill and further consideration of integration with services routing into Aberdeen from the hinterland is required. A phased extension of ART, beyond Kingswell, to Westhill should therefore be considered.
- The role of, and configuration of, Kingswells P&R with respect to ART should be reviewed, especially if ART extends further west to Westhill. At present, serving the Kingswells P&R site would add to journey times and with a Westhill service, the potential 'targeted' catchment for the site would be reduced. On-site surveys are recommended to better understand the current role of this site. If retained, upgrading of the site to a Mobility Hub and site reconfiguration to ensure improved access and egress for buses is required. The current site at Kingswells could also offer an opportunity for ART depot facilities (in the event of ART terminating at either Kingswells or Westhill) – although it is noted that this would need to be considered through the appropriate planning approval process.
- The Bridge of Don P&R site is not well located for access, has not been successful, and as such, is currently only served by an hourly long distance Edinburgh to Aberdeen coach service and not directly by a local bus service. Reconfiguring the site for improved vehicular and bus access would be a significant undertaking. The proposed mixed-use development at Blackdog and its location on the outskirts of the city at the junction of the AWPR and A90 provides an opportunity to develop a more appropriately located Mobility Hub to become the ART service terminus point to the north. Its location would also provide greater opportunity to capture demand from along the A947 i.e., Newmachar etc. A smaller parking facility at Bridge of Don could be provided to cater for more localised demand, with access from such a site through to stops on the main carriageway. It is recognised that Ellon P&R site lies approximately 17km to the north of Blackdog and as such there is likely to be some passenger abstraction from that site to Blackdog, with the potential for some increased vehicle kilometres due to users choosing to drive to the Blackdog site. However, consideration of how longer distance services from north of Aberdeen integrate with ART at Blackdog would help minimise this. Early discussions with those developing the Blackdog site is recommended.
- With Blackdog as a terminus, the Cloverhill development would be served via suitable access from the development to an ART stop on Ellon Road

'Purple Line' - Craibstone P&R / airport to Portlethen Mobility Hub:

- Further consideration is required and discussion advised with Aberdeen Airport and TECA to determine the most appropriate routeing at the north-western end of the ART route, exploring the impacts on airport parking and revenue as well as access to TECA

and the role of ART in supporting events at the centre. The role of Craibstone P&R should also be considered in this context.

- The optimum route along this corridor, taking on board feedback from bus operators in terms of key areas of demand, particularly the North East Scotland College, would be to route into the city centre via the A96 / Great Northern Road, Powis Terrace, Powis Place, Mounthooly, and then Gallowgate and Broad Street. Uncertainty around the development and timing of the Berryden Corridor Improvement Project creates a risk for the design on the route and needs to be managed as the ART infrastructure proposals progress.
- From Portlethen Mobility Hub, the analysis has identified that the optimum route for ART is via Wellington Road, West Tullos Road, Great Southern Road and Holburn Street before running the length of Union Street. Modelling outputs indicate this generates a greater modal shift response than a route via Wellington Road / Victoria Street. Engagement highlighted a desire that ART serve Union Street and this option provides that as the west end of Union Street is a key employment area in the city centre.
- In terms of implementation, it should be noted that Portlethen Mobility Hub is not yet built and the phasing of ART needs to take this into consideration given the site lies at a 'greenfield' location. As an alternative, the potential use of the existing Park & Choose at Chapelton of Elrick, or a destination in Cove, to form the southern terminus could be explored as an interim option to support in a phased delivery of ART.

3.5.23 The two cross-city routes as set out above would ensure ART serves Union Square (and as such connect to the railway station and bus station) in addition to the full length of Union Street. The two services would interchange at the eastern end of Union Street between Market Street and King Street, as well as at the junction of Union Street and Union Terrace.

3.5.24 The resultant ART network, given the above recommendations, is set out in the figure below.

3.5.25 In addition, the following are noted for further consideration at OBC stage:

- Engagement highlighted the desire for ART to serve Robert Gordon University (RGU), and the many existing bus services operating between the University of Aberdeen (on King Street) and RGU. A test was undertaken which included RGU (and the beach) in the ART network (and altered the cross-city route connectivity accordingly). Under this test the modal shift achieved reduced compared to other tests. However, given the strong preference for its inclusion, how a connection to RGU could be included within the ART network requires further thought.
- Serving the Beach area did not resonate as a strong priority through the engagement undertaken and the timescales for implementation and the build out associated with the Beach Masterplan adds a level of uncertainty. It could however be included as part of ART at a later date, with an RGU to a fully developed Beach area an option.

Aberdeen Rapid Transit – Strategic Business Case

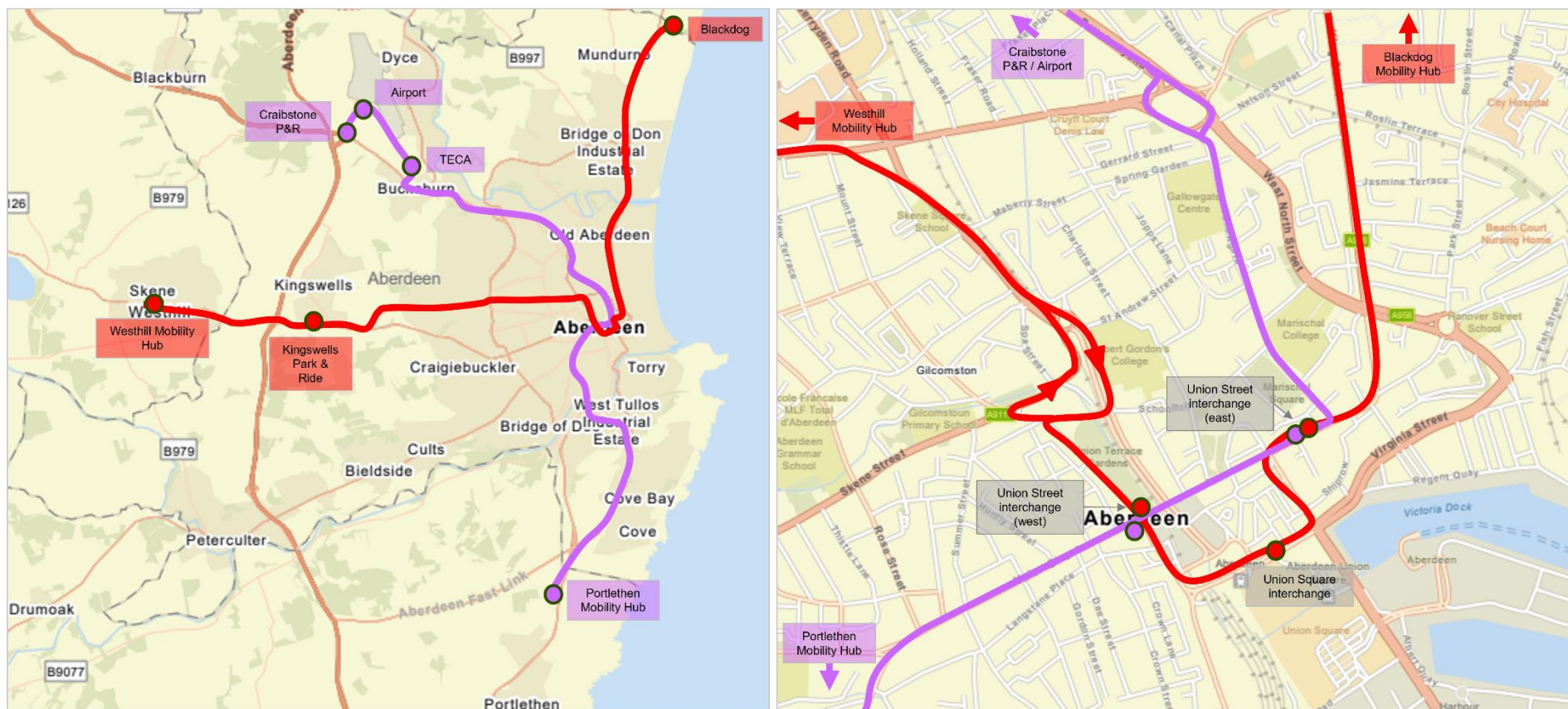


Figure 3:15: Recommended ART Network

3.6 Option Sifting

- 3.6.1 An option sifting process has been undertaken to reduce the options from the long list, down to a short list to be taken through and explored further at OBC stage. This has been considered through reviewing holistically the outcomes of the options appraisal as presented above, and considering the advantages and disadvantages of each – noting the key appraisal outcomes as described in Section 3.4.134.
- 3.6.2 A recommendation for each option is noted as to whether the analysis suggests the option should be Discounted, Carried Forward, or (at this stage) is considered the Preferred Way Forward.
- 3.6.3 This sifting process reduces the options from the long list down to a short list for progression to OBC stage. The Commercial, Financial, and Management Cases of this Business Case then explore in more detail the Preferred Way Forward under each of these Dimensions respectively.

Option Sifting

Table 3.24: Option Sifting

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
BAU	Blackdog to Kingswells / Westhill (via A944) to Portlethen via West Tullos Craibstone P&R / Airport	✓	-	Discount	Policy Alignment: It is recognised across a wide range of policy documents that the bus network is a core element in supporting transport, economic, environmental, place making, and equality aims and objectives (as set out in the Strategic Dimension). Continuing with BAU is unlikely to help in supporting meet the Scottish Government climate change targets or the <i>Net Zero Aberdeen Route map</i> and would not realise economic benefits. Value for Money: As set out in the Strategic Case, the number of passenger bus journeys and bus service vehicle kilometres operated have been declining since a peak (in the North East, Tayside and Central region) in 2007/8. Despite bus industry efforts to boost passenger numbers, a range of external factors have hampered this. Simply continuing with BAU is likely to see these trends continuing, creating further associated disbenefits, as set out against the existing problems in Chapter 2, and reducing the value for money of the bus network. Progressed to OBC as the BAU comparator
Option 1 (Do Min): Existing commercial services using enhanced infrastructure		✓	✓	Discount	Policy Alignment: The addition of significant bus priority aligns with a range of policy documents. However, while Aberdeen City Council's <i>Net Zero, Environment and Transport Committee</i> continue to support ART with the Co-Leaders of the Council also strong advocates for the scheme, this support is for the ART vision (a real 'step change' in public transport) which includes improved and new services, vehicles etc. and is much more than the implementation of bus priority infrastructure alone (as is proposed under Option 1). Value for Money: The quantitative benefits (from the modelling exercise) for Option 1 are not available, but results from Option 2 (as set out below against Option 2) were used to infer the likely benefits of Option 1. While several assumptions and caveats (as set out in Section 3.4) were noted, this suggests: - the option is unlikely to deliver the desired bus speeds across the ART network (as highlighted in the appraisal against TPO1), and the continuation of existing services may look very much like 'business as usual'. - the option is likely to have the least impact in improving access by public transport to employment, education, healthcare and the city centre - the reduction in vehicle kilometres generated through modal shift is not enough to outweigh the impact of additional general traffic re-routing emissions

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
					- the option is likely to have the lowest overall TTE benefit and be significantly negative - the option is likely to have the lowest modal shift from car to bus - given the lowest modal shift, the option is therefore likely to have the lowest accident reduction benefit - the option is likely to have the lowest impact in supporting the realisation of the CC&BMP objectives - the option is likely to only marginally increase use of the Park & Ride sites (under Option 2 Park & Ride capacity increased from 8% to 10%) so an increase lower than this is anticipated It is therefore considered that, even considering the unquantified benefits, Option 1 cannot deliver an acceptable VfM. <u>Summary:</u> Simply providing new infrastructure but no specific enhanced existing or ART services does not provide a step change in public transport in the city, with limited benefits in relation to accessibility and equality, and disbenefits to general traffic, without facilitating a significant shift to public transport. It is recommended that this option is not progressed further in the OBC.
Option 2: Enhanced existing commercial services using enhanced infrastructure		✓	✓	Discount	<u>Policy Alignment:</u> Similar to Option 1, while the addition of significant bus priority aligns with a range of policy documents and there are proposed enhancements to existing services under this option, this does not deliver the step change in public transport as envisaged through the ART vision. Similar to Option 1, the modest enhancements to existing services may look very much like 'business as usual'. <u>Value for Money:</u> Quantitative benefits derived from the modelling of Option 2 suggest: - the option only provides minor public transport accessibility improvements to employment, education, healthcare and the city centre - the reduction in vehicle kilometres generated through modal shift is not enough to outweigh the impact of additional general traffic re-routing emissions (with monetised greenhouse gas emissions of -£1.2m) - the option shows an overall negative TEE benefit (£-122m) – while this should not necessarily be viewed overly negatively given the positive public transport TEE figure within this (+£111m), it is significantly lower than Options 5 and 5A - the option generates an increase in public transport usage of just 2% - the option is likely to have only a small accident reduction benefit given the low public transport usage increase - the option is likely to a low impact in supporting the realisation of the CC&BMP objectives

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
					the option only increases the use of the Park & Ride sites from 8% occupancy to 10% occupancy Overall, the option BCR (based on monetised elements only) is estimated at -2.3 ('with policy' scenario). <u>Delivery:</u> The option is likely to be deliverable under a BSIP arrangement and be less open to challenge than more involved options – but robust partnership working would be required to work through ensure appropriate service enhancements were delivered alongside the bus priority infrastructure. <u>Summary:</u> The implementation of the significant level of bus priority across the ART network will help deliver benefits, and there are proposed enhancements to some existing services operating on the ART network, but this is not considered sufficiently significant enough to offset some of the negative impacts derived through scheme implementation. It is therefore considered that Option 2 cannot deliver an acceptable VfM. It is recommended that this option is not progressed further in the OBC.
Option 3: Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure		?	✓	Discount	<u>Policy Alignment:</u> Like Options 1 and 2, the addition of significant bus priority aligns with a range of policy documents and there are proposed enhancements to existing services under this option which aligns with policy. Additionally, there are proposals to integrate existing services to form a coherent and efficient ART 'network' of services across the city, which is likely to have political support. However, the option is still not considered to deliver the step change in public transport as envisaged through the ART vision, with the enhancement of existing services likely seeming very much like 'business as usual'. <u>Value for Money:</u> Similar benefits and impacts as noted for Option 2 are anticipated. However, compared to Option 2, the integrated network should have a lower overall operating cost, due to the removal of parallel running services, making services more viable. <u>Delivery:</u> Through strong partnership working, such an option <i>may</i> be able to be delivered through a BSIP delivery arrangement and be less open to challenge. Robust partnership working would be required to understand whether such an option could be delivered through a BSIP arrangement, and a form of franchising may be required to deliver the proposals. As such, uncertainty remains as to the delivery mechanism that would be required to deliver the option.

Aberdeen Rapid Transit – Strategic Business Case

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
					Summary: The option is unlikely to have significant political support (is does not deliver the 'step change' sought) and does not deliver sufficient benefits against a range of criteria, likely not generating an acceptable VfM. It is recommended that this option is not progressed further in the OBC.
Option 3A: As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing		?	✓	Carried Forward	Policy Alignment: The option builds on Option 3 by combines the introduction of ART branding across the more frequent running existing services across the ART network, and with new and branded ART 'halts'. The combination of the infrastructure improvements with the visual branding is likely to be viewed as a greater change in bus provision across the network, offering something different from BAU and of a higher quality. Value for Money: As per Option 3, the scale of the additional benefit has not been modelled, and as such it is not possible to draw firm conclusions as to whether the option could deliver an acceptable VfM. However, the scale of the benefits is assumed to be greater than that of Option 3 given the introduction of branding and distinctive halts / faster running times likely to more greatly encourage modal shift, reduce car kilometres and reduce carbon emissions. New ART platforms will also provide improved accessibility to vehicles with improved safety and security at stops. Delivery: Through strong partnership working, such an option <i>may</i> be able to be delivered through a BSIP delivery arrangement and be less open to challenge. Robust partnership working would be required to understand whether such an option could be delivered through a BSIP arrangement, and a form of franchising may be required to deliver the proposals. As such, uncertainty remains as to the delivery mechanism that would be required to deliver the option. Summary: Even though the full ART vision would not be delivered, it could deliver a noticeable step-change improvement in public transport provision across the city and the likely less involved, and less open to challenge, delivery approach (if, once through further guidance is provided, is deemed achievable) may be a preferred pathway forward given the time, cost, and risk involved to the Council in progressing through a franchising route (see further details in Commercial, Financial and Management Dimensions). It is recommended that this option be retained and further progressed at OBC stage.
Option 4: New ART services and vehicles in addition		?	✓	Discount	Policy Alignment: The option proposes new cross-city services operated with ART branded and visually different 'tram-style' vehicles enabling mass capacity movements and reducing dwell times significantly, with bus priority infrastructure

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
to existing services, sharing enhanced infrastructure					and new ART 'platforms' across the ART network. This strongly aligns with the ART vision, and presents a clear 'step change' in public transport provision. However, additional ART cross-city services operating alongside existing services are likely to cause demand abstraction from existing services, making services less commercially viable and so be challenged by bus operators. ART patronage may be less given the greater passenger bus choice, making ART less financially sustainable. Overall across the city network, the cost per passenger will be higher. Operators may make some form of commercial response to the introduction of ART services, for example through frequency reductions on parallel services (or existing services may be reduced or removed as a result), but such measures alone are unlikely to fully offset the financial impact of revenue abstraction. The local authority may then need to provide financial input to ensure existing service provision is maintained, or more likely, an area-wide franchise will be required, with the local authority taking on all financial risk. <u>Value for Money:</u> While Option 4 has not been modelled, the appraisal noted new cross-city services would facilitate a significant reduction in bus journey times (removing interchange) with new halts and multi-door vehicles providing faster boarding and alighting times making journeys even quicker and more attractive. Providing a uniquely branded and visually different offering to existing services, with improved stops, vehicles, and on-board facilities is more likely to improve perceptions of the quality of bus travel. In this regard, there are many benefits to be derived though this option and these features are likely to be met favourably by the public, stakeholders and businesses given the new services and distinct vehicles with a modern image and a feeling of a new public transport offering in the city. <u>Delivery:</u> The option is likely to require a franchise delivery model. <u>Summary:</u> Given the unlikely political support and financial implications, it is recommended that this option is not progressed further as part of the ART scheme development.
Option 5: New ART services and vehicles with revised / integrated existing services		?	✓	Preferred Way Forward	<u>Policy Alignment:</u> The option provides all the benefit of Option 4, with new cross-city services operated with ART branded and visually different 'tram-style' vehicles enabling mass capacity movements and reducing dwell times significantly, with bus priority infrastructure and new ART 'platforms' across the ART network. Providing a uniquely branded and visually different offering to existing services, with improved stops, vehicles, and on-board facilities is more likely to improve perceptions of the quality of bus travel. There are many benefits to be derived though this option and

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
					these features are likely to be met favourably by the public, stakeholders and businesses given the new services and distinct vehicles with a modern image and a feeling of a new public transport offering in the city. Unlike Option 4, the option includes the integration of the underlying network which will provide a lower overall city-wide bus network operating cost, due the removal of parallel running services and integration of feeder services, making ART and the overall city bus network more viable and with a reduced cost per passenger. This reduces the financial risk and removes the potential challenge from existing operators and subsequent service risks as discussed above against Option 4. <u>Value for Money:</u> The appraisal noted new cross-city services would facilitate a significant reduction in bus journey times (removing interchange) with new halts and multi-door vehicles providing faster boarding and alighting times making journeys even quicker and more attractive. Quantitative benefits derived from the modelling of Option 5 suggests: - the reduction in vehicle kilometres generated through modal shift is enough to outweigh the impact of additional general traffic re-routeing emissions (with monetised greenhouse gas emissions of £1.6m). <i>The Option 5 sensitivity test (5P) highlights the much higher benefit of +£5.1m.</i> - the option shows an overall negative TEE benefit (-£14m and -£125m under the 'with policy' and 'without policy' scenarios respectively) –this should not necessarily be viewed overly negatively given the positive public transport TEE figure within this (+£196m and +£182m under the 'with policy' and 'without policy' scenarios respectively) - the option generates an increase in public transport usage of 12% - the option is likely to have the greatest accident reduction benefit given the greatest anticipated modal shift - the option improves access (by bus across the city) with public transport access to employment increased by 12% - the option is likely to provide significant support in the realisation of the CC&BMP objectives - the option increases the use of the Park & Ride sites from 8% occupancy to 31% and 34% occupancy under the 'with policy' and 'without policy' scenarios respectively Overall, the option BCR (based on monetised elements only) is estimated at +0.6 ('with policy' scenario) and -0.6 ('without policy' scenario). Given the number of qualitative (and not monetised) benefits not included in the VfM calculation, and several caveats to the modelling, it is considered that Option 5 would deliver an acceptable VfM. <i>In addition, note that the Option 5 sensitivity test (5P) generated a BCR of +1.2, reaffirming the additional benefits that ART could achieve if the appropriate supporting traffic restraint measures, such as parking control policy, were</i>

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
					<i>implemented as part of the scheme. Under this sensitivity test, the project shows a BCR > 1 indicating scheme VfM even without the inclusion of range of un-monetised qualitative benefits.</i> Delivery: Through strong partnership working, such an option <i>may</i> be able to be delivered through a BSIP delivery arrangement (more simply than under a franchise) and be less open to challenge. Robust partnership working would be required. Given the more significant proposals here, with new services and vehicles, and a greater need to adapt the existing network in particular across the proposed ART network, the option is deemed less likely to be deliverable through a BSIP arrangement. Summary: Given the above, the option is considered the preferred way forward. As part of this, the additional benefits as highlighted through the sensitivity test 5P (some form of additional traffic restraint measures) should be further explored, with the sensitivity test, or a more refined test if specific measures are identified, taken forward and considered at OBC stage.
Option 5A: as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services		?	✓	Carried Forward	Policy Alignment: The option is like Option 5 but does not introduce distinctive vehicles operating on ART routes across the network, but ART branding of more conventional existing operating vehicles. Value for Money: The benefits are similar, but slightly reduced, compared to Option 5 due to the use of more 'conventional' bus vehicles as opposed to tram-style vehicles. This reduces the benefit of lowered dwell times and the mass capacity offered by a more distinctive 'tram style' bus vehicle as assumed in Option 5. While the branding of vehicles is included in the option, there is likely to be a reduction in the perception of a 'step change' and feeling of a new public transport offering in the city. Quantitative benefits derived from the modelling of Option 5A suggests: - the reduction in vehicle kilometres generated through modal shift is enough to outweigh the impact of additional general traffic re-routing emissions (with monetised greenhouse gas emissions of +£0.6m) - the option shows an overall negative TEE benefit (-£64m under the 'with policy') –this should not necessarily be viewed overly negatively given the positive public transport TEE figure within this (+£156m) - the option generates an increase in public transport usage of 9% - the option is likely to have a slighter lower accident reduction benefit than Option 5 given the slightly lower anticipated modal shift - the option improves access (by bus across the city) with public transport access to employment increased by 11% - the option is likely to provide significant support in the realisation of the CC&BMP objectives - the option increases the use of the Park & Ride sites from 8% occupancy to 26%

Option	Network	Delivery Model		Discount, Carry Forward or Preferred Way Forward	Rationale for Select / Reject
		BSIP	Bus Franchising		
					<u>Delivery:</u> Similar to Option 5, the option <i>may</i> be deliverable through strong partnership working, but progression to delivery through a form of franchising is more likely. <u>Summary:</u> The option is recommended to be carried forward for further consideration at OBC stage, as a variant of Option 5. As design work progresses for the ART network, any engineering challenges identified for more distinctive vehicles are likely to be more easily overcome through the use of 'conventional buses' – but the loss of benefits as a result of this should be recognised.

3.7 Short-listed Options and Preferred Way Forward

- 3.7.1 The option appraisal set out to determine whether delivering only elements of the ART Vision via more straightforward delivery pathways could deliver the step change in the quality of public transport in and around Aberdeen required to (i) support the transformation of the city centre (CC&BMP) and (ii) deliver a range of benefits (including economic and health) aligned with regional and national priorities.
- 3.7.2 From the appraisal, it is clear that simply implementing bus priority infrastructure, without the wider elements of the ART vision, would not deliver these outcomes, and what can be achieved in terms of the vision will be significantly influenced by the preferred delivery mechanism. Given this:
- If, in addition to the bus priority infrastructure, new cross city bus routes were implemented using new multi-door ‘tram-style’ vehicles (or similar) operating from new more widely spaced stops, then far more significant benefits could be realised. This would include
 - greater public transport journey time reductions
 - improved journey time reliability
 - greater modal shift
 - improved perceptions of public transport quality
 - increased P&R use
 - improved equality and accessibility to the public transport network.
- 3.7.3 Implementing ART in such a way would realise the ART vision and could provide Aberdeen with what could be considered a world class transit system. Such a solution is likely to ultimately require a **bus franchising delivery model**, although there are uncertainties at this stage as to what can be achieved through a BSIP pending Scottish Government guidance.
- 3.7.4 If the new ART services were instead operated using conventional vehicles, this would result in the loss of some of the scheme benefits meaning longer journey times, lower modal shift, lower P&R use and lower levels of public transport benefits. However, this would come with a cost saving as new vehicles and depot alterations to accommodate the tram-style vehicles would not be required.
- 3.7.5 The recommendation therefore is that **Option 5 is considered the preferred way forward**, with **Option 5A also carried forward** into OBC. Recognising the additional benefits gained when supporting additional traffic restraint measures are implemented (as highlighted through the consideration of Sensitivity Test 5P), alongside the option, such **supporting measures should be considered for implementation in tandem with the ART scheme**, regardless of the form of the option or delivery mechanism.
- 3.7.6 Considering an approach where ART is delivered as the bus priority infrastructure with enhanced existing services on ART corridors (using ART branded conventional buses), and importantly an integrated existing network is also worthy of consideration. Such an approach recognises the delivery risks and uncertainties of Option 5 and could potentially be pursued through a **BSIP**. The financial risks associated with the BSIP process are likely to be relatively modest for both local authorities and operators and as such, is unlikely to face resistance or legal challenge from bus operators. As such, **it is recommended that Option 3A is carried forward for further consideration at OBC**. Successful BSIP delivery however is critically dependent on the goodwill and co-operation of bus operators and an understanding of what can be achieved under such an arrangement will require careful negotiation. Further Guidance

on legislation is required from Transport Scotland to understand the level of collaboration amongst operators that is legally allowed in this regard.

- 3.7.7 The Commercial, Financial and Management Dimensions within the remainder of this report, explore in greater detail these dimensions for the recommended preferred way forward and carried forward options.

4 Commercial Dimension

4.1 Overview

- 4.1.1 The commercial dimension is focussed on the **key contractual and delivery arrangements** for ART. At the end point of the business case process, it should set out the potential implications of the proposed procurement strategy and other commercial arrangements such as contractual mechanisms and timescales and risk apportionment.
- 4.1.2 At SBC stage, the Commercial Dimension is focussed on the deliverability of ART, in terms of:
- the potential **commercial and regulatory viability** of the options available to deliver the proposed ART services
 - the potential **delivery pathways** for ART – taking cognisance of the anticipated commercial viability of the services
 - the procurement options and potential contract structure of a significant **capital investment** infrastructure project
 - the ongoing management of the **maintenance** of new scheme infrastructure
- 4.1.3 Of the four elements listed above, the focus of this chapter is on the first – the commercial and operational deliverability aspects of the ART network of services. This is explored in the context of the **Preferred Way Forward** (Option 5) as identified in Chapter 3.

4.2 Commercial Viability

- 4.2.1 The main components of the preferred way forward (Option 5) are set out in the table below. A key feature of this is the integration of other (existing) services operating both within Aberdeen and into Aberdeenshire to enable an efficient city-wide bus network.

Table 4:1: ART options carried forward and the preferred way forward

Op.	Extensive bus priority	Services	Bus Stops	Stop Spacing	Vehicles	BRT Feature			
						High Seg.	Fast	Frequent	High Capacity
5	✓	New ART cross-city services Integration of other services to feed ART services	Platform style	800m	Tram-style / Multi-door	✓✓✓	✓✓✓	✓✓✓	✓✓✓

- 4.2.2 **The starting point here is that bus services in and around Aberdeen currently operate almost entirely on a commercial basis and therefore without subsidy from Aberdeen City Council.** Aberdeenshire Council does however fund some supported services primarily across the rural hinterland rather than to / from Aberdeen.
- 4.2.3 Option 5 proposes the introduction of ART cross-city services in tandem with the modification or removal of some existing services which would otherwise overlap with the ART services (as part of the non-ART 'supporting network'), to **create an efficient city-wide bus network**. A key issue for ART is (i) whether the ART services could run on a commercial basis or whether they would require subsidy, and (ii) whether the supporting network could run on a commercial basis or whether it would require subsidy. **The scale of any subsidy requirement will clearly be a key issue for the public sector and the potential delivery pathways for ART.**

- 4.2.4 This issue was explored via the modelling of Option 5 using the ASAM19 strategic transport model, as set out in Section 3.4. This analysis suggested that the operating costs for the new city-wide bus network were lower than city-wide operator revenue. Therefore, based on this, **ART could be introduced with a net operating surplus across the complete bus network**. While this provides an early indication of the commercial viability of the network, this needs to be heavily caveated given:
- ASAM19 was used off the shelf, without any specific enhancement for an ART application
 - the assumed ART network at the time of modelling did not match the recommended network and routing that has now emerged
 - the assumptions made with regards to the supporting network need much wider consideration and discussion with operators and other stakeholders
 - the bus priority design has progressed significantly since the work was undertaken etc.
- 4.2.5 Recognising that the revenue estimates have been derived from the ASAM19 modelling outputs, **it is advised that detailed analysis of the revenue impacts is undertaken in the OBC to provide confidence in the likely revenue impacts, and thus any potential subsidy implications. This is a key risk area.**

4.3 Local Authority Powers to Deliver ART

The Transport Act 1985

- 4.3.1 As noted above, bus services in Aberdeen are **currently delivered under the deregulated model established in the Transport Act 1985**, whereby the two main operators – First and Stagecoach – determine the services that they wish to provide on a commercial basis. Therefore, the public sector has a minimal role in planning or supporting services, noting that Aberdeenshire Council does subsidise a range of socially necessary, more rural bus services as per Section 63(2) of the 1985 Act.
- 4.3.2 Although the Councils could arguably operate their own services as per Section 34 of the Transport (Scotland) Act 2019, the nature of the network in the Aberdeen city region **would still require the voluntary cooperation of existing commercial operators**. This could undermine the effectiveness of ART due to:
- The potential for **operators running competing commercial services**, potentially using parallel routes that avoid the ART corridors (and infrastructure) but still attracting passengers
 - Operators **cherry-picking profitable sections along the ART corridors**, introducing the risk of gaps in the desired ART network
 - The fact that **operators would not be obliged to adopt a single ticketing system or fare structure**¹²⁷, therefore ruling out the potential for seamless travel and control over fares across the network
 - **Operators withdrawing services or changing routes at short notice** (subject to registration rules), which could lead to gaps in the network and constrain service reliability

¹²⁷ It is worth noting that a multi-operator ticketing scheme could be imposed by the Councils over and above the individual operators' own fares and ticketing structures as per the Transport (Scotland) Act 2011.

- **Limited to no appetite from operators to invest in longer multi-door vehicles**, thus undermining the passenger experience and legibility of the network. Multi-door access could also introduce issues with revenue protection as it would remove driver checks.
- 4.3.3 Based on the above, it can be concluded that the scale of public sector investment required to realise ART (new infrastructure and, potentially, vehicles) **would be at significant risk of not delivering its intended outcomes under 'business as usual'**, i.e., relying heavily on the voluntary cooperation from private sector operators with limited or no controls over routes, fares, service levels and branding.
- 4.3.4 In addition, the preferred way forward (Option 5, see Table 4:1) represents a fundamental change in bus service planning and delivery within the area, as it would likely require a significant recast of the local and regional bus networks. This could not realistically be achieved under the current arrangements.

The Transport (Scotland) Act 2019

- 4.3.5 Section 3.4 outlined the two main mechanisms provided by the Transport (Scotland) Act 2019 which could be used to deliver ART:
- Bus Service Improvement Partnerships (BSIPs)
 - Bus franchising
- 4.3.6 The remainder of this section explores the limitations of each mechanism to deliver the ART concept, proposing a number of potential delivery pathways to deliver the preferred way forward for ART, i.e., the introduction of ART cross-city services in tandem with the modification or removal of some existing services to create an efficient region-wide bus network.

Bus Service Improvement Partnerships

- 4.3.7 In contrast to England, at the time of writing, there is limited published guidance regarding the Transport (Scotland) Act 2019 and more specific guidance will likely be required before a definitive position can be established on the form under which a partnership approach could be used to deliver ART. The key constraints and uncertainties are discussed below.
- 4.3.8 Under the Act, Aberdeen City Council, jointly with Aberdeenshire Council, could develop a BSIP proposal, made up of a BSIP Plan, *section 35(3A)*, and one or more BSIP Schemes, *section 35(3B)*. A partnership scheme, as per *section 35(3B)(3)*, would allow the local authorities to:
- a. **Impose one or more service standards** in relation to the local services that have one or more stopping places in that area
 - b. **Specify one or more facilities to be provided in the area as part of the scheme or measures to be taken under the scheme by the LTA**, i.e., infrastructure such as dedicated bus lanes, priority signals, improved passenger facilities and other bus priority measures such as bus gates
- 4.3.9 It is worth noting that the Councils are currently developing a BSIP 'Plan' which contains five 'Schemes'.
- 4.3.10 As per *section 35(3C)*, the service standards that a partnership scheme may impose include:
- A 'route service standard' in relation to the **frequency or timing** allowed in relation to a local service

- An 'operational service standard' which may impose requirements about the **vehicles** which are to be used to provide the services; the **maximum fares** that may be charged; **ticketing**; the pricing of **multi-operator travel cards**; the **provision of information** to the public about local services; the dates on which the timing of local services may be changed
- 4.3.11 As per *section 35(3F)*, if a partnership scheme imposes a service standard in relation to a local service, **the operator of the service must comply** with the service standard. Equally, **an LTA must provide any facility or take any measure** that may be specified in the scheme.
- 4.3.12 *Schedule A1, Part 1, paragraph 3* imposes an obligation on the LTA to invite local operators to participate in the preparation of the partnership proposal, i.e., a partnership plan and scheme (or schemes). Therefore, the Act makes provision for **the LTA working collaboratively with local operators** to prepare the partnership proposal for consultation. However, it is worth noting that, under *paragraph 5*, operators of *qualifying local services* may object to the partnership proposal moving forward to consultation. The **Bus Services Improvement Partnerships (Objections) (Scotland) Regulations 2024**¹²⁸ provide further details about the objection process and the meaning of "qualifying local services".
- 4.3.13 When considering this collaborative approach, compliance with the Competition Act 1998 and the Competition Test provisions of the Transport (Scotland) Act 2001 must be taken into account. The **Transport (Scotland) Act 2019 (Consequential Provisions and Modifications) Order 2023**¹²⁹ updates *section 2(1)* of the Competition Act 1998 to take account of the additional powers available to LTAs following the 2019 Act, **including the development of partnership proposals**.
- 4.3.14 However, the order generally prohibits actions *which have as their object or effect the prevention, restriction or distortion of competition*. The Order does though provide for some exemptions to this prohibition through the concepts of 'qualifying agreements', i.e., **an agreement between bus operators of local services only**, 'qualifying decisions' and 'qualifying practices'. It is worth noting that the Act does not provide a definition for the precise meaning of either 'qualifying decision' or 'qualifying practices'. Specifically, a qualifying agreement is exempt if (*article 21*):
- It contributes to the attainment of one or more bus improvement objectives (which would be defined under a partnership plan)
 - It does not impose restrictions on the concerned operators which are not indispensable to the attainment of those objectives
 - It does not afford the concerned operators the possibility of eliminating competition
- 4.3.15 Crucially, the Order states, under *article 17(2)(c)*, that a partnership scheme is not to be regarded as a qualifying agreement, qualifying decision or qualifying practice when it comes to Competition Tests, i.e., the guidance does not refer to any circumstance in which a partnership scheme would be exempt.
- 4.3.16 Based on the above, Aberdeen City Council working jointly with Aberdeenshire Council, could theoretically deliver ART under a partnership approach. However, there is still significant uncertainty and key limitations around the extent to which legislation would enable the full delivery of the ART concept as a partnership, which may or may not be resolved in future guidance:
- a. Implementing ART would require, among others, a significant recast of the local and regional bus networks. Further regulations and guidance will be required to **clarify the**

¹²⁸ [The Bus Services Improvement Partnerships \(Objections\) \(Scotland\) Regulations 2024](#)

¹²⁹ <https://www.legislation.gov.uk/uksi/2023/80/contents/made>

mechanisms by which operators and the LTA may work together to integrate ‘feeder’ and other services – which may or may not fall under the scope of the partnership proposal – such as regional bus services heading into town (timetables, fares, ticketing, exemptions etc.). The LTA will need to carry out in-depth network analysis, in collaboration with local operators under the umbrella of the partnership, to **develop a detailed understanding of what the resulting network, with ART in operation, may be.**

- b. The above should take cognisance of the need to comply with the **Competition Act 1988 and the Competition Test provisions of the Transport (Scotland) Act 2011**, particularly in a multi-operator environment such as Aberdeen and Aberdeenshire. Although the 2023 Order introduces ‘qualifying agreements’, it crucially states that a partnership scheme is not to be regarded as a qualifying agreement. This requires clarification to understand precisely what is intended. There is a direct interpretation that **a partnership scheme shall be subject to the enforcement of the Competition and Markets Authority** and, as such, the competition tests within the Transport (Scotland) Act 2001 would apply.
 - c. It is also not clear from the Order **what role an LTA is permitted in facilitating agreements between operators** to mitigate any risks around compliance with the required service standards. This is particularly relevant when it comes to the frequency or timing of particular local services, which could be introduced, for example, to deal with overprovision of services in a multi-operator environment.
 - d. Working collaboratively with operators in developing and making the partnership proposal will offer plenty of opportunity to raise any concerns with the LTA before the period for objections commences, so that early resolution can be sought. However, there is still a risk that an agreement cannot be reached, **thus leading to operators’ objections and the making of the partnership stalling**. Key areas of objection may include vehicle standards or frequency requirements at certain times (evening, Sundays etc.). Additional regulations are required to clarify the meaning of ‘a sufficient number of persons’ and ‘qualifying local services’ in the 2019 Act, as this could be key to **determine the extent to which a potential objection from a single operator may impact the making of the scheme.**
 - e. Operating under a partnership proposal would still constitute a deregulated market. Therefore, there would still be a risk of **new operators running competing non-ART services** on the ART corridors or along parallel routes that still attract passengers. Even if qualifying agreements are used, **the extent to which they may help reinforce a partnership proposal with regards to on-street competition is not clear and further guidance will be required.**
 - f. Under a partnership approach, there would be **limited opportunities for the Council to realise any cash-releasing benefits**. Although a revenue sharing model could be developed (in return for infrastructure investment there could be access payments to the LTA), it is unclear how that could work in a deregulated market and the 2019 Act does not include any provisions in this regard.
- 4.3.17 Other limitations of and uncertainties around the partnership approach are outlined in Table 4:2. These are presented against the key project workstreams and required outputs of the ART project introduced in Table 2:6.
- 4.3.18 Delivering the ART concept **will require a significant amount of capital investment** for the implementation of the infrastructure and, potentially, for the purchase or leasing of the vehicles. Prior to making any investment decision, the Council would need to **consider the extent to which investing under the framework of a partnership proposal would deliver the intended outcomes under the ART vision with enough certainty.**

Local services franchises

- 4.3.19 Under the Act, Aberdeen City Council, jointly with Aberdeenshire Council, could establish a franchise framework as defined in *section 38(13A)*. Such a framework would allow the Councils to determine:
- What local services are to be provided in the area to which the framework relates
 - The standards to which the services are to be provided
 - Any additional facilities or services that are to be provided in the area to which the framework relates
- 4.3.20 Local services would then be provided in the area to which the framework relates only under a franchise agreement, as defined in *section 38(13A)(4)*. Under the agreement, the LTA would grant to an operator the **exclusive right to operate the local services to which the agreement relates**, as long as the services are provided on the specified terms, in particular with regards to frequency, fares and standard of services. Effectively, **operators become contracted suppliers** with commercial decision-making, service planning and, potentially, revenue risk all passing to the Council.
- 4.3.21 *Section 38(13B)* implies that a local service that is not included in the framework is not to be provided in the area to which the framework relates, unless specifically exempt. This effectively **introduces a local regulated market** that removes the risk for on-street competition.
- 4.3.22 It is worth noting that **before making a franchising framework** as per *section 38(13K)*, the Council must:
- Prepare a proposed franchising framework specifying, the area to which the framework relates and the local services that are to be provided under franchise agreements
 - Prepare an assessment of the proposed framework, setting out the extent to which the framework would contribute to the implementation of their relevant policies, comparing it to other courses of action available and describing the expected effect of the proposed framework
 - Obtain a report from an auditor on the analysis of the financial implications contained in the assessment
 - Give notice of the proposed franchising framework and carry out an extensive consultation exercise as per *section 38(13G)*
 - Make such modifications as they consider appropriate in light of the consultation and, if necessary, repeat the steps above
 - Obtain approval to make the proposed framework from a panel convened for that purpose by the Traffic Commissioner
- 4.3.23 In conclusion, a local services franchise **could apparently address some of the concerns about competition and local authority control** outlined for the partnership approach. However, there are still key uncertainties, risks and limitations that must be considered:
- a. A local services franchise has not yet been deployed in the Scottish market and, therefore, **there could be unforeseen consequences** for services within the franchise area and beyond. For example, the area covered by the franchising framework may include routes where non-ART services operate.

- b. Establishing a local services franchise is a **complex and lengthy process**. It would require a significant financial and administrative resource commitment by the LTA, with a risk of little to no reward depending on the response from local (and non-local) operators and other key stakeholders throughout the different stages of the process.
 - c. The assessment stage in the franchising process, as per *section 38(13E)*, requires the LTA to compare the proposed framework to other courses of action available. To make the case for a local services franchise over other models, **the LTA would need to rule out the partnership approach (as per the process presented in 4.4) prior to proceeding with a local services franchise**.
 - d. A franchising agreement would need to be tendered, with the potential risk of **pushing out incumbent operators, legal challenges and operator withdrawal** from the local market even before a franchising framework is in operation. The latter would have a severe effect on the network, given that, at present, there are only two operators providing virtually all services in Aberdeen and Aberdeenshire.
 - e. Given the step change required in the vehicles operating across the ART network, it is unlikely that local operators will have these readily available within their fleets. Therefore, under a local services franchise, **the LTA should carefully consider operators' appetite for delivering the required vehicle standards as part of a franchising agreement**. Further work will be required to understand how, for example, the maintenance and replacement costs for the vehicles, insurances and others may be dealt with in a franchising agreement.
 - f. Only services under a franchise agreement may operate in the area covered by the franchising framework as dictated by *section 38(13B)(1)(b)*. Although exemptions may be permitted as per *section 38(13D)(2)*, arrangements for services crossing the franchise boundary should be carefully considered **to avoid any unforeseen impacts on the wider network**.
- 4.3.24 An alternative to a franchising framework covering a wide area would be to **select specific corridors for franchising**. This has been described as 'micro franchises' in the Department for Transport's guidance '*Setting up a bus franchising scheme*', updated in 2024 (see below). In theory, such an approach could help limit the impact of any unforeseen consequences on the wider network. Although the definitions of franchise areas in the 2019 Act may be subject to further guidance, there is nothing in the legislation to prevent the adoption of this approach.
- 4.3.25 Other limitations of and uncertainties around a local services franchise are outlined in Table 4.2. These are presented against the key project workstreams and required outputs of the ART project introduced in Table 2:6.

England, the Bus Services Act 2017 and the Bus Service Improvement Plan

- 4.3.26 The **National Bus Strategy for England**¹³⁰ (the Strategy) was published in March 2021. It sets out the vision and strategy to transform the quality of bus services in England outside London, making them more attractive, convenient, good value and popular for all to use.
- 4.3.27 The statutory framework for the delivery of the Strategy is provided by the **Bus Services Act 2017 (the 2017 Act)** and the key document setting out the vision, objectives and delivery plans of LTAs and their partners, including bus operators and local stakeholders, is the **Bus Service Improvement Plan (BSIP)**.
- 4.3.28 The Strategy recognises that there can be no return to a situation where bus services are planned on a purely commercial basis, with little or no engagement with, or support from,

¹³⁰ <https://www.gov.uk/government/publications/bus-back-better>

LTAs. **BSIPs allow LTAs, working closely with their local bus operators – whether private sector or publicly owned – and local communities**, to set out a vision and plan for delivering the step-change improvement in local bus services required by the Strategy.

4.3.29 On broad terms, the Strategy set out a three-step process for LTAs to deliver its provisions at local level:

- Step 1 – decide which statutory path to follow, whether to pursue an Enhanced Partnership (EP) or develop a bus franchising assessment
- Step 2 – publish a BSIP
- Step 3 – have an EP Plan and Scheme in place, either as an end-state, or as a transition state to franchising

4.3.30 Therefore, the Strategy is clear that all LTAs should have both a BSIP and an EP Plan and Scheme in place prior to considering any franchising. Additional regulations and guidance are clear as to how this may work in practice.

4.3.31 Table 4:2 below reflects the challenges and limitations to deliver ART following the 2019 Act and the extent to which the current provisions with English regulations and guidance may provide an initial reference for the development of mitigation strategies for ART.

4.3.32 The guidance published by DfT in support of the 2017 Act and consulted in the preparation of Table 4:2 includes:

- National Bus Strategy: 2024 Bus Service Improvement Plans (Guidance to local authorities and bus operators)¹³¹
- The Bus Services Act 2017: New powers and opportunities¹³²
- Bus Services Act 2017: Enhanced Partnership creation¹³³
- Setting up a bus franchising scheme¹³⁴

¹³¹ <https://assets.publishing.service.gov.uk/media/65a6becf96a5ec000d731aa9/bus-service-improvement-plans-guidance-to-local-authorities-and-bus-operators-2024.pdf>

¹³² <https://assets.publishing.service.gov.uk/media/5f6240efd3bf7f7239aa13e0/bus-services-act-2017-new-powers-and-opportunities.pdf>

¹³³ <https://www.gov.uk/government/publications/bus-services-act-2017-enhanced-partnership-creation>

¹³⁴ https://www.gov.uk/government/publications/bus-services-act-2017-bus-franchising-creation/setting-up-a-bus-franchising-scheme-december-2024?utm_source=chatgpt.com

Table 4:2 Analysis of the regulatory environment against the project's key workstreams and required outputs

Key workstreams and required outputs	BSIP Plan and Scheme(s)	Local Services Franchises	The English regulatory environment
ART routes, i.e., the ability of the LTA to get inputs from local operators into the identification of the preferred routes	The Councils must invite local operators to participate in the development of the partnership proposal , which includes an analysis of the local services and the development of policies and objectives for the area and period of the plan.	If considering a franchising framework in isolation instead of an end state from a partnership proposal, the Councils would determine the preferred ART routes with limited to no inputs from local operators , which may lead to a compromised case for investment. This effect may be mitigated by the Councils bringing in the relevant expertise.	Guidance from DfT provides a scenario in which franchising is jointly developed with a local operator. In a first phase, a model network is tendered for, but with operators invited to bring forward proposals for profit share with the LTA. In a second phase, the final bidders would be invited to propose variations on the model network to deliver the LTA's objectives for bus. It is, however, unclear how this could benefit the delivery of ART.
Integration of non-ART services, i.e., the extent to which the powers in the 2019 Act may enable the integration of existing local, regional and other services operating into the ART corridors	Further regulations and guidance will be required to clarify the mechanisms by which operators and the Councils may work together to integrate 'feeder' and other services – which may or may not fall under the scope of the partnership proposal – such as regional bus services heading into Aberdeen (timetables, fares, ticketing, exemptions etc.). The Councils will need to carry out in-depth network analysis, in collaboration with local operators under the umbrella of the partnership, to develop a detailed understanding of what the resulting network, with ART in operation, may look like.	Further guidance will be required as to how a franchise framework may enable the integration of other non-ART services, particularly with regards to the Councils' flexibility to define the franchise area. The Councils will need to carry out in-depth network analysis to develop a detailed understanding of what the resulting network, with ART in operation, may look like. Under a franchising framework, however, the analysis will likely be undertaken with limited to no inputs from local operators, which may lead to challenges in achieving an integrated local bus network that works together as a single system.	Guidance from DfT and regulations provide extensive statutory and non-statutory advice about the flexibility that may be built in an EP scheme with regards to network and service integration . This includes regional 'feeder' services, cross-boundary services, how exemptions may be applied, fare subsidies operating into the EP area and coordination of timetables. There is also detailed guidance from DfT about how the franchising powers may be applied in different situations, even alongside an existing EP when this is required to deliver the outcomes of the BSIP . Of particular interest is the micro-franchising model referred to in the guidance, where franchising is applied across a very tightly defined area such as a specific corridor. It is also worth noting that regulations require an LTA to introduce a 'service permit scheme' when a franchising scheme is in operation . A service permit is required for any additional PSV operating in the franchising scheme area but outside of the franchising scheme itself. This may include some community bus services, DRT and any services running tours or excursions, for example.
ART infrastructure Part 1, i.e., the extent to which infrastructure investment using the powers in the 2019 Act may deliver the intended ART outcomes	The Councils must invite local operators to participate in the development of the partnership proposal, as part of which the partnership scheme(s) would include the measures and facilities to be provided by the Councils under one or more partnership schemes. Local operators will likely provide a valuable source of local and detailed knowledge about the key issues to be addressed by the facilities and measures to be delivered by the Councils.	If considering a franchising framework in isolation, the Councils would determine the potential requirements for measures and facilities with limited to no inputs from local operators. Although this could lead to a non-optimal operation of the ART services, even under a franchising framework there would be an appropriate governance structure built into the planning of any infrastructure requirements.	Guidance from DfT and regulations provide statutory and non-statutory advice around the application of both EPs and franchises, both in isolation and combined, to deliver the required outcomes. This provides a robust framework for LTAs to consider any risks associated with investing in the required infrastructure.
ART infrastructure Part 2, i.e., the potential for the phased introduction of the required facilities and measures	A partnership scheme must specify the period to which it relates. The BSIP Plan may include a number of Schemes with different target dates within each, thus facilitating the phased delivery of infrastructure under this regulatory framework.	If considering a franchising framework in isolation, the Councils would likely need to deliver all the required facilities and measures ahead of the framework coming into operation to guarantee an adequate response from the market. There would be limited scope for realising the benefits of phasing the introduction of the infrastructure unless a partnership proposal is considered as a preliminary step to the franchising framework. However, there is limited guidance as to how this may be achieved in Scotland.	Guidance from DfT is clear about the fact that a single EP scheme may set different implementation dates for separate elements within it or that different schemes may be introduced under a later date under the same EP plan . Regulations also allow LTAs to phase in their franchising schemes through the use of 'sub-areas'. By splitting a franchising area into a number of sub-areas, the services in each sub-area may transition to franchised services at different times. This may allow certain flexibility when considering the phased introduction of any facilities and measures that the LTA may put in place to complement franchised services.
ART vehicles, i.e., the extent to which the LTA may be able to deliver the required vehicle standards	Working closely with local operators under the umbrella of the partnership proposal may help determine to what extent operators may have appetite for delivering the required vehicle standards as part of a BSIP scheme. However, it is worth noting that despite partnership working, financial support from the public sector may still be required to deliver the ART vehicles.	If the vehicle requirements built into the franchising agreement are considered too onerous for operators, they may show little appetite for tendering a franchising agreement or they may build in extra costs as part of their proposition to the Councils. The key challenge is that under a franchising framework, engagement with operators would be limited and,	The different operational models proposed by DfT in their guidance would address most of these issues, particularly where an EP is used as a transition state towards franchising. This would provide opportunities to work collaboratively with operators and agreeing vehicle

Key workstreams and required outputs	BSIP Plan and Scheme(s)	Local Services Franchises	The English regulatory environment
		therefore, there would be limited opportunities to understand their position with regards to vehicle requirements.	requirements and the mechanisms by which these may be delivered.
Network identity and branding, i.e., how the powers in the 2019 Act may contribute to create a unique identity for ART	It has been assumed that a strong network identity may be delivered by setting out specific operational service standards in the partnership scheme(s). However, additional guidance is required as to how this may be achieved in practice , as the 2019 Act provides limited detail. A unique network identity for ART could require additional incentives from the Councils, particularly in the form of marketing and publicity material.	It has been assumed that a strong network identity may be deliverable as part of a franchising agreement. However, additional guidance is required as to how this may be achieved in practice , as the 2019 Act provides limited detail. A unique network identity for ART could require additional incentives from the Councils, particularly in the form of marketing and publicity material.	DfT has published extensive guidance about how to deliver a strong network identity as part of an EP scheme, whether this is through marketing of services and ticketing products by the LTA or operators or through the introduction of operational service requirements that specify particular logos, colour schemes, the numbering of individual services or other types of branding or publicity material.
Fares and ticketing, i.e., how the powers in the 2019 Act may contribute to achieve a seamless, integrated local ticketing between operators and across all modes of transport	These are specific operational services standards that may be introduced under a partnership scheme and, as such, potentially planned for and developed in direct collaboration with local operators. In a multi-operator environment, however, achieving a unified fare structure with seamless integrated local ticketing will require operators to work together and co-operate fully between them and with the Councils. Further consultation with the CMA will be required to understand any potential issues on competition grounds. There may also be challenges associated with the provision of off-bus ticketing if the Councils do not retain the revenue risk. It is worth noting that the Grasshopper scheme currently provides a multi-operator ticket with different pricing options for travel in Aberdeen and Aberdeenshire.	Under a franchising framework, the Councils can, if appropriate, retain as much control as it wishes over fares and ticketing across the franchised area. However, the potential to deliver a unified fares structure with seamless ticketing across the network may be limited by the geographical extent of the franchising framework and, therefore, it could require a complementary partnership scheme. Further guidance will be required from Transport Scotland as to how this may work in practice.	Guidance published by DfT provides numerous examples of how seamless, integrated local ticketing between operators may be delivered through an EP scheme. For example, EP schemes can introduce requirements – used individually or in combination – to provide tickets: • That are valid on ‘feeder’ local or regional services connecting with ART into or out of town • For travel on any bus service that operates between specific locations, e.g., between a specific neighbourhood and the city centre • For travel at particular times, including a defined off-peak ticket that can be used across all services in Aberdeen and Aberdeenshire (including ART) • For travel in particular areas or zones • For use by particular groups of passengers, setting out eligibility criteria EP schemes also include specific powers to specify the price of a multi-operator ticket, which may include arrangements for price variations over times etc.
Provision of information, i.e., how the powers in the 2019 Act may contribute to provide clear and sufficient information for passengers	Under a partnership proposal, there are several mechanisms the Councils could use to create an integrated experience for passengers , including: • Through the provision of integrated information facilities at bus stops including real-time information • Through the introduction of an operational service standard that makes particular reference to the provision of information to the public about local services	These provisions may also be built into a franchising agreement. However, as outlined above, there may be issues with regards to the Councils’ flexibility to define the franchise area and how these provisions may be applied outwith the scope of the franchising framework.	There is extensive guidance published by DfT as to how EP and franchising powers may be applied to provide clear information on all aspects of using bus services, so it becomes a seamless, integrated experience for passengers.
Market appetite, i.e., the extent to which the powers in the 2019 Act may incentivise local operators to participate and invest in ART	Engagement with local operators carried out to date indicates that, in their view, ART can be achieved under a partnership proposal.	Local operators have expressed concerns about using franchising to deliver ART.	Any franchising scheme cNould be developed on the back of a BSIP established by the LTA and one or more EP schemes. Therefore, it can be assumed that this transition towards franchising would have enabled plenty of opportunities to determine market appetite.
Contracts Part 1, i.e., the extent to which ART operations may be assured through contracts	Fully operating ART under a partnership proposal would require the voluntary cooperation of local bus operators, particularly on a multi-operator environment such as Aberdeen. Although the 2023 Order introduces 'qualifying agreements' between operators, it is unclear what role the Councils may play in facilitating these agreements and how they may help providing assurances around some of the required service standards. Further guidance will be required in this respect.	A franchising framework effectively introduces a regulated environment across the franchised area , under which the Councils grant to an operator the exclusive right to operate the local services to which the franchising agreement relates, as long as the services are provided on the specified terms.	Guidance from DfT and regulations provide extensive statutory and informal advice with regards to the role the LTA may play in an EP scheme. Specifically, guidance covers different mechanisms the LTA may use to manage issues related to competition under an EP scheme. The guidance also provides advice as to how franchising micro-franchising may be used by the LTA along a specific corridor or route to retain control over the use of the infrastructure and the services.

Key workstreams and required outputs	BSIP Plan and Scheme(s)	Local Services Franchises	The English regulatory environment
Contracts Part 2, i.e., the complexity of any required contracts	Effectively, there would not be any contracts between the Councils and the operators under a partnership proposal. There may be a requirements for the Councils, however, to establish some form of agreement or memorandum of understanding about how they will work together to deliver ART and the wider network.	Establishing a local services franchise is a complex and lengthy process. It would require a significant financial and administrative resource commitment by the Councils, with a risk of little to no reward depending on the response from local operators and other key stakeholders throughout the different stages of the process.	Although the franchising model has not yet been deployed in Scotland, several LTAs in England are pursuing franchising, which could enable a more detailed understanding of what the process may involve.
The regulatory environment Part 1, i.e., the extent to which ART may be achievable using the powers in the 2019 Act	As there is no precedent in Scotland for a bus rapid transit scheme delivered through the powers introduced by the 2019 Act , this remains subject to further guidance from TS, engagement with operators and other stakeholders and more extensive analytical work.	As there is no precedent in Scotland for a bus rapid transit scheme delivered through the powers introduced by the 2019 Act , this remains subject to further guidance from TS, engagement with operators and other stakeholders and more extensive analytical work.	This refers specifically to the powers introduced by the 2019 Act and, therefore, English regulations and guidance are not relevant.
The regulatory environment Part 2, i.e., whether delivering ART using the powers in the 2019 Act will comply with CMA requirements	Working with operators under the framework of a partnership proposal should take cognisance of the need to comply with the Competition Act 1988 and the Competition Test provisions of the Transport (Scotland) Act 2011, particularly in a multi-operator environment such as Aberdeen and Aberdeenshire . How this may be achieved will require further guidance and engagement with the CMA.	A franchising agreement would likely be subject to market competition as part of a tender process. Therefore, a franchising framework significantly reduces the risk of issues arising from competition law.	Guidance from DfT and regulations provide extensive statutory and informal advice with regards to several competition issues that may arise from an EP scheme, including: • Allowing new entry • Service integration • Dealing with overprovision and under-provision of services • Cross-boundary services • The risk of geographic segregation, for example operators threatened by a new entrant may decide to retreat to 'core' territories, thus reducing the effectiveness of the EP scheme Guidance also provides LTAs with valuable tools about how to use competition in favour of the intended BSIP outcomes.
The regulatory environment Part 3, i.e., other competition issues (on-street competition, medium- and long-term impact on the local market, overprovision and under-provision etc.)	There are fundamental issues related to competition for which further guidance and, potentially, regulations will be required if ART is to be delivered under a partnership proposal, including: • The entry of new (or existing) operators in the market operating competing (and compliant) services within the area defined in the partnership scheme • New entrants and competition could lead to overprovision of services, which may result in competing services operating similar timetables and leaving large service gaps • Subsidising bus services where they may not be commercially viable but they are considered necessary • Cross-boundary and regional services and ticketing	A local services franchise has not yet been deployed in the Scottish market and, therefore, there could be unforeseen consequences for services within the franchise area and beyond. The issues raised for the partnership proposal may be dealt with through franchising. However, this will be highly dependent on the LTA's flexibility to define the franchising area.	As above.
Funding and capital spending - infrastructure, i.e., the potential strength of the case for Government funding	The partnership approach may present a more robust proposal for Government funding, given that operators will have been invited to participate in the development of the proposal .	A franchising framework would require a separate business case demonstrating that franchising is the only available option to deliver ART and, therefore, make a separate case for investment.	This refers specifically to the impact the powers introduced by the 2019 Act may have on making the case for Government funding and, therefore, English regulations and guidance are not relevant.
Funding and capital spending - vehicles, i.e., the potential for mobilising private sector investment for the ART vehicles	Further engagement with operators will be required to determine under which conditions they would be willing to invest in delivering the required vehicle standards as part of a BSIP scheme.	Further engagement with operators will be required to determine under which conditions they would be willing to invest in delivering the required vehicle standards under a franchising framework.	This refers specifically to the appetite of local operators in Aberdeen and Aberdeenshire and, therefore, at this point in time, English regulations and guidance are not relevant. It may be interesting, however, to understand how other schemes in England may have addressed this as part of the OBC.
Other set up and implementation costs, i.e., the likely scale of technical, advisory, legal and other specialised resource to set up ART	The partnership proposal has been assumed as the baseline to deliver ART, i.e., a BSIP Plan and Scheme(s) will need to be developed by the Councils prior to considering the potential for franchising.	The partnership proposal has been assumed as the baseline to deliver ART.	The experience of other LTAs in England may help inform the likely set up and implementation costs of both models. Therefore, it is recommended undertaking a benchmarking exercise as part of the early stages of the OBC.

Key workstreams and required outputs	BSIP Plan and Scheme(s)	Local Services Franchises	The English regulatory environment
Revenue spending , i.e., the likely scale of operational and administration costs to be taken on by the LTA	Further analytical work will be required to determine the final form of ART and the preferred approach for each of the project workstreams and required outputs set out here. Therefore, it would be challenging, at this point, to compare both models with regards to the likely scale of revenue spending.	Further analytical work will be required to determine the final form of ART and the preferred approach for each of the project workstreams and required outputs set out here. Therefore, it would be challenging, at this point, to compare both models with regards to the likely scale of revenue spending.	This refers specifically to the final form of ART and the likely delivery model. In addition, DfT guidance is limited in providing information that could help assess the likely revenue spend under a partnership or a franchise.
Scheme affordability , i.e., the likely scale of financial risks to be taken on by the LTA	In normal circumstances, the majority of key financial risks under a partnership proposal would remain with operators . However, there may be a need for the Councils to provide subsidies across the partnership area to mitigate the risk of under-provision. Further analytical work and engagement with operators will be required to understand the actual requirements for financial risk apportionment.	Under a franchising framework, operators become contracted suppliers, with commercial decision-making, service planning and, usually, revenue risk, all passing to the Councils .	DfT guidance is limited in providing a comparison between both models with regards to financial risks. This will be dependent in the final form of ART, ongoing engagement with local operators and additional in-depth analytical work.
LTA control , i.e., the extent to which the LTA may retain control over ART operations using the powers in the 2019 Act	The issues of Councils' control have been commented above extensively, particularly with regards to the fact that operating ART under a partnership proposal would still constitute a deregulated market.	Franchising provides the Councils with the maximum level of control over ART operations. There may be issues, however, with the flexibility the Councils may have to define the franchising area and how this may impact non-franchised services.	The approach to the issues with regards to LTA control and competition in English guidance and regulations have been commented above.
Operational management resource , i.e., the level of resource the LTA may need to deploy to manage ART operations	Further analytical work will be required to determine the final form of ART and the scale of management resource that the Councils will need to deploy.	Further analytical work will be required to determine the final form of ART and the scale of management resource that the Councils will need to deploy.	This refers specifically to the final form of ART and, therefore, DfT guidance and English regulations are not relevant to this element of the project.
Monitoring and evaluation , i.e., the LTA's ability to measuring success and reviewing the strategy for implementing the ART intended outcomes	The 2019 Act contains provisions for the information that the Councils may request from operators under a partnership scheme . These would be the basis of any monitoring and evaluation plan and, therefore, measure the success of ART.	The Councils could build specific provisions in a franchising agreement about the information that operators must provide to the Councils during the franchising period . These would be the basis of any monitoring and evaluation plan and, therefore, measure the success of ART.	DfT guidance provides extensive advice about the type of information that the LTA requests from operators under an EP scheme.
Future operational changes , i.e., the LTA's ability to react to unexpected market outcomes or deliver further improvements post implementation	The 2019 Act contains provisions for varying a partnership scheme. However, further guidance will be required as to the potential impact of these provisions on normal ART operations.	Similarly, the 2019 Act contains provisions for varying a franchising framework. However, further guidance will be required as to the potential impact of these provisions on normal ART operations.	Guidance from DfT and regulations provide statutory and informal advice as to the type of situation that could lead to varying an EP or a franchising scheme and how these may apply in practice.

Northern Ireland, the Transport Act (Northern Ireland) 2011

- 4.3.33 The **Belfast Rapid Transit Phase 1 (BRT1)** pilot route network and service operated by Translink **opened on 3rd September 2018 under the Glider brand**, providing a rapid transit service between East and West Belfast through the City Centre, with a link to Titanic Quarter. The Glider largely replaced the Metro bus service on the Falls Road and Upper Newtownards Road corridors with two new services:
- G1 - McKinsty Road - City Centre - Dundonald P&R
 - G2 - City Centre - Titanic Quarter
- 4.3.34 BRT1 is operated by **Translink, a subsidiary of the Northern Ireland Transport Holding Company (NITHC)**. Other subsidiaries include Ulsterbus, Metro and Northern Ireland Railways, but they all trade jointly as Translink. NITHC is a public corporation and its responsibilities include holding and managing property assets and the oversight, in terms of support, control and supervision, of its private limited subsidiary companies. The NITHC was established under **Section 47 of the Transport Act (Northern Ireland) 1967**.
- 4.3.35 The **Transport Act (Northern Ireland) 2011** gave the **Department for Infrastructure (DfI)** powers to enter into *service agreements* with any operator for the provision of public passenger transport services or issue *service permits* to any operator for the provision of *non-contracted services* (in the absence of a service agreement). The power conferred to enter into service agreements includes the power to award public service contracts.
- 4.3.36 The Act also introduced, under section 1(3), an obligation on the Department, to '*secure that most public passenger transport services continue to be provided by the Holding Company [NITHC] and its subsidiaries*'. Section 1(7) also **makes providing of an unregulated service an offence liable to a fine**, which is understood to constitute the main mechanism to mitigate any risk of other operators running competing non-Glider services on the BRT1 corridors or on parallel routes.
- 4.3.37 The Public Service Agreement (PSA) forms the basis for the relationship between Translink and DfI. The service agreement implements European and Northern Ireland (NI) legislation on the provision of public transport. It establishes **Translink as the main provider of timetabled services in NI with an obligation to manage and operate a comprehensive, integrated network of bus and train services** and that **DfI will compensate Translink for the discharge of this public service obligation**. The current PSA was signed on 1st April 2022 for a minimum period of 5 years.

Conclusions

- 4.3.38 There are still fundamental questions as to how achievable ART may be using the powers introduced by the Transport (Scotland) Act 2019. Although **the provisions in the Act may provide flexibility for the Councils to address some of the key limitations and uncertainties**, particularly when referring to the English guidance and regulations, this will need to be confirmed through **further engagement with TS, as well as more detailed regulations and guidance**.
- 4.3.39 To make the most out of any future engagement, not only with TS but also with operators, **developing a detailed understanding of what the future network may look like is recommended as a critical first step**, in direct collaboration with local operators. This analysis should determine the preferred network across Aberdeen and Aberdeenshire once ART is introduced, taking into account any potential phasing.
- 4.3.40 Clarifying the final network (and any intermediate states if the introduction of ART is phased) **will help determine, with more certainty, how the Councils may use the powers in the 2019 Act to deliver ART**. It should be taken into account, however, that the final statutory pathway to deliver ART may include, for example, a franchising framework that is limited to

the ART corridors operating alongside a wider (potentially covering Aberdeen and Aberdeenshire) partnership proposal. This is because each model presents clear advantages over the other on different issues. For example, a geographically contained franchising framework could help resolve some of the competition-related concerns raised for the partnership proposal.

- 4.3.41 Finally, a key to the success of BRT1 in Belfast, i.e., Glider, was the fact that it was a publicly-owned (but operating on a commercial basis), single-operator environment, i.e., Translink. Engagement with Translink to date has indicated that this was **key to address some of the key issues with regards to network planning and integration**.
- 4.3.42 Considering a publicly-owned company for Aberdeen and Aberdeenshire, however, could have severe implications on the current market and require yet additional investment to set up the new company. The new company would still need to compete with existing operators in a deregulated environment or, if franchising is introduced, bid for any franchising agreements. Therefore, the remainder of this section will focus on the assessment of the delivery pathways on a multi-operator environment, with no regard to the potential for one of these operators being a publicly-owned company.

4.4 Pathways to Delivery

- 4.4.1 ART represents a fundamental change in bus service planning and delivery within Aberdeen and Aberdeenshire, as it will probably **require a significant recast of the local and regional bus networks**. Understanding how ART would reshape these existing networks is the logical first step of any delivery pathway. By carrying out this analysis in collaboration with bus operators, it would:
- Provide an early understanding of operators' commercial appetite to deliver the required service standards
 - Represent an opportunity to get buy-in from critical stakeholders
 - Help present a strong narrative to potential funders, i.e., working together with operators from the outset, the LTA may address some of the early uncertainties around the deliverability of ART
- 4.4.2 The BSIP approach provides the Councils with a mechanism to **invite operators to participate in the preparation of the partnership proposal**. In addition, preliminary engagement with operators indicated that delivering ART through a partnership proposal was their preferred approach. They did not endorse the local services franchising on the basis of the complexity and the commercial risks it could introduce in the local market.
- 4.4.3 The steps outlined here are only recommendations based on our interpretation of the regulations and all supporting guidance published to date. It is also worth noting that as the OBC progresses, **the timings associated with these delivery pathways will become clearer**. As such, these steps should not be interpreted as a linear process at this stage because **the final delivery of ART may involve, for example, some form of franchising framework complementing a pre-existing partnership proposal**, subject to further guidance from TS.
- 4.4.4 The diagram below illustrates the delivery pathways further explained below.

Aberdeen Rapid Transit – Strategic Business Case

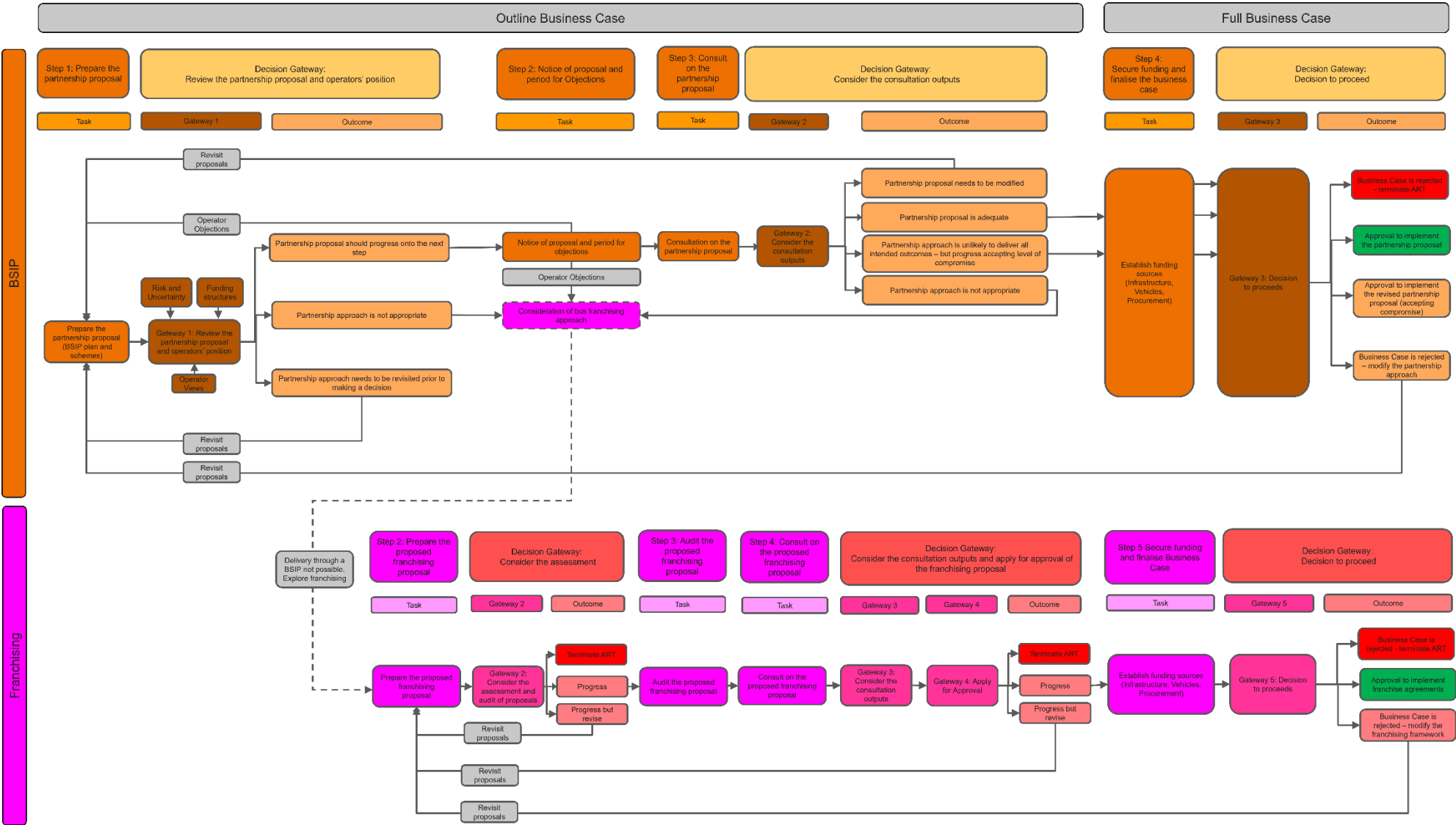


Figure 4.1: Delivery Pathways

Step 1 – Prepare the partnership proposal

- 4.4.5 The partnership proposal would comprise a partnership plan and one or more partnership schemes. A partnership plan, as per *section 35(3A)* of the 2019 Act is a plan that:
- **Specifies the area and the period** to which the plan relates
 - For the specified area, sets out an analysis of the local services, policies and **the objectives to be met with regards to the quality and effectiveness** of the local services provided
 - Describes how the partnership scheme (or schemes) will support the implementation of the policies and the delivery of the objectives
 - Describes **the intended effect of any such scheme (or schemes)** on areas which are adjacent to the area specified in the plan
- 4.4.6 The partnership plan would effectively provide the framework to conduct a network review working in partnership with local bus operators. This would provide the opportunity to reach an early agreement with operators about **the preferred supporting network taking account of the potential effects of ART**. The final infrastructure, measures and service standards (see 4.3.8 and 4.3.9 for additional details) required under ART would have been progressed through one or more partnership schemes.
- 4.4.7 Having operators feed into the preparation of the partnership proposal will provide the Councils with an early understanding of their appetite to deliver the service standards required to deliver the ART concept.

Gateway 1 – Review the partnership proposal and operators' position

- 4.4.8 At this point, the Councils, should consider the partnership proposal in detail prior to moving on to the next steps in the delivery pathway, including:
- The **key areas of risk and uncertainty** that could have an impact on the delivery of the intended outcomes and any concerns about the coordination of services becoming anti-competitive
 - The views operators would have expressed throughout the development of the partnership proposal **with regards to the required service standards**, including their capacity and appetite for providing the ART vehicles
 - The key priorities for investment and the potential **funding structures** for both the infrastructure and the vehicles
- 4.4.9 The anticipated outcomes of this gateway are:
- i. The Councils may decide that **the partnership proposal should progress onto the next steps**. In this case, it is expected that operators would have provided the Councils with enough confidence in their appetite to deliver ART. There would also be more clarity about the application of powers in the 2019 Act and an agreed funding position to deliver, at least, the required infrastructure. [Delivery Pathway 1]
 - ii. The Councils may decide that **a partnership approach is not appropriate** and, therefore, may choose to pursue a delivery pathway alternative to the partnership approach, i.e., a **local services franchise**. This could be due to a lack of clear guidance around the application of the powers in the 2019 Act, an uncertain funding position that could result in affordability issues and a high likelihood that operators would object to the partnership proposal. [Delivery Pathway 2]

- iii. The Councils may consider that **it is necessary to revisit ART as set out in the partnership proposal prior to making a decision**, reassessing some of the areas of risk and uncertainty to establish a clearer position and taking into account that a level of compromise may be required.
- 4.4.10 More detailed terms of reference for this and other gateway reviews proposed in these delivery pathways, including the information required to feed into the decision-making process, will be established prior to any work commencing on the OBC.

Delivery Pathway 1 – Continue with the partnership approach

- 4.4.11 This pathway assumes that the Councils have decided to continue making the partnership proposal.
- 4.4.12 It is worth noting that existing guidance is not clear about **the point at which the partnership proposal should be assessed against the Competition Act 1988 and the Competition Test provisions of the Transport (Scotland) Act 2001**. However, it is recommended that this happens prior to any notices being issued (see below), thus minimising the risk of objections being made on the basis of competition.

Step 2 – Notice of proposal and period for (operator) objections

- 4.4.13 The requirements for this step are defined in *Schedule A1, Part 1, paragraphs 4 and 5* of the Transport (Scotland) Act 2019. More specifically, *paragraph 5(1)* states that the local transport authority (in this case, the Councils) may not progress the partnership proposal if, within the period for objections, a *sufficient number* of operators of *qualifying local services* object to the proposal being made. This is all set out in the Bus Services Improvement Partnership (Objections) (Scotland) Regulations 2024.
- 4.4.14 In the case that there are objections to the partnership proposal, **the Act does not provide for the Councils to respond to these objections**. Therefore, it is difficult to define the decision-making process to progress onto the next step until further guidance is provided by Transport Scotland. However, the rest of this pathway is built on the assumption that **the Councils may continue making the partnership proposal**.

Step 3 – Consult on the partnership proposal

- 4.4.15 As per *Schedule A1, Part 1, paragraph 6*, the Councils must consult
- All **operators of local services** who are likely to be affected by the partnership proposal
 - Organisations that are representative of users of local bus services
 - Any other local transport authority or Transport Partnership that the authority consider may be affected by the partnership proposal
 - The Traffic Commissioner
 - The chief constable of the Police Service of Scotland
 - The **Competition and Markets Authority**
 - Other relevant individuals or stakeholders

Gateway 2 – Consider the consultation responses

- 4.4.16 The Councils should consider the consultation responses, based on which they may decide that:

- i. **The partnership proposal is adequate** and, therefore, it should progress onto the next steps. Thereafter, the Councils may proceed to adopt and implement the partnership plan and scheme (or schemes) as per the provisions in *Schedule A1, Part 1, paragraph 8*.
- ii. **The partnership proposal needs to be modified**, going back to Step 1. In this case, a full review of the suitability of the partnership approach is recommended before restarting the process.
- iii. The partnership approach is **unlikely to deliver all of the intended outcomes** and, therefore, **the Councils may choose to pursue a different delivery pathway**, i.e., a local services franchise
- iv. The partnership approach is **unlikely to deliver all of the intended outcomes**, but the Councils still **decide to progress through Pathway 1 – Continue with the partnership approach accepting that a level of compromise may be required**

Step 4 – Secure funding and finalise the business case

- 4.4.17 A decision to continue with the partnership approach in the previous gateway would effectively mean that **a fully approved OBC with a clear steer to implement ART through a partnership proposal is in place**. The OBC would constitute the basis for the Councils to apply for Government funding to deliver ART.
- 4.4.18 Depending on the operators' commercial position, **a funding source for the purchase or leasing of the vehicles**, in addition to the delivery of the infrastructure, **may need to be established**. This should be clearly determined in the OBC as it will be a significant element of the total funding ask.
- 4.4.19 Once funding has been committed in principle, the Councils should initiate the approved procurement procedure for any remaining infrastructure they committed to provide under the adopted partnership proposal (assuming the delivery of infrastructure was phased as described in 6.4.38 onwards).
- 4.4.20 If it is considered that any 'qualifying agreements', 'qualifying decisions' or 'qualifying practices' are required to provide more certainty around network coordination, **these may be drafted at this stage**. It is worth noting the lack of clarity around the permitted role that the Councils may have in facilitating agreements under the 2019 Act and, therefore, how these should feature within the business case.
- 4.4.21 The outputs of the procurement procedure identifying a preferred bidder or bidders for the delivery of the infrastructure should feed into the **Full Business Case (FBC)**. The process described so far is, however, purely methodological. As work on the OBC progresses, this should be reviewed to take account of timings relative to:
 - The phased introduction of the facilities and measures to be provided by the Councils
 - How the decision-making process, i.e., the business case, fits into the timings for making the BSIP
 - The commencement of ART operations or any transitional state

Gateway 3 – Decision to proceed

- 4.4.22 This gateway is the last decision point under this delivery pathway, as it would provide the **go ahead for the expenditure committed by the Councils** under the partnership scheme (or schemes), i.e., the implementation of infrastructure and other required measures.
- 4.4.23 This gateway should demonstrate how the decision made has taken into account **the extent to which investing under the framework established by the partnership proposal would**

deliver all of the intended ART outcomes, as well as all the residual risks and uncertainties that could impact the delivery of those outcomes. Taking this into account, there are three key decision outcomes:

- i. The provisions in the FBC are approved and, therefore, **the Councils are given the go ahead to implement the partnership proposal**
- ii. The provisions in the FBC recognise that **there will likely be a compromise on the full delivery of the intended ART outcomes**. However, the partnership proposal is still recognised as the best possible pathway and **the Councils are given the go ahead to implement the partnership proposal**.
- iii. **The provisions in the FBC are rejected** and, therefore, the Councils need to consider what the next steps may be:
 - Consider **modifying the partnership proposal** – however, this may not be a viable option at this stage as the proposal would have already gone through a significant amount of scrutiny
 - Adopt **a different delivery pathway**, i.e., a local services franchise – however, this may not deliver a viable pathway this late in the process without a significant risk of antagonising the local market with all the network implications that could have
 - **Terminate the ART project** altogether

4.4.24 As a final conclusion, it is worth noting that pursuing a local services franchise will not necessarily mean dropping the partnership proposal. They may work alongside each other to mitigate some of the uncertainties and limitations outlined before. However, further guidance will be required to clarify how this may work in practice for ART.

Delivery Pathway 2 – Local services franchise

4.4.25 Based on the decision-making gateways and reviews within the previous delivery pathway, a local services franchise may be considered in the following cases:

- There is a recognition that **the risks, uncertainties and limitations of delivering ART through a partnership proposal are not acceptable** in light of the capital investment required (see 4.3.16)
- There is an indication that **securing Government funding (or other external funding) to deliver ART through a partnership proposal will be challenging**. Funding limitations could require the Councils to compromise on the infrastructure or measures in the partnership scheme, which would probably result in objections to the partnership proposal or reduced operators' appetite. In this case, a local services franchise could be used as a mechanism to compel the market to bid for a franchise agreement.
- Local **operators do not cooperate with the preparation of the partnership proposal or they object to it** during the objections period. This would likely be a result of operators considering that the service standards required to deliver ART are too onerous and, therefore, may not constitute an attractive commercial proposition without public sector subsidy.

4.4.26 As noted above, **it is not recommended pursuing a local services franchise at the point of rejecting the FBC for the partnership proposal**. This is because at that stage commercial operators would have a strong expectation that delivery of ART would be through a partnership proposal. Therefore, a local services franchise would shift the nature of their relationship with the Councils, particularly when it comes to risk apportionment and commercial incentives to develop and market the network.

- 4.4.27 If a decision is made to pursue a local services franchise to deliver ART, the Councils would need to go through the steps outlined below. These steps assume that the work carried out to develop the partnership proposal under Step 1 would not be necessarily abortive.

Step 2 – Prepare and assess the proposed franchising framework

- 4.4.28 The proposed franchising framework, as per *section 38(13D)*, must specify, as a minimum:
- **The area to which the framework relates** which would be, in principle, similar or equal to that established in the partnership plan
 - The local services which are to be provided under franchise agreements
 - The date by which the framework is to come into operation and the period during which it is to remain in operation, also as defined in the partnership plan
 - **The standards to which services must be provided under franchise agreements** including, in particular, as to frequency, fares and standard of services
- 4.4.29 It is worth noting, however, that if a proposed franchising framework relates to an area to which a partnership scheme also relates, **the proposed franchising framework must include provisions either revoking or varying the partnership scheme**. This is stated in *section 38(13D)(4)* of the 2019 Act. This is a factor not commented on before, which could add another layer of complexity to the delivery of ART through a local services franchise.
- 4.4.30 In parallel to the preparation of the franchising framework, the Councils must prepare an assessment of the proposed framework, which may require some level of iteration. The assessment must, in the specific context of ART and its intended outcomes:
- Set out how, and to what extent, **the proposed framework will contribute to the implementation of the Council's relevant policies**
 - Compare the making of the proposed framework **to one or more other courses of action** available to them to implement those policies, i.e., the status quo and the partnership proposal
 - Describe the expected effect of the proposed framework on any areas which are adjacent to the area of the framework
 - Set out how the Councils intend to operate the proposed framework
 - Determine the extent to which the Councils considers **that they will be able to secure that local services will be operated under franchise agreements**
 - Set out their analysis of the financial implications for them of making the proposed framework
 - Set out how they propose to review the effectiveness of the proposed framework
- 4.4.31 Note that, as per *section 38(13E)(4)*, the Councils must seek views about the proposed franchising framework from operators who are providing local services in the area to which the proposed framework relates.
- 4.4.32 *Section 38(13E)(5)* notes that the Scottish Ministers are yet to issue guidance in relation to the preparation of the 'assessment' which may, in particular, refer to the methods to be used when assessing a proposed framework.

Gateway 2 – Consider the assessment of the proposed framework

4.4.33 Prior to moving onto the next step, the Councils should consider the outputs of the assessment in detail, including:

- The **data, information and methodologies** used to carry out the assessment, establishing the level of confidence provided by the outputs
- The extent to which the proposed framework **addresses any of the limitations of delivering ART through a partnership proposal**
- The key areas of risk and uncertainty that could have an impact on the delivery of the intended outcomes and, in particular, **the risk of putting pressure on the market and any concerns about potential unforeseen consequences**
- The likelihood, through engagement with operators, of **legal challenges from or withdrawal from the local market** if unsuccessful to secure a franchising agreement

4.4.34 Based on the above, the Councils may decide that:

- i. The proposed franchising framework **should progress onto the next steps**
- ii. The proposed franchising framework **needs to be reviewed prior to moving onto the next step**
- iii. The proposed franchising framework is unlikely to address all the limitations of delivering ART through a partnership proposal (as identified in Step 1) and, as such, **will not deliver all of the intended outcomes**. In this case:
 - The Councils may decide to progress with making the proposed franchising framework **accepting that a level of compromise may be required**
 - The Councils may decide to **terminate ART**

Step 3 – Audit the proposed franchising framework

4.4.35 If the Councils decide to proceed with the proposed framework after Gateway 2, the authority must obtain a report from an auditor on the analysis of the financial implications contained in the assessment. The report must state whether, in the opinion of the auditor:

- The information relied on by the Councils, as well as its analysis, are of sufficient quality
- The Councils had regard to any guidance that may have been issued by the Scottish Ministers with regards to the preparation of the assessment (see 4.4.32)

4.4.36 The Councils should consider the outputs of the auditor's report and acknowledge any potential risks that it may introduce in the next stages.

Step 4 – Consult on the proposed franchising framework

4.4.37 At this point, the Councils must give notice of their intention to make the proposed franchising framework as per *section 38(13G)(3)*. After giving notice, the Councils must consult:

- All operators of local services in the area to which the proposed framework relates
- Any other individual holding a PSV operator's licence or community bus permit who, in the opinion of the authority, is likely to be affected by the proposed framework

- Organisations that are representative of employees of such operators
- Organisations that are representative of users of local bus services
- Each Council or Transport Partnership that is, in the opinion of the authority, likely to be affected by the proposed framework
- The Traffic Commissioner
- The chief constable of the Police Service of Scotland
- The Competition and Markets Authority
- Other relevant individuals or stakeholders

4.4.38 The consultation documents should include the report obtained from the auditor under Step 3. This highlights the importance of carefully considering any risks that this report may introduce in the process at this point.

Gateway 3 – Consider the consultation outputs

4.4.39 The Councils should consider the consultation outputs, based on which they may decide that:

- i. **The proposed franchising framework is adequate** and, therefore, it should progress onto the next steps. Therefore, the Councils may apply for approval of the proposed franchising framework as per *section 38(13I)*.
- ii. **The proposed franchising framework needs to be modified.** If the Councils consider that the modifications materially affect any part of the assessment prepared under Step 2, they must prepare a new assessment of the proposed framework as modified. However, *section 38(13H)(5)* notes that the Scottish Ministers are yet to issue guidance in relation to the circumstances in which a local transport authority must prepare a new assessment of a proposed framework.
- iii. The proposed franchising framework is unlikely to address all the limitations of delivering ART through a partnership proposal and, as such, **will not deliver all of the intended outcomes**. In this case:
 - The Councils may decide to progress with making the proposed franchising framework **accepting that a level of compromise may be required**
 - The Councils may decide to **terminate ART**

Gateway 4 – Apply for approval of the proposed franchising framework

4.4.40 If Gateway 3 results in a decision to proceed, the Councils must request that the Traffic Commissioner convene a panel, as per *section 38(13J)*, to consider whether to approve the making of the proposed franchising framework. The panel may then decide:

- To approve the making of the proposed franchising framework, thus **enabling the Councils to make the proposed franchising framework**
- To approve the making of the proposed franchising framework **subject to the Councils making such modifications** as the panel may specify
- Not to approve the making of the proposed framework. In this case, the Councils may decide to either seek further guidance from Transport Scotland or terminate ART.

- 4.4.41 *Section 38(13T)* of the 2019 Act provides a list of those aspects of making a franchising framework that are still subject to further guidance being published by the Scottish Ministers. It is worth noting that the make-up of the panels to be convened for the approval of the proposed framework is set out in the Local Services Franchises (Traffic Commissioner Notices and Panels) (Scotland) Regulations 2024¹³⁵.

Step 5 – Secure funding and finalise the business case

- 4.4.42 The approval of the proposed franchising framework in the previous gateway would effectively mean that **a fully approved OBC with clear steer to implement ART through a local services franchise is in place**. The OBC would constitute the basis for the Councils to apply for Government funding to deliver ART.
- 4.4.43 Once funding has been committed in principle, the Councils should initiate the approved procurement procedure for the infrastructure and any supporting facilities and measures. The Councils should also begin the tender procedure for the required franchising agreements.
- 4.4.44 An added complication here is the **difference between the required timescales for procuring and delivering the infrastructure** – which could vary between 2 to 4 years depending on the level of ambition – **and the timescales for entering into a franchising agreement**, which could be relatively short once the franchising framework has been approved (which could in itself take several years). This could lead to a situation in which **the Councils are compelled to make a decision to deliver the ART infrastructure ‘at risk’**, i.e., without having developed a full understanding about the viability of delivering ART through a local services franchise. This would not be the case if ART were to be delivered through a partnership proposal.
- 4.4.45 The outputs of the procurement procedures identifying a preferred bidder for the delivery of the infrastructure and the franchising agreements, as well as the negotiated contractual arrangements should feed into the **FBC**.

Gateway 5 – Decision to proceed

- 4.4.46 This gateway is the last decision point under this delivery pathway, as it would provide the **go ahead for the expenditure committed by the Councils** under the franchising framework, i.e., the implementation of infrastructure and other required measures and in this case, the purchase or leasing of the ART vehicles.
- 4.4.47 This gateway should demonstrate how the decision made has taken into account **the extent to which investing a franchising framework would address the key limitations identified for the partnership approach**, while mitigating the additional risks of adopting a local services franchise. Taking this into account, there are three potential outcomes:
- i. The provisions in the FBC are approved and, therefore, **the Councils are given the go ahead to deliver the infrastructure and enter into franchise agreements**
 - ii. The provisions in the FBC recognise that **there will likely be a compromise on the full delivery of the intended outcomes**. However, the proposed franchising framework is still recognised as the best possible pathway and **the Councils are given the go ahead to deliver the infrastructure and enter into franchise agreements**.
 - iii. **The provisions in the FBC are rejected** and, therefore, the Councils need to consider what the next steps may be:
 - Consider **modifying the franchising framework** to make it more appealing to the market and potential funders

¹³⁵ [The Local Services Franchises \(Traffic Commissioner Notices and Panels\) \(Scotland\) Regulations 2024](#)

- **Seek further guidance from Transport Scotland** about any other options that may be available to deliver ART
- **Terminate the ART project** altogether

What are other local authorities doing?

4.4.48 Various potential delivery pathways for ART have been considered and are discussed below. To inform this, discussions were held with other local authorities to explore the routes being taken to provide bus improvements in their respective areas. This included discussion with those involved in the delivery of similar bus schemes, as well as those involved in progressing towards area wide franchising, and included discussions with:

- Officers from Transport for West Midlands (TfWM) involved in the delivery of the Birmingham Sprint scheme – being delivered through an Enhanced Partnership, although scheme delivery through franchising was considered but such an approach, while considered the ‘cleanest’ option, was not progressed by decision makers
- Officers from the West of England Combined Authority (WECA), involved in the delivery of the Bristol metrobus scheme - being delivered through a Quality Partnership Scheme supported by a voluntary partnership agreement with maximum fares and minimum frequencies stipulated
- Officers from Portsmouth City Council, where city wide bus improvements are being delivered through partnership working and a funded BSIP
- Officers from Liverpool Combined Authority – currently working towards area wide bus franchising after a mayoral decision. Note that bus franchising is not being implemented here to deliver a specific project (like ART) but to give the local authority control over the network.
- Officers from West Yorkshire Combined Authority – currently working towards area wide bus franchising after a mayoral decision. Like Liverpool, bus franchising is not being implemented here to deliver a specific project (like ART) but to give the local authority control over the network.

4.4.49 The main points raised from each meeting are set out in Appendix K .

Summary and Conclusions

4.4.50 The two delivery pathways presented – a partnership proposal and a local services franchise – have varying levels of deliverability uncertainties under the existing legislation and guidance as of early 2025. It is clear, therefore, that **further engagement with and guidance from the Scottish Ministers (and Transport Scotland) is required to establish the extent to which ART may be deliverable under the powers available to the Councils in the 2019 Act.**

4.4.51 Therefore, the default recommendation is to initiate the process of preparing a partnership proposal working collaboratively with bus operators, to the extent that they show appetite for doing so. This would:

- Provide an early understanding of operators’ commercial appetite to comply with the service standards required to deliver all the intended outcomes of the ART vision
- Represent an opportunity to get buy-in from and establish an effective dialogue with bus operators, which are critical stakeholders for both delivery pathways

- Help present a strong narrative to potential funders, i.e., working together with operators from the outset, the Councils have addressed some of the early uncertainties around the deliverability of ART

4.4.52 It is also recommended that the Councils only considers a local services franchise if it is established that ART cannot be delivered through a partnership proposal. It is expected that further guidance may resolve some of the uncertainties and limitations of the partnership approach.

4.5 Infrastructure Procurement

4.5.1 This section provides the first steps into the adoption of a procurement strategy for the delivery of the ART infrastructure, including a review of typical procurement risks, the procurement objectives and the range of procurement options available to the Council.

Procurement Risks

4.5.2 As identified in the HM Treasury Green Book, the first stage of setting the procurement objectives is to identify the key procurement risks, i.e., those that *'can arise from the contractual arrangements between two parties'*. Although the specific procurement risks will be determined as part of the OBC, the table below sets out the typical procurement risks on projects of a similar nature to ART (construction of infrastructure in urban environments) and their potential impact on the project's deliverability.

Table 4:3: Typical procurement risks

Risk Category	Description	Potential mitigation
Contractor quality assurance	There is a risk that contractors may have limited technical experience of constructing new urban infrastructure on 'live' roads. This could result in the scheme not meeting satisfactory safety, durability or design standards, resulting in unforeseen cost, exposure, programme and reputational impact on Aberdeen City Council and its partners.	■ Include pre-qualification quality questions during procurement process to select a preferred bidder who has a track record of constructing similar projects ■ Bidders required to outline and evidenced detailed methodology for undertaking work ■ Bidders required to demonstrate robust processes for managing quality control / health and safety / environmental management
Project constraints	There is a risk that contractors may not appropriately account for the typical constraints (environmental, traffic restrictions, planning etc.) of delivering new urban infrastructure on 'live' roads, resulting in additional costs and a potential impact on the delivery programme.	■ Ensure the tender information incorporates a detailed brief of the current context, including key known risks from the design process ■ Bidders to provide clear methodology and processes for managing and mitigating key project-specific risks
Contractor insolvency	There is a risk that contractors may be unable to meet their financial obligations and liquidate during the construction process, resulting in additional unforeseen cost, reputational and programme impacts for the ART project. This will be the subject of an entire section in the future OBC.	■ Incorporate robust pre-qualification financial credit checks as part of procurement process ■ Include procedures in the event of contractor failure within the draft contract in the procurement process ■ Introduce measures to reduce the impact of any insolvency event through the contract such as performance bonds, parent company guarantees, collateral warranties, and regular financial checks

Risk Category	Description	Potential mitigation
Legal challenge	There is a risk that the outputs of any procurement procedure could be challenged by unsuccessful bidders, thus resulting in a lengthy legal process prior to the Council before being able to award any contracts.	- Gain feedback from contractors on the potential process through pre-market engagement prior to procurement process - Ensure the procurement procedure has a robust and transparent process, consistent with Scottish regulations, which can stand up to scrutiny
Contract terms	There is a risk that contractors may not agree with the contractual terms post-tender, thus resulting in additional programme impact during negotiation / re-tendering period.	Ensure procurement process incorporates draft contract terms for prior review by potential contractors.
Unclear contract terms	There is a risk that ambiguities in agreed contract with the preferred bidder results in subsequent dispute(s) relating to perceived non-compliance with terms during project delivery, thus resulting in legal and financial challenges for Falkirk Council.	Utilise standard, industry-recognised contractual frameworks such as the Engineering and Construction Contract (ECC) NEC suite of contract
Market appetite	No guarantee of market appetite for a competitive procedure, which could result in no bids being submitted by contractors.	Undertake pre-market engagement prior to procurement process to seek feedback and tailor approach to bolster appetite, where possible
Programme (contractor)	There is a risk that contractors may propose an unrealistic construction programme for the works, which could result in additional unforeseen costs and reputational impact.	- Set broad programme expectations as part any market engagement or procurement process - Account for lessons learnt on other infrastructure projects and programmes in Aberdeen
Programme (contractor)	Prolonged periods of poor weather, unforeseen issues or poor contractor performance results in delays during construction process.	Build in contractual clauses through procurement to manage risk to the Council (e.g., delay damages)
Programme (procurement)	Risk that cross-organisational approval processes delay the contract award, thus resulting in the contractor being appointed later than expected and having a knock-on impact on the original construction programme.	Initiate early discussions with all parties at the outset to align appointment timescales and agree cross-organisational processes to reduce complexity and delay risk
Programme (procurement)	There is a risk that an unexpectedly high number of bids may be received which results in the procurement process taking much longer than expected, thus resulting in a contractor being appointed later than expected and having a knock-on impact on the original construction programme.	- Include pre-qualification quality questions during procurement process to narrow field of contractors submitting a bid - Consider using a mini competition (via a framework) rather than open competition
Project cost overrun	There is a risk that unforeseen costs during the construction stage (e.g., unexpected inflationary increases, 'unknown unknowns', disputes) could result in the original project budget being overrun.	- Ensure cost submission required as part of bid for contractors is rigorous and itemised - Consider contractual mechanisms to deal with the risk of cost overruns, particularly in relation to the potential impact of inflation - Account for lessons learnt on project costs from other construction projects of a similar nature in Aberdeen or Scotland

Risk Category	Description	Potential mitigation
		Undertake Quantitative Cost Risk Analysis (QCRA) prior to any tender procedure and once it has been complete
Unrealistic costs	There is a risk that tender evaluations may not be able to identify an abnormally low value bid, potentially resulting in future unforeseen additional costs to during the construction process.	- Include a screening process during procurement process to query or filter out abnormally low value bids - Include a suitable quality vs. cost scoring ratio during the bidding process to secure value for money - Ensure cost submission required as part of bid for contractors is itemised to allow easier comparison between contractors - Account for lessons learnt on procurement from other projects procured by Aberdeen City Council

4.5.3 In addition to the above, careful consideration should be given to the ticketing infrastructure. This is particularly relevant if off-bus ticketing is to be delivered as part of ART. Ticketing machines will usually be proprietary technology that will have an interface with the civils and architecture at the bus stops. Deciding whether the infrastructure contractor(s) will have responsibility for this interface or if it will remain with the Councils is a decision that may have an impact on the construction prices and the allocation of construction risks. More detailed analysis will be provided within the OBC once the preferred ticketing system is determined.

4.5.4 A similar situation may develop for other infrastructure elements that may be required to deliver ART, for example:

- Charging (or other powering) technology at depots and other locations
- Traffic signals, particularly where major junction refurbishments are required
- Underground obstructions including utility diversions

4.5.5 This analysis should take into account the level of risks associated with these interfaces, the market's appetite (and potential costs) to take on these risks, how each approach may impact the construction stage and the Councils' capacity and capabilities to manage these risks.

Procurement Objectives

4.5.6 A series of procurement objectives have been developed based on the risks presented in Table 4:3, whilst also accounting for the desired project outcomes. These objectives are presented below.

Table 4:4: Preliminary procurement objectives

Procurement objective	Key desired outcomes
Objective 1: Ensure a tender process that is attractive to the market – both UK wide and locally	- Receive competent tenders for the works - Receive multiple competitive bids which can result in the identified of a preferred bidder and contract award - Ensure form of contract is suitable - Ensure terms and conditions are proportionate
Objective 2: Attract competent bidders that have a track record of providing	- Contractors can demonstrate they have undertaken similar works recently - Contractors can demonstrate methodology to achieve delivery of works.

Procurement objective	Key desired outcomes
similar works to those required	Demonstration of management systems to control processes covering quality management, health and safety, environmental management etc.
Objective 3: Ensure that contractors can proactively and robustly manage and mitigate risks through the project to reduce exposure to the Council and its partners	- Contractors can demonstrate a detailed understanding of the local context, including key locally specific risks to manage through the project - Contractors can demonstrate robust processes for managing and mitigating key risks across key areas (e.g., programme, financial, quality) - Ensure terms and conditions are proportionate and apportion risk appropriately
Objective 4: Ensure that contractors offer the best value for money to the Council and can demonstrate the project can be delivered within the assigned project budget	- Contractors can demonstrate that they can deliver the project to meet required quality standards within the available assigned project budget - Cost submissions received from bidders is robust and itemised to allow easy comparison between bidders
Objective 5: Ensure contractors can demonstrate that the project can be delivered according to the approved programme	Contractors can demonstrate a coherent, achievable and realistic programme which account for lessons learned for other similar projects
Objective 6: Ensure the bidding process is compliant with legislative requirements, fair and transparent	- Ensure compliance with procurement legislation and regulations - Bids are handled in a fair, robust and transparent way which can stand up to scrutiny and reduce likelihood for future challenge

4.5.7 The objectives identified in Table 4:4 are considered to be SMART as they are:

- Specific to what needs to be achieved by implementing the procurement strategy
- Measurable with regards to knowing to what was set out has been achieved.
- Attainable in that they can be delivered
- Relevant to the project's known risk profile and wider project objectives
- Time-bound to the potential project delivery programme and wider timescales

Sifting of Procurement Options

4.5.8 There are several potential procurement options which could be considered by the Council which are set out in the Public Contracts (Scotland) Regulations 2015. Each of these potential options are listed and described in further detail within Table 4:5. Once further details become available about the different infrastructure elements as part of the OBC, further consideration will be given to how the procurement process may incorporate Modern Methods of Construction, sustainability, the local contracting market, community benefits etc.

Table 4:5: Procurement options

Procurement option	Description
Open procedure (regulation 28)	This procedure allows any contractor to participate without a pre-selection stage. It is typically used when a small number of bids are expected.

Procurement option	Description
	- It typically involves initial advertisement of a contract notice (e.g., on Public Contracts Scotland) to invite all interested bidders to participate. All bidders who respond to the advertisement receive the complete ITT (without the application of any pre-selection criteria) and are free to submit a tender. - Tenders are then assessed to determine the most economically advantageous bid: the basis of contract award
Two-staged procedure (form of restricted procedure under regulation 29)	- This is a two-stage procurement process typically used when market analysis suggests a high number of bids are likely to be received. - It typically works through a two-stage process consisting of an initial selection stage, where the bidders' capability, capacity and experience to perform the contract is assessed. Those successful are shortlisted at the end of this stage. - The second stage is when the Invitation to Tender (ITT) is issued to the shortlisted bidders. Upon receipt of bids, submissions are assessed to determine the most economically advantageous bid: the basis of contract award.
Framework – direct award (form of restricted procedure under regulation 29)	This option involves the direct appointment of a pre-approved contractor through an established and suitable framework. This approach is typically used to reduce procurement window timescales.
Framework – mini-competition (form of restricted procedure under regulation 29)	Similar to above, this involves a mini competition between contractors who already meet pre-qualification criteria on an established framework (see above for list of potential frameworks to consider). Tenders are then assessed to determine the most economically advantageous bid: the basis of contract award.
Competitive procedure with negotiation (regulation 30)	- This process allows clarification of bids received following the submission of fully formed initial tenders (either through a restricted or open procedure). - This procedure is typically used in situations where the technical needs or legal / financial requirements of the contract cannot be precisely defined at the outset of the ITT stage.
Competitive dialogue (regulation 31)	- This process allows bidders to submit a request to participate in response to a contract notice, albeit the number of bidders may be limited. - It allows the local authority to negotiate proposed solutions with bidders until a solution is developed which aligns with their needs. It is a process that is typically used for complex and high-risk projects where there are gaps in requirements, knowledge, outcomes, contracts or commercials. During the dialogue, bidders gain a more in-depth understanding of specific contract requirements; thus, allowing them to tailor their proposals accordingly.
Innovation partnership (regulation 32)	This is a procurement procedure that allows a local authority to collaborate with one or more partners to research and develop an innovative service that does not currently exist in the marketplace. Once completed, the resulting services are typically purchased from the organisation without further competition. It is typically used as a mechanism to stimulate markets, encourage research and address specific needs through tailored development contracts.
Negotiated procedure without prior publication (regulation 33)	This process can only be used in exceptional cases when other procurement routes are deemed to be unfeasible, such as where a competitive procedure has not yielded any suitable bids, in cases where there is extreme urgency or in exclusive situations (e.g., exclusive rights to a design).

4.5.9 The above procurement options have been subject to a sifting exercise to remove those considered to be unsuitable at this stage. Sifting has considered the relative compliance with Public Contracts (Scotland) Regulations 2015 and the procurement objectives.

Table 4.6: Procurement options - Sifting

Procurement option	Rationale for sifting
Open procedure (regulation 28)	As there is still uncertainty around the number of bids to be received, this option is recommended to be progressed into the OBC for further consideration to guarantee the competitive nature of the procurement process.
Two-staged procedure (form of restricted procedure under regulation 29)	This option is considered to be more advantageous than an open procedure given there would be an opportunity to eliminate bidders with insufficient experience at the first stage. This would typically allow for a more proportionate resource impact on the Council during the subsequent assessment and scoring process of bids during the second stage. Therefore, this option is recommended to be progressed into the OBC for further consideration .
Framework – direct award (form of restricted procedure under regulation 29)	This option has been sifted out as no significant programme constraints have been identified so far which would require the shortening of a procurement window. It is also unlikely to meet procurement objective 4 given the likely challenges to demonstrate value for money relative to other contractors.
Framework – mini-competition (form of restricted procedure under regulation 29)	This option would offer several advantages given it would meet several of the procurement objectives, including the ability to filter submissions only to competent bidders that have a track record of providing similar works. Therefore, this option is recommended to be progressed into the OBC for further consideration .
Competitive procedure with negotiation (regulation 30)	This option has been sifted out as it would likely result in additional resource pressures on officers as well as specialist technical knowledge to undertake negotiations. Additionally, no significant challenges have been identified that would require a negotiated procedure.
Competitive dialogue (regulation 31)	This option has been sifted out given the potential challenges in meeting procurement objectives. It would likely result in additional resource pressures on officers as well as specialist technical knowledge to undertake negotiations.
Innovation partnership (regulation 32)	This option has been sifted out as the infrastructure works are unlikely to involve the research and delivery of an innovative service that is not yet already available in the market.
Negotiated procedure without prior publication (regulation 33)	This option has been sifted out as the project does not meet the exceptional circumstances criteria set out in the Public Contracts (Scotland) Regulations 2015.

4.5.10 Based on the outcomes of the sifting process it is recommended that the following two procurement route options offer the most advantages and should be retained for further consideration:

- **Open procedure** (regulation 28)
- **Two-staged procedure** (form of restricted procedure under regulation 29)
- **Framework – mini-competition** (form of restricted procedure under regulation 29)

4.5.11 These options will be further developed and analysed during the development of the OBC, including a more detailed overview of their pros and cons, a review of the potential frameworks available, the need for early contractor involvement and market engagement, the preferred contractual arrangement and risk apportionment.

4.6 Maintenance

- 4.6.1 The new infrastructure delivered under the ART project will add new maintenance requirements, the responsibility of which would fall under the local roads authority, i.e., Aberdeen City Council and Aberdeenshire Council as required. These new requirements will translate into new revenue costs that will need to be considered when assessing the economic and financial viability of the scheme. These will include, among others:
- Different maintenance and renewals requirements for additional sections of bus lane
 - Additional and potentially more complex traffic signals
 - Additional signage
 - Enhanced placemaking elements such as lighting and, potentially, planting
 - Operating and maintaining new mobility hubs, interchange facilities and, depending on the preferred commercial approach, also depots and new charging infrastructure
 - Potentially new ticketing machines at bus stops
- 4.6.2 Further engagement will be required with Council officers to develop a better understanding of future maintenance requirements. However, it is clear that additional maintenance requirements will introduce new pressures on existing revenue (and capital in the case of renewals) budgets already under pressure.
- 4.6.3 The OBC should explore the appetite, across infrastructure operators, for adopting a private sector led approach specific to the mobility hubs and P&R facilities. However, this is usually applied on large-scale infrastructure projects and, in any case, it would be subject to the Councils' capacity to demonstrate a viable financial model for these elements once ART is operational.
- 4.6.4 There is significant uncertainty around the vehicles to be able to consider maintenance options. Maintenance responsibilities may fall under the remit of the operators, particularly if the new vehicles can be accommodated within existing depots. These requirements will be further explored as part of the OBC and a range of maintenance options developed and assessed. However, regardless of how maintenance of the vehicles is approached, it may require the allocation of a new revenue budget.

5 Financial Dimension

5.1 Introduction

- 5.1.1 The purpose of the financial dimension is to demonstrate the affordability and funding of the preferred way forward, including the support of stakeholders and customers, as required.
- 5.1.2 Demonstrating the affordability and fundability of the preferred option ultimately requires a complete understanding of the capital and revenue whole life costs of the scheme and of how the project will impact upon the balance sheet, income and expenditure and pricing arrangements (if any) of the organisation. The challenge is to identify and resolve any potential funding gaps during the lifespan of the scheme.
- 5.1.3 At SBC stage, with a more significant weighting on the Strategic and Economic Dimensions, the Financial Dimension provides an overview of the estimated capital infrastructure and vehicle costs (at a high level) of the scheme, the costs associated with the potential delivery mechanisms and explores funding routes for further scheme development.

5.2 Infrastructure costs

- 5.2.1 Costs estimates have been developed during both the STAG work and this SBC work, and both are outlined below as the former was used in the Benefit Cost Ratios reported in the Economic Dimension.

Cost Estimates - STAG

- 5.2.2 During the STAG work, an estimate of construction cost was made for ART as defined at that time. This estimated the cost at approximately **£215m** in 2021 prices (including optimism bias and preliminaries). A new cost estimate for the infrastructure has now been developed and is presented below.
- 5.2.3 However, it is worth noting that when estimating the previous cost:
- Work was still ongoing across many of MMCS, and indeed many of the studies were still appraising a range of different options. Therefore, assumptions were made where design detail was not available, and an option variant was chosen from each study to cost.
 - Given the designs were still progressing and some were unavailable at the time of the exercise, costs were derived using a broad cost per kilometre, graded by the infrastructure proposed – as opposed to on an individual link and junction based approach. Junction changes were similarly graded into low / medium and high with a broad cost for each category applied as appropriate.
 - The previous estimates were in 2021 prices. There has been significant construction cost inflation since then, of around 25%,¹³⁶ which has impacted heavily on cost estimates.
 - Costs associated with the mobility hubs were previously not considered – the extension to Westhill and Blackdog not then being part of the ART concept. Furthermore, a ballpark estimate for the cost of the Portlethen Mobility Hub was applied, as more detailed plans were yet to emerge through the MMCS.
 - The original costing exercise assumed the network as it was when it was modelled and appraised as set out in Section 3.4, and not with the final recommended network (as set

¹³⁶ [Construction output price indices - Office for National Statistics](#)

out in Section 3.5) and the one for which the estimated cost within this Financial Case has been developed.

Cost Estimates - SBC

Source of design and costs, and implications thereof - SBC

5.2.4 The ART scheme includes significant infrastructure proposals to deliver the bus priority infrastructure required to realise the journey time and reliability benefits of the scheme. As noted previously, transformational options for Aberdeen's main radial corridors (covering most of the proposed ART routes) were initially developed through the MMCS in the context of Transport Scotland's Bus Partnership Fund (since cancelled). The commencement of the MMCS preceded the ART project, but the ART project has, in the first instance adopted these designs. The infrastructure costing exercise is therefore based largely on the MMCS designs which have been worked up to 'outline design' stage (i.e. RIBA Stage 3 General Arrangement plan in AutoCAD using Ordnance Survey mapping) across the network.

5.2.5 It is important to note that these designs will be subject to review and refinement as the project progresses.

Active Travel

5.2.6 The scope of the MMCS included the delivery of significantly improved infrastructure for active travel (particularly cycling), in addition to bus priority, and the designs therefore include a **high level of provision for walking, wheeling and cycling**, reflective of Cycling by Design - including high quality cycling provision often in the form of a two-way segregated cycle track. The inclusion of the cycle track often substantially increases the overall infrastructure costs, specifically:

- **At junctions** – enabling safe passage through junctions for cyclists, especially in the case of the two-way track requires significant junction modifications, often with a larger junction footprint (and in some cases roundabout conversion to a signalised junction) and reconfigured signals
- **Along links** – where due to space constraints, while bus priority on its own (through the reallocation of road space) can be reasonably easily achieved, to accommodate the cycle track, more significant highway changes are often required. In many instances, this has involved narrowing or removing the central reservation (with the relocation of street lighting), the realignment of the carriageway and kerb lines, and a requirement for third party land.

5.2.7 This significantly increases the capital costs compared to a set of designs which focussed only on bus priority measures.

5.2.8 As the infrastructure designs have been developed in an integrated way for all modes, is it not straightforward at this stage to estimate the scheme costs attributable to each mode individually. However, to provide an indication of this, and to highlight the cost of including the proposed cycling infrastructure, assumptions have been applied across the ART network links and junction to estimate the cost attributable by mode. These are presented below, alongside the overall estimated capital costs.

Approach to Bus Priority

5.2.9 Furthermore, as set out in the Design Principles in the Economic Dimension, a key feature of the proposed bus priority is the provision of bus priority at junctions, as this is often where most time is lost. Enabling such priority through signal control is more easily achieved through providing a bus lane up to the junction stop line. However, this often requires a reconfigured junction and signal stages, often with a greater junction footprint (and in the current designs creates further complexity when considered in tandem with the signal changes required to

accommodate the cycling proposals). In some cases, existing (uncontrolled) roundabouts require conversion to signalised junctions, creating a greater highways signals maintenance cost.

- 5.2.10 Reflecting the ambitions of the MMCS, in the first instance, and where deemed possible, bus lanes have been designed up to junction stop lines, with junctions reconfigured to accommodate this. The additional costs of junction design could be reduced through reconsideration of this and setting back bus lanes from the stops lines to both reduce junction reconfiguration costs (and impacts on junction capacity if deemed unacceptable) while recognising the reduction in journey time benefit to buses (note though that careful placement of bus lane set-backs could ensure buses progressed through junctions on the next green phase).
- 5.2.11 In addition to the proposals for cycling and bus, and again in line with the ambitions of the MMCS, the designs also include for significant walking and wheeling improvements across the ART network, in part recognising such modes as a key component of any bus trip, and therefore an important element of the ART infrastructure.

Cost Assumptions

- 5.2.12 For the raw construction costs, the following percentage increases have been applied:

- Preliminaries at 35% of the infrastructure cost including 10% for site supervision and 10% for temporary traffic management costs. The remainder includes an element to cover the engineering design costs required for construction but not the design and assessment costs required for statutory approvals and road construction consents
- As per guidance optimism bias at 44% has been applied to the infrastructure plus preliminary costs and accounts for the uncertainty in the costs given no Quantitative Risk Assessment has yet been undertaken

- 5.2.13 The costs do not account for:

- Land / property acquisition
- Adjustments to public utility apparatus – note that this has the potential to be a significant cost but is unknown at this stage until further investigations are undertaken (and could be reduced depending on the approach to cycle infrastructure inclusion within the ART scheme)
- Surveys and investigation
- Value Added Tax (VAT)
- Inflation, as the date of construction is yet to be established
- Any investment that may be required in new technology to provide bus priority ‘hurry calls’ at junctions
- Any additional depots that may be required – this would be dependent on the vehicles to be used, and the overall delivery mechanism for the scheme
- Costs for potential existing Park & Ride site reconfigurations

Capital Costs

- 5.2.14 The table below sets out the costs across the ART network by corridor into the city centre.

- 5.2.15 Two of the ART corridors (West (A944) and North-West (A96)) have an interface or overlap with Aberdeen City Council's proposed Berryden Corridor Improvement Project (BCIP) which introduces new sections of road and widens existing roads to create a dual carriageway between the Kittybrewster and Maberly Street / Rosemount Place roundabouts. As requested by the Council no bus priority or traffic management measures are proposed in addition to those of the BCIP scheme - except at the Clifford Road junction with the Great North Road / Powis Place. At this junction, modifications are required to accommodate the proposed two-way cycle track through the junction between the Great Northern Road and Powis Terrace.
- 5.2.16 The North-West (A96) corridor includes two cost estimates to reflect the design options between the Don Street and George Street junctions, where a decision is yet to be made on a preferred design over this section:
- The option 'without additional significant infrastructure' assumes no significant road widening over this section which is currently a single carriageway road compared to the rest of the corridor which is dual carriageway
 - The other 'with additional infrastructure' option creates a four lane road over this section through extensive road widening which includes replacement of the Belmont Road railway bridge and a retaining wall next to the freight railway line on Powis Terrace. This is included to provide continuous bus priority through this constrained section, while enabling the continuation of the proposed cycle track. The proposals have a significant cost.

Table 5.1: ART Network – Capital Infrastructure Cost Estimates

Item	North Corridor (£m)	North-West Corridor (£m)		West Corridor (£m)	South Corridor (£m)	Total* (£m)	
		Without significant infrastructure (1)	With significant infrastructure (2)			Without significant infrastructure (1)	With significant infrastructure (2)
Junctions	£64.6	£35.2	£38.6	£54.7	£22.4	£176.9	£180.3
Number of modifications	11	14	14	20	11	56	56
Links	£18.6	£28.5	£62.7	£30.6	£11.7	£89.4	£123.7
Link Length (km)	5.96	8.29	8.29	13.33	8.75	36.32	36.32
Bus Stops	£1.3	£2.2	£2.2	£1.9	£1.3	£6.7	£6.7
Mobility Hubs: Blackdog, Westhill & Portlethen** (excluding land costs)	£3.3			£3.3	£6.1	£12.6	£12.6
Total	£87.8	£65.9	£103.5	£90.4	£41.5	£285.7	£323.3
Cost per km ¹³⁷ (£M/km)	£14.2	£8.0	£12.5	£6.5	£4.0	£7.6	£8.6

*cost exclude land or property acquisition, any utilities works, surveys and investigations, investments in new technology, depots, VAT and potential inflation

**Mobility Hubs costed assuming 200 space car park within Blackdog and Westhill hubs, and 400 spaces at Portlethen as per designs from Laurencekirk to Aberdeen study

5.2.17 The overall infrastructure cost for the ART corridors as emerging from the MMCS is anticipated to be between **£286m - £323m** – dependent on the inclusion, or not, of the significant infrastructure on the A96 between the Don Street and George Street junctions (as discussed above). The highest cost rates (where the cost per km is more than £10m/km) occur along the North and North-West corridors reflecting the need for either extensive road widening, modification / removal of the central reservation or where large roundabouts are removed and replaced with signal controlled cross roads. The scheme costs range should be viewed as a conservative estimate given the potential for cost reduction through ‘value engineering’ as discussed above.

¹³⁷ Excluding Mobility Hubs

- 5.2.18 To highlight those locations where costs are highest, the mapping in the figure below shows the link and junction costs coded into a High, Medium or Low cost banding, with the table thereafter providing an explanation for the increased costs. There is also a 'Very High' banding to cover cost outliers associated with major infrastructure items as such the bridge or junction replacements mentioned above on Powis Terrace.
- 5.2.19 This cost banding assessment for junctions and links (cost / km) has been undertaken to inform the next design stage into OBC. It highlights areas where significant change is required to provide the greatest benefit for ART and where a balance of cost against benefit may be required through 'value engineering'.

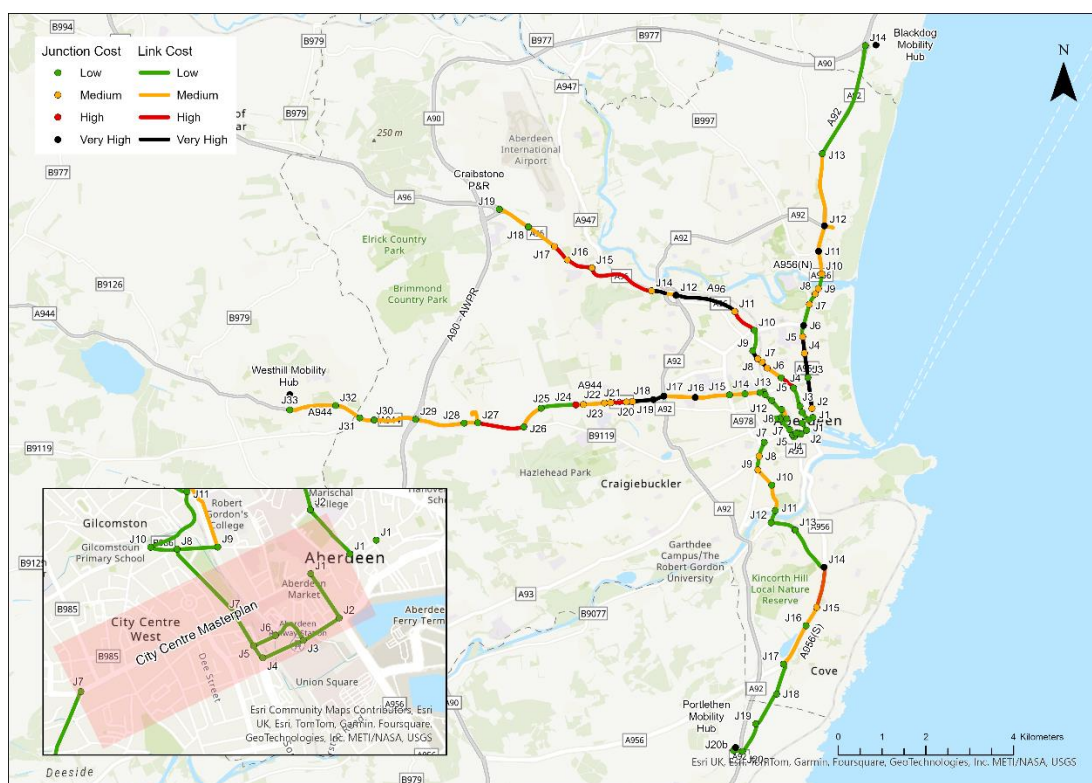


Figure 5.1: Infrastructure RAG Mapping

Table 5.2: ART Network – RAG Mapping of Costs – Significant Cost Locations

Item	Location	Cost (£m)	Cost per km (£m/km)	Reason for Significant Cost
Junctions (Cost exceeds £3m)	A944 West Corridor - J16 Westburn Road junction with Foresthill Road	£5.8	-	Junction widened to accommodate a segregated cycle route, improved pedestrians facilities and set-back bus lanes
	A944 West Corridor - J17 Lang Stracht junction with North Anderson Drive	£14.6	-	Junction widened to accommodate a segregated cycle route, improved pedestrians facilities and bus lanes up to junction stop lines
	A944 West Corridor - J18 Lang Stracht junction with Mastrick Drive	£5.8	-	As J16 above
	A944 West Corridor - J24	£4.9	-	As J16 above

Item	Location	Cost (£m)	Cost per km (£m/km)	Reason for Significant Cost
	Lang Stracht junction with Maidencraig Drive			
	A96 - North West Corridor - J12 Haudagain roundabout	£5.8	-	Priority roundabout replaced with signal-control cross roads
	A96 - North West Corridor - J13 Auchmill Road junction with Haudagain bypass	£4.9	-	Junction widened to accommodate a continuous bus and cycle track on the north side
	A956 - North Corridor - J6 King Street junction with Machar Drive & School Road	£14.6	-	Priority roundabout replaced with signal-control cross roads
	A956 - North Corridor - J11 Ellon Road junction with North Donside Road & King Roberts Way	£14.6	-	As J6 above
	A956 - North Corridor - J12 A92 Ellon Road junction with The Parkway & Parkway East	£14.6	-	As J6 above
	A956 - South Corridor - J14 A92 junction with A90	£9.7	-	New signal controlled pedestrian crossing facilities
Links (cost exceeds £3m/km)	A944 - West Corridor - Link 18 Lang Stracht	£2.0	£7.8	Road widening to accommodate bus lanes and cycle track
	A944 - West Corridor - Link 19 Lang Stracht	£2.5	£5.1	As Link 18 above
	A944 - West Corridor - Link 22 Lang Stracht	£3.5	£3.3	As Link 18 above
	A944 - West Corridor - Link 27 A944	£1.3	£3.6	Central reservation narrowing to accommodate cycle track
	A96 - North West Corridor - Link 5 Causewayend	£1.0	£3.2	Requires removal of central reserve
	A96 - North West Corridor Link 6 Powis Place	£1.4	£4.0	Requires removal of central reserve
	A96 - North West Corridor - Link 7 Powis Terrace	£19.6	£87.3	Retaining wall to widen highway into land under Railway ownership
	A96 - North West Corridor - Link 8 Powis Terrace	£14.9	£119.0	Replacement of the rail bridge to accommodate road widening for bus lanes and cycle tracks
	A96 - North West Corridor - Link 9 Powis Terrace	£1.1	£4.8	Road widening requires extensive carriageway resurfacing and regrading
	A96 - North West Corridor - Link 11 Great Northern Road	£2.0	£3.2	Road widening requires extensive carriageway resurfacing and regrading and 2 no. Toucan crossing upgrades.
	A96 - North West Corridor - Link 12 Great Northern Road	£7.2	£5.1	Requires removal of central reserve and 3 no. Toucan crossing upgrades

Item	Location	Cost (£m)	Cost per km (£m/km)	Reason for Significant Cost
	A96 - North West Corridor - Link 14 Auchmill Road (Auchmill Terrace - Haudagain bypass)	£1.7	£5.4	Requires removal of central reserve and 3 no. Toucan crossing upgrades
	A96 - North West Corridor - Link 15 Auchmill Road (Bucksburn r/a - Auchmill Terrace)	£5.6	£3.6	Subway modification and 1 no. Toucan crossing
	A96 - North West Corridor - Link 16 A96 (Bankhead r/a - Bucksburn r/a)	£2.0	£3.3	Subway modification and 1 no. Toucan crossing
	A96 - North West Corridor - Link 17 A96 (Auchmill Road (Bucksburn r/a - Auchmill Terrace)	£1.5	£3.6	Requires removal of central reserve and 1 no. Toucan crossing upgrade
	A956 - North Corridor - Link 3 Broad Street (Berry Street - Upper Kirkgate)	£3.6	£5.0	Road widening on both sides of the road
	A956 - North Corridor - Link 4 Gallowgate (Mounthooly r/a - Berry Street)	£2.7	£5.0	As Link 3 above
	A956 - North Corridor - Link 5 Causewayend (Fraser Place - Mounthooly/ Hutcheon Street)	£1.9	£5.0	As Link 3 above
	A956 - South Corridor - Link 10 Great Southern Road (Holburn Street to Winhill Road)	£1.6	£3.3	Requires removal of central reserve
	A956 - South Corridor - Link 11 Great Southern Road (Winhill Road to Riverside Drive)	£2.2	£3.7	Requires removal of central reserve
	A956 - South Corridor - Link 15 Wellington Road (Hareness Roundabout to Souterhead Roundabout)	£3.2	£3.4	Requires removal of central reserve
Significant miscellaneous costs	A96 - North West Corridor - Link 4 Mounthooly roundabout	£0.5	-	Subway modifications to improve walking and cycle route
	A96 - North West Corridor - Link 7 Powis Terrace	£119.4	-	Widening into railway land ownership
	A96 - North West Corridor - Link 8 Powis Terrace	£7.5	-	Bridge modification to provide bus lanes and cycle track
	A96 - North West Corridor - Link 15 Auchmill Road (Bucksburn r/a - Auchmill Terrace)	£0.5	-	Subway modification to accommodate cycle track
	A96 - North West Corridor - Link 16 A96 (Bankhead r/a - Bucksburn r/a)	£0.5	-	Subway modification to accommodate cycle track
	A96 - North West Corridor - Link 18 A96 (Dyce Drive - Gough Burn Crescent)	£0.5	-	Bridge modification to accommodate cycle track
	A96 - North West Corridor - Link 19 A96 (Craibstone r/a - Dyce Drive)	£0.5	-	Bridge modification to accommodate cycle track
Mobility Hubs	A944 - West Corridor - Westhill	£3.3		Circa 200 space parking facility
	A956 - North Corridor - Blackdog	£3.3		Circa 200 space parking facility

Item	Location	Cost (£m)	Cost per km (£m/km)	Reason for Significant Cost
	A956 - South Corridor - Portlethen	£6.1		Circa 400 space parking facility

Capital Costs – Estimates by Mode

To aid in the understanding of the cost impact of the inclusion of the cycle track across the ART network, the following table presents the infrastructure costs approximately by mode. This has involved applying the following assumptions:

- **Along links** it is relatively straight forward to identify the infrastructure supporting a particular mode. For example, bus lanes, bus stops and traffic gating proposals are allocated to the supporting the bus while new and upgraded crossing/ footways are allocated to pedestrians.
- **At junctions** the allocation of cost is a little more difficult as many of the changes at junctions are shared by modes. For example, improvement to crossings facilities can benefit both pedestrians and cyclists and junction widening to get a bus lane to the stop line makes it easier to accommodate dedicated cycle crossings in the method of signal control. The allocation of cost was therefore based on a broad but informed assumption of the benefit each mode would accrue as a percentage split between bus, cycle and pedestrian.

Table 5.3: ART Network – Capital Infrastructure Costs – Option 5 – By Mode

Item	Mode	Total Cost* (£m)		Cost By Mode (£m)		Approx. % of total cost across item	
		Without significant infrastructure (1)	With significant infrastructure (2)	Without significant infrastructure (1)	With significant infrastructure (2)	Without significant infrastructure (1)	With significant infrastructure (2)
Junctions	Bus	£176.90	£180.30	£82.00	£85.40	46%	47%
	Pedestrian			£30.80	£30.80	17%	17%
	Cycle			£64.10	£64.10	36%	36%
Links (including bus stops)	Bus	£96.10	£130.40	£26.20	£60.40	27%	46%
	Pedestrian			£15.90	£15.90	17%	12%
	Cycle			£54.00	£54.00	56%	41%
Mobility Hubs**	Bus	£12.60	£12.60	£12.60	£12.60	100%	100%
	Pedestrian	£0.00	£0.00	£0.00	£0.00	100%	100%
	Cycle	£0.00	£0.00	£0.00	£0.00	100%	100%
Total	Bus	£285.60	£323.30	£120.80	£158.40	42%	47%
	Pedestrian			£46.70	£46.70	16%	15%
	Cycle			£118.10	£118.10	41%	38%
Total (without cycling infrastructure)	Bus and Pedestrian	£167.50	£205.10				

*cost excludes land or property acquisition, any utilities works, surveys and investigations, investments in new technology, depots, VAT and potential inflation

**Mobility Hubs costed assuming 200 space car park within Blackdog and Westhill hubs, and 400 spaces at Portlethen as per designs from Laurencekirk to Aberdeen study

***Mobility Hub costs assumed to lie fully with ART and the bus mode

5.2.20 It can be seen in the table that the inclusion of MMCS cycle infrastructure accounts for between 38% - 41% of the overall infrastructure costs dependant on whether the significant infrastructure on the A96 (as detailed above) is included. **Scheme costs without the inclusion of cycling infrastructure are therefore estimated to range from £167m to £205m.**

Scheme Cost Summary

As a summary of scheme infrastructure costs (in 2025 prices):

- Across all modes and as designed through the MMCS, scheme costs are estimated at between **£286m - £323m**
- Without the inclusion of MMCS cycling infrastructure, scheme costs are estimated to reduce to **£167m to £205m**

This provides a broad cost envelope of **£167m - £323m** depending on the specification of the scheme.

Developing the Scheme Costs for OBC

- 5.2.21 The designs and cost estimates as presented in this SBC should therefore be viewed as a reflection of the original MMCS ambitions and the ART design principles combined. During the next stage of Business Case, detailed work should be undertaken to ensure the balance of cost and benefits is appropriate and acceptable. This should also reflect on the likely maintenance implications. It is likely that through a process of 'value engineering' (considering where design cost and impact, and scheme benefits, and can be balanced) that scheme costs will be reduced.
- 5.2.22 In particular, the **MMCS cycling infrastructure** requires further consideration in the context of the emergence ART in terms of its inclusion and / or alternative integration with the ART scheme. To this end there are potentially three broad approaches to the OBC:
- **Approach 1 – Continue with current corridor designs:** expand OBC to include quantified cycling benefits, reflecting the aims of the MMCS, aim to provide segregated cycle provision along much of the ART routes in addition to bus priority; reframe the OBC (e.g., 'ART plus Associated Measures') to include the costs and benefits of ART and the full ambition for active travel provision
 - *Consequences:* Delivery will likely require road widening in places, significant junction modifications and compromises in terms of the pedestrian environment, in order to accommodate the infrastructure for both active travel and ART. In some places bus journey times / reliability may be compromised in order to deliver segregated cycle provision. Scheme costs will be higher and even with active travel benefits taken into consideration, a low BCR is likely
 - **Approach 2 – Separate ART and Cycling OBCs:** Continue with current corridor designs – but split out and set aside the cost increment associated with the cycling provision as currently configured; continue with ART OBC on the basis of the costs associated with the bus priority only; will require a more detailed analysis of a 'hypothetical cost' of a bus priority only scenario
 - *Consequences:* ART attributable scheme costs significantly reduced leading to improved BCR for ART; would require separate business case and funding for the integral active travel proposals; this may be impractical as both elements would require to be constructed at the same time; overall scheme costs will be high
 - **Approach 3 – Progress corridor designs to maximise benefits for active travel while prioritising ART:** Further develop corridor designs in line with the updated ART TPOs and the transport supply side measures that have been identified as required to meet these objectives. Under this approach, public transport movements would be prioritised over other modes, segregated cycle provision would be accommodated where current roadspace allows but cyclists may have to mix with motor traffic where space is constrained. This approach is in line with the RATN principles for Primary Mixed Traffic

Streets and Secondary Streets. Alternative provision for cyclists on parallel corridors and integration of ART corridors into the wider active travel network, will be considered through the development of the RATN.

- *Consequences:* Increased certainty for ART as bus journey times and reliability prioritised on ART corridors. Active travel provision continues to be integrated into ART designs and incorporated into the business case but a lower level of intervention and therefore cost, leading to improved BCR and deliverability for the project as a whole.

5.2.23 A decision on which approach to adopt at OBC stage is a critical before the project progresses further.

5.3 Vehicles and Depots

- 5.3.1 The preferred way forward involves an additional cost to acquire the new tram-style vehicles and some further cost likely required at depots. It has been assumed that 18m articulated vehicles would operate the ART routes (similar to the Glider system in Belfast). A similar tram-like vehicle, such as the Irizar e-mobility ie tram¹³⁸ costs approximately £840,000 (2024 prices). By way of context, a fully electric 70-seat double decker model such as the Alexander Dennis Enviro400 EV or BYD eBus BD11 would cost approximately £400,000 (2024 prices). It is estimated that 36 Irizar vehicles would be needed to operate the two cross city ART routes, at an approximate cost of £30.2m (2024 prices). Vehicle costs are likely to be revenue rather than capital costs.
- 5.3.2 It is also worth noting the potentially high cost of depot construction / acquisition and potential depot upgrade requirements to accommodate new vehicles. At this stage, these have not been included in the costs above. Once greater certainty on the vehicles to be used becomes available, depot requirements and costs can be estimated at the next stage.

5.4 Revenue

- 5.4.1 As set out in the Commercial Dimension, previous analysis undertaken suggests that the operating costs for the new city-wide bus network were lower than city-wide operator revenue. Therefore, based on this, **ART could be introduced with a net operating surplus across the complete bus network.** While this provides an early indication of the commercial viability of the network, this was caveated in relation to the ASAM model application for this use, and assumptions made with regards to the proposed infrastructure, network and services at the time of the analysis.
- 5.4.2 It was concluded that detailed analysis of the scheme revenue is required to be undertaken in the OBC to provide confidence in the likely revenue across both ART and non-ART services, and thus any potential subsidy implications. **This is a key risk area.**

5.5 Delivery Pathways – Set up Costs and Financial Risks

BSIP

- 5.5.1 There are costs incurred in establishing a BSIP Plan and Scheme given the need for workstreams to review the current network; assess delays to buses on key corridors and develop a programme of bus priority works; and review multi-operator and multi-modal ticketing. Some of this work has already been undertaken or is in programme for ART.

¹³⁸ <https://irizar-emobility.com/en/vehicles/irizar-ie-tram>

- 5.5.2 The financial risks associated with the BSIP process are considered to be relatively modest and consistent with 'business as usual' for both local authorities and operators. There is no material transfer of risk between the parties who should be well able to manage the process.
- 5.5.3 The BSIP concept is consistent with the various transport partnership approaches promoted by the Scottish Government and is unlikely to face resistance or legal challenge from bus operators. Key decisions relating to their commercial businesses remain largely in the control of the operators and any diminution of their freedom of action could be expected to be outweighed by the benefits arising from the requirement for the local authority to provide new facilities or implement new measures.
- 5.5.4 The above, however, needs to be put in the context of the uncertainties surrounding the delivery of ART through a partnership proposal as noted in Table 4:2. Any decision to go ahead with the required infrastructure investment should be made only if sufficient confidence has been built about the Councils' ability to deliver ART as a partnership.

Franchising

- 5.5.5 The challenges involved in establishing a franchising framework are significant. The management and administrative effort required by the local authority to comply with the provisions of the 2019 Act, the likely hostility and potential lack of co-operation from incumbent operators and the financial modelling and management required mean that franchising, while feasible, is still difficult and costly.
- 5.5.6 The franchising model introduces new costs and financial risks for a local authority, compared to a BSIP or BAU, including those incurred in set-up and ongoing management.
- 5.5.7 Franchising involves two streams of management and administration costs:
- during set-up to prepare and assess the proposed framework, obtain an auditor's report and conduct consultation
 - on an ongoing basis to undertake service planning, tendering and monitoring & management

Set-Up Timescale

- 5.5.8 The timescale for delivering a bus franchising framework can be lengthy – and the key tasks to be undertaken by the local authority were set out in the Commercial Dimension. Estimates, based on admittedly limited experience of the few schemes that have been pursued thus far, suggest a **timescale of up to seven years for delivery**.

Financial Risks

- 5.5.9 The set-up costs associated with franchising will depend on the extent of any legal challenges and are therefore difficult to estimate accurately.
- 5.5.10 Franchising also transfers many of the market risks from operator to the local authority, most particularly farebox revenue where the local authority needs to be able to fund any unexpected shortfalls and / or respond quickly to re-align costs, if it can.
- 5.5.11 It would be theoretically possible to use net cost contracts with a franchising framework, i.e., transferring the revenue risk back to the operator but it is doubtful if this would be practicable. First, with a high degree of uncertainty in a new market regime, operators will err heavily on the side of caution in their revenue estimates leading to higher net costs; and secondly, the local authority will lose the flexibility to amend contracts 'mid-life' to respond to market conditions if it then needs to engage in revenue renegotiations.

- 5.5.12 Franchising also transfers an element of operating cost risk from operator to the local authority. While contract prices are generally fixed (apart from any specified indexation) for the duration of a contract, the local authority has no control over the prices submitted when contracts are retendered.
- 5.5.13 Franchising, therefore, creates additional costs and financial risks compared to other models. While some of these are similar in nature to the current (very limited) tendering regime, they will be of a far greater magnitude and others are not borne by the local authority at present at all.

Legal Risks

- 5.5.14 The risk of a legal challenge to a franchising proposal is considered to be very high. Incumbent operators have vigorously resisted all previous attempts to introduce franchising or, under previous legislation, quality contracts. In the case of Nexus, a special board established by the Traffic Commissioner ruled against a quality contract scheme in Tyne & Wear, but it was clear that operators were prepared to take legal action if the decision had gone the other way. More recently, in Greater Manchester the Metro Mayor's proposals for bus franchising were challenged by two operators who sought judicial review, one of them taking the case as far as the Court of Appeal. While these challenges were unsuccessful, they did add time, cost and uncertainty to the process. It is also worth noting that Strathclyde Partnership for Transport (SPT) published its draft Strathclyde Regional Bus Strategy (SRBS) for public consultation in February 2025, and part of the preferred options approved by the full partnership is that SPT should commence work on establishing local bus franchising, in line with the requirements of the Transport (Scotland) Act 2019. Subsequently, a major bus operator in the region has launched searing condemnation of the proposed bus franchising plans, and is threatening legal action against SPT.¹³⁹

Likely Costs

- 5.5.15 While noting the differences in population size and the large area coverage of the franchise schemes, it is worth noting that:
- A Transport Act Scoping Study commissioned by SPT and Glasgow City Council in 2022 which explored the options available to local transport authorities arising from the Transport (Scotland) Act 2019 estimated the cost of establishing a Bus Franchising Scheme in the SPT area to be between £4m and £15m¹⁴⁰
 - West Yorkshire Combined Authority estimate that there will be an initial cost of £20m to set up franchising (see discussion in Appendix K). In addition, it is estimated £85m-£100m will be required to acquire depots.
 - It has been estimated that the transitional cost to achieving franchising in the Liverpool City Region is expected to be around £20m, which could rise to £38m if a number of "key risks" materialise¹⁴¹. Delivery of the depot strategy outlined in the franchising assessment was estimated at around £56m while fleet acquisition costs were estimated at £85m.
 - Transport for Greater Manchester estimated that approximately £135m will have been spent to complete the transition to a franchised network, when networks will have been enhanced and fully integrated simplified ticketing will be in place¹⁴²

¹³⁹ [McGills: threatens legal action against franchising - Bus & Coach Buyer](#)

¹⁴⁰ [bus-scoping-study-final-report-january-2022.pdf](#)

¹⁴¹ [Liverpool City Region confirms bus franchising preference - routeone](#)

¹⁴² [Major reform of Greater Manchester's bus network one step away after nine out of 10 councils approve historic plans - Manchester Evening News](#)

5.6 Further scheme development costs

- 5.6.1 As per the recommendations set out in Section 6.5, the scoping exercise for the next OBC stage will follow this SBC. This will enable the development of more accurate costings for the next development stages.
- 5.6.2 Depending on the preferred delivery pathway, developing the ART project to a point where it is ready for implementation could be a significant undertaking requiring several million pounds to complete. The costs below aim to provide a reference of typical development costs for infrastructure schemes across Scotland:
- The whole design development process for Edinburgh's City Centre West East Link was over £3.5 million, for a total scheme cost of approximately £21 million
 - Completing the OBC and Full Business Case for Shetland Island Council's Fair Isle Ferry Replacement was nearly £5 million, for a total anticipated cost of over £49 million (construction is due to start in March 2025)
 - The City of Edinburgh Council estimates that the OBC and completing the consenting process (including a TAWS Order) for the future extension of the tram network between Granton and Shawfair could have a cost of up to £40 million
- 5.6.3 In conclusion, the costs for developing the OBC will be subject to further scoping work and ultimately, the level of legal support required based on the preferred delivery pathway. Given the extent of the design work required (over approximately 50km of carriageway, covering works at over 70 junctions, and with the build of three new Mobility Hubs), case making, modelling, advisory work, communications, legal inputs and, potentially, site investigation works developing the OBC could have a significant cost, into the order of tens of millions of pounds.
- 5.6.4 However, there may be benefits in adopting a programme-level approach to the development of the OBC, i.e., a Programme Level OBC. By doing this, ART would be treated as an overarching programme that would be the umbrella under which individual projects develop. At programme level, the OBC would seek to further develop the review of the network and determine the preferred delivery pathway for ART, including any potential phasing. Individual projects could refer to, for example:
- The different phases that ART may be split into, whether these refer to measures, facilities, service standards
 - The introduction of different stages based on the application of the powers in the 2019 Act. For example, an initial project could look at delivering improvements across the network through a partnership proposal, whereas a second stage could introduce a franchising framework along the ART routes. There may also be other intermediate stages.
 - Different elements of the ART project could also progress as separate projects. For example, the specification and purchase of the vehicles may be treated as a separate project. The same could apply to the implementation of an off-bus ticketing system at a later stage.
 - There could also be multiple combinations of the above, as projects could refer to a mix of phasing and different elements of ART.
- 5.6.5 Treating the next OBC stage as a programme would also present a benefit with regards to the costs of the next stage. This is because workstreams like site investigations and detailed legal inputs would only be required once individual projects progress and not as part of Programme Level OBC. It is recommended further reflecting about treating the next OBC stage at

programme level when developing the Project Initiation Document (see 6.3 below), considering the potential advantages and how it would work in practice.

5.7 Funding

5.7.1 Various funding streams have been identified for the future funding of the project. These include:

- **Bus Infrastructure Fund (BIF):** This could potentially be a significant source of funding, particularly for the development of the OBC. It is however noted that while the fund could provide a potential vehicle for funding, it depends on the scale of the fund and whether it offers the potential for multi-year, as opposed to single year funding
- **Aberdeen City Region Deal:** the current funders of the ART project. Making the case for ART within the current Deal (up to March 2027) provides the opportunity for ART to be included as a delivery project in any future Deal.
- **Local Authority Funding:** Local councils, such as Aberdeen City Council and Aberdeenshire Council, can allocate funds from their budgets to support the development and implementation of the scheme. However, at present, current capital plans do not include the scheme and are typically catering for essential expenditure only.
- **Scottish Government Grants:** Various grants and funding programs are available from the Scottish Government aimed at improving public transport and reducing emissions
- **Private Sector Investment:** Partnerships with private companies, including bus operators and developers, can provide additional funding and resources. This, however, will remain subject to the financial viability of the scheme and the identification of areas for investment appetite. It could be of particular interest for the purchase or lease of the ART vehicles. Another form of private sector investment may materialise through developer contributions. In this regard it is worth noting that ART is aligned with the region's strategic development corridors and can support in facilitating sustainable development - there is therefore an expectation that developer obligations will be a funding stream. This will be further explored during the OBC.
- **UK Infrastructure Bank:** The UK Infrastructure Bank is operationally independent but wholly owned by HM Treasury. The bank has £27.8bn to help crowd in private investment and drive growth across the UK. The banks could be a potential source of funding.
- **Scottish National Investment Bank:** The **Scottish National Investment Bank** provides patient (long term) capital to businesses and projects throughout Scotland to support the development of a fairer, more sustainable economy. The Bank's ambition is to not only invest its allocated public capital, but to encourage additional private capital to invest alongside it, to support the delivery of our missions. The bank could be a potential source of funding.

5.7.2 These funding options can be combined to create a robust financial plan for ART, ensuring its successful implementation and sustainability.

6 Management Dimension

6.1 Introduction

6.1.1 The Management Case within the SBC provides a high-level overview of the management arrangements required for the successful delivery of the ART project. Therefore, this chapter aims to develop the thinking around:

- Who is involved in the ART project, both inside and outside the Council, including users, sponsors, suppliers and other key stakeholders
- The achievability of the ART project and its objectives, taking into account the Council's organisational readiness and its current capabilities
- The nature of the work needed to develop more detailed management proposals

6.1.2 Given the complexities of the proposed ART scheme, some uncertainties will remain with regards to the management resources and governance structures required for the delivery and operational stages of the project. As such, this chapter of the Strategic Business Case will be limited to outlining the work required at the next development stages to establish the framework and methodologies that will be deployed to ensure the successful delivery and operation of the ART project.

6.1.3 Taking the above into account, this Management Case is structure as follows:

- An initial review of other urban infrastructure projects in Aberdeen and Scotland, identifying lessons that may be applicable to the ART project
- A review of the current Project Framework, providing recommendations for a governance structure specific to the ART project
- An analysis of the current risk environment and how the current uncertainties may impact the achievability of the ART project
- Next steps

6.2 Review of Urban Infrastructure Projects in Aberdeen and Scotland

Aberdeen Western Peripheral Route

6.2.1 The Aberdeen Western Peripheral Route (AWPR) is a major road that stretches north from Stonehaven through Kincardineshire and crosses both the River Dee and River Don before terminating at Blackdog, with a total length of 26 miles. The construction of the AWPR was coupled with extensive upgrades to the A90 continuing north with the 9-mile section between Balmedie and Tippetty. The new road first opened in 2018 although some works continued until its official completion in 2019.

6.2.2 This section is based on an internal audit report for Aberdeen City Council produced by *pwc* in May 2014¹⁴³ and various progress updates and governance reports to Aberdeen City Council's Enterprise, Planning & Infrastructure Committees.

6.2.3 Backed by the Scottish Government (SG), the road was developed by Transport Scotland (TS) in partnership with Aberdeen City Council (ACC) and Aberdeenshire Council (AC). An Agency Agreement was entered into between ACC and the Scottish Ministers in November

¹⁴³ <https://committees.aberdeencity.gov.uk/documents/s38889/AWPR%20Governance%20-%20FINAL%20Report.pdf>

2003 (and subsequently varied in 2008, 2012 and 2013) whereby ACC became the Appointed Agent of the Scottish Ministers under section 4 of the Roads (Scotland) Act 1984. Under the terms of the Agency Agreement, ACC was responsible for the provision of all services in connection with the procurement, preparation and construction of the AWPR project on behalf of the Scottish Ministers.

- 6.2.4 Funding for the project was the subject of a tripartite Memorandum of Understanding (MoU) between the Scottish Ministers, ACC and AC signed on October 2003 (and subsequently varied in 2007 and 2013 to reflect changes to the project). The MoU committed both local authorities to make a percentage contribution towards the scheme development and capital construction costs.

Project governance

- 6.2.5 ACC committed to the AWPR project on a ‘multi agency’ basis, i.e., in partnership with the Scottish Government via TS and Scottish Futures Trust (SFT) as well as AC. The Council approved its financial commitment and **delegated decision-making powers to its then Chief Operating Officer (COO)** in her capacity as a Project Board member. The COO attended Project Boards alongside the Head of Planning and Sustainable Development. There were also arrangements in place for delegation of the COO powers to the Head of Planning and Sustainable Development.
- 6.2.6 The review conducted by *pwc* evidenced robust involvement of ACC in key project decisions. For example, **approval of the final tender submission fell to the Project Board**, i.e., the COO using her delegated powers.
- 6.2.7 The AWPR was delivered under the Independent Project Assurance Model (IPAM) protocols, which have now evolved into more comprehensive models such as the Infrastructure and Projects Authority (IPA) *assurance review toolkit*¹⁴⁴ or the Association for Project Management (APM) white paper *assurance assessment toolkit*¹⁴⁵. This ensured that **focussed independent reviews took place at all key decision points** over the life of the project. The sharing of these reviews with ACC’s Elected Members was a prerequisite to providing the comfort they required.
- 6.2.8 A key recommendation from the *pwc* paper was that the Project Board should **regularly report financial expenditure on the project to the relevant Council Committees**. The paper also noted that the Council should seek to identify and routinely review its recurring and non-recurring reporting needs (including IPAM reviews) to ensure the project’s visibility at relevant senior executive and Elected Members’ Committee meetings.

Procurement and cost management

- 6.2.9 The development of the procurement strategy **was led by TS, with close involvement of the two local authorities and SFT**. Technical, legal and financial advisors were appointed to assist during the procurement process, despite TS having extensive delivery experience in multi-party schemes on major transport infrastructure projects, e.g., M8 M73 M74 Motorway Improvements and Forth Replacement Crossing.
- 6.2.10 A point of concern noted in the *pwc* paper (raised by ACC’s finance lead) was the need for **effective profiling of the likely timing of expenditure by all parties** involved in the project. This was to assist in good treasury management and effective reporting. However, this was considered to be a challenge to the project due to uncertainties around the levels and timing of payments for land compulsory purchase orders.

¹⁴⁴ <https://www.gov.uk/government/collections/infrastructure-and-projects-authority-assurance-review-toolkit>

¹⁴⁵ <https://www.apm.org.uk/v2/media/qejzb50/assurance-assessment-toolkit.pdf>

Trams to Newhaven

6.2.11 Passenger services on Edinburgh's tram line extension to Newhaven launched on 7th June 2023 after a 4-year construction period (contracts were approved by the City of Edinburgh Council's Finance and Resources Committee in March 2019). Since its opening to the public, the project has received numerous industry awards recognising its success in delivering on time and within its £207.3 million budget, as well as deploying an effective and innovative procurement strategy.

6.2.12 This section reviews the Management Case within the **Trams to Newhaven Full Business Case**¹⁴⁶ to develop an understanding of the factors that contributed to the project's success.

Project governance and organisation

6.2.13 A key lesson learned from the first phase of tram related to the project governance and contract management structures. Following mediation, revised governance structures were put in place that served the project well through to its opening to passenger services. Therefore, similar arrangements were adopted from the outset on the Trams to Newhaven extension. The key principles underpinning the project's governance structure were:

- Strong leadership from the top of the Council, key stakeholders and the contractors selected to carry out the works
- Strong political support and regular reporting by officers on risks, issues and costs
- Clearly defined roles and responsibilities within the Council, with clear reporting lines
- Clear management information used to report through all project levels
- Professional project management support to the project

6.2.14 Responsibility within the Council for the project resided with the **Senior Responsible Officer (SRO) who led the project senior management team**. Core project decisions were taken by **the Project Board** or by **the Council's Corporate Leadership Team**, as appropriate. A separate **Finance and Risk Sub-Group, chaired by the Council's Head of Finance**, was also established to provide detailed challenge and oversight. This sub-group also oversaw project risk contingencies. Political oversight was provided by the **All Party Oversight Group**, with reporting to Council Committees as required.

6.2.15 A **managed delivery unit** was also established, mainly made up of the Council's advisory team and led by the **Project Director**. The remit of the managed delivery unit was to successfully manage all aspects of the project through to completion. Both the Project Director and the SRO were members of the Project Board and took joint responsibility for all aspects of project delivery.

6.2.16 This top level governance is reflected in Figure 6:1 below.

¹⁴⁶ <https://www.edinburgh.gov.uk/tramstonewhaven/downloads/download/137/covid-19-final-business-case-refresh>

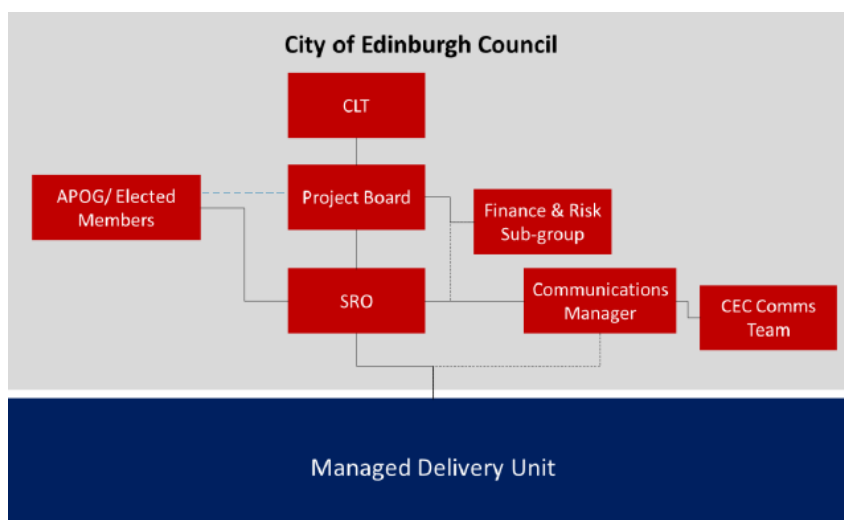


Figure 6.1: Trams to Newhaven top level governance structure (*Trams to Newhaven Full Business Case*)

The delivery strategy

6.2.17 Based on lessons learned from the construction of the first phase of tram, the delivery strategy for Trams to Newhaven was based on the following:

- Traffic management arrangements were designed at the **Early Contractor Involvement stage** to facilitate opening large sections of the site at any one time to enable flexibility around the works programme in the event that problems arise during construction
- A continuous approach to construction was deployed wherever possible whereby the diversion of utilities was carried out immediately prior to the installation of the tramway, thus minimising disruption, cost and speeding up the construction process
- Recognising the impact that this approach was likely to have on the local community, a Support for Business scheme was developed to maintain the vibrancy, desirability and accessibility of the streets affected by the project during construction

6.2.18 The above approach was **built into the scope of the two main construction contracts (infrastructure and signals)** to ensure the Council had the appropriate contractual guarantees around the preferred delivery strategy.

Edinburgh Trams operations

6.2.19 This section provides an overview of how tram operations are arranged in Edinburgh, including a review of revenue and operating and maintenance costs for the year ended 31st December 2023¹⁴⁷.

6.2.20 Edinburgh Trams has responsibility for the operations and infrastructure management of the city's tram system between the airport and Newhaven on behalf of the City of Edinburgh Council (CEC). A fleet of 27 trams operates seven days a week, serving 23 stops, with the opening of the Newhaven line introducing eight new stops to the network.

6.2.21 Edinburgh Trams remains fully responsible for the management of maintenance contracts with the following contractors:

¹⁴⁷ Edinburgh Trams Limited Financial Statements for year ended 31st December 2023
<https://edinburghtrams.com/sites/default/files/2024-09/ETL%20Statutory%20Accounts%202023.pdf>

- Construcciones y Auxiliar de Ferrocarriles S.A. (CAF) for tram maintenance
- Flowbird Transport Ltd for ticketing equipment maintenance
- Infracore (a consortium between Siemens Mobility Ltd and Bilfinger Construction UK) for infrastructure maintenance

6.2.22 Edinburgh Trams are responsible for the full payment of maintenance costs made directly to their maintenance providers. There are monthly formal meetings to monitor the contractors' performance and agree payment in terms of their individual contracts. The contracts were amended to take account of the additional maintenance requirements for the Newhaven extension.

NESS Energy from Waste

6.2.23 The NESS energy from waste facility, located in East Tullos, processes non-recyclable waste from Aberdeen City, Aberdeenshire and Moray councils, produces electricity for the national grid, and will provide heat for a local district heating network. Waste taken to the facility is burned cleanly and completely, meeting strict EU emission standards.

6.2.24 The facility was delivered through a partnership between the three Councils, which added additional complexity to an already highly technical project. The main governance arrangements were designed to ensure that the interests of each of the three partner authorities were taken into account, but also to balance the need to have effective and timely decision making and appropriate levels of accountability.

6.2.25 Whereas the project had a Project Director who was accountable to the Project Board, key decisions were referred to each of the Councils' committees. A governance structure for the project is provided in the figure below.

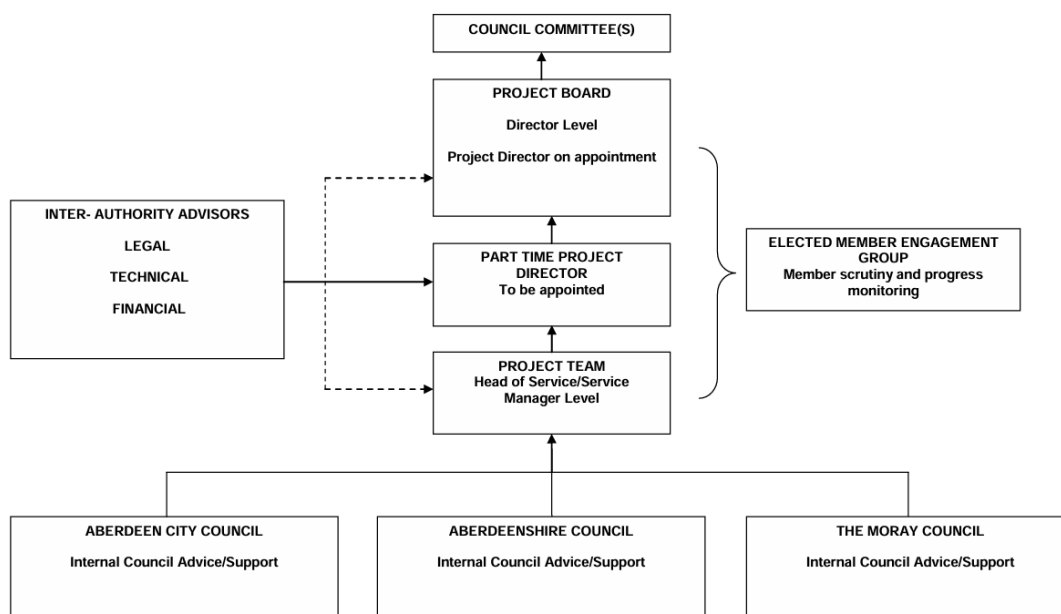


Figure 6.2: Energy From Waste – Governance Structure

Conclusions

6.2.26 Throughout the review of the above projects, a number of key lessons for application to the ART project have been identified:

- Similar to the AWPR project, the ART project will likely require some form of ‘multi-agency’ work between, at least, Aberdeen City Council, Aberdeenshire Council, Nestrans and, potentially, the UK and Scottish Governments. In this context, it will be critical to **establish a nominated authority to lead the development of the ART project**, clearly defining the role of other partners involved.
- The lead authority should consider **delegating powers to an officer with sufficient seniority to make project decisions** within the scope of that delegation. In the case of the AWPR this was the COO, whereas for Trams to Newhaven there was a nominated SRO. In both cases, **a Project Board was established** as the conduit for core project decisions within the limits of those delegated powers
- Both projects **adopted an assurance framework and established separate groups within their governance structures** to provide detailed challenge and oversight to decisions and operational arrangements
- **Elected Members were regularly informed of project progress**, including financial expenditure. This helped increase political visibility and minimise uncertainty at key decision points.
- Given the likely legal and commercial complexities of the ART project, **consideration should be given to engaging with SFT** with the objective of mobilising their expertise in infrastructure financing, procurement and delivery
- **Management of ART operations and maintenance** of both the infrastructure – including ticketing infrastructure and future renewals – and vehicles will drive the requirements for operational resource. Although not critical at this stage, the OBC should establish these requirements in detail depending on the preferred delivery pathway.

6.3 Project Framework

- 6.3.1 This section aims to provide an overview of the current organisational structure set up by Aberdeen City Council around the ART Project, the reporting and governance arrangements and the key roles and responsibilities. The main focus is to carry out a high-level gap analysis with regards to the likely governance and resource requirements for the next stages, namely the development of the OBC, and provide recommendations.

Current Governance Arrangements

- 6.3.2 As the project was initially funded through Transport Scotland’s BPF, a **BPF Programme Board** was set up to provide oversight of all the BPF Programme across the region. The Board included senior managers from Aberdeen City Council, Aberdeenshire Council, and Nestrans. The BPF Programme Board reported to the relevant **committees within both Aberdeen City Council and Aberdeenshire Council**, the **Nestrans Board** and the **North East Bus Alliance Board** (bringing bus operators and Bus Users UK into the BPF Programme). The North East Bus Alliance Board has responsibility for the development of a **Bus Service Improvement Partnership (BSIP) Agreement**, the development of which was a stipulation of the BPF funding.
- 6.3.3 However, the BPF funding was paused in March 2024 for the 2024/25 financial year. Despite the pause in funding from the Scottish Government, there was a strong desire to continue work across the previously BPF funded studies, including the ART project. As a result, the current project stage is funded through the **Aberdeen City Region Deal (ACRD)**.
- 6.3.4 The ACRD is the agreement between the UK Government and the Scottish Government with Aberdeen City Council, Aberdeenshire Council and **Opportunity North East (ONE)**. ONE is a delivery mechanism for the Region’s economic vision which focuses on transformational investment supporting the evolution of the region’s key sectors, sustainable business growth and creating green jobs for the future.

- 6.3.5 In the context of the ACRD, Aberdeen City Council and Aberdeenshire Council established the **Aberdeen City Region Deal Joint Committee** as the “Constituent Authorities”. It consists of Elected Members of both local authorities and members of ONE. The Joint Committee drives and governs the implementation of the City Region Deal programme and its links to the Regional Economic Strategy. The Aberdeen City Region Deal Joint Committee reports to both Scottish Government and UK Government as joint ACRD funders.
- 6.3.6 As part of the ACRD, the BPF Programme Manager currently also reports to the **Aberdeen City Region Deal Transport Working Group** (which oversees the transport programme under the ACRD) which, in turns, reports to the **Aberdeen City Region Deal Programme Board**. Additional details of all these groups and their reporting structure can be found in section 2.2 and Figure 2:1.
- 6.3.7 It is worth noting that decision making remains under the remit of each of the Councils’ relevant committees.
- 6.3.8 The above represents the typical approvals route for the entire BPF Programme (assuming there are no changes in future funding). However, the known complexities of the ART project, its scale and the likely decision-making challenges probably grant setting up **a dedicated governance structure that enables an efficient decision-making and escalation route**.
- 6.3.9 Therefore, the rest of this section, explores a series of governance recommendations aimed to provide operational oversight specifically for the development of ART as a standalone project, with Aberdeen City Council as the lead (or client) organisation.
- 6.3.10 The key principles underpinning these recommendations are:
- Informed leadership from the top of the client body, enabling a more efficient relationship with both the stakeholders and the suppliers involved in the delivery of the project
 - Strong political and senior management support through regular reporting on risks, issues and investment requirements
 - Clearly defined roles and responsibilities within the client organisation with clear reporting lines, thus providing a strong sense of ownership by individuals
 - Viable for Aberdeen City Council to implement
 - Clear management information used to report at all levels
 - Professional project management and advisory support embedded in the client organisation
 - Recognises the role of key stakeholders, including Aberdeenshire Council and both the UK and Scottish Governments
- 6.3.11 The recommendations presented here are based on the broad application of the PRINCE2 project management methodology and learnings from other projects of a similar nature. PRINCE2 represents proven good practice in project management and is the recommended methodology in the HM Treasury’s ‘Better Business Cases: for better outcomes’ framework.

The Senior Responsible Owner

- 6.3.12 The **Senior Responsible Owner (SRO)** is a key role in PRINCE2. The SRO is accountable for the project, and for ensuring that it meets its objectives and delivers the expected benefits. The individual who fulfils this role should be able to lead and champion the project and must be empowered to direct the project team and take decisions; for example, whether to delay or stop progress on any of the workstreams outlined in Table 2:6.

- 6.3.13 The SRO must have sufficient seniority and authority to provide leadership to the project and take on accountability for delivery. The role of the SRO is pivotal in ensuring that the project aligns with the Council's strategic goals and priorities.
- 6.3.14 It is worth noting that **the Council has not yet appointed an SRO**. It is recommended that this appointment takes place prior to any major work commencing on the OBC. **The SRO may be appointed by the Council's Chief Executive, Angela Scott, or via decision of the Council's Net Zero, Environment and Transport Committee**. This is a key recommendation that will contribute to increase the visibility of the ART project within Aberdeen City Council.
- 6.3.15 A **Project Director** may be nominated to deputise for the SRO and provide day-to-day leadership. However, the Project Director should not replace the SRO and its appointment is not recommended until the later stages of the OBC. At that point, a closer relationship between a senior representative of the Council and the private sector (contractors, operators etc.) will likely be required. Among other responsibilities, a Project Director could help establish and maintain those relationships on behalf of the SRO.

Political Oversight

- 6.3.16 The purpose of ensuring there is an appropriate level of political oversight is to help raise the profile of the ART project across Elected Members. Given the regional nature of the ART project, it is recommended that political oversight materialises through Nestrans Board, which includes cross-party representation across both Councils, Chair of relevant committees and officer representatives of planning, active travel, health and wider infrastructure development, as well as the relevant Council committees.

The Project Board

- 6.3.17 As the main decision-making body, the remit of the **Project Board** is to provide clear operational oversight across all the workstreams and required outputs (Table 2:6) of the ART project. Acting as the main client body, the role of the Project Board is to provide challenge to the resolution of issues and to be the sign-off point for change requests. The responsibilities of the Project Board include:
- The appointment of **the Council's Project Manager** (already in post) and the wider allocation of resources, including budget and personnel
 - Approval of the business case, including the project objectives and the scope
 - Approve the **Project Initiation Document (PID)**
 - Ensure effective communication and engagement takes place across the adopted governance structure and with stakeholders
 - Consider recommendations and authorise future actions on the project, including the early termination if the project is no longer viable or there is not a robust case for investment
 - Project assurance
 - Manage and monitor the project budget, authorising expenditure in line with the provisions set out in the PID and taking account of any delegated authority provisions to the SRO and the Project Manager that may be in place
 - Provide direction, if required, to the Project Manager in the negotiation of contracts and signing off contract provisions prior to tender and contract award

- Sign off any change request to the scope (including requirements), the master schedule, the project budget, the PID and the provisions in this business case
- Monitor the delivery of the scope in line with the project objectives and within the agreed quality parameters
- Oversee the identification and management of risks, ensuring that appropriate mitigation strategies are in place

6.3.18 The Project Board should have representation of the three main areas of interest in the project:

- The **Project Executive**, represented by the SRO and the Project Director (whose role will be further defined in the PID), as well as **Nestrans Director** and **Aberdeenshire Council's Head of Environment and Sustainability**, is ultimately responsible and accountable for the successful delivery of the ART project
- **Senior Users (SrU)** represent the end user or customer and their needs, being responsible for ensuring that the project's outputs and deliverables meet their requirements and expectations. In the Project Board, these are representatives of Strategic Place Planning, City Development and Regeneration, Operations and Capital.
- **Senior Suppliers (SrS)** represent the suppliers or vendors providing goods or services for the project, ensuring that the project's outputs and deliverables are feasible and can be delivered on time according to the master schedule and within the approved project budget. At this stage, these will be mostly senior representatives from the consultancy team supporting the Councils and will act as advisors to the Project Board.

6.3.19 In addition to the above, it is recommended that the Project Board has some representation, as and when required, from key support functions within the Council, including, as a minimum, legal, finance, procurement, asset management and communications.

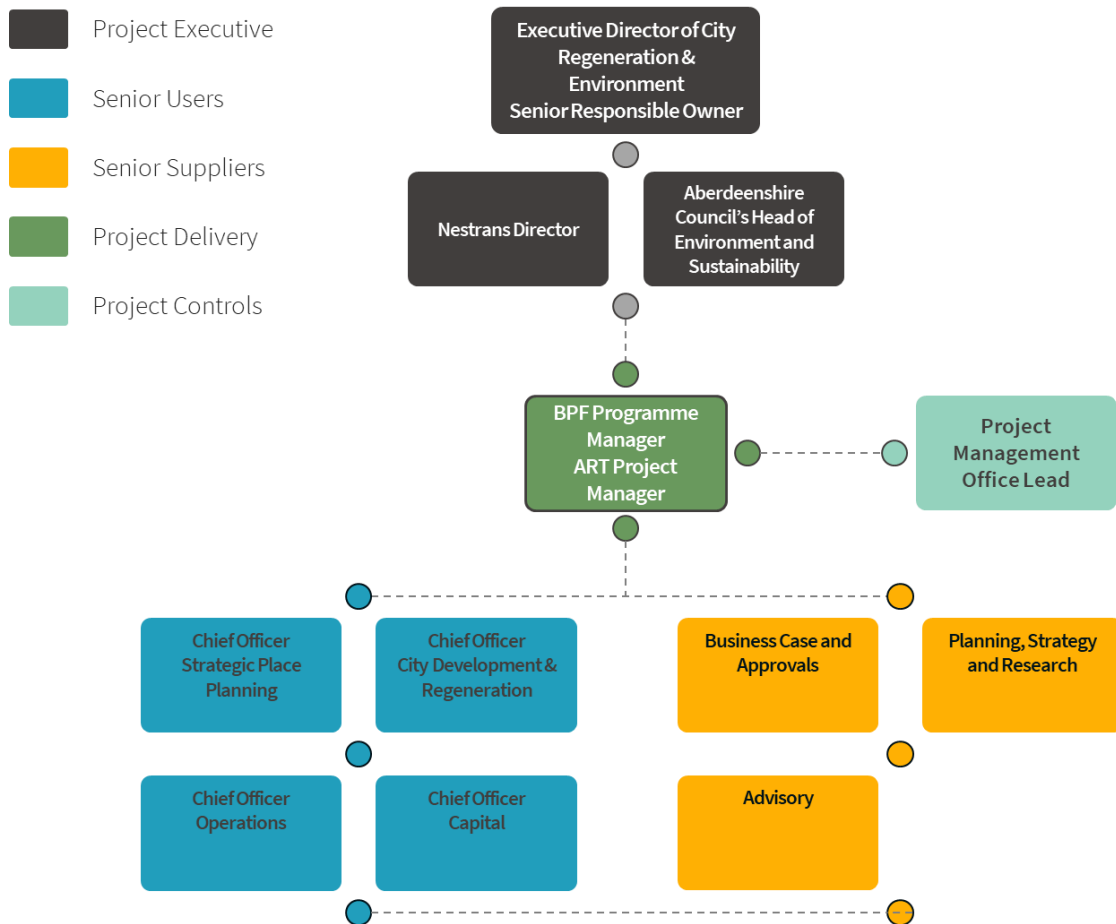


Figure 6.3 Proposed structure for the ART Project Board

The ART Project Manager

6.3.20 **The ART Project Manager is ACC's BPF Programme Manager.** The main responsibility of the Project Manager is to ensure the project delivers the right outputs, to the required level of quality and within the specified constraints of time, cost, resources and risk, including:

- Build up and manage the Project Team, ensuring it is adequately resourced through the different project stages
- Maintain an effective relationship with the SRO and other members of the Project Board
- Develop and maintain key project documents and information, including the PID and the business case
- Identify, evaluate and manage risks and issues, agreeing, assigning responsibilities for and monitoring the delivery of mitigation actions
- Manage and control changes to the Scope (including requirements), the Project Plan (including individual stage plans and the project budget) and resources
- Present project reports and information to the SRO, the Project Board and other relevant stakeholders, seeking approvals and inputs into decisions as required
- Ensure that the project's deliverables and required outputs meet the required specifications and quality standards

The Project Initiation Document

6.3.21 The PID is a core, live document that defines the project in detail. When correctly maintained, it serves as a reference point throughout the project for both the Project Team and the wider Council as the client organisation. It is recommended developing and signing off the PID prior to any work commencing on the OBC. Although the responsibility for maintaining the PID would reside with the Project Manager, the Project Board may use it to continuously assess the viability of the ART project and make informed decisions. The PID should include, as a minimum, the following provisions:

- The ART vision, project objectives and scope
- The expected benefits of the ART project
- The organisational structure set up around the project, including the detailed definition of roles and responsibilities
- Project communications (internal) and the reporting framework
- The **Project Plan**, including an overview of the deliverables, the activities required to deliver them and validate their quality, the resources and time needed for all activities (including specific capabilities and competencies), the dependencies between activities and any associated constraints, when activities will occur and the points at which progress will be monitored, controlled and reviewed
- The mechanisms for monitoring and controlling the project's progress
- The risk management strategy, the framework within which risks will be identified, mitigated and managed and the risk register
- Change management
- Plans for communications and engagement with the community and stakeholders
- Project assurance
- Post-project evaluation strategy

The Project Team

6.3.22 Reporting directly to the Project Board, it is recommended setting up a **Project Team** to provide two differentiated but integrated functions – project delivery and project controls. In addition, there may be a third support function focused on providing advice to the Project Team about different aspects of the Council's own procedures and regulations. These functions are outlined in Table 6:1 below. The Project Team would be **led by the nominated Project Manager**.

Table 6:1: Proposed ART Project Functions

Project Delivery	Project Controls	Project Support
This function is central to ensuring that the project's deliverables and required outputs are aligned with the project objectives and meet the required specifications and quality standards, with key areas of responsibility including:	This function provides critical analysis, monitoring and reporting across the following areas of the project: ■ The approved Project Plan ■ Cost and budget variance	Project support is crucial for ensuring that the project runs smoothly and that everyone involved has the required information and the resources they need to perform their roles effectively, including:

Project Delivery	Project Controls	Project Support
▪ The identification and onboarding of the appropriate resources, including specific capabilities and competencies ▪ Steer and manage the design development process ▪ Quality, environmental and health and safety management, including compliance with the Construction (Design and Management) Regulations (CDM) 2015 ▪ Business case development and approvals ▪ Planning and consents ▪ Communications, engagement and consultation, both within the project structure and with stakeholders ▪ Steer and manage the development of the project's key workstreams and required outputs as per Table 2:6	▪ Risk, including regular reviews of the risk register and, when applicable, any quantified risk analysis ▪ Change management, including the production of reports with as many information as required to facilitate the decision-making process with regards to change request ▪ Information management and document control ▪ Decisions log ▪ Project assurance ▪ Post-project evaluation ▪ Interface co-ordination	▪ Corporate Project Support provides guidance to the Project Team to ensure that the project is delivered in line with the Council's adopted best practices and governance standards ▪ Operational Project Support provides the Project Team with administrative and logistical support including the management of the project's resources ▪ Functional Project Support provides specialist support to the Project Team in areas such as finance, IT, legal, or procurement, ensuring compliance with relevant regulations and standards, and helping to manage any risks or issues that may arise within their area of expertise ▪ Client Service(s) Project Support provides advice to the Project Team about the requirements and expectations from different service areas within the Council

6.3.23 The **specific roles within the project delivery function** will be **set out within the PID**, in consultation with both **the Project Manager and the SRO**. It is recommended that, as a minimum, the areas of responsibility listed below should be considered for the early stages of the OBC, made up of a mix of Council officers and advisors. Each of them should take on different areas of responsibility based on the key project workstreams and required outputs set out in Table 2:6:

- Business case and approvals
- Infrastructure design and procurement
- Vehicles design and procurement
- Commercial and operational pathways
- Wider interdependencies
- Communications, consultation and engagement

6.3.24 It is recommended that the **project controls function** within the core Project Team includes, as a minimum:

- The **Project Management Office (PMO) Lead**, further explained below, and
- An **Interface Coordinator**, responsible for liaising with the project delivery roles to ensure they are working together to deliver a coordinated and consistent set of outputs

- 6.3.25 Finally, the Project Team may include a **Project Support Coordinator**, whose role would be to make sure that the Project Manager and other members of the Project Team have access to the required support, knowledge and inputs from the project support function (primarily made up by Council officers) in a timely manner.
- 6.3.26 Figure 6:4 below provides a preliminary overview of the current thinking around the recommended structure of the Project Team for the early stages of the OBC. As work progresses, consideration may be given to adding a construction readiness role (or others) to the project delivery function.

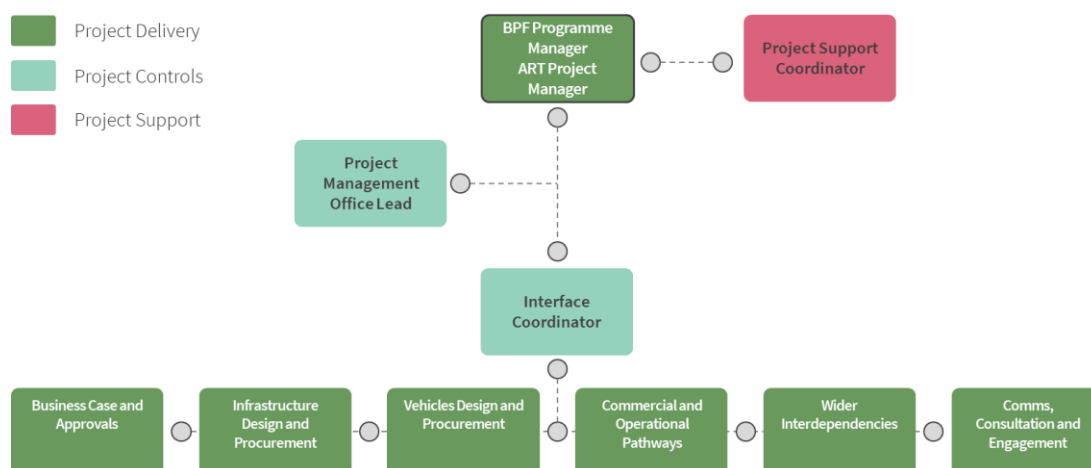


Figure 6:4: Proposed preliminary structure for the Project Team

- 6.3.27 Each of the Project Delivery functions in Figure 6:4 is outlined below:
- The Business Case and Approvals function will be responsible for developing the case for investing in ART, securing approvals at key decision gateways and ensuring the information provided is accurate and based on objective research and analysis. This function will also be responsible for the detailed review of the network as part of the OBC.
 - The Infrastructure Design and Procurement function will be responsible for the development of design proposals, ensuring these are deliverable by the market, including bus priority and halts, mobility hubs, depots, information and ticketing etc.
 - The Vehicles Design and Procurement function will be responsible for determining the number, type and specifications for the vehicles, ensuring these are deliverable by the market
 - The Commercial and Operational Pathways function will take responsibility for determining commercial risks and compliance, as well as how the different elements of ART may be delivered using the powers introduced by the 2019 Act
 - The Wider Interdependencies functions will be responsible for ensuring that ART remains aligned with other local programmes currently under development such as the City Centre and Beach Masterplan, as well as the Councils' policies and strategies
 - The Comms, Community and Engagement function will be responsible for all the engagement and consultation activity on the project, as well as all the communications with external parties and the public

The Project Management Office

- 6.3.28 As noted above, the Project Management Office (PMO) Lead may be a key part of the project controls function within the Project Team. As such, the PMO Lead, as head of the PMO, would be responsible for:
- Maintaining the Project Plan, reporting progress and deviations across all the activities, deliverables and their dependencies with regards to quality, resources (including budget) and time
 - Maintaining the Risk Register (and, when appropriate, quantified assessments) on behalf of the Project Manager, including monitoring progress on agreed mitigation strategies and actions
 - Providing critical analysis and producing reports to facilitate the decision-making progress with regards to change management
 - Maintaining logs for relevant project information, documents and decisions, including those affecting the design development process
 - Project assurance
 - Preparing reports for the Project Manager to present to the SRO and the Project Board
- 6.3.29 The specific roles within the PMO, besides that of the PMO Lead, will be set out in the PID in consultation with the Project Manager.

Further Considerations

- 6.3.30 TS has extensive experience, as an organisation, of delivering major infrastructure projects with complex commercial and organisational requirements. Additionally, TS will be responsible for publishing future guidance on the application of the Transport (Scotland) Act 2019. Therefore, **considering regular engagement with TS as part of the OBC stage** could unlock a valuable source of knowledge and insights for the ART project.
- 6.3.31 Additionally, keeping both the UK and Scottish Governments informed as the ART project develops could help improve the future prospects for government funding
- 6.3.32 The governance recommendations outlined above do not include any representation of **local bus operators or bus users**. As key ART stakeholders, there would likely be an expectation to maintain regular contact with these groups. Although it could be argued that the North East Bus Alliance Board and its sub-groups include bus operators and Bus Users UK, their remit currently extends to the entirety of the BPF Programme. Therefore, the PID should include provisions about the most appropriate way to **integrate these groups into the governance structure specific to the ART project**.
- 6.3.33 Although one of the recommendations is to include a Project Support Coordinator as part of the Project Team, consideration should be given to setting up an additional **Project Support Group** sitting underneath the core Project Team. This group would be chaired by the Project Support Coordinator and its remit would be to ensure that all the requirements for corporate, operational and functional client support are addressed in a timely manner, as well as supporting the project assurance framework.
- 6.3.34 The current funding arrangements dictate that the approval of the business case should follow the ACRD governance structure as per Figure 2:1. **The approvals process including key gateways** will be reviewed and set out in the PID prior to any work commencing on the OBC.

6.4 Achievability of the ART Project

- 6.4.1 This section reviews the current risk environment of the ART project to determine the main areas of uncertainty that could impact its achievability. As the viability of the project will be subject to continuous assessment (see 6.3.21), this section also provides recommendations for the key elements of the project assurance framework.

The Risk Environment

- 6.4.2 Risk is the possibility of a 'negative' event occurring, adversely impacting on the project. At this stage in the development of the business case, the main focus is to identify the key areas of risk and uncertainty that are likely to have the biggest impact on the achievability of the ART project.
- 6.4.3 These key areas of risk have been approached from the point of view of Aberdeen City Council as the lead organisation. As such, the analysis of the risk environment is presented across the following categories:
- **Business risks** are those that, at present, remain fully with Aberdeen City Council and cannot be transferred by the organisation, such as the political and reputational risks
 - **Service risks** fall within the design, build, financing and operational phases of the ART project specifically and may be shared with other project partners outside of the organisation, including the private sector
 - **External risks** are inherently unpredictable and random events that are not connected directly with the ART project, including technological disruption, legislation, general inflation and catastrophic risks

Business risks

- 6.4.4 Given its transformational nature, delivering the ART project will require significant support from within Aberdeen City Council, both from Elected Members and senior officers. Progressing through the OBC to reach a preferred position will likely involve making difficult decisions with regards to routes, road space allocation and the potential impact on the underlying network and existing bus services. These decisions will need to be made under a framework in which decision makers have a **clear understanding of the desired benefits and expected outcomes** of the ART project.
- 6.4.5 However, the current governance arrangements around the ART project are limiting the extent to which the Council's political leadership and senior managers may be able to take ownership for the delivery of ART and the decision-making process. If not changed, this situation **could result in poor political and senior officer support at key decision points** throughout the development of the project.
- 6.4.6 In response to this risk, the recommendations around governance presented in Section 6.3 aim to establish a clear communication channel with the Council's political leaders and senior officers. This includes nominating the Executive Director of City Regeneration & Environment as the project's SRO
- 6.4.7 Besides political and senior leadership support for the project, the Council will need to develop a detailed understanding of **the level of resource and specialisation required to successfully deliver ART**. Resolving some of the key project uncertainties during the OBC will require complex analysis and having access to **legal, financial, project management and technical capabilities** that may not be currently available within the Council. A compromise on these requirements could result in delays to progressing the OBC and **introduce serious reputational risks** around the objective nature of the decision-making process.

Service risks

- 6.4.8 At this stage, most of the project-specific translate into areas of uncertainty that will need to be further developed as part of the OBC. A review of these is provided in Table 6:2.

Table 6:2: ART service risks and uncertainties

ART Project	Risks and Uncertainties
ART infrastructure	The infrastructure options for much of the ART corridors were developed through several MMCS. The resulting infrastructure proposals have now been integrated into the ART designs. However, the scope of the MMCS included an ambition to deliver a high-quality provision for active travel (particularly cycling) and placemaking, in addition to bus priority. This is driving significant infrastructure cost increases, specifically at junctions and along links. There is a risk, therefore, that the inclusion of high-spec active travel infrastructure along the ART corridors could put into question the economic viability of the ART project. It is recommended to consider different options, as part of the OBC, with regards to the level of provision for active travel and placemaking (recognising its potential benefits, impacts and risks), based on the ART design principles detailed in Table 3:1. It is worth noting that totally removing the provision for active travel or, at least, providing alternatives, could result in a reduced investment appetite from the UK and Scottish Governments.
ART vehicles	There has been limited analysis with regards to the ART vehicles – specifications, number, power etc. – besides the benchmarking exercise presented in 3.4.10 onwards. The vehicles operating across the ART network will be a key feature of the scheme. They will not only have a direct bearing on the success of ART but will also be a key driver for capital and revenue (maintenance, management and operations) costs. Therefore, there is a risk that the uncertainties around the vehicle requirements and their impact on significant elements of the ART project (stops and halts, ticketing systems, fleet and depot requirements, drivers and training, maintenance etc.) could have an impact on the economic viability and affordability of the ART project. It is recommended to engage with the market as a key priority of the OBC. This would help develop a better understanding of the options readily available within the market, as well as their specifications and fit with the ART vision.
Fares	As well as having a direct impact on the affordability of the ART project, the fare structure will likely dictate the public's perception of the scheme. An unbalanced fare structure could result in a service that is not affordable for users or, on the other hand, little to no appetite from the private sector to get involved in the delivery and operation of the scheme. Both of them could translate into a scheme that is not achievable, with the resulting reputational impact on the Council and its partners. Therefore, it is recommended to prioritise, as part of the OBC, additional work around: ▪ The Council's ability to keep control over maximum fares, thus guaranteeing their affordability for users ▪ The factors with regards to fares that likely had an impact on the success of other transit systems in Scotland, elsewhere in the UK and, potentially, Europe, e.g., clarity, fare caps etc. ▪ The views from the market (beyond existing local operators) of the impact of fares into the commercial attractiveness of the scheme
Mitigation and supporting measures	The introduction of changes to the current street layout along the ART corridors will likely have an impact on other operations, particularly on-street parking provision and motorised traffic. These would be a direct result of street space reallocation and the likely requirement for demand management measures. There is a risk, therefore, of significant opposition to the ART scheme from local communities and other project stakeholders. This could have a direct impact on the political decision-making process

ART Project	Risks and Uncertainties
	and limit the effectiveness of future engagement and communication activities. As only strategic modelling (ASAM19) has been carried out to date, there is limited understanding of the potential impacts at local level. Therefore, it is recommended to develop, prior to starting any work on the OBC, a comprehensive modelling strategy and methodology that supports the identification of priorities for mitigation and supporting measures.
ART routes	Establishing the preferred way forward with regards to the ART routes has been a major step forwards in this Strategic Business Case. However, a level of uncertainty remains around: ▪ The integration with other programmes and projects (i.e., City Centre and Beach Masterplan, Berryden Corridor Improvement Project), development proposals and major trip attractors ▪ The suitability of the ASAM19 model as a key component of the options appraisal As a result of the above, there is a risk around the consistency of future demand predictions, which could result in project failure due to patronage being lower than expected. Besides the potential financial impact, this situation could have significant reputational consequences for the Council and its partners. In addition, it is recommended to carry out a project application suitability audit of the ASAM19 model as part of the development of a modelling strategy, identifying any gaps and improvement requirements to guarantee its effectiveness for the OBC.
Mobility hubs, P&R and interchange	The provision for and effectiveness of mobility hubs, P&R and interchange in supporting the ART network will be determined within the OBC. Although significant work is still required around these assets, they are not considered a key priority within the early stages of the OBC.
Market appetite	It is likely that delivering the ART project will require some form of partnership with the private sector, whether this is by operating the services or through direct investment. Market appetite will be dependent, however, on the commercial attractiveness of the proposed ART network and the Council's approach to contractual arrangements, payment mechanisms and risk apportionment, among others. Without ascertaining the conditions within which the market would be keen to participate in the delivery and operation of ART, there would be a significant risk around the achievability of the ART project. Therefore, it is recommended to develop an early understanding of how the market would view a potential partnership for the delivery and operation of ART, including potential incentives, risk appetite, investment scenarios etc.
Contracts structure and complexity	The required contract arrangement will be directly informed by the preferred delivery pathway and operational model, as well as the extent to which the private sector will be involved. Although this is a critical area of project development, it is not considered a key priority risk within the early stages of the OBC. It is worth noting, however, that the Council will likely need to have access to significant legal and commercial expertise to establish the preferred position with regards to contracts (see 6.4.7).
The regulatory environment	Transport Scotland are yet to provide guidance on the application of the powers derived from the Transport (Scotland) Act 2019. As long as this guidance is not published, the Council's ability to utilise any of the contractual and operational mechanisms discussed in the Commercial Dimension and, therefore, the achievability of the ART project will remain uncertain. As per the recommendation in 6.3.30, enabling and advisory role for Transport Scotland within the ART governance structure could provide early insights into any future guidance in support of the legislation.
Market competition	The Council's approach to address the potential form market or on-street competition will be determined as part of the OBC. It will be directly informed by the preferred delivery pathway and operational model.

ART Project	Risks and Uncertainties
	Although this is not considered to be a key priority risk within the early stages of the OBC, it is recommended to include the issues of competition in the scope of future market engagement activities.
Integration of non-ART services	The introduction of new ART services could subject existing services to significant operational and financial pressure if not planned at network level. This could result in the withdrawal of non-commercial, less profitable services or, in the most extreme cases, the withdrawal of operators from the region. This could result in increased isolation for certain areas within Aberdeen and Aberdeenshire, thus leading to poorer transport outcomes, the failure of the ART project and an unacceptable reputational damage to the Council and other project partners. The recommendations for treating this risk are: ▪ Carry out a full connectivity review across the region that includes different ART scenarios prior to or as early as possible into the OBC stage ▪ Carry out a full review of the bus network assuming ART (and other initiatives such as LEZ, bus gates etc.) is in operation to identify actions that could help mitigate the potential impact on existing bus services
Vehicle availability in the market	It is anticipated that the readiness of the market to provide the required vehicles and technology will directly impact the extent to which the ART benefits may be realised. Recommendations were provided above (under 'ART vehicles') to engage with the market as a key priority of the OBC.
Funding and capital investment – infrastructure	There is an expectation that the majority of the infrastructure costs may be covered by a mix of Scottish Government and local authority funding. Additionally, there may be an opportunity to mobilise private sector investment if a financially attractive proposition can be developed. However, the requirements and sources of funding for the delivery of the infrastructure remain a key uncertainty which could affect the achievability of the ART project. It is recommended to develop a comprehensive financial model as part of the OBC that allows decision-makers to consider different scenarios for the financial viability of ART. This could help increase confidence across potential funders and, therefore, mitigate any potential funding risks that may remain at the end of the OBC stage. To guarantee the effectiveness of the financial model, it is recommended to maintain regular communication with both the UK and Scottish Governments throughout the development of the OBC. In the shorter term, there may be a question mark about funding for the next development stages after March 2027.
Funding and capital investment – vehicles	Although funding for the purchase and leasing of the vehicles could be part of a future funding agreement with the Scottish Government, financing for the vehicles remains a bigger source of uncertainty than the infrastructure. Even if the private sector were to provide the vehicles as part of a commercially attractive deal, this will remain subject to the financial viability of the services, the preferred delivery pathway and the operational model. Therefore, progressing this as an early priority of the OBC may be challenging and, as such, it may not be treated as a key priority risk within the early stages of the OBC.
Other set up costs	Besides the capital investment requirements for the infrastructure and vehicles, there could be significant shorter-term design, development and legal costs involved in setting up the ART operation. Issues around scheme development costs could result in scope creep, a slower development programme and insufficient, inappropriate resource. This could ultimately lead to project failure and a loss of confidence in the Council's ability to promote a transformational scheme such as ART. It is recommended to undertake a scoping exercise prior to starting any work on the OBC to understand the likely resource requirements and the potential need to split it into different stages.

ART Project	Risks and Uncertainties
Scheme affordability	Scheme affordability – and any risks around it – will ultimately require a financial model as noted above under ‘Funding and capital investment – infrastructure’.
Transport authority control	The Council’s ability to retain control over the ART operations – maximum fares, quality of service etc. – will be subject to the preferred delivery pathway and operational model. Compromising on control could, however, lead to undesired outcomes across the ART network , thus leading to reduced patronage which could ultimately result in project failure. It is recommended to undertake, as an early priority of the OBC, a review of the potential risks derived from the hypothetical situation of the Councils losing control of ART operations. This will help inform the Council’s position about risk appetite and the potential involvement of the private sector.
Operational management resource	This is a key business risk that was discussed in 6.4.7
Public and stakeholder acceptability	Poor perception of bus travel is often a key reason for not travelling by bus. This is, for some segments of the population, a barrier to use the bus and could lead, ultimately, to the failure of the ART scheme. In addition, the ART is also a street space reallocation scheme, which will likely require taking space away from cars. This could lead to significant opposition and result in a compromised decision-making process . This is a critical risk to the project that will need to be monitored and planned for throughout all project stages . An initial engagement strategy has been prepared in support of this Strategic Business Case. It will be reviewed and updated during the development of the PID.
Benefits realisation	Arrangements should be put in place, including roles and responsibilities, to ensure the ART project delivers the benefits identified in the strategic and economic cases. Benefits realisation is under the remit of the SRO.
Future operational changes	Future operational changes may be required to react to unexpected market outcomes or deliver further improvements post implementation. A change management strategy extending to the operational stage should be put in place and will need to be built into any contractual arrangements as part of the delivery pathway.

External risks

- 6.4.9 Transport Scotland are yet to provide guidance on the application of the powers derived from the Transport (Scotland) Act 2019. As long as this guidance is not published, the Council’s ability to utilise any of the contractual and operational mechanisms introduced in section 4.3 and, therefore, the achievability of the ART project will remain uncertain.
- 6.4.10 As per the recommendation in 6.3.28, **regular engagement with TS throughout the OBC** could provide early insights into any future guidance in support of the legislation.
- 6.4.11 Other external, market-related risks likely to affect the ART project include price fluctuation and the potential for contractor (delivery of the infrastructure works) or operator insolvency. The mitigations for these risks will be considered as part of the development of the OBC.

The risk register

- 6.4.12 A preliminary risk register has been developed and is maintained in Excel format. The register includes an assessment of each risk, control and mitigation actions, risk ownership and details of recent reviews. The risk register will be reviewed as part of the development of the PID.
- 6.4.13 Additionally, the PID will include a comprehensive risk, opportunity and issues management strategy aligned to ISO 31000. The strategy will dictate roles and responsibilities with regards to risk management, as well as the timings and format of the different risk management interventions including risk register reviews, risk dashboard reporting, quantitative risk analysis etc.

Project Assurance

- 6.4.14 Project assurance is ‘the process of providing confidence to stakeholders that projects, programmes and portfolios will achieve their scope, time, cost, quality objectives, and realise their benefits’¹⁴⁸. A key part of the assurance process is the conduct of reviews, whether on specific elements or on the entirety of the project.
- 6.4.15 The PID will include a detailed project assurance framework specific to the ART project. The proposed framework will be based on the Association for Project Management (APM) assurance assessment toolkit ‘*Measures for Assuring Projects*’¹⁴⁹, developed by the APM Assurance Specific Interest Group (SIG), a group of professionals with diverse backgrounds in the field of project and programme management and assurance.
- 6.4.16 The framework will serve as a reference for the Project Team to provide a measure of their confidence in the achievability of the ART project. It should be noted that:
- The ART Project Manager and the SOR should have a full understanding of the Council’s assurance landscape, including the role of auditors and stakeholders within the organisation
 - The assurance protocols may be subject to change as the project develops, subject to agreement by the Project Board, if new major risks are identified
- 6.4.17 The framework will dictate the required assurance reviews, the roles and responsibilities and how the results of the assessment will be reported and used by the Council to drive improvements.
- 6.4.18 The proposed framework will adopt the 3 Levels of Defence (LoD) model by ensuring that there is representation in the project assurance framework of risk owners, a compliance function and an internal audit function. If a further requirement for an external audit function were required, there could be an opportunity to engage with Transport Scotland to provide that role.

Communications, Community and Stakeholder Engagement

- 6.4.19 Recognising that one of the most significant risks and likely greatest challenge to the ART project will be obtaining stakeholder and public buy-in, this section will analyse all communications and engagement activity carried out to date, providing recommendations for the next stages.
- 6.4.20 To date, engagement and communications activities have included:
- Research into the potential benefits of ART and of local people’s attitudes and aspirations for the scheme
 - Presentation of the benefits of ART through written materials (website, press releases, newsletter articles, etc) and through virtual and face-to-face meetings
 - Engagement with key decision makers, other stakeholders and members of the public
 - Preparation of marketing collateral for future use (a brand for ART, website, visuals, etc)
- 6.4.21 An **ART Toolkit** has been created providing:

¹⁴⁸ APM *Body of Knowledge 6th edition*. ISBN 978-1-903494-40-0

¹⁴⁹ [assurance-toolkit-final-v2.pdf](#)

- A stakeholder register
- A future monitoring and evaluation framework
- An ART logo and ART brand book (a guidance document on appropriate use of the brand)
- A range of ART imagery
- An ART website and social media content and advertising
- Press releases
- Business bulletins
- Mailing list details
- Media contract and Frequently Asked Questions with answers (with a public-facing version and an expanded version provided to Bus Alliance partners to provide clarification on key points and enable consistency of messaging across all partner communications)
- Details of the market research undertaken in September 2022
- Promotional materials including an animated video, case study video, personas (six personas, representing a cross-section of people types who could benefit from ART, and highlighting their needs and aspirations for the service), a two-page note on the economic, social and environmental benefits of bus rapid transit schemes , pull-up event banners
- Stakeholder engagement materials including materials suitable for elected members, business representative, frontage businesses, business people, community councils and general material

6.4.22 The Toolkit has already supported the following activities:

- Face-to-face visits to 318 businesses with frontages on four proposed ART corridors (as set out in the vision document) resulting in direct engagement with 102 businesses (in February 2023)
- Online briefings to the North East Bus Alliance Board (two sessions during 2022)
- An online briefing to which all Aberdeen City and Aberdeenshire Councillors were invited and attended by around 70 elected members and Council officers (October 2022)
- An in-person breakfast briefing for partners and business leaders attended by around 20 representatives (January 2023)
- An in-person briefing for the North East Transport Consultative Forum (NETCF) attended by 23 individuals, comprising Forum members, officers and consultants (February 2023)
- Two online briefings for local businesses with frontages on the proposed ART corridors attended by around 30 individuals across both sessions (March 2023)
- An online meeting with King Street businesses, to discuss ART and the Ellon to Garthdee corridor study attended by around 15 business people (May 2023)
- Identifying potential advocates/influencers for ART

- Recruiting and undertaking hour-long interviews with eight people over two days in (February 2023)
 - Undertaking focus groups with a representative sample of local residents, to test ART brand concepts and to undertake market research on views of ART
- 6.4.23 The outcome of activities to date has highlighted that, in terms of awareness and support for ART:
- There is much positivity surrounding the development of ART. Almost all stakeholders that were engaged with, and a large proportion of members of the public, would welcome ART coming to Aberdeen
 - There is a strong groundswell of ambition to see it delivered
 - There is an understanding of ART amongst target audiences that is generally in line with the Vision
 - Few adverse comments or complaints have been made to Nestrans to date
 - 66% of people stating a view felt that ART would be good for Aberdeen
- 6.4.24 It is important to reflect here on the other strands of engagement undertaken on the MMCS studies and other recent engagement on projects requiring road space reallocation and parking loss, as discussed in the Economic Dimension. Despite the positive engagement outcomes on the ART concept, engagement at the more local level of more detailed proposals has been met with challenge from some affected people and businesses. **This challenge, as the project progresses, and more detail is available at the local level, is recognised as a high level project risk.**
- 6.4.25 The activities to date have provided some momentum for the scheme that it is important to maintain. In addition, as the ART scheme develops it will be important to reduce any general confusion around the inter-relationships and inter-dependencies between ART, the CC&BMP, and the corridor studies. Given the scale of the scheme it will also be important to minimise potential scepticism around its delivery. In this regard, protracted timescales for decisions regarding some other key city centre projects in recent years has exacerbated this risk.
- 6.4.26 It is also important to be mindful that during 2023 there has appeared to be some withdrawal of public support from measures to promote sustainable transport in the UK (evidence includes challenges to the Glasgow Low Emission Zone and the apparent impact of the London Ultra Low Emission Zone expansion on the Uxbridge and South Ruislip byelection, as well as recent adverse reactions to the introduction of traffic management changes in Aberdeen – notably with regards to the introduction of bus priority around Union Square). The marketing and communications element for ART will have an increasingly important role, and the situation suggests that leading messaging with the benefits of ART may be more effective than those which promote its carbon-saving potential - until further work is undertaken to understand the potential for traffic re-routeing, there is a risk of making a case for carbon savings given modelling outcomes reported to date.
- 6.4.27 Importantly, Aberdeen City Council's Net Zero, Environment and Transport Committee continue to support ART with the Co-Leaders of the Council also fully supportive and strong advocates for the scheme. The Nestrans Board is also very supportive. **Maintaining this political buy-in, especially through any leadership changes is vital as the scheme progresses** (with the next Scottish Parliament elections to be no later than May 2026, and with local council elections due to take place in 2027).
- 6.4.28 The above sets out the work undertaken through the earlier dedicated Communication and Engagement Plan. The plan focused on awareness and building positivity around the concept of a rapid transit system rather than specifically on options or detailed feedback on proposals

(as these were still being developed). Additionally, during ART option development, various engagement activities were being undertaken for the multi-modal corridor studies – but these were focused on infrastructure, were undertaken independent of one another, and were not fully underpinned by the wider ART scene setting to bolster the rationale and benefits of the individual proposals.

- 6.4.29 As the SBC concludes, a strategy for engaging on the outcomes of the business case at this stage, drawing together workstreams, and planning for ongoing engagement as the scheme progresses through OBC stage is essential.
- 6.4.30 For this purpose, an Engagement Strategy (*Aberdeen Rapid Transit – Engagement Strategy, Stantec, January 2025*) covering future engagement on the project has been developed. The Strategy sets out:
- the aims of the Strategy
 - the parameters for engagement
 - engagement activities undertaken to date
 - the proposed approach to engagement and consultation as the scheme moves from SBC to OBC
- 6.4.31 The Strategy recognises that public and stakeholder support for the scheme is recognised as a **key risk** for the delivery of ART, particularly given how schemes where the reallocation of road space away from general traffic and parking has been a feature have been received in Aberdeen in recent years. Therefore, it is important to set out a plan for how future engagement will seek to:
- Build support for ART among key stakeholders, the public and businesses
 - Avoid and mitigate any negativity around the scheme, especially through misunderstood assumptions about the scheme
 - Reduce the level of challenge
 - Ensure a scheme which can deliver the benefits sought while mitigating against / minimising any potential impacts
- 6.4.32 The overall purpose of the engagement for ART is therefore to build support for the scheme, building advocacy among elected officials and key stakeholders while allaying concerns from the public and businesses.
- 6.4.33 The engagement will seek to do this through setting the project at the heart of wider policies and strategies and building a strong narrative to show the scheme will be the linchpin of public transport in and around Aberdeen. It is important that the engagement clearly shows how the delivery of ART is key for the performance of public transport in the region, enabling other routes and services to run efficiently and giving the region a more reliable network that will allow people to have a genuine alternative to the car. It is also important to outline how the delivery of ART will have wider societal benefits, setting out the bigger picture of how the scheme ties into other policies and plans to support economic growth in the region, support reduced carbon emissions and improve environmental and placemaking outcomes.
- 6.4.34 A key element of the engagement will be to allay concerns from stakeholders, the public and businesses through clear and consistent messaging around the benefits of the scheme and the potential impacts on factors such as e.g., relocation of parking spaces. It is important to always be transparent and admit that some impacts are likely to be negative for some people. However, the ambition is to show how these negative impacts are far outweighed by positive impacts elsewhere and wider benefits to Aberdeen and the City Region.

- 6.4.35 In particular, the Strategy reflects on the outcomes of engagement to date, and other recent engagement activities across the city which have highlighted the likely significant challenge to proposals which require the reallocation of roadspace, parking removal / relocation, bus priority implementation etc. In some consultation, the views of those likely to benefit from the proposals have not been robustly captured or have often been drowned out by those potentially more directly impacted (who represent a small but vocal minority). More representative engagement is essential to ensure a fair and balanced assessment of the benefits and impacts of the ART proposals.
- 6.4.36 The Strategy proposes engagement on conclusion of the SBC and during development and towards conclusion of the OBC. It is underpinned by strong political advocacy - which needs to be in place before further engagement begins.
- 6.4.37 The strategy will be reviewed, updated and expanded as part of the development of the PID and will be presented as a more detailed and 'live' **Communications, Community and Stakeholder Engagement Plan**.

Project Phasing

- 6.4.38 The proposed ART infrastructure (road space reallocation, junction and signalling changes, new Mobility Hubs, road widening, technology implementation to enable bus detection to provide priority at signals etc.) across the full network is a significant infrastructure project, and its implementation will need to be iterative and coordinated to realise scheme benefits as the whole network is established.
- 6.4.39 Recognising this, the infrastructure proposals across the network have been considered in terms of their benefits, risks and costs, and through discussion with local bus operators, the various elements of the proposed infrastructure (at a broad level) have been allocated into foundational, early implementation, and full implementation measures. These are discussed below. This is an initial consideration of the infrastructure and how it's implementation could be phased. Note that the measures listed below could be implemented on a corridor by corridor by corridor (or ART line by line) basis, to minimise construction disruption and target priority locations first. However, work at OBC stage is required to determine greater detail around the phasing and the incremental benefits that could be realised.
- 6.4.40 As an overarching approach:
- **Foundational measures (0-2 years):** are 'quick win' measures which provide benefit and set the scene across the network for the longer term ART intentions
 - **Early implementation measures (2-5 years):** provide further works to enable bus priority across the full ART network with associated junction reconfigurations
 - **Full implementation (5-10 years):** full scheme implementation - including new ART services operating from established Mobility Hubs, with branded, and (potentially depending on the option chosen) new vehicles operating out of new depots and serving new platforms with rationalised stops across the network
- 6.4.41 Note that the phasing here relates to infrastructure (and the potential to implement improved / new services) as a result. It does not consider the phasing and work required with regards to the delivery mechanism i.e. working through BSIP and franchising development.

Foundational Measures (Approx. 0-2 years)

- 6.4.42 The foundational measures considered, with a shorter-term implementation timeframe, focus on the desire to set out longer term intention for ART, as well as implementing elements of the proposals considered 'quick wins' which can provide immediate benefit without lengthy lead in times. It also recognises those elements less likely to be open to challenge as implementation progresses. Some of the proposed shorter term measures do not realise the greatest benefits

but will start to provide some clarity to the public and stakeholders of the longer term intentions and ART vision. In this regard, the foundation measures implementation provides a good test as to the wider deliverability of the project, and the political, public, funder appetite during the very early stages of implementation.

- 6.4.43 In the short term the elements of the ART network as set out in the table below are suggested for implementation.

Table 6.3: Foundational Measures (approx. 0-2 years)

Proposed Network Element	Location	Rationale for inclusion as foundational measure
Technology to enable bus detection and signal changes at junctions (to improve bus flow through junctions)	Junctions across the ART network	It is clear from discussion with operators that delay at junctions is one of the greatest delay factors across services. Investment in a system with the ability to detect different bus types and alter signals accordingly to prioritise buses through junctions can deliver early benefits. Such a system needs to be adaptable to junction change as the network is developed – especially to accommodate significant junction modifications and to enable safe incorporation of active travel modes. Likely to be a high cost item but unlikely to require significant infrastructure street works to implement. Early discussion required with those responsible for signals management and maintenance at Aberdeen City Council to coordinate needs and understand systems already in place, how they could be adapted to support ART, and understand any potentially conflicting desired outcomes of signal configuration in terms of managing bus priority, general traffic delay, and the needs of active travel users.
Resurfacing of bus lanes and lining and signing renewal	Network wide where bus lanes already present	Straightforward to implement and reinforces bus lanes supporting adherence. Effective low cost measure and sets intention for improved bus priority. Such improvements could in the early stages be implemented across an individual corridor, or individual ART route in the first instance. This would provide evidence of the benefit of such improvements.
Extended and consistent bus lane hours of operation – in tandem with review of waiting and loading restrictions	Network wide where bus lanes already present	Increased bus priority across more of the day. Provides consistency to the public and avoids any confusion around different hours of operation. Such improvements could in the early stages be implemented across an individual corridor, or individual ART

Proposed Network Element	Location	Rationale for inclusion as foundational measure
		route in the first instance. This would provide evidence of the benefit of such improvements.
Improved enforcement ensuring adherence to bus lanes	Increased enforcement of bus lanes through use of cameras to maximise adherence and provide more effective bus lane operation	Straightforward to implement and reinforces bus lanes supporting adherence. Effective low cost measure and sets intention for improved bus priority. There are known issues across the network with cars parked in bus lanes making the lanes wholly ineffective.
Existing bus stop improvements	Upgrades to bus stops across the network to provide lighting, shelter, seating and security, and real time information where missing	Providing an improved waiting environment at bus stops in the shorter term is likely to encourage an improvement in the perception of bus travel cross the network and benefiting existing users. Such improvements could in the early stages be implemented across an individual corridor, or individual ART route in the first instance. This would provide evidence of the benefit of such improvements. Specific locations could be trialled for consideration of upgrades to accommodate longer tram-style vehicles. Such trials could be undertaken at locations known to cause issue for the longer 'bendy bus' First services in operation on certain services on the existing network.
New services	- Bridge of Don P&R to Kingswells P&R (short term destination until Mobility Hub established at Westhill) - Craibstone P&R / Airport to Cove (short term destination until Mobility Hub established at Portlethen)	Initial ART service offering – either through enhanced services along corridors (Option 3A) or through implementing new ART services (using existing branded vehicles as in Option 5A). Such services would need to operate over shorter routes with terminus at Kingswells and Cove – until the Mobility Hubs are built and operational

Early Implementation Measures (Approx. 3-5 years)

- 6.4.44 Early implementation measures would start to build on the foundational measures to more fully implement bus priority across the network. On implementation, there will be a high level of the envisaged bus priority across the corridors in place. These measures are set out in the table below.

Table 6:4: Early Implementation Measures (approx. 3-5 years)

Proposed Network Element	Location	Rationale for inclusion as early implementation measure
Bus lane implementation over dual carriageway sections of the network	North - A92 / A956(N): A92/B999 junction to Esplanade	Limited need for any major highway changes to implement. Would set out the longer term ambition for continuous and dedicated bus lanes

Proposed Network Element	Location	Rationale for inclusion as early implementation measure
	- North-West - A96: Craibstone to Printfield Walk (North-West of Kittybrewster Roundabout) - West - A944: - East of AWPR junction to Jessiefield Roundabout (A944/A9119) - Westburn Road (North Anderson Drive to Cairnfield Place) - South: - West Tullos Road - Great Southern Road (junction with West Tullos Road to Holburn Street)	between terminus points and the city centre. Measures require reallocation of road space without the need for road widening – but note that at points there are required changes to the existing central reservation (narrowing / removal) to achieve this. Need to ensure bus lanes at these locations are long enough to be effective. Inbound bus lanes could be implemented first across the noted carriageway sections Consideration of required traffic restraint measures to ensure any impacts of bus lane implementation are mitigated e.g. do not want traffic routeing through Kincorth as a result of West Tullos Road bus lanes
Bus lane implementation over other sections of ART network – not already implemented in short term	- King Street - Holburn Street - Lang Stracht - Wellington Road (south of West Tullos Road)	To enable maximum bus priority across the network between terminus points and city centre. Such measures will require streetscape works with extensive engagement with businesses and the public as proposals are developed. There is a need to balance bus priority, particularly on King Street and Holburn Street, with urban realm improvements. Likely to be high cost to implement.
Queue relocation management	- Printfield Walk (to maximise bus priority between Printfield Walk and Kittybrewster roundabout) - Westburn Road (eastern end – to maximise bus priority between Cairnfield Place and Rosemount Terrace)	At locations where providing dedicated bus lanes is challenging (and likely to be a longer term measure – see table below), traffic queue management measures will provide a level of bus priority over general traffic.
Woomanhill to Blackfriars bus access	Wolmanhill Roundabout	Works to enable access from Woomanhill to Blackfriars to provide route for proposed inbound ART bus route from Westhill to the city centre (and then onwards to Blackdog)
Junction changes to maximise bus priority	At junctions requiring reconfiguration to enable improved bus priority e.g. roundabout conversion to signalised junctions or increased junction footprint to enable bus lanes up to junction stop lines etc.	Likely to be high cost to implement and require significant highways works. Inclusion at medium term enables further and more complete bus priority across the network to then enable the implementation of ART services which can achieve the level of reliability and speed desired.

Proposed Network Element	Location	Rationale for inclusion as early implementation measure
New services (if not implemented in short term already)	- Bridge of Don P&R to Kingswells P&R (short term destination until Mobility Hub established at Westhill) - Craibstone P&R / Airport to Cove (short term destination until Mobility Hub established at Portlethen)	Initial ART service offering – either through enhanced services along corridors (Option 3A) or through implementing new ART services (using existing branded vehicles as in Option 5A). Such services would need to operate over shorter routes (than those envisaged on full scheme completion) with terminus at Kingswells and Cove – until the Mobility Hubs are built and operational

Full Implementation Measures (Approx. 6-10 years)

- 6.4.45 The implementation of longer term full scheme implementation measures completes the overall scheme and provides the infrastructure across the full network to enable ART services to be fully operational (assuming an appropriate delivery mechanism was then in place to allow this). These measures are set out in the table below.

Table 6:5: Full Implementation Measures (approx. 6- 10 years)

Proposed Network Element	Location	Rationale for inclusion as full implementation measures
New Mobility Hubs	- Blackdog - Westhill - Portlethen	The implementation of the new mobility hubs at Blackdog, Westhill and Portlethen requires progression through the planning process and with consideration of the land acquisition strategy. The location, size and design of the Mobility Hubs requires consideration. The Mobility Hubs implementation enables ART services to operate across the full envisaged network. Early discussion is required with developers, at Blackdog in particular, to ensure such a hub can be incorporated into site design. Depending on hub implementation timescales, these could be phased, allowing for one ART route to become operational over its full extent before the other.
Reconfigured / improved access to existing P&R sites (as well as rebranding as Mobility Hubs)	- Kingswells - Bridge of Don	Existing access to Kingswells Park & Ride site would be circuitous when ART services extend to Westhill. Ensuring direct and fast access for buses into and out of the Kingswells site is essential to encourage use of ART services to and from Westhill (and from further afield by those using the Mobility Hub). Reconfiguration of the Kingswells site will be required to enable suitable

Proposed Network Element	Location	Rationale for inclusion as full implementation measures
		access (this may include consideration of the use of Old Lang Stracht and serving Kingswells village). If the Bridge of Don site is retained, then suitable ART platforms on Ellon Road (and access to the site from and to the platforms) will be required – to avoid the current circuitous routing for bus services into the site. Similarly to Kingswells, this will be particularly important to encourage
Significant infrastructure	• Bridge widening at Bedford Road • Kittybrewster to Printfield Walk dualling	It is still unclear whether these major infrastructure element will be included within the final scheme and their inclusion needs to be considered through work at OBC stage to examine the value of their inclusion in the scheme. If they are to be progressed as part of the scheme, they are likely to be implemented at this later stage given the work required through the planning process to deliver. For the Bedford Road bridge widening this would require engagement with Network Rail and ultimate track possessions with associated charges. It may also be that bridge widening may need to align with potential future electrification of the line.

6.5 Carbon Management

- 6.5.1 Aberdeen City Council and Aberdeenshire Council both have targets of reaching net zero carbon by 2045 and the delivery of this scheme will seek to support these ambitions through the following:

Adoption of Low Carbon or Reduced Carbon Construction techniques

- 6.5.2 This will be managed in two phases.
- 6.5.3 Firstly, during scheme development and design the ACC PM team will ensure that the appointed consultants consider carbon savings as part of the design process in line with PAS2080.
- 6.5.4 Secondly, as part of the procurement of the construction of the scheme part of the selection of a contractor will consider their carbon reduction commitments to support the goal of achieving net zero by 2045. ACC's PM will then be responsible for ensuring that the chosen contractor follows through on their commitments.

Consideration of the implementation of Low Emission or Zero Emission buses

- 6.5.5 As part of the design process at OBC stage consideration will be given to how to accommodate low emission or zero emission buses, this could include provision of charging points at termini or adjustments to timetables to maximise battery use.

Supporting the shift to Public Transport

- 6.5.6 A major shift in travel behaviour is required to achieve Net Zero. This project will support the push to net zero through providing new public transport infrastructure that prioritises buses over other road transport via road space reallocation and signal improvements.
- 6.5.7 An assessment of the scheme's impact on operational carbon has been considered as part of economic appraisal.

6.6 Recommended Next Steps

- 6.6.1 These recommendations are aimed to clear some of the uncertainties presented in Table 6:2 **prior to starting any work on the OBC**. It is anticipated that the cost of the OBC could be several million pounds. Therefore, the next steps below aim to address some of the major risks prior to committing any significant expenditure.

Recommendation 1 – The Project Initiation Document (PID)

- 6.6.2 A fundamental element of the PID is the establishment of a project-specific governance structure. By developing the PID and **implementing as many of its provisions as practically possible prior to starting any work on the OBC**, the ART project will benefit from, among others:
- **A clear communication channel with the Council's political leaders and senior officers**, mainly through the nomination of the Executive Director of City Regeneration & Environment as the project's SRO and the formalisation of the Project Board
 - A more detailed **understanding of the level of resource and specialisation** required to successfully deliver the ART project
 - **A clear development pathway for, at least, the initial stages of the OBC** that is based on resolving key priority risks to the project
 - **Well-defined roles and responsibilities specific to the ART project**, including a project delivery role dedicated to ensuring that the project takes account of any wider interdependencies, including other projects and programmes developing in parallel to ART
 - **Increased confidence from partners and potential funders** that the organisation around the project is well structured and designed to address its key challenges
 - Having access to **early insights from Transport Scotland** with regards to any future guidance on the application of the powers derived from the Transport (Scotland) Act 2019
 - A better understanding of risks
 - Effective mechanisms for **project controls and regular reporting**

- **An agreed baseline Communications, Community and Stakeholder Engagement Plan** the implementation of which will likely contribute to mitigate the critical risks around public and stakeholder acceptability

Recommendation 2 – Review of Design Options

- 6.6.3 The OBC will need to consider different infrastructure design scenarios with regards to the level of provision for active travel, placemaking and bus priority, recognising their potential benefits, impacts and risks. This is particularly relevant at key location such as King Street and Holburn Street and, more generally, at junctions and along links.
- 6.6.4 At this stage it is recommended that a set of **Service Standards** are agreed which can guide infrastructure design decisions.
- 6.6.5 Agreeing what these options are (based on the ART design principles detailed in Table 3:1 and the above Service Standards), prior to starting any work on the OBC, will likely **mitigate the risk of future abortive work on options that may not be consistent with the ART principles**, as well as its deliverability and affordability.

Recommendation 3 – Scope Out Market Engagement

- 6.6.6 Although the engagement with the market itself would take place early within the OBC stage, **it is recommended that a scoping exercise is carried out in advance**. The scoping would include, among others, designing the questionnaires, establishing who will be engaged (including operators, the local contracting market and other LTAs across the UK, among others), the specific engagement methods, how the outputs will be reported and agreeing the timeline.
- 6.6.7 This would likely provide **early insights, both from the private sectors and other transport authorities, on some of the key priority topics to be addressed at the OBC stage commences**, including:
- The risks around market and on-street competition
 - Vehicle options readily available in the market, their specifications, compatibility with the ART vision and a better understanding of purchase or leasing costs
 - Maintenance and operational requirements including costs
 - Driver training requirements
 - The factors with regards to fares that likely had an impact on the success of other transit systems in Scotland, elsewhere in the UK and, potentially, Europe
 - The views from the private sector of the potential impact that fares could have on the commercial attractiveness of the ART scheme
 - How the private sector (infrastructure operators, manufacturers, bus operators) would envision a potential partnership for the delivery and operation of ART, including incentives, risk appetite, private investment etc.
 - How the above may translate into more specific contractual arrangements and key clauses
 - The market views about their likely response to different levels of local authority control

Recommendation 4 – Public Transport Connectivity Review

- 6.6.8 A critical risk to the ART project is the potential impact it could have on non-ART services which, in the most extreme cases, could lead to existing operators withdrawing from the region. Therefore, there is a need to ensure that **the resulting public transport network – once ART is in operation – is cohesive, viable and that there are no accessibility gaps in the region.**
- 6.6.9 As a first step in addressing this critical risk, it is recommended to **carry out a full review of public transport accessibility and connectivity prior to any work starting on the OBC**, in close collaboration with local bus operators and, potentially, other high-interest stakeholders. This will help identify key areas with poor connectivity and limited access to public transport and will provide the basis for a full network review as part of the OBC.

Recommendation 5 – OBC Modelling & Appraisal

- 6.6.10 This recommendation is driven by the need to identify priority mitigation and supporting measures that may be designed early into the development of the OBC. Issues around this **will likely be at the core of future public debate** and could impact the political decision-making process and limit the effectiveness of future engagement activities. However, only strategic modelling has been carried out to date and, therefore, there is **limited understanding of any impacts the ART project may have at local level.**
- 6.6.11 Additionally, the OBC will need to demonstrate the robustness of the model forecasts of passenger numbers, the impact of ART on the wider network and the proposals for supporting bus services.
- 6.6.12 It is recommended that the following tasks are undertaken prior to the OBC:
- A project application audit of ASAM19, identifying any gaps and scoping out any enhancements required to improve its suitability for the OBC
 - A deep dive into the modelled disbenefits of ART, based on an updated run of the strategic model, to understand the source of the disbenefits and determine whether these are legitimate or not
 - Identify the priorities for mitigation measures and other measures that would support the realisation of the ART benefits, providing recommendations for more detailed local modelling during the OBC
 - The full range of STAG / TAG compliant quantifiable benefits is scoped out for clarity in advance of the OBC

Recommendation 6 – Set Up the Financial Model

- 6.6.13 A robust and comprehensive financial model will allow decision makers and potential funders to consider different scenarios with regards to the financial viability of ART, thus increasing confidence that all financial risks have been considered in detail at the end of the OBC. Financial modelling will likely run in parallel to demand modelling during the OBC as finding the optimal solution will likely involve an iterative process between both.
- 6.6.14 It is, however, recommended to **develop the structure, inputs requirements and parameters of the financial model prior to any work starting on the OBC**. This will help focus future efforts on the specific required inputs, making the wider modelling tasks more cost effective and purpose driven. This will also enable **a more informed dialogue with potential funders** from the outset at the OBC stage.

Recommendation 7 – Changes in Guidance

- 6.6.15 Transport Scotland may publish more detailed guidance about the application of the provisions established in the Transport (Scotland) Act 2019. Further to the governance provisions with regards to Transport Scotland, the Project Board may want to consider **preparing future points for discussion with Transport Scotland or commentary** based on the likely outcomes of the guidance.

Recommendation 8 – Scoping Out the OBC Stages

- 6.6.16 Table 6:2 provides an overview of the key project priorities to be addressed at the OBC stage. These, however, should be set out in a separate briefing document that considers the likely methodology, activities involved, logical sequences and required stages, resource requirements and what may be delivered by the Council, project partners or external advisors. This is recommended to be carried out prior to any work starting on the OBC and would shape any future procurement exercise.

Appendix A North Corridor

A.1 Introduction

- A.1.1 This appendix presents a range of data with respect to the A90 / A956 strategic route into Aberdeen from the North. A key source of has been the *Ellon P&R to Garthdee Transport Corridor – STAG Based Appraisal – Problems, Issues, Opportunities and Constraints* (Aecom, November 2020) and *Aberdeen Rapid Transit - Options Appraisal - Case for Change* (Stantec, May 2022).
- A.1.2 Note that much of the information was developed several years ago as part of previous studies. Some information was updated in the Spring of 2022. Given this, some of the data presented is likely to have altered since then. However, it still provides a good overview of the corridor.

A.2 Corridor Overview

- A.2.1 The A956 (King Street) / A90 north of Aberdeen links from the east end of Union Street northwards to Ellon, Peterhead and Fraserburgh. The corridor is varied in terms of its characteristics, ranging from accessible rural areas within Aberdeenshire to dense urban areas within the city. Within Aberdeen City, there are a number of key destinations that the corridor provides access to including the Beach Esplanade, University of Aberdeen, North East Scotland College, and the city centre. There is a sizeable population and retail and industrial space in Bridge of Don. The figure below shows the bus services operating along the corridor and the location of existing bus lanes, and also highlights the location of key destinations and the location of future development sites along the corridor.

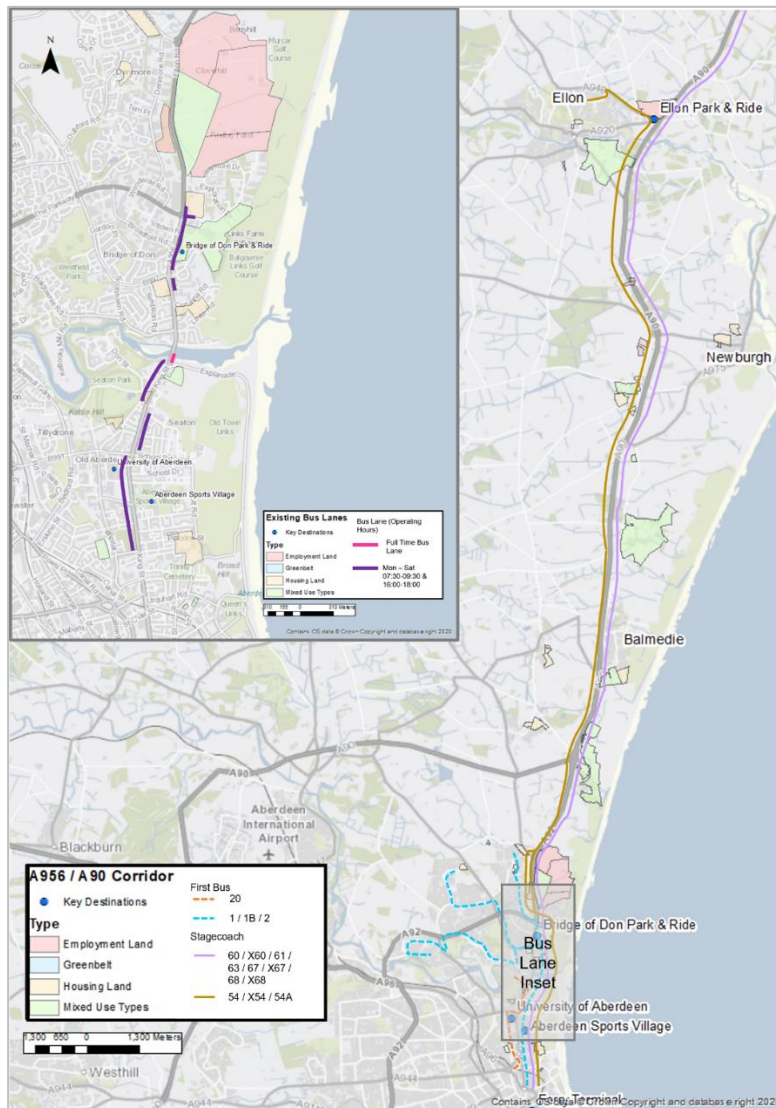


Figure A.1: A956 (King Street) / A90 (North) – Bus services, existing bus lanes and future development sites (as of Spring 2022)

- A.2.2 Car (both driver and passenger) is the main mode of travel for commuting purposes within the corridor with bus the primary mode for public transport-based trips reflecting the absence of rail services³⁴. Ellon is within daily commuting distance of Aberdeen, with the Ellon Park & Ride site (282 spaces) linking to Peterhead, Fraserburgh and other locations on the A90 corridor.
- A.2.3 There is a further, larger Park & Ride site at Bridge of Don (650 spaces) but utilisation has been declining year on year.
- A.2.4 Both First and Stagecoach operate bus services along the corridor as highlighted in the figure above and detailed in the table below. There are several services that operate between Aberdeen and Ellon, primarily via the A90. Some services (60/X60/61/X61/63) connect onwards to Peterhead whilst others (67/X67/68/X68) connect north to Fraserburgh via the A952. Further services operate via Newburgh and Balmedie to either Peterhead or Ellon.
- A.2.5 There is no bus priority within the Aberdeenshire section of the corridor between Ellon and Blackdog, and no bus priority to the north of The Parkway Roundabout within Aberdeen City. There is a dedicated lane for those accessing Bridge of Don P&R for approximately 1.1km on approach to the junction which buses can use. To the south of The Parkway Roundabout,

there are various sections of bus priority. There are also priority signals for buses at the junction with the Beach Esplanade.

Table A:1: A956 (King Street) / A90 (North) – Bus Service Details (as of Spring 2022)

Bus Operator	Bus Service	Route	Key Destinations	Services per hour (10:00 – 11:00)
First Bus	1, 1B, 2	Robert Gordon's University Garthdee Campus to Danestone and Ashwood, via the city centre	Robert Gordon's University Campus, Union Street, Aberdeen University Campus, Bridge of Don Industrial Estate, Bridge of Don Park and Ride, and the residential areas of Garthdee, Broomhill, Denmore and Danestone	4
	8/8A	Shielhill to City Centre, via the Aberdeen Royal Infirmary	Aberdeen Royal Infirmary, University of Aberdeen, Union Street and residential areas of Shielhill, Danestone and Hilton.	1
	13	Scatterburn to Seaton Golf Links, via the city centre	Old Pittodrie Football Stadium, Aberdeen Sports Village, Union Street, and the residential areas of Seaton, Rosemount, Mastrick and Northfield	3
	20, 40	Hillhead of Seaton to Balnagask Circle, via the city centre	Hillhead Aberdeen University Accommodation, RGU Sports Centre, Aberdeen University Campus, First Bus Depot, Union Street and the residential area of Torry	2
Stagecoach	50	Aberdeen to Ellon Park & Ride	Aberdeen University Campus, Bridge of Don Industrial Estate, Ellon Academy, and the residential areas of Seaton, Bridge of Don, Balmedie and Newburgh	2-hourly
	53	Aberdeen to Ellon Market Street	Aberdeen University Campus, Bridge of Don Industrial Estate, and the residential areas of Seaton, Bridge of Don, Balmedie and Newburgh	2-hourly
	X60	Aberdeen to Peterhead	Aberdeen University Campus, Bridge of Don Industrial Estate, Ellon Park & Ride, and the residential areas of Seaton, Bridge of Don, Newburgh and Balmedie	1
	61	Aberdeen to Peterhead	Aberdeen University Campus, Bridge of Don Industrial Estate, Ellon Park & Ride, and the residential areas of Seaton, Bridge of Don, Newburgh and Balmedie	Mornings and evenings
	X63	Aberdeen to Peterhead	Aberdeen University Campus, Bridge of Don Industrial Estate, Ellon Park & Ride, and the residential areas of Seaton, Bridge of Don, Newburgh and Balmedie	1
	X67	Aberdeen to Fraserburgh	Aberdeen University Campus, Bridge of Don Industrial Estate, Ellon Park & Ride, North East Scotland College, and the residential areas of Bridge of Don, Tipperty, Ellon, Clola and Fraserburgh	1
	X68	Aberdeen to Fraserburgh	Aberdeen University Campus, Bridge of Don Industrial Estate, and the residential areas of Seaton, Bridge of Don, Tipperty, Ellon, Strichen and Fraserburgh	1

- A.2.6 Journeys along the corridor take longer by bus than by car and often significantly so. In addition, there are particularly long travel times notable for trips where access is to key destinations that are not in or in close proximity to the corridor e.g. Aberdeen Royal Infirmary and Aberdeen Airport.³⁴ This reflects the need for interchange on these journeys where direct services are not available. The average speed by car is approximately 21.5mph, compared to 12.7mph by bus³⁴ (based on a range of trips along the corridor by bus and car to key destinations – undertaken in December 2020).
- 6.6.17 There is very high car/van availability in each of the key settlements within the Aberdeenshire section of the corridor (86%) relative to the Aberdeen city and the national average of 69%, although car ownership in Bridge of Don (within the city) is similar to that of the Aberdeenshire settlements, at 86%³⁴.
- A.2.7 There is predicted future increased traffic on the A90(N) between Blackdog and the River Don due to housing and employment development in the corridor.³⁴
- A.2.8 There are a large number of developments planned along the A956 / A90 North corridor, which are shown in the table below., with the larger developments outlined in more detail.

Table A.2: A956 (King Street) / A90 (North) – Future Development

Location	Employment Land	Residential Land		Mixed Use	Comments
	Area (ha)	Units	Area (ha)	Area (ha)	
Pittodrie Park			5.9		Residential land for redevelopment
AECC, Bridge of Don Offshore Technology Park				18.4	
Findlay Farm, Murcar	16.5				Existing employment land for redevelopment
Cloverhill		550			Located on old employment land
Blackdog	4	600			
Balmedie OP1	11	80			
Balmedie OP3		500			
Foveran	2	100			3 ha of strategic land reserve
Ellon OP1	2	980			Primary school and associated facilities
Ellon OP4	29				

Appendix B North-West Corridor

B.1 Introduction

- B.1.1 This appendix presents a range of data with respect to the A96 strategic route into Aberdeen from the North. A key source of information has been the *A96 Collective Travel Study* (Aecom, April 2018) and *Aberdeen Rapid Transit - Options Appraisal - Case for Change* (Stantec, May 2022).
- B.1.2 Note that much of the information was developed several years ago as part of previous studies. Some information was updated in the Spring of 2022. Given this, some of the data presented is likely to have altered since then. However, it still provides a good overview of the corridor.

B.2 Corridor Overview

- B.2.1 The A96 corridor links Aberdeen city centre with Dyce, Blackburn, Kintore, Inverurie, Insch, Huntly and on to Inverness, as well as to many rural hinterland communities. The corridor crosses the AWPR west of the airport access road with a link from the A96 / Airport access roundabout to join the AWPR south-west of the junction. The junction provides strategic access onto the wider trunk road network.
- B.2.2 The A96 route is multifunctional with key trip generators and attractors along its length including settlements (with towns located along the route to Huntly considered within daily commutable distance of Aberdeen), development sites, centres of employment (namely Aberdeen city centre, Dyce and Kirkhill industrial estate), the airport and leisure facilities, most notably The Event Complex Aberdeen (TECA).
- B.2.3 In addition, the A96 also provides access to the Aberdeen University campus located close to St. Machar roundabout, the North East Scotland College campus site at Gallowgate and the Berryden and Kittybrewster retail parks. The corridor, therefore, has bi-directional demand along its length, i.e., not solely focused travel into Aberdeen City Centre.
- B.2.4 The figure below shows the bus services operating along the corridor and the location of existing bus lanes, and also highlights the location of key destinations and the location of future development sites along the corridor.

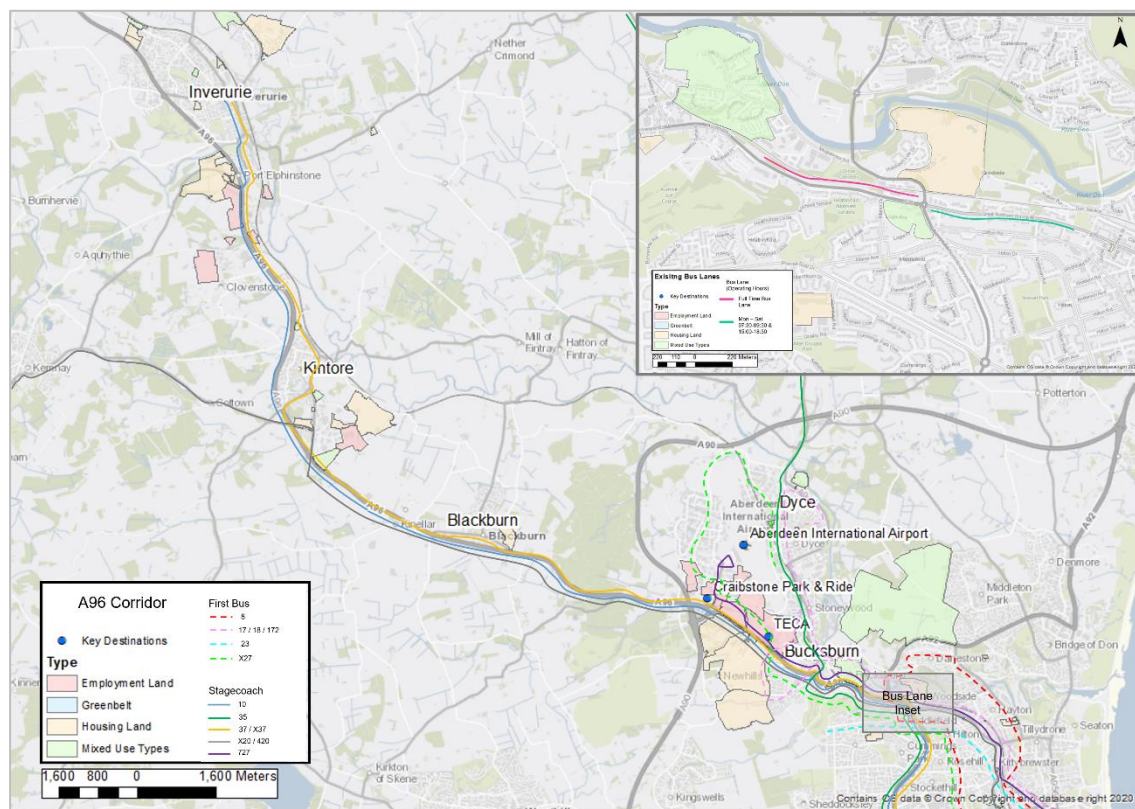


Figure B.1: A96 – Bus Services, existing bus lanes and future development sites (as of Spring 2022)

- B.2.5 Craibstone Park & Ride site is located close to Aberdeen Airport with services (pre-pandemic) connecting to Aberdeen centre, Inverurie, and other locations on the A96 corridor. The site is not well used (less than 1% capacity) and is (as of early 2022) temporarily closed with no buses serving the site due to the downturn in bus patronage due to the pandemic. On opening, up to ten buses per hour operated from the site, with minimal patronage. Journey times to the city centre were cited as dissuasive factors for users (due to insufficient bus priority between the site and the city centre).
- B.2.6 By comparison, the rail station car parks at Dyce and Inverurie were often above 100% capacity³⁵ pre-pandemic (note that the station at Kintore opened during the pandemic making it difficult to gauge 'normal' utilisation).
- B.2.7 Despite both bus and rail access along the corridor (with rail stations at Inverurie, Kintore and Dyce), there is still high (pre-COVID) car use for travel to work and education along the corridor, and surveys undertaken in 2017 showed high levels of single occupancy vehicles on the corridor (ranging from almost 90% SOVs observed at Port Elphinstone during the AM peak to just under 65% during the Inter-Peak at Dyce Drive and Causewayend).³⁵
- B.2.8 While the corridor is served by both bus and rail, analysis of travel time and cost has showed that while rail offers a competitive alternative to the private car, bus journey times are substantially longer than the quickest car-based journey (though competitive during peak congestion periods), and bus journey times are almost twice as long as rail³⁷. Bus journey times have been exacerbated by the construction work for the A92/A96 Haudagain Improvement project.
- B.2.9 Analysis of both pre- and post AWPR traffic flows (pre-COVID) indicates a marked (approximately 50%) decrease in traffic on the A96 east of Haudagain roundabout, reducing from around 40,000 Average Annual Daily Flow (AADF) to around 20,000 AADF. Traffic reduces further as the A96 routes into Aberdeen centre, reducing to around 13,000 AADF on Powis Place.³⁵
- B.2.10 There is predicted future increased traffic on the A96 between Aberdeen (including Great Northern Road and Berryden) and Inverurie due to housing and employment development in

the corridor. This includes specific increases southbound at Inverurie and on Great Northern Road at Kittybrewster. Dyce Drive / Airport Link Road and Great Western Road / Anderson Drive junction are predicted to be close to maximum capacity by 2037.

- B.2.11 Both First and Stagecoach operate bus services along the corridor as highlighted in the figure above and detailed in the table below.
- B.2.12 There are existing sections of bus priority lanes along the corridor on the approaches to the Haudagain roundabout. Eastbound, (inbound to Aberdeen) the bus lane starts approximately 500m west of the Haudagain junction and is in operation 24hours. In the westbound direction (outbound of Aberdeen) the bus lane starts just west of Deer Road, approximately 850m from the Haudagain junction and is operational during the AM and PM peaks only (07:30 – 09:30 and 15:00 – 18:30).

Table B.1: A96 – Bus Service Details (as of Spring 2022)

Bus Operator	Bus Service	Route	Key Destinations	Services per hour (10:00-11:00)
First Bus	8/8A	Shielhill to City Centre, via the Aberdeen Royal Infirmary	Aberdeen Royal Infirmary, University of Aberdeen, Union Street and residential areas of Shielhill, Danestone and Hilton.	1
	17, 18, 172	Dyce Shopping Centre to Kincorth Shopping Centre and Altens, via A96 and city centre	TECA, Dyce Railway station, Kittybrewster Retail Park, Union Street, Altens Industrial Estate, SUEZ Recycling Centre	10
	19	Tillydrone residential area to Peterculter, via the city centre and Great Western Road	Union Street, The Marcliffe Hotel and Spa, International School Aberdeen, and residential areas of Braeside, Cults and Peterculter	4
	23	Sheddocksley to Heathryfold, via the A944, city centre and Clifton Road	Woodend Hospital, Aberdeen Royal Infirmary, Union Street, Kittybrewster Retail Park, and the residential areas of Sheddocksley, Rosemount, Hilton and Northfield	5
	X27	Dyce Railway Station to Aberdeen Train Station, via Aberdeen Airport, the A96 and the city centre	Dyce Railway Station, Kirkhill Industrial Estate, Aberdeen International Airport, TECA, Aberdeen Royal Infirmary, Union Street, Aberdeen Train Station, Aberdeen Bus Station and the residential areas of Bucksburn, Hilton and Rosemount	2
Stagecoach	10	Aberdeen to Inverness	Aberdeen Bus Station, Aberdeen Royal Infirmary, and TECA	3
	35	Aberdeen to Elgin	Aberdeen Union Square and Aberdeen Royal Infirmary	2
	37	Aberdeen to Inverurie	Aberdeen Union Square, Aberdeen Royal Infirmary, and TECA	1
	727	Aberdeen International Airport to Union Square Bus Station	Aberdeen Airport, TECA, Kittybrewster Retail Park, Union Street and the residential areas of Bucksburn, Hilton, Kittybrewster and Bucksburn	6

Bus Operator	Bus Service	Route	Key Destinations	Services per hour (10:00-11:00)
	220	Aberdeen to Kemnay	Aberdeen Union Square, Kittybrewster Retail Park and Berryden	1

B.2.13 The corridor has a lower level of car ownership than Scotland, Aberdeenshire, and Aberdeen City as a whole - but the level of ownership varies considerably along the settlements on the corridor. Households in commuter towns such as Kintore and Blackburn have significantly higher proportions of car ownership than those based in the city centre. Reflecting this, in Kintore, 86% of people who travel to a place of work, do so as a car driver, whereas only 1% travel by foot. In comparison, 41% of those who travel to work from the City Centre West area do so as a car driver, with 26% doing so by foot.

B.2.14 There are several key development sites which are located along the A96 corridor, outlined in the table below. The high number of housing and employment sites planned for this area will lead to an increase in demand for travel along the A96.

Table B:2: A96 – Future Development

Location	Employment Land	Residential Land		Comments
	Area (ha)	Units	Area (ha)	
Woodside		300		
Rowett North	34.5			Employment land for redevelopment
Rowett South		1,940		
Craibstone South		1,000		
Dyce Drive	66.3			
Garioch, Kintore	20	1,000		
Port Elphinstone		737		Community facilities included

Appendix C West Corridor

C.1 Introduction

- C.1.1 This appendix presents a range of data with respect to the A944 / A9119 strategic routes into Aberdeen from the North. A key source of information has been the *A944-A9119 Case for Change (Stantec, August 2020)* and *Aberdeen Rapid Transit - Options Appraisal - Case for Change (Stantec, May 2022)*.
- C.1.2 Note that much of the information was developed several years ago as part of previous studies. Some information was updated in the Spring of 2022. Given this, some of the data presented is likely to have altered since then. However, it still provides a good overview of the corridor.

C.2 Corridor Overview

- C.2.1 The A944 corridor runs from Mounthooly roundabout in Aberdeen city centre, westwards to the communities of Kingswells and Westhill, before continuing further westwards to connect to many hinterland communities. Both Westhill and Kingswells are key employment areas immediately adjacent to the corridor, with the Prime Four business park located at the south of Kingswells (adjacent to the Park & Ride site and with around 4,000 jobs located within the park) and Arnhall business park located to the south of Westhill (with around 10,000 jobs located within the park). Aberdeenshire Council offices are located immediately adjacent to the route to the north-east of the A944 / North Anderson Drive junction. There are a cluster of region-wide healthcare facilities focussed along the corridor including: Aberdeen Royal Infirmary, Children's Hospital, Woodend House, Maternity Hospital, Royal Cornhill Hospital and Roxburgh House. Between the Foresthill Health Campus, the Royal Cornhill Hospital and Aberdeenshire Council Headquarters there are around 21,000 jobs located immediately adjacent to the corridor to the east of North Anderson Drive.³⁶
- C.2.2 Figure C below shows the bus services operating along the corridor (as well as those on the A9119 corridor which joins the A944 east of Kingswells) and the location of existing bus lanes, and also highlights the location of key destinations and the location of future development sites along the corridor.

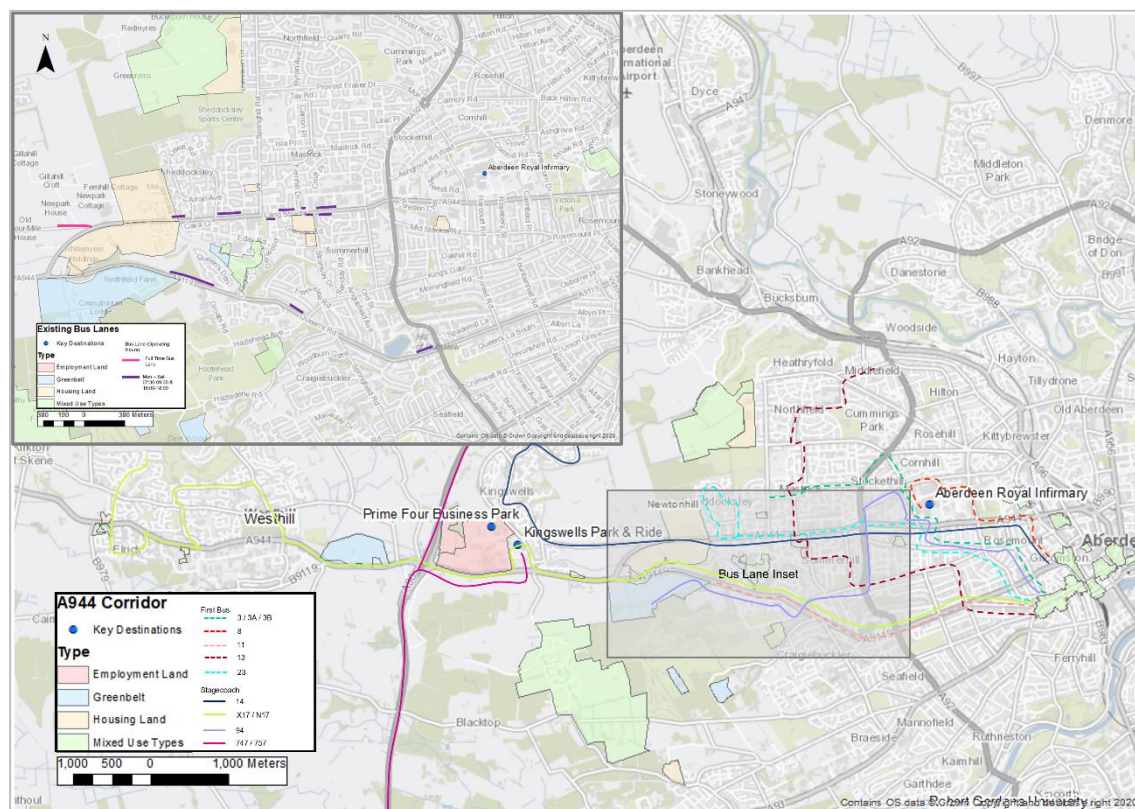


Figure C.1: A944 – Bus Services, existing bus lanes and future development

- C.2.3 There is high car use for travel to work and education along the corridor. Travel to Work Data from the 2011 Census, shows that 14% of those who live within the study area travel to work by public transport.³⁶ While representative of the Aberdeen City average, this is approximately half the level of public transport use seen in Glasgow and Edinburgh. It is important to also note that the public transport mode share varies strongly along the corridor – from 7% at the west of the corridor to 30% in the city centre.³⁶ There is predicted future increased traffic around the North Anderson Drive area due to increased employment at Aberdeen Royal Infirmary and by 2037 the Lang Stracht / North Anderson Drive junction is anticipated to be over capacity.
- C.2.4 There is a Park & Ride site at Kingswells (915 spaces) linking to the city centre, Westhill, Alford, Elrick and Countesswells. The site is not well used and was operating at 21% parking capacity in 2018¹⁵⁰ although this had increased to 29% in 2023.
- C.2.5 Both First and Stagecoach operate bus services along the A944 (and A9119) corridors as highlighted in the figure above and detailed in the table below. While First operate services along only eastern sections of the corridor closer to Aberdeen centre, Stagecoach operate a number of services connecting Westhill and Kingswells into Aberdeen. There are sections of intermittent bus lanes along the corridor between the A92 (North Anderson Drive) and Kingswells. The bus lanes along this section are approximately 475m eastbound and 250m westbound but these are only operational during the morning and evening peak periods and are perceived to be ineffective due to the short distances between signalised junctions and crossings. There is also a bus gate at the junction of the A944 and Old Lang Stracht (enforced by traffic signal cameras).

¹⁵⁰ [Monitoring-report-2020.pdf \(nestrans.org.uk\)](#)

Table C:1: A944 – Bus Service Details

Bus Operator	Bus Service	Route	Key Destinations	Services per hour (10:00-11:00)
First Bus	11	Northfield to Woodend, via the city centre and the A9119	Berryden Retail Park, Union Street, Citibase Aberdeen Hill of Rubislaw and the residential areas of Northfield, Midstocket, Berryden, Rubislaw and Hazelhead	3
	13	Scatterburn to Seaton Golf Links, via the city centre (crossed both A944 and A9119 corridors but does not serve the corridors themselves)	Old Pittodrie Football Stadium, Aberdeen Sports Village, Union Street, and the residential areas of Seaton, Rosemount, Mastrick and Northfield	3
	23	Sheddocksley to Heathryfold, via the A944, city centre and Clifton Road	Woodend Hospital, Aberdeen Royal Infirmary, Union Street, Kittybrewster Retail Park, and the residential areas of Sheddocksley, Rosemount, Hilton, and Northfield	5
Stagecoach	4	Aberdeen to Countesswells	Woodend Hospital, Kingswell Park & Ride, Prime 4 Business Park, and residential areas of Rosemount, Midstocket and Countesswells	2
	5	Aberdeen to Westhill	Woodend Hospital, Kingswell Park & Ride, Prime 4 Business Park, and residential areas of Rosemount, Midstocket and Westhill	2
	6	Aberdeen to Westhill	Woodend Hospital, Kingswell Park & Ride, Prime 4 Business Park, and residential areas of Rosemount, Midstocket and Westhill	1
	4, 5 & 6	Kingswells Park & Ride to Aberdeen	As for 4, 5 and 6 above between Kingswells Park & Ride to Aberdeen	Combined offering of 6 buses per hour
	14	Aberdeen to Kingswell	Aberdeen Royal Infirmary, and Kingswells	2

C.2.6 Car ownership/availability to the west of the corridor is high, further discouraging public transport use. Car ownership grows strongly as you move westwards along the corridor, from 0.5 cars per dwelling in Aberdeen city centre to 1.7 cars per dwelling in Westhill.³⁶

C.2.7 There are many large housing developments planned for the A944 corridor which are shown in Figure C. The key future development sites are highlighted in Table C which could result in a greater number of journeys taking places along this corridor.

Table C:2: A944 – Future Development

Location	Employment Land	Residential Land		Comments
	Area (ha)	Units	Area (ha)	
Maidencraig, South East		450		
Maidencraig, North East		300		
Countesswells	10	3,000		Existing employment land for redevelopment
Prime Four	50			Existing employment land for redevelopment
Kingswells Prime Four Phase 5 Extension	12.8			For specialist employment
Woodend Hospital			7.1	

Appendix D South Corridor

D.1 Introduction

- D.1.1 This appendix presents a range of data with respect to the A90 / A92 / A956 strategic routes into Aberdeen from the North. A key source of information has been the *Wellington Road Multi-modal corridor study, STAG Part 1 report (Aecom, April 2018)* and *Aberdeen Rapid Transit - Options Appraisal - Case for Change (Stantec, May 2022)*.
- D.1.2 Note that much of the information was developed several years ago as part of previous studies. Some information was updated in the Spring of 2022. Given this, some of the data presented is likely to have altered since then. However, it still provides a good overview of the corridor.

D.2 Corridor Overview

- D.2.1 The Wellington Road (A956) routes from Aberdeen city centre by the communities of Torry, Kincorth and Cove, before joining the A92 at Charleston junction. The A92 routes to the south of Aberdeen across the Bridge of Dee southwards to Charleston junction before routing further south past Portlethen and Newtonhill (around 10 miles south of Aberdeen) before linking with the A90 just north of Stonehaven.
- D.2.2 Towards the north of the corridor the industrial estates at Altens and East Tullos are key employment centres located adjacent to Wellington Road and the site of the new harbour at Nigg Bay is located to the east of the road south of the city centre. There is also economic activity focussed south of Souterhead Roundabout at the Balmoral and Gateway Business Park. Further south the Badentory Industrial Estate holds a number of key employers, and in recent years, there has been significant development in the north of Portlethen ('Hillside'), including housing and a new business park.
- D.2.3 The figure below shows the bus services operating along the corridor and the location of existing bus lanes, and also highlights the location of key destinations and the location of future development sites along the corridor.

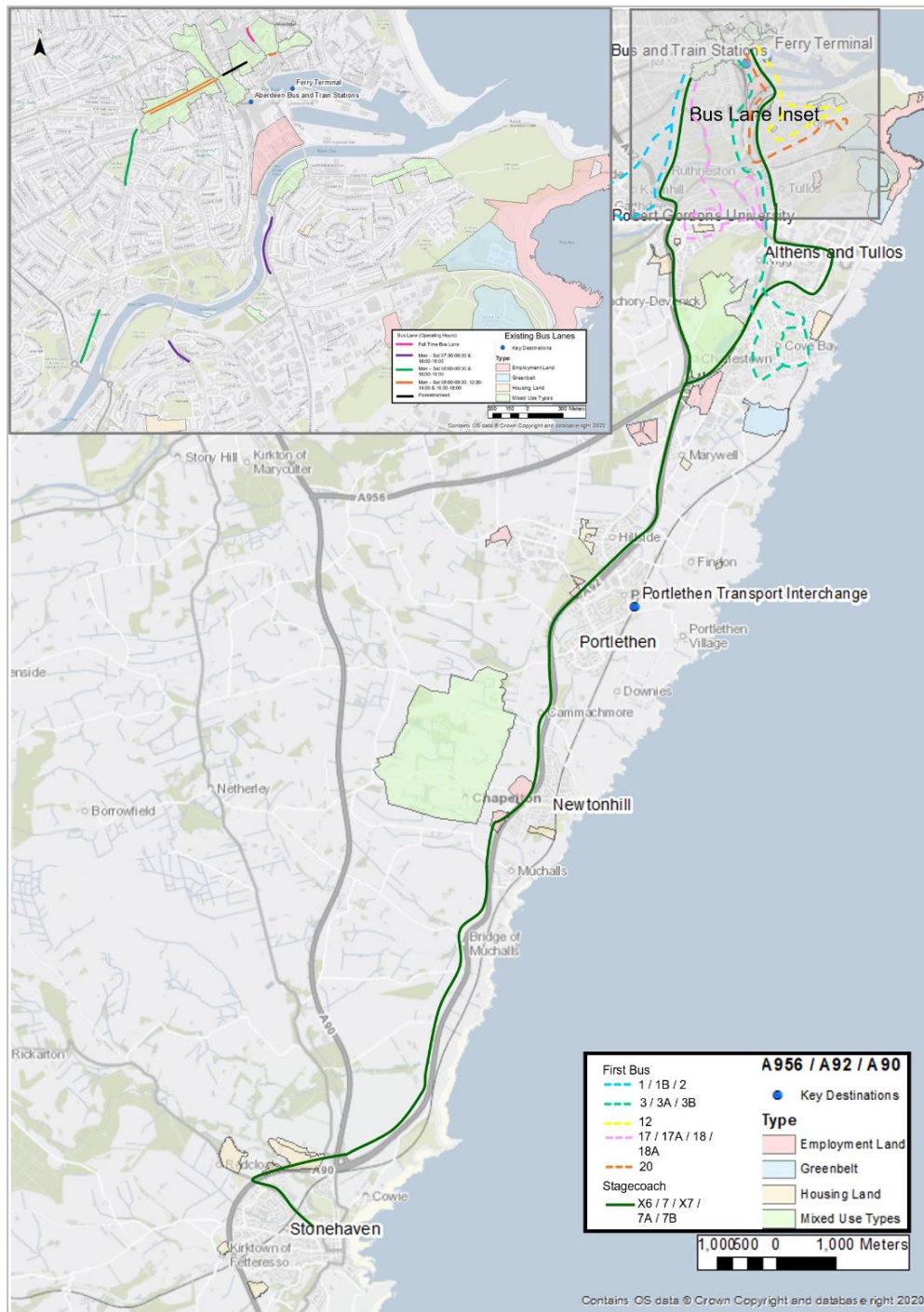


Figure D.1: A956 / A92 / A90 – Bus Services, existing bus lanes and future development

- D.2.4 There are high rates of driving to work in each of the main corridor settlements, particularly Newtonhill (72%¹⁵²). Cove Bay has the highest mode share of travelling to work by bus (10%) reflecting the higher frequency of bus services in this area and its closer proximity to the city centre¹⁵².
- D.2.5 There is one bus based Park & Choose facility, a relatively small site, located on the west side of the A92 at Newtonhill, which was provided by the developer of Chapelton of Elsick. The site has 46 spaces, a large bus shelter and a small number of cycle racks. Usage data indicates the site is operating at well under capacity, with utilisation at 28% in 2023, falling from peak utilisation of 41% in 2019.

- D.2.6 There is predicted increased future traffic across the River Dee and from the AWPR to Altens with specific hotspots predicted on the A90(S) between Portlethen and Charlestown and with key junctions along Wellington Road including at the Souterhead junction. There is one bus-based Park & Ride facility located on the corridor – a relatively small site located on the west side of the A92 at Newtonhill, which was provided by the developer of Chapelton. The site has 49 spaces, a large bus shelter and a small number of cycle racks. The site is served by services X7 and 7/7A/7B, with links provided to Aberdeen and Stonehaven every 20 minutes, Portlethen every hour (with additional services during peak periods) and Montrose, Arbroath, Dundee and Perth every hour¹⁵². Parking surveys undertaken by Nestrans on an annual basis found that parking numbers at the Park & Ride site have increased from five in 2015 to nineteen in 2019¹⁵², indicating the site is operating at well under capacity (40% based on the 2019 figure¹⁵¹). It is also worth noting that there have been proposals historically for a Park & Ride site at Schoolhill near to Portlethen. The site previously obtained Planning Permission in Principle (PPiP) for a 1,000 space Park & Ride, which also included the option for an overnight lorry parking facility. While the PPiP has since lapsed, there is still an aspiration to deliver this facility, as noted within the draft RTS:2040.
- D.2.7 Both First and Stagecoach operate bus services along the corridor as highlighted in the figure above and detailed in the table below. While First operate services focussed within the northern end of the corridor closer to Aberdeen centre (connecting Torry, Kincorth and Cove with the city centre), Stagecoach operate a number of services connecting Stonehaven and Portlethen into Aberdeen. There are also rail stations at Stonehaven and Portlethen connecting into Aberdeen and also southwards towards Dundee, Edinburgh and Glasgow.
- D.2.8 There is a short section (around 400m) of bus lane on Wellington Road (northbound between Kerloch Place and just south of the where the road crosses the River Dee) but this is only operational during peak AM and PM periods. The weight limit on the Bridge of Dee effectively prevents bus services from accessing the Robert Gordon University campus from the south.

Table D.1: A956 / A92 / A90 – Bus Service Details

Bus Operator	Bus Service	Route	Key Destinations	Services per hour (10:00-11:00)
First Bus	3/3A/3B	Mastrick to Cove Bay, via the city centre and Wellington Road	Aberdeen Royal Infirmary, Union Street, Altens Industrial Estate, SUEZ Recycling Point and residential areas of Mastrick, Rosemount, Torry and Cove	6
	12	Heathryfold to Torry, via the city centre	Berryden Retail Park, Union Street and the residential areas of Northfield, Hilton, Berryden and Torry	5
	17, 18, 172	Dyce Shopping Centre to Kincorth Shopping Centre and Altens, via A96 and city centre	TECA, Dyce Railway station, Kittybrewster Retail Park, Union Street, Altens Industrial Estate, SUEZ Recycling Centre	6
	20	Hillhead of Seaton to Balnagask Circle, via Ellon Road and the city centre	Bridge of Don Industrial Estate, Hillhead Aberdeen University Accommodation, RGU Sports Centre, Aberdeen University Campus, First Bus Depot, Union Street and the residential area of Torry	2
Stagecoach	7	Aberdeen to Stonehaven	Union Square, Cove, Portlethen, Badentoy, Newtonhill, Newtonhill Park & Choose, Chapelton, Stonehaven	

¹⁵¹ Source: Nestrans

Bus Operator	Bus Service	Route	Key Destinations	Services per hour (10:00-11:00)
	X7	Aberdeen to Stonehaven	Union Street, Newtonhill Park & Choose and Stonehaven	3 (1 extending to Montrose, Arbroath, Dundee and Perth)
	59	Northfield to Balnagask, via Union Street Bus Station	Aberdeen Royal Infirmary, Foresterhill Hospital, Union Square and the residential areas of Northfield, Stockethill, Westburn, Ashgrove and Torry	4

- D.2.9 The Wellington Road section of the corridor has a lower level of car ownership than both Scotland and Aberdeen City as a whole, and a greater proportion of Wellington Road residents travel to work by bus or coach than the Aberdeen City and Scotland averages. However, across the wider corridor there is very high car/van availability in all of the key settlements relative to both the regional and national average¹⁵². Car/van availability is particularly high in Newtonhill where 93% of households have access to at least one car or van. Cove Bay and Portlethen also have high car/van availability rates, with 89% and 90% of households having access to at least one car in the settlements respectively¹⁵².
- D.2.10 There are large housing developments planned along the A956 / A92 / A90 corridor presented in Figure D. A more detailed summary of the proposed plans is shown in Table D, which could increase the number of journeys which take place. Additionally, there are large areas of employment land which have been highlighted for redevelopment.

Table D:2: A956 / A92 / A90 – Future Development

Location	Employment Land	Residential Land		Comments
	Area (ha)	Units	Area (ha)	
Loriston	11	1,500		
Charleston	20.5			
Chapelton	11.5	4,045		11 ha identified as strategic reserves
Stonehaven		21		

¹⁵² Aberdeen-Laurencekirk Multi-modal Feasibility Study, Initial Appraisal: Case for Change, Aecom, October 2020

Appendix E Derivation of BRT Success Factors

E.1 Introduction

- E.1.1 This Appendix provides a summary of the outcomes of the review of other bus-based BRT schemes, a review of the Institute for Transportation & Development Policy (ITDP) produced evaluation tool for BRT schemes, a review of the 'Target' and 'Minimum' standards set for the Sprint scheme, as well as details of the outcome of discussions with those involved in the development and implementation of the Birmingham Sprint and the Bristol MetroBus schemes. Greater detail on the above can be found in the *Aberdeen Rapid Transit Case for Change* report.⁵⁹

E.2 Review of UK and European based Bus Rapid Transit (BRT)-type schemes

- E.2.1 The review identified some significant challenges and key issues impacting the delivery and operation of BRT schemes and these would need to be considered as part of the development stages for the ART vision. While these issues impact the viability of BRT schemes, many can be overcome if they are considered early on in the option development stage.

Regulatory Operating Environment

- E.2.2 Birmingham Sprint, Belfast Glider, Glasgow's FastLink and Bristol's metrobus were all proposals put forward as part of a wider partnership between the local authority in conjunction with a bus operator. In some cases, there is also a larger funding body involved in the partnership to ensure the partial funding of the scheme when the proposals are presented to funding bodies.
- E.2.3 In many cases outlined above, a network brand has been created to help promote the services, such as 'Glider' and 'Sprint'. This allows the schemes to be easily marketable and means there are no clear ties to the operating company as the operations can be put out to tender when contracts end.

Highway Operating Environment (including road safety)

- E.2.4 The safety of busways within areas of higher pedestrian movement and their impact on the public realm can also be a concern (Ftmetro Swansea, TfL). The resultant layout of the road needs to be clear and safe for pedestrians and cyclists. In Birmingham, where the BRT scheme is being integrated with active travel routes the interaction between the bus stop and passengers and cyclists has been considered in great detail. As a result, the cycle lane runs behind the bus stop to prevent cyclists having to pull out into the general traffic lanes to navigate a stopped bus. To make this safe for pedestrians, the cycle lane is clearly marked with a different surface and clear markings meaning cyclists must give way to pedestrians.
- E.2.5 Very few of the schemes investigated have fully segregated bus lanes, in most cases they are simply separated by road markings and enforced by cameras. To help distinguish the difference between the main road and the bus lane, the colour of the road surface is different as in the Glasgow FastLink scheme.

Traffic Demand Management

- E.2.6 Across many of the schemes, the use of Automated Number Plate Recognition (ANPR) and bus lane cameras is general practice to catch non-bus users who use the bus priority lanes and fine them to discourage future use. This also allows the lane to remain clear for the buses, giving them priority over the general traffic.
- E.2.7 The main traffic demand management is through the enforcement of bus lanes, removal of car parking and only allowing buses to use the bus priority lanes.

Intelligent Transport Systems

- E.2.8 Guidance systems have been identified as a significant risk with schemes failing (Millennium Busway) or needing modification (Cambridge/ Luton-Dunstable) to maintain safety, however, recent advances in autonomous guidance technology should reduce the extent of this issue. It is noted though that guided busways increase operating costs and barriers to entry for other operators.
- E.2.9 All the BRT schemes see the introduction of real time information screens at the bus stops / shelters to allow for the tracking of the service. On some of the newer buses, there is real time information onboard and this is normally combined with next stop announcements.
- E.2.10 Traffic signal prioritisation at junctions for buses is an additional way to allow for the buses to be prioritised over general traffic. This has been done by bus activation technology that triggers signals (using transponders) as part of the Kent Fastrack services.

Vehicle Type

- E.2.11 To create a modern image, distinctive vehicles are often desirable, but this brings increased capital and operational costs related to maintenance, repair, depot provision, fuel efficiency and a requirement for conductors if multi-door vehicles are used (Ftmetro Swansea). Special authorisation is also required if vehicles are over 18 metres in length (Birmingham Sprint).
- E.2.12 New hydrogen buses have been adopted in several of the BRT schemes considered and they produce zero-emissions and can travel longer distances than their electric counterparts. Although as shown in the Kent Fastrack network, the use of electric buses is possible with safe charging stations that can fully charge a bus in 6 minutes. Both hydrogen and electric propulsion methods are worthy of equal consideration in the development of ART, with cognisance given to the increasing costs of electricity – both for use in direct charging and in producing hydrogen.

Fare Collection

- E.2.13 To reduce the amount of dwell time spent at bus stops, the introduction of pre-purchased tickets is commonplace among the various BRT schemes. This comes in the form of either ticket machines at bus stops, mobile tickets or bus passes which are activated prior to use on the services. However, the introduction of capped contactless ticketing (in place with First Aberdeen and planned at Stagecoach) may eliminate the need for expensive and unreliable ticketing infrastructure. Roadside ticket machines also present a theft risk and are another asset to maintain.
- E.2.14 As shown through the Ftmetro services in Swansea, the use of conductors on the buses added to the overall operational costs as there are two employees per vehicle and this requires more training than if the tickets were bought from the driver or by app / machine. **The principal cost of bus operation is labour, and in the context of ART, effectively doubling this cost on the ART corridors could jeopardise the viability and sustainability of services.**

Cost (Construction, Maintenance / Repair, Operational)

- E.2.15 Construction costs are significant, often requiring road carriageway widening, major junction modification, land acquisition and extensive utility diversions (Birmingham Sprint, Belfast Glider) but the infrastructure also makes changes to the route more expensive e.g., for route extensions, new bus stops, pedestrian crossing facilities (East London Transit). Several schemes have also incurred substantial repair costs and left local highway authorities with increased highway maintenance liabilities although this generally relates to schemes that have raised sections of guideway (Cambridge, Luton-Dunstable).

E.3 Institute for Transportation & Development Policy's *Evaluation Toolkit for UK-based BRT schemes*

- E.3.1 The Institute for Transportation & Development Policy (ITDP) has produced an evaluation tool for BRT schemes based on international best practice which seeks to ensure BRT has a common definition and standard.
- E.3.2 It provides a framework to designers and decision makers to support the implementation of schemes that provide a 'world class passenger experience, have significant economic benefits and deliver positive environmental impacts'.
- E.3.3 Schemes are scored against the criteria as set out in the table below. The scoring against the various criteria indicates the importance of public transport priority and junction design but also notes a wide range of criteria to consider.

Table E.1: Institute for Transportation & Development Policy (ITDP) - *Evaluation Toolkit for UK-based BRT schemes – Scorecard*

Component	Category	Points
BRT Basics (38 points)	Dedicated Right-of-Way	8
	Busway Alignment	8
	Off-board Fare Collection	8
	Junction Treatments	7
	Platform-level boarding	7
Service Planning (19 points)	Multiple Route	4
	Express, Limited, and Local Services	3
	Control Center	3
	Located in Top Ten Corridors	2
	Demand Profile	3
	Hours of Operations	2
	Multi-corridor Network	2
Infrastructure (13 points)	Passing Lanes at Stops	3
	Minimizing Bus Emissions	3
	Stops Set Back from Intersections	2
	Stops in centre of road	2
	Pavement Quality	2
Stops (10 points)	Distances Between Stops	2
	Safe and Comfortable Stations	3
	Number of Doors on Bus	3
	Docking Bays and Sub-stops	1
	Sliding Doors in BRT Stations	1
Communications (5 points)	Branding	3
	Passenger Information	2
Access and Integration (15 points)	Universal Access	3
	Integration with Other Public Transport	3
	Pedestrian Access and Safety	4

Component	Category	Points
	Secure Bicycle Parking	2
	Bicycle Lanes	2
	Bicycle-Sharing Integration	1

E.3.4 However, a review of this evaluation tool by the BRT UK group found that the criteria and scoring used did not fit well with existing schemes in the UK, resulting in those perceived to be high quality only achieving a 'Bronze' level of accreditation with many others falling outside the standard. This could be explained by the scorecard being geared towards schemes in countries where cities had significantly different demographics, population densities and highway provisions, with 'Gold' standard schemes tending to be in cities such as Rio de Janeiro and Guatemala City.

E.3.5 The BRT UK group proposed changes to the scorecard to better reflect the qualities of schemes in the UK and this allowed schemes such as the Cambridgeshire Guided Busway to score 'Gold' and Crawley Fastway to score 'Silver'.

E.4 Birmingham Sprint Targets and Minimum Standards

E.4.1 Birmingham Sprint is a bus based rapid transit mode which is part of the vision for the future network of world class public transport in the West Midlands.

E.4.2 In order to achieve the best Sprint solution, a set of the 'Target' and 'Minimum' standards (as presented in the figure below) were developed, acknowledging that the best Sprint Solution needed to achieve the Targets. The project noted that the Minimum standard should only be applied to individual factors when the Target level was not practical or economically feasible. It is expected that each Sprint route should achieve the Target standard in a majority of factors to provide the step change required.

	Target standard – required for high standard Sprint. Provides a high level of attractiveness and efficiency.	Minimum standard – required for a good standard of Sprint. This is an acceptable solution that provides a good level attractiveness.
FACTOR	TARGET STANDARD	MINIMUM STANDARD
Sprint Operation		
Frequency and reliability	A "turn-up and go" service with 95% reliability	A "turn-up and go" service with 95% reliability
Stop distance	Stops every 500-800m	Stops 300-500m or more than 800m apart
Vehicles		
Identity	Easily distinguishable with an appearance closer to tram and multi-door boarding	Easily distinguishable with an appearance closer to tram and multi-door boarding
Features	Free Wi-Fi, on board CCTV, on board real-time information, and next stop announcements	Free Wi-Fi, on board CCTV, on board real-time information, and next stop announcements
Accessibility	Access for all	Access for all
Sprint shelters and interchanges		
Shelters	High quality shelters with real time information, CCTV, wayfinding and walking passage-ways	High quality shelters that clearly signify they are served by Sprint, include wayfinding, and promote accessibility
Interchanges	Park and ride provided on Sprint route	Stops in key locations to interface with other forms of transport
Cycle facilities	Storage provided at shelters where Sprint routes interface with cycle routes	Wayfinding to cycle facilities provided at stop
Fares and fare collection		
Fares	Payment systems to encourage cashless payment and fares aligned with local bus services	Payment systems to encourage cashless payment and fares aligned with local bus services
Ticketing	Ticketing facilitated through conductors	Off board ticketing and on board validation
Highways and priority		
Carriageway separation	Dedicated bus lanes	Dedicated bus lanes in priority locations with mixed traffic roads elsewhere
Signalling	Full signal priority with no interfering vehicles at junctions	Active measures for Sprint vehicles, such as priority at traffic signals
Stop approaches	Clean approach to allow close docking, easy boarding and marked boarding positions	Clean approach to allow close docking, easy boarding and marked boarding positions
Local bus Interaction	Lay-bys provided for local bus services	Sprint priority over local bus services
Journey times	Comparable to car journey times	Approximately 20% quicker than conventional bus
Enforcement	Priority measures actively enforced with fixed CCTV cameras	Priority measures will be self-enforcing
Intelligent transport systems		
Systems	Vehicles with automatic vehicle location for signal controlled junctions, fleet operation and headway management	Real time passenger information will be provided at all Sprint shelters, and through internet and smartphone services
Branding, marketing and customer service		
Brand	Distinct Sprint brand to be used on vehicles, stops, signage, information and marketing material	Distinct Sprint brand to be used on vehicles, stops, signage, information and marketing material
Customer service	Regular customer satisfaction surveys, continuous specialised training programmes and an on-board presence	Regular customer satisfaction surveys, continuous specialised training programmes and an on-board presence
Environmental credentials		
Emissions	Better than Euro VI technology	Better than Euro VI technology

Figure E:1: Birmingham Sprint - 'Target' and 'Minimum' standards¹⁵³

E.5 Discussions with BRT scheme officers

E.5.1 Discussions were held with council officers involved in the development and implementation of two BRT schemes in the UK. The key points from these discussions are noted below but

¹⁵³ Sprint Standards, Document for adoptions by the ITA, West Midlands ITA Policy and Strategy Team, Birmingham Council, March 2016

provided valuable insight into the main challenges, successes, and risks associated with the schemes.

Birmingham Sprint

- E.5.2 A meeting with officers from Transport for West Midlands (TfWM) involved in the delivery of the Birmingham Sprint scheme was held on 3 March 2022. Details on the Sprint scheme itself can be found in the *Aberdeen Rapid Transit - Options Appraisal - Case for Change report* (Stantec, May 2022).
- E.5.3 Key points noted from the meeting include:
- **Early setting of the standards** for Sprint was essential and these standards were agreed upfront. This helped to communicate the objectives of the scheme clearly from the outset.
 - **Early communication with leaders and politicians** was essential, in order to gain political buy-in from the very start. The mayor in particular was a real advocate for the scheme. This early communication made it clear what the benefits of Sprint were to the region and how the scheme aligned with the wider transport network for the West Midlands. It was important not to promote the scheme in a vacuum and communicate the link to wider strategies. In this regard, the narrative was developed and then advocacy sought. The Sprint scheme has 'hooks' into HS2, the Commonwealth Games and the wider tram (metro) system in Birmingham.
 - **Political Change presented challenges.** Elections every 3 out of 4 years created a level of uncertainty. However, more recently, the 'all out' election system¹⁵⁴ in Birmingham has made it easier to deliver schemes within a now four-year period.
 - **There are key benefits in implementing a bus-based scheme.** In deciding between a bus-based scheme and other potential mass transit modes, it was noted that bus-based BRT schemes are around a fifth of the cost of a tram / light rail alternative, and can be delivered in around a third of the time. While guided busway was considered, the implementation of the system would require a Transport & Works Act and the challenges for parallel running services unable to utilise the busway were seen as a disincentive for a busway approach. Additionally, the timescales for scheme implementation and the franchising agreements that would be required could not be accommodated within the scheme delivery window, with the scheme needed prior to the 2022 Commonwealth Games.
 - **Network choice** was influenced by corridors with a strong existing bus market. Other corridors were considered through analysis of population density. Initially 26 corridors were considered as part of a provisional Sprint network. On these corridors, the commerciality of the service was considered (assuming services every 10 minutes). A 20% improvement in bus journey times, and a bus journey time comparable to the car was sought. The level of roadspace reallocation required to achieve this was investigated and the appetite for such changes discussed with the relevant local authority. The 20% journey time reduction desired was not achievable on every corridor. Some business cases for certain corridors were developed but could not build traction. Eventually, six routes were progressed. The network was included in the Local Transport Plan (including roadspace reallocation).
 - **Corridor Feasibility** was established (for the six corridors) through bus service AVL data analysis with stop-to-stop journey time standard deviation used as the metric on which to measure service reliability.

¹⁵⁴ A local election where all council seats are up for election at the same time

- **Infrastructure.** An optioneering process identified measures that could be implemented at the worst performing locations (note that due to cost, a centralised public transport 'core' was not considered). From this, a highway package for each corridor was developed to suit all bus services operating along the corridor. Land acquisition was avoided where possible and Phase 1 of the scheme requires no land acquisition (Phase 2 requires three land parcels). At present, two Sprint routes are operational but are quite different in nature. The A34 route goes through residential areas where there was already significant dual carriageway in place - some road widening was still required. The other route, on the A45, required different infrastructure including a large section of road widening with a railway line and industrial premises nearby to be taken into account.
- **Scheme costs** averaged across both implemented Sprint corridors to date is around £4-£5 million per km. The construction cost was approximately 50% of this total cost. The scheme costs were very much driven by the infrastructure costs. However, the cost of accommodating / moving utilities was by far the greatest cost. In addition, street lighting was required to be moved. In general, a 'tram approach' to utilities was adopted (i.e., utilities were moved) to build reliability into the scheme. In particular, it was noted that the shelters adopted for the scheme were 9-9.5m long with narrow sides and a cantilever design with no front support. This increased the risk of having to relocate utilities as the cantilever design required deep footings.
- **Bus Stop Spacing** was a key topic during design. The original Sprint scheme took out more than 50% of the existing stops. This was subsequently changed but there is still an overall reduction in bus stops along the routes.
- **Parking removal was very unpopular.** In one community, every house had 'No to Sprint' signs in the windows. Due to this public pressure, the design of the scheme along the corridor in question was changed and compromised as the designs progressed. However, the removal of parking was not unpopular everywhere. Some communities never engaged at all, even though parking was being removed. One key issue noted by communities was the issue of 'fly parking' i.e., people parking on side roads to catch the Sprint bus.
- **Improving journey time reliability was considered very important.** Indeed, due to the journey time savings now achieved, some services are now cross city services (and are operated by a single vehicle) reducing interchange and also importantly reducing the number of bus vehicles in the city centre – a key selling point with politicians.
- **Multi-door vehicles** were considered essential to reduce bus stop dwell times
- **Off-board ticketing** is also considered a key factor in speeding up boarding times and is seen as an important differentiator between Sprint and local bus services. There is no interaction with the driver with 'reduced driver interaction' set out in the Sprint Standards.
- **Safety Benefits** of the scheme were increased through the bus shelters adopted (despite the increased cost of the utilities works required to accommodate this as noted above). This was due to the safety benefits accrued through the much improved lighting and CCTV cameras within the shelters.
- **Delivery Options** considered included:
 - Operation within current deregulated framework
 - Fully commercial models
 - Supported service models
 - Combined authority buying vehicles and leasing

- **Market Sounding Exercise** was undertaken to discuss the potential delivery options with potential operators. Concerns from the market were raised on cost, risk and competition. It was noted that in the West Midlands, National Express is dominant, operating around 75% of all mileage in the region but with around 90% of passenger revenue. It was also noted that First and Stagecoach, the current dominant operators across Aberdeen and Aberdeenshire respectively, were part of the market sounding exercise.
- **Franchising** was noted as the ‘cleanest’ option in terms of enabling the network to be delivered with the Sprint standards as defined and with the ‘look and feel’ of the network being set by TfWM. However, delivery through a franchise was noted as being a political decision.
- **Final Delivery** of the scheme was through an enhanced partnership plan with defined minimum vehicle standards. Originally it was hoped an agreement could be entered into before scheme delivery, but this was not possible due to timescales and challenges around coordinating the start of the enhanced partnership with funding. This was noted as a definite risk. In terms of the vehicles, a bid to the Government for grant funding under the Zero Emission Bus Regional Areas (ZEBRA) fund for 224 hydrogen vehicles (200 double deckers and 24 artics) is in progress.
- **Supporting Measures** were noted as key to the scheme success, particularly in terms of the segmentation that has been developed within the city. This means that driving through the centre of Birmingham is no longer possible and has led to reduced car use within the centre. This was felt to be the greatest benefit to the Sprint scheme and it was really important to address city centre measures to support the implementation of Sprint. Indeed the cross city Sprint routes were then able to offer shorter journey times than the car. It was also noted that the city centre segmentation was relatively ‘cheap’ and easy to deliver through the use of planters, signage and white lines, as opposed to through junction redesign.

Bristol Metrobus

- E.5.4 A meeting with officers from West of England Combined Authority (WECA), involved in the delivery of the Bristol metrobus scheme, was held on 16 May 2022. Details on the metrobus scheme itself can be found in the *Aberdeen Rapid Transit - Options Appraisal - Case for Change report* (Stantec, May 2022).
- E.5.5 Key points noted from the meeting include:
- **Scheme objectives were set out early** with a clear objective to **maximise segregation from general traffic**
 - **Political, Stakeholder and Public Opinion** could often be initially negative. The Business Cases which were originally developed in 2010 were de-scoped after the coalition government came in and the political direction changed. It was difficult to get a political champion and there was no-one to really push the scheme forward, although latterly the Chair of the Joint Transport Executive Committee did become involved. Businesses, and especially the larger ones, were supportive of the scheme including the University of the West of England and the Bristol & Bath Science Park. The public consultation in 2008 / 2009 into the Ashton Vale to Temple Meads scheme saw around two-thirds respond positively to the proposals. However, this scheme in particular subsequently attracted very strong opposition from a core minority which came out to oppose the scheme and wanted rail investment instead. While this was not reflective of the wider public, it easily swayed politicians and was part of the reason the Ashton to Temple Meads scheme was de-scoped and re-routed.
 - **High Specification for design, marketing and branding** was adopted and is considered successful

- **Infrastructure:** Around 25% of the metrobus network is segregated and the infrastructure includes a bus only junction onto the motorway and a bus only lane on the motorway. One route also includes kerb-guided busway. Similar guided busway was proposed elsewhere but was scoped out. The challenges around the bus only lane on the motorway were significant, requiring a speed restriction on the motorway and needed ministerial approval. Additionally, significant objections from impacted allotment holders necessitated unforeseen scheme costs as well as the requirement to provide a new amenity building. In terms of the reallocation of road space, relatively few controversial decisions were made, and highway widening was undertaken where needed. On-street parking was not generally taken away outside of any shops. Very few Compulsory Purchase Order along the routes were required and where needed these were negotiated rather than dealt with through public inquiry. Infrastructure works during construction caused disruption in the city centre. It was noted that there was an ongoing issue with reliability on one of the lines and buses are getting badly impacted by general traffic congestion. The HOV lane that could provide benefit was often not enforced. It was noted however, that on one route some bus journey times into the city centre have halved (40 minutes down to 20 minutes).
- **Platforms** are long with high shelter standards. Each has a 'iPoint' which allow passengers to buy tickets, plan journeys and view live running information for onward services. Platforms are spaced approximately 800m apart, double normal stop spacing. It was noted that no significant concerns were raised around accessibility issues due to this. There is cycle parking at all stops, with the number of cycle park spaces available dependent on the stop location. Originally only metrobus services were allowed to stop at the metrobus stops, but this has changed recently to allow local services to stop also and is ensuring improved interchange between local services and the metrobus network.
- **Vehicles** were initially considered with a Streetcar design (a 'tram on wheels' similar to the Glider in Belfast). Potential operators were less keen on articulated vehicles, and they had been withdrawn in London. It was noted that 'bendy' buses use more fuel and have higher operating costs. However, **it was felt that publicity around the scheme would have been much more straightforward had the Streetcars been adopted.** The chair of the Joint Committee was concerned that Streetcars were overall perceived negatively and eventually the schemes have adopted double decker buses which are biomethane powered through a deal with the Gas Bus alliance. The WECA considered buying the vehicles with the intention to then lease to operators, but this was not possible. **Twin door vehicles were considered very important** in aiding in speeding up boarding times. It was noted that **vehicle branding has been a real success.** Driver shortages have been an issue and it was decided it was better to have reliable services than over promise on frequencies.
- **Ticketing is all off-board** and cashless and no tickets are available to purchase from the driver. Consideration of equity (for example for children and someone without a bank account) means tickets can be purchased in some local shops.
- **Delivery** is through a Quality Partnership Scheme supported by a voluntary partnership agreement with maximum fares and minimum frequencies stipulated. First had challenges with the initial vehicle depot capacity and sub-contracted to Bristol Community Transport for some services. It was noted that it took a long time to work through all the contractual processes which meant the scheme opened later than planned and this caused some political pressure.
- **Scheme Costs** were costed at £197m, of which the Department for Transport paid £113m. The final scheme came in at £230m. Using too many contractors for the construction work was considered to be a key reason for the scheme coming in over budget. It was also felt that the guided busway design may have reduced interest for the contractors.

- **Patronage** varies by route. The Year 1 report showed passenger numbers overall are in line with expectations with some lines over-performing and some under-performing. The Ashton to Temple Meads route has not performed as well as hoped in terms of passenger loadings. Route changes from those originally envisaged, with the route diverted as it approached the city centre increased passenger journey time and are felt to have reduced the attractiveness of the service. However, the Emersons Green route has been very successful with substantial modal shift to public transport. First initially went with a loss leader to build passenger volumes with an existing core patronage from the University of the West of England having both the University buildings and Halls of Residences along the route.
- **Revenue Support** for the scheme was considered to break-even.
- **Impacts on the existing bus network** was a key area of concern. There have been adjustments to the existing network bus frequencies but generally more minor adjustments were made. It was noted there have been no instances of services which have been completely withdrawn as a result of metrobus implementation. Transport modelling forecasts estimated that around 75% of the metrobus patronage would come from the existing local bus network although this included like-for-like service replacement such as the Long Ashton P&R service.
- **Impact on general traffic** is considered to be limited, although it was recognised that policy in this regard has moved forward since the scheme was developed.
- **Supporting Measures.** Parking policy in the city centre is felt to have supported the success of the scheme and had a significant impact on supporting patronage growth. Long stay parking is expensive and short stay parking cheaper, and this is reflected in the boarding profile on the metrobus scheme. Part of the scheme included major public realm improvement works around the cenotaph in the city centre which included landscaping, new trees and increased public space. However, it was felt that the link between the metrobus scheme and these improvements was not understood by the public and as such was not recognised as a direct benefit of the scheme.

E.6 ART Further Success Factors

E.6.1 Given the above, the following further success factors have been derived for ART.

Table E.2: ART Key Success Factors: Commentary on and categorisation of the success factors

Success Factor	Category	Sub-Category	Commentary
The ART network and services align with policy (Transport, Planning, Economic, Environmental etc.)	Strategic Fit and Business Need	Political Support & Policy Compliance	The ART network should fully align with Transport, Planning, Economic, and Environmental policies at National, Regional and Local levels.
Lead Council Members support ART			Political support, and importantly, political ownership, of the ART scheme is essential and needs to underpin the scheme from conception through to delivery. The support of Council Member across the political alliances is key to this, due to the changing political environment after local elections. Both the Head of the Council's Transport Committees and the indeed the Heads of both Aberdeen City Council and Aberdeenshire Council need to be behind the scheme, including understanding the implications road space reallocation, parking and positive messaging around the scheme to the public. Transport Scotland should be a scheme sponsor.
Wider stakeholder / business buy-in			To ensure broad support for the ART network, companies who are willing to actively support the new routes and services should be identified and included within the project delivery process. This could include companies who are willing to support the use of ART services through employee incentives or have longer term ambitions to relocate of offices into the city centre.
BRT services are integrated physically with other transport services		Regulatory Framework & Funding	Connections between ART services and the wider bus network should be designed and agreed to ensure bus routes complement each other to create an attractive and efficient public transport network. This should be achieved through agreement between the operators and integrated ticket arrangements.
		Highway Operating Environment	ART bus stops should integrate with the wider bus and rail networks at key locations along the corridors. They should be designed to create an efficient, safe and accessible interchange between public transport services but also key cycle routes. P&R sites should be designed to minimise the driver interchange penalty and minimise any bus time penalty from serving the sites.
BRT services have integrated ticketing with other public transport services		Regulatory Framework & Funding	Tickets should allow interchange between ART services and other local bus services and be integrated with parking charges at Park & Ride sites.
		Technology	

Success Factor	Category	Sub-Category	Commentary
Routes serve dense residential areas and key employment sites and support residential / employment growth areas	Potential Value for Money	Demand	Understanding the potential passenger demand for ART services is essential to establishing the viability of the scheme. This should utilise all existing travel data, undertake surveys gather new data and plan/ design new major residential and employment development along the ART corridors.
BRT services operate safely		Highway Operating Environment	The design of the highway along which ART services operate should adopt Vision Zero principles with road safety principles and bus operating practices designed to eliminate all serious and fatal personal injury collisions.
Buses are low maintenance and economical to operate (and net zero carbon)		Vehicles	To maintain reliable services across the ART network, vehicles should utilise tried and tested technologies that reduce vehicle running costs and minimise vehicle breakdowns. Vehicle maintenance schedules should be consistently applied, and sufficient vehicle parts held within the depot to minimise the time buses spend waiting to be repaired. Vehicles should be fuel efficient (either battery or hydrogen powered) and be one-person operated.
Buses are comfortable, safe and inclusive			The accessibility and inclusivity of vehicles used as part of the ART network is a key factor in encouraging use by all. This should include adequate provision for those with pushchairs, those in wheelchairs and any other persons with a mobility impairment. 'Next bus stop' information should be provided via on-board displays and for those who are partially sighted or blind through automated announcements.
Buses are high quality, distinctive and branded			ART vehicles should look the same with distinctive branding to promote the extent of the network and the quality of the service.
Travel by private car is discouraged		Supporting Measures	Political support is required for demand management measures including changes to parking charges/ provision, low emissions zone implementation, workplace parking licenses etc. Scottish Government policy is now clearly leading the way for change and the targets set out in policy documents need to be driven through by Local Authorities – providing momentum and rationale for successful ART scheme delivery. In addition, existing assets, specifically the Park & Ride sites need to be fully integrated and their potential maximised as part of the ART scheme.

Success Factor	Category	Sub-Category	Commentary
BRT services are frequent		Highway Operating Environment	ART services should provide 'turn up and go' frequencies during the day while 'out of hours' services should be timed to depart at standard 'clock face' times from bus stops within the city centre other at other significant locations.
		Vehicles	
Bus stops are easy to access and provide an accessible boarding / alighting environment		Highway Operating Environment	The bus stop layouts and vehicle designs must achieve a boarding and alighting environment that is fully accessible, ensuring the bus network is inclusive and does not discriminate against those with a mobility impairment. This should be achieved by a level access between the bus stop and vehicle and allowing the efficient deployment of access ramps to support those in wheelchairs. The bus stop itself should be easy to access from the local area with appropriate crossing facilities, good footways and street lighting that provides suitable levels of visibility and sense of security along routes.
		Vehicles	
Bus stops provide a comfortable, safe and branded inclusive waiting environment		Highway Operating Environment	The design of bus stops should allow for the installation of an appropriately sized bus shelter that provides good levels of cover, visibility and lighting for the number of people waiting for at the stop at any one time. The bus shelter should provide seating, bus timetables/ route maps and real-time next bus information.
		Supporting Measures	
BRT journey times are fast (equivalent to the car) and reliable		Highway Operating Environment	The highway should provide a dedicated route for ART services to operate, and which fully isolates buses from general traffic congestion. Junctions should be configured to prioritise bus movements, bus stops designed to reduce dwell times and ticket purchasing mechanisms designed to be fast and simply. It is essential ART services maintain a high level of adherence to the timetable to build confidence amongst users that the services will be available when they are required.
		Technology	
Buses operate outside the peak periods		Regulatory Framework & Funding	ART scheme must provide a service that users feel confident will operate when they are needed. For example, early morning and evening services to support shift working and late-night services to support the city centre night-time economy.

Success Factor	Category	Sub-Category	Commentary
Fares are priced to be affordable, competitive and offer Value for Money			Standard fares should be comparable with the combined cost of travel by car and associated city centre parking charges with weekly/ monthly season ticket prices affordable to those workers on the 'living wage'. Discounted tickets should be available to students (noting that the introduction of the Scotland wide under-22 free bus travel scheme will remove the need for this to some extent).
Capital funding	Potential Affordability	Regulatory Framework & Funding	Funding streams to provide the capital funding for the scheme should be identified at an early stage. While the scheme will be predominantly funded by the public sector, private sector funding through Section 75 contributions and the Community Infrastructure Levy (if applicable) may also be available. Introduction of a Workplace Parking License within the city would also provide a valuable funding stream while also encouraging a shift away from the private car towards public transport.
Revenue funding			The ART scheme should be designed to operate without subsidy, but a source of revenue funding should be identified to support start-up costs, out of hours services and potentially ongoing operating costs if fare revenues do not cover the operating costs.
BRT does not compete with other PT services			The ART scheme could operate under various regulatory frameworks, most notably Bus Service Improvement Partnerships (BSIP) or potential franchise arrangements. These arrangements allow varying levels of competition within the public transport network, so it is important these services do not undermine the economic viability of the ART network or diminish the integration and connectivity of ART services within the public transport network as a whole. Conversely, it is also important that ART service do not undermine the economic viability of the wider public transport network.
Bus drivers are customer facing	Supplier Capacity and Capability	Vehicles	As part of measures to ensure bus users have a high-quality travelling experience.
Tickets are easy to purchase		Technology	To help reduce the barriers to bus travel. Fast and simple ticket mechanisms can also improve ART service journey times and performance through reduced dwell times at stops. It is worth noting that with tickets purchased off vehicle there is an additional consideration in relation to revenue protection with a level of fares evasion likely to be occurring.
Journeys are easy to plan			ART services should provide accurate and reliable real-time travel data to support travel planning apps. Preferably, this should include a public transport app for the region that allows travel planning and bus arrival times across all bus and train services.

Success Factor	Category	Sub-Category	Commentary
Bus service information is easy to access, accurate and timely			Real-time bus stop arrival data should be available via mobile phone/ apps and displays at main bus stops.

Appendix F Form of the ART Network – Additional Detail

F.1 Introduction

F.1.1 This Appendix provides greater detail on assumed nature of various elements with regards to the form of the ART network (infrastructure, services and vehicles).

F.2 ART Platforms / Stops

F.2.1 In terms of stops on ART routes, there are two broad scenarios:

- **Existing stops on ART corridors undergo upgrade** (Options 1 (Do Min), 2 & 3):
 - Bus stop clearways are protected by a Traffic Regulation Order that is fully enforceable and keeps the bus stop clear of parked vehicles at times when buses operate (ideally this should cover a 24 hr period, 7 days a week to improve compliance)
 - The boarding point should be located beyond the bus stop flag to support those who are visually impaired
 - Bus stop kerb heights will allow level boarding
 - Boarding/alighting zones are clear from street furniture or other obstacles and will be indicated using tactile paving as appropriate.
 - Bus shelters provide a good level of protection against the weather
 - Waiting passengers have clear visibility of oncoming traffic
 - Bus shelters are well lit and be exposed to high levels of natural surveillance
 - Bus shelters will contain suitable seating arrangements for waiting passengers
 - Easy to understand real-time information about bus routes, destinations and service arrival times is provided at all stops
 - Bus stops are clean and well-maintained
- **Bus stopping locations are rationalised on ART corridors (800m spacing) and new premium 'platform' ART stops are installed** (Options 3A, 4, 5, and 5A). These 'platforms' will feature:
 - Level boarding similar to a tram
 - Modern, distinctive and attractive design, which makes the platforms easy to locate on a street environment and reinforces the ART branding
 - Spacious, weather protected shelters, which provide a comfortable waiting experience for ART users
 - Infrastructure constructed from high quality materials which inhibit vandalism and require cleaning/maintenance in line with what the transport authority can reliably provide

- Internal and external lighting, CCTV and a 'one button' security system which allows platform users to contact a security attendant
- Ticket machines / advance fare collection to support speedy boarding (although such machines may not be necessary given advances in payment mechanisms with potential for contactless self-service ticket machines on the vehicles rather than at the stops)
- Suitable seating arrangements for waiting passengers
- Real-time service information, including dynamic messaging which can provide warnings/additional information to passengers as required
- Bicycle storage and/or access to bike share
- ART branding and a unique name for each stop/stop pair

F.2.2 A visualisation of an ART 'platform' from the vision document is shown in the figure below.



Figure F:1: Visualisation of an ART Platform (Nestrans)

F.2.3 Examples of similar 'platforms' in place for existing bus rapid schemes are shown in the figures below for the Belfast Glider and Birmingham Sprint Schemes.



Figure F.2: Birmingham Sprint Bus Stop (photos courtesy of Transport for West Midlands)

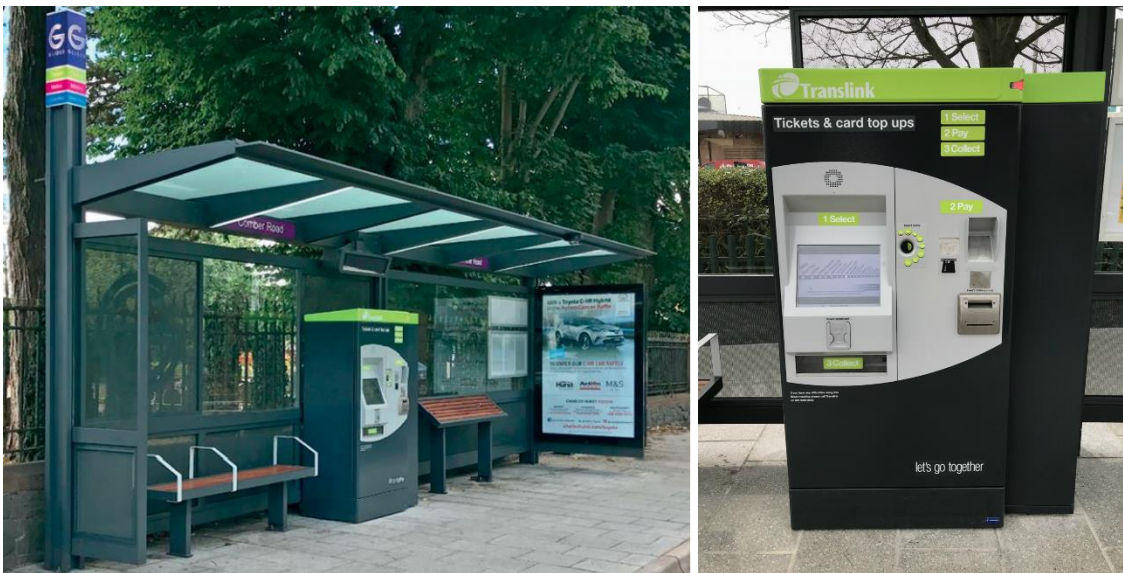


Figure F.3: Belfast Glider Stop (photo courtesy of Translink)

- F.2.4 The upgrading of an existing stop along the ART corridor or the introduction of a new ART 'platforms' have differing costs, as incorporated into the ART infrastructure costs presented in the Financial Case. Constructing a new ART platform carries a greater cost than upgrading an existing bus stop.

F.3 Integration with Existing Services

- F.3.1 If ART is to be part of an integrated and efficient city-wide bus network, changes will be required to existing bus routes and services to minimise the duplication of services and associated operating costs and 'bus congestion', while maximising the potential for a commercially viable ART network.
- F.3.2 Options 1, 2 and 4 do not include proposals for the revision of existing bus services which run along ART corridors. However, Options 3, 3a, 5 and 5A include proposals integrating the existing underlying network. Proposals for Options 3 and 3A are somewhat different from those for Options 5 and 5A, given that 3 and 3A involve the enhancement of existing bus services, whereas Option 5, 5A and 5P comprise the provision of a new ART service which will essentially replace the services enhanced under Options 3 and 3A. For the purposes of

option appraisal, the analysis undertaken to consider this has been developed for Option 5, and 5A.

F.3.3 A detailed discussion of how the existing network has been considered, and the existing network revisions used within the testing of Options 5, 5A and the Sensitivity Test 5P as part of the appraisal, is presented in a Supporting Technical Note to the STAG Detailed Options Appraisal (Support Technical Note C). The main steps undertaken were:

- Analysis of the existing bus network, considering the role of existing intra-urban and inter-urban bus services
- Mapping of all existing bus stops served by current services
- Route Assessment – consideration of existing bus routeing to identify routes that overlapped or ran closely with proposed ART services. Depending on the extent of the overlap or parallel running, these services were identified as candidates for:
 - Retention of the route
 - Removal of the route
 - Cutting-back or shortening of the route
 - Extending the route
 - Increased service frequency

F.4 Vehicles

F.4.1 In terms of vehicles which could operate on the ART network, there are three broad scenarios:

- Existing vehicles (or those as would be brought into service through natural cycles of operator fleet upgrades) are used, with no change to appearance (Options 1, 2 & 3)
- Existing vehicles (or those as would be brought into service through natural cycles of operator fleet upgrades) are used, and are branded to indicate that they are part of the ART network (Options 3A and 5A)
- New multi-door tram-style vehicles are used (Option 5)

Existing Vehicles

F.4.2 Since 2010, bus operators have made significant investments in the vehicle fleet, installed new electronic ticket machines, made website and app developments, introduced contactless payment methods and invested in new fuel technologies.

F.4.3 Under Options 1, 2 and 3, selected bus routes operating on the ART corridors would see more frequent services on the enhanced bus priority infrastructure. These services would continue to be operated using existing vehicles, which would be upgraded in line with the natural cycles of operator fleet upgrades.

Branded existing vehicles

F.4.4 Branding vehicles on strengthened existing or new routes (as proposed under Options 3A and 5A) would generate an ART 'brand' awareness and provide visual distinction of the services from existing services. This likely to raise awareness and positive perceptions around the service offering.

Distinctive ART vehicles

- F.4.5 It is clear through review of BRT schemes elsewhere that multi-door vehicles are an essential element in ensuring scheme success due to the significant part such vehicles play in reducing dwell times at stops through enabling large numbers of passenger to board and alight simultaneously and by removing the need for interaction with the driver.
- F.4.6 For the purpose of the appraisal, it has been assumed that in Options 4 and 5, the vehicles operating on the ART routes are similar to those employed on the Belfast Glider system, which operate with 18m tram-style Van Hool ExquiCity¹⁵⁵ articulated buses and are as shown in the figures below.



Figure F:4: Belfast Glider tram-style vehicle at stop (Photo courtesy of Translink)



Figure F:5: Belfast Glider tram-style vehicle - interior (Photo courtesy of Translink)

- F.4.7 Each Glider vehicle operates with three doors, and the vehicles:

¹⁵⁵ [Exqui.City18 Electric | Van Hool](#)

- utilise a mixture of seating and standing, with designated space for wheelchairs and prams
- have free wifi and USB charging sockets
- display real-time visual and audible information
- are covered by on-board security CCTV

F.4.8 While the Van Hool ExquiCity vehicles operating on the Glider utilise the best available low-emission technology in terms of value-for-money, which is currently diesel-electric hybrid engines, it is assumed for ART that due to technological advances, the vehicles will use zero-emission technology.

F.4.9 It is noted that significant infrastructure changes may be required at the depots of the chosen operators for overnight fuelling and/or recharging as well as for undertaking preventative maintenance and presentation (cleaning) activities of the new fleet of vehicles.

F.5 Ticketing

F.5.1 The options available for ticketing and fares collection on the ART system have been considered, alongside the benefits, shortcomings and risks of each. The detailed discussion is presented in a Supporting Technical Note to the STAG Detailed Options Appraisal (Support Technical Note D). and covers the price and range of ticketing products offered, as well as the means of purchase, method of payment, validation process, eligibility criteria, physical form and relationship with other tickets/systems.

F.5.2 Conclusions drawn from the discussion include:

- **Pricing** - it is recommended that ART is **not priced as a premium product**, principally because it is anticipated that there will be instances where ART replaces existing services, and it would not be appropriate for those users' fares to rise when they do not have an alternative (cheaper) service
- **Structure** - it is recommended that pricing follows latest best practice in the bus industry with **simple fare scales, multiple options for ticket duration and specific products aimed at key user groups**. The need to balance affordable fares with avoiding interference with individual operator tickets is important
- **Purchase** – in terms of the options for payment and purchase arrangements, it is recommended that advantage is taken of the latest developments in **electronic ticket system technology** while maintaining **accessibility for users who rely on cash**

F.5.3 Further work is required at OBC to more fully consider the ticketing mechanism adopted.

Appendix G Routeing Analysis: Corridor Overview

G.1 Introduction

- G.1.1 This Appendix sets out the main points noted through discussion with Nestrans and Council officers and bus operators (First and Stagecoach) on the potential network and routeing options for ART. The information gained through these discussions was used to establish a set of network and routeing test to undertake in ASAM19 to inform the most advantageous network for ART.
- G.1.2 The information presented here provides a detailed discussion across each of the broad corridors considered and the main points raised during the discussions.

North



Figure G.1: North Corridor - Routing and Terminus Considerations

G.1.3 Consideration was given to:

- Routing via:
 - King Street (A)
 - Beach Boulevard / Esplanade (B)
- Terminus points:
 - at the, currently unserved, Bridge of Don P&R site and, recognising the significant developments proposed further north, at Cloverhill or Blackdog
 - at the Beach, recognising the significant Beach Masterplan proposals – note that this would not be at the expense of serving a terminus further north, but likely as part of a cross-city route with one of the other corridors (see later section)

Key Points

Routing via King Street (A) was preferred as a route north given the number of trip attractors and generators along the route including the football stadium, Aberdeen Sports village and the University of Aberdeen campus.

The route north via the Esplanade (B) was not considered worthy of further consideration given the large area north of the Beach masterplan area serving few trip generators and attractors and missing the major destinations on the King Street route. However, the Beach masterplan development would make the beach a key destination within the city and was considered as important for inclusion in the testing, but as a terminus point for ART.

Testing should include terminus points for the ART route at both Cloverhill and Blackdog, with an assumption of a Mobility hub (of around 200 spaces) assumed at Blackdog. The potential impact of this on both Ellon P&R and the currently unserved Bridge of Don P&R was noted to require consideration during the testing outcomes analysis. The social housing being developed at the Cloverhill site was noted.

The Bridge of Don P&R site would require site reconfiguration to enable faster bus access to the site and less convoluted vehicular access, with options for ART stops to be located either within the P&R site or on the main Ellon Road depending on access arrangements. It was assumed that in any testing that ART services would stop on the main route north (Ellon Road) with passenger access provided from the P&R site to the bus stop on Ellon Road with suitable pedestrian crossing facilities provided to enable passengers to access the site from the northbound (west) side of the carriageway.

Connections from the north to Foresterhill Health Campus considered very important

North-West

G.1.4 At the **western end** of the corridor, consideration was given to:

- A terminus at Craibstone P&R – with a route directly along the A96 to the P&R site (A)
- A terminus at the Airport - with a route directly along the A96 to the P&R site and then on to the airport (A)
- A terminus at Craibstone P&R with routeing via TECA and the airport (B)

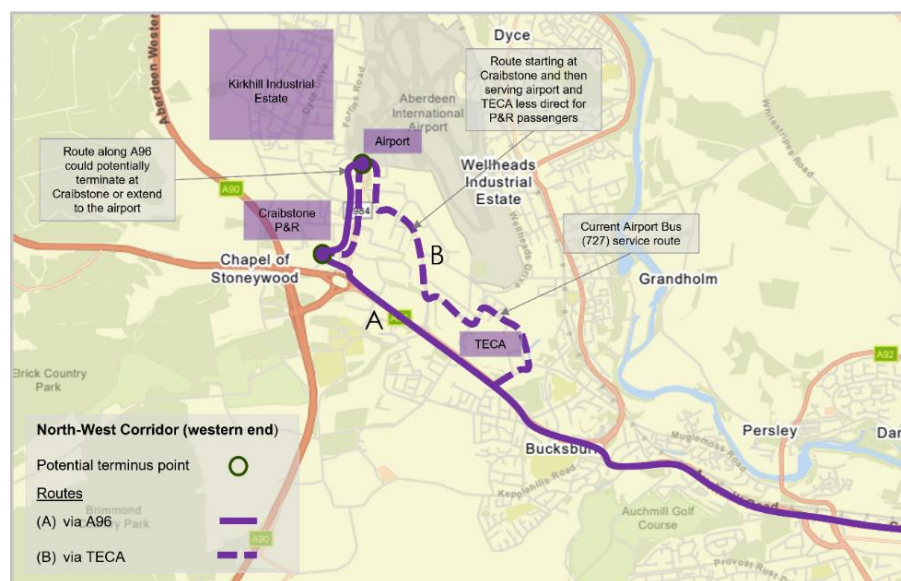


Figure G.2: North-West Corridor (Western end) - Routing and Terminus Considerations

Key Points

It was considered desirable that ART serve the airport as a key destination in the city

There is a need to utilise the Craibstone P&R 'white elephant' asset

It was considered that a route via TECA (as per the current airport 727 bus service) was most appropriate. The walking access to TECA from the A96 (if an ART service routed directly along the A96 and not via TECA) was not considered desirable and would be difficult to implement

It was noted that an outbound route via TECA and the airport to Craibstone P&R (and the same inbound) would be convoluted and unattractive for those joining the service at Craibstone P&R. This may detract from the use of the ART service by those in Aberdeenshire

The potential for the ART service to route both clockwise and anti-clockwise at the western end of the route (i.e., operate both city → TECA → airport → Craibstone P&R → city, and city → Craibstone P&R → airport → TECA → city), was noted by a bus operator. This would mean every other ART service would be a direct service from Craibstone P&R into Aberdeen, similarly with regards to services to and from the airport. Such service operation could however be confusing for passengers.

There are potential issues with Craibstone P&R site being used as an airport car park – although parking restrictions could stop this if desired (e.g., no overnight parking). Issues are recognised with regards to the potential impact on the airport revenue stream for parking if Craibstone P&R were used in such a way

There is potential for the development of an ART depot at Craibstone P&R.

Aberdeen Rapid Transit – Strategic Business Case

G.1.5 At the **eastern end** of the corridor, consideration included a route into the city centre from Kittybrewster, either:

- Between Kittybrewster and Clifton Road:
 - (i) via the Berryden corridor (committed but yet to be constructed scheme linking Skene Square and Kittybrewster Roundabout)
 - (ii) via the existing Great Northern Road between Kittybrewster and Clifton Road
- Between Clifton Road and the city centre:
 - (A) via Powis Terrace / Powis Place to Mounthooly and then Gallowgate to reach Union Street
 - (B) via Skene Square / Denburn to Union Square (and then assumed onwards to Union Street via Market Street)
 - (C) via Skene Square / Woolmanhill Skene Street / Rosemount Viaduct / Union Terrace to Union Street¹⁵⁶

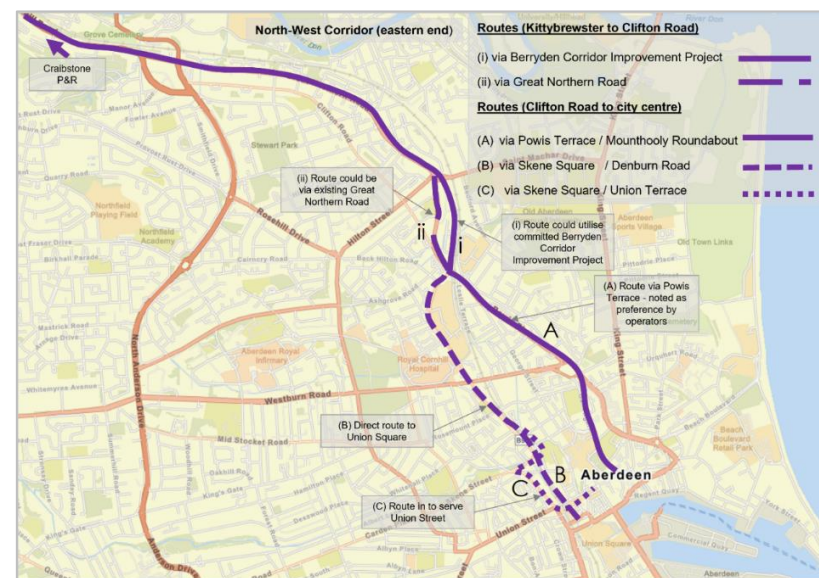


Figure G.3: North-West Corridor (Eastern end) - Routing Considerations

Key Points	
Additional bus priority on the BCIP between Kittybrewster and Clifton Road may detract from the objectives of the BCIP scheme (although the project should deliver benefit to buses through the proposed improvements to reduce traffic congestion in general)	Routing via Denburn Road to Union Square (B) - while offering a direct and quicker route to Union Square, would provide limited opportunities to access the service given limited connections to the route on Denburn Road. In addition, a similar route(s) in from the west accessing the city centre via Denburn Road (see below for West corridor) may not be desirable given the overlap
Operators favoured a route along Powis Terrace and Powis Place (A) given the volume of passengers boarding and alighting along this section	Routing via Woolmanhill / Skene Street / Rosemount Viaduct / Union Terrace to Union Street (C) - would better serve a range of destinations compared to a route via Denburn Road (B). Such a route could also provide access to Union Street (from Union Terrace to King Street) than a route via Union Square (noting that another ART route could serve Union Square). Again, a similar route(s) in from the west accessing the city centre via Union Terrace (see below for West corridor) may not be desirable given the overlap. Understanding how the north-west route interacts / is part of a cross city route with the routes from the north (see above) and / or the route from the west (as discussed below) will have a bearing on the routeing decisions for the north-west corridor.
A route into the city centre from Mounthooly via Gallowgate / Broad Street (A) (as opposed to via West North Street) was considered the most appropriate given the exiting bus priority and destinations served on Gallowgate (including North East Scotland College and the main Aberdeen City Council offices at Marischal College)	

¹⁵⁶ Note a new bus only southbound link would be required to connect Denburn Road and Blackfriars Street

West Corridor

G.1.6 Consideration was given to:

- Routeing:
 - via the A944 (Westburn Road / Langstracht) (A)
 - via the A9119 (Queens Road / Skene Road) (B)
- Terminating at:
 - Kingswells P&R
 - at Westhill



Figure G:4: West Corridor Considerations

Key Points

It was considered essential that ART serves the Foresterhill Health Campus, where Aberdeen Royal Infirmary, and other regional health facilities, are located

The existing strong bus market on the A9119 (B) was noted by operators. However, work on the A944 / A9119 Multi-modal study highlighted the more constrained environment for providing significant bus priority on the route (as would be required by ART)

A route via the A9119 Queen's Road (B) would enable ART to then route via Carden Place / Albyn Place and the full length of Union Street

Extending the ART route to Westhill would serve both the town and the large area of employment at Arnhall Business Park and was considered desirable

There was considered merit in testing both Kingswells P&R and Westhill as potential terminus points for ART. It was noted that a suitable terminus point in Westhill would be required (to turn vehicles and provide driver layover) and a suitable site (mobility hub) for parking to join the ART service.

Noted in the longer term, that a terminus at Westhill (with an associated P&R site) could call into potential question the for the Kingswells P&R site

Unintended consequences to bus services operating from beyond Westhill into Aberdeen needed to be understood to ensure there was no loss of service from the more rural communities (i.e. due to the potential for lost passengers to ART over the Westhill to city centre part of the services). It may be that such rural services could become feeder services into the ART network. This needs further explored with operators once a preferred ART network is determined.

Reconfigured access and egress at Kingswells P&R would be needed to minimise the potential for a convoluted ART route into the site, although the demand generated by the business park at PrimeFour was recognised and consideration of effectively serving this development was needed. This was considered more pertinent if ART terminated at Westhill, as, for those joining the ART service at Westhill, a circuitous route into Kingswell P&R is likely to increase journey time and detract from the attractiveness of the ART service

There was a need for ART to serve the Cormack Park training ground (i.e. with an ART stop at the ground)

Aberdeen Rapid Transit – Strategic Business Case

G.1.7 Consideration was also given to the potential routing of the ART service on approach to the city centre *if a route along the A944 was preferred*. As shown the figure opposite, several potential routes into the city centre have been considered (drawing on information from the A944 / A9119 MMCS). The routes include:

- Via Skene Square / Woolmanhill Skene Street / Rosemount Viaduct / Union Street - similar to that noted above for the ART route in the north-west corridor (A)
- Via Skene Square / Denburn Road - similar to that noted above for the ART route in the north-west corridor (B)
- Via Hutcheon Street / Gallowgate / Broad Street (C)
- Via Hutcheon Street / West North Street (D)

Key Points

A route via Skene Square / Denburn Road (B) is similar to that noted above for the ART route in the north-west corridor, and with similar points noted as above

A route via Hutcheon Street / Gallowgate / Broad Street or West North Street (C) would likely overlap with the ART route from the north-west and, depending on the cross-city routeing chosen, could potentially create a 'dog leg' route inbound via Gallowgate to route back northbound towards Bridge of Don or Craibstone P&R

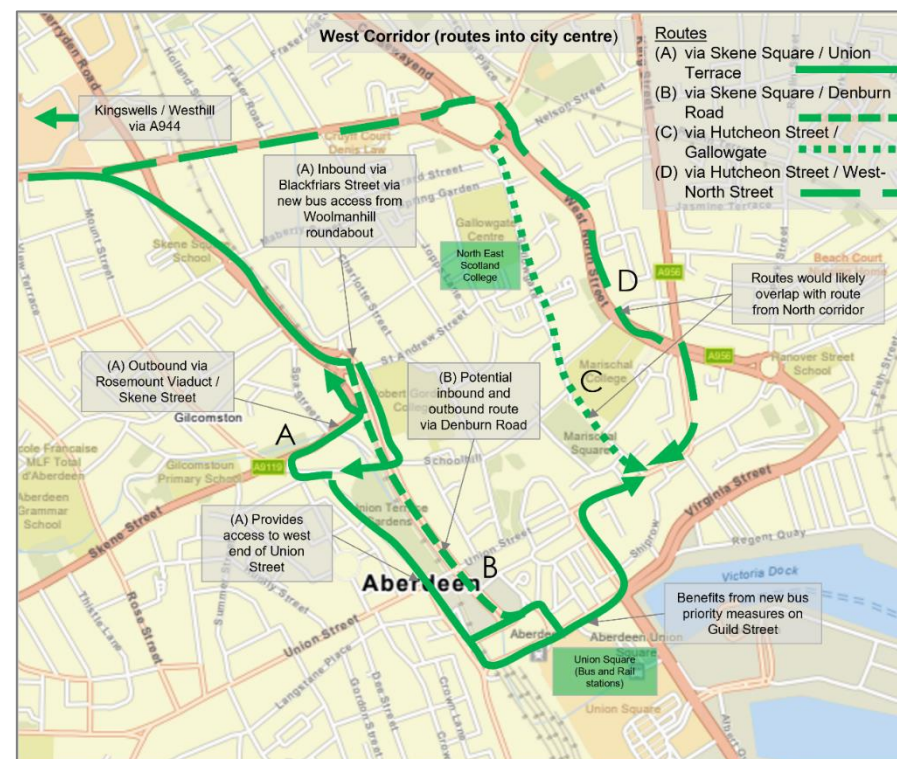


Figure G.5: West Corridor Considerations - Routeing into city centre from A944

South

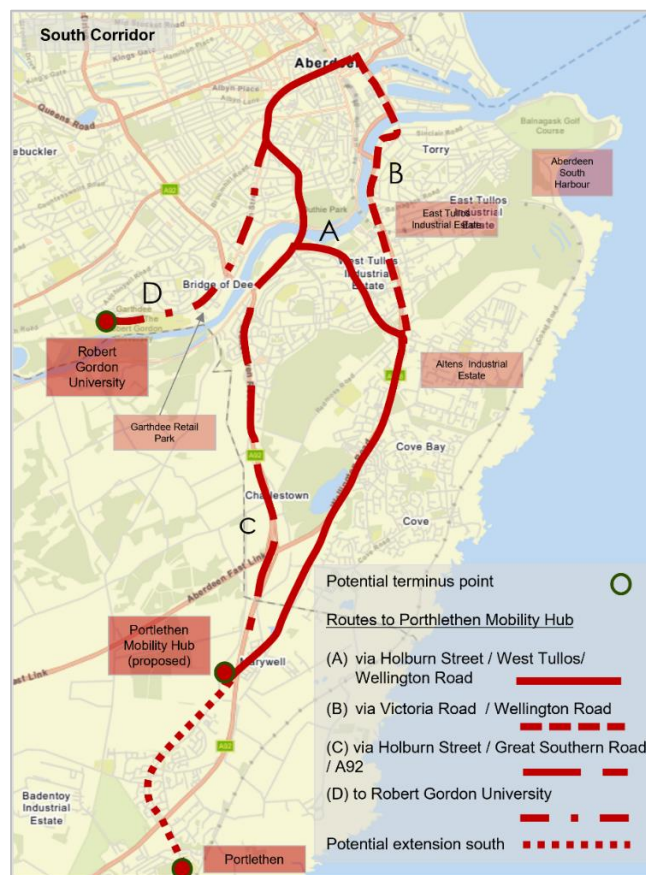


Figure G:6: South Corridor Considerations

G.1.8 Consideration was given to:

- Terminating at a (new) Portlethen Mobility hub / or Portlethen, with routing:
 - via Wellington Road / West Tullos / King George V Bridge / Holburn Street (A)
 - via Wellington Road / Menzies Road / Victoria Road / Market Street (B)
 - via the A92 (C)
- Terminating at Robert Gordon University with routing via Holburn Street / Garthdee Road (D) – *note that this would not be at the expense of serving a (new) Portlethen Mobility hub / mobility hub or Portlethen, but as part of a cross-city service from another corridor*

Key Points

From a terminus at a new Portlethen Mobility hub:

via Wellington Road / West Tullos / Holburn Street (A) would serve the west end of the city centre and provide direct access along the length of Union Street as well as serving Altens and West Tullos industrial estates. The constrained nature of Holburn Street requires consideration to understand the level of bus priority that could be achieved along this section of the route. Compromise with potential active travel infrastructure on the route would likely lessen the benefits of ART if bus priority could not be provided in tandem

via Wellington Road / Menzies Road / Victoria Road (B) would serve business sites including Altens and East Tullos industrial estates as well as Torry. The existing congestion on Wellington Road was noted along with an existing pinch point at Polwarth Road, which creates a constraint along the route. Access to the city centre would be via Market Street with the potential to either route straight up Market Street to Union Street or to serve the rail station via Guild Street and Bridge Street

via A92 (C), would mean a large section (around 4.5km) of the route between the edge of Aberdeen (at Kincorth) and the new Portlethen mobility hub would be through rural landscape with very limited trip attractors or generators, but with the associated operating cost

There is potential to provide an ART depot at any new Portlethen mobility hub

A terminus point for ART within Portlethen itself would be, to some extent, in competition with the rail service, detracting from the ART service / or causing abstraction from rail. For this reason, it was not considered for progressing further, although it may provide an interim solution prior to the development of a dedicated mobility hub.

From a terminus at Robert Gordon University:

A route via Holburn Street (D) is potentially constrained in the level of bus priority that can be achieved. Would offer an existing strong bus market on which to build on the success through ART and the potential to connect the two Universities and associated student accommodation if linked to the north corridor. In this regard, it was noted by bus operators that ensuring ART served known existing strong bus markets was considered essential to providing the greatest chance of commercial success for the network

Appendix H Routing Tests – Modelled Tests

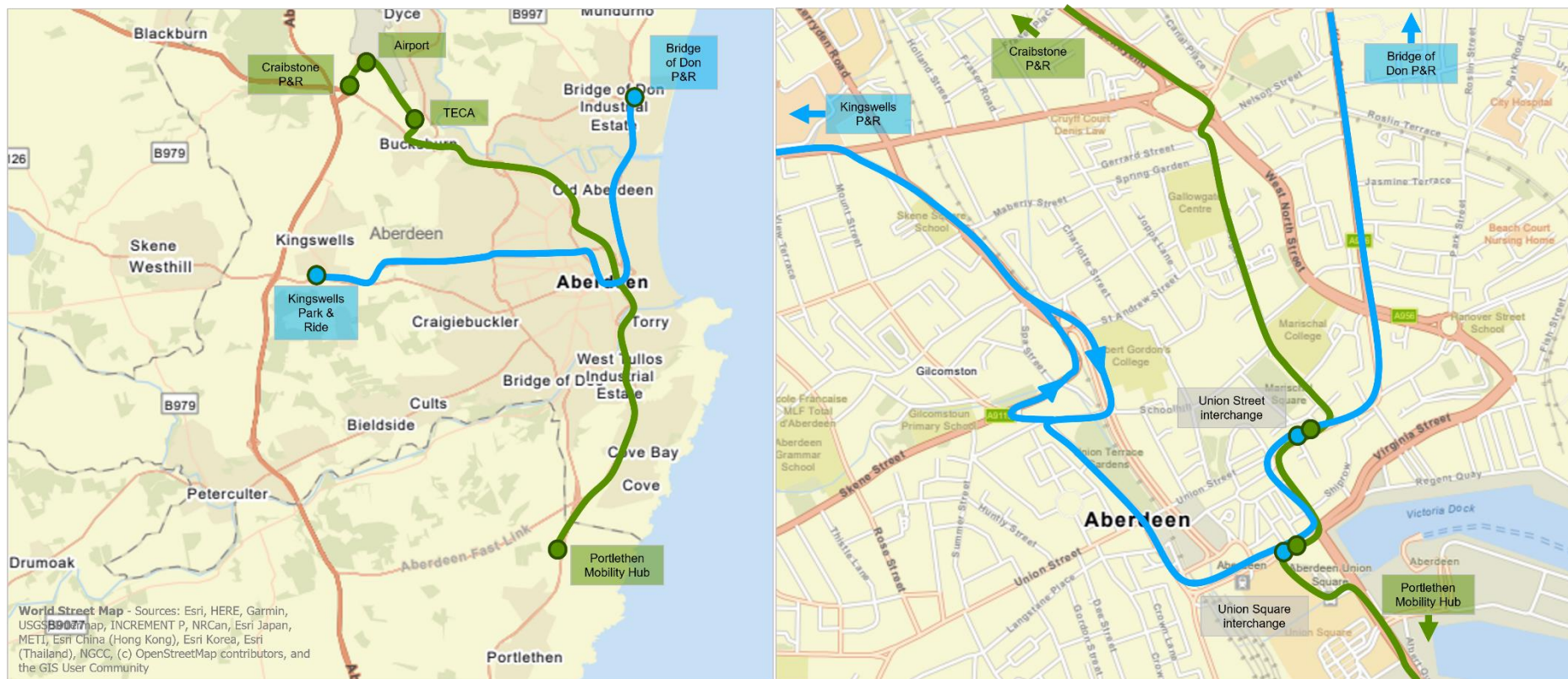


Figure H:1: Core Test – Routing and city centre interchange

Aberdeen Rapid Transit – Strategic Business Case

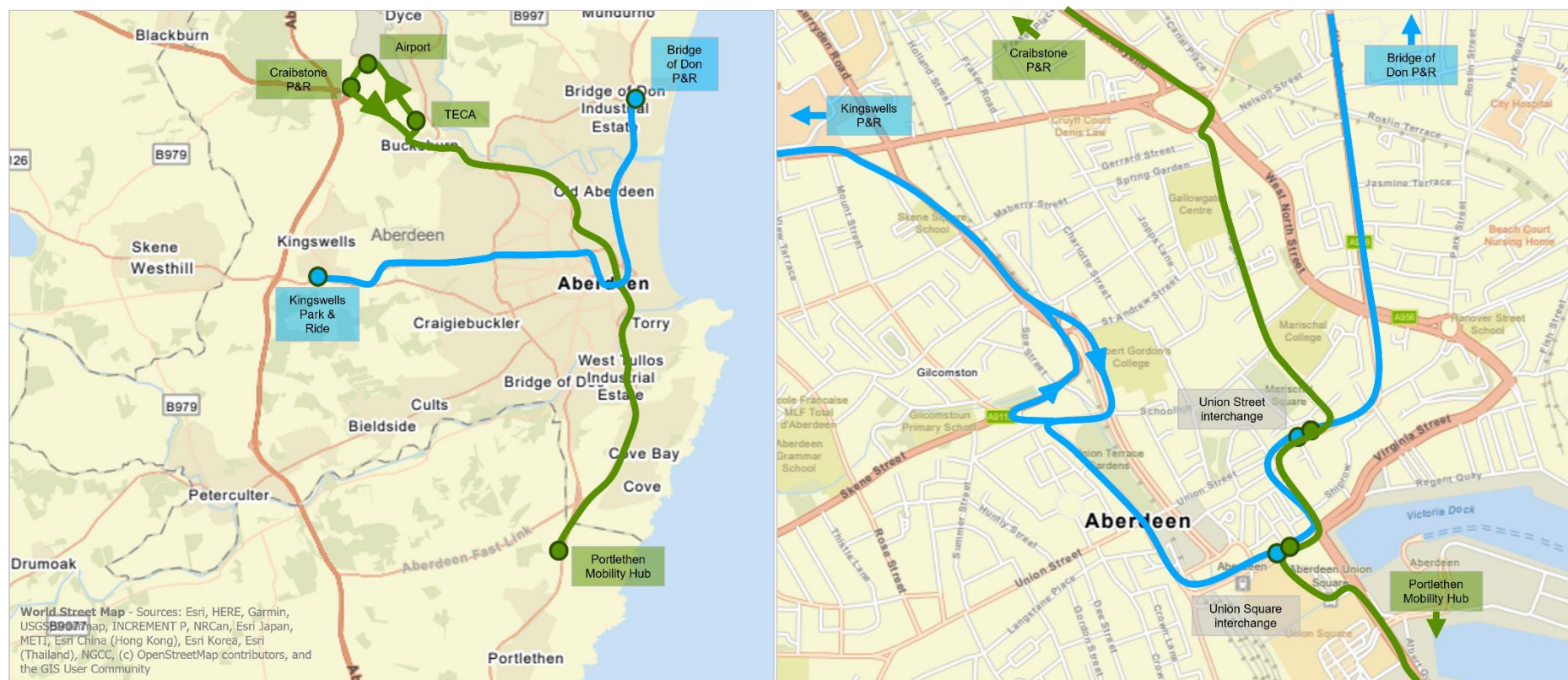


Figure H:2: Test A1 – Routeing and city centre interchange - Airport routeing

Aberdeen Rapid Transit – Strategic Business Case

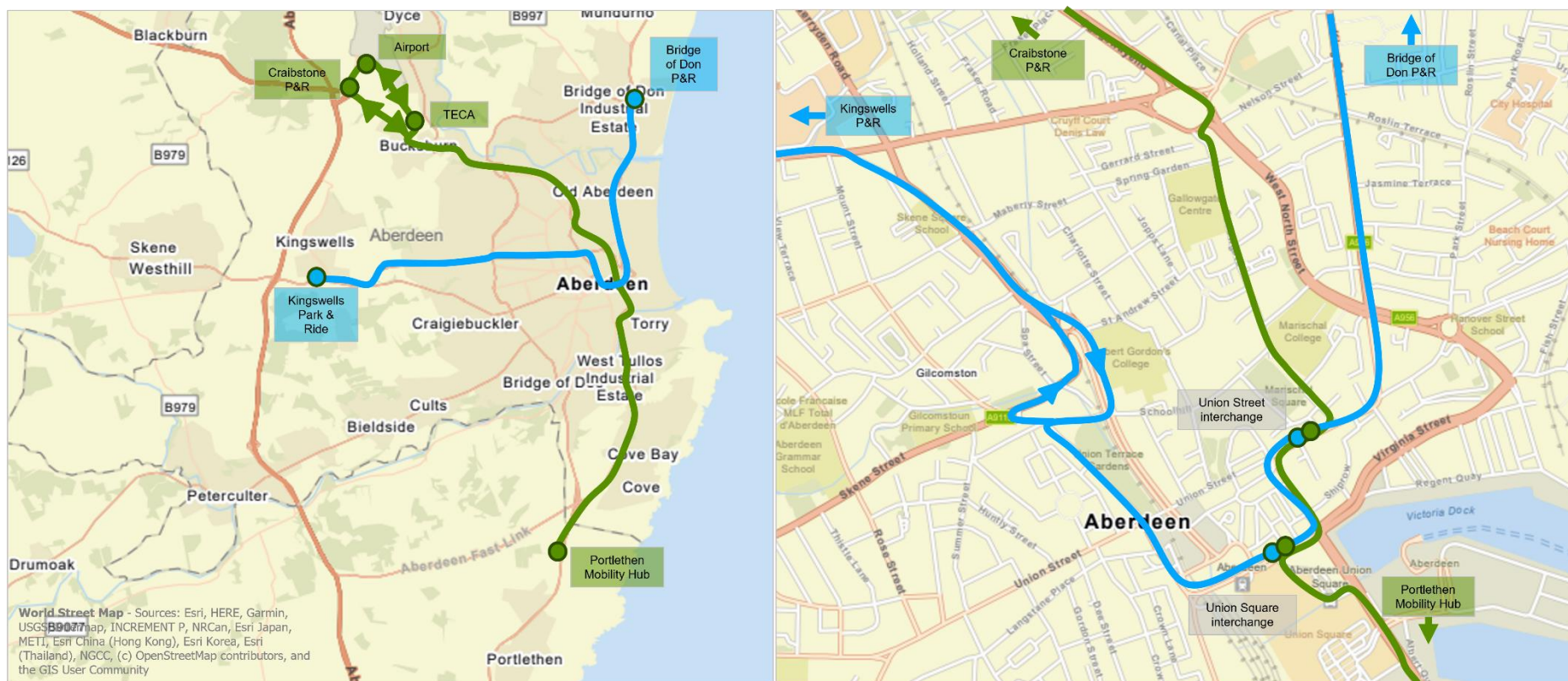


Figure H:3: Test A2 – Routeing and city centre interchange - Craibstone and Airport routeing (ART both clockwise and anti-clockwise at western terminus)

Aberdeen Rapid Transit – Strategic Business Case

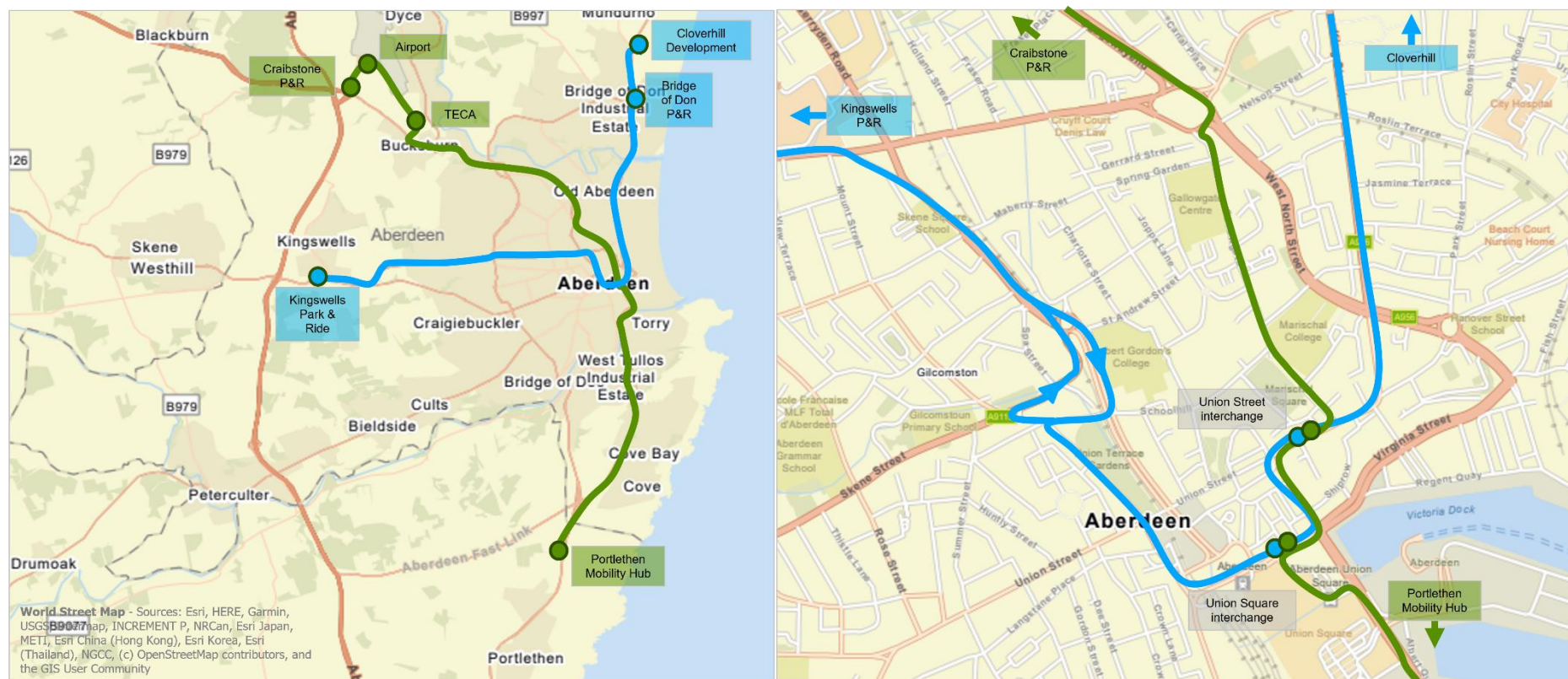


Figure H:4: Test B1 – Routeing and city centre interchange - Cloverhill

Aberdeen Rapid Transit – Strategic Business Case

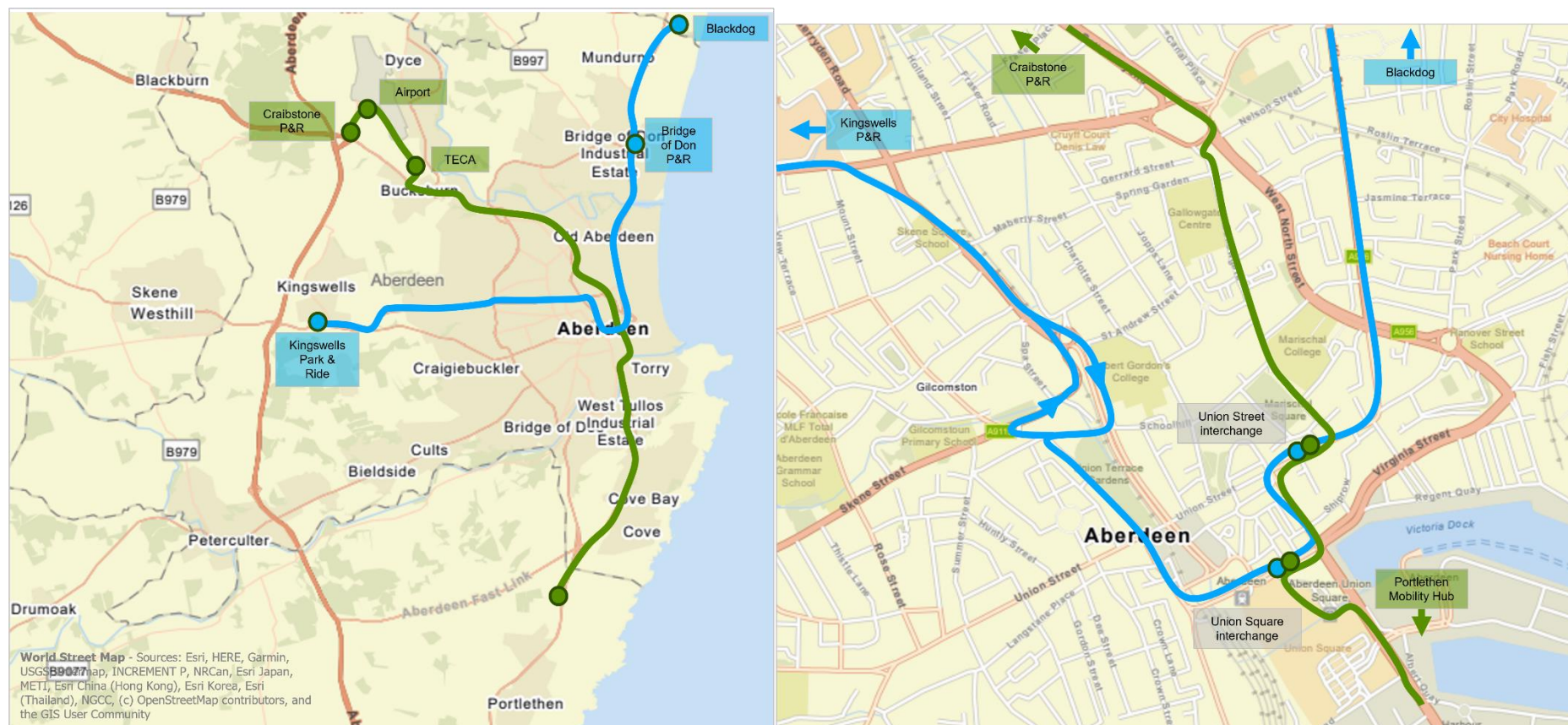


Figure H:5: Test B2– Routeing and city centre interchange – Blackdog

Aberdeen Rapid Transit – Strategic Business Case

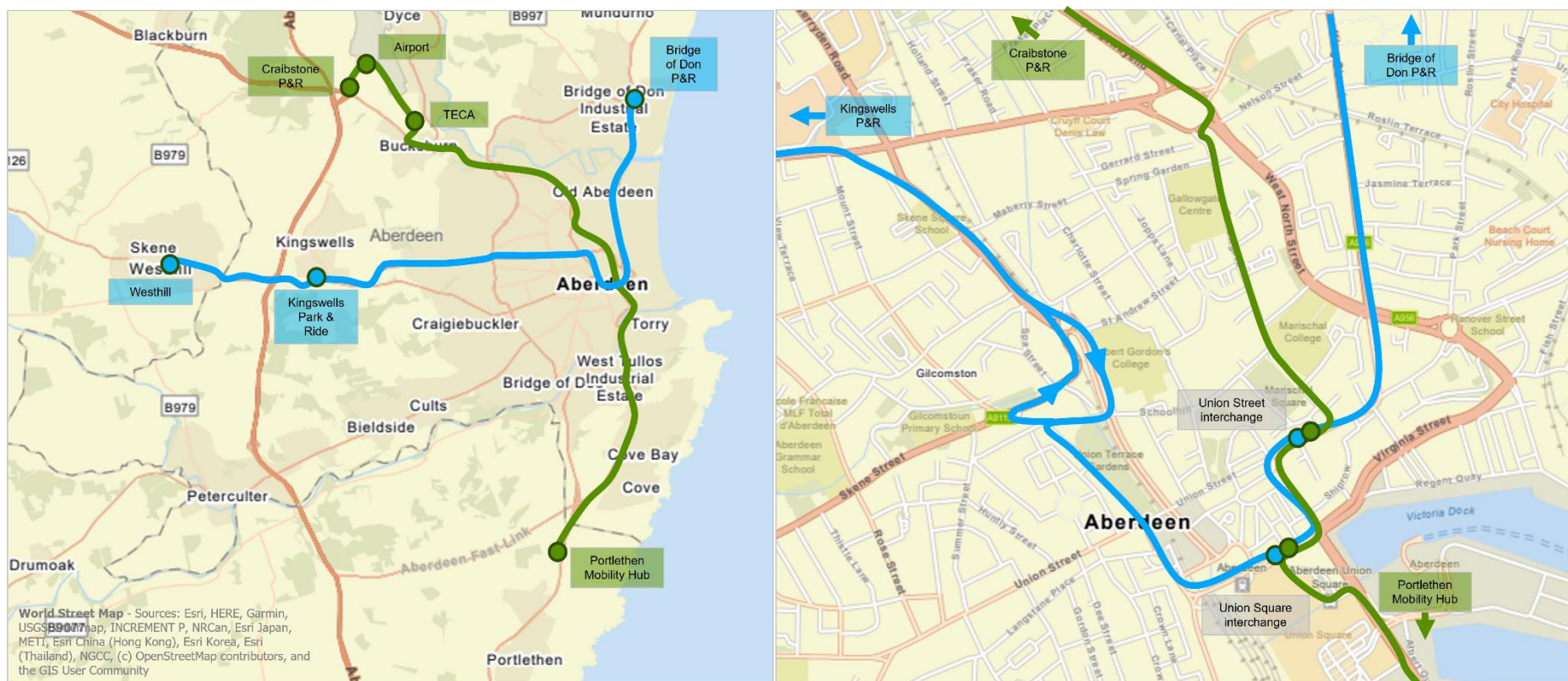


Figure H:6: Test C1– Routeing and city centre interchange - Westhill

Aberdeen Rapid Transit – Strategic Business Case

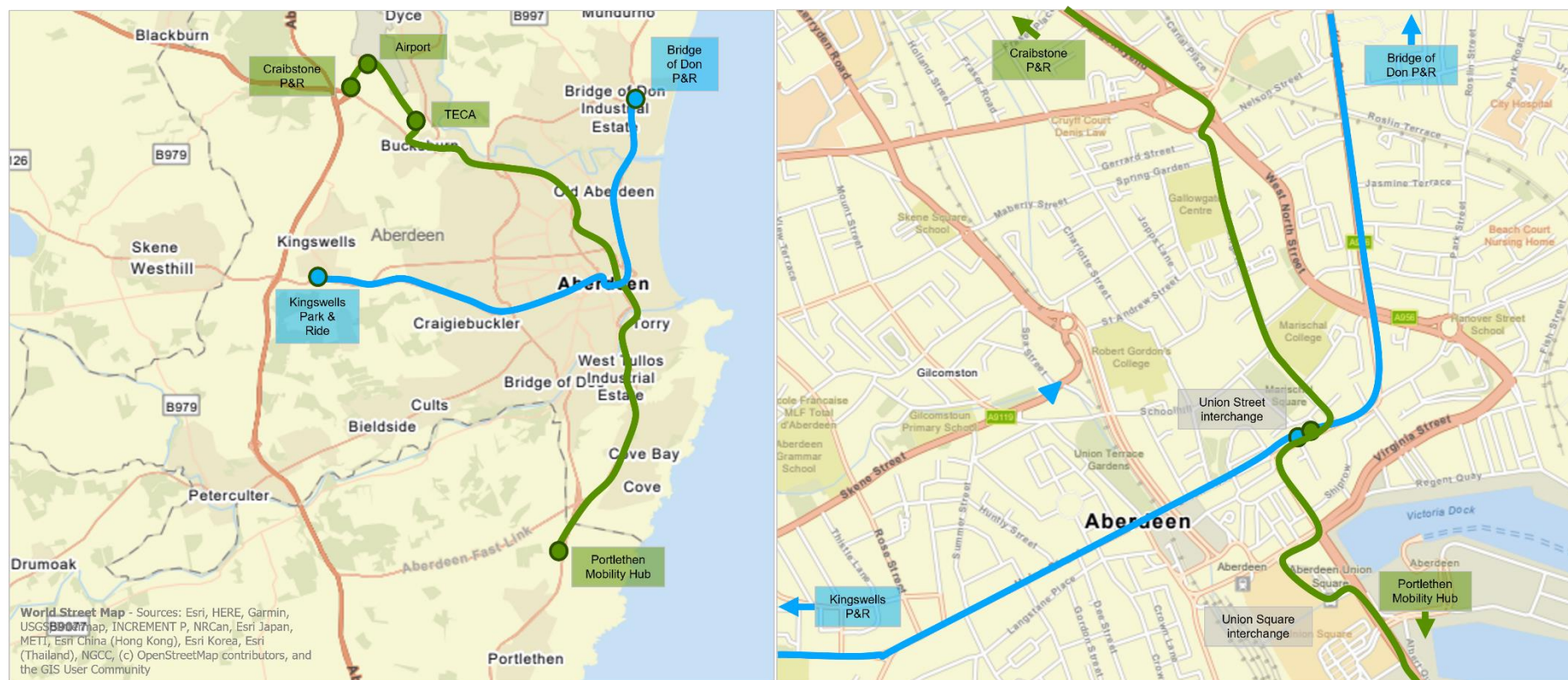


Figure H:7: Test C2– Routeing and city centre interchange – A9119 Routeing

Aberdeen Rapid Transit – Strategic Business Case

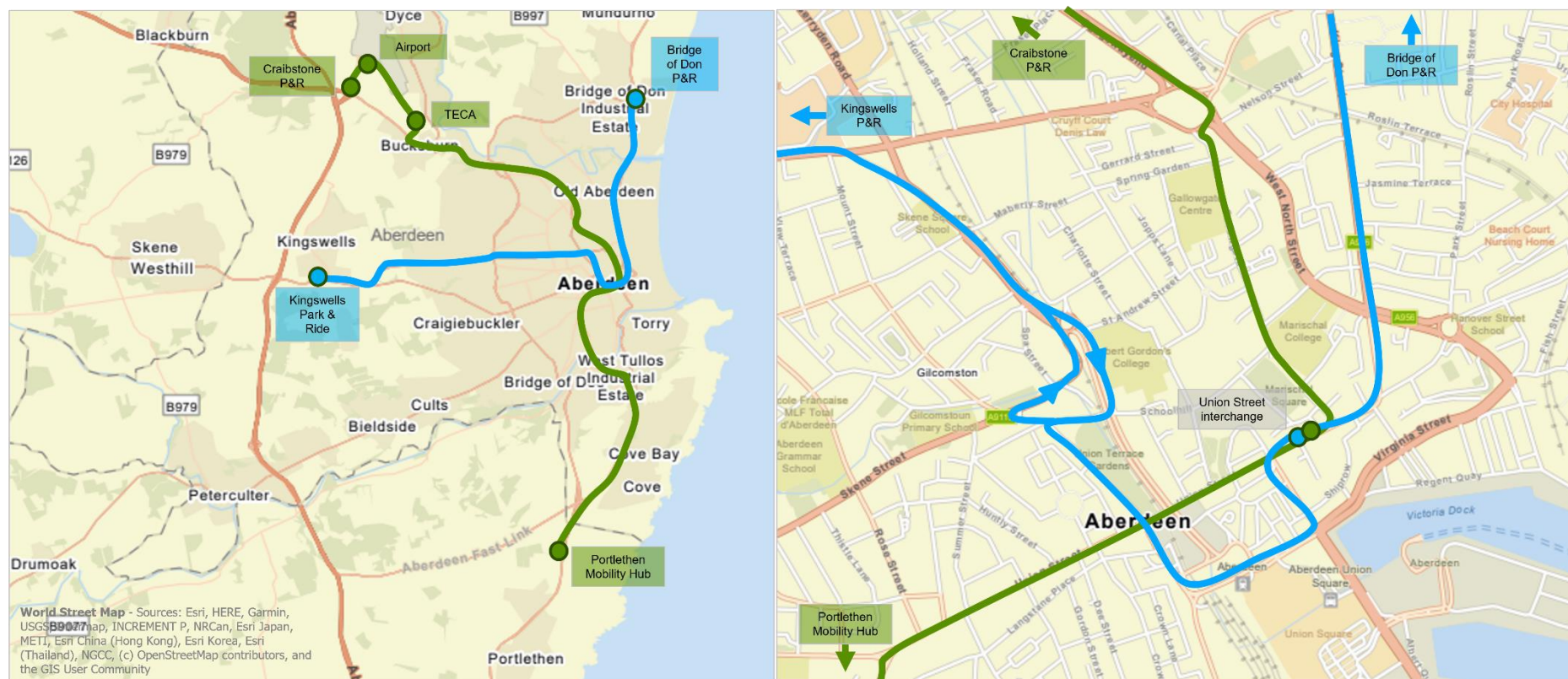


Figure H:8: Test D – Routing and city centre interchange – Routing via Holburn Street / Great Southern Road / West Tullos Road / Wellington Road

Aberdeen Rapid Transit – Strategic Business Case

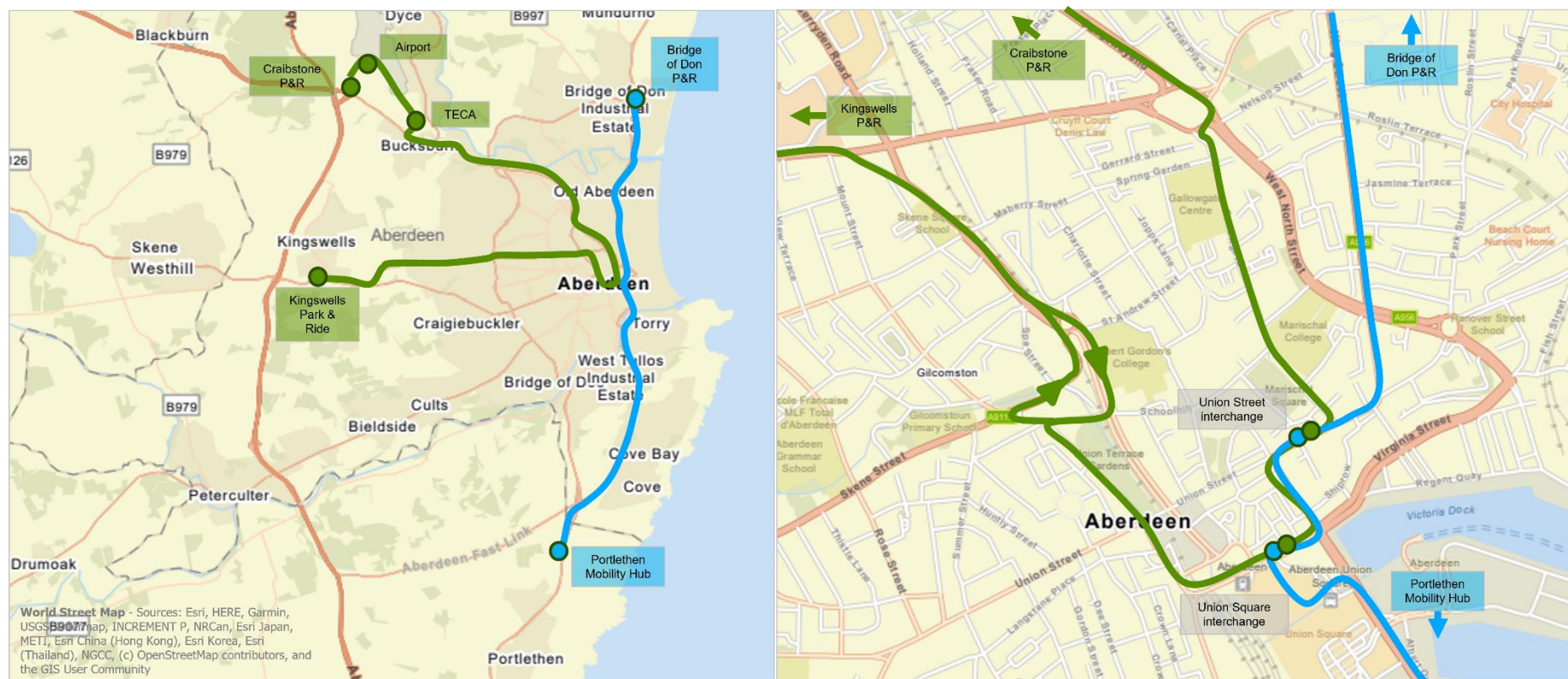


Figure H:9: Test E – Routing and city centre interchange – Changed cross-city connectivity

Aberdeen Rapid Transit – Strategic Business Case

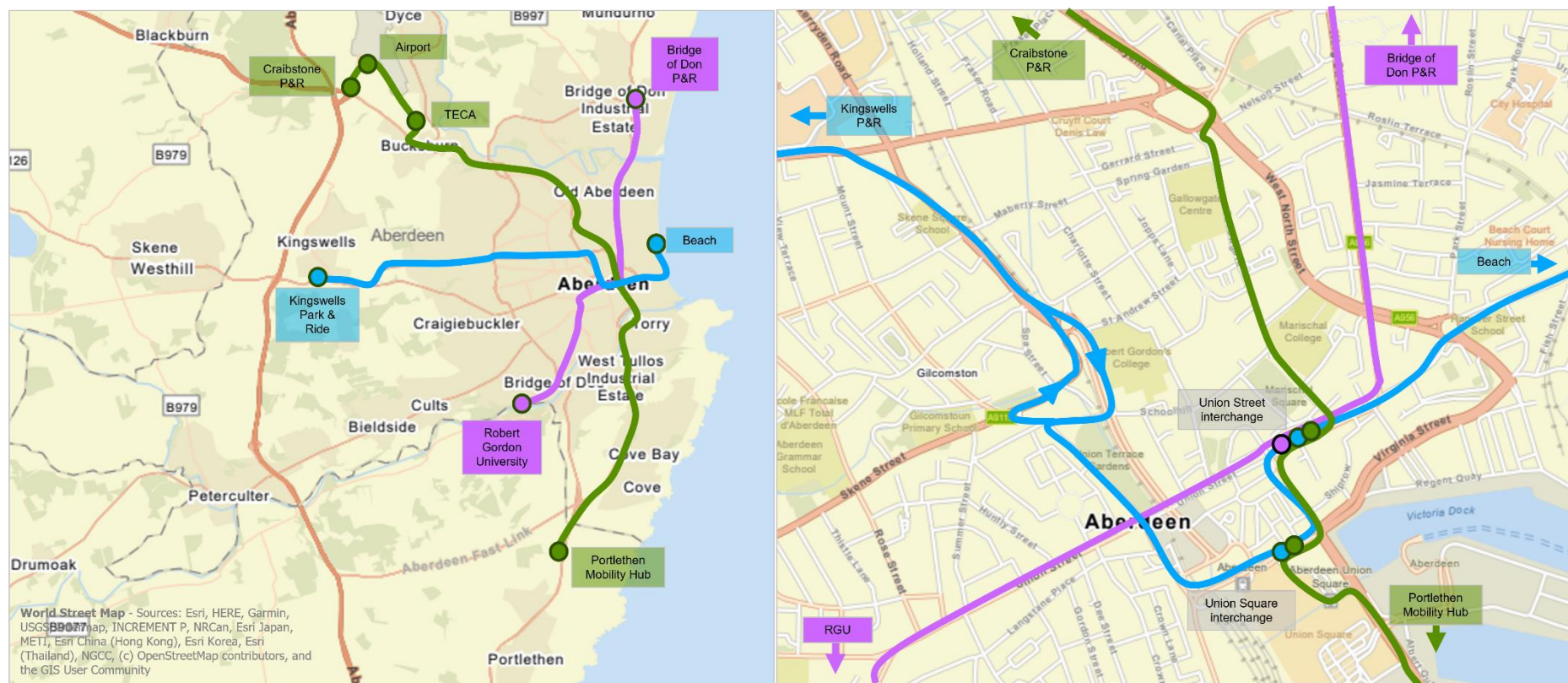


Figure H:10: Test F– Routeing and city centre interchange – Three ART lines variant

Appendix I TPO1 Analysis

I.1.1 This Appendix sets out the methodology analysis undertaken to inform option appraisal against the five metrics to measure the success of the options against TPO1. These are:

- **IND1: Access to employment (all):** Population able to access each key employment site across the city by public transport in less than 45 minutes
- **IND2: Access to employment (most disadvantaged):** Population in the lowest 20% SIMD zones able to access each key employment site across the city by public transport in less than 45 minutes
- **IND3: Access to Healthcare:** Population able to access Foresterhill Health Campus by public transport in less than 60 minutes
- **IND4: Access to Education:** Population able to access the two universities and other key educational establishments (i.e. colleges) by public transport in less than 45 minutes
- **IND5: Access to City Centre:** Population able to access the city centre by public transport in less than 45 minutes (with access to Market Street / Union Street taken as a proxy for this)

I.1.2 All indicators have been appraised through drawing on outputs from the ASAM modelling exercise undertaken, using outputs from the 2045 AM modelled period.

IND1: Access to Employment (all): Population able to access each key employment site across the city by public transport in less than 45 minutes

I.1.3 Access to employment has been considered by analysing the population able to access several key employment sites in less than 45 minutes by public transport – with 45 minutes considered at the extent of what may be considered an ‘acceptable commute’.

I.1.4 The analysis is presented in the table below which presents each employment site, alongside the approximate number of jobs associated with the datazone in which the site falls (the level at which employment data is available). These datazones have been mapped to appropriate ASAM model zones to then consider the public transport travel times from all ASAM zones (to which population data is assigned) to the respective employment datazone. From this, the population catchment within 45 minutes of the employment zone has been calculated. *(Note that in further development of the Business Case, the number of working age adults within origin zones would provide a more detailed metric, as opposed to overall population in origin zones).*

I.1.5 The table below presents the percentage increase in population (compared to the (2045) BAU) able to access each employment site by public transport in less than 45 minutes.

Table I:1: IND1: Access to employment - % increase in population able to access employment sites in less than 45 minutes (2045, AM Peak)

Employment Site	Approx. Jobs in relevant Datazone	% Difference from BAU			
		With Policy			Without Policy
		Option 2	Option 5	Option 5A	Option 5
Union Street / St Nicholas Street	14,000	1%	10%	8%	10%
Union Square Shopping Centre	12,000	4%	13%	12%	12%

Employment Site	Approx. Jobs in relevant Datazone	% Difference from BAU			
		With Policy			Without Policy
		Option 2	Option 5	Option 5A	Option 5
North East Scotland College	11,000	6%	15%	15%	16%
West End Office District	11,000	7%	6%	5%	7%
Foresterhill Health Campus	8,000	4%	15%	12%	16%
Altens Industrial Estate / Energy Transition Zone	7,000	0%	11%	11%	7%
Bridge of Don Industrial Estate / Aberdeen Energy and Innovation Parks	6,000	-2%	18%	16%	14%
Aberdeen Airport	5,000	80%	148%	140%	148%
Arnhall Business Park	5,000	0%	382%	356%	350%

I.1.6 Overall, the analysis shows:

- Under **Option 2**, for most sites there are only modest improvements compared to the BAU. Changes are generally negligible or minor, falling within 5% of the BAU (✓), except:
 - To the airport – where the catchment increases from around 29,000 to over 50,000, expanding the catchment by 80% compared with the BAU

- To North East Scotland College – where the catchment increases from around 158,000 to 168,000, expanding the catchment by 6% compared with the BAU
- Under **Option 5 / with policy**, there are significant improvements in catchment compared to the BAU (✓✓✓), particularly:
 - To the airport – where the catchment increases from around 29,000 to over 70,000, expanding the catchment by nearly 150% compared to the BAU
 - To Arnhall Business Park – where the catchment increases from around 158,000 to 168,000, expanding the catchment by 6-7% compared with the BAU
 - Urban centres like Union Street, Union Square Shopping Centre, and North East Scotland College see substantial catchment increases of between 10-15%
 - An additional 20,000 people can access Foresterhill Health Campus, increasing the catchment by 6%
- **Option 5 in the ‘without policy’ scenario** shows similar results to in the ‘with policy’ scenario, with slightly more modest gains at peripheral sites (✓✓✓)
- Slightly smaller increases under **Option 5A** than under Option 5 but still with significant increases in catchment compared to the BAU. Similar to Option 5, the largest increases are to the airport and Arnhall (✓✓✓)
- The new cross-city services in place in Options 5 and 5A, particularly connecting to the airport and Arnhall show significant increases in population catchment to these employment locations

- It is inferred that changes in catchment under **Option 1 and 3** would be like those under Option 2 (✓)
- It is also inferred that changes in catchment under **Option 3A** would lie between those of Option 2 and Option 5 (✓✓)
- Changes in catchment under **Option 4** are inferred to be like those under Option 5, given the similar introduction of ART cross-city services and therefore similar connectivity and journey time improvements (✓✓✓)

IND2: Access to employment (most disadvantaged):

Population in the lowest 20% SIMD zones able to access each key employment site across the city by public transport in less than 45 minutes

- I.1.7 Access to employment from the most deprived areas has also been considered. This considered similar data to that for IND1, but only considered the population in datazones falling within the lowest 20% within the Scottish Index of Multiple Deprivation (SIMD) rankings. The only such datazones in Aberdeenshire are in Peterhead and Fraserburgh, a significant distance from the ART network and so were excluded. In total, 29 datazones in Aberdeen City, focussed around Torry, Seaton, Tillydrone, Heathryfold and Middlefield were included within the analysis, combining to give a total origin population for the analysis of around 26,000. The results are presented in the table below.
- I.1.8 Given many of these areas are located close to the city centre, all the areas are already within a 45 minute catchment of some of the site considered. Given this, there is no increase in catchment to these sites - it appears in the table as a 0% increase. To aid understanding and provide context, the total proportion of residents in most deprived zones able to access each site is also provided in the table.

Aberdeen Rapid Transit – Strategic Business Case

Table I.2: IND1: Access to employment - % increase in population able to access employment sites in less than 45 minutes – 20% most disadvantaged (2045, AM Peak)

Employment Site	Approx. Jobs in relevant Datazone	% Difference from BAU				% of residents in most deprived SIMD zones within a 45 minutes public transport catchment					
		With Policy			Without Policy	With Policy				Without Policy	
		Option 2	Option 5	Option 5A	Option 5	BAU	Option 2	Option 5	Option 5A	BAU	Option 5
Union Street / St Nicholas Street	14,000	0%	0%	0%	0%	100%	100%	100%	100%	100%	100%
Union Square Shopping Centre	12,000	0%	0%	0%	1%	100%	100%	100%	100%	94%	95%
North East Scotland College	11,000	6%	6%	6%	6%	95%	100%	100%	100%	95%	100%
West End Office District	11,000	10%	7%	0%	13%	63%	70%	68%	64%	60%	68%
Foresterhill Health Campus	8,000	8%	29%	20%	37%	78%	84%	100%	94%	73%	100%
Altens Industrial Estate / Energy Transition Zone	7,000	0%	0%	0%	0%	4%	4%	4%	4%	4%	4%
Bridge of Don Industrial Estate / Aberdeen Energy and Innovation Parks	6,000	0%	40%	40%	40%	6%	6%	8%	8%	6%	8%
Aberdeen Airport	5,000	134%	152%	152%	134%	16%	37%	40%	40%	16%	37%
Arnhall Business Park	5,000	n/a	n/a	n/a	n/a	0%	0%	18%	18%	0%	18%

I.1.9 The results show:

- Under **Option 2**, largely modest benefits but more notable improvements when accessing non city centre sites (✓), with:
 - No change for access to Union Street / St Nicholas Street and Union Square - all can already access these locations within 45 minutes
 - North East Scotland College, Foresterhill Health Campus and West End Office District zones see modest increases of 1,400 (6%), 1,600 people (8%) and 1,600 (10%) people respectively
 - Aberdeen International Airport seeing a notable rise in population catchment of 5,500 people (134%)
 - Under the BAU, Arnhall Business Park in Westhill is not accessible within 45 minutes by public transport from any of the deprived areas and this remains the case under Option 2
- Under **Option 5**, while there are proportional changes against the respective '**with policy**' and '**without policy**' positions, there is negligible difference between the policy scenario results. In terms of the number of people who can access key employment sites from deprived areas there are similar results to Option 2 to the employment sites in the central city areas, but there are some notable differences at the more peripheral sites (✓✓), specifically at:
 - Foresterhill Health Campus where the option sees a substantial increase in the number of people able to gain access by public transport from deprived area with 5,700 additional people (a 29% increase from the BAU) within a 45 minute public transport catchment under the option. Critically, this allows 100% of residents of deprived areas

access by public transport to the major regional health site.

- Aberdeen International Airport shows a significant increase in catchment by public transport of 6,200 people (an increase of over 150% compared to the BAU).
- Arnhall Business Park cannot be accessed by public transport within 45 minutes from deprived areas within Aberdeen under the BAU. Under the option the site can now be accessed by 18% of residents of deprived areas within 45 minutes by public transport, equating to approximately 4,700 additional people being able to access the site.

- Under **Option 5A**, there are significant accessibility improvements relative to the BAU (and mostly similar to those noted under Option 5) (✓✓), with the exception of:
 - West End Office District where Option 5A provides no improvement on the BAU (compared with a 7% increase under Option 5)
 - Foresterhill Health Campus, where Option 5A increases the catchment by around 20% (approximately 4,000 additional people within a 45 minute public transport catchment (compared with a 29% increase under Option 5))
- Similar to that noted above, it is assumed that accessibility under **Option 1** and **Option 3** would be similar to that under Option 2 (✓), with accessibility under **Option 4** similar to that under Option 5 (✓✓) and improvements under **Option 3A** sitting between those of Option 2 and 5.

I.1.10 It is important to note that the 20% most deprived data zones considered all lie within 5km of Aberdeen city centre. The analysis

has shown that most residents can access city centre employment sites within 45 minutes by public transport in the BAU. This results in negligible improvements being apparent in terms of access to the city centre.

- I.1.11 However, access to peripheral sites is very poor in the BAU and so there are significant proportional increases seen for peripheral sites under the options.
- I.1.12 To provide context for these changes, the following graph shows the proportion of residents who can reach key employment sites by public transport within 30, 45 and 60 minute time bands under the modelled options (under the 'with policy' scenario). Note that given the results for Option 5A are like those for Option 5 these have not been displayed).
- I.1.13 The graph shows, particularly when considering the employment centres closer to the city centre, that the options improve accessibility to these locations, bringing many within a 30 minute travel time by public transport. The proportion of residents from deprived areas able to access key sites in 30 minutes or less by public transport:
 - increases for access to the city centre (Union Street / St. Nicholas Street) from just under 30% in the BAU to just less than 40% under Option 2, and to more than 55% under Option 5
 - increases for access to the North East Scotland College campus from just over 30% in the BAU to more than 45% under Option 5
- I.1.14 *As noted for IND1, in further development of the Business Case, the number of working age adults within origin zones would provide a more detailed metric, as opposed to overall population in origin zones.*

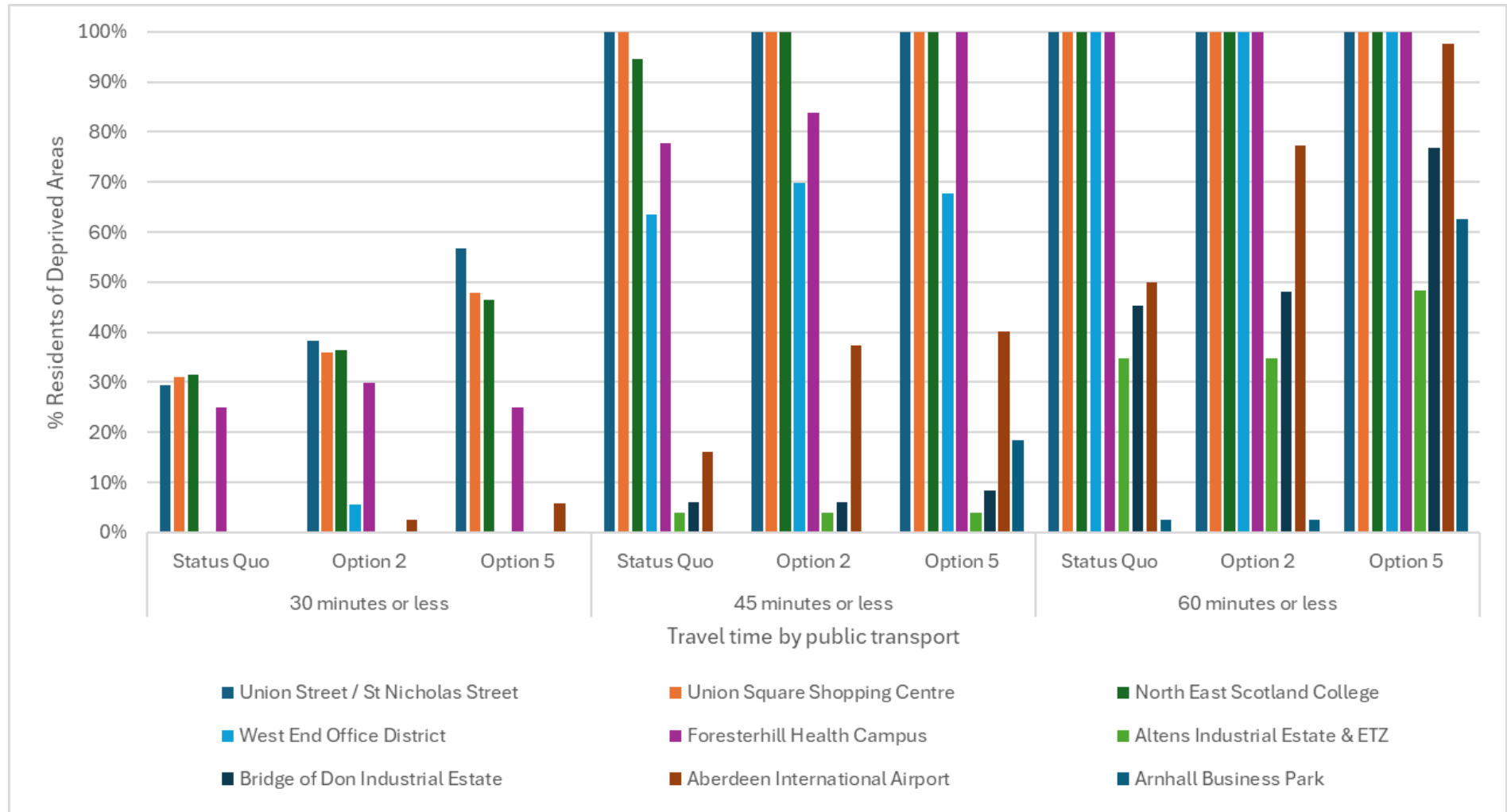


Figure I:1: Proportion of residents in 20% most deprived areas able to access key employment sites in less than 30, 45, and 60 minutes (2045, AM)

IND3: Access to Healthcare: Population able to access Foresterhill Health Campus by public transport in less than 60 minutes

- I.1.15 Modelling data has been interrogated to identify how each of the modelled options may affect the number of people who could reach Foresterhill Health Campus (where the ARI is located) within one hour by public transport during the AM Peak in 2045.
- I.1.16 The results are summarised in the table below.

Table I:3: Accessibility to Foresterhill Health Campus (2045, AM Peak)

Scenario	Option	No. people living with one hour of ARI (by Public Transport)	Change relative to the BAU
'With policy'	BAU	202,000	-
	Option 2	213,000	+6%
	Option 5	230,000	+14%
	Option 5A	226,000	+12%
'Without policy'	BAU	198,000	-
	Option 5	225,000	+13%

- I.1.17 The analysis shows that all options will increase the accessibility of Foresterhill Health Campus by public transport.
- I.1.18 Under **Option 2** (and inferred similarly under **Option 1 and 3**) a 6% increase in accessibility is seen (✓)
- I.1.19 Under the '**with policy**' scenario, **Option 5** performs the best, allowing an additional 28,000 (+14%) people to access to the health campus within 60 minutes by public transport. Similar results are seen under the '**without policy**' scenario. Results under **Options 5A** are similar but slightly lower, with results under

Option 4 assumed to be more similar to those under Option 5 (✓✓). Improvements under **Option 3A** are inferred to lie between those of Option 2 and 5.

IND4: Access to Education: Population able to access the two universities and other key educational establishments (i.e. colleges) by public transport in less than 45 minutes

- I.1.20 Key higher and further education campuses in Aberdeen were identified as:
- University of Aberdeen – Old Aberdeen
 - Robert Gordon University (RGU) – Garthdee
 - North East Scotland College – City Centre
 - Scottish Rural Agricultural College – Craibstone
- I.1.21 Consideration of the population able to access these sites in 45 minutes or less by public transport was undertaken, and compared with the (2045, AM) BAU. The results as shown in the table below.

Table I:4: Accessibility to Key Education Campuses (2045, AM Peak)

Education Campus	% Difference from BAU			
	With Policy			Without Policy
	Option 2	Option 5	Option 5A	Option 5
University of Aberdeen	-2%	10%	6%	11%
Robert Gordon University	1%	9%	10%	5%
North East Scotland College	6%	15%	15%	16%
Scotland's Rural College	26%	355%	348%	379%

6.6.18 The results show:

- Across all scenarios, the Scottish Rural Agricultural College (Craibstone Campus) shows the most substantial improvements in accessibility, with increases ranging from 26% to 379%. The North East Scotland College, University of Aberdeen and RGU also see positive impacts, particularly under the Option 5 in both the 'with policy' and 'without policy' scenarios.
- Under **Option 2**, there are negligible improvements to public transport access to the two university sites (✓) but:
 - North East Scotland College City Campus can be accessed by an additional 10,000 people within 45 minutes (+6%)
 - Scottish Rural Agricultural College, can be accessed by an additional 5,500 people within 45 minutes (+26%)
- **Option 5** yields much more substantial benefits (✓✓✓) across the board including:
 - A 9% increase in the number of people able to access RGU (+5,000 people) within 45 minutes by public transport, compared to the BAU
 - A 10% increase in the catchment for University of Aberdeen (Old Aberdeen Campus), increasing access within 45 minutes by public transport for 15,000 people
 - A 355% increase in the catchment to the Scottish Rural Agricultural College Campus at Craibstone, boosting the catchment from approximately 9,500 people to 43,000 people and potentially transforming the way students and staff travel to the site.

- **Option 5a** performs similarly to Option 5, except in terms of access to University of Aberdeen's Old Aberdeen Campus. Option 5a increases the catchment for this location by 6% (9,500 people), although this is somewhat below the +10% (15,000 person) improvement delivered by Option 5. (✓✓)
- Again, it is assumed that accessibility under **Option 1** and **Option 3** would be similar to that under Option 2 (✓), with accessibility under **Option 4** similar to that under Option 5 (✓✓).

IND5: Access to City Centre: Population able to access the city centre by public transport in less than 45 minutes (with access to Market Street / Union Street taken as a proxy for this)

- I.1.22 As set out in Section 2, the *CC&BMP* is a 20-year regeneration blueprint that is transforming the city centre while conserving its proud heritage. The *CC&BMP* seeks to revitalise the city centre (with Union Street being the central 'pillar') and as such, access to Aberdeen centre for all purposes (e.g. shopping, leisure etc. as well as for employment) is important.
- I.1.23 Analysis in relation to access to key employment sites was discussed under IND1, which included consideration of the accessibility of the city centre. The analysis is presented again below for city centre. It shows:
- The minor increase in accessibility to the city centre under **Option 2** (1%) (-)
 - A more significant increase under Option 5 (10%) (✓✓)
 - The results for option 5A slightly lower (8%) (✓✓)
 - Again, it is assumed that accessibility under **Option 1** and **Option 3** would be similar to that under Option 2 (-), with

Aberdeen Rapid Transit – Strategic Business Case

accessibility under **Option 4** similar to that under Option 5 (✓✓).

Table J:5: IND1: Access to employment - % increase in population able to access the city centre in less than 45 minutes (2045, AM Peak)

City Centre Location	% Difference from BAU			
	With Policy			Without Policy
	Option 2	Option 5	Option 5A	Option 5
Union Street / St Nicholas Street	1%	10%	8%	10%

Appendix J TPO2 Analysis

J.1.1 This Appendix sets out the methodology analysis undertaken to inform option appraisal against the eight (of nine) metrics to measure the success of the options against TPO2. This includes:

- IND1: % increase in trips made by public transport in Aberdeen
- IND2: Bus Speeds on ART corridors
- IND3: Consistency in travel time for trips made on ART network across the day and the week
- IND4: General traffic volumes on ART corridors
- IND5: Total motorised vehicle kilometres travelled within the Aberdeen city boundary
- IND6: Greenhouse Gas emissions
- IND7: % of bus users either satisfied or very satisfied with travel by bus into and across Aberdeen
- IND8: % of bus users either satisfied or very satisfied with travel by bus safety and security
- IND9: % increase in trips made by active travel in Aberdeen – note that this metric has not been analysed at this stage but will be considered in greater detail at OBC stage

IND1: Trips made by public transport in Aberdeen

J.1.2 The level of mode shift associated with each option provides a broad indication of the impact on traffic levels and their associated negative environmental impacts. A comparison of modelled public

transport trips was undertaken for the Aberdeen urban area (including relevant parts of Aberdeenshire e.g., Westhill) for the options modelled in ASAM under the 'with policy' and 'without policy' scenarios.

Table J.1: Modal Shift and change in vehicle kilometres (0700-1900)

Scenario	Option	Change in public transport trips vs BAU (0700-1900, 2045)	
		No. trips	%
With Policy	Option 2	+1,700	+2%
	Option 5A	+6,500	+8%
	Option 5	+8,900	+11%
	Option 5P (Sensitivity)	+9,600	+12%
Without Policy	Option 5	+9,700	+14%

J.1.3 For 2045, this comparison shows:

- Under **Option 2** ('with policy' scenario), a **2% increase** in public transport usage - translating to approximately **1,800** people changing mode (✓)
- Under **Option 5** ('with policy' scenario), a far larger **12% increase** in public transport usage - translating to approximately **8,900** people changing mode (✓✓✓). This increases to 14% in the 'without Policy' scenario.
- Under **Option 5A** ('with policy' scenario), a **8% increase** in public transport usage - lower than Option 5 reflecting the

longer journey times when using ‘conventional’ rather than tram-style multi-door vehicles and the greater attractiveness of the tram-style vehicles assumed in Option 5 (as represented in ASAM through the use of lower perceived in-vehicle time factor). This translates to approximately **6,400** people changing mode, reinforcing the **importance of reducing boarding and bus dwell time at stops in encouraging modal shift to public transport** (✓✓)

- Under **the sensitivity test 5P** (**‘with policy’** scenario), a **13% increase** in public transport usage - this figure is the higher than the other options (under the **‘with policy’** scenario) and translates to approximately **9,600** people changing mode. This is as expected, given the option includes a doubling of city centre parking costs and **highlights the additional scheme success that could be derived if such a supporting measure were implemented** (✓✓✓)
- In the **‘with policy’**, compared to the **‘without policy’** scenario, there are a higher number of public transport trips being made in the comparator BAU. This less congested road network means the overall modal shift change to public transport is lower than the corresponding modal shift percentage uplift in the **‘without policy’** scenario. However, it should be noted that overall, **there are more people using public transport overall in the ‘with policy’ forecast scenario and option tests.**
- It can be surmised that modal shift under **Option 3** is likely to be similar to Option 2 (✓) and modal shift under **Option 1** is likely to be the lower, and the lowest of all the options – given the options just considers priority infrastructure but no proposed improvement to services (✓) – but noting that the infrastructure itself will deliver significant journey time benefits to bus passengers (see IND2).
- Modal shift under **Option 3A** is anticipated to be higher than Option 3 given the branding of services and new platforms to

create greater visibility of services and improve perceptions around the quality of bus travel (✓✓)

- It can be surmised that modal shift under **Option 4** is likely to be similar to Option 5, given the similar proposals to introduce new cross-city services operated with ‘tram-style’ / multi-door vehicles enabling mass capacity movements and reducing dwell times significantly, and with bus priority infrastructure and new branded ART ‘platforms’ across the ART network (✓✓✓)
- The future position for the BAU is anticipated to follow existing declining passenger and bus vehicle kilometre trends and as such, there is expected to be ongoing modal shift away from the bus.

Key Point: Reducing bus dwell time at stops is essential in encouraging modal shift to public transport. If ART is implemented with complementary supporting measures, such as parking policy, greater scheme success can be realised.

IND2: Bus Speeds on ART corridors

- J.1.4 The *Bus Rapid Transit Planning Guide* (Institute for Transportation & Development Policy, 4th edition) notes that a Gold Standard BRT system speed will be roughly 20 kph in a ‘downtown’ area and about 25 kph on a major urban arterial. Designers of BRT systems should aim to engineer a network which can achieve average urban vehicle speeds of 25 kph or higher, and a similar aspiration is held for ART. As such, consideration of each options potential to achieve a 25kph average speed has been considered.
- J.1.5 Average weekday bus speeds were calculated from the ASAM forecast year of 2045, across the four ART network corridors for those options modelled, with the results presented below.¹⁵⁷

Table J.2: Journey Time Comparisons

Scenario	ART Corridor	Average speed (kph)					In Bus Time Saving vs Reference Case (minutes)			
		Reference Case	Option 2	Option 5A	Option 5	Option 5P (Sensitivity)	Option 2	Option 5A	Option 5	Option 5P (Sensitivity)
With Policy	A956N	16	16	23	24	24	-1	-6	-7	-7
	A944	15	17	26	27	27	-3	-11	-12	-12
	A96	20	24	30	31	31	-5	-10	-12	-12
	A92S	18	18	20	20	20	-2	-1	-2	-2
Without Policy	A956N	15	-	-	23	-	-	-	-7	-
	A944	15	-	-	27	-	-	-	-12	-
	A96	19	-	-	31	-	-	-	-12	-
	A92S	17	-	-	20	-	-	-	-3	-

- J.1.6 Given that **Option 5** provides new cross city connections, a comparison of journey time reductions for the full cross-city journeys (not just individual corridors) against the (future year) Reference Case travel times by car and public transport has been undertaken and is shown in the table below for

¹⁵⁷ These values were calculated using 2045 AM Peak Hour, IP Average Hour and PM Peak Hour travel time information for the sections identified above from ASAM19 files. Hourly values were factored up to 12-hour values using ASAM19 specific peak hour to peak period factors.

the AM 2045 period. It should be borne in mind that the values for public transport include time walking to and from bus stops, whereas those for road only reflect time spent driving.

Table J.3: Cross-city Car to Public Transport Travel Time Differentials

Route	Scenario	Option	Journey Time (mins)		Difference from Reference Case (mins)	
			Car	Public Transport	Car	Public Transport
Airport to Portlethen ¹⁵⁸	With Policy	Reference Case	20	85		
		5	20	52	0	-33
		5A	20	54	0	-31
		5P (sensitivity)	20	52	0	-33
	Without Policy	Reference Case	21	86		
		Option 5	22	53	+1	-33
Kingswells to Bridge of Don	With Policy	Reference Case	21	62		
		5	25	41	+4	-21
		5A	25	42	+4	-20
		5P (sensitivity)	24	41	+3	-21
	Without Policy	Reference Case	22	64		
		Option 5	26	41	+4	-23

Key Point: The combination of reduced stopping patterns and short bus stop dwell times associated with the use of 'tram-style' / multi-door vehicles enables bus speeds of over 20kph on all corridors and over 25kph on two of the four corridors. Providing new cross-city services facilitates a significant reduction in public transport travel time for cross-city movements. The Reference Case, Option 1 and Option 2 do not deliver the required bus speeds.

¹⁵⁸ Note that a trip by car between Aberdeen Airport and Portlethen would most likely be made via the AWPR and as such will not be impacted by any reduction in road space due to the proposed ART infrastructure

J.1.1.7 The key points from the analysis presented above highlight:

- In the **Reference Case**: there is no change from the current position. Existing levels of bus delay likely to remain with unchanged journey speeds, with average speeds ranging from 15 – 20 kph (✗)
- Under **Option 1** (Do Min - Existing commercial services using enhanced infrastructure): bus speeds are likely to be similar to Option 2 given the similar proposed infrastructure (✗)
- Under **Option 2** (Enhanced existing commercial services using enhanced infrastructure): In the 'with policy' scenario, the option is forecast to facilitate speeds of between 16kph and 24kph in urban areas, which translates to journey time savings of up to six minutes, compared with the Reference Case . This is close to but does not meet the sought after 25mph average speed (✗)
- Under **Option 3** (Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure): Vehicle speeds would be slightly higher than in Option 2 given that there would be less parallel running of services and congestion at stops, but without modelling, the exact scale of this difference cannot be quantified (✓)
- Under **Option 3A** (As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing): likely to provide bus speeds like Option 5A given similar reduced stopping pattern assumed; however, Option 3A would not provide the benefits of a full cross-city service as interchange would still be required in the city centre (✓✓)
- Under **Option 4** (New ART services and vehicles in addition to existing services, sharing enhanced infrastructure): likely to provide bus speeds similar, but lower, than Option 5 given no changes are proposed to the underlying bus network, and hence there will be a level of bus congestion along the corridor slowing the new cross city services (✓✓✓)
- Under **Option 5** (New ART services and vehicles with revised / integrated existing services): Comparing cross-city journey times under Option 5 with the future year Reference Case highlights even further the scale of journey time savings that can be accrued when there is no need to interchange in the city centre. Cross-city journey time savings of 31-33 minutes are expected between the Airport and Portlethen P&R and 20-21 minutes between Kingswells and Bridge of Don. Once parking search and travel from car parking to the final destination are factored in, it is considered that journey times between Kingswells and Bridge of Don will be comparable, but it will remain faster to travel by car between the Airport and Portlethen (via the AWPR). Under the 'without policy' scenario, average Reference Case bus speeds are slightly higher due to the higher levels of underlying congestion under this scenario. Options produce similar results to the 'with policy' scenario, although speeds remain slightly lower and journey times are up to 3 minutes longer. From comparison with the Option 2 results, given both use the same priority infrastructure, it is clear that **a significant part the journey time reduction achieved is gained through reduced stopping patterns and reduced boarding and bus dwell time at stops.** (✓✓✓)
- Under **Option 5A** (as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services): Bus speeds achieved are slightly lower (and hence bus journey time reductions slightly less) than under Option 5 and reflects the lower journey time benefits

gained from using more ‘conventional’ types of bus vehicles as opposed to tram style ‘multi-door’ vehicles. Bus speeds range from 20 – 30kph and journey time reductions from 1 to 11 minutes, with again the greatest benefits accrued on the A944 corridor (✓✓✓)

IND3: Consistency in travel time for trips made on ART network across the day and the week

- J.1.8 ASAM19 outputs were reviewed for the future year Reference Case under the ‘with policy’ scenario, and it was identified that the greatest variation in journey times between the Interpeak and AM/PM peak occurs in the outbound direction during the PM Peak.
- J.1.9 Consideration was then given to how the gap between interpeak and PM peak journey times would be affected by the options being considered. This was calculated using the same journey time information gathered for TPO1 (i.e. journey times for 1B, 7B, 14 and 727 services under the Reference Case and Option 2, and travel times for the same journeys on the new cross-city services for the modelled Options 5 and 5A, and for the sensitivity test 5P). The table below sets out these findings.

Table J.4: Journey Time Variability (2045, IP vs PM period)

Scenario	Corridor	Difference between PM Peak and Interpeak journey times (mm:ss)					Change from the Reference Case (mm:ss)			
		Reference Case	Option 2	Option 5A	Option 5	Option 5P (Sensitivity)	Option 2	Option 5A	Option 5	Option 5P (Sensitivity)
With Policy	A956(N)	1:40	2:40	2:10	2:10	1:50	+1:00	+0:30	+0:30	+0:10
	A96	1:50	1:00	0:30	0:20	0:20	-0:50	-1:20	-1:30	-1:30
	A944	3:00	1:20	1:00	0:50	0:50	-1:40	-2:00	-2:10	-2:10
	A92(S)	3:10	2:20	1:40	1:40	1:40	-0:50	-1:30	-1:30	-1:30
Without Policy	A956(N)	2:30	-	-	3:00	-	-	-	+0:30	-
	A96	2:10	-	-	0:20	-	-	-	-1:50	-
	A944	6:10	-	-	0:50	-	-	-	-5:20	-
	A92(S)	4:10	-	-	1:40	-	-	-	-2:30	-

J.1.10 The key points from the analysis presented above are:

- In the **Reference Case**: The future year Reference Case under the 'with policy' scenario indicates that there is at most a difference of 3 minutes between average peak hour and interpeak journey times on the identified corridors and services. This suggests that the assumed policy changes under this scenario (if implemented) have successfully reduced congestion on these corridors, which has in turn aided journey time consistency, in the absence of ART. Under the 'without policy' scenario, it should be noted that PM Peak journey times are typically two to six minutes longer than interpeak journey times, which relates to PM peak journey times being up to 30% longer than interpeak. If the 'with policy' position were not to arise, buses are likely to continue to suffer some existing service punctuality and reliability issues (as set out and evidenced as a problem (PR5) in Chapter 2) (✗)
- Under **Option 1** (Do Min - Existing commercial services using enhanced infrastructure): Modelling was not undertaken for Option 1, but it is estimated that journey time consistency will be similar to Option 2 given the similar level of bus priority infrastructure proposed across the network (✓)
- Under **Option 2** (Enhanced existing commercial services using enhanced infrastructure): Journey time consistency will be aided by new bus priority infrastructure. PM peak journey times are estimated to be up to 3 minutes longer than interpeak journey times under the 'with policy' scenario. This reflects an improvement of between 50 seconds and one minute forty seconds on the A96, A944 and A92(S). However, on the A956(N), interpeak journey times reduce more than PM Peak journey times and the gap between interpeak and PM peak journey times extends by one minute. Given the findings from Option 5 (see below), there is expected to be a greater improvement to journey time consistency under the 'without policy' scenario (✓)
- Under **Option 3** (Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure): Modelling was not undertaken for Option 3. But it is estimated that improvements would be as per Option 2 but with **bus stop rationalisation** likely to further increase journey time consistency due to the reduced number of stops. The proposed existing **service integration** would further increase the consistency across the ART network by removing any potential delay from other services on the corridors (✓)
- Under **Option 3A** (As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing): Modelling was not undertaken for Option 3A, but it is estimated that journey time consistency will sit somewhere between Options 3 and 5A, as increased stop spacing and off-vehicle ticket purchase will reduce time lost for boarding/alighting but standard vehicles will be used (✓✓)
- Under **Option 4** (New ART services and vehicles in addition to existing services, sharing enhanced infrastructure): Modelling was not undertaken for Option 4, but it is estimated that journey time consistency will sit somewhere between Options 3 and 5, as **increased stop spacing, multi-door vehicles** and off-vehicle ticket purchase will reduce time lost for boarding/alighting. However, **without changes to the existing bus network** there is likely to be an element of bus congestion on the ART network, with existing buses creating delay to the new cross-city services (✓✓)
- Under **Option 5** (New ART services and vehicles with revised / integrated existing services): Under Option 5, journey time consistency will be aided by new bus priority infrastructure and **wider stop spacing**, in addition to the use of distinctive **multi-door vehicles** and off-vehicle ticketing, both of which will reduce dwell time at stops. In addition, integration of the existing bus network will reduce any potential delay due to bus congestion across the network. In the 'with policy' (✓)

scenario, the greatest improvements to travel time consistency, occur on the A944 and A96 corridors, where typical journey times during the PM peak hour fall within one minute of journey times during the interpeak. By comparison, peak to interpeak travel times in the Do Minimum vary by over a minute on all corridors, with the A944 and A92S showing a variation of approximately 3 minutes. In the 'without policy' scenario, there is greater consistency benefits are obtained for Option 5 in the 'without policy' scenario, as bus journey times in the equivalent Do Minimum are more variable due to the more congested networks (e.g., the variability on the A944 between peak and interpeak journey time is over 6 minutes).

This highlights the greater ability for bus priority measures to provide benefit when the underlying traffic network is more congested (✓✓)

IND4: General traffic volumes on and around ART corridors

- J.1.11 Traffic volume changes across the ART network and the wider city and region because of ART, including the potential redistribution of traffic has the potential to generate both positive and potentially negative impacts on the urban realm and 'placemaking' across the ART network.
- J.1.12 To provide the priority needed for public transport, significant road space reallocation away from general traffic is required along the ART corridors. Reduced road space for general traffic is likely to encourage modal shift to bus by increasing congestion on the road network for general traffic and reducing traffic across the ART network routes creating a more pleasant urban environment. However, there is also the potential for traffic redistribution onto less appropriate routes, with traffic routeing on more circuitous routes, potentially increasing trip distances and hence carbon emissions (if not suitably off-set by reduced carbon emissions from modal shift to public transport). Anticipated changes under the options in terms of vehicle kilometres and associated carbon emissions are discussed against IND5 and IND6 below.

- Under **Option 5A** (as per Option 5 but with existing vehicles branded and used to operate the new cross-city ART services): journey time consistency will be aided by new bus priority infrastructure and wider stop spacing. It is estimated that the difference between peak and off-peak journey times will reduce to under two minutes under the 'with policy' scenario. However, more substantial consistency improvements would be yielded under the 'without policy' scenario where there is more underlying congestion on the network. The use of existing vehicles for the new cross-city services means bus dwell time consistency will not be improved as under Option 5 (✓✓)

- J.1.13 All the options are based on essentially the same quantum of roadspace reallocation, and the impacts of the different options in this regard will be similar, albeit the scope for negative impacts is reduced somewhat where modal shift to bus is greater.
- J.1.14 The figure below illustrates how road traffic volumes are expected to change across the city if the options were implemented, under the 'with policy' scenario. This is presented for Option 5 but is felt to be broadly representative of the potential traffic distribution impacts across all options given the similar quantum of roadspace reallocation. The figure shows the potential extent of traffic rerouting and shows the reduction in traffic across the modelled ART network, and the wide-spread rerouting that occurs as a result. Note that the Do Minimum referred to in the figure key represents the ASAM19 model Do Minimum (and should be read as the *2045 Reference Case* in the context of the options being discussed here).

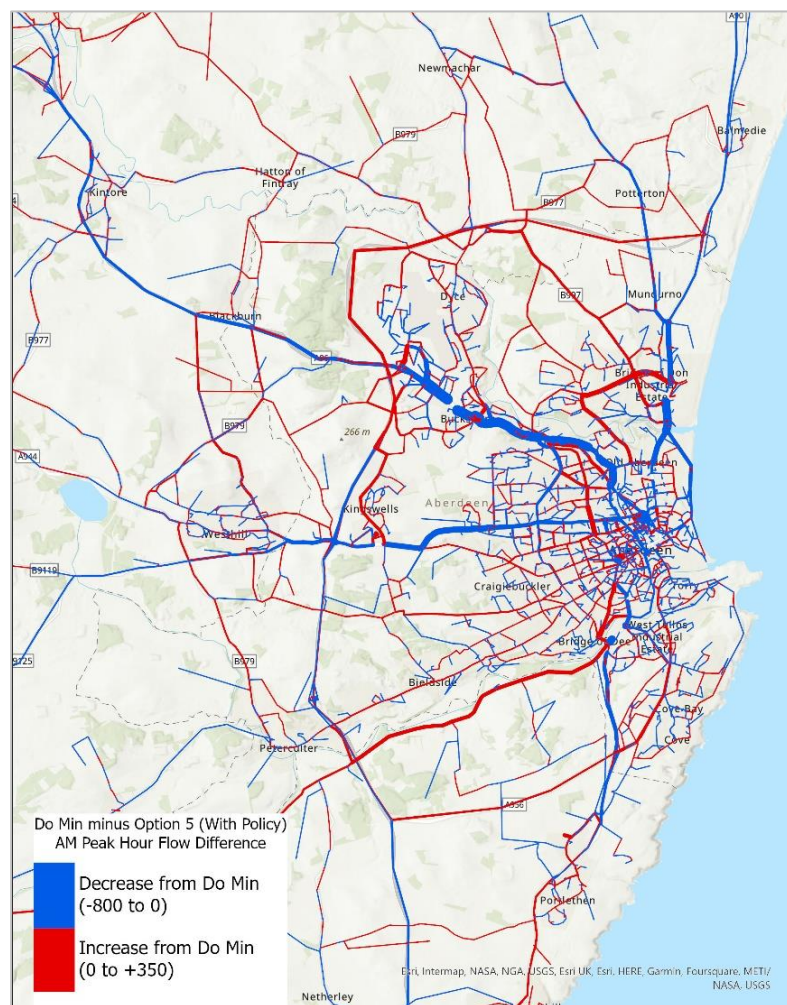


Figure J.1: Flow Difference Diagrams (Option 5, 'with policy')

J.1.15 Traffic flow differences between the Reference Case (ASAM Do Minimum) and the option networks show **significant traffic reductions on the ART corridors** where general traffic capacity

has been reduced. The most significant reduction is noted on the A96. The reduction in traffic across the ART network will create a much improve urban realm environment along these main arterial routes in the city centre, where there will be reduced traffic related noise and vibration and increased air quality. There would also be an increase in visual amenity. The inclusion of (where feasible) segregated active travel infrastructure (as considered within the development of the infrastructure for ART) will also provide placemaking benefits to active travel users. In terms of traffic reductions across the ART network, the greatest reductions will occur for those option generating the greatest modal shift. As such, **the benefits are anticipated to be greatest for Options 4, 5 and 5A.**

J.1.16 ART will also contribute to reduced traffic in the city centre due to modal shift to bus, in tandem with other schemes such as the Berryden Corridor Improvement Project, the bus priority scheme implemented around Market Street, Bridge Street and Union Square (note that the modelling work undertaken to inform this appraisal was done prior to this implementation), and the plans being implemented under the CC&BMP itself. ART will support the placemaking aspirations of the CC&BMP and the SUMP through improving the public transport experience to, from and within the city centre, particularly in terms of achieving shorter and more reliable journey times, and improving connectivity between key destinations in and around the city centre by sustainable modes of transport.

J.1.17 In terms of **increases in traffic** across the city and wider region, there is an increase of traffic on the AWPR, in the northbound direction from the A93 to Craibstone and in the southbound direction from Blackdog in the north to Craibstone, where traffic is routing round the AWPR to find alternative arterial routes into the city centre.

J.1.18 Across the options overall, traffic re-routing generates increases in traffic on less strategic and minor roads including alternative routes between the ART corridors, including on the:

- B997 (linking the AWPR into the Bridge of Don)
- Esplanade and Park Road into the city centre
- Stoneywood Road through Dyce
- C898C Chapel of Stoneywood – Fairley Road linking from the A944 through Kingswells to Bucksburn and Craibstone
- A9119 / Kings Gate, running parallel to the A944 from east of Kingswells into the city centre
- Countesswells Road
- A93 from the AWPR into the city centre
- On the B9007 from west of the AWPR through Banchory of Devenick and towards the city centre
- Wellington Road from the AWPR into the city centre

J.1.19 While the figure highlights extensive traffic redistribution it should be recognised that **at this stage the ART network has not been modelled with any allowance made through mitigation to manage this rerouting**, and its potential negative impacts - including those in relation to the environment such as increased noise, vibration and tail pipe pollution on less strategic routes and within residential areas. The impacts shown are therefore an estimate of the impacts on the network if no further measures were implemented to manage the impact. In this regard it represents an unlikely outcome but is nonetheless helpful in understanding what the potential impacts requiring mitigation are likely to be.

J.1.20 It is crucial that further work is undertaken as the ART scheme develops to mitigate against the impacts of traffic redistribution across a wider area due to delay on the ART corridors. Additional measures to prevent this may provide further scheme benefit

through creating additional delay on the road network and encouraging greater modal shift to public transport. **Generating adverse impacts to general traffic should not be viewed wholly as negative in the context of the study (and Scottish Government policy) objectives, as this will encourage modal shift and support the Government's 20% vehicle kilometre reduction target.**

Key Point: Enabling bus priority through significant road space reallocation has the potential to reduce traffic volumes across the ART network and significantly enhance the sense of 'place' on the key routes into the city, and within the city centre. However, without any mitigation to prevent it, there may be additional delay and traffic re-routing onto less appropriate local roads with the subsequent negative environmental impacts cause significant disbenefits to general traffic. While generating adverse impacts to general traffic should not be viewed wholly as negative in the context of the study (and Scottish Government policy) objectives, it is crucial that mitigation is developed as the ART scheme progresses to minimise / remove such adverse impacts.

IND5: Total motorised vehicle kilometres travelled and IND6: Greenhouse Gas Emissions

J.1.21 Greenhouse gas emissions (as reported through the analysis of the ASAM19 modelling outputs in the Department for Transport's (DfT's) Transport Users Benefit Appraisal (TUBA) software), have been considered to estimate the carbon impacts of the modelled options and are presented in the table below. The monetised benefits (over the 60-year scheme appraisal period) are set out in the table below. Also shown is the 12hr daily change in vehicle kilometres under each option.

J.1.22 ART has the potential to impact on vehicle kilometres across the Aberdeen road network. The extent of the impact will depend on the balance of modal shift from car to public transport and the additional car-km caused by traffic re-routing in response to the reduction in road space. The modelling results to date suggest

that the impact of mode shift is generally outweighing that of re-routeing. **If traffic redistribution impacts are further mitigated against, this will likely encourage further modal shift to public transport and support an increased reduction in vehicle kilometres.**

Table J.5: Greenhouse Gas Benefits (for future year 2045, as estimated through TUBA)

Scenario	Option	12 hour daily change in road vehicle km from Reference Case (2045, 0700-1900)		Greenhouse Gas Benefits (millions) (monetised and discounted over the 60-year appraisal period)
		Total change	% change	
With Policy	2	-22,300	-0.1%	£1.2
	5A	-41,600	-0.3%	£0.6
	5	-51,400	-0.3%	£1.6
	5P (Sensitivity)	-76,400	-0.5%	£5.1
Without policy	5	-59,700	-0.3%	£1.6

J.1.23 The results show that:

- In all options, vehicle kilometres reduce, with the greatest reduction in the options generating the greatest modal shift (i.e. Options 5 and 5A)
- Under **Option 2**: the modal shift achieved *does not* outweigh the additional greenhouse gas 'cost' of the reducing road space for general traffic and subsequent traffic re-routeing, with the result that traffic greenhouse gas emissions are

expected to increase overall (✗). It is anticipated that a similar result would occur under **Option 3**.

- Under **Options 5 and 5A**: the benefits of modal shift *do* outweigh the greenhouse gas 'cost' of the reducing road space for general traffic (which causes traffic rerouting and associated increased carbon emissions) (✓). A similar outcome is anticipated under **Option 4**.
- Given the greater modal shift anticipated under **Option 3A**, it is assumed that greenhouse gas benefits will be better than in Option 2, and lie somewhere between that of Option 2 and Option 5A (-)
- *The most positive greenhouse gas benefit is highlighted for the 5P sensitivity, again evidencing the additional benefits of ART that could be derived if further supporting traffic restraint measures were implemented in tandem with the ART scheme or incorporated as part of the ART scheme.*

J.1.24 The CO₂ figures derived in TUBA do not include emissions from buses. The options which involve the immediate purchase of new zero-emission ART vehicles (as in Option 4 and 5) may bring forward carbon reductions compared to other options where the transition to zero emission buses is more evolutionary.

IND7: % of bus users either satisfied or very satisfied with travel by bus into and across Aberdeen,

J.1.25 Poor public perceptions of bus travel persist as set out in PR1 in Section 2.3. The analysis highlighted (across both Aberdeen and Aberdeenshire) that bus reliability (turning up on time), quality of bus stops / shelters, and the range of destinations served without requiring interchange, were the three factors that people were most dissatisfied with. Facilities at Park & Ride sites was noted as the top factor existing Aberdeenshire bus residents were most dissatisfied with.

J.1.26 All options would generate change in the perception of public transport:

- **Existing bus users** would benefit from the improved infrastructure providing better waiting, and boarding and alighting environments, enabling faster journey times and improved service reliability, although the degree of change would vary based on the option.
- Those **switching to ART** will do so in part due to an improved perception of quality (Option 3A, Options 4, 5 and 5A particularly given the new halt infrastructure and in Options 4, 5 and 5A given the new vehicles), and potentially also as a result of the new Mobility Hub facilities at Portlethen, Westhill and Blackdog which should facilitate access to public transport.
- Some **non-bus users** may deem the reallocation of road space to provide bus priority as a negative impact if their journey time by car is increased consequently, and they cannot / do not want to travel by bus, while some may welcome the improvements and 'step change' in provision, particularly given the climate emergency, even though they are unable to use the services.

J.1.27 WebTAG Table M.3.2.1 defines characteristics of a quality bus service as being: audio announcements on buses; CCTV at bus stops; CCTV on buses; climate control on buses; new bus shelters; new bus with low floor; new interchange facilities; on-board screen displays; real time information; simplified ticketing and trained drivers

J.1.28 An exercise has been undertaken to identify whether each of the identified options can satisfy these criteria and is summarised in the table below.

Aberdeen Rapid Transit – Strategic Business Case

Table J:6: IND7 - Quality Appraisal

Factor	Option								Comment
	BAU	1 (Do Min)	2	3	3A	4	5	5A	
Audio announcements on buses	✓	✓	✓	✓	✓	✓	✓	✓	It is assumed that next generation vehicles will all provide this functionality
CCTV at stops					✓	✓	✓	✓	Stop specific CCTV is not presently provided.
CCTV on buses	✓	✓	✓	✓	✓	✓	✓	✓	CCTV is provided on the majority of buses operating in Aberdeen in 2023.
Climate control on buses						✓	✓		Heating is available on most buses in Aberdeen. Air-conditioning equipment is fitted on most Stagecoach vehicles but a minority of First services. It is understood that in some cases, air conditioning equipment is fitted but is not used, due to impacts on fuel efficiency.
New bus shelters		✓	✓	✓	✓✓	✓✓	✓✓	✓✓	Modern bus shelters are present on Union Street, but there are few modern shelters beyond the city centre.
New bus with low floor	✓	✓	✓	✓	✓	✓✓	✓✓	✓	All buses operating in Aberdeen are 'low-floor' and DDA compliant, but it should be noted that new tram-style buses proposed under Option 5 will provide a level floor across the full-length of the vehicle, a wider corridor than standard buses and both doors will be equipped with wheelchair ramps.
New interchange facilities		✓	✓	✓	✓✓	✓✓	✓✓	✓✓	At present, interchange facilities in Aberdeen are of varying quality. Aberdeen bus station is modern and attached to a shopping centre providing high quality facilities. Existing Park and Ride sites around Aberdeen require modernisation. New Mobility hubs are proposed at Portlethen, Westhill, and Blackdog. Under Options 3A, 4, 5, and 5A, a new ART interchange will be provided on Union Street (east end) adjacent to existing shops, restaurants and coffee shops.
On-board screen displays	✓	✓	✓	✓	✓	✓	✓	✓	It is assumed that all buses will have this functionality by 2030.
Real time information at stops	✓	✓	✓	✓	✓	✓	✓	✓	Real-time information is available at stops in the city centre but is not present at the majority of stops outside this area. Under all options, stops across ART corridors will be updated to provide real-time information screens.

Aberdeen Rapid Transit – Strategic Business Case

Factor	Option								Comment
	BAU	1 (Do Min)	2	3	3A	4	5	5A	
Simplified ticketing	✓	✓	✓	✓	✓✓	✓✓	✓✓	✓✓	Tap-On Tap-Off / Tap and Cap contactless ticketing is available on most buses which currently operate in Aberdeen.
Additional training for drivers						✓	✓	✓	All bus drivers in Aberdeen receive training, but drivers of new ART services under Options 5A and 5A would be given enhanced training.
Change vs BAU	-	+1	+2	+2	+4	+6	+6	+5	

Park and Ride Usage

- J.1.29 The factors above include ‘**new interchange facilities**’. Recognising that existing P&R sites would be upgraded and reconfigured (to ensure both ease of car and bus access), and a new Mobility Hub provided north of Portlethen (and potentially elsewhere to facilitate interchange (such as at Westhill and Blackdog (see the Routeing Analysis appraisal later in this chapter), consideration has been given to P&R use in the modelled options.
- J.1.30 The ART network assumed for modelling purposes includes the three existing P&R sites at Bridge of Don, Craibstone and Kingswells, and a new Mobility Hub north of Portlethen, with the aim of increasing the use of the existing underutilised assets and promoting ART for use by those travelling into Aberdeen from Aberdeenshire and further afield.
- J.1.31 Assessing use of the sites under the options provides an understanding of the potential modal shift that may occur, specifically from the Aberdeenshire area, and highlights the benefits that ART could deliver for the wider region.
- J.1.32 P&R site occupancies in the BAU and options (for the forecast year of 2045) have been analysed across all four sites. It should be noted that the results here stem from the model and are subject to the modelling sensitivities and assumptions around P&R use. As such, rather than focusing on the absolute figures, it is perhaps more reasonable to focus on the relative changes between the options.
- J.1.33 Under the ‘**with policy**’ scenario:
- Under the BAU scenario, P&R occupancy across all four sites is 8%
 - Under **Option 2**, occupancy rises to 10%
 - Under **Option 5**, occupancy rises to 31% and slightly higher to 32% under the **sensitivity test 5P**. Under **Option 5A** occupancy is 26%. The much higher use of P&R in the Option 5 variants reflects both the new ART cross city services and the faster journey times, as well as the higher attractiveness of travel using the new ‘tram-style’ vehicles.
- J.1.34 Under the ‘**without policy**’ scenario, P&R use would be expected to be greater than in the ‘**with policy**’ scenario, given the higher traffic levels and associated congestion. Indeed, the results show that under **Option 5**, P&R occupancy is at 34% (compared to 31% in the ‘with policy’ case).
- J.1.35 Across all options, Kingswells shows the greatest P&R occupancy, with Craibstone (perhaps influenced by the rail line alongside the corridor) the lowest. The planned P&R site north of Portlethen shows occupancy at close to 40% under Options 5 and 5A in the ‘**with policy**’ scenario and close to 50% in the ‘**without policy**’ case.
- J.1.36 Given the narrative and analysis presented above, it is envisaged that:
- **Option 1, 2, and 3** from a quality perspective, are likely to appear similar to the BAU, and as such are unlikely to significantly alter bus or non-bus user satisfaction in the bus network – albeit the introduction of bus priority will improve bus journey times and should have a significant impact on journey time reliability (✓)
 - **Option 3A** is anticipated to have a more significant impact on satisfaction, with new platforms and branded buses creating an increased perception of positive change and increased quality (✓✓)
 - **Option 4 and 5** are anticipated to have an even more significant impact on satisfaction, with new platforms and distinctive fully accessible vehicles offering a significant

quality increase across the ART network. In addition, the cross-city services operated will increase the range of destinations served without requiring interchange – one of the top three factors with which people are most dissatisfied (✓✓✓)

- **Option 5A** is anticipated to offer an increase in satisfaction lying between that anticipated for Option 3A and Option 5 (recognising the new cross-city routes, new platforms and bus branding – but without the introduction of distinctive vehicles) (✓✓)
- The existing trend of increasing car use and declining bus service vehicle kilometres and use across the region, means congestion is likely to keep increasing, and that satisfaction in the bus network is likely to decrease if the existing (BAU) position is maintained (✗)

Key Point: Anchoring the ART network to existing (rebranded) P&R sites and the new proposed mobility hubs would support greater use of the currently underutilised sites, with the provision of high frequency cross city services from the sites significantly encouraging greater use.

IND8: % of bus users either satisfied or very satisfied with travel by bus safety and security

Personal Injury Collisions

- J.1.37 A switch to bus travel from car would reduce traffic on and around the ART network and within the city centre.
- J.1.38 Modal shift from car to public transport should support a reduction in both casualties and accidents, on and around the ART network

and within the city. The associated number of road accidents and injuries will depend on the extent of the modal shift achieved.

- J.1.39 Travel by bus is safer than travel by car, bicycle and indeed as a pedestrian. In the UK in 2019, there were 128 passenger casualties per billion passenger kilometres driven by car, compared with 95 passenger casualties per billion passenger kilometres when travelling by bus (i.e., bus casualty rate is 26% lower)¹⁵⁹.
- J.1.40 Any reduction in accidents will provide savings to the public purse from the reduced social-economic cost including:
- Loss of output due to injury
 - Human cost of casualties
 - Damage to vehicle and property
 - Police and insurance administration cost
- J.1.41 For this reason, options which can generate greatest modal shift (e.g., Options 5) will generate greater road safety benefits.
- J.1.42 There is however the potential for an increase in casualties where traffic re-routes onto less suitable routes – if this not mitigated against.
- J.1.43 No quantitative assessment has been made at this stage, but this may be required at a later stage as mitigation strategies are developed for roads affected by traffic re-routing.

¹⁵⁹ RAS0203: Transport Casualty Rates by Mode, Transport Statistics Great Britain 2021, Department for Transport

Security

J.1.44 ART stops will be upgraded under all Options, although the extent of improvement will vary by option: Under Options 2 and 3, existing bus stops will be enhanced to provide better lighting, improved shelters which offer good natural surveillance and Real Time Information screens to confirm how long users should expect to wait for their service. Under Options 3A, 4, 5, and 5A, new state-of-the-art ART 'platforms' will be provided which will additionally provide CCTV, and 'help points' to allow users to request assistance if they feel concerned. This would offer improved security over the current situation which includes stops that are poorly lit (often only relying on street lighting levels), positioned in secluded locations and/ or where visibility to and from the stop is obscured by street furniture, parked cars or highway structures. Under the Birmingham Sprint scheme significant benefits to personal security were accrued through the introduction of improved bus stop facilities including improved lighting and CCTV cameras within stop shelters.

J.1.45 Under Options 4 and 5, new distinctive tram-style vehicles will additionally be single level and incorporate substantial amounts of glass, making passengers more visible. The key points from the analysis presented above are:

- **BAU:** No change to current network or services and therefore no change to current perceptions around quality across the bus network (as set out and evidenced as a problem (PR1) in Chapter 2). (✗)
- Under **Option 1** (Do Min - Existing commercial services using enhanced infrastructure): While the new bus priority infrastructure will support improved journey times and service reliability, perceptions of public transport less likely to be as greatly impacted as other options as the option continues with existing services which may look like 'business as usual'. A

'business as usual' perception is unlikely to encourage new users to the bus network. (✓)

- Under **Option 2** (Enhanced existing commercial services using enhanced infrastructure): Similar to Option 1 but the increased number of services across the ART network will help reduce negative perceptions around insufficient bus service frequencies (as set out and evidence as a problem (PR2) in Chapter 2). (✓)
- Under **Option 3** (Enhanced existing commercial services and revised / integrated existing services using enhanced infrastructure): Similar to Option 1 but the increased number of services across the ART network will help reduce negative perceptions around insufficient bus service frequencies (as set out and evidence as a problem (PR2) in Chapter 2). (✓)
- Under **Option 3A** (As per Option 3 but with ART vehicle branding and new ART 'halts' with approximately 800m spacing): Similar to Option 3 but note however that the option includes ART branding of specific existing services (those which are enhanced) and new ART 'platforms' across the ART network. This branding combined with new platforms is likely to increase the perception of quality across the ART network. Vehicle branding was also considered a factor in the success of the Bristol MetroBus scheme (✓✓)
- Under **Option 4** (New ART services and vehicles in addition to existing services, sharing enhanced infrastructure): Likely to increase perceptions of the quality of bus travel through the operation of uniquely branded 'tram style' vehicles and new ART platforms generating 'brand' awareness and providing a very visually different offering to existing services. (Officers involved in the development of the Bristol metrobus scheme stated that had the original Streetcar ('tram on wheels') type

vehicle been adopted, publicity around the scheme would have been much more successful.) (✓✓✓)

- Under **Option 5** (New ART services and vehicles with revised / integrated existing services): Similar to Option 4 (✓✓✓)
- Under **Option 5A**: As the option uses 'conventional' but ART branded vehicles, and also new ART 'platforms' across the ART network. This branding combined with new platforms is likely to increase the perception of quality across the ART network. As noted for Option 3A, vehicle branding was also considered a factor in the success of the Bristol MetroBus scheme (✓✓).

Appendix K Delivery Pathways - Discussions with other local authorities

K.1 Birmingham Sprint (delivered through Enhanced Partnership)

K.1.1 A meeting with officers from Transport for West Midlands (TfWM) involved in the delivery of the Birmingham Sprint scheme was held on 3 March 2022. Details on the Sprint scheme itself can be found in the *Aberdeen Rapid Transit - Options Appraisal - Case for Change report* (Stantec, May 2022).

K.1.2 Key points noted from the meeting include:

- **Early setting of the standards** for Sprint was essential and these standards were agreed upfront. This helped to communicate the objectives of the scheme clearly from the outset.
- **Early communication with leaders and politicians** was essential, in order to gain political buy-in from the very start. The mayor in particular was a real advocate for the scheme. This early communication made it clear what the benefits of Sprint were to the region and how the scheme aligned with the wider transport network for the West Midlands. It was important not to promote the scheme in a vacuum and communicate the link to wider strategies. In this regard, the narrative was developed and then advocacy sought. The Sprint scheme has 'hooks' into HS2, the Commonwealth Games and the wider tram (metro) system in Birmingham.
- **Political Change presented challenges.** Elections every 3 out of 4 years created a level of uncertainty. However, more recently, the 'all out' election system¹⁶⁰ in Birmingham has made it easier to deliver schemes within a now four-year period.
- **There are key benefits in implementing a bus-based scheme.** In deciding between a bus-based scheme and other potential mass transit modes, it was noted that bus-based BRT schemes are around a fifth of the cost of a tram / light rail alternative, and can be delivered in around a third of the time. While guided busway was considered, the implementation of the system would require a Transport & Works Act and the challenges for parallel running services unable to utilise the busway were seen as a disincentive for a busway approach. Additionally, the timescales for scheme implementation and the franchising agreements that would be required could not be accommodated within the scheme delivery window, with the scheme needed prior to the 2022 Commonwealth Games.
- **Network choice** was influenced by corridors with a strong existing bus market. Other corridors were considered through analysis of population density. Initially 26 corridors were considered as part of a provisional Sprint network. On these corridors, the commerciality of the service was considered (assuming services every 10 minutes). A 20% improvement in bus journey times, and a bus journey time comparable to the car was sought. The level of roadspace reallocation required to achieve this was investigated and the appetite for such changes discussed with the relevant local authority. The 20% journey time reduction desired was not achievable on every corridor. Some business cases for certain corridors were developed but could not build traction. Eventually, six routes were progressed. The network was included in the Local Transport Plan (including roadspace reallocation).

¹⁶⁰ A local election where all council seats are up for election at the same time

- **Corridor Feasibility** was established (for the six corridors) through bus service AVL data analysis with stop-to-stop journey time standard deviation used as the metric on which to measure service reliability.
- **Infrastructure.** An optioneering process identified measures that could be implemented at the worst performing locations (note that due to cost, a centralised public transport 'core' was not considered). From this, a highway package for each corridor was developed to suit all bus services operating along the corridor. Land acquisition was avoided where possible and Phase 1 of the scheme requires no land acquisition (Phase 2 requires three land parcels). At present, two Sprint routes are operational but are quite different in nature. The A34 route goes through residential areas where there was already significant dual carriageway in place - some road widening was still required. The other route, on the A45, required different infrastructure including a large section of road widening with a railway line and industrial premises nearby to be taken into account.
- **Scheme costs** averaged across both implemented Sprint corridors to date is around £4-£5 million per km. The construction cost was approximately 50% of this total cost. The scheme costs were very much driven by the infrastructure costs. However, the cost of accommodating / moving utilities was by far the greatest cost. In addition, street lighting was required to be moved. In general, a 'tram approach' to utilities was adopted (i.e., utilities were moved) to build reliability into the scheme. In particular, it was noted that the shelters adopted for the scheme were 9-9.5m long with narrow sides and a cantilever design with no front support. This increased the risk of having to relocate utilities as the cantilever design required deep footings.
- **Bus Stop Spacing** was a key topic during design. The original Sprint scheme took out more than 50% of the existing stops. This was subsequently changed but there is still an overall reduction in bus stops along the routes.
- **Parking removal was very unpopular.** In one community, every house had 'No to Sprint' signs in the windows. Due to this public pressure, the design of the scheme along the corridor in question was changed and compromised as the designs progressed. However, the removal of parking was not unpopular everywhere. Some communities never engaged at all, even though parking was being removed. One key issue noted by communities was the issue of 'fly parking' i.e., people parking on side roads to catch the Sprint bus.
- **Improving journey time reliability was considered very important.** Indeed, due to the journey time savings now achieved, some services are now cross city services (and are operated by a single vehicle) reducing interchange and also importantly reducing the number of bus vehicles in the city centre – a key selling point with politicians.
- **Multi-door vehicles** were considered essential to reduce bus stop dwell times
- **Off-board ticketing** is also considered a key factor in speeding up boarding times and is seen as an important differentiator between Sprint and local bus services. There is no interaction with the driver with 'reduced driver interaction' set out in the Sprint Standards.
- **Safety Benefits** of the scheme were increased through the bus shelters adopted (despite the increased cost of the utilities works required to accommodate this as noted above). This was due to the safety benefits accrued through the much improved lighting and CCTV cameras within the shelters.
- **Delivery Options** considered included:
 - Operation within current deregulated framework
 - Fully commercial models

- Supported service models
- Combined authority buying vehicles and leasing
- **Market Sounding Exercise** was undertaken to discuss the potential delivery options with potential operators. Concerns from the market were raised on cost, risk and competition. It was noted that in the West Midlands, National Express is dominant, operating around 75% of all mileage in the region but with around 90% of passenger revenue. It was also noted that First and Stagecoach, the current dominant operators across Aberdeen and Aberdeenshire respectively, were part of the market sounding exercise.
- **Franchising** was noted as the ‘cleanest’ option in terms of enabling the network to be delivered with the Sprint standards as defined and with the ‘look and feel’ of the network being set by TfWM. However, delivery through a franchise was noted as being a political decision.
- **Final Delivery** of the scheme was through an enhanced partnership plan with defined minimum vehicle standards. Originally it was hoped an agreement could be entered into before scheme delivery, but this was not possible due to timescales and challenges around coordinating the start of the enhanced partnership with funding. This was noted as a definite risk. In terms of the vehicles, a bid to the Government for grant funding under the Zero Emission Bus Regional Areas (ZEBRA) fund for 224 hydrogen vehicles (200 double deckers and 24 artics) is in progress.
- **Supporting Measures** were noted as key to the scheme success, particularly in terms of the segmentation that has been developed within the city. This means that driving through the centre of Birmingham is no longer possible and has led to reduced car use within the centre. This was felt to be the greatest benefit to the Sprint scheme and it was really important to address city centre measures to support the implementation of Sprint. Indeed the cross city Sprint routes were then able to offer shorter journey times than the car. It was also noted that the city centre segmentation was relatively ‘cheap’ and easy to deliver through the use of planters, signage and white lines, as opposed to through junction redesign.

K.2 Bristol Metrobus (delivered through Quality Partnership)

K.2.1 A meeting with officers from West of England Combined Authority (WECA), involved in the delivery of the Bristol metrobus scheme, was held on 16 May 2022. Details on the metrobus scheme itself can be found in the *Aberdeen Rapid Transit - Options Appraisal - Case for Change report* (Stantec, May 2022).

K.2.2 Key points noted from the meeting include:

- **Scheme objectives were set out early** with a clear objective to **maximise segregation from general traffic**
- **Political, Stakeholder and Public Opinion** could often be initially negative. The Business Cases which were originally developed in 2010 were de-scoped after the coalition government came in and the political direction changed. It was difficult to get a political champion and there was no-one to really push the scheme forward, although latterly the Chair of the Joint Transport Executive Committee did become involved. Businesses, and especially the larger ones, were supportive of the scheme including the University of the West of England and the Bristol & Bath Science Park. The public consultation in 2008 / 2009 into the Ashton Vale to Temple Meads scheme saw around two-thirds respond positively to the proposals. However, this scheme in particular subsequently attracted very strong opposition from a core minority which came out to oppose the scheme and wanted rail investment instead. While this was not reflective of

the wider public, it easily swayed politicians and was part of the reason the Ashton to Temple Meads scheme was de-scoped and re-routed.

- **High Specification for design, marketing and branding** was adopted and is considered successful
- **Infrastructure.** Around 25% of the metrobus network is segregated and the infrastructure includes a bus only junction onto the motorway and a bus only lane on the motorway. One route also includes kerb-guided busway. Similar guided busway was proposed elsewhere but was scoped out. The challenges around the bus only lane on the motorway were significant, requiring a speed restriction on the motorway and needed ministerial approval. Additionally, significant objections from impacted allotment holders necessitated unforeseen scheme costs as well as the requirement to provide a new amenity building. In terms of the reallocation of road space, relatively few controversial decisions were made, and highway widening was undertaken where needed. On-street parking was not generally taken away outside of any shops. Very few Compulsory Purchase Order along the routes were required and where needed these were negotiated rather than dealt with through public inquiry. Infrastructure works during construction caused disruption in the city centre. It was noted that there was an ongoing issue with reliability on one of the lines and buses are getting badly impacted by general traffic congestion. The HOV lane that could provide benefit was often not enforced. It was noted however, that on one route some bus journey times into the city centre have halved (40 minutes down to 20 minutes).
- **Platforms** are long with high shelter standards. Each has a 'iPoint' which allow passengers to buy tickets, plan journeys and view live running information for onward services. Platforms are spaced approximately 800m apart, double normal stop spacing. It was noted that no significant concerns were raised around accessibility issues due to this. There is cycle parking at all stops, with the number of cycle park spaces available dependent on the stop location. Originally only metrobus services were allowed to stop at the metrobus stops, but this has changed recently to allow local services to stop also and is ensuring improved interchange between local services and the metrobus network.
- **Vehicles** were initially considered with a Streetcar design (a 'tram on wheels' similar to the Glider in Belfast). Potential operators were less keen on articulated vehicles, and they had been withdrawn in London. It was noted that 'bendy' buses use more fuel and have higher operating costs. However, **it was felt that publicity around the scheme would have been much more straightforward had the Streetcars been adopted.** The chair of the Joint Committee was concerned that Streetcars were overall perceived negatively and eventually the schemes have adopted double decker buses which are biomethane powered through a deal with the Gas Bus alliance. The WECA considered buying the vehicles with the intention to then lease to operators, but this was not possible. **Twin door vehicles were considered very important** in aiding in speeding up boarding times. It was noted that **vehicle branding has been a real success.** Driver shortages have been an issue and it was decided it was better to have reliable services than over promise on frequencies.
- **Ticketing is all off-board** and cashless and no tickets are available to purchase from the driver. Consideration of equity (for example for children and someone without a bank account) means tickets can be purchased in some local shops.
- **Delivery** is through a Quality Partnership Scheme supported by a voluntary partnership agreement with maximum fares and minimum frequencies stipulated. First had challenges with the initial vehicle depot capacity and sub-contracted to Bristol Community Transport for some services. It was noted that it took a long time to work through all the contractual processes which meant the scheme opened later than planned and this caused some political pressure.

- **Scheme Costs** were costed at £197m, of which the Department for Transport paid £113m. The final scheme came in at £230m. Using too many contractors for the construction work was considered to be a key reason for the scheme coming in over budget. It was also felt that the guided busway design may have reduced interest for the contractors.
- **Patronage** varies by route. The Year 1 report showed passenger numbers overall are in line with expectations with some lines over-performing and some under-performing. The Ashton to Temple Meads route has not performed as well as hoped in terms of passenger loadings. Route changes from those originally envisaged, with the route diverted as it approached the city centre increased passenger journey time and are felt to have reduced the attractiveness of the service. However, the Emersons Green route has been very successful with substantial modal shift to public transport. First initially went with a loss leader to build passenger volumes with an existing core patronage from the University of the West of England having both the University buildings and Halls of Residences along the route.
- **Revenue Support** for the scheme was considered to break-even.
- **Impacts on the existing bus network** was a key area of concern. There have been adjustments to the existing network bus frequencies but generally more minor adjustments were made. It was noted there have been no instances of services which have been completely withdrawn as a result of metrobus implementation. Transport modelling forecasts estimated that around 75% of the metrobus patronage would come from the existing local bus network although this included like-for-like service replacement such as the Long Ashton P&R service.
- **Impact on general traffic** is considered to be limited, although it was recognised that policy in this regard has moved forward since the scheme was developed.
- **Supporting Measures.** Parking policy in the city centre is felt to have supported the success of the scheme and had a significant impact on supporting patronage growth. Long stay parking is expensive and short stay parking cheaper, and this is reflected in the boarding profile on the metrobus scheme. Part of the scheme included major public realm improvement works around the cenotaph in the city centre which included landscaping, new trees and increased public space. However, it was felt that the link between the metrobus scheme and these improvements was not understood by the public and as such was not recognised as a direct benefit of the scheme.

K.3 Portsmouth City Council (delivery through Enhanced Partnership)

- K.3.1 A meeting with officers from Portsmouth City Council (PCC) involved in the delivery of the Portsmouth BSIP was held on 7th November 2024.
- K.3.2 The Portsmouth BSIP¹⁶¹ is Portsmouth's visionary delivery scheme aligned with the government's National Bus Strategy and aims to dramatically improve bus services in Portsmouth and to encourage passengers back to the bus. The This programme is managed by an enhanced partnership between local bus companies [Stagecoach South](#), [First Solent](#) and PCC.
- K.3.3 The BSIP is being implemented through a £48.3m grant from the Department for Transport (DfT), awarded in April 2022 for delivery between 2022 and 2026. Of this, £13m is being spent on revenue projects including ticketing initiatives. The remaining £35.3 million is being spent on capital improvements increasing bus priority to the city, which includes adding bus lanes, making bus stops more accessible amongst other initiatives.

¹⁶¹ [BSIP - Travel Portsmouth](#)

K.3.4 The BSIP aims to:

- Improve bus journey times
- Increase passenger numbers
- Increase journey time reliability
- Increase passenger satisfaction

K.3.5 To date, the BSIP has already funded early morning travel, and later night services, tap on tap off technology, fare free weekends to encourage residents to try the bus, Christmas Day bus services and many other initiatives. Of particular note, Portsmouth hit a major milestone in 2024, with over 1 million bus journeys being taken each month, a 22.3% increase in bus usage compared to 2023.¹⁶²

K.3.6 Key points noted from the meeting include:

- Portsmouth is an ‘island city’ with several main corridors linking to the mainland. It is the most densely populated place in the UK outside of London
- In terms of bus patronage, the city has seen the greatest recovering to pre-COVID use across all cities in England, and has the highest user satisfaction across England, at 85%
- The need to invest in bus improvements was pushed for through the Local Transport Strategy 4¹⁶³, which then provided a strong building block to work from. It provided a ‘shovel ready’ plan for when funding was available
- The BSIP and the Enhanced Partnership were co-developed
- The capital programme of improvements included bus lanes, bus gates, stop and shelter upgrades and implementation of real time information at stops (now with 90% RTI coverage). Overall, a very data driven approach was taken to identify key locations for intervention
- Bus lane enforcement has been essential, with cameras and civil enforcement
- There has been success with early and late running services. These were initially funded, but some of these have now turned commercial, In addition, ‘free fares’ weekends have seen around a 10% retention rate.
- There has been an introduction of tap on, tap off, and multi-operator ticketing
- The BSIP is backed up by a Passenger Charter
- Ongoing PCC resources have been involved in engagement, with a Communications and PR lead, and an additional engagement officer. These communication resources were embedded into the BSIP team and were considered essential to the success of the BSIP. In terms of engagement, ensuring the ‘voice of the bus user’ was heard was central.
- The need to create confidence for the commercial operators to then invest was highlighted as essential, and a ‘one team’ approach which included the operators as part of the decision making process was noted as one of the reasons for the BSIPs success. There were joint bids for zero emission buses and agreements, through a strong working partnership as opposed to through any statutory process, that is the public implemented

¹⁶² [Portsmouth sees over 1 million monthly bus passengers as bus usage surges by 22.3% - Travel Portsmouth](#)

¹⁶³ [Local Transport Plan 4 \(LTP4\) - Portsmouth City Council](#)

measures to reduce journey times, the operators would commit to service improvements. Commitments were made with regards to ticketing, technology, and service levels

- The main challenge has been the limited period of the funding and challenges around delivery the full Plan
- The need for strong political support, as well as positive media support was also noted

K.4 Liverpool Combined Authority (Progressing through Bus Reform – to an area franchised position)

K.4.1 A meeting with officers from Liverpool City Region Combined Authority (LCA) involved in Bus Reform was held on 4th October 2024.

Background

K.4.2 The LCA took a decision in September 2018 to publish the required statutory notices and commence a detailed evaluation of the options available under the Bus Services Act 2017 to reform bus services within the Liverpool City Region.

K.4.3 Two options were considered:

- Franchising
- Enhanced Partnership (EP)

K.4.4 The LCA commenced an assessment of the options in 2018. This included conducting a market engagement exercise in 2021 to provide current and prospective operators with information about the LCA's commercial proposition for bus franchising and to seek input from interested parties to inform the LCRCA's understanding of the capabilities of the market.

K.4.5 The Assessment was completed by the LCA in March 2022 where Franchising emerged as the preferred future model of bus governance for the Liverpool City Region. It was considered that franchising could deliver the vision for the bus transport network. Doing nothing wasn't an option as the expenditure for supporting bus services was growing.

K.4.6 In 2023 a major public consultation¹⁶⁴, under a 'Moving Buses Forward' campaign, was held on the future of bus services in the Liverpool City Region, with people being asked to have their say on how the network should be run. The focus was on franchising and it's benefits, rather than on the EP.

K.4.7 Engagement events were held in community centres, shopping malls etc. and over 6000 responses were received. Almost 70% of those respondents supported the introduction of franchising and saying they believed it would have a positive impact on future bus network improvements. It is worth noting that the public were not really concerned with the details around franchising but were keener to know when improvement would come.

K.4.8 Extensive engagement was undertaken with Chief Officers within the Council to ensure the financial risks were fully understood. There were further sub-groups where there was an opportunity for debate and challenge throughout the process.

K.4.9 Significant work went into determining the real costs of franchising leading to a review of initial plans and a delivery timeline to 2027.

¹⁶⁴ [Liverpool City Region Bus Franchising Consultation](#)

- K.4.10 After careful deliberation and analysis of the results, in October 2023, the City Region Mayor took the landmark decision to take back control of bus services, reversing nearly 40 years of deregulation.
- K.4.11 To ensure a smooth transition, franchising will be introduced in phases starting in 2026. It is planned that the move to a fully franchised system across the whole of the Liverpool City Region will be complete by the end of 2028.
- K.4.12 Since October 2024 there has been:
- Further engagement on the first franchise area
 - Engagement with trade unions re. TUPE and general engagement on plans
 - Power grid upgrades to deliver electric vehicles
 - Work on a financial baseline model – the need to start this early was noted
 - Development of a Bus Priority Programme – although this is running separately to Franchising
- K.4.13 It was noted that the ownership of depots was seen as a way through franchising of securing an open market competition and ‘laying out a level playing field’. It also provides a way to invest in a net zero depot.
- K.4.14 Furthermore, in August 2024, a Glider bus on loan from Belfast was trailed in Liverpool to raise public awareness around the types of vehicles that could be deployed across the bus network and help the public understand road space needs and road space reallocation to get the bus journey times desired.

K.5 West Yorkshire Combined Authority (Progressing through Bus Reform – to an area franchised position)

- K.5.1 A meeting with officers from West Yorkshire Combined Authority (WYCA) involved in Bus Reform was held on 17th September 2024.
- K.5.2 The West Yorkshire Bus BSIP sets out the Combined Authority’s vision for buses in the region and the short, medium and long-term goals that aim to help reverse the shift away from public transport that was seen during the Covid-19 pandemic and encourage passengers back to bus. The BSIP was developed with bus operators in the region and local authorities, through the West Yorkshire Bus Alliance. Our vision for better buses is built on the ambitions of the [West Yorkshire Plan 2040](https://www.westyorks-ca.gov.uk/growing-the-economy/the-west-yorkshire-plan/)¹⁶⁵ and [The Mayor’s West Yorkshire Local Transport Plan](https://www.yourvoice.westyorks-ca.gov.uk/ltp)¹⁶⁶ (LTP).

Current Situation

- K.5.3 WYCA is currently in an Enhanced Partnership (EP) with bus operators (three main operators) and local authorities. This is delivered through the West Yorkshire Bus Alliance and works to improve the passenger experience for bus users in West Yorkshire.
- K.5.4 The EP includes an EP Plan which reflects the ambitions and content of the BSIP but focuses on the improvements that can be made in the shorter term, in the period up to 2027.

¹⁶⁵ <https://www.westyorks-ca.gov.uk/growing-the-economy/the-west-yorkshire-plan/>

¹⁶⁶ <https://www.yourvoice.westyorks-ca.gov.uk/ltp>

K.5.5 The EP includes two supporting EP Schemes, which commits the Bus Alliance and partners to deliver specific obligations:

- **Bus Infrastructure** – concentrated on bus priority and infrastructure schemes with benefits to bus
- **BSIP** – comprising fares reductions, new and enhanced bus services and measures to support bus priority infrastructure and safety

Bus Reform

K.5.6 The Mayor's Big Bus Chat¹⁶⁷ was initiated between July and September 2022. The aims of the engagement were to understand from local residents whether the proposals within the BSIP were favoured and in line with current attitudes towards bus services. In total, 3,590 people were engaged with over 15,000 visits to the engagement 'Your Voice' website, with five different interactive ways to share views, and with 14 public drop in events.

K.5.7 A Bus Reform Assessment was published in September 2023.¹⁶⁸ It set out a case for change for bus reform in West Yorkshire, considering two bus reform options against policy objectives of the Combined Authority, neighbouring authorities and national level initiatives. The two reform options, Franchising and Enhanced Partnership (EP+) were considered against the current Enhanced Partnership governance model.

K.5.8 The EP+ model as a governance mechanism was noted to, subject to operator agreement, provide:

- **Network:** route rationalisation and fleet redeployment through Qualifying Agreements, greater accountability for the Combined Authority through bus registration powers
- **Fares and ticketing:** further capping schemes allowing for further simplification of multi-operator ticketing
- **Customer service and information:** joint operator communications and marketing, including a unifying brand. Working with operators to establish a consistent information offer
- **Bus priority:** Aligning bus priority with EP+ schemes and Qualifying Agreements to reduce issues with reliability and punctuality.
- **Green and Better Vehicles:** specification of buses through allocated funding, partnership led gradual transition to zero emission fleet, specification of zero emission corridors through EP schemes.

K.5.9 The Franchising governance model was considered on a gross cost basis and considered:

- A West Yorkshire wide area
- All services included within the franchise (with permitting for cross-boundary services)
- Full fare box control and revenue risk on all contracts
- Staged investment in full asset ownership (bus depots and fleet)

¹⁶⁷ [The Mayor's Big Bus Chat | Your Voice](#)

¹⁶⁸ [Bus Reform | Your Voice](#)

- Mixed sized contract bundles to facilitate competition and participation of smaller-to-medium sized operators

K.5.10 The Franchising model as a governance mechanism was noted to provide:

- **Network:** ability to set routes and frequencies and enforceable performance regime for franchise contracts
- **Fares and ticketing:** ability to set fares and simplify customer offer through single retail channel
- **Customer service and information:** ability for single brand with single app and point of customer contact
- **Bus priority:** better alignment with planned bus priority through network powers
- **Green and Better Vehicles:** ability to set standards and specifications, Combined Authority led transition to zero emission fleet

K.5.11 The assessment concluded that both the EP+ and Franchising models could deliver greater benefits than the existing EP model. However, while there are clear benefits of working in partnership with operators through the EP+, interventions would depend on the agreement of operators. The assessment concluded that *the Proposed Franchising Scheme therefore demonstrates the greatest strategic benefits across the bus reform objectives related to network, fares and ticketing, and customer service and information. This brings greater opportunity to achieve the Combined Authority's wider objectives and ambitions for West Yorkshire, compared to the reference case Enhanced partnership and Enhanced Partnership Plus.*

K.5.12 A decision was made on the 14th of March 2024 by the Mayor of West Yorkshire to bring buses back under local control.

K.5.13 The proposed franchising scheme was published in March 2024, with work underway to start procuring the first contracts in October 2025, with the first franchised buses on the road from March 2027.

K.5.14 It is estimated that there will be an initial cost of £20m to set up franchising.¹⁶⁹ An estimated £85m-£100m on depot costs.

¹⁶⁹ [West Yorkshire Combined Authority](#)