STRATEGIC TRANSPORT PROJECTS REVIEW

PROTECTING OUR CLIMATE AND IMPROVING LIVES

Appendix I: Recommendation Appraisal Summary Tables

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1. Detailed Appraisal Summary

An 'Appendix I – Recommendation Appraisal Summary Tables (ASTs) Explanatory Note' accompanies this AST.

1.1. Recommendation Description 12 - Edinburgh and South East Scotland Mass Transit

Recommendation Description
This recommendation considers the development of a new level of public transport provision within the Edinburgh and South East Scotland (ESES) Region herein referred to as "the Region", captured under the term 'Edinburgh and South East Scotland Mass Transit (ESES MT)'. The ESES MT system would increase the public transport options for cross-boundary travel in order to facilitate end-to-end sustainable travel choices, reducing the need to change between modes and services, leading to lower public transport journey times which are more competitive compared to travel by private car. It is envisaged the system could potentially comprise a mix of tram and bus-based transit modes, including Bus Rapid Transit (BRT), and involve reallocating existing road space to reduce the impact of congestion on public transport journey times and reliability. The system would complement and integrate with the Region's current bus, tram, heavy rail and active travel networks. The system would also connect with existing and new mobility hubs/transport interchange locations in the Region, alongside the wider local network at the micro level to further facilitate the cross-boundary connectivity provided by this recommendation across the Region. This would extend the reach of mass transit and improve connectivity for more rural as well as urban areas to encourage mode shift from car to public transport and other more sustainable travel options. This recommendation would also be complemented by other STPR2 recommendations to provide sustainable end-to-end travel options for cross-boundary journeys within the Region. It would also be complemented at the local and wider regional level by interventions being progressed by others, such as through the Local Rail Development Fund and activities to further explore opportunities for mobility hubs within the Region. The ESES MT would include cross-boundary routes along key corridors of demand, including where congestion impacts on existing bus services, where public transport is more limited and where more congested parts of the local network connect with the strategic network. This would also improve the accessibility of public transport in areas that are more disadvantaged and where the population has been identified as experiencing higher levels of transport poverty to promote a greater dependence on public transport, increase travel choices for to key destinations (employment, education, healthcare and other services) and help to address inequalities. The system would also help facilitate a 'step-change' in spatial accessibility, including access to the strategic sites set out within the Region's development plans and reflected in the Edinburgh and South East Scotland City Region Deal as well as developments of national significance identified in the Revised Draft National Planning Framework 4

(Revised Draft NPF4) such as Edinburgh Waterfront.

A conceptual plan of a potential ESES MT system is included in Annex A.

1.2. Relevance

Relevant to public transport users and non-users within the ESES Region

Edinburgh and South East Scotland is a geographically diverse region that includes a major city, urban areas and accessible and remote rural communities, with corresponding variable access to public transport throughout the Region . Within the Region, there are more limited public transport choices for cross-boundary trips with an increased need for interchange leading to longer journey times and reducing the competitiveness and overall attractiveness of public transport . Existing public transport provision means some areas of the Region are less well served and experience lower levels of accessibility to employment, education, healthcare and other services by bus, rail or tram. The impact of congestion on the strategic road network and local corridors that buses use also impacts on the attractiveness of public transport .

Recognising the need to address issues relating to variable access to public transport across the Region, the Edinburgh and South East Scotland City Region Deal Partners have committed to put in place a Regional Developer Contributions framework based on the findings of the Cross Boundary Study. The Deal notes that these interventions and commitments, taken with the additional transport investment to enable the innovation and housing projects, would help ensure the City Region continues to grow and flourish. This recommendation would complement the City Deal commitment through helping to enhance the sustainable transport offer within the Region. The ESES MT system would also itself be complemented by the commitments within the Deal for Partners to address problems and opportunities on the transport network resulting from cross-boundary travel.

It is also recognised that ESES MT is itself a national development and would also serve to support the national development at Edinburgh Waterfront. It would enable integrated travel by public transport between areas of the City Region and new development, including those planned at Edinburgh Waterfront, BioQuarter and West Edinburgh. It would also complement projects being taken forward through the Edinburgh and South East Scotland City Region Deal, such as the West Edinburgh Transport Improvement Programme.

This recommendation is aimed at addressing the identified problems that relate to the connectivity and accessibility of the public transport network across the Region and the resultant continued dominance of car-based travel in the region .

1.3. Estimated Cost

£2.5 billion - £5 billion Capital
Indicative capital costs per kilometre have been collated for similar schemes across the UK, as well as the Edinburgh Tram project. Bus Priority Fund commitments by the Scottish Government to investment in bus priority provides funding that could potentially be used to deliver bus priority schemes delivered as part of this recommendation. Local factors, such as ground conditions, as well as the scale and complexity of the design play an important role in the overall cost of a scheme. Costs can therefore vary significantly between the types of schemes that would be brought forward by this recommendation as part of the ESES MT system. It is though likely that overall the capital cost for this recommendation would be significantly above the £2.5 billion level over a multi-year phased programme. It is anticipated that this recommendation could potentially generate self-sustaining revenue streams once the system is in operation although an element of revenue support may be required in the early years.

1.4. Position in Sustainable Investment Hierarchy

Targeted Infrastructure Improvements
This recommendation would also contribute to nine of the 12 NTS2 outcomes, as follows: ▪ Provide fair access to services we need; ▪ Be easy to use for all; ▪ Help deliver our net-zero target; ▪ Adapt to the effects of climate change; ▪ Promote greener, cleaner choices; ▪ Get people and goods to where they need to get to; ▪ Be reliable, efficient and high quality; ▪ Be safe and secure for all; and ▪ Help make our communities great places to live.

1.5. Summary Rationale

Summary of Appraisal

	TPO					STAG					SIA				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Low Scenario	++	+++	++	+++	++	+	++	++	+++	+++	+	+++	0	+++	+++
High Scenario	++	+++	++	+++	++	+	++	++	+++	+++	+	+++	0	+++	+++

This recommendation makes an overall positive contribution to all of the STPR2 Transport Planning Objectives (TPOs) and STAG criteria. It particularly contributes strongly to the objectives relating to improving the affordability and accessibility of public transport. It would also positively contribute towards the majority of the Statutory Impact Assessment (SIA) criteria. There would be no direct impact on island communities, and hence this has been scored as neutral.

The ESES MT would encourage modal shift from private car, contributing to reducing emissions with associated air quality and health benefits. The impact of construction and operation on the environment would be addressed during the design and development process with mitigation measures considered as appropriate.

In terms of deliverability, the ESES MT is considered feasible to construct and operate, albeit there would likely be some challenges at particular locations. These would be addressed accordingly through the design development process. Construction costs of the system are likely to be substantial. However, these should be considered in the context of the scale of benefits such an investment would deliver.

Public acceptability is likely to be mixed with higher support from potential users and those directly impacted by the construction and/or operation of the system potentially less supportive.

This recommendation is expected to have a major positive impact on the EqIA and FSDA, and on the CRWIA. The impact on island communities is expected to be negligible and therefore scored as neutral. The SEA impact is anticipated to be positive at this stage although work would be required as the scheme progresses to ensure this was the case: at this stage a minor positive score has been given.

Details behind this summary are discussed in Section 3 below.

2. Context

2.1. Problems and Opportunities

This recommendation could help to address the following problem and opportunities:

Relevant Problem & Opportunity Themes Identified in National Case for Change

- **Poverty and Child Poverty:** public transport is very important to those on low incomes, yet in many areas of high social deprivation public transport options can be limited and relatively expensive. A key challenge is providing fair and affordable access to the services people need.
- **Global Climate Emergency:** the Scottish Parliament committed to an ambitious target of net zero emissions by 2045 and transport needs to play its part. Transport is currently Scotland's largest sectoral emitter, responsible for 37% of Scotland's total greenhouse gas emissions (Greenhouse gas emissions encompass CO_2 emissions) in 2018 . Our transport system needs to minimise the future impacts of transport on our climate.
- **Air Quality:** transport, and road transport in particular, remains a significant contributor to poor air quality. Air pollution increases the risks of diseases such as asthma, respiratory and heart disease, particularly for those who are more vulnerable. Air quality is often worse in areas of deprivation and is a health inequality issue.
- **Decline in Bus Use:** bus is particularly important to areas which are not served by the rail network, including much of rural Scotland. It can be an important element in multi-modal journeys and is a sustainable and space-efficient mode of travel. Reducing passenger numbers risks driving down revenues and making some services unviable, resulting in cancellations and, in some cases, communities being isolated . It should however be noted that bus patronage levels have remained at a higher level in this Region compared to the rest of the country.
- **Labour Markets:** people often need transport to access employment, education and training and therefore help reduce the numbers out of work and support Scotland's ambitions for growth. Transport can ensure that the skills and experience of those in the labour force are effectively matched with the needs of businesses, helping to increase incomes and improve productivity.
- **Reliability:** without intervention, forecast increases in traffic volumes on the road network will impact negatively on reliability through increased congestion and more roadworks as greater pressure is placed on the operational efficiency of the network. Reliability can also be an issue on the rail network.
- **Service Capacity:** the capacity of transport services can be a key challenge: rail station capacity; rail network capacity; Park and Ride capacity for stations; freight capacity by rail and ferry; passenger capacity for ferries including for inter-island services. This has a strong indirect or implicit linkage to issues around affordability, accessibility, connectivity and congestion.

For further information about problems and opportunities relevant to the Edinburgh and South East Scotland Region, please refer to the Initial Appraisal: Case for Change Edinburgh and South East Scotland Region

2.2. Interdependencies

This recommendation has potential overlap with other STPR2 recommendations and would also complement other areas of Scottish Government activity.

Other STPR2 Recommendations
▪ Behavioural change initiatives (6) ▪ Provision of strategic bus priority measures (14); ▪ Edinburgh/Glasgow – Perth/Dundee rail corridor enhancements (17) ▪ Improved public transport passenger interchange facilities (21); ▪ Framework for the delivery of mobility hubs (22); ▪ Smart, integrated public transport ticketing (23); ▪ Major station masterplans (43); and ▪ High speed and cross-border rail enhancements (45).
Other areas of Scottish Government activity
▪ Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 - achieving net zero emissions by 2045; ▪ Climate Change Plan 2018-32 Update - commitments to reduce private vehicle kilometre by 20% by 2030; ▪ National Transport Strategy (NTS2) - the Sustainable Travel Hierarchy and the Sustainable Investment Hierarchy; ▪ Bus Partnership Fund ;. ▪ Revised Draft Fourth National Planning Framework (Revised Draft NPF4) National Developments 6: Urban Mass/Rapid Transit Networks and 9: Edinburgh Waterfront; ▪ Infrastructure Investment Plan 2021/22-2025/26 ; and ▪ The Place Principle

3. Appraisal

This section provides an assessment of the recommendation against:

- STPR2 Transport Planning Objectives (TPOs);
- STAG criteria;
- Deliverability criteria; and
- Statutory Impact Assessment criteria.

The seven-point assessment scale has been used to indicate the impact of the recommendation when considered under the 'Low' and 'High' Travel Behaviour transport behaviour scenarios (which are described in Appendix F of the Technical Report).

3.1. Transport Planning Objectives

1. A sustainable strategic transport system that contributes significantly to the Scottish Government's net-zero emissions target

Low Scenario	High Scenario
++	++

The analysis presented in the ESES Case for Change report identifies the Region's reliance on travel by private car to be partly due to either a perceived or actual lack of travel choices and uncompetitive public transport journey times. This is a function of the configuration of the bus and rail networks, which are primarily radial in nature and focused on access to / from the City of Edinburgh as the main population centre and location of key trip attractors (employment, education and services) in the Region. As a result, direct public transport connections between destinations outwith the city centre often require to make use of multiple interchanges meaning increased journey times that are less competitive than the private car.

ESES MT would provide a connected public transport network that offers more direct routes between areas within the Region, reducing the need for multiple interchanges. It would also facilitate any required interchange in a more efficient manner through formal interchange locations, as shown on the Conceptual Plan (Annex A). This would support shorter and more competitive public transport journey times, with the consequential reduced dependence on travel by car.

Removing vehicles from the road network would reduce emissions, helping to address the climate emergency and contributing to the Scottish Government's net zero emissions target. It is envisaged that the modes forming part of the ESES MT system would make use of technology that supports the decarbonisation of public transport and be electric/hydrogen powered from the outset thereby contributing to reducing the need to travel unsustainably and the delivery of low emission travel.

This recommendation is expected to have a moderate positive impact against this objective in both Low and High scenarios.

2. An inclusive strategic transport system that improves the affordability and accessibility of public transport.

Low Scenario	High Scenario
+++	+++

Analysis presented in the ESES Case for Change illustrates that for parts of the Region and particularly East Lothian, West Lothian and the Scottish Borders, public transport access to employment, education and health facilities is limited, suggesting that accessibility by public transport is a problem. When travelling to regional employment destinations and key services, such as education and healthcare, a lack of direct services means that for a significant amount of the Region's population, travel by private car is more attractive.

Mass transit would help to improve accessibility for areas and destinations less well served by public transport through providing faster and more frequent services on the corridors served as well as a greater number of direct connections for cross-boundary journeys. It would also provide improved access to wider areas through the creation of new interchange facilitates.

A priority for ESES MT is to target more disadvantaged areas that are not currently well served by the existing public transport network. Many of these areas (such as Granton and Wester Hailes in the City of Edinburgh and Prestonpans in East Lothian, Bonnyrigg and Loanhead in Midlothian, Blackburn and Livingston in West Lothian and Dunfermline and Rosyth in Fife, for example), also correlate with areas of higher population density where there are lower levels of employment and lower levels of educational achievement.

As ESES MT would improve cross-boundary connectivity, it is expected that this recommendation would deliver a lower cost travel choice when compared to travel by private car. The system would be developed to integrate with existing ticketing arrangements and for different modes to be affordable to all, to make sustainable travel choices more attractive than travel by private car for a substantial number of trips within the Region.

Assuming an affordable fare structure is implemented, this recommendation is expected to have a major positive impact on this objective in both Low and High scenarios, albeit the cost difference between public transport and private car are likely to be smaller in the High Scenario.

3. A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing.

Low Scenario	High Scenario
++	++

ESES MT has the potential to improve physical and mental health, and social connection and wellbeing by better connecting communities with opportunities for employment, education, healthcare and leisure. It will also present increased opportunities to support placemaking and will improve regional connectivity with increased opportunity for interchange.

Delivering a mass transit system has the potential to increase uptake in travel by sustainable modes and reduce dependence on travel by private car throughout the Region, leading to improved local air quality and streetscape environments. This can, in turn, make communities more attractive for walking, wheeling and cycling with associated physical health and well-being benefits.

There would also be benefits in terms of placemaking as a result of the reduction in car-based travel impacting on communities, although these may be of a more limited impact when compared to the potential health benefits.

The ESES MT system would though involve new infrastructure which may impact on communities during construction and operation. This would form part of considerations as the design and development of specific elements of the ESES MT system progressed.

This recommendation is expected to have a moderate positive impact against this objective in both Low and High scenarios.

4. An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland.

Low Scenario	High Scenario
+++	+++

ESES MT is one of the national developments set out in the Revised Draft NPF4. It would enhance the public transport offering in the Region, thereby improving access to education and healthcare services as well as employment catchment areas, for both individuals and businesses thereby supporting sustainable economic growth. The system would complement and integrate with the Region's current bus, tram, heavy rail and active travel networks. The system would also connect with existing and new mobility hubs/transport interchange locations in the Region.

ESES MT would offer improved access to and integration with national developments, including Edinburgh Waterfront, as well as regional developments of note such as the seven strategic housing sites set out in the Region's development plans and which form part of the Edinburgh and South East Scotland City Region Deal (see Annex A).

Enhanced provision for cross-boundary travel would also support sustainable access to and from key gateways in the Region, benefiting domestic, national and international business connections whilst encouraging people to live, work, study, visit and invest in ESES. Modal shift from road based trips to ESES MT would improve the operation of the trunk road network, in turn supporting the movement of road based freight as well as surface access to / from rail, air and maritime freight facilities, making it easier to distribute goods more reliably with associated business cost benefits.

Overall, this recommendation is expected to have a major positive impact against this objective in both Low and High scenarios.

5. A reliable and resilient strategic transport system that is safe and secure for users.

Low Scenario	High Scenario
++	++

This recommendation would provide a step-change in public transport capacity and new infrastructure. It would focus on key corridors of demand as well as areas where the existing public transport offer is more limited. It is therefore envisaged that ESES MT would add significant resilience to the Region's transport network by providing additional public transport choices.

In addition, the incorporation of new technologies within modern public transport systems, tends to result in higher levels of reliability. Services operating on dedicated routes that are segregated from general traffic would further improve the reliability of public transport in the Region. New infrastructure also gives the opportunity to include modern safety and security systems from the outset, improving both actual and perceived safety and security for its users.

Overall, this recommendation is expected to have a moderate positive impact against this objective in both Low and High scenarios.

3.2. STAG Criteria

1. Environment

Low Scenario	High Scenario
+	+

See Strategic Environmental Assessment (SEA) below.

This recommendation is expected to have a minor positive effect on this criterion in both Low and High scenarios.

2. Climate Change

Low Scenario	High Scenario
++	++

ESES MT would be expected to encourage modal shift from car to public transport, and also to provide a public transport offering with lower emissions through the adoption of new technologies, such as electric and hydrogen power. As a result, ESES MT therefore has the potential to significantly reduce greenhouse gas emissions.

Extending the public transport network coverage, combined with the introduction of new mobility hubs and interchanges on the network, has the potential to promote walking and / or cycling trips to access the network. This would support sustainable travel choices for the full journey.

There is not expected to be any impact on vulnerability to the effects of climate change or potential to adapt to the effects of climate change. However, promoting a mode shift to more sustainable means would contribute to reducing emissions and the impacts of climate change. Consideration would also be given to the methods and materials used in the construction of the ESES MT to mitigate environmental impacts.

This recommendation is therefore expected to have a moderate positive impact on this criterion in both Low and High scenarios.

3. Health, Safety and Wellbeing

Low Scenario	High Scenario
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The principal safety benefits from ESES MT would be in delivering mode shift from private vehicle trips. With less traffic on the road network, one benefit is a reduction in the number of accidents, including those involving more vulnerable road users.

In addition, this recommendation would also involve significant new infrastructure and vehicles incorporating best practice security measures. The ESES MT system would improve the safety and security of users through provision of high quality stops and interchanges that would be designed in line with modern safety and security standards including lighting, CCTV and other safety measures and features.

It is also anticipated that public transport uptake would increase significantly, making stops and stations busier and less isolated, improving real and perceived personal security.

There would be some health benefits from improved air quality due to reduced emissions attributed to modal shift from private vehicles, making communities more attractive for walking, wheeling and cycling, with associated benefits on health and wellbeing.

ESES MT has the potential to improve physical and mental health, and wellbeing by providing enhanced opportunities to access employment, education, healthcare and leisure. It is also expected to improve connectivity between social groups and communities with a consequential beneficial impact on mental health. A reduction in emissions would also positively impact physical health.

There is the potential for negative impacts during construction and operation of the system on visual amenity due to, for example, impacts from the construction footprint of the new transport infrastructure forming part of ESES MT. Further assessment would be required to identify potentially significant location-specific environmental impacts and mitigation where appropriate.

Overall, this recommendation is expected to have a moderate positive impact on this criterion in both Low and High scenarios.

4. Economy

Low Scenario	High Scenario
+++	+++

The improved cross-boundary connectivity provided by ESES MT would have a positive impact on the economy of the Region through improving access to employment opportunities as well as increasing the labour catchment for employers as illustrated by the potential conceptual plan in Annex A.

The transport network would operate more efficient as a result of modal shift from private car to ESES MT, and associated reductions in traffic volumes and congestion on strategic corridors. This would also result in journey time benefits for users of the network.

As an indication of the benefits of mass transit in the city, the Edinburgh Tram Full Business Case identified the positive economic impacts associated with the delivery of the tram. The Business Case detailed the expansion of activity in key employment locations, in particular the city centre and Edinburgh Park, whilst providing new links to labour supply within the city Region area. When combined with enhanced market accessibility, this was identified to support existing business whilst promoting the development and growth of new business.

ESES MT would offer improved access to and integration with national developments, including Edinburgh Waterfront, as well as regional developments of note such as the seven strategic housing sites set out in the region's development plans and which form part of the Edinburgh and South East Scotland City Region Deal (see Annex A).

Overall, this recommendation is expected to have a major positive impact on this criterion in both Low and High scenarios.

5. Equality and Accessibility

Low Scenario	High Scenario
+++	+++

Accessibility would be improved by the delivery of ESES MT, providing the opportunity for a greater proportion of the Region's population to access the public transport network.

The system would complement and integrate with the Region's current bus, tram, heavy rail and active travel networks. It would also connect with existing and transport interchange locations in the Region, alongside the wider local network at the micro level. This would deliver an enhanced public transport network to provide regional cross-boundary connections throughout the Region facilitating end-to-end sustainable transport journeys.

In terms of comparative access, ESES MT would particularly benefit people either without access to a private car for travel (or those who choose not to drive) as well as those unable to drive. It would also benefit those with poor access to the public transport network and people living in areas where public transport service provision does not enable them to access employment, healthcare, education and leisure destinations directly and quickly. Accessible and secure system design would also benefit more vulnerable and mobility impaired users reliant on public transport. In addition, ESES MT has the potential to improve physical and mental health plus social connection and wellbeing by increasing access opportunities to leisure and recreation activities as well as employment, education and healthcare.

When considering access across the Region, the ESES MT system would improve public transport options for cross-boundary journeys and support end-to-end journeys by sustainable modes. By its nature, the ESES MT would be particularly focused in areas with larger populations and strategic corridors, such as Edinburgh City Centre and the wider city area, Livingston, Dunfermline, Penicuik, Dalkeith, Musselburgh, and Prestonpans. However, by integrating with the existing public transport system, this would extend the overall reach of mass transit across much of the Region (see Annex A) to provide enhanced connectivity from more rural areas to key trip attractors, such as employment, healthcare and education.

This recommendation would not directly impact on active travel network coverage, but the system would be designed to help facilitate access to the ESES MT system by walking, wheeling and cycling supporting end-to-end journeys by sustainable modes that offer better regional integration and connectivity.

Inclusion would be further promoted with infrastructure and vehicles, by definition, being required to be compliant with inclusive design standards.

The funding and revenue model would need to be designed with affordability of ESES MT to all users considered, to ensure delivery of a competitive alternative to the car.

Also refer to EqIA/ICIA/FSDA/CRWIA Assessment in the next section.

Overall, this recommendation is expected to have a major positive impact on this criterion in both Low and High scenarios.

Deliverability

1. Feasibility

The proposed ESES MT system may include BRT and / or tram and would involve dedicated routes, as well as reallocating existing road space to ESES MT to improve the competitiveness of public transport journey times compared to private car and overall reliability of services.

At this stage, it is considered that the various elements of ESES MT would be technically feasible to construct and operate. This system is expected to make use of existing, proven technology and to operate within existing design standards. However, there are a number of significant planning and construction risks and uncertainties associated with this recommendation. For example, the historical and protected nature of Edinburgh City Centre, combined with the complex nature and number of utilities, may preclude the delivery of some types of transport system technology within the inner-city environment. It is also possible that, in some locations, aspirations to deliver a mass transit system may conflict with movements by other modes (including bus and active travel) and compete for physical space.

In other urban areas, there may be insufficient width to delivery segregated, or even joint-running tram or BRT due to the physical requirements to accommodate the vehicles and track. The cross-section required for these modes means that they are best suited to routes where there is sufficient road space for dedicated alignments and where there are fewer complex junctions. Consideration is also required when dealing with particular environmental designations such as the World Heritage status, or Sites of Special Scientific Interest (SSSI) (see further details in the SEA section).

Bus priority can be provided on existing corridors and in locations where there is either sufficient road space available to provide a dedicated bus lane or where road links could potentially be closed to general traffic and redesignated as bus only links. These interventions would generally be more straightforward to deliver, when compared to BRT or tram. However, in urban areas where there is typically less road space available, dedicated bus lanes can be difficult to deliver without additional land take.

As part of bus priority schemes, traffic signals could potentially be reconfigured to provide improved priority to bus movements through signalised junctions, albeit this could result in increased delay to general traffic movements.

2. Affordability

Given the scale of the recommendation ESES MT would involve a significant capital investment. There would also be requirements for revenue support (noting that revenue funding is not within the scope of STPR2) for continued operation. However, the level of investment required should be considered in the context of the potential benefits arising. The scale of ESES MT would mean that delivery would be phased over a significant time period, with a variety of funding streams being required.

For potential bus-based, including BRT elements, funding could be achieved through several streams including, but not limited to the Bus Partnership Fund (BPF), subject to fund criteria and evaluation processes. Contributions from the private sector would also be expected where this is appropriate to mitigate the impact of development on the transport network. The City Region Deal includes a commitment for partners to put in place a Regional Developer Contributions Framework based on the findings of the Cross Boundary Study.

3. Public Acceptability

Investment in high quality public transport facilities generally enjoy a high degree of public support. Where new systems have been introduced (such as Belfast Glider or and the Manchester Metrolink for example), they have proven popular and there has been continual and substantial public pressure for system expansion.

It is recognised that ESES MT is likely to receive positive public support, however it is also acknowledged that those directly impacted by potential route alignments may well be less supportive, particularly during the construction period. The disruption during the construction phases would need to be managed carefully to prevent criticism from the general public and businesses. The reallocation of road space to public transport may receive lower levels of support by other road users if additional delay is experienced.

3.3. Statutory Impact Assessment Criteria

1. Strategic Environmental Assessment (SEA)

Low Scenario	High Scenario
+	+

ESES MT would likely result in positive effects on SEA objectives related to reducing greenhouse gas emissions (Objective 1) and improving air quality (Objective 3) due to promoting a modal shift to more sustainable transport options. It is envisaged that mass transit modes would be electric / hydrogen powered from the outset, helping to improve air

quality and reduce greenhouse gas emissions. The effects on climate change adaptation (Objective 2) are unclear, but there would be opportunities to adapt the transport network.

Positive effects are also anticipated on quality of life and sustainable accessibility (Objective 4) due to an expected increase in access by public transport to services and leisure opportunities. Improvements to safety (Objective 7) is also anticipated due to reductions in the volume of vehicles on roads, thereby decreasing the likelihood of collisions occurring, as well as including modern security systems (such of CCTV on-board public transport and at interchanges). The significance of these effects are dependent on the system being accessible, connected, affordable and safe for all users in order to fully realise the potential for mode shift across the Region from private car to public transport (Objective 8).

There is the potential for negative environmental effects during construction and operation of ESES MT on the water environment, biodiversity (including the designated sites mentioned above), cultural heritage (including the designated sites mentioned above) and landscape and visual amenity (Objectives 10 to 14). The nature and scale of these impacts would depend on the design and operational requirements of individual elements comprising the mass transit system.

There is also potential for minor negative environmental effects associated with the reallocation of road space, but these are not expected to be significant. This applies to effects on noise and vibration (Objective 5) and the development of high quality places (Objective 6).

Although only a relatively small element of ESES MT would be within the centre of Edinburgh, a number of environmentally sensitive designations could be impacted, including the World Heritage Site. Other examples of Scheduled Monuments that may be affected are Holyrood Park and Craigmillar Castle and gardens), along with around 50 Conservation Areas, designated for special architectural or historic interest and large numbers of listed buildings.

There are also various other designations across the wider Region that are of relevance. These include multiple Special Areas of Conservation, Sites of Special Scientific Interest, Special Protection Areas, Geological Conservation Review sites, Ramsar wetlands, Regional Parks, Battlefield Inventory sites and several other cultural heritage designations. Sites or areas that have not been designated may also represent constraints or opportunities.

In terms of construction, there is an opportunity to employ methods for decarbonisation of construction through innovation in design, procurement and construction methods identified as part of the design and development process whilst adhering to relevant standards. Similar work undertaken to date in exploring options for decarbonising the construction of other schemes could be used as a basis for developing these methods.

In addition, significant quantities of materials and construction-related trips would be required. Depending on the source and type of materials/natural resources used, there is the potential for negative impacts on natural resource usage (Objective 9).

Construction of any new infrastructure is likely to have a negative effect on some aspects of the environment. For this reason, further environmental assessment would be required, and this would inform appropriate avoidance and mitigation measures for any potential negative effects. The exact magnitude of these positive and negative effects are unclear at this strategic planning stage.

Overall, this recommendation is expected to have a minor positive effect on the environment in both Low and High scenarios.

2. Equalities Impact Assessment (EqIA)

Low Scenario	High Scenario
+++	+++

This recommendation would provide improved public transport connectivity to access employment, education and services which would be of benefit to protected characteristic groups who are less likely to own or have access to a car such as children, older people, women and people from certain ethnic minority groups. New infrastructure and vehicles would be required to be compliant with inclusive design standards and there would be an opportunity for new infrastructure to design-in level access. This would potentially provide greater access to the public transport network for those who are currently excluded due to accessibility barriers.

The extent to which these benefits of ESES MT would be realised for protected characteristic groups accessing services would depend on the location of the mass transit network and its proximity to employment, education, healthcare and other services as well as the affordability of the services in comparison to car use or existing public transport options.

Overall, ESES MT is expected to have a major positive impact on this criterion in both Low and High scenarios.

3. Island Communities Impact Assessment (ICIA)

Low Scenario	High Scenario
0	0

Island communities may benefit when visiting and / or travelling through the Region, but overall the impact of the ESES MT is considered negligible from an islands perspective.

This recommendation is therefore expected to have a neutral impact on this criterion in both Low and High scenarios.

4. Children's Rights and Wellbeing Impact Assessment (CRWIA)

Low Scenario	High Scenario
+++	+++

ESES MT would provide enhanced opportunities and improved access to education facilities (including over a relatively short distance for more local trips), in the context of a modern, safe and reliable public transport system. The conceptual plan in Annex A illustrates the potential opportunity for the system to serve higher education establishments in the Region and facilitate cross-boundary travel options to these locations.

However, the extent to which the benefits of ESES MT would be realised for children and young people would depend on the location of the mass transit network and affordability in comparison to car use or existing public transport options.

By encouraging modal shift from private car trips to public transport this recommendation could contribute to a reduction in harmful transport emissions and improved local air quality in communities across the Region. This would benefit children and young people who are more vulnerable to the adverse health impacts of traffic-related emissions. By reducing the volume of road traffic, safety could also be improved which would benefit children who are more vulnerable to the fear of road danger.

Overall, this recommendation is expected to have a major positive impact on this criterion in both Low and High scenarios.

5. Fairer Scotland Duty Assessment (FSDA)

Low Scenario	High Scenario
+++	+++

The ESES Case for Change report demonstrates that within the Region there is a high dependency on travel by private car. Whilst a large proportion of employment opportunities within the Region are located in the City of Edinburgh, higher housing costs are forcing lower income (and also middle income) households to locate further away from employment centres in the Region to areas where housing costs are lower. This results in more trip making, longer journeys and also an increase in the proportion of household income spent on transport and can in turn impact on the affordability of transport with a negative impact in terms of increasing transport poverty.

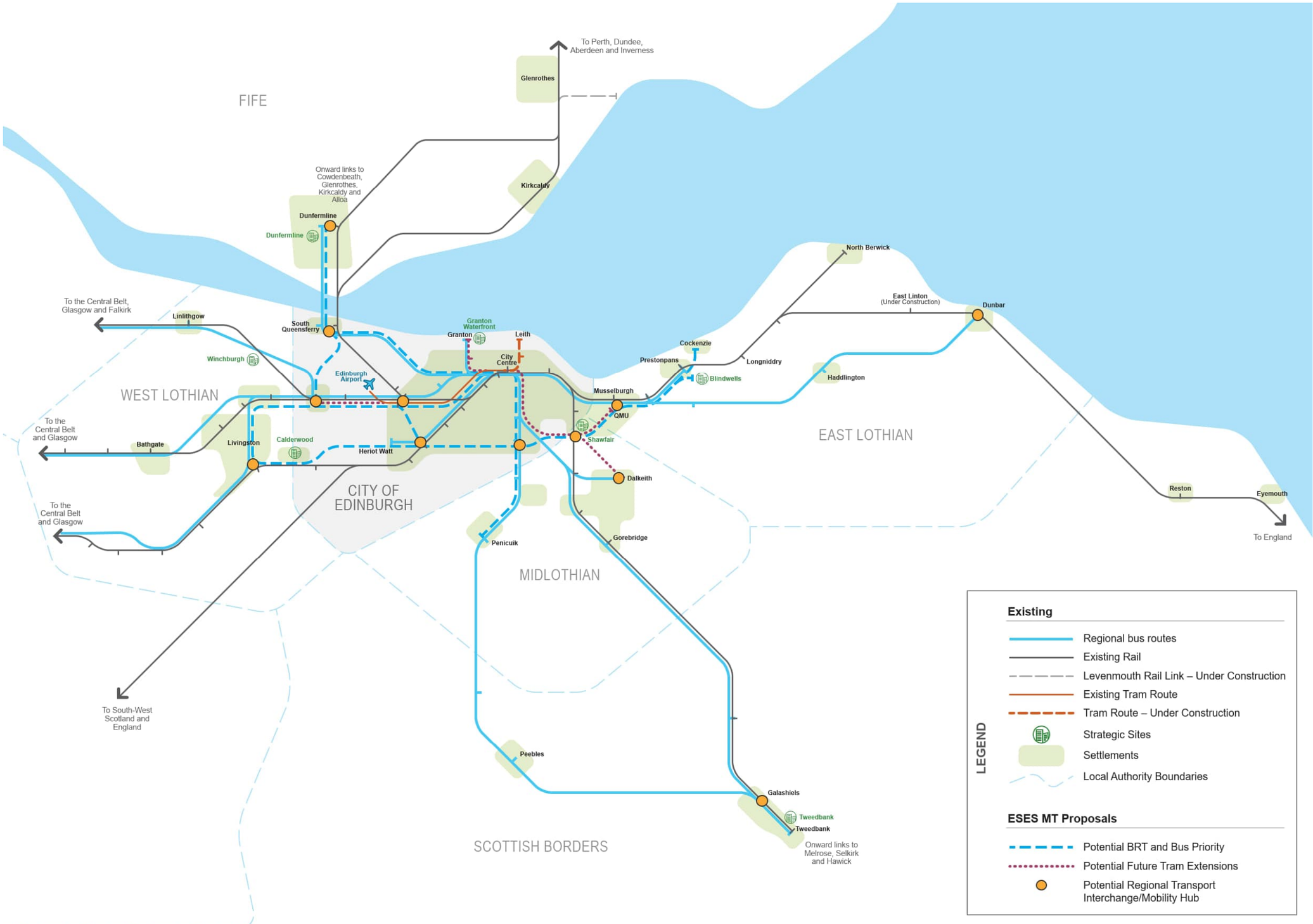
Areas of higher transport poverty (defined as areas with lower levels of car availability, lower household income and lower levels of access to services by public transport) exist in the City Region where more disadvantaged communities have to travel further to access services and also experience lower levels of car availability increasing their dependence on public transport.

This recommendation would provide an accessible and safe public transport system to improve regional cross-boundary connectivity to help overcome inequalities and address where higher levels of transport poverty are experienced. However, the extent to which the benefits of mass transit would be realised for socio-economically disadvantaged groups would depend on the location of the mass transit network and the affordability of the services in comparison to car use and existing public transport options.

However, it is recognised that the funding and revenue model would need to be designed with the affordability of ESES MT to all users considered, to deliver a competitive alternative to the car. This could have positive impacts in helping to reduce inequalities of outcomes caused by socio-economic disadvantage (such as in those areas suffering from transport poverty or lower income areas).

Overall, this recommendation is expected to have a major positive impact in both Low and High scenarios.

Annex A – Conceptual Plan of the ESES MT System


To Perth, Dundee, Aberdeen and Inverness
Glenrothes
FIFE
Onward links to Cowdenbeath, Glenrothes, Kirkcaldy and Alloa
Kirkcaldy
Dunfermline
Dunfermline
North Berwick
East Linton (Under Construction)
Dunbar
To the Central Belt, Glasgow and Falkirk
Linlithgow
South Queensferry
Granton Waterfront
Granton
Leith
City Centre
Cockenzie
Prestonpans
Longniddry
Winchburgh
Edinburgh Airport
Blindwells
Haddington
WEST LOTHIAN
Musselburgh
QMU
Shawfair
EAST LOTHIAN
To the Central Belt and Glasgow
Bathgate
Livingston
Calderwood
Heriot Watt
Dalkeith
Reston
Eyemouth
To England
CITY OF EDINBURGH
To the Central Belt and Glasgow
Penicuik
Gorebridge
MIDLOTHIAN
To South-West Scotland and England
Peebles
Galashiels
Tweedbank
Tweedbank
SCOTTISH BORDERS
Onward links to Melrose, Selkirk and Hawick
LEGEND
Existing
Regional bus routes
Existing Rail
Levenmouth Rail Link – Under Construction
Existing Tram Route
Tram Route – Under Construction
Strategic Sites
Settlements
Local Authority Boundaries
ESES MT Proposals
Potential BRT and Bus Priority
Potential Future Tram Extensions
Potential Regional Transport Interchange/Mobility Hub