



Aberdeen Rapid Transit Options Appraisal

Executive Summary

DRAFT

On behalf of: Nestrans and the North East Bus Alliance

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Summary Report

Background

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

As part of its response to the climate emergency, the Scottish Government committed to a long-term investment of over £500m to deliver bus priority measures on local authority and trunk roads. This is intended to **reduce the negative impacts of congestion on bus services** and **address the decline in bus patronage to help tackle the climate emergency and reduce private car use**. The investment takes the form of the Bus Partnership Fund (BPF) which supports the design, appraisal, approval and delivery of infrastructure. The Fund focuses on the evidence of how bus services will be improved by addressing congestion, but the partnership approach is also expected to leverage other bus service improvements.

The North-East Bus Alliance partners (Aberdeen City Council, Aberdeenshire Council, FirstGroup, Stagecoach Bluebird, Bains and Nestrans) submitted an application to the BPF, which was successful, with £12m in funding awarded in June 2021. The funding is being used across a range of projects including the appraisal of significant bus priority in the city centre and on key routes into the city, and for an appraisal of the options for an Aberdeen Rapid Transit (ART) scheme (this study).

This work is being undertaken in the context of a vision to develop an ART network, detailed in the Regional Transport Strategy (RTS) and associated Nestrans ART vision document¹. This study includes confirmation of the Case for Change (CfC), Preliminary Options Appraisal, Detailed Options Appraisal, and subsequent business case development (subject to gateway reviews with the members of the North East Bus Alliance and Transport Scotland).

The CfC for ART was reported in March 2022 (*Aberdeen Rapid Transit - Options Appraisal - Case for Change, Stantec, March 2022*) and presented the problems and opportunities identified, the rationale for the development of ART, and the associated Transport Planning Objectives (TPOs). It also defined a set of 'success factors' for ART and presented a review of planned, under construction, and operational Bus Rapid Transit (BRT) schemes across the UK and Europe. The Preliminary Options Appraisal for ART was reported in June 2022 (*Aberdeen Rapid Transit - Option Generation and Development / Preliminary Options Appraisal, Stantec, June 2022*) and detailed the option development process and the mainly qualitative appraisal of these options. This Executive Summary outlines the Detailed Options Appraisal and discusses the further development of the options progressing from the Preliminary Options Appraisal stage, and the key outcomes from the more detailed (and where possible quantitative) appraisal of the options.

It is important to note at the outset that almost all bus services in Aberdeen are provided on a commercial basis, unlike for example the situation in Belfast with the Glider operation. The introduction of ART would require increased partnership working with the bus operators or an alternative delivery model. The work to date therefore does not seek to establish the exact ART network i.e., where services would operate or how frequent services would be. Rather the study has explored the potential forms which ART could take, and through this investigated the potential delivery mechanisms for the scheme, considering the benefits and implications of these. This has included examination of the range of risks and uncertainties inherent in different delivery approaches, the impacts on the existing commercial bus network and the potential financial risks to the public purse.

¹ <https://www.nestrans.org.uk/wp-content/uploads/2021/06/Aberdeen-Rapid-Transit-Our-Vision.pdf>

Case for Change

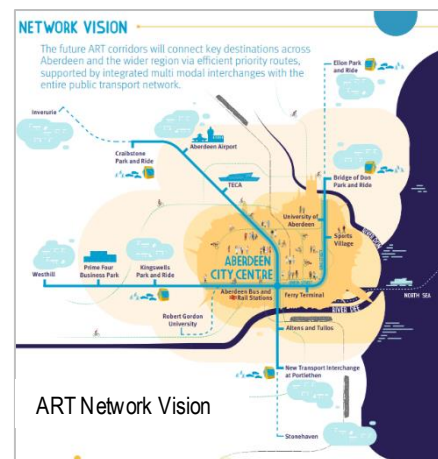
The Case for Change reflected the new transport network and travel patterns post completion of the Aberdeen Western Peripheral Route (AWPR), the establishment of the new road hierarchy in the north-east, and the City Centre Masterplan. A number of key problems were identified with the bus network and operations, as well as ongoing upward trends in car use and a decline in bus patronage (exacerbated by the COVID-19 pandemic). It was established that despite investments made by the bus industry over the last decade there has still been a considerable decline in bus patronage. Continuing with the status quo is clearly not going to provide the step-change required to reverse this decline and enable more trips by bus, which will support the industry in playing its part in the Scottish Government's 2030 car kilometres reduction target.

Reflecting the re-focussed national policy position, a much greater step-change public transport 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 development of the City and Region.

The ART Vision

The ART ambition is to develop a **high quality, high frequency mass transit network across the city on key corridors and linking key destinations, anchored by Park & Ride (P&R) facilities on each corridor**. ART already has national recognition in Transport Scotland's *Strategic Transport Projects Review 2* (STPR2) and in the revised Draft National Planning Framework 4 (published in November 2022).

Complementary work is also underway through a series of multi-modal studies considering options for improving transport connections and infrastructure on the key arterial corridors into Aberdeen – these are developing in large part the bus priority measures (reallocating roadspace away from general traffic) that will be required to facilitate the success of ART.



As the multi-modal corridor studies are progressing the infrastructure which would support the successful delivery of ART, the options being developed and appraised as part of this study are focussed on the form the ART network and services may take and the potential regulatory frameworks for delivery.

Recognising the issues noted above and the ART vision, three TPOs have been set (and agreed with Transport Scotland) for the ART scheme development and appraisal:

- **TPO1:** Achieve average ART bus speeds on the urban sections of the ART corridors (i.e., within the Aberdeen city boundary) of at least 25kph (16mph) by 2030
- **TPO2:** By 2030, achieve a public transport service for which the timetables (with journey times reduced as per TPO1) are consistent across the day and the week, and where 95% of the services operate to within 5% of the timetabled journey time
- **TPO3:** Improve the perception of quality of bus travel on ART corridors by 2030

Translating the ART vision into reality

The ART vision is *to deliver an integrated Mass Transit ‘step-change’ solution to support positive social, environmental and economic performance of the City and Region.*

There are many ways in which the ART vision (or elements of it) could be delivered. Key to setting out the possibilities for ART is first determining what is meant by Bus Rapid Transit (BRT). The global *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.

In short, BRT 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 to reduce dwell time at bus stops
- **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

These key factors have been used to help frame the options for ART.

Option Approaches

Five broad option approaches have been developed which could be adopted to deliver the ART concept (with some sub-variants proposed within these approaches). The approaches considered the **form of the network** i.e., infrastructure (including bus priority and stops) and services (routes and vehicles).

The option approaches, set out in the table below, include to varying degrees one or more of the four defining elements of BRT (high segregation, fast services, frequent services, and high capacity) and ranged from requiring the least change from the status quo with infrastructure changes to facilitate bus priority but no change to services or vehicles, through to the most radical departure with infrastructure changes, existing service integration / revisions, bespoke vehicles and ‘platforms’ etc. In addition, the inclusion of supporting traffic restraint measures (as a proxy for this increased parking charges were assumed) was also considered. The table below shows the options, the various ART elements included, and the degree to which each option approach supports the four defining features of BRT.

ART Options Approaches

Option Approach	Extensive bus priority	Services	Bus Stop	Stop Spacing	Vehicles	Traffic Restraint Measures	BRT Feature			
							High Segregation	Fast	Frequent	High Capacity
1	✓	Current ART corridor services ²	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 bespoke cross-city services ³ Current services remain as at present	Platform style	800m	Tram-style	No change	✓✓✓	✓✓	✓✓✓	✓✓✓
5	✓	New bespoke cross-city services Integration of other services to feed bespoke ART services	Platform style	800m	Tram-style	No change	✓✓✓	✓✓✓	✓✓✓	✓✓✓
5A	✓	New bespoke cross-city services Integration of other services to feed bespoke ART services	Platform style	800m	Conventional ART branded	No change	✓✓✓	✓✓	✓✓✓	✓✓
5P	✓	New bespoke cross-city services Integration of other services to feed bespoke ART services	Platform style	800m	Tram-style	Increased parking charges in city (as a proxy)	✓✓✓	✓✓✓	✓✓✓	✓✓✓

² Assumed as: A956 (city centre to Bridge of Don P&R), A96 (city centre to Craibstone P&R and airport), A944 (city centre to Kingswells P&R Westhill), B9013/A92 (city centre to Portlethen (new) Park & Ride)

³ Assumed here as: Westhill to Bridge of Don P&R via A944 and A956, and Craibstone P&R to Portlethen P&R via A96 and A92

Preliminary Options Appraisal

The five broad options were initially appraised against the **TPOs**, the **STAG criteria** (Environment, Climate Change, Health Safety & Wellbeing, Economy, and Equality and Accessibility as well as Feasibility, Affordability and Public Acceptability, Hierarchies and Risks and Uncertainties) and against the **ART success factors**. The appraisal was complemented by some early analysis undertaken to provide an indication of the potential impacts in terms of bus journey time reductions and anticipated costs and patronage, and hence commercial viability.

At this stage, Options Approaches 1 and 4 were not progressed for further consideration:

- **Option Approach 1:** Simply providing new infrastructure but no specific enhanced existing or new ART services does not offer as great a step change in public transport in the city as the other options and is likely to generate the lowest modal shift of all the approaches. In addition, such an approach, would not fulfil the objectives of the BPF which requires match funding by operators through improved services.
- **Option Approach 4:** Additional ART services operating alongside existing services would result in inefficient duplication of services on ART corridors.

It was recommended that **Option Approaches 2, 3 and 5** (and the sub-variants of these) be progressed to the Detailed Options Appraisal stage of the study.

Option Approach Development

Before any further appraisal work commenced, additional option development was undertaken, to allow for more detailed appraisal including the modelling and testing of the options to provide quantitative inputs to the appraisal. This included consideration of the ART network (routes and interchange), the bus priority measures assumed, bus stop spacing and specification, how ART would integrate with other services, the vehicles to be used, and potential ticketing options.

When developing the options, consideration has been given to the successful Belfast Glider scheme (which was implemented with an approximate capital cost of around £100m). A report published in December 2022⁴, explored how the Glider service shows how BRT can become a unique brand capable of generating public transport benefits – with growth in bus patronage and associated social benefits noted. The operator, Translink, puts the success of the Glider down to the reliability of the service – a result of bus priority infrastructure as well as vehicle design (services are operated by 18m three-door vehicles with a mixture of seating and standing capacity and with a more ‘tram-style’ feel), off-bus ticket purchasing and high-quality halts. The service’s **unique branding** and **vehicles** are felt to be a key factor in its success with the Glider seen as a **standalone distinct product**. But 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 road space reallocation and reduced parking) evidence shows that the retail economy along the Glider corridors has grown. 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.

Many of the points above were echoed in discussions with the teams involved in other successfully operating bus-based schemes elsewhere in the UK, namely the Birmingham Sprint and Bristol MetroBus schemes. Furthermore, the importance of ensuring political and stakeholder advocacy for the schemes was stressed, with early communication with leaders, politicians, businesses and the public essential in communicating the core transport benefits as well as the links to wider strategies. It is also worth noting that supporting measures around parking policy and other traffic restrictions were felt to have had a significant impact in supporting patronage growth.

⁴ [How Belfast Glider became a blueprint for BRT success \(route-one.net\)](#)

For those approaches noted in the table above to have new 'platform style' **stops**, it is assumed that these platforms (as shown opposite for the Belfast Glider) would feature modern, distinctive and attractive designs constructed from high quality materials with spacious, weather protected shelters, internal and external lighting and CCTV coverage, ticket machines / advance fare collection to support fast 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, real-time service information, bicycle storage and ART branding. New platforms provide the opportunity to distinguish ART from other services and provide the infrastructure to facilitate much faster boarding times, contributing to faster and more reliable services.



Consideration of the **vehicles** to be used on an ART network considered: **use of existing vehicles** (or those as would be brought into service through natural cycles of operator fleet upgrades, recognising that First and Stagecoach have committed to upgrading their bus fleets in Aberdeen, and are already progressing towards operating with low and zero emission buses); **use of branded existing vehicles** to generate an ART 'brand' awareness to provide visual distinction of the services from existing services; and use of new, more comfortable, **bespoke, multi-door 'tram-like' vehicles**. Multi-door vehicles are an essential element and provide significant passenger benefit through reducing dwell times at stops and removing the need for interaction with the driver.. 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 a new fleet of vehicles.



For those option approaches which included **integration with existing services**, changes to existing services were considered to ensure that ART could be part of an integrated and efficient city-wide bus network. Such a network would minimise the duplication of services and associated operating costs and prevent 'bus congestion', while maximising the potential for a commercially viable ART, and indeed, city-wide bus network. It has been assumed at this stage that longer distance regional services would remain unchanged and would operate on ART infrastructure.

Detailed Options Appraisal – Methodology

The appraisal involved more detailed consideration of each option against the TPOs and the STAG criteria (as set out above) as well as an assessment of the Cost to Government and Risks and Uncertainty for each option. Consideration has also been given to the delivery pathway that could be used to implement each option.

Transport Modelling

The Aberdeen Sub-Area Model (ASAM19) has been used to provide quantitative inputs to inform various elements of the appraisal, including demand and revenue forecasting and implications for general traffic. Forecasts developed as part of Transport Scotland's *Strategic Transport Projects Review 2 (STPR2)*, published in December 2022) are reflected within the ASAM19 model. These forecasts consider two scenarios, capturing '*without policy ambition*' and '*with policy ambition*' levels of travel by mode. The 'with policy' scenario reflects the achievement of some of the current policy ambitions of the Scottish Government, and the 'without policy' reflects a more 'business as usual' position (at least into the medium term). Reflecting the range of uncertainties at this time, these two scenarios offer different potential views of travel in the future and **present a potential spectrum into which the future may fall**. The impacts and value of ART under these two potential futures has been considered through the modelling. **While introducing an element of uncertainty into decision making**, the different scenarios provide decision makers with a **clearer picture of the potential risks** in scheme implementation should a certain future come to transpire.

Engagement

Recognising the importance of early political and stakeholder awareness and buy-in to ART, alongside the appraisal work, Nestrans commissioned a separate range of engagement and communications activities, which included an ART 'launch' in late November 2022. In the run-up to the launch, a range of activities were undertaken including focus groups, and the development of an ART 'brand'.



To ensure a more representative sample reflecting the demographics of Aberdeen and Aberdeen residents, a targeted market research exercise was undertaken during this appraisal which sought the views of 400 residents of Aberdeen and Aberdeenshire, with respondents asked about their propensity to change their travel behaviour based on the form of the ART network and services (i.e., the option approaches as discussed above). Views on the features of ART were also sought including acceptance of the reallocation of road space required to facilitate ART. Furthermore, meetings were held with Aberdeen Disability Equity Partnership and various Aberdeenshire Access Panels to inform an Equality Impact Assessment Screening for the scheme to support the appraisal.

Detailed Option Appraisal – Key Outcomes

Network and Services

Several key points were identified through the appraisal:

- 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. The appraisal highlighted the combination of reduced stopping patterns and short bus stop dwell times associated with the use of 'tram-style' vehicles enables bus speeds of over 20kph on all ART corridors and over 25kph on two of the four corridors considered. **Just delivering the bus priority infrastructure (without new stops, stopping patterns, and vehicles) would not deliver the sought after bus speeds**
- Providing **new bespoke cross-city services facilitates a significant reduction in public transport travel time** for cross-city movements and removes the need for interchange between services, greatly enhancing cross-city connectivity and improving accessibility to jobs, education healthcare and other essential services for residents across the region.
- **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
- **Bus priority infrastructure supports the delivery of services which are reliable and punctual** 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** 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 **bespoke ART services will have a significant impact on the underlying bus network which will require more detailed modelling and assessment** There will be a substantial transfer of passengers from existing services which will require amendment to integrate with or avoid duplication with ART 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 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 encouraging greater use
- **Significant road space reallocation away from general traffic is required** along the ART corridors. Reduced road space for general traffic with associated increases in congestion would encourage modal shift to bus. This will though cause traffic re-routeing 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). It is crucial that further work is undertaken as the ART scheme develops to mitigate against the impacts of traffic inappropriately re-routeing due to delay on the ART corridors. Note though that adverse impacts to general traffic is not wholly 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.
- **Adopting supporting traffic restraint measures alongside the ART scheme is likely to provide additional benefit** and help ensure scheme success. Such measures will generate greater modal shift, greater overall public transport benefits and lower disbenefit to private car users, and as such, 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**. Other measures such as subsidising public transport, and congestion or road user charging, would also be worthy of exploration.
- 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 a more accessible public transport system and reduce anti-social behaviour and/or harassment of bus stop users. 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 concession cards will be valid on ART services.

Monetised Benefits, Costs and Scheme Value for Money

The monetised travel time impacts of ART have been estimated for both road traffic and public transport. The estimates show that **ART would generate significant public transport travel time benefits as well as significant negative impacts ('disbenefits') to general traffic**. Typically these disbenefits outweigh the benefits to public transport users. Greater modal shift to public transport will reduce these disbenefits and supporting traffic restraint measures, if implemented alongside the scheme, have the potential to ensure overall monetised benefit.

The capital cost of implementing the infrastructure for an ART network is estimated at approximately **£215m** in 2021 prices. If new higher cost tram-style vehicles were used on an ART network, this would involve additional costs with some further cost likely required at maintenance depots. It is estimated that 32 vehicles would be needed to operate two cross city ART routes, at an approximate cost of **£22.5m** (2019 prices).

If the underlying bus network were integrated into the ART network, the overall operating costs for the city-wide bus network is estimated to be lower than estimated revenue costs. The modelling work

undertaken to date suggests that the overall scheme could produce a 'surplus' in revenue and therefore be commercially viable. 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 at Outline Business Case stage to provide confidence in the likely revenue impacts, and thus any potential subsidy implications.**

The 'value for money' (VfM) of ART has considered benefit to cost ratios (BCRs) derived through comparing capital and operating costs with the estimated scheme benefits:

- **Typically ART generates a BCR of <1** indicating ART is not value for money in the traditional sense, which only considers xxxxxxxx
- In the 'without policy' future year scenario, due to increased disbenefits to general traffic, a negative BCR is generated indicating scheme implementation creates disbenefit overall
- The potential value for money of ART, should supporting traffic restraint measures also be introduced, is higher, with the net additional public transport benefits (gained through greater modal shift) outweighing the net costs, **resulting in a BCR of >1**, and indicating ART would be VfM
- If the existing network is integrated appropriately into ART, a more operationally robust city-wide bus network can reduce overall operational costs, improving overall scheme VfM.
- **If only public transport benefits are considered against scheme costs, this shows ART can be considered 'value for money' with a BCR of >1.**

Caution should be applied in not placing undue emphasis on the scheme VfM calculated through standard economic monetised figures, recognising the range of scheme benefits not included within the derivation of the BCRs. The economic vitality of the region, contribution to net zero and accessibility and social inclusion benefits are all additional to the traditional BCR calculations.

Public Acceptability

The market research highlighted a positive reception from the public to ART with, of the 400 residents of Aberdeen and Aberdeenshire interviewed:

- nearly 40% stating they would be either 'extremely likely', or 'likely', to change their travel behaviour if ART (with new cross-city routes, new vehicles and new platforms) were implemented (this dropped to 27% when ART was implemented as the bus priority infrastructure with existing routes, vehicles and stops)
- 70% stating they would be either 'willing' (33%) or 'maybe willing' (37%), to walk further to a more comfortable ART stop
- 72% stating they would be either 'willing' (43%) or 'maybe willing' (29%), to walk further to catch a faster bus
- 66% stating 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
- 81% stating 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

Deliverability

As previously noted, the delivery of ART will require a departure from the current *modus operandi* in Aberdeen. There are two main models under which ART is likely to be delivered, dependent on the assumed form of the network. These are:

- **Bus Service Improvement Partnership (BSIP)** – which enables a local authority, or authorities, to introduce a BSIP Plan if it considers it appropriate to do so, and to then make one or more BSIP schemes that define service standards on local bus services, and specify facilities and / or measures to be provided by the local authority or authorities
- **Bus Franchising** - where the network and services are defined by the Local Transport Authority (LTA) 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 fundamental change in bus service planning and delivery within the area.** Within the bus franchise, ART services could be awarded as a separate contract to local bus packages

The mechanisms available under current legislation to deliver ART have been explored to assess how each could be applied to the ART options progressing through the appraisal. The assessment has focussed on the BSIP, bus franchising and also municipal ownership mechanisms for delivery of local bus services in a Local Transport Authority (LTA) area as specified in the Transport (Scotland) Act 2019. Furthermore, a 'hybrid' model where, over time, a move was made from a BSIP to bus franchising has been explored. The assessment has considered the feasibility, timescales, costs and financial risks and potential legal challenge for each delivery mechanism.

In summary the review of the potential delivery mechanism for ART concluded that:

- A BSIP could deliver many of the aspirations for ART, but this is **critically dependent on the goodwill and co-operation of bus operators** and a recognition by all parties of an alignment of objectives. The implementation of a BSIP appears eminently feasible and is, in many ways, a progression from current arrangements and practice, with a timescale of between nine and 12 months from initial informal discussions to agreement of a BSIP scheme and its statutory commitments. The financial risks associated with the BSIP process are considered to be relatively modest and consistent with 'business as usual', for both LTAs and operators and is unlikely to face resistance or legal challenge from bus operators. It is also worth noting that while a BSIP agreement in Scotland has no defined duration, the agreement must specify how the plan is to be reviewed and the dates by which the reviews are to be completed. There is no guarantee that operators would agree to similar arrangements at agreement review dates which presents a risk in 'future-proofing' the arrangements.
- A bus **franchising framework** has the potential to fully deliver the ART vision, but requires a **longer timescale and greater funding and transfers commercial risk from operators to LTAs.** To date, no bus franchising or quality contract scheme has actually been implemented (although Manchester's city-wide franchised bus network will begin in Autumn 2023), and the terms of subsequent pieces of legislation have often acted as barriers to their formation, with the challenges involved in establishing a bus franchising framework likely to be still significant. There is also a considerable timescale involved with an estimated, as noted above, **up to seven years for delivery.** Bus franchising would create additional costs and financial risks compared to other models. While some of these are similar in nature to the current tendering regime, they will be of a far greater magnitude and others are not borne by the LTA at present at all. In addition, the **risk of a legal challenge** to a bus franchising proposal **must also be considered to be very high**
- The **municipal ownership model could be utilised with either delivery framework.** A decision on whether this model should be pursued can therefore be taken independently, based on whether the LTA can achieve its objectives more effectively to an extent that outweighs the costs, risks and management effort involved.

- There is some uncertainty as to whether a plan to start with a BSIP and then replace it with a bus franchising framework (the 'hybrid' model) is realistic and it would probably be preferable to pick one or the other and unequivocally support it.

In summary, the choice of delivery model for ART will depend to a large extent on discussions around commercial viability and the risks associated with this. Implementing ART in line with the vision could perhaps be more easily achieved through a bus franchising arrangement which could provide Aberdeen with a 'world-class' public transport servicenetwork. However, this would come with significant set up costs and timescales and risks to the Councils. Pursuing ART through a Bus Services Improvement Partnership (BSIP) arrangement could deliver much of the ART vision but is critically dependent on the goodwill and co-operation of bus operators.

Risks & Uncertainty

Given the ART scheme is at an early stage in its development, there are a range of risks and uncertainties that need considered and minimised or eliminated where possible, as the study progresses. These relate to both the development of the scheme itself in terms of the form of the network and services (including infrastructure, routes, service frequencies, ticketing, vehicles etc.) as well as various risks associated with the funding and delivery of the scheme.

In terms of the scheme itself, the appraisal made clear that two cross city interconnecting ART routes provide significant benefit over four individual services routeing into the city centre, **the exact specification of these routes requires further consideration** and development at the business case stage to more concretely understand the preferred service routeing and extents of the network. This is perhaps most pertinent for the routes to the west and south of the city.

The infrastructure assumed for the purposes of this appraisal and the modelling of the options took the most up to date information from the ongoing multi-modal corridor studies. As these projects develop further, any further appraisal and testing of ART should ensure the most recent information from these studies is incorporated into the ART project to ensure the benefits of the scheme are robustly estimated.

Supporting traffic restraint measures **delivered in tandem with ART could positively impact on ART's success**. Early consideration of these types of measures would minimise the risk for a less than optimal scheme implementation.

Engagement undertaken as part of this study, while generally positive (as shown through the market research exercise), has also highlighted both public and stakeholder concerns around the project. Given the significance of the scheme and impact of road space reallocation, **ongoing dialogue with businesses and the freight community, access and mobility groups and the general public is required** to positively influence understanding of the scheme benefits and ensure local issues and concerns are properly understood and addressed.

As discussed in the section above, **the delivery mechanism for ART presents some of the most significant risks and uncertainties as the project progresses**. The delivery model required to implement ART depends heavily on the option chosen and this in turn is likely to be strongly influenced by both the appetite and funding available to pursue bus franchising. It is clear that in general, cities considered to have world class systems have a single operator of buses and other public transport modes or have a single transport body that procures bus services (and other public transport services) to single integrated and co-ordinated specifications. However, **pursuing a bus franchising model introduces new, and ongoing, costs and financial risks for the local authority**, including those associated with operating costs, and would be likely to result in legal challenge (considered to be a very high risk) increasing set up costs and timescales. Notwithstanding this, should bus franchising be pursued the ART vision could be more fully realised and the associated benefits are likely to be more significant.

Whichever options and delivery mechanisms are pursued, project success will be critically dependent on the goodwill and co-operation of bus operators and a recognition by all parties of an alignment of objectives. **Ongoing and more involved dialogue with operators is required as the project**

progresses to minimise the risk of project derailment through a potential lack of common goals and understanding.

The key risks to be managed are clearly financial. Whilst the modelling undertaken for this study has produced a broadly positive picture of the relative operating costs and revenues (and thus the requirement for subsidy), these findings are based on the assumptions which underlie the ASAM19 model. These will require to be stress-tested as the process moves forward. The delivery mechanism for ART presents some of the most significant risks and uncertainties as the project progresses and pursuing a bus franchising model introduces new, and ongoing, costs and financial risks for the local authority.

Conclusions

From the appraisal, it is clear that simply implementing bus priority infrastructure would not deliver the ART vision.

If, in addition, new ART cross city bus routes were implemented using new multi-door 'tram-style' vehicles 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, better perceptions of public transport quality, increased P&R use, and improved equality and accessibility to the public transport network. Implementing ART in such a way could provide Aberdeen with what could be considered a world class transit system.

The preferred delivery mechanism will significantly influence what can be achieved in terms of this vision..

Operating these ART services using conventional vehicles (as opposed to new bespoke vehicles) will result in the loss of some of the scheme benefits and result in lower speeds, lower modal shift, lower P&R use and lower overall public transport benefits. However this would come with a cost saving as new vehicles and depot alterations to accommodate the bespoke vehicles would not be required.

Considering an approach where ART is delivered as the bus priority infrastructure with enhanced existing services on ART corridors (and an integrated existing network) operating with conventional (but ART branded) buses is worthy of consideration. Such an approach recognises the risks and uncertainties of the ART scheme and its delivery but could potentially be pursued through a BSIP. 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 and as such, is unlikely to face resistance or legal challenge from bus operators. 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.

Recognising the additional benefits gained when supporting traffic restraint measures are implemented alongside the option, such **supporting measures should be considered and pursued as part of the ART scheme**, regardless of the form of the option or delivery mechanism.