

Transport and Environment Committee

10.00am, Thursday, 16 January 2020

City Mobility Plan – Draft for Consultation

Executive/routine Wards Council Commitments	Executive All 16, 17, 18, 19, 20, 21, 22, 26, 27, 48
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1. Recommendations

- 1.1 This report recommends that the Transport and Environment Committee:
 - 1.1.1 notes that engagement with stakeholders and the public during 2018 and 2019 on the City Mobility Plan (Plan) (combined with Edinburgh City Centre Transformation (ECCT)) and low emissions zones (LEZ)) has informed the basis of the ‘City Mobility Plan – Draft for Consultation’;
 - 1.1.2 agrees that stakeholder and public consultation will be undertaken in respect of the Plan in parallel with City Plan 2030 (pending its approval by Planning Committee on 22 January 2020) for an 8-week period from 31 January 2020 to 27 March 2020;
 - 1.1.3 delegates to the Senior Manager - Transport the authority to make final design, layout and minor editorial changes to the consultation document; and
 - 1.1.4 agrees that following consultation a finalised Plan will be brought back to committee in the third quarter of 2020.

Paul Lawrence

Executive Director of Place

Contact: Ewan Kennedy, Senior Manager – Transport

E-mail: ewan.kennedy@edinburgh.gov.uk | Tel: 0131 469 3575

City Mobility Plan – Draft for Consultation

2. Executive Summary

- 2.1 Edinburgh has an ambitious agenda of change, including to be carbon neutral by 2030. Part of this is the approved programme to transform our City Centre and the Council will soon consult on a Main Issues Report (Choices for City Plan 2030) for our next Local Development Plan (City Plan 2030) which considers how the city can develop in the future whilst becoming a carbon neutral city.
- 2.2 To support this, Edinburgh needs a new Plan for mobility and transport that addresses the challenge of dealing with carbon emissions and how we move people, goods and services into and around the city – the City Mobility Plan (Plan) (Appendix 1). This Plan also needs to address air quality, congestion, accessibility and inclusion, cost of travel and convenience of payment, safety and how we use space in the city for people.
- 2.3 The wider policy and legislative context are key influences on the Plan's development, including policy and ambitions on climate change adaption and mitigation, sustainable economic development, improving physical and mental wellbeing and tackling inequalities. Of critical importance is the global climate emergency, with Edinburgh having set an ambitious commitment to work towards net zero emissions by 2030 (supported by an achievement target by the end of 2037).
- 2.4 As part of this process the Council commissioned the Edinburgh Strategic Sustainable Transport Study (ESSTS) Phase 1 of which (Appendix 2), considers and assesses the role of strategic public transport interventions to benefit the city and the wider region and which informs the Plan.
- 2.5 This Plan sets out a new vision of how we move around the city, with key staging posts through to 2030 as part of a step change for the city's sustainable future. The Plan has a focus on what we have achieved so far in enhancing active travel and public transport options and the significant steps we need to take to ensure the city can provide for its future.
- 2.6 The Plan sets out the basis of the proposed consultation. A strategy for significant tram, bus network and active travel interventions which will link with the Edinburgh City Centre Transformation (ECCT) Strategy, update of the National Transport Strategy (NTS), the Strategic Transport Projects Review 2, the emerging Edinburgh

and South East Scotland Region Deal (ESES RD) Growth Framework and City Plan 2030. New policy proposals from the Plan's predecessor, Edinburgh's Local Transport Strategy 2014-2019, are identified to improve mobility and transport in Edinburgh and address the key challenges. Proposals have been developed through a robust review and engagement process, as reported to Committee in March and August 2018 and in February, May and October 2019.

- 2.7 The outcomes of the Plan are that Edinburgh will be a city with a carbon neutral, inclusive public transport system, with good accessibility and affordability, with better air quality and less congestion, with better spaces for people to move around in and enjoy and a leading global city for people to live, work and access services in and for residents and visitors to enjoy.

3. Background

- 3.1 Since the mid-1990s, the Council's transport strategy has been to expand the range of public transport and active travel options as an alternative to car use. It has achieved considerable success. More people use public transport and cycle and walk than in any other Scottish city and most UK ones. Bus patronage has increased at a time when bus use has been in steep decline on other parts of the country. The Council owned public transport companies, Edinburgh Trams and Lothian Buses are popular and affordable.
- 3.2 In summary, the key steps in the current Plan's development overseen by Committee to date are:
- 3.2.1 March 2018: Committee approved an initial stakeholder engagement phase to the review of the Local Transport Strategy (LTS);
 - 3.2.2 March to May 2018: combined engagement with stakeholders on the LTS, ECCT and Low Emission Zone (LEZ) projects to identify mobility issues and opportunities;
 - 3.2.3 August 2018: Committee approved the prospectus engagement paper 'Edinburgh: Connecting our City, Transforming our Places' and an associated engagement stakeholder and public consultation period to cover the three inter-related projects. Committee agreed that the LTS should be replaced by a people-oriented 'City Mobility Plan';
 - 3.2.4 February 2019: Committee noted the findings of 'Connecting our City, Transforming our Places' which was Edinburgh's largest public engagement of 2018 and explored 15 ideas to create a more active and connected city, a healthier environment, a transformed city centre and improved neighbourhood streets. 88% of respondents felt that Edinburgh needed to make changes to deliver a city fit for the future, of which 51% considered that a widespread and radical approach was required; and
 - 3.2.5 May 2019: Committee noted the findings of the further stakeholder engagement in spring 2019 to identify preferred policy measures and agreed

the proposed framework of the draft Plan including a vision, objectives, and packages of themed policy measures and supporting key performance indicators.

- 3.3 The key ideas set out in the 'Connecting our City, Transforming our Places' and the outputs of the associated engagement exercise are the basis for the new policy measures proposed in the Plan, with strong support established for the following:
- 3.3.1 extending the public transport system across the city and the city region to serve more people and employment areas;
 - 3.3.2 a simplified and integrated payment system to cover multiple journeys across the public transport system, including City Car Club;
 - 3.3.3 creating a safe, attractive, accessible and connected network of walking and cycling routes;
 - 3.3.4 providing more bike hire locations across the city;
 - 3.3.5 investing in freight depots around and within the city and supporting delivery within the city by smaller, cleaner vehicles;
 - 3.3.6 introducing and enforcing controls to manage access for large delivery vehicles by size, weight and time;
 - 3.3.7 investing in technology to better manage traffic congestion and improve safety;
 - 3.3.8 investment in electric vehicle charging infrastructure;
 - 3.3.9 expansion of the park and ride network;
 - 3.3.10 managing the amount of general traffic in the city centre and town centres;
 - 3.3.11 charging a levy on businesses in the city providing free parking spaces for employees; and
 - 3.3.12 restricting access for the most polluting vehicles to the city centre and the wider city.
- 3.4 There was also support for ideas to extend parking controls across the city, reduce the availability of on-street parking, provide more car club hire locations across the city and find ways to help people to share car trips within the city and to transport hubs at the edge of the city.

4. Main report

The changing context

- 4.1 Edinburgh faces significant mobility and transport challenges, including those reported to Committee in March 2018, May 2019 and October 2019:
- 4.1.1 There are low levels of public transport accessibility in certain areas of the city and lengthy public transport journey times especially to/from the major

employment areas on the city's periphery including Gogarburn, Heriot Watt and the Bioquarter;

4.1.2 Transport continues to be the single biggest contributor to carbon dioxide (CO₂) levels – in 2017 just over one-third of Edinburgh's CO₂ emissions were derived from road transport ([UK Department for Business, Energy and Industrial Strategy, 2019](#));

4.1.3 Whilst air quality trends show slight reductions in nitrogen dioxide (NO₂) across Edinburgh, there are roadside locations which exceed legal Air Quality Objectives;

4.1.4 One-third of women and one-fifth of men in Edinburgh do not achieve minimum recommended levels of physical activity ([Scottish Health Survey](#)) resulting in associated health impacts including chronic heart disease, diabetes and other obesity related conditions;

4.1.5 19% of peak driving time in Edinburgh is spent in congestion, which adds 40% travel time to each peak time journey (Inrix traffic scorecard report, 2016). The cost of Edinburgh's congestion to the local economy is estimated at £225m per annum (Tom Tom Traffic Index);

4.1.6 Almost 45% of Edinburgh's workforce commute to work by private car daily (over 125,000 people), split almost equally between those from neighbouring local authority areas and those living in the city;

4.1.7 The increased movement of freight and goods on our roads, with the number of light goods vehicles registered in Edinburgh increasing by almost one-fifth in 10 years to over 13,000 vehicles in 2017 (Scottish Transport Statistics, 2018); and

4.1.8 Whilst road casualty levels in the city are reducing, there is opportunity to further reduce the levels of people killed and seriously injured;

4.2 Many of these challenges will be amplified by city and regional growth forecasts with Edinburgh's population forecast to grow by a further 15%, taking the number of people living in the capital to nearly 583,000 by 2041, whilst for the city region the [SESplan Cross Boundary and Land Use Appraisal study](#) (2017) forecasts that if all committed (and non-committed development) in the city region materialises then by 2024 the population will increase by a further 84,000 (7%).

4.3 Collectively these are the strategic mobility challenges to be tackled by the Plan. Many of these challenges cannot however be tackled by Edinburgh alone, as they are issues associated with cross-boundary traffic and movements, therefore regional planning and coordination is essential in tackling such strategic issues.

4.4 The Plan will be aligned with the current review and update of the NTS (as reported to Committee on 11 October 2019) and the Strategic Transport Projects Review which (respectively) set out the vision for transport in Scotland over the next 20 years and consider future national investment in all transport modes. Both are anticipated to be finalised during 2020. It must also inform and support the future

ESESR Growth Framework that is aimed at delivering a joined-up approach to regional economic growth, planning, transport, infrastructure, and housing.

- 4.5 The NTS highlights the important regional dimension of transport strategy and states that *'a regional approach to governance provides an effective means of addressing cross-boundary issues and reflecting travel to work catchments'* and the need for *'a more coherent and joined-up approach to national, regional and local transport together with closer integration between spatial planning, economic development and transport'*. Developing regional governance arrangements are a key feature of the NTS and will be critical in realising the ambition and range of policy measures proposed in the Plan.
- 4.6 To complement and support the ECCT project, and to inform the development of the Plan, City Plan 2030 and Transport Scotland's second Strategic Transport Projects Review, the Council commissioned a study (ESSTS) to consider and assess the role of strategic public transport interventions to benefit the city and the wider region.
- 4.7 Phase 1 of the study is complete and involved developing issues, objectives, an assessment framework and assessing and prioritisation potential transit corridors to support the growing city. Transit from the perspective of the study encompasses public transport solutions that would deliver a step-change in provision above existing services and included tram and bus rapid transit options (e.g. segregated or guided busways). Four corridors will be subject to a more detailed appraisal in phase 2¹ of the study during 2020, and these lie at the core of the outline mobility Spatial Vision set-out in the Plan in Appendix 3 to illustrate how movement into and around the city will be improved by the range of policies within the Plan.
- 4.8 The Plan must also be aligned to relevant city oriented strategic plans and projects, especially the emerging City Plan 2030 which will set out policies to direct development in the city, which will have a notable influence on the areas of the city that people and goods are moved between. Both plans are therefore being developed in parallel, with the *Choices* Main Issues Report for City Plan 2030 being reported to Planning Committee on 22 January 2020, seeking permission to consult on the *Choices* for the city. Due to the strong interconnection and dependencies between both plans, both will undergo a period of joint engagement pending approvals by the respective committees. The City Plan 2030 is due to be finalised in the third quarter of 2020.
- 4.9 Further close alignment is being achieved through joined up working across the interlinked projects of the Plan, ECCT and development of a LEZ, with the preferred LEZ scheme being determined in 2020. The ambitions and outcomes set out by the ECCT programme cannot be realised without a combination of policy measures in the Plan, for example strengthened public transport and active travel integration, Park and Ride interchanges, and parking controls to improve travel choices and influence behaviours away from private car usage.

¹ Phase 2 will also consider whether options could be extended into adjacent authorities to support travel demand from the wider region

City Mobility Plan (Plan)

- 4.10 The Plan seeks to create a bold, new, strategic framework for the safe and effective movement of people, goods and services around Edinburgh whilst seeking to address the associated environmental and health impacts.
- 4.11 The proposed strategic framework and package of policy measures which was approved by Committee in May 2019 forms the basis for how the Plan is framed, as follows:
- 4.11.1 the changing context, and strategic mobility challenges facing Edinburgh, as described earlier in the report; and
 - 4.11.2 an updated vision to define the remit of the Plan and describe the desired future for transport and mobility in Edinburgh and to reflect the climate emergency: *“Edinburgh will be connected by a safer and more inclusive carbon neutral transport system delivering a healthier, thriving, fairer and compact capital city, and a higher quality of life for all residents”*.
- 4.12 Phasing is set-out within the Plan to illustrate a range of policy measures to be implemented over the life of the Plan. A more robust programme of work required to deliver the package of policy measures, including priorities, scheduling, roles and responsibilities, budgets and funding sources will feature in a Delivery Plan that will be developed to be brought to committee in the third quarter of 2020.
- 4.13 The public and stakeholder consultation will focus on the draft Plan’s vision and actions, objectives, the new policy measures and themes and the approach to the development of a future monitoring framework; all of which are set out in Appendix 1.
- 4.14 The future development of the transport system for the city is a matter of interest for, and will impact upon, all those who live, work, study and visit the city. In particular, key groups include the city’s residential communities, local businesses, third sector and member organisations, transport providers, the further and higher education sector and the development industry.
- 4.15 As reported to Committee previously, the Plan has been informed by a high level of public and stakeholder engagement over the past two years, undertaken with the Edinburgh City Centre Transformation and Low Emission Zone projects. The Council wants to build on this and achieve an active and participatory approach to engagement with stakeholders and the public. All interested parties will:
- 4.15.1 have an improved awareness of the case for change and the range of policy measures to be progressed in Edinburgh;
 - 4.15.2 have the ability to input views on the key aspects set out in the Appendix 1 via the Council’s consultation hub and social media, printed response forms, and through public events;
 - 4.15.3 be confident that their views have been heard by the Council; and
 - 4.15.4 be aware of the next steps for the work and opportunities to be involved in future delivery.

- 4.16 Due to the strong interconnection and dependencies, consultation will be undertaken in parallel with the Choices Main Issues Report for City Plan 2030 being reported to Planning Committee on 22 January 2020, with a range of workshops and drop-in events planned across the city.

5. Next Steps

- 5.1 Stakeholder and public consultation will be undertaken in parallel with City Plan 2030 (pending its approval by Planning Committee on 22 January 2020) for an 8 week period from the start of February 2020.
- 5.2 Also, by the end of February 2020 a survey of travel behaviour across the city will be complete. Phase Two of the Edinburgh Sustainable Transport Study, which will provide greater analysis of the main transport corridors of the city, will have been commissioned. Based on the outputs of the consultation and behaviour survey, a finalised Plan be developed to bring to Committee by the third quarter of 2020, featuring a fully developed monitoring and evaluation framework and associated indicators and targets, including travel mode targets.
- 5.3 The monitoring framework being developed will align with the adopted ECCT Strategy and forthcoming City Plan 2030 and LEZ projects to ensure an integrated approach, and to continue the close alignment of these mutually supportive projects.
- 5.4 A delivery plan that will package and phase the implementation of actions and policy measures will be developed to support the submission of the finalised Plan. Thereafter, when there is greater clarity on the emerging findings from the broader range of national, regional and city strategies and plans that will have a bearing on mobility, the finalised Plan and Delivery will be amended as required to encompass such findings. The finalised Plan and supporting Delivery Plan will continue to be reviewed every three years thereafter, to ensure it responds to the changing legislative landscape and economic conditions.
- 5.5 By continuing to engage with Transport Scotland through the Edinburgh and South East Scotland City Region Deal's Transport Appraisal Board – the Board through which Transport Scotland engages directly with the City Region Deal projects, and by the Council being a key partner in developing the South East Scotland Region Growth Framework South, the Council will be kept fully informed of emerging developments in the national and regional context. Funding bids have been made to European Regional Development Fund (ERDF) and Sustrans to improve the collection and analysis of data for the purpose of strategy development and operational management.

6. Financial impact

- 6.1 There are no direct financial implications arising from this report but the final Plan and associated delivery plan could have significant financial implications. The next

stages of the Plan's development will include the preparation of costings and development of a funding strategy.

- 6.2 A 'Places for Everyone' funding bid for £70,000 has been secured through Sustrans to cover the cost of developing a travel behaviour survey and coordinating Progressive Research to undertake the survey of 5,100 city residents, which is underway.

7. Stakeholder/Community Impact

- 7.1 A Strategic Environmental Assessment (SEA) and an Integrated Impact Assessment (IIA) have been undertaken, which have informed the refinement and revision of the Plan through its developmental phase.
- 7.2 The SEA adopted a matrix-based approach assessing:
- 7.2.1 the compatibility of the Plan's Objectives against SEA Objectives and in line with recommendations these were refined to best achieve environmental and wider sustainability outcomes;
 - 7.2.2 the packages of policy measures and alternative policies within each package against the SEA objectives and SEA assessment criteria to determine mitigation and enhancement recommendations;
 - 7.2.3 the packages of policy measures focusing on the key changes, identifying where mitigation measures/recommendations had been adopted and considering the in-combination, secondary and synergistic effects of implementing these policies; and
 - 7.2.4 individual policy measures where it was identified that there was further detail, spatial information or mitigation measures recommended.
- 7.3 Cumulative impacts were considered at the intra-plan (the impact of a combination of packages of policy measures) and the inter-plan (the impact of the plan alongside other plans and policies) levels, focusing on the adopted ECCT Strategy and forthcoming City Plan 2030.
- 7.4 The key SEA recommendations include refinements to the objectives, alternative policies and policy wording, caveats and monitoring controls based on the environmental criteria that consider and respond to both direct impacts and indirect, secondary, and cumulative impacts. A Non – Technical Summary which provides a synopsis of the SEA process, and findings to date, has been prepared and is appended to this report (Appendix 4). An Environmental Report detailing the full SEA assessment will be available for consultation along with the final draft Plan. The Environmental Report will be updated following the consultation process and the finalisation of the Plan.
- 7.5 The Integrated Impact Assessment (IIA) ensures policy measures take account of equality, Human Rights and Socioeconomic disadvantage. The IIA also incorporates environmental effects from the SEA.

7.6 The IIA has been informed by primary and secondary sources. This includes events, surveys and market research associated with the 'Connecting our City, Transforming our Places' engagement process, various meetings with the Edinburgh Access Panel and an equalities workshop. A draft IIA is available as a background paper and will be updated following consultation.

8. Background reading/external references

- 8.1 [City Mobility Plan – strategic framework and package of policy measures](#), report to Transport and Environment Committee, 16 May 2019.
- 8.2 [Edinburgh's Local Transport Strategy review](#), report to Transport and Environment Committee, 9 March 2018.
- 8.3 [Sustainability Approach](#), report to Corporate Policy and Strategy Committee, 14 May 2019.
- 8.4 ['Edinburgh: connecting our city, transforming our places' – findings of public engagement and next steps](#), report to Transport and Environment Committee, 28 February 2019.
- 8.5 ['Edinburgh: connecting our city, transforming our places' – public engagement on City Mobility Plan, Low Emission Zone\(s\) and City Centre Transformation](#), report to Transport and Environment Committee, 9 August 2018.
- 8.6 [National Transport Strategy 2 – Draft for Consultation](#) published by Transport Scotland, 31 July 2019.
- 8.7 [National Transport Strategy 2 – Response to Consultation](#), report to Transport and Environment Committee, 11 October 2019.
- 8.8 [Edinburgh and South East Scotland Regional Growth Framework](#), report to Edinburgh and South East Scotland City Region Deal Joint Committee, 3 September 2019.
- 8.9 [Strategic Transport Projects Review](#), published by Transport Scotland in 2008.
- 8.10 [Local Transport Strategy 2014-2019](#), report to Transport and Environment Committee, 14 January 2014.
- 8.11 Draft SEA and IIA are available as background papers.

9. Appendices

- 9.1 Appendix 1 - City Mobility Plan – Draft for Consultation.
- 9.2 Appendix 2 – Edinburgh Strategic Sustainable Transport Study (ESSTS)
- 9.3 Appendix 3 - Spatial Vision
- 9.4 Appendix 4 – Draft Strategic Environmental Assessment Non – Technical Summary

CONNECTING PEOPLE - TRANSFORMING PLACES

A mobility plan for Edinburgh 2030

Part 1

Foreword

The case for change

Listening to people

City leadership in a changing world

Our city's progress

The Vision 2022 / 2025 / 2030

Part 2

Strategic Priorities

- *Enhancing public transport*
- *People friendly streets*
- *Planning new developments*
- *Managing demand*

Delivery, monitoring and performance framework

Part 1 – The Strategy

Foreword

The case for change

Listening to people

Meeting the challenge

Our city's progress

The Vision 2022 / 2025 / 2030

FOREWORD

Across the world, progressive cities are embracing the global challenges of climate change and inequality with action and vision. Transport, the way we move people and goods around, and in and out of cities, is being revolutionised.

Transport is the single biggest contributor to greenhouse gas emissions, including carbon, and central to the damage we are doing to our planet. If we are to meet the challenge of becoming net carbon zero by 2030, our transport policies and practises have to change.

It's not just the climate cost to future generations. In Edinburgh, we spend nearly £1 billion a year on transport. That's over £80 per household per week to move around, in and out of the city. By 2030 we will be spending £1.3 billion. That means we spend more on transport than anything else apart from mortgages or rents.

And this doesn't take into account the cost of transporting goods and services, nor the cost of unproductive hours spent in congested traffic, the social cost of fatalities and serious injuries due to traffic, or ill health and early mortality affected by the impacts of poor air quality.

These costs directly affect us all and fall disproportionately on those on low to middle incomes who are struggling week to week to balance household budgets or simply failing to at all. The least able to afford, pay the most.

Edinburgh needs mobility systems that, by 2030, are carbon free, efficient, accessible and affordable, and allow people to spend more time improving their quality of life. We need a transport system designed for everyone, whatever our location, economic circumstances, gender, culture or abilities.

Over the past ten years Edinburgh has made significant progress. But now is the time for bolder, more transformational action.

Making a positive difference to people's lives in a fast changing environment requires ambition, courage, focus and a change of pace in delivery. We cannot spend another twenty years building a single tram line, when we need to develop a truly integrated public transport network, including additional tram lines, in the next ten years.

Our vision requires public consent and support. Though the outcomes set out in this strategy will benefit current and future residents of the city we know change can be disruptive. We need to listen to what people tell us, and involve communities even more in designing and delivering the solutions of the future.

We are confident that as a city working together, for the sake of its future, we can make this happen. We look forward to listening to your views and working with you to make Edinburgh a better place to live for all of us.

Councillor Lesley Macinnes
Transport & Environment
Convener

Councillor Karen Doran
Transport & Environment
Vice-Convener

January 2020

1 - THE CASE FOR CHANGE

Transport and mobility are undergoing a revolution. Cities across the world are rapidly changing and taking on the challenges of carbon emissions, unprecedented technological change and directing change to address climate change, exclusion, inequality and governance issues.

Edinburgh has set out an ambitious agenda of change – to be carbon neutral by 2030; tackling poverty, inequality and exclusion; being a city and regional economy that benefits everyone; and to be the data capital of Europe.

How we meet those goals will be determined to a large extent by how, in the future, we travel around, to and from the city, and how we deliver goods and services to the places where people need them. We need to redesign public transport services and active travel routes to ensure that they serve the needs of residents and visitors to give them effective, accessible, affordable and safe options for travel which reduce dependency on car ownership.

This is our case for change.

Carbon emissions and climate change

Edinburgh has committed to be carbon neutral by 2030.

Transport, the way we move people, goods and services around places, is one of the biggest causes of carbon emissions. In Scotland, over 37% of carbon emissions are accounted for by transport. Road transport accounts for 68.1% of total transport emissions. Buses account for just 4.5% of these transport emissions. Unlike most sources, where carbon emissions are reducing, those from transport, particularly road transport, have been increasing.

If carbon emissions are not significantly and rapidly reduced, climate change will, at best, cause severe disruption and significant cost for future generation for decades, if not centuries to come. Revolutionising how we move people, goods and services around places is essential to achieve this.

Reducing the cost of travel

In cutting carbon emissions, we also have an opportunity to make future transport more equitable and accessible. After housing, transport costs are the single biggest household expenditure in the UK with an average weekly spend of £80.80 or 14% of the household average total weekly expenditure. The financial cost of moving goods and services is also a significant cost for business.

These costs do not include the long-term costs of transport-based pollutants on health or transport-based carbon emissions on future generations. Neither do they include the indirect costs on our quality of life of a vehicle dominated environment, congestion and the amount of unproductive time spent travelling.

From the day to day costs of travel on families, to the medium-term costs of poor productivity on business and public services, to the long-term costs of carbon on future generations, the case for accelerated transformational change in the ways people, goods and services move around to and through cities is also, critically, an economic one.

As wages and entitlements fall behind the cost of living for the majority it is imperative our transport systems are better designed for accessibility and affordability.

Congestion on our road traffic network

Edinburgh's transport network is highly congested. Pedestrians, bikes, cars and buses compete for limited space with goods and service vehicles. Travelling is often stressful and time consuming. It adversely affects our quality of life and well-being, sometimes significantly.

Too much time spent travelling between the places where we live and work, and those where we relax, enjoy our lives and look after each other, means less time doing the things that make our lives better, healthier and happier.

Goods and services stuck in traffic and transit have a direct impact on the cost and productivity of businesses and public services, while delaying emergency vehicles can literally be the difference between life and death.

The way we travel exacerbates congestion. Cars are the most inefficient form of transport on our road network:

- Cars can deliver between 800 and 1,100 people an hour along a 4-metre-wide road. Buses can transport 8,000 – 12,000 in the same space and active travel (cycling and walking) between 5,000 and 10,000 people.
- Cars take up between 5-10 times more available road space than public transport or other forms of active travel.

The amount of road space cars use is increasing year on year. In 2017, 65% of all journeys were made by car or van - an increase from 61% in 2012. The proportion of single occupancy journeys increased from 62% in 2007 to 66% in 2017. Only one in ten car journeys involve three or more people.

The road network is further pressured by how we route our public transport. Almost all local, regional and inter-city bus and many freight routes come

through the city centre, the majority through Princes Street, Lothian Road and the bridges.

What should be among the highest quality public spaces in Europe often resemble a large open-air bus garage. A city which should be a joy to walk around is quite often the very opposite.

Getting in and out of the city on the road network, particularly at times when people are travelling between their home and work, is increasingly difficult. Delays on key access points to the city and pressure along the city bypass are commonplace, leaving people, goods and services stuck in traffic and not in the places they need to be.

Congestion is adversely affecting our communities along these routes, making their places more polluted, more dangerous and less pleasant places to be.

However, compared to other UK cities, the proportion of land given over to road space in Edinburgh is small. In Glasgow the proportion of roads to land is 25%. In Edinburgh it is 12%.

That more land is given over to public realm and greenspace (Edinburgh has the highest proportion of green space of any UK city) is one of the primary reasons that the city rates so highly for its quality as a place to live, but we need to be much better at making the road space we have more efficient and more productive at moving people, goods and services around.

The prioritisation of space, more efficient forms of travel and better designed routing and integration, particularly of bus networks, is a key requirement of a better transport system.

And with the need to travel comes the need to better manage demand. Demand management, through digital and non digital intervention, will be a requirement if the vision set out in this plan is to be achieved.

Congestion on our train network

While trains are some of the most space efficient forms of passenger and freight movement, reliability and overcrowding across the city region rail network is poor, as is the integration of bus and active travel networks.

This puts further pressure on the limited road space available both on the network and in and around local communities, as people choose car instead of train, taking up valuable road space on the traffic network and limited roads space for parking in and near to train stations.

Increasing network capacity, train capacity and frequency of services is essential to make the best use of the significant rail network infrastructure.

Freight, goods and services

The way we receive goods and services has been transformed in recent years. The growth of on-line shopping continues and is now some 20% of UK retail sales. This is one of the most fundamental changes in the way people and goods move around and in our city and town centres and how they are changing.

The growth in the number of delivery vehicles that bring goods straight to our door increases carbon emissions, air pollutants and congestion on our limited road space.

Change is happening in our public services too. As our population ages and more people are enabled to live at home rather than in institutional care, the model of health and care service delivery has changed too. Home based rather than hospital-based services predominate, largely dependent on cars to transport health and care workers to people's homes.

Our businesses and public services providing goods and services require reliable, efficient travel and certainty to maximise productivity and reduce costs and energy consumption. Given the significant impact on productivity and economic well-being there is a need for a more strategic partnership between public authorities, businesses and communities to address the radical and disruptive changes to our logistics networks.

Air pollution

The way we travel accounts for one third of the air pollution caused by nitrogen oxides and one sixth caused by small particles. In Scotland fine particulate matter is associated with around 2,000 premature deaths and around 22,500 lost life years across the population.

Most of these emissions are caused by road transport. Nitrogen oxides are toxic gases that cause premature deaths and cause serious damage to ecosystems.

The failure to curb air pollution significantly increases the risk of diseases like asthma, respiratory and heart disease and is particularly a risk for the old, the young and those with pre-existing conditions. In neighbourhoods along busy roads, motor vehicles are responsible for most local pollution and most environmental noise.

Public and private investment in the infrastructure needed to support electric vehicle use is essential alongside significant enhancement of public transport options and accessibility.

Safety

While cars are the single biggest cause of road accidents it is pedestrians who are more likely to be killed or seriously injured. Pedestrians are 22 times more likely to be killed in a road traffic accident than a car occupant. Cyclists are four times more likely to be killed in a road accident than pedestrians.

As the volume of cars on our streets grows, people are increasingly concerned about safety. As a result, more vehicle trips are generated by, for example, people driving their children to school; whilst this may keep them safe it makes the likelihood of car accidents greater by increasing the volume of traffic around schools and large numbers of children.

The high level of risk pedestrians and cyclists face is a major obstacle to encouraging more people to cycle and walk between the places they live work and visit. We need to think about how we use our road space and how we travel to keep people safer.

Our public places and town centres

Edinburgh is often described as a series of villages and parks. The streets in our communities are too often dominated by traffic, mostly cars, which affects our social and recreational spaces. Instead of destinations where public space is used for visiting and economic and community activity, public space is where traffic flows through on its way to somewhere else, polluting,

dominating public space, and disrupting people and economic activity as it goes.

In September 2019 we set out an ambitious 10-year city centre transformation plan, with widespread public support, to move from a traffic dominated city centre to a people friendly one. For the last 20 years, traffic dominated cities across the world have been making similar changes, recognising the benefits to people, communities, economic activity and health and well-being as a result. It will be challenging to deliver this, but the benefit will be enormous.

It will mean car and heavy bus dominated traffic within the city centre will be replaced by infrastructure for walking, cycling and lighter, and by smaller cleaner passenger vehicles for those whose mobility constraints would find this approach too challenging. Large capacity buses will take people around the city centre and bus networks will be redesigned to ensure that people have faster, more direct journeys to other parts of the city. Secure, direct, segregated active travel routes will continue the transformation of our capacity for cycling and walking.

A similar approach needs to be taken with our town centres, reducing the domination of inefficient traffic and allowing for people friendly places.

On street parking is one of the major points of traffic/people conflict in these town centres and on the road network. With limited road space, on street parking and more cars, the current approach is not sustainable. On-street parking on the road network provides too many obstacles to the free flow of more sustainable forms of transport and travel. Increasingly, car and van drivers are using pavements to park making the limited space available

difficult to navigate for walkers and inaccessible to those with mobility challenges like buggies or mobility scooters.

Learning from the approach adopted in places like Waltham Forest in London, each of Edinburgh's 'towns and villages' needs a plan to reduce car dependency, promote active travel, and increase the quality of public space.

Strategic planning and delivery

In Lothian Buses and Edinburgh Trams we have two award winning, publicly owned transport companies which, in their own right, operate two of the most successful and popular bus and tram services in the UK. However, within the public transport network, there are many opportunities for greater integration in areas like pricing and ticketing, integrated routing, and creating a better overall public transport experience but these are too often lost.

The introduction of the bike share scheme by Transport for Edinburgh is an important recent development. But integration of this with the public transport and active travel network is critical if the growth and expansion of travel by public transport, cycling and walking are to offer a better, more affordable and more attractive alternative to the car.

Better alignment of strategic business planning and operational management of the Council owned transport companies with the city's transport travel policy and programmes needs to be accelerated if the foundation for a transformational change is to be laid securely.

Equally the strategic framework and governance structures that guide regional transport infrastructure and planning are evolving. Scottish Government, Transport Scotland and neighbouring local authorities, for

example with the Lothian area local authorities, have much to do to ensure that an integrated strategic approach is taken.

The development of the Edinburgh and South East Scotland City Region Deal, provides the opportunity to renew the approach to economic growth and align it with spatial and transport strategy at the regional level. New governance for better strategic planning and delivery can provide the basis for better decision making and allocation of resources against common outcomes and objectives.

The Scottish Government and Transport Scotland are progressing the second National Transport Strategy and Strategic Transport Projects Review 2 with a focus on carbon reduction and public transport/active travel priorities; along with these a review of the National Planning Framework and Scottish Planning Policy is underway, giving a context for significant change.

Technology

Advances in digital technology and the deployment of data have revolutionised our lives. We have vast amounts of information at our fingertips giving us access to increasingly personalised services on demand. We can quickly check the best routes and times on public transport simply by telling our mobile devices where we want to go. We can summon a taxi simply by putting a destination into an app.

We can download travel passes on to our devices and paper tickets are rapidly becoming a thing of the past. We can wave our bank card at a payment device on a bus and have confidence in being charged the cheapest fare.

Technology should further revolutionise personal mobility and the movement of goods and services over the next ten years. A single mobility account for

public transport, emission free and shared bus and taxi services and dynamic timetabling that adjusts to demand will be part of this. Active sensors to manage congestion and traffic flows and personalised transport services that direct mobility services for people who have difficulty accessing mainstream public transport networks could also be significant features of the transport system by 2030.

Harnessing the potential of technology to get people, goods and services from door to door more easily, with seamless transfer and more affordably will be an essential feature of our strategy and use of technology to manage traffic.

However, we will need data to be open and useable if its potential is to be maximised. This makes partnerships with the Data Driven Innovation programme led by the University of Edinburgh, essential

For all the people

The way that transport systems recognise and incorporate peoples' different needs and behaviours can have a significant impact on their ability to find and sustain work, to look after children and relatives and to use health, education and other public services.

People's lifestyles and living patterns are changing and transport policy and systems have found it difficult to keep up. The lack of buggy and wheelchair space on some of Edinburgh's buses has been a significant source of debate in recent years.

Few households can afford to have one adult solely looking after the care and support of other family members. More people hold down jobs and caring responsibilities at the same time. Carers often need to make several stops on their journeys to and from work; to accompany children to school; to visit an

older relative; or to shop for food. Twice as many women as men make multi stop and multi-purpose journeys. Twice as many women as men travelling to work during peak hours do not go directly from home to work.

Women and people from identifiable minorities fear being assaulted or harassed on the public transport network and cycle and walking footways. They are more likely to choose to travel by car or taxi because it is personally safer.

Young people are travelling in different ways and have less disposable income to spend on travel after housing and education. Engagement undertaken during the development of the Scottish Government national transport strategy evidenced that young people were worried about cost and safety on public transport.

As healthcare improves, the number of people with long term limiting mental or physical health conditions is growing and many of these people are more likely to have low incomes and find the cost of transport less affordable. They may also have greater difficulty accessing information, with making multiple changes for different services, at interchanges and have different experiences and perceptions of being safe on the public transport network.

Scotland's population is ageing. The number of people over 75 will nearly double by 2040. While historically people have tended to travel less as they get older, they are now fitter, healthier and more active in travelling. Increasingly specialist public services like health are accessible on line or in hubs but older users may need to travel to access more specialised, centralised medical care, whilst relatives and carers may need to travel to care for people in their homes as the growth of home care over residential care continues.

Isolated communities

While some parts of the city are well connected to public transport routes others are not.

Many of the most disadvantaged communities are on the periphery of the city. They must travel longer distances to get jobs many of which are in city centre locations or on the other edges of the city. Low levels of car ownership in the poorer and more peripheral areas of the city mean many of them are doubly disadvantaged. Neighbourhoods like Muirhouse, Pilton, Granton and Drylaw in the North, Clermiston and East Craigs in the West, Sighthill and Wester Hailes, Oxgangs and parts of Gilmerton in the South and Lochend, Seafield and east edge of Leith all have relatively high levels of population but low levels of public transport accessibility.

Rural areas in the West of the city, which are experiencing significant population growth, like Ratho, Kirkliston and South Queensferry are all relatively poorly served by public transport.

Fewer than a quarter of resident workers have public transport journey times of less than 20 minutes to work. Public transport journey times to jobs in the peripheral areas of the city are almost double those of jobs in the city centre. While most of the working age population can get to work in the city centre in 40 minutes or less by public transport, this falls to 63% to get to work in Leith, to only 42% to get to work in the places like Gogarburn and Heriot Watt. Across the city region, the city's job market opens up opportunities for people from relatively job scarce communities if the public transport infrastructure and accessibility is right.

The future

The number of people who live in Edinburgh who travel to work in the city is growing, as is the number of visitors.

Edinburgh is the fastest growing city in Scotland and one of the fastest growing in the UK. The city population has grown by almost 10% in the last ten years. By 2041 the city's population is forecast to grow by a further 13% to nearly 600,000.

That growth creates pressures. Edinburgh is the greenest city in the UK. It is, mostly, made up of dense urban spaces where people live and work and large open greenspaces and green corridors. The road space connecting them is limited. With the exception of the off-road cycle paths along the old railway network there are very limited direct cycling routes joining places up within the city.

Building on and repurposing brownfield land rather than lower density development on greenfield sites has been the city's preferred approach to development. It is the most sustainable approach, but if it is to be successful and connect the city's dense built up areas to each other and to its green places better, public transport and cycling and walking routes and accessibility need to be prioritised and improved.

2 - LISTENING TO PEOPLE

Work on the City Mobility Plan as a replacement for the Local Transport Strategy 2014-2019 began in 2017. Over the last two years the process of creating the Plan has involved extensive engagement and co-production with a wide range of individuals, groups and organisations.

The first stages in the process included:

- Researching developments, trends and best practice around the world to learn what other cities are doing well as being part of the EU's Civitas network through the SUMP's Up project (a two year best practice learning programme). This directed the review process and encouraged networking with other European cities.
- Identifying transport and mobility issues and opportunities through various activities, including analysis of transport related consultation and engagement outcomes from a range of recent stakeholder projects, including the 2050 Edinburgh City Vision.
- A series of stakeholder workshops and meetings on the Plan and the Low Emission Zone and City Centre Transformation projects, involving over 200 stakeholders from a wide range of user groups and public, private and third sector organisations.
- Market research across the city and into the wider region speaking to drivers, residents, businesses, and under-represented groups (young and older people, people from ethnic and language minority groups, people with mobility difficulties and those on low incomes).
- Engagement with the Transport Forum, with representatives from a range of mobility interests across the city, serving as the key stakeholder advisory

group, and engagement with the Edinburgh Access Panel to ensure the Plan will lead to a city accessible to all.

Following this engagement, 15 'big ideas' were set out in 'Connecting our City, Transforming our Places' as part of a wide-ranging public consultation in autumn 2018.

This was the largest public engagement exercise undertaken in Edinburgh in 2018 and included public drop-in events, focus groups workshops including one dedicated to young people from schools across the city, surveys and market research targeting hard to reach citizens, including drivers.

More than 5,000 people contributed their views (either through the Council's online survey (4,192 returns), through workshops, focus groups, drop-in events or by groups and organisations submitting written responses. Key outcomes included:

- 75% of survey respondents supported the introduction of vehicle access restrictions for the most polluting vehicles.
- 90% supported the Council investing in electric vehicle charging points.
- 91% supported controlling large goods vehicles within the built up area.
- Focus group participants thought it essential that shoppers and people with mobility difficulties or with small children were able to park to access local shops and services.
- Workshop and focus group comments talked about the negative impact of the volume of bus traffic on the enjoyment of Princes Street.
- 87% of survey respondents supported contactless payment and integrated ticketing to make it easier to change between modes of public transport and reduce passenger costs.

- In face-to-face discussion participants supported quick and easy transfer at public transport interchanges such as Haymarket.
- Issues with access to Waverley Station and transfer to bus, tram and taxi connections were frequently raised.
- 55% of survey respondents favoured expanding bike hire, 39% car club hire, 40% car sharing and 20% peer-to-peer car lending to improve transport choices for those without access to a private car or in locations that are poorly served by public transport.
- 93% favoured expansion of park and ride facilities as a good way of reducing traffic in the city centre and town centres.

Co-production throughout the review has involved cross-service working throughout the relevant parts of the Council (including parking, planning, public transport, active travel and road safety).

A Strategic Environmental Assessment has been undertaken with close working with various organisations including Historic Environment Scotland, Scottish Natural Heritage and SEPA. In addition, an Integrated Impact Assessment has been carried out to assess the potential impacts of the Plan on a variety of population groups – as well as analysis of outcomes of all previous engagement exercises, further workshops were undertaken including a workshop with Edinburgh Access Panel.

Specialist input has been received from various sources:

- Nottingham’s Workplace Parking Levy officer, the only one of its kind in the UK, visited Edinburgh to give advice.
- Transport consultants provided support throughout the process, including helping to draft various appraisal scenarios that tested the impact of future changes in the city.

Monitoring and evaluation expertise has been received through Edinburgh’s involvement in the EU funded Sustainable Urban Mobility Indicators monitoring project.

Specialist consultants undertook the Edinburgh Sustainable Transport Study which aimed to identify corridors for mass transit opportunities in Edinburgh.

Engagement with Transport Scotland through the Edinburgh and South East Scotland City Region Deal’s Transport Appraisal Board ensured that the Plan reflects emerging transport developments in both regionally and nationally.

Further stakeholder engagement in spring 2019 involving more than 100 stakeholders and the Transport Forum helped identify the policy measures that form the basis of this Plan.

3 – CITY LEADERSHIP IN A CHANGING WORLD **Manchester – growing a tram network**

Cities across the world are stepping up to respond to the way dramatic changes affecting people’s lives. How we move around cities, and to and from them, has a significant effect on our quality of life and the places we live, work and visit.

For our transport strategy we have taken inspiration from cities all over the world:

Bordeaux – an integrated public transport system

Bordeaux has radically changed its public transport system to address a range of issues including congestion, social isolation and lack of space for pedestrians and cyclists.

Trams were introduced in 2003 and now run on three different lines. Buses run on a network of nearly 80 lines with traditional routes serving residential, business, study and leisure areas and bespoke routes that meet specific needs, including faster routes that cover greater distances, suburban routes that avoid the city centre, shorter round-trip routes and bookable custom routes with moveable departure points.

25 Park and Ride sites located close to bus and tram routes allow car based travel to be managed around the edges of the city. A bike hire scheme based around 139 locations and a river shuttle boat serving five stops on the banks of the River Garonne add to the integrated system created for the city.

Manchester Metrolink tram network has grown significantly through several phases of expansion since 1992 to a network of more than 62 miles and 93 stops. It is now the UK’s largest light rail system. Further expansion is planned and the role of Metrolink in supporting economic growth and housing market renewal in Greater Manchester means there is a need for significant additional capacity by 2040.

In 2018 Manchester set out its plans for the largest cycling and walking network in the UK including:

- 1,000 miles of walking and cycling routes connecting communities across Greater Manchester.
- 75 miles of fully segregated routes along some of our busiest roads prioritised in the first phase of delivery.
- 1,400 new crossings for busy roads or other physical barriers that divide communities.
- 25 ‘filtered neighbourhoods’ — where the movement of people is prioritised over through traffic and more green, community spaces are created.

The investment in the ten year plan is estimated to be £1.5 billion.

Copenhagen and Barcelona – creating places for people

Copenhagen has been at the forefront of reducing on-street parking for more than 50 years, starting with the pedestrianisation of the city centre in the 1960s when its 1.15 km main street, Strøget, was closed to vehicles. More

recently there has been an acceleration in the removal of parking spaces – between 1995 and 2005 the number of spaces in the centre of the city was reduced by 12%. This, along with wider parking and transport policies, has seen the number of people driving to work fall from 22% to 16% and the number of people cycling to work increase to 41%.

Through its Superblock Plan, much of Barcelona’s 19th century city grid is being adapted to restrict traffic to the periphery of groups (or blocks) of streets. Inside each Superblock there are one-way streets in operation for use by residents and businesses, and new public spaces to support community life. The first Superblock was created in the Poblenou area of the city in 2016. Alterations made to the Superblock included expanding area for pedestrians by 80%, installation of new seating, new children’s play areas, increased areas of greenspace and a dramatic reduction in the number of free parking spaces.

Auckland – invest in and delivering public transport integration

Until recently transport policy in Auckland, New Zealand had made it a car focused city, however that is changing – a series of infrastructure interventions, mass public transport-oriented policy decisions, investment and hard work from all political parties mean Auckland is becoming a city where there is less need to own a car.

The change in direction started in 2003 with the opening of a new city centre train station that made rail travel more attractive by taking passengers into the centre of the city. This success convinced the government to support electrification and other upgrades to the city’s suburban rail network.

In 2008 the city’s Northern Busway was opened. A segregated bus route served by six stations (some with park and ride facilities) the Northern Busway added bus services to areas of Auckland with no bus routes – its success has shown that everyone will travel by bus if the speed, frequency and reliability is high enough.

To facilitate easy use of public transport in Auckland an electronic fare payment card, the HOPS card is valid on all public transport in Auckland, ensuring passengers only pay once for connected journeys.

In 2019 the number of trips made by public transport is expected to reach 100 million, but the public transport system is still not perfect – there are still some areas poorly served by public transport. However, the success of the measures introduced since 2003 has proved that the concept of improving public transport works so investment has been committed to further improvements.

Further planned improvements include new electric trains, extensions to busways, new interchanges and increases in rail capacity in the city by 2024.

Malmo – targeting oriented transport demand

Malmo’s sustainable urban mobility plan is based around the need for economic, social and environmental sustainability and the view that a holistic planning approach will improve quality of life for everyone in Malmo. The vision for the plan states that walking, cycling and public transport are the first choice for all who work, live or visit Malmo.

As in Edinburgh, Malmo is experiencing a large growth in population as well as growing number of jobs in the city and population growth in the wider city region.

To deal with existing traffic and the growth in trips expected from city growth, Malmo's mobility plan takes a target oriented approach – the city has been divided into 15 distinct areas, each with its own characteristics. Modal split targets have been set for each area, dependent on the specific mobility issues and opportunities in those areas. For example, an increase in walking trips is set in some of the suburban areas with good local centres; increases in cycling levels are expected in the city centre; increases in public transport are anticipated in areas with good bus services.

Each of the individual targets will contribute to an overall target for Malmo, however as the individual targets are tailored according to the greatest potential for change in each area the overall target is more likely to be achieved.

Sydney – investing in future tech

In 2016 the government of New South Wales introduced a 40 year transport strategy, Future Transport 2056, to deal with the increasing demand placed on the region's and Sydney's transport system. The population is projected to rise from 7.5 million to 12 million by 2056 and the number of journeys on the region's transport system each day is anticipated to reach 28 million – Future Transport 2056 has identified the need for the transport system to modernise to meet the increased demand and has use of technology at its core. There are five key technology strands to the strategy:

- Personalised customer interactions – personalised real-time information, navigation systems and payment systems that make it easier to use public transport.

- Transformed mass transit networks – increased use of automation and other new technologies that improve frequency, efficiency and journey times of mass transit networks.
- More shared, demand responsive services – use of technology to offer a greater range of mobility as a service transport options tailored to meet individual needs.
- Enabling use of connected and autonomous vehicles – setting regulatory frameworks and standards for developing infrastructure that enables adoption of autonomous vehicles.
- Intelligent transport networks – investment in smart infrastructure and use of data to deliver efficient, flexible, safe and reliable transport networks.

Bristol – Implementing a Low Emission Zone

Through its Clean Air Plan Bristol has plans in place to become the first city in the UK to ban all diesel cars from its city centre. Part of a wider Clean Air Zone, the ban will work alongside other transport strategies (including creation of an inclusive mass transit system, promotion of active travel and working with bus operators to redesign services) to improve air quality and reduce congestion in Bristol by reducing use of private car.

Nottingham – Implementing a Work Place Parking Levy

In 2012, Nottingham introduced a workplace parking levy that requires workplaces to pay for each parking space provided for employees. Businesses that provide more than 10 spaces pay a levy of £415 (2019 prices) for each space provided - the aim is to generate funding for attractive alternatives to the car, to continue to develop high quality public transport, to protect

investment in Nottingham's economy and to improve the city's environment and sustainability. Since its introduction the levy has raised between £8 million and £10 million each year, all of which has been used to pay for Europe's largest fleet of electric buses and to fund extensions to Nottingham's tram system.

Paris – bike hire

The Velib bike hire scheme in Paris was launched in 2007 and now has a fleet of 20,000 bikes (30% of which are electric) based in 1,800 hire stations around the city. To use a Velib bike users swipe a credit/debit card at one of the bike hire stations. The card will be charged a small fee for use of the bike as well as a deposit to ensure safe return of the bike. Hire stations can be found roughly every 300 metres in any neighbourhood in Paris, ensuring that bikes are conveniently located for all residents and visitors of Paris.

Glasgow – £10 billion for mass rapid transit

In June 2019 Glasgow published the report of its Connectivity Commission setting out plans for significant transformation of its public transport network including an expansion of its mass rapid transport capability. It estimated that these plans would involve investment of over £10 billion over the next ten years.

Bremen – Mobility hubs/car sharing

The city of Bremen in Germany opened its first mobility hub in 2003. Featuring facilities for car sharing, bike parking and public transport the city now has 25 hubs. The 290 car share cars based at the hubs are estimated to have removed more than 4,200 private cars from the city's streets.

London – congestion charging

The London congestion charge was introduced in 2003. The charging zone covers an area of 21km² of Central London – anyone wishing to drive in the zone, which operates between 7am and 6pm, must pay a charge of £11.50. Residents receive a 90% discount with blue badge holders, motorcycles and emergency service vehicles exempt.

Since its introduction the congestion charge in London has had a positive impact on transport – in the first year of operation congestion fell by 30% and after 10 years of operation the number of private cars entering the zone had fallen by 39%.

The reductions in car traffic improved bus journey times, making bus a more attractive option for travelling into central London.

4 - OUR CITY'S PROGRESS

Edinburgh is already on a journey to improve our transport system, to make it cleaner and more sustainable and, through investment, to enhance our streets, community life and health and wellbeing. By better connecting our city, we can transform our places.

We're already in a strong starting position. Our city is relatively compact and walkable - large areas of Edinburgh are built around flatted neighbourhoods and town centres ideally suited to walking to schools, greenspaces, shops and services, supporting local traders and businesses.

The publicly owned Lothian Buses and Edinburgh Tram are rated second only to London's public transport company in the UK. We have the highest bus use in Scotland - almost 30% of adults use buses every day - with high passenger satisfaction and low fares. Tram patronage continues to rise and surpass expectations with 7.4 million journeys made in 2018.

Annually 15 million trips are made by bike, including 7.5% of journeys to work. With 10% of our transport budget dedicated to cycling, we are supporting more people to take up cycling by delivering on-street cycleways separated from traffic, such as on Leith Walk.

Edinburgh has the lowest level of car ownership in Scotland, has been an early adopter of car-hire clubs in existing streets and new developments, and around 25% of all plug-in vehicles are based in our city region.

This positions us well to continue to adapt and, year-on-year, we are making it easier to travel sustainably around our city for work, leisure or to keep active.

However, we have and continue to recognise the need for change.

The Council monitors and take steps to reduce traffic pollution by promoting cleaner buses in air quality hotspots and cleaner taxis and private cars through our licensing and parking permit regimes.

The city's design guidance for streets is at the forefront of creating and maintaining people-focused streets, helping to deliver improvements for pedestrians and a citywide cycle network through delivery of our Active Travel Action Plan.

The Council has already put in place a 20mph speed limit in the city centre, residential and shopping streets to make our streets safer. We are now reducing 40 mph streets to 30 mph.

In 2020, we will introduce a Low Emission Zone to restrict access for the most polluting vehicles to prevent ongoing harm to citizens, in particular for older people, young children and those with health conditions.

Construction is underway of the Tram to Newhaven. Passenger services will be running by 2023, providing better access to employment, the Airport, the rail network and supporting the regeneration of Leith and the wider waterfront. In its opening year, an additional demand of 7 million passenger journeys are forecast.

We are making improvements to buses with contactless payment, new airport services in north and south Edinburgh and new links to Queensferry, East and West Lothian alongside investment in cleaner and larger buses. These are all helping more people to choose public transport, taking more cars off the road and reducing pollution.

Transport for Edinburgh has introduced bike hire in 80 locations across the city as a quick, easy, low-cost way to get around. This will be supported by wayfinding totems to support journeys on public transport, on foot and by bike.

Edinburgh City Centre Transformation (ECCT)

In 2019, the Council agreed ambitious plans for the city centre to support community, cultural and economic life. Streets and public spaces will be focused around the needs of people, sustainable transport and celebrating our unique city heritage.

George Street is being redesigned to create a world-class destination that respects and enhances the World Heritage Site, featuring wider footways, inclusive access, public seating and cycle access.

ECCT will introduce new cycle lanes, separated from traffic, across the city centre via the East-West Link from Roseburn to Leith Walk and between the Meadows and George Street. New arterial cycle lanes to west Edinburgh and to the Royal Infirmary and Bioquarter in the southeast are also in progress.

As the popularity of electric vehicles grows, supported by Scottish Government funding, we will roll out the first phase of on-street charging points. Overall the Council's Electric Vehicle Action Plan is estimated to reduce transport emissions by 7,715 tonnes of carbon and 14 tonnes of Nitrogen Dioxide.

To meet the challenges of the next ten years, including net zero carbon emissions, reducing inequality and supporting sustainable mobility across the city and region, Edinburgh is setting out a range of ambitious measures to build on existing achievements.

5 – A three stage vision – 2022, 2025, and 2030.

2022 - Delivering today, planning for the future

By 2022, the construction of the **tram route to Newhaven** will be largely complete. A **comprehensive review of bus routes** in the city will have taken place, and the current generation of major **active travel schemes** will be delivered.

Our approach to city growth and development will be integrated with public transport and active travel planning, **prioritising sustainable sites and corridors**. Our **Low Emissions Zone** will be in place, as will a plan for the investment of the resources generated in public transport improvements by a **work place parking levy**.

A partnership with the **Data Driven Innovation** programme will be finalised, allowing open, real time data to influence city mobility and logistics.

The **City Centre Transformation Programme** will have identified transformational redesign of city centre places and space, and this approach will be extending out into our **towns and neighbourhoods**.

A **Regional Growth Framework, Regional Spatial Strategy, and Regional Transport Strategy** will all have been agreed, delivering national transport and planning policy. These will address the need for sustainable patterns of travel to work across the city region.

Improved public transport arrangements will begin to mean **less car trips** are needed to **Edinburgh International Airport**. Working with Transport Scotland and Network Rail, the **Waverley station masterplan** will have a full implementation plan.

Reform of **Council owned transport companies** will have taken place to deliver better integration and value for money. A **behaviour change campaign** will have been launched to encourage moves away from car dependency and to ensure more safety on public transport for staff and passengers

2025 – bolder actions

By 2025, a comprehensive **mass rapid transit plan** for the city and region will be completed. This will include new bus and tram systems, as well as park and ride and edge of city **logistics hubs**. The business case for a north south tram line will be agreed, linking Granton to the Bio Quarter and beyond.

A detailed plan will be in place to reallocate road space on **all arterial routes** to deliver improved public transport and dedicated active travel infrastructure.

A **comprehensive new bus strategy** will be agreed, including stops, routes, and public transport interchanges. Bus congestion will be reduced and bus penetration of key streets like Princes Street will be addressed. The **‘to not through’** philosophy for the city centre will be being delivered. George Street will be transformed.

Income from the workplace parking levy will be delivering public transport improvements, focused on quality, innovation and affordability for those **in greatest need**.

Air pollution levels will have been significantly reduced following the introduction of a low emission cordon around the city centre and the city boundary. All vehicles will be required to comply with the regulatory allowable levels of air based pollutants following the introduction of the city centre and city wide Low Emission Zones.

A **data driven approach to mobility needs** will be in place, working with the taxi trade, public transport providers and the commercial sector.

Conditions for pedestrians will be much improved, thanks to the delivery of the Edinburgh street design guidance policy and a rigorous approach to enforcement.

Our plan for **sustainable neighbourhoods** will be starting to delivery, meaning less obstacles for pedestrians, ease of cycling through measures like filtered permeability, and less car dominated public spaces.

2030 – a city transformed

By 2030, the mass transit network, including tram, will have been extended **west** to Newbridge and will have been developed to connect the Waterfront in the **north** to the Royal Infirmary in the **south** and beyond.

The city region's seven **park and ride facilities** will be upgraded to support fast and frequent public transport along strategic bus lanes and mass rapid transit routes travel from these interchanges into the city. A **further four interchanges** will have been developed to the west of the city. This will give people travelling to the city a better choice to leave their cars at these interchanges and travel around the city on a fast, efficient public transport network.

Arterial routes will be being used for **mass commuting by bike**.

The city centre will be **largely car free**, with the workplace parking levy reducing in revenue as car use to commute declines. **Car parking income** will also decline as car parking space is re-purposed.

A comprehensive new bus route network will be **in place**, with hubs at gateways to the city centre, and our iconic streets will be progressively **pedestrianised**. Elsewhere pavements widths will have been significantly widened with obstacles removed.

Seamless pricing, ticketing and accessibility will allow passengers to move between different forms of transport, from their cars to trams and local buses at these interchanges, without having to pay at different access points.

A **comprehensive city logistics system** will be in place, with last mile delivery systems by sustainable modes. Neighbourhood delivery hubs will be located

close to public transport interchanges and public transport and active travel access points, allowing people to collect goods that cannot be delivered direct to their door.

The **strategic network of cycle and walking routes** will open up safer, healthier and more active travel for people and families. The cycling and walking route along the coast from Fife to South Queensferry to Cockenzie and further will allow people access to one of the world's greatest urban shorelines, giving them easy access to the Forth.

The **implementation** of the Waverley station masterplan will be underway.

PART 2

Strategic Priorities:

- *Enhancing Public Transport*
- *People Friendly Streets*
- *Planning new developments*
- *Managing Demand*

Delivery planning and Monitoring Framework

Strategic priorities

Enhancing Public Transport

Enhancing public transport is a key action to encourage people to change how they move and contribute to reductions in carbon emissions and congestion. This means maximising its potential by providing accessible services, and a range of fast, convenient and affordable options for people across the city region.

We have looked at key transport corridors through the Edinburgh Strategic Sustainable Transport Study (Appendix 1) but as set above, we also need to review and enhance our existing bus, tram and rail services.

We will:

1. Ensure collaboration and integration across Transport for Edinburgh, Lothian Buses and Edinburgh Trams. We will review how we can improve strategy, planning and operations across these companies and deliver the joined up and comprehensive public transport system the city needs.
2. Carry out a strategic review of the bus network to improve accessibility, integration and public transport efficiency and to reduce/remove congestion in the city centre. By changing the traditional radial nature of bus routes fewer buses will need to pass through the city centre.
3. Expand the tram/mass rapid transport network to the north and south of the city as well as to Newhaven and explore the potential to extend routes to the west of the city and into Fife, West, Mid and East Lothian.

4. Support rail capacity increases and high-speed rail as one of the most popular modes of travel into and out of Edinburgh. Work with operators and with Network Rail towards capacity increases to allow for greater passenger numbers on the Scottish rail network. Deliver the emerging Waverly station masterplan.
5. Ensure that investment in an up to date, safe, environmentally-friendly and fully accessible public transport fleet serves the city.
6. Strengthen partnerships with the taxi trade and car sharing partners to accelerate the introduction of no carbon and no emissions vehicles, integrate taxi ranks with public transport hubs and manage the introduction of new technology to improve safety, standards and accessibility.
7. Review the existing bus garages in the context of park and ride and transport hubs to optimise options for the movement and storage of vehicles when not in service.
8. Introduce Selective Vehicle Detection and/or other bus priority measures to allow traffic signals to enhance bus movement and further support.

We will continue to:

9. Ensure Smart contactless payment is enhanced and made more flexible and seek its introduction across all public transport and operators. We will also encourage the introduction of flexible fares, including child and group concessions, off-peak and point to point options.
10. Review the use of dedicated bus lanes to improve bus journey times and timetable reliability by reducing delays from other traffic.
11. Support the City Car Club and City Bike hire initiative to ensure a choice of modes of moving for different needs and journeys including integration

with the public transport system in location and charging. We are introducing e-bikes to enhance the bike hire option and will continue to assess technological improvements to the service.

12. Support the retention of the Forth Road Bridge as a dedicated public transport and active travel route.
13. Continue to invest in strategically placed transport hubs on the edge of the city where public transport (tram, bus, rail, air) can integrate with cars and can make the transition to Electric Vehicles (EV).
14. Continue to provide modern shelters with better accessibility and safety while also reducing street clutter and an upgraded bus tracker system to provide better information to passengers.

People Friendly Streets

Creating places for people means making safe, attractive and healthy streets and spaces for people to walk and cycle in and enjoy. This is key to ensuring we provide for and promote active travel for health and wellbeing as well as reducing car use and carbon and pollution impacts. We need to work to make sure our existing and new streets provide safe environments for active travel with good connections to wider networks and to make them interesting and attractive social environments for all.

We will:

15. Implement and review the Low Emission Zone scheme and supporting measures to reduce emissions from transport.
 16. Develop and expand strategic walking and cycling networks and facilities to serve and connect key destinations across the city.
 17. Create direct, segregated cycling routes along main arterial roads whilst also using quiet road and traffic free routes.
 18. Review the capacity and use of existing and new active travel routes and implement changes to mitigate conflict between those walking, wheeling and cycling on shared footways and other shared spaces.
 19. Support continued growth of EV and the switch to cleaner vehicles through a comprehensive network of charging infrastructure and the monitoring of developments in other vehicle technologies including hydrogen cells which might be important to powering Edinburgh's transport in the future.
 20. Deliver a combination of rapid, fast and slow on-street charging points by 2023 at strategic locations around the city including in the city centre, in high-density residential areas outside the centre and at Park and Ride sites to influence car commuter travel patterns.
 21. Explore speed limit reductions on all non 20mph roads in the city. We will review all 40mph speed limits within Edinburgh, with a view to potentially reducing limits to 30mph. We will also review the potential to further expand the 20mph network across the city.
- We will continue to:
22. Prioritise resources to improve the safety of the most vulnerable people using our streets, as identified through collision analysis.
 23. Ensure accessibility for those walking, wheeling and cycling by designing, adapting and maintaining paths and routes to accommodate all needs and abilities.
 24. Where possible, adapt existing paths and routes to ensure access for all by taking into account a range of factors that can impede users with reduced mobility including route widths, gradients, clutter, barriers and surfacing.
 25. Ensure streets are designed and maintained in accordance with the Edinburgh Design Guidance and the Transport Asset Management Plan.
 26. Manage vehicle access and traffic in the city centre and town centres and residential areas, creating more space for people rather than vehicles and opportunities for greener and more liveable places for people in the city, where vehicles are less dominant. This could be achieved through

- managing access for certain types of vehicle, or all forms of traffic, passing through areas all day or at specific times of day.
27. Apply and enforce parking, waiting and loading restrictions whilst allowing effective access for businesses and people with mobility difficulties.
 28. Seek to rationalise, coordinate and integrate freight and goods vehicles and deliveries in the city, including edge of town goods consolidation centres, micro distribution centres in the city, click and collect hubs in communities to support walking and cycling deliveries and access restrictions and emissions standards to control vehicle types.
 29. Explore mobility hubs in major new developments to accommodate public transport and other forms of shared mobility and to enable co-ordinated deliveries.
 30. Ensure robust monitoring and evaluation of travel behaviour and traffic through regular and consistent data gathering and innovation and explore the development of a city operations centre to oversee street operations across the city.
 31. Develop a city operations centre to proactively and predictively manage our streets and public spaces to minimise disruption and ensure public safety. Such a centre would harness smart technology to more effectively coordinate information and resources across organisations with responsibilities for street operations across the city.
 32. Prioritise traffic light control to benefit public transport, pedestrians and cyclists.
 33. Research and harness future technology innovations and digital connectivity including supporting the development of connected and autonomous vehicles.
 34. Tackle issues associated with parked vehicles obstructing footways, crossing points, roads and junctions. From 2021, the Transport (Scotland) Bill will grant Scottish council's additional powers to enforce footway parking, double parking and parking at dropped crossings.
 35. Continue to develop marketing communication and travel information approaches to promote specific messages and influence a switch to more sustainable modes of travel.

Planning New Developments

Planning for new developments needs to ensure they help to reduce the dominance of motor vehicles and help to make walking, cycling and public transport the obvious travel choices for the people in them. Policy measures proposed for planning new developments in Edinburgh include that we will:

36. Ensure the creation of dense mixed-use developments to support public transport and reduce the need to travel.
37. Prioritise brownfield development, reducing urban sprawl which can create travel demand that is often met by private car use.
38. Strengthen public transport integration to more effectively serve the growing city region including strategic development areas, Park and Ride interchanges and areas poorly served by public transport.
39. Integrate services and amenities into new development to reduce travel distances and the need to travel.
40. Ensure site permeability and deliver high quality streets in new developments from the outset that prioritise walking, cycling and access to public transport.
41. Manage the level of parking in and around new developments based on current and planned levels of walking, cycling and public transport access and the capacity of surrounding streets, and include requirements for car club, electric vehicles and bike hire provision.
42. Explore alternative access improvements to areas poorly served by public transport including community transport, mobility as a service and supported bus services.
43. Improve existing, and create new and enhanced, stops and transport interchanges across the city to better enable connections between services and modes.
44. Explore the feasibility of mobility hubs in major new developments to accommodate public transport and other forms of shared mobility and to enable co-ordinated deliveries.'
45. Require travel plans for major new developments, workplaces, schools and other major trip generators, to include modal targets and effective monitoring. Travel plans monitor the travel behaviour of target groups (residents, schools, workplaces) and provide information on travel choices available while setting modal targets.
46. Provide access for loading/unloading and servicing without compromising street quality or conditions for pedestrians, cyclists and public transport users.

Managing Demand

Managing demand helps to influence travel behaviour and reduce traffic through a variety of economic incentives, regulatory measures and modern communication technologies. Policy measures proposed to manage demand in Edinburgh include:

47. Extending the coverage and operational period of parking controls in the city to manage parking availability for the benefit of residents by freeing up space from commuter parking. As well as extending the geographical extent of parking controls there may be areas where there is a need to extend the operational hours of controls, particularly where parking issues impact on use of space by local residents outwith the current periods of control. This measure will target areas of parking pressure in the city, whilst enabling better access for residents and people with mobility difficulties.
48. Reducing the level of on-street parking in areas well served by public transport whilst enabling parking for residents and people with mobility difficulties. This would be targeted at reducing car parking levels in areas with high levels of both kerbside parking and public transport services. The availability of alternative transport options to private car users would be critical to the success of this policy measure. This measure must also ensure that residents of such areas, and people with mobility difficulties have opportunities to park their car.
49. Following consultation, introducing a workplace parking levy on employers who provide more than a specific number of car parking

spaces. The Council has made a commitment to this in principle and detailed criteria will be informed by survey work which is commencing shortly.

50. Continuing to manage how residents parking permits are issued based on demand, location and vehicle emissions.
51. If necessary, exploring the introduction of road user charging within the city based on a “user pays” system. This can be assessed in monitoring changes made and their effectiveness, so would be considered in the course of updates to Council on the level of success of the overall strategy and the impact of measures introduced over the early years of it. Road user charging is an effective way of reducing the number of cars in a city by encouraging drivers to switch to public transport, walking and cycling, and providing a funding to support the development of alternative mobility options.

Delivery, Monitoring and Performance

Framework

Delivery Plan Approach

Following consultation on the Plan, a full delivery strategy will be prepared. It will set out how we will address issues of governance, capacity, programme management, delivery planning, and funding.

1. Governance and engagement

We will set out how we involve passengers, communities and stakeholders (including businesses) in the design and development of mobility programme, projects and actions.

Delivery will require effective strategic collaboration between the City of Edinburgh Council, neighbouring authorities in the city region, Scottish Government, and transport operators, drawing together the emerging policies, proposals and actions of the National Transport Review, Strategic Transport Projects Review², the National Planning Framework 4 and the City Region Deal partnership.

Decision making will be in the form of business case development which will be taken to the appropriate committee of the Council, or an alternative partnership arrangement where appropriate.

2. Programme and project management

We will set out how the strategy will be delivered including the development of business cases (to include options appraisals) that

demonstrate optimal economic, social and environmental benefits.

Improved programme and project management will be required, and the delivery plan will set this how this will be put in place. This will build on governance practices introduced for City Centre Transformation and City Plan 2030.

We will set out how the development and implementation of policies and projects will be sequenced to ensure that they achieve the maximum benefit for people and communities while ensuring that disruption is minimised and effectively managed. We will also set out how risks will be managed at project, programme and city level.

3. Investment and funding

The funding of this plan will be challenging, required significant capital investment, business transformation, and changing revenue streams. We will set out an overall financial strategy at programme level, and then through each individual business case. We will seek to maximise external funding, from both the public and private sectors.

4. Outcomes, Targets and Measuring Performance

The strategy set out in this plan is an ambitious one. It seeks to reduce carbon emissions arising from road transport to zero by 2030. This can only be achieved by a significant increase in people choosing public transport and active travel over other forms of transport. The strategy is as much about changing behaviours and habits, as it is about funding and infrastructure. Work has been commissioned to better understand people's behaviours when they exercise those choices over their mode of transport. Funding applications are being considered by Sustrans and

ERDF for work to develop a more strategic and analytical approach to data for both strategic development and operational management.

The policy measures set out in this consultation document are designed to meet a number of important long-term outcomes which are set out below.

Performance indicators will be developed through the consultation period and will form part of the delivery framework which will be reported to Committee later in the year.

1. **Climate Change and Pollution.** Achieve zero net carbon and pollutant emissions arising from how we move around and in and out of the city by 2030. Verifying baseline data, targets and performance measures will be developed and aligned with the Council's wider net zero carbon and sustainability plans. These will assess the overall impact of different sectors on emissions and will be subject to consultation with a wide range of stakeholders and community interests, including Lothian Buses.
2. **Congestion.** Reduce congestion and improve journey times. Targets and performance measures will be developed in consultation with local residents and transport operators. They will be benchmarked against the performance of similar cities.
3. **Choices.** Increased use of public transport, cycling and walking as alternatives to car use. An up to date benchmark will be established setting out the number of journeys undertaken by different forms of transport including tram, bus, rail, car, bicycle and walking. The proportion of journeys undertaken will be assessed each year and will be informed by regular surveys of local residents. Targets will be informed by the requirement to

achieve the Council's net zero carbon target by 2030 against the contribution of different forms of transport to achieving that objective. Modal shift targets will be benchmarked against other cities and comparisons made at with other national, European and international cities.

4. **Accessibility and Inclusion.** Improved accessibility on public transport/mobility networks for communities and people to access opportunities for work, leisure and public services. Targets and performance measures will be developed in consultation with equality groups, the Access Panel and Lothian Buses and informed by wider consultation with residents and surveys of their views on barriers to public transport use in particular. We will seek to benchmark against other cities and develop comparable data sets to do this.
5. **Public Safety.** Improve safety for people travelling to and from places encouraging greater use of public transport and active travel networks. Targets and performance measures will be developed in consultation with community organisations, the Police and transport operators. They will be informed by accident data and perception audits undertaken on a regular basis.
6. **Places and People.** Improve the quality of the city centre and town centres for residents by reducing vehicle dominance and improving facilities and public spaces for people. Targets will be informed by the development of measures to ensure that local people are effectively involved in the development of better public places where they live, work or visit. Targets and measures

will reflect how people feel about the quality of life and public places in their area.

The delivery strategy will set out target dates for the delivery of major change programmes and projects. These will be subject to funding with detailed deadlines set out in business cases.

Edinburgh Strategic Sustainable Transport Study - Phase 1



Report
October 2019

Edinburgh Strategic Sustainable Transport Study - Phase 1

Prepared by:

Steer
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steergroup.com

Prepared for:

City of Edinburgh Council
Waverley Court
4 East Market Street
Edinburgh
EH8 8BG
Client ref:
Our ref: 23673601

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Appendices

A Information on non-transit corridors

1 Introduction

Study Context

- 1.1 Edinburgh is a successful and thriving city, home to approximately 513,210 people¹. Over the period 2016 to 2026, it is projected that the population will grow by 7.7%².
- 1.2 High quality transport links, providing connections between where people live, work, receive education, shop and take part in leisure activities are fundamental to allow the city to grow in such a way that is economically and environmentally sustainable and socially equitable.
- 1.3 Edinburgh already has a successful bus and tram network. Though bus patronage across Scotland has been falling over a sustained period, decreasing by a further 1.5% between 2017 and 2018³, bus and tram patronage in Edinburgh has been broadly stable over the last few years. Edinburgh Tram opened in May 2014, and 7.3 million journeys were undertaken on Edinburgh Tram in 2019, a 10% increase on the previous year⁴.
- 1.4 Continued success and growth, in an inclusive and sustainable manner, will require the development and implementation of a coordinated approach to economic development, spatial planning and transport.
- 1.5 At a national level, this coordinated approach is being advanced through the Scottish Government's National Planning Framework and National Transport Strategy (NTS) and, in support of the NTS, the Strategic Transport Projects Review 2 (STPR2).
- 1.6 At an Edinburgh City level, the forthcoming City Plan 2030 (CP2030) will set out the spatial strategy and land allocations to 2030, which will be supported by the City Mobility Plan (CMP). The Edinburgh Strategic Sustainable Transport Study (ESSTS) has been remitted to examine strategic transport corridors within, and potentially beyond, Edinburgh to assess whether, and how, the development of transit-led solutions could deliver against stated transport objectives and support wider policy outcomes such as sustainable economic growth, reducing carbon, promoting equity and supporting healthier lifestyles.
- 1.7 The consideration of transit options will inform elements of the CP2030 by identifying where transit options have the potential to support housing, employment and mixed-use development in a sustainable manner. Transit proposals will also inform elements of the CMP, as policies and initiatives developed through the CMP must be developed to be mutually

¹ National Records of Scotland mid-year population estimates

² www.nrscotland.gov.uk/files//statistics/population-projections/sub-national-pp-16/pop-proj-principal-2016-tab-publication.pdf

³ www.transport.gov.scot/media/44025/scottish-transport-statistics-no-37-2018-edition.pdf

⁴ www.edinburghtrams.com/news/annual-patronage-2018-1

reinforcing with any transit solutions, such that the transport system as a whole is best able to address key challenges and deliver policy outcomes.

- 1.8 The regional dimension is important. Edinburgh is the hub of a sub-regional economy that extends north (to Fife), west (to West Lothian and Falkirk), east (to East Lothian) and south (to Midlothian and the Scottish Borders). There is significant commuting into Edinburgh from these areas (and within and between these areas) and these areas also support significant employment which, in turn, create complex demands for movement. Spatial planning therefore must also be coordinated at a sub-regional level, through SESPLAN and it follows that transport must be considered at a sub-regional level.
- 1.9 The remit for this study does not include proposals / interventions that are likely to be considered by STPR2. These include rail-based options (e.g. via Queensferry, Borders Rail) or enhancements to the strategic highway network (including the Edinburgh Ring Road / Orbital and A90). However, many of the transit-led options considered would have an integral role in enhancing regional travel options; as such, these cross-boundary linkages are highlighted in this report where appropriate.

Study Scope and Purpose

Corridors

- 1.10 The scope of the study focuses on ten strategic corridors which represent those that are more likely to be suitable for transit-based solutions.
- 1.11 The purpose of the Phase 1 study is to examine each of these corridors and identify those that should be prioritised for more detailed consideration of transit options as part of a more detailed Phase 2 study, which will include a transport appraisal for the proposed City Plan 2030.

Modes – Defining Transit

- 1.12 The working definition of transit for the purpose of this study encompasses public transport solutions that would deliver a step-change in provision above existing services, or that could be delivered from more incremental improvements such as service frequency enhancements.
- 1.13 For example, the Edinburgh Tram line materially enhances public transport connectivity and mobility between the city centre and the airport via its impact on capacity, accessibility (given that it serves an alternative corridor to bus), journey time reliability (via segregation) and service quality.
- 1.14 Originally, this tram line was envisaged as part of a wider network, with potential extensions to the south east (BioQuarter and beyond), West (Newbridge), Granton and Newhaven identified and safeguarded through Local Development Plan 1 (LDP1). To date, only the Newhaven extension, which is now under construction, has been progressed.
- 1.15 Tram represents a core component of this study but is considered from a fresh perspective given changes to both local policy and the transport network and development context, which has evolved since these corridors were last considered in the early / mid-2000s.
- 1.16 Bus-based transit options are also considered. Bus Rapid Transit (BRT) is a broad term covering a range of potential vehicle technologies and associated infrastructure (e.g. forms of segregation and guidance). However, the common feature is that BRT transit options would

seek, insofar as possible, to deliver the attributes (capacity, quality, reliability) that drive the step-change in provision required.

Phase 1 and Phase 2

- 1.17 The ESSTS will be undertaken in two phases. This report details the output of Phase 1 of the study and is aimed to identify and assess options, identify those best performing against the objective framework and inform options for CP2030.
- 1.18 Prioritised options will then be taken forward to more detailed consideration in Phase 2, at which time a more detailed transport assessment and appraisal process will be undertaken.

Overview of Approach for Phase 1

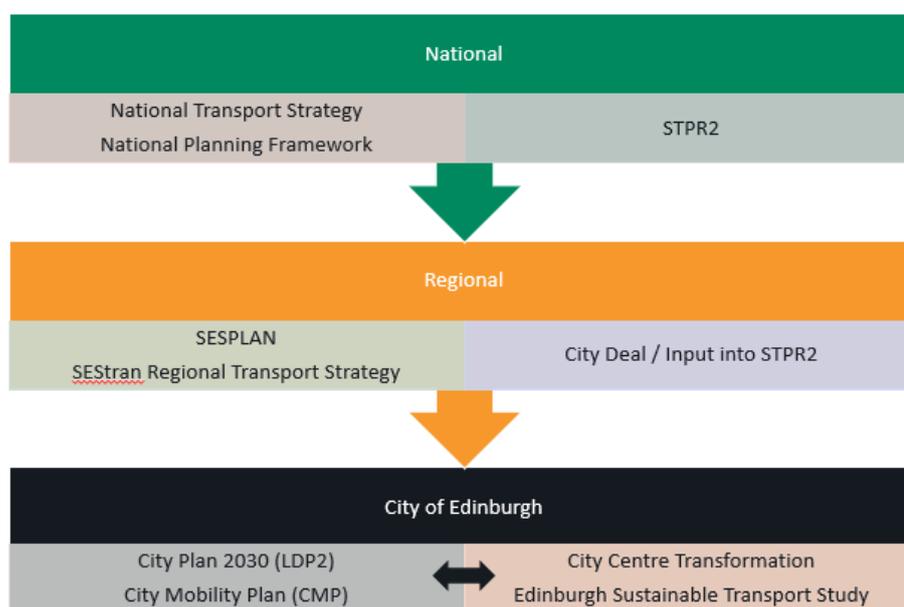
- 1.19 The approach taken to Phase 1 of the ESSTS has been as follows:
- **Review of the strategic policy context:** this review considered the national, regional and local policy background within which strategic transit corridors would be developed;
 - **Objectives development:** Taking the findings of the policy review, commonalities were identified across the objectives to enable study objectives to be developed which were also supportive of wider policy;
 - **Baseline analysis:** A range of existing data sources were used to preliminarily assess and establish a baseline for demand and capacity;
 - **Identification of Priority Transit Corridors:** Transit corridors were then considered and sifted to identify those most suited to strategic transit interventions. The role of strategic active travel was also considered;
 - **Options development:** Those corridors identified as a priority for strategic transit interventions were then further developed with greater consideration of engineering, technological, environmental, complexity, cost-benefit, planning and legal risk factors;
 - **Future transit network:** Considering the outcomes of the study, implications on a future transit network were discussed; and
 - **Recommendations:** Finally, a set of recommendations were provided to inform Phase 2 of the ESSTS study.

2 Strategic Policy Context

Introduction

- 2.1 This chapter provides a short summary of current policy context. Key national, regional and local policies are summarised in Figure 2-1.

Figure 2-1: Policy Framework



National Policy

National Planning Framework

- 2.2 The Third National Planning Framework (NPF) sets out a long-term vision for development and investment across Scotland over the next 20 to 30 years. It is the spatial expression of the government economic strategy and plans for infrastructure investment.
- 2.3 The strategy for a successful, sustainable place highlights the particular scope for the cities network to progress the country's economic agenda. To this end, the Scottish Cities Alliance and local authorities will take forward the priorities set out in the City Investment Plans.
- 2.4 The Scottish Cities Alliance will bring the City Investment Plans together into a shared investment portfolio brochure, communicating a consistent investment message across the cities network.
- 2.5 As an early priority, the Scottish Government will examine current planning authority approaches to aligning planning and infrastructure investment to inform whether further

advice on this is required. The Scottish Government will also work with the Cities Alliance to progress Smart Cities initiatives.

National Transport Strategy 2

- 2.6 The National Transport Strategy 2 (NTS2) was published in draft in July 2019 for consultation. The overarching vision is:

We will have a sustainable, inclusive and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.

- 2.7 The vision is underpinned by four Priorities, each with three associated outcomes as summarised in Table 2-1 below.

Table 2-1: NTS2 Priorities, Outcomes and Indicators

Priority	Outcome	Indicator
Helps our economy prosper	Will get us where we need to get to	1. Spend on transport and vehicles relative to income 2. Measure of Transport Poverty
	Will be reliable, efficient and high quality	3. Modal share of transport – focus on gender, income, geographic, age, and disability status segmentation
	Will use beneficial innovation	4. Accessibility of key services
Promotes equality	Will be affordable for all	5. Proportion of petrol, diesel and EV car and van registrations
	Will be easy to use for all	6. Use of sustainable transport modes / modal shift to sustainable modes
	Will provide fair access to the services we need	7. Rates of walking and cycling for everyday short journeys
Takes climate action	Will adapt to the effects of climate change	8. Connectivity to employment and key services 9. Movement of freight
	Will help deliver our net-zero target	10. Satisfaction with public transport 11. Performance measures of public transport modes
	Will promote greener, cleaner choices	12. Indicator to be developed
Improves our Health and wellbeing	Will be safe and secure for all	13. Transport casualties and accidents 14. Measure of air quality
Helps our economy prosper	Will enable us to make healthy travel choices	15. Availability of segregated walking and cycling infrastructure
	Will help make our communities great places to live	16. Rates of walking

- 2.8 In order to deliver the strategy, the Scottish Government proposes to take action in three key areas: Increasing Accountability, Strengthening Evidence and Managing Demand.

- 2.9 A Delivery Plan will build on the policies and enablers set out in the strategy.

- A key part of the Delivery Plan will be the update to the Climate Change Plan. To inform this, there will be a strengthening of the evidence base on the role of behaviour change and technology in delivering pathways to net-zero emissions.
- The second Strategic Transport Projects Review (STPR2) will set out a 20-year plan for transport investment through the lens of the Strategy's Priorities and in line with the Sustainable Travel and Investment hierarchies.

- the Transport Bill – which offers an ambitious new model for bus services. It provides local transport authorities with options to influence and improve bus services in their area, ensuring that there are sustainable bus networks across Scotland.

Strategic Transport Projects Review 2 (ongoing)

- 2.10 The Strategic Transport Project Report 2 (STPR2) will consider the interventions required to help support the NTS2 as well as providing a fit with Scottish Government plans, policies and strategies and will ultimately inform the next Infrastructure Investment Plan.
- 2.11 The aims of STPR2 are:
- to conduct a whole-Scotland, evidence-based review (in accordance with Scottish Transport Appraisal Guidance or STAG) of the performance of the strategic transport network across all transport modes against clear criteria on operational performance, safety, and environmental impact, whilst fundamentally supporting Scotland's Economic Strategy, including inclusive growth. Outcomes will be defined in the emerging and updated NTS2; and in so doing,
 - to make recommendations for potential transport investments for Scottish Ministers to consider as national investment priorities in an updated 20-Year Infrastructure Investment Plan for Scotland.
- 2.12 The STPR2 study will:
- recommend to Transport Scotland a programme of interventions for the period 2022 to 2042 which will make a significant contribution to delivering the new NTS2;
 - ensure that the outcomes of STPR2 align with other Scottish Government national plans, policies and strategies, the National Planning Framework, the Climate Change Plan and will consider the commitments made to City and Regional Growth Deals; and
 - use the established STAG methodology, to re-consider the extant recommendations of the first STPR and other candidate interventions in the light of NTS2 policies as part of the initial optioneering exercise.

Regional Policy

SESplan (South East Scotland Strategic Development Plan)

- 2.13 The Strategic Development Plan (SDP) sets out a spatial strategy which seeks to promote a secure and sustainable pattern of growth.
- 2.14 SESplan2 proposed an updated spatial plan but this was rejected by Scottish Ministers in May 2019. As a result, SDP1 (approved 2013) remains current; it is the approved strategic plan and reflects the ambitions and commitment of the six authorities (Edinburgh, Midlothian, West Lothian, East Lothian, Fife and Scottish Borders) to realising the potential of the area and ensuring it continues to play a leading role in a national context.
- 2.15 The SDP provides a framework for the six LDPs in the SESplan area to allocate sufficient land for housing development to ensure that the area's overall assessed housing requirements can be met by new house completions. The scale and distribution of sites is shown in Table 2-2.

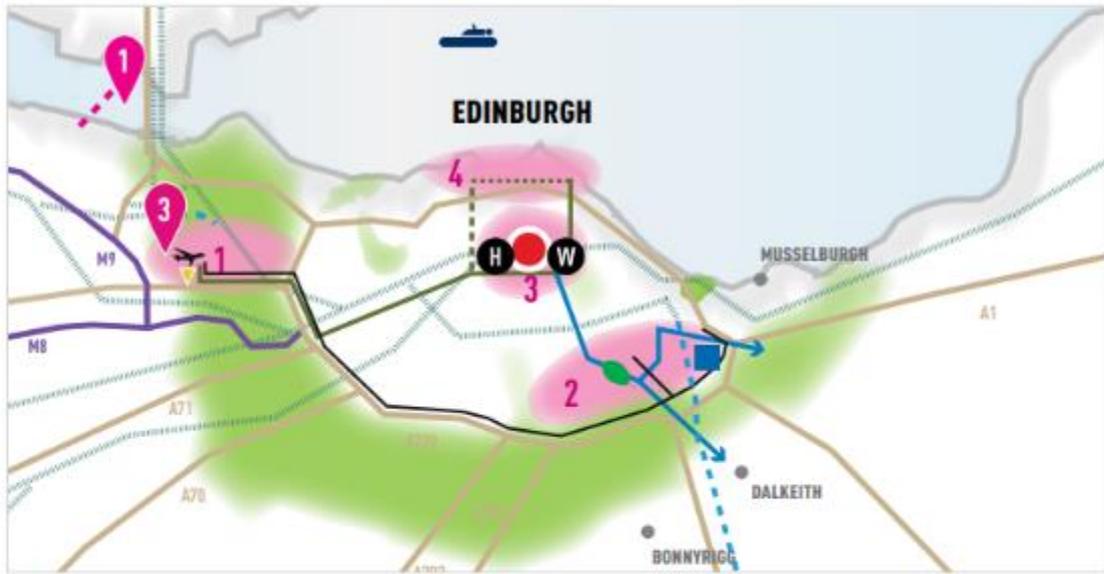
Table 2-2: SESplan housing completions by 2024

Location	Potential House Completions
Edinburgh	32,200
East Lothian	6,400
Fife	24,500
Midlothian	10,200
Scottish Borders	10,000
West Lothian	22,300
Total	105,600

Source: Strategic Development Plan, June 2013, Table 4

- 2.16 Many housing development sites are either within Edinburgh or within the city's commuter catchment. This has significant implications for transport demand and commuting, placing pressure on road and rail networks in particular.
- 2.17 There are four Strategic Development Areas are located within Edinburgh as shown in Figure 2-2. The other 9 are in the other SESplan local authority areas. The 4 are the city centre, West Edinburgh / Edinburgh Airport, the BioQuarter and Waterfront.
- 2.18 Transport and public accessibility have been key in developing the spatial strategy for the region. The plan recognises that existing commuting patterns by public transport are focused on the city centre; proposed transport improvements seek to help address this, including trams to Newhaven, Tram Line 3, A720 Orbital Bus and A90 corridor improvements.

Figure 2-2: SESplan regional core transport investment



(1) WEST EDINBURGH



(2) SOUTH EAST EDINBURGH



(3) EDINBURGH CITY CENTRE



(4) EDINBURGH WATERFRONT



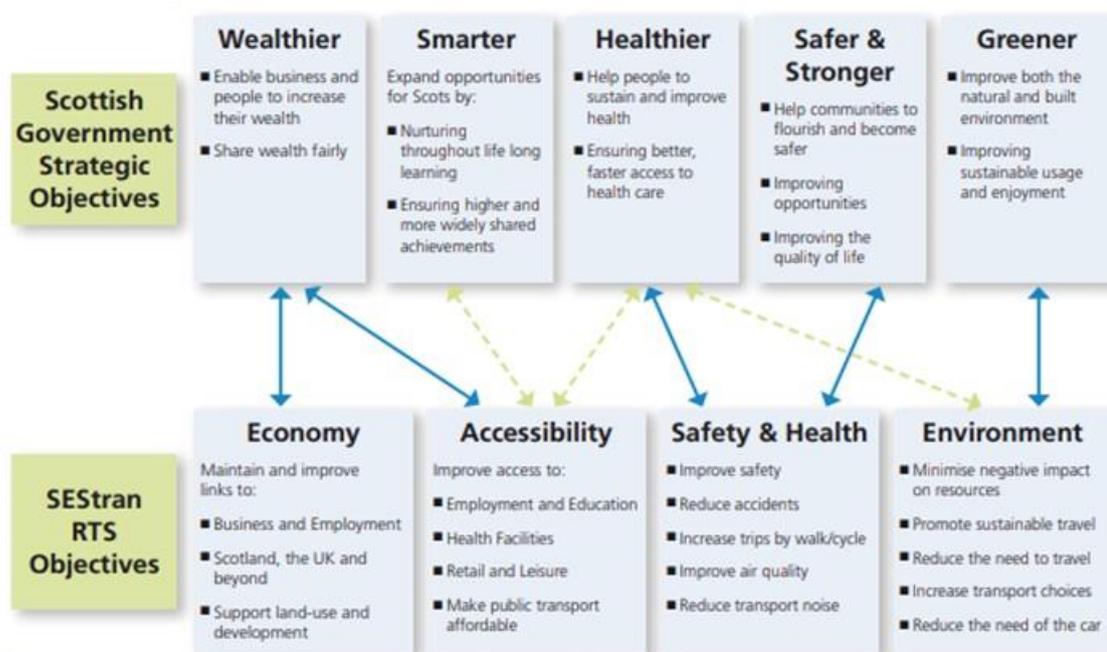
KEY

- COMMITTED HOUSING
- PROPOSED EMPLOYMENT LAND
- GREEN BELT
- SESPLAN BOUNDARY
- PRINCIPAL MOTORWAY ROUTES
- PRINCIPAL RAIL ROUTES
- PRINCIPAL ROAD ROUTES
- PROPOSED RAIL ROUTES
- CORE EDINBURGH ORBITAL BRT ROUTE
- TRAM LINE 1A
- TRAM LINE 1B
- TRAM LINE 1C
- TRAM LINE 3
- STRATEGIC DEVELOPMENT AREA
- CROSS FORTH FERRY HOVERCRAFT
- EDINBURGH AIRPORT
- HAYMARKET RAIL STATION
- WAVERLEY RAIL STATION
- MILLERHILL MARSHALLING YARD (WASTE TREATMENT)
- INTERNATIONAL BUSINESS GATEWAY
- EDINBURGH BIO QUARTER
- CITY CENTRE
- FORTH REPLACEMENT CROSSING
- STRATEGIC AIRPORT ENHANCEMENTS

SEStran (South East Scotland Regional Transport Strategy, 2015 refresh)

- 2.20 The SEStran Regional Transport Strategy (RTS) provides a strategic framework for transport management and investment for the partnership area over a 10-15 year period. Originally approved in 2008, a refresh was approved by the Scottish Government in July 2015.
- 2.21 The vision of the strategy is the ‘development of a transport system which enables businesses to function effectively, allows all groups on society to share in the region’s success through high quality access to services and opportunities, respects the environment and contributes to better health’.
- 2.22 Regional Transport Strategy Objectives have been developed under the four main categories covered in the overarching Vision Statement: Economy, Accessibility, Environment, and Safety and Health. These link back to the Scottish Government Strategic Objectives as illustrated in Figure 2-3.

Figure 2-3 SEStran Regional Transport Objectives



- 2.23 A series of policies have been developed supporting the actions to be promoted under the RTS together with an agreed monitoring programme and action plan.
- 2.24 Key themes covered by the strategy include:
 - Connectivity - the need for a sustainable approach, supporting the long-term competitive position of the area through resource efficiency, social inclusion and minimum environmental impact.
 - Region-wide measures – including influencing travel behaviour, smart ticketing, freight distribution, etc.
 - Initiatives for specific groups – relevant to: access to healthcare, employment, public transport in rural areas and the needs of disabled people.
 - Regional Transport Corridors - primarily concerned with targeting improvements in public transport towards the main regional corridors of commuting travel within SEStran and between SEStran and its neighbouring areas.

City of Edinburgh (Local) Policy

Edinburgh Local Development Plan (LDP1, adopted 2016)

2.25 The Edinburgh Local Development Plan (2016) builds on SESPlan above and sets out the spatial strategy for the city. The majority of growth is targeted around four strategic development areas as follows and also shown in Figure 2-4.

- The city centre;
- The Waterfront;
- West Edinburgh; and
- The South East.

City Plan 2030 (Local Development Plan 2)

2.26 The City of Edinburgh Council has now started to prepare a new Local Development Plan, City Plan 2030. Choices, the statutory Main Issues Report stage of City Plan is informed by SDP1, the evidence base of SDP2 as appropriate, National Planning Framework 3 and outputs from the Edinburgh Strategic Sustainable Transport Study.

2.27 In particular, the Edinburgh Strategic Sustainable Transport Study (ESSTS) has helped inform site assessment, based on the current and potential (i.e. with transit improvement) transport accessibility and capacity across a long-list of potential sites.

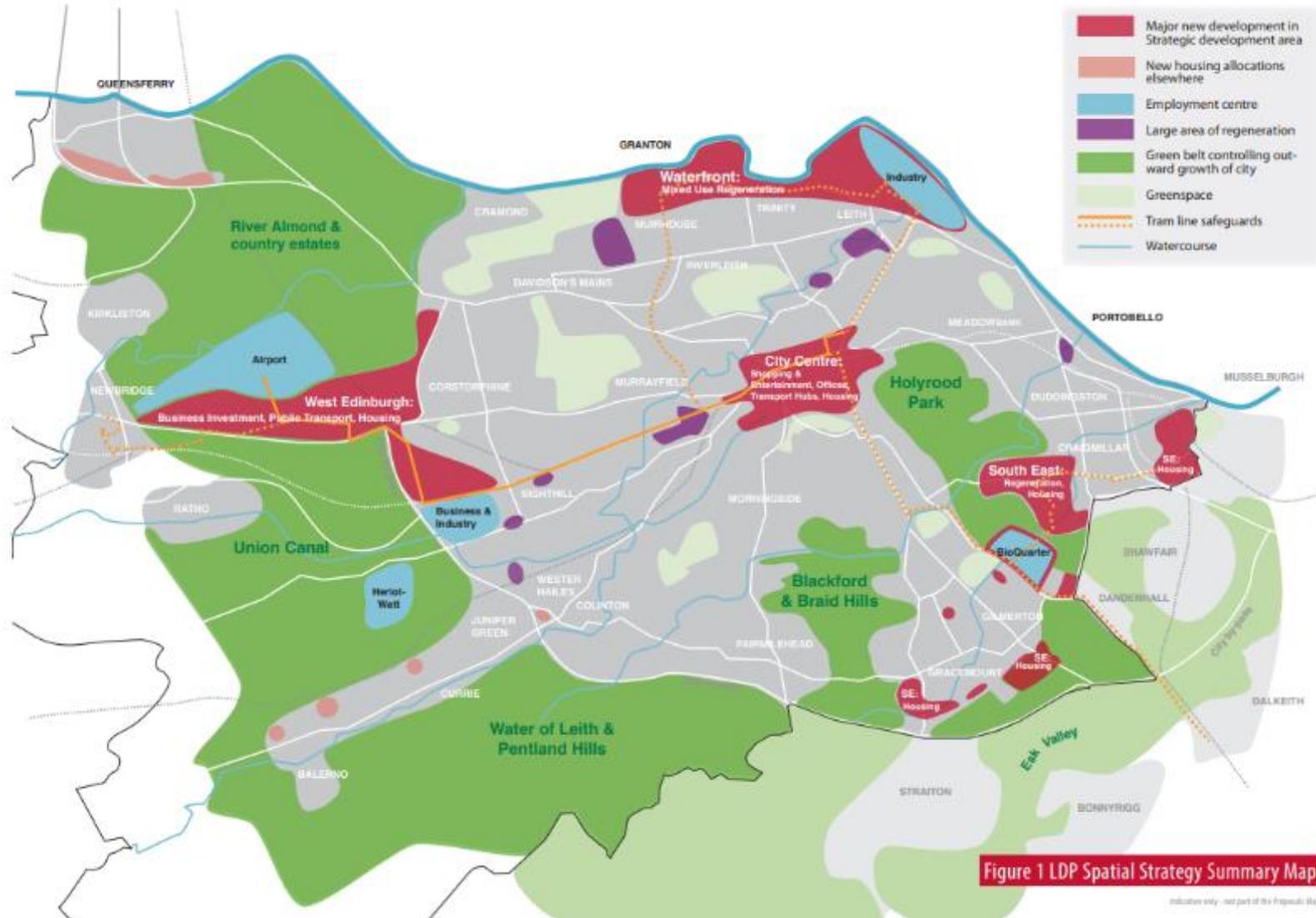
Links between CP2030 and the ESSTS

2.28 The ESSTS supports two key elements of CP2030:

- the degree to which current / planned / proposed public transport infrastructure, routes and services can support the development of **established spatial priority areas** such as the city centre, West Edinburgh, South East Edinburgh and the Waterfront; and
- the degree to which current / planned / proposed public transport infra, routes and services could help bring forward **areas for new development** by providing enhanced levels of public transport accessibility and capacity.

2.29 In each case, transport accessibility is one of a number of factors that will determine how and whether sites are taken forward to consultation and potential future adoption within the CP2030 development process.

Figure 2-4: LDP1 Spatial Strategy Summary Map (2016)



City Mobility Plan

2.30 The City Mobility Plan supersedes the Local Transport Strategy for Edinburgh. It provides a strategic framework for proposed interventions aimed at helping the safe and effective movement of people and goods around Edinburgh whilst seeking to address associated environmental and health impacts. It comprises a series of objectives and policy measures under the headings of People, Place and Movement which will, collectively, achieve the Vision for the Plan:

"Edinburgh will have a greener, safer, inclusive and connected transport system delivering a healthier, thriving, fairer and compact capital city, and a higher quality of life for Edinburgh residents".

2.31 The Objectives of the plan are:

- People objectives seek to improve health, wellbeing, equity, and inclusion by:
 - Improving travel choices for all travelling into, out of and across the city;
 - Improving the safety for all travelling within the city; and
 - Increasing the proportion of trips people make by healthy and sustainable travel modes.
- Place objectives seek to protect and enhance our environment and respond to climate change by:
 - Reducing emissions from road transport;
 - Reducing the need to travel and distances travelled; and
 - Reducing vehicular dominance and improve the quality of Edinburgh's streets.
- Movement objective seek to support inclusive and sustainable economic growth by maximising the efficiency of Edinburgh's streets to better move people and goods.

Links between the CMP and the ESSTS

2.32 The CMP policy measures will be supported by an Implementation Plan, outlining a series of specific measures to be delivered over the plan period. Key themes are managing demand, optimising streets, creating people friendly streets, planning for new development and strengthening public transport.

2.33 The ESSTS is an important input to the development of the CMP. It has helped identify those corridors where transit-based solutions are deliverable and those where continued investment in bus-based solutions are preferred. It has also provided an indication of the long-term development implications of major transport investment, in completing transit links through south east Edinburgh to the Borders Railway and westwards towards Heriot-Watt University and Curriehill station.

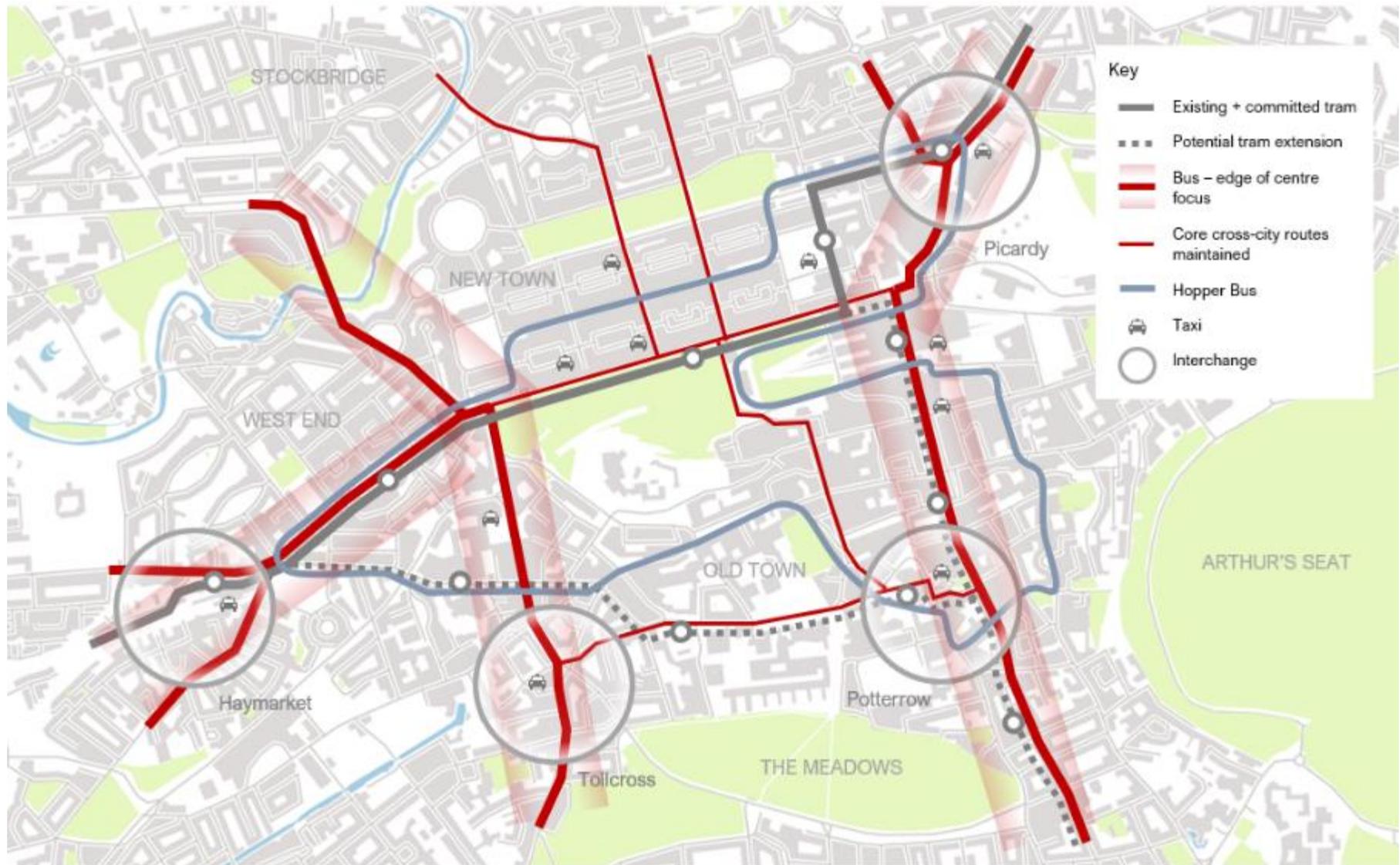
City Centre Transformation

2.34 The vision of the City Centre Transformation Project has been to create a city centre for all, a place for people to live, work, visit and play. The vision also aims for a city centre that is a place that is at the heart of Edinburgh's communities, its cultural life, the focal point for its economy and one of Scotland's most iconic and important locations.

2.35 Through a series of engagement activities, the strategy proposes a wide range of interventions to provide a more liveable city centre in terms of active travel, public transport, traffic reduction and quality of open space. The strategy is supported by a detailed ten-year delivery plan.

- 2.36 Across the whole of the city centre, the strategy will seek to deliver:
- A **walkable city centre** core right at the heart of the World Heritage Site, enabled by a **pedestrian priority zone** and a network of connected, high-quality, car-free streets;
 - **High-quality streets and public spaces** where improvements allow for people to be inspired by the city's unique heritage while they interact, relax or play;
 - A connected network across the city centre of **new segregated and safe cycle routes** to link communities and destinations, including the provision of a **new walking and cycling bridge connecting the Old Town and the New Town**; and
 - A **free city centre hopper bus** to support people moving around a city without a car, linking city centre communities.
- 2.37 The strategy seeks to promote public transport through improved journey times and service reliability. Options explored include limited bus stop rationalisation, improved traffic signal sequencing and the rerouting of selected bus routes to improve core performance. Instead of all routes crossing the city centre via Princes St, some would instead 'kiss' the centre as shown in Figure 2-5.
- Linkages between CCT and ESSTS*
- 2.38 To deliver the emerging strategy, there is a requirement for a mode shift to public transport to help deliver a 10-15% reduction in city centre car traffic in the medium term and a 25-30% reduction in the longer term. The City Mobility Plan and accompanying Action Plans will provide helpful policy / strategy support but won't be sufficiently detailed with regards to individual schemes.
- 2.39 City Centre Transformation recognises the importance of tram in delivering a step-change in public transport provision. As such, it has considered opportunities for Edinburgh Tram, including the potential for a second cross-city route.
- 2.40 In terms of consideration for ESSTS, the study provides insight on the following:
- the overall public transport demand and capacity on key corridors into the city; and
 - the implication for demand and capacity from a combination of planned growth and modal shift consistent with the target reduction of traffic in the city centre.
- 2.41 The potential of public transport options (bus, tram) to provide this level of capacity at a corridor level, and the increase in city centre demand and growth that could potentially be provided by an enhanced tram network.

Figure 2-5: CCT Public Transport Map



3 Objectives and The Case for Change

Developing Study Objectives

- 3.1 It is essential that the ESSTS study is fully consistent and aligned with national, regional and local objectives. In this respect, the ESSTS is not seeking to develop 'new' objectives but seeks to ensure alignment with those that have been or are currently in development.
- 3.2 As summarised in Section 2, relevant current and emerging policy has been reviewed, and the relevant objectives have been compared against each other.
- 3.3 It should be noted that key policy documents are not formally adopted; for example, the NTS2 is a consultation document, CMP objectives have not been formally adopted and the STPR2 national and regional objectives will not emerge until November/December. Objectives are, to an extent, fluid and will therefore need to be reviewed on an ongoing basis, and ESSTS objectives 'refreshed' in the light of any changes.
- 3.4 However, the review identifies a very high degree of consistency across policy documentation (around four key themes of Economy, Equality, Climate Action and Health / Wellbeing). While the detail of the objectives may change (e.g. wording and emphasis), substantive changes to the core objective themes are not expected.
- 3.5 Additionally, given the modal and geographic scope of ESSTS, and its spatial-planning dimension (brownfield and greenfield) it is necessary to set out how options will be assessed to determine their fit with the agreed objectives and expected outcome levels.
- 3.6 In this respect, metrics and measures have been identified through this study which support an assessment of the baseline and options against objective-related criteria.
- 3.7 This objective-led assessment was then combined with a 'deliverability assessment' of shortlisted options to provide an overall qualitative assessment of potential transit options.

Review & Mapping of Objectives and Suggested ESSTS Objectives

- 3.8 The review of the national, regional and local objectives showed strong alignment across each strategic policy level. While the terminology and combination or separation of objectives differs slightly between various policy documents, there are nevertheless consistent objectives across the themes of economic growth, social inclusion, health, environment and safety.
- 3.9 It was agreed that the study objectives should reflect and show clear and explicit alignment to those of the CMP as these are Edinburgh specific. However, the level of consistency between the CMP and regional / national strategy means the ESSTS aligns well to all levels. Table 3-1 summarises relevant objectives from the NTS2, City Plan 2030 and CMP emphasising close alignment across the strategic levels. Note that draft STPR2 Objectives are not yet finalised.

Table 3-1: Objective Mapping

NTS 2019	City Plan 2030	City Mobility Plan	Comment & suggested ESSTS objective (align with CMP)
<p>Helps our economy prosper</p> <ul style="list-style-type: none"> • Will get us where we need to get to • Will be reliable, efficient and high quality • Will use beneficial innovation 	<ul style="list-style-type: none"> • A city where everyone shares in its economic success 	<ul style="list-style-type: none"> • to support inclusive and sustainable economic growth 	<ul style="list-style-type: none"> • Clear alignment of objectives at national and city level. • Suggested theme for ESSTS “Sustainable Economic Growth and Development”
<p>Promotes equality</p> <ul style="list-style-type: none"> • Will be affordable for all • Will be easy to use for all • Will provide fair access to the services we need 	<ul style="list-style-type: none"> • A city in which everyone lives in a home which they can afford • A city where you don’t need to own a car to move around 	<ul style="list-style-type: none"> • to improve health, wellbeing, equity, and inclusion 	<ul style="list-style-type: none"> • Clear alignment of objectives at national and city level • Suggested theme for ESSTS “Improved equity & social inclusion”
<p>Improves our Health and wellbeing</p> <ul style="list-style-type: none"> • Will be safe and secure for all • Will enable us to make healthy travel choices • Will help make our communities great places to live 	<ul style="list-style-type: none"> • A sustainable city which supports everyone’s physical and mental wellbeing 		<ul style="list-style-type: none"> • Clear alignment of objectives at national and city level • Suggested theme for ESSTS “Improved health, wellbeing & safety”
<p>Takes climate action</p> <ul style="list-style-type: none"> • Will adapt to the effects of climate change • Will help deliver our net-zero target • Will promote greener, cleaner choices 		<ul style="list-style-type: none"> • to protect and enhance our environment and respond to climate change 	<ul style="list-style-type: none"> • Clear alignment of objectives at national and city level. • Suggested themes for ESSTS: <ul style="list-style-type: none"> – “Reduce transport-related carbon emissions” – “Improved built & natural environment”

The Case for Change – The Role of Transit Corridors in supporting key objectives

- 3.10 Corridor enhancements which deliver capacity and reliability improvements, improve the quality of the transport offer, and improve connectivity and accessibility to and within the city of Edinburgh will deliver outcomes against each of the five objectives identified in Table 3-1.
- 3.11 A range of desirable outcomes can be achieved, against each of the five objectives as summarised Figure 3-1 and explored more fully in Table 3-2. These outcomes enable strategic transit options to be assessed objectively using a range of associated metrics.

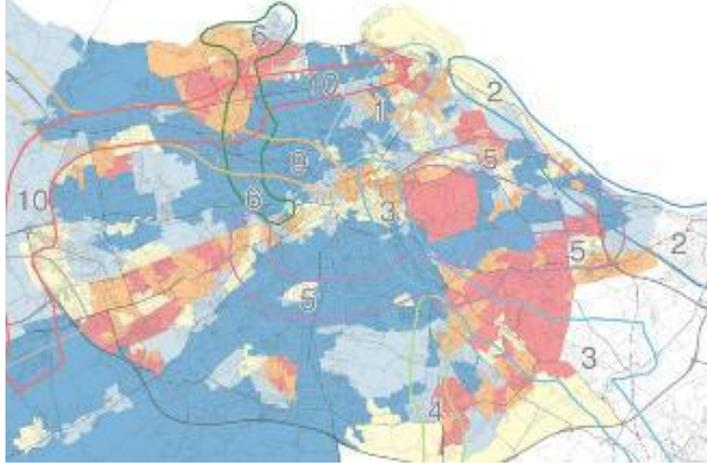
Figure 3-1: Objectives and associated outcomes



Table 3-2: Elements of Objective Led Assessment

Objective / Outcome	The Role of Transit / Strategic Active Travel
Sustainable Economic Growth and Development	<p>Transit and strategic active travel can support sustainable economic growth through:</p> <ul style="list-style-type: none"> • Expanded labour market catchments, enabling businesses to recruit from a larger labour pool and giving workers greater access to jobs. • This, in turn, can enhance the attractiveness of key employment locations as places where firms invest, locate and expand. High-quality public transport accessibility is key to supporting development and success of Edinburgh’s strategic development areas where employment will be focused – the city centre, West Edinburgh, the BioQuarter and Waterfront. Active travel can increase overall accessibility, provide ‘first and last mile’ connections and enhance urban environment at key locations. • Increasing connectivity between major employment centre, and encouraging new firms to invest and locate, further support the success of Edinburgh’s high-value economy through increasing the clustering effects of key sectors (e.g. banking and finance, bio-science, legal and business services). This increased clustering increases overall productivity for all forms through ‘agglomeration’ benefits. • Increasing business efficiency by reducing travel times. • Supporting the development of new housing / mixed-used development in a sustainable manner. High-quality transit can increase the scale, rate, density and value (and hence viability) of development, by providing the accessibility, connectivity and capacity for growth. Active travel can support this and positively enhance the quality and attractiveness of communities. • Transit and active travel also encourage modal-shift from cars, increasing the efficiency of the overall transport network and reducing the economic costs associated with congestion, accidents and emissions.



Objective / Outcome	The Role of Transit / Strategic Active Travel
<p>Improved equity & social inclusion</p>	<p>Transit and strategic active travel can contribute to enhancing equity and social inclusion through:</p> <ul style="list-style-type: none"> • Providing improved access to jobs, education, healthcare and leisure. Whilst public transport accessibility is generally good to the city centre, a transit network can open up opportunities for cross-city journeys. For example, the tram extension to Newhaven will significantly improve accessibility between Leith Waterfront (an area of high deprivation) and employment opportunities in West Edinburgh. • A high proportion of lower income / more deprived residents do not own or have access to a car; consequently, access to public transport is key to their ability to access jobs and services. • The affordability of public transport is an issue for many. Alongside future development of transit, consideration of a more integrated ticketing system which operates across public transport modes would support social inclusion. • Active travel can provide affordable accessibility and connectivity in corridors / areas that are less well served by public transport. <div data-bbox="1317 400 1637 427" data-label="Caption"> <p>Index of Multiple Deprivation</p> </div> 
<p>Reduce transport-related carbon emissions</p>	<p>Transit and strategic active travel can assist in tackling the causes of climate change by:</p> <ul style="list-style-type: none"> • Encouraging modal shift from single occupancy car journeys to public transport. High-quality transit can deliver substantial modal shift from car, particularly when this is paired with strategic use of Park & Ride infrastructure, such as that currently in place at Ingliston. The mode shift potential of transit also increases as the network develops to offer a greater quality of service and more potential destinations. Active travel can enhance modal shift in transit corridors and also cater for demand / movements that are less well served by public transport (e.g. orbital movements) 

Objective / Outcome	The Role of Transit / Strategic Active Travel
<p>Reduce transport-related carbon emissions (continued)</p>	<ul style="list-style-type: none"> • Supporting sustainable housing and employment development such as increased density in urban areas and the development of brownfield sites. Higher density urban development reduces the need to travel and encourage shorter journeys and more walking, cycling and public transport usage. The carbon costs associated with providing associated infrastructure and services (electricity, waste, broadband etc) are also lower for higher-density urban development.
<p>Improved built & natural environment</p>	<p>Transit and strategic active travel can support wider enhancement to the public realm and streetscape.</p> <ul style="list-style-type: none"> • Edinburgh City Council has developed an ambitious plan for City Centre Transformation, focused on enhancing the quality of the city centre environment for all users, and prioritising the role of streets as ‘destinations’ rather than solely for ‘movement’. The City Centre Transformation strategy and enhancement of ‘place’ across the city has the needs of pedestrians and cyclists at its core. The development of transit solutions can be an enabler of this vision by reducing traffic dominance in car and bus-centric locations, thereby assisting in the delivery of the City Centre Transformation Vision. At the individual street level, transit can be integrated within an enhanced streetscape. • For development locations along the route, transit can support the delivery of housing and mixed-use developments at a higher density and rate than would otherwise have been the case. Such density can support increases in local public services (e.g. schools, health facilities, community facilities) and other activity (shops and services) that all contribute to improving resident quality of life and visitor experience.



Objective / Outcome	The Role of Transit / Strategic Active Travel
<p>Improved health, wellbeing & safety</p>	<p>Transit and strategic active travel corridors can be designed and developed to ensure that active travel links are maintained and enhanced. This would be the case for all transit corridors, but in particular for:</p> <ul style="list-style-type: none"> • The city centre, where the overall CCT strategy is focused on improving facilities for pedestrians and cyclists, hence supporting healthier lifestyles. • Where transit is developed alongside corridors that have strong existing public realm and active mode provision. This was the case for the Newhaven (Tram Completion) project and would be the case for Granton. • Where there is the opportunity to provide wholly new or fundamentally upgraded transit and active mode provision in proposed transit corridors. This might be the case for potential transit extensions to the West of Edinburgh Park. • Transit can also reduce accidents and emissions at a broad spatial level (through modal shift and reduced car kilometres travelled), and through integrated design of transit / active modes provision involving the reduction of traffic on transit corridors and associated reductions in localised emissions and accidents. 

Key metrics to inform transit option assessment

- 3.12 Quantifying the potential performance of each corridor in numerical terms is outside the scope of this phase of work – instead, a set of key metrics have been identified, linking to the outcomes shown in Figure 3-1 which allow assessment via qualitative means. The metrics used to inform the transit options assessment are as follows:
- Public transport connectivity (incl. reliability, capacity & quality);
 - Accessibility via public transport;
 - Enhanced active travel connections;
 - Level of baseline deprivation in corridor, measured by the Scottish Index of Multiple Deprivation;
 - Provision of direct high-quality public transport access to key housing / mixed use sites (existing designations);
 - Support new employment by enhancing access to and attractiveness of key designated employment areas; and
 - Mode shift potential (shift from car to public transport / active modes) and resulting reduction in car kms.
- 3.13 How these metrics relate to each of the strategic objectives and desired outcomes is shown in Table 3-3 overleaf.

Table 3-3: Objectives and associated measures

Metric	Sustainable Economic Growth and Development		Improved equity & social inclusion		Reduce transport-related carbon emissions	Improved built & natural environment		Improved health, wellbeing & safety		
	Sustainable economic growth	Sustainable land use development	Improved access to jobs, education, healthcare and leisure	Affordability		Positive impact of transport infrastructure on place (new and existing e.g. city centre)	Physical impact of transport measures	Promoting healthier lifestyles via physical activity	Reduced local emissions / improved air quality	Reduced accidents (based on change in car kms)
Public transport connectivity (incl. reliability, capacity & quality)	✓		✓		✓					
Accessibility via public transport	✓		✓		✓	✓			✓	✓
Enhanced active travel connections	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Provision of direct high-quality public transport access to key housing/mixed use sites (existing designations)		✓	✓	✓	✓	✓	✓	✓	✓	✓
Support new employment by enhancing access to and attractiveness of key designated employment areas		✓	✓	✓	✓	✓	✓			
Mode shift potential (shift from car to public transport /active modes) and resulting reduction in car kms.	✓				✓				✓	✓

4 Corridor Overview and Baseline Analysis

Corridor Overview

- 4.1 This chapter provides an overview of the ten corridors that form part of the study. The broad corridors were agreed with City of Edinburgh Council at the study outset and refined at a detailed level during the study. The corridors form the basis for consideration of transit options. The corridors are presented in Figure 4-1 and are described in Table 4-1.

Figure 4-1: Strategic corridors



Table 4-1: Public Transport Strategic Corridors – Description

#	Corridor Name	Corridor Description
1	New Town to Granton via Newhaven	<p>Route:</p> <ul style="list-style-type: none"> City centre to Granton via Leith Walk, Leith Waterfront, Newhaven. <p>Transport Context:</p> <ul style="list-style-type: none"> High demand corridor, particularly between Leith Walk and the city centre. Route of planned 'Tram Completion' from Newhaven via Leith Walk, serving high demand corridor and connecting major Waterfront development area. <p>Development context:</p> <ul style="list-style-type: none"> Waterfront area is major strategic brownfield development designation. <p>Opportunities:</p> <ul style="list-style-type: none"> Opportunity to extend tram from Newhaven to Granton to serve Waterfront area and provide connectivity from Granton to the city centre (see Corridor 6). Opportunity to extend tram towards Portobello / Musselburgh (see Corridor 2).
2	Leith to Musselburgh via Portobello	<p>Route:</p> <ul style="list-style-type: none"> Extends from Leith to Musselburgh via Portobello, enabling development along Salamander Street and Seafield Road. <p>Transport Context:</p> <ul style="list-style-type: none"> Relatively poor transport accessibility in parts of the corridor. <p>Development Context:</p> <ul style="list-style-type: none"> Major brownfield redevelopment opportunities in the northwest of the corridor. <p>Opportunities:</p> <ul style="list-style-type: none"> Support brownfield redevelopment west of Portobello. Potential link to Newhaven Tram Route in Leith (Corridor 1). Good opportunity for improved Active Travel links.
3	City centre to BioQuarter/ Royal Infirmary (and beyond)	<p>Route:</p> <ul style="list-style-type: none"> Princes St, the Bridges, Cameron Toll, Royal Infirmary / BioQuarter and then to the Borders Railway and Newcraighall or Shawfair. <p>Transport Context:</p> <ul style="list-style-type: none"> Strong established demand drivers including major employment centre at BioQuarter. Very high demand bus corridor. <p>Development Context:</p> <ul style="list-style-type: none"> Major strategic employment site at / around the BioQuarter. Key development opportunities include Cameron Toll, Craigmillar and Shawfair. A number of potential sites under consideration as part of CEC site options assessment (part of City Plan 2030 process). <p>Opportunities:</p> <ul style="list-style-type: none"> Potential to serve major development areas in SE Edinburgh / Midlothian. Several options exist south of the BioQuarter including via Sheriffhall P&R (and onwards to Dalkeith) and / or to Newcraighall P&R (linking with Borders Rail).

#	Corridor Name	Corridor Description
4	City centre to Easter Bush / Straiton	<p>Route:</p> <ul style="list-style-type: none"> Princes St, the Bridges, Cameron Toll, then to Easter Bush via Liberton Brae, Burdiehouse and Straiton to Easter Bush. <p>Transport Context:</p> <ul style="list-style-type: none"> Strong existing catchments, reflected in high demand bus services. <p>Development Context:</p> <ul style="list-style-type: none"> A number of potential sites under consideration as part of CEC site options assessment (part of City Plan 2030 process). <p>Opportunities:</p> <ul style="list-style-type: none"> Potential convenient 'anchor' at Straiton P&R. Corridor for transit to utilise A701 Link Road which could bring environmental and cost saving advantages. Potential opportunity for transit-led development for sites emerging through the City Plan 2032 process.
5	South Suburban	<p>Route:</p> <ul style="list-style-type: none"> Route of former South Suburban railway, currently used for freight services. <p>Transport Context:</p> <ul style="list-style-type: none"> Historic route provided as an orbital passenger service. Route already provides strategic freight route. Options previously considered / suggested include rail and tram / train options. <p>Development Context:</p> <ul style="list-style-type: none"> Urban area development sites around Duddingston. <p>Opportunities:</p> <ul style="list-style-type: none"> Could support orbital movements via segregated link and improve connectivity towards the west of the city. Relieve capacity on inner sections of the transport network.
6	City centre to Granton	<p>Route:</p> <ul style="list-style-type: none"> City centre to Granton Waterfront via former rail alignment. Tram route to Granton is protected within existing LDP. <p>Transport Context:</p> <ul style="list-style-type: none"> Serves established demand and major planned development. Established and well used active travel link to North Edinburgh via former rail alignment. <p>Development Context:</p> <ul style="list-style-type: none"> Major Waterfront development underway at Granton. Major development opportunities including Waterfront and Gasworks sites. Other major destinations in corridor include Western General Hospital and Craighleith Retail Park. <p>Opportunities:</p> <ul style="list-style-type: none"> Route would support major development at the Waterfront and Gasworks. Potential for further extension to Leith (to the east) and / or connection with bus feeder services from the west.

#	Corridor Name	Corridor Description
7	West to Newbridge	<p>Route:</p> <ul style="list-style-type: none"> Corridor serving major new development along the A8 corridor, west of Edinburgh Park. Could connect with tram (from Ingliston - the route is safeguarded in the LDP) – or be served by bus transit. Route could serve new Park & Ride at Newbridge though a site would still have to be found. <p>Transport Context:</p> <ul style="list-style-type: none"> Corridor currently served by bus. Current LDP protected tram corridor to Newbridge. <p>Development Context:</p> <ul style="list-style-type: none"> Corridor serves part the West Edinburgh strategic development area. Potential opportunity for transit-led development for sites emerging through the City Plan 2030 process. <p>Opportunities:</p> <ul style="list-style-type: none"> Opportunity for transit to enable and support development in corridor and provide enhanced connectivity to West Edinburgh and the city centre. Opportunity for transit corridor to potential further extension to Broxburn. Opportunity for a new Park and Ride interchange west of Newbridge.
8	West of Hermiston Gait	<p>Route:</p> <ul style="list-style-type: none"> Broad corridor west of Hermiston, encompassing Heriot-Watt University and Curriehill Station and future potential development areas. <p>Transport Context:</p> <ul style="list-style-type: none"> Bus services serve Heriot Watt and Hermiston P&R. Rail services from Curriehill (hourly at present). <p>Development Context:</p> <ul style="list-style-type: none"> Significant potential greenfield development land (being considered through the City Plan Process), which transit could help bring forward in a sustainable manner. <p>Opportunities:</p> <ul style="list-style-type: none"> Significant greenfield land offers potential for transit-led development & urban expansion. Opportunities to connect to Heriot Watt, Hermiston Park and Ride and Curriehill Station. Opportunity to link with existing tram route (around Edinburgh Park or Bankhead) or for bus-based transit options.
9	City centre to Queensferry	<p>Route:</p> <ul style="list-style-type: none"> Major strategic corridor to Fife (and the north of Scotland) via the A90. <p>Transport Context:</p> <ul style="list-style-type: none"> The most heavily trafficked route in and out of Edinburgh by far. Key arterial route to the north. Significant delays are made even worse during the summer months and festival periods. Key rail corridor from Fife to Edinburgh, but capacity issues constrain demand. Capacity issues for car and bus / coach. Major delays, particularly outbound in evening period. Existing P&R sites at Ferrytoll and Halbeath perform extremely well.

#	Corridor Name	Corridor Description
		<p>Development Context:</p> <ul style="list-style-type: none"> • Future development pressure, particularly from continued growth in south Fife. Development sites already allocated in Queensferry, Kirkliston and development pressure at Craigiehall. <p>Opportunities:</p> <ul style="list-style-type: none"> • Strategic corridor interventions will be under consideration in STPR2, including rail, highway and bus / ferry. • Development of a new Park and Ride site, as well as expansion to existing P&R sites in Fife. • Targeted bus priority improvements at Blackhall junction and other locations.
10	West Edinburgh to North Edinburgh	<p>Route:</p> <ul style="list-style-type: none"> • Major growth corridor with potential to improve connectivity to Edinburgh tram and Edinburgh Gateway station. The corridor covers orbital movements from West Edinburgh towards north Edinburgh including the Waterfront and the Ferry Road corridors. <p>Transport Context:</p> <ul style="list-style-type: none"> • Currently poorly served by public transport and high levels of general traffic congestion. There has been investment in Edinburgh tram and Edinburgh Gateway station but benefits of these have not been fully realised. • Airport growth and development in West Lothian will add further transport demand. <p>Development Context:</p> <ul style="list-style-type: none"> • The corridor serves the largest opportunity for commercial (employment) development in Edinburgh. Key development sites include Edinburgh Park completion, Cammo and West Craigs residential, International Business Gateway (IBG) and Crosswinds. <p>Opportunities:</p> <ul style="list-style-type: none"> • Improved connectivity between the north and west of Edinburgh to major development sites. • Future developments, particularly those with limited on-site parking (or covered by current or future controlled parking zones) are anticipated to further increase demand for public transport along this corridor, supporting the case for, and potential viability of, increased provision. • The redevelopment of Gyle shopping centre could deliver improved interchange facilities. • Several multiple deprivation areas served along the route.

Baseline Analysis

- 4.2 The overall suitability of corridors for transit solutions will, in part, be informed by the socio-demographic factors (which inform base levels of demand), the spatial planning context (informing future demand), transport accessibility and socio-economic factors.

Population and Employment Density – Existing Land Use

- 4.3 Figure 4-2 outlines areas of the City of Edinburgh local authority area with high and low population density based on the results of the 2011 census. This is presented for key geographic areas (known as Scottish data zones) and are composed of aggregates of the smaller census output areas to represent communities. Population density is based on the number of people per hectare in these areas. Higher population density areas generally have employment sectors and local services including shops and leisure facilities within a smaller geographic area. This encourages and enables more people to access these services by public transport and sustainable modes of transport including walking and cycling. These areas also support high capacity public transport infrastructure investment.
- 4.4 Visibly, areas surrounding the core commercial central area have some of the highest population densities. These include several large clusters of data zones including the residential areas in Leith, Fountainbridge, Bruntsfield and Southside. Areas of Leith Walk in particular have some of the highest local population densities in Scotland. These areas of higher population density, which are on some of the city's key arterial routes with a number of public transport connections, continue to see significant population growth associated with the development of several brownfield sites.
- 4.5 Other areas with higher than average population densities include housing estates in areas between Wester Hailes and East Craigs, Muirhouse and Pilton and Craigmillar to Liberton. Some localised areas within local town centres areas such as Queensferry, Portobello, Stockbridge and Morningside exhibit higher population densities.
- 4.6 Corridor 1 running along Bonnington Road parallel to Leith Walk has a high population density compared to the other corridors. The inner-city centre section of Corridor 3 also has a very high population density through the busy South Side area; there is then a gradual reduction beyond Newington towards Cameron Toll. Corridor 5 includes some sections of high population density, but this is not continuous along the route. They are also difficult to serve given the circuitous nature of the corridor.
- 4.7 Corridor 6 has clusters of high population density areas around Haymarket and Pilton. Corridor 10 has areas with higher than average population density along the section north of Ferry Road.
- 4.8 Low population density areas are generally on the outskirts of the city, particularly areas beyond the city bypass. This can be seen for Corridors 7, 8, 9 and the western edge of Corridor 10. Corridor 2 also has a large industrial area along Seafield Road resulting in a low average population density, whilst this is much higher in the adjacent Portobello area.
- 4.9 Figure 4-3 shows employment distribution in terms of jobs per hectare for the same Scottish data zones. The major employment areas are in the city centre along Lothian Road, Haymarket, West End, George Street, Waverley and the bridges corridor. Outside the central area, there is high employment density in West Edinburgh from the Gyle to Edinburgh Park, despite a very low population density in the same area (as shown in Figure 4-2).

Figure 4-2: Population Density (People per hectare, 2011)

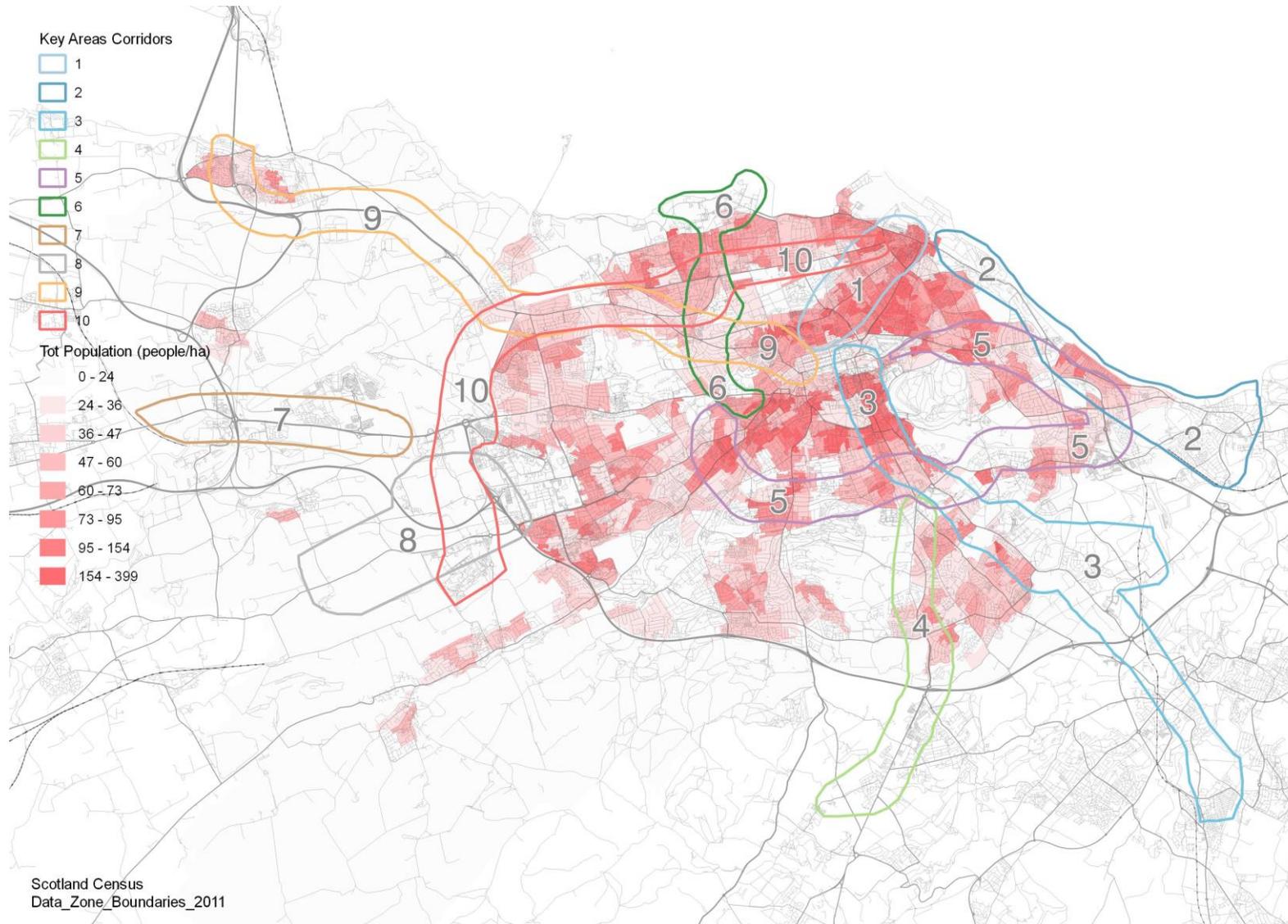
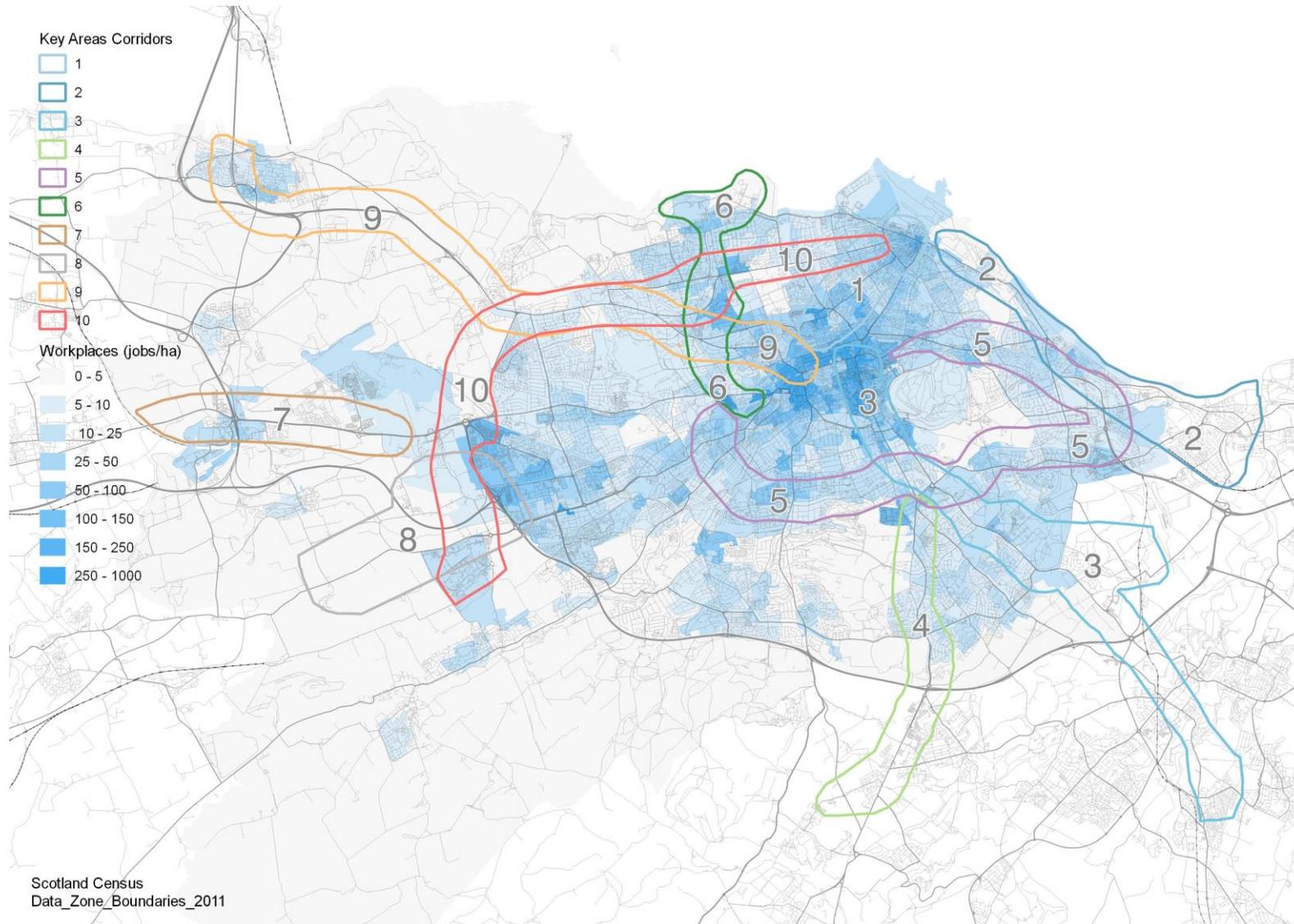


Figure 4-3: Employment Distribution (2011)



- 4.10 Corridor 1 has relatively high levels of employment density as well as population. Corridor 3 also has higher employment density in the city centre and areas towards the south east around the BioQuarter and Royal Infirmary. Corridor 6 has local areas of high employment density including Haymarket, Crewe Toll and Granton.
- 4.11 Potential tram demand in each of these corridors is high due to higher population and employment densities when compared with other areas across the city.

Index of Multiple Deprivation

- 4.12 Figure 4-4 shows areas of deprivation throughout Edinburgh based on the 2016 Scottish Index of Multiple Deprivation (SMID). The SMID combines aspects of deprivation including income, employment, health, education, skills and training, geographic access to services, crime and housing to provide a relative measure of deprivation at the data zone level.
- 4.13 Corridor 3 includes a number of significantly deprived data zone areas along the southern section of the route, furthest from the city centre. Corridor 6, in the northern section towards Granton exhibits very high levels of deprivation. Corridor 10 also covers some of these areas north of Ferry Road between Muirhouse Green and Ferry Road Drive.
- 4.14 A high or low SMID does not, in itself, suggest that these areas have a higher or lower potential transit demand. There are counterbalancing factors, where high SMID may be characterised by lower average trip rates (which suggests lower demand potential) but also benefits from higher non-car ownership which is associated with higher potential transit demand.
- 4.15 However, SMID is a strong indicator of where transit can help support equity and social inclusion. Investment in transport infrastructure along corridors with high SMID would help improve accessibility to some of the most deprived communities in the city.

Public Transport Accessibility (PTAL)

Access to the Public Transport Network

- 4.16 The Public Transport Accessibility Level (PTAL) presented in Figure 4-5 outlines the rating for a selected place based on how close it is to public transport, taking into account walking time to access public transport (i.e. to a stop or station) services and how frequent services are in the area.
- 4.17 The PTAL map shows high levels of public transport accessibility in Edinburgh city centre, along key arterial routes into the city centre such as the A900 (Leith Walk), A1 (between the city centre and Meadowbank), A8 (as far as Sighthill) and the A71 (as far as Saughton).
- 4.18 However, in between these routes, and across the city, there are numerous areas with low public transport accessibility, particularly in north west and south west Edinburgh. Accessibility levels are also low in the south and east of the city particularly around Danderhall and Newcraighall.
- 4.19 It is also noticeable that accessibility in some inner corridors, such as towards Granton, are poorer than those towards, for example, Leith, the south-east and west.

Figure 4-4: Scottish Index of Multiple Deprivation (2016)

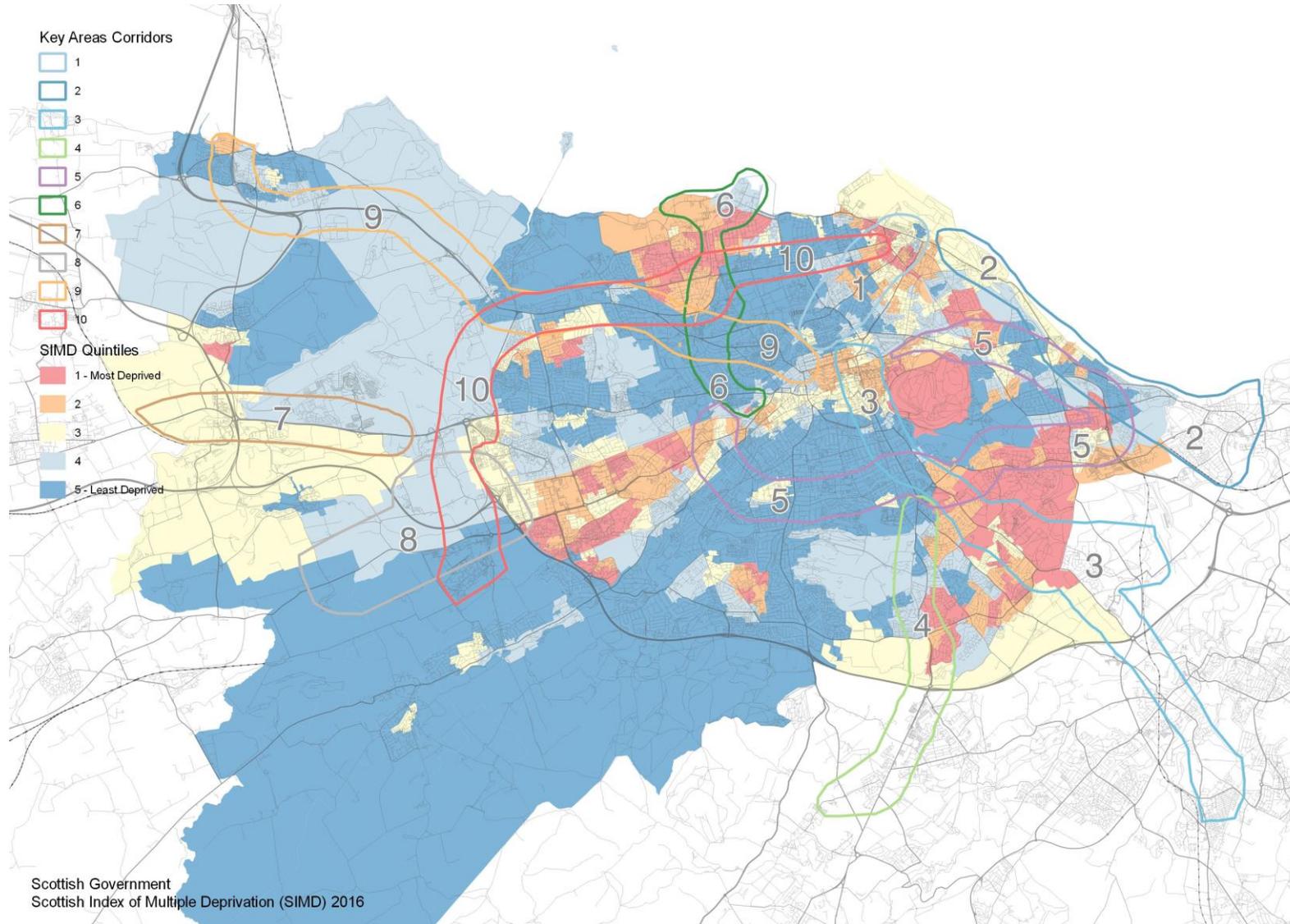
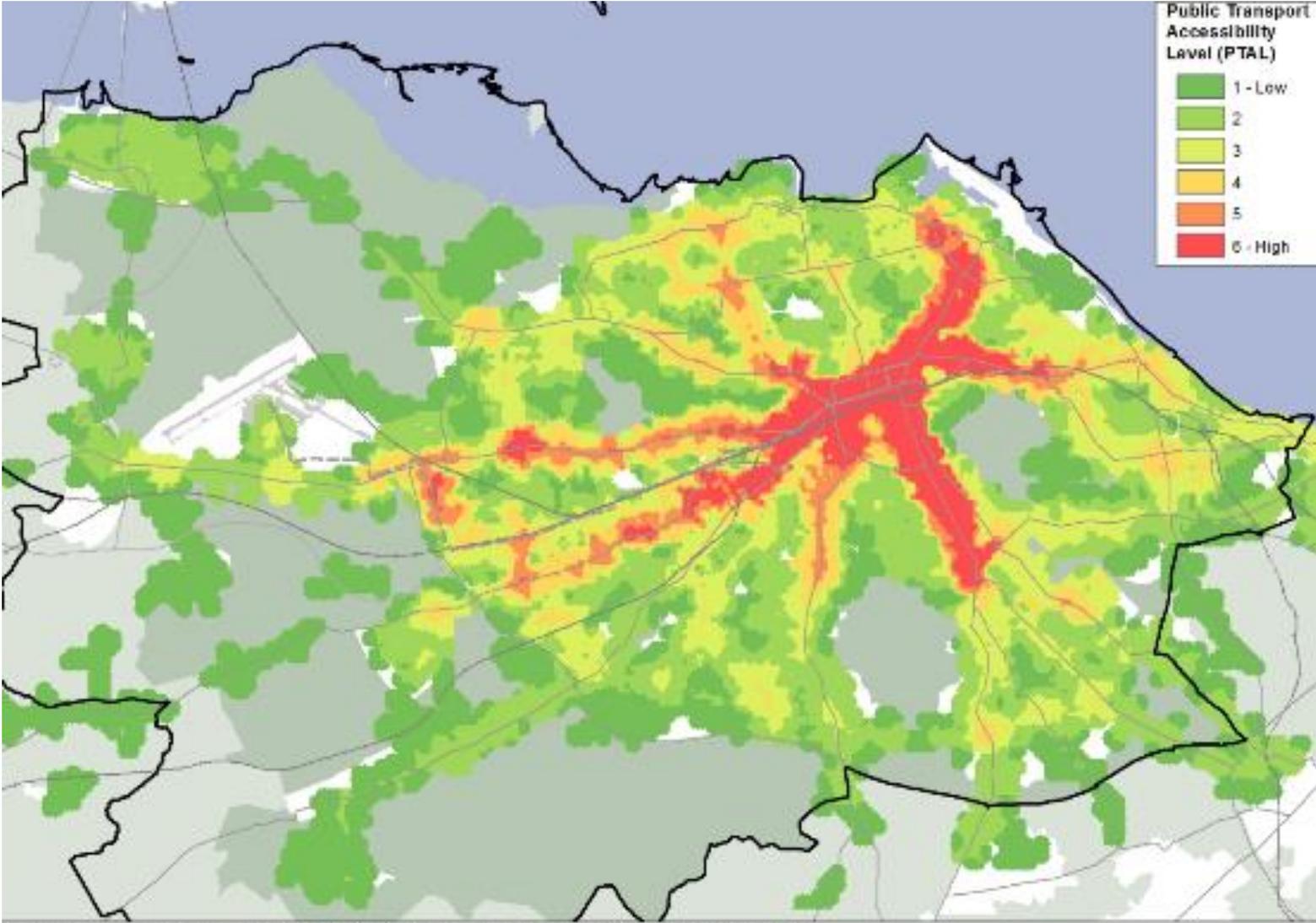


Figure 4-5: Accessibility to the Transport Network

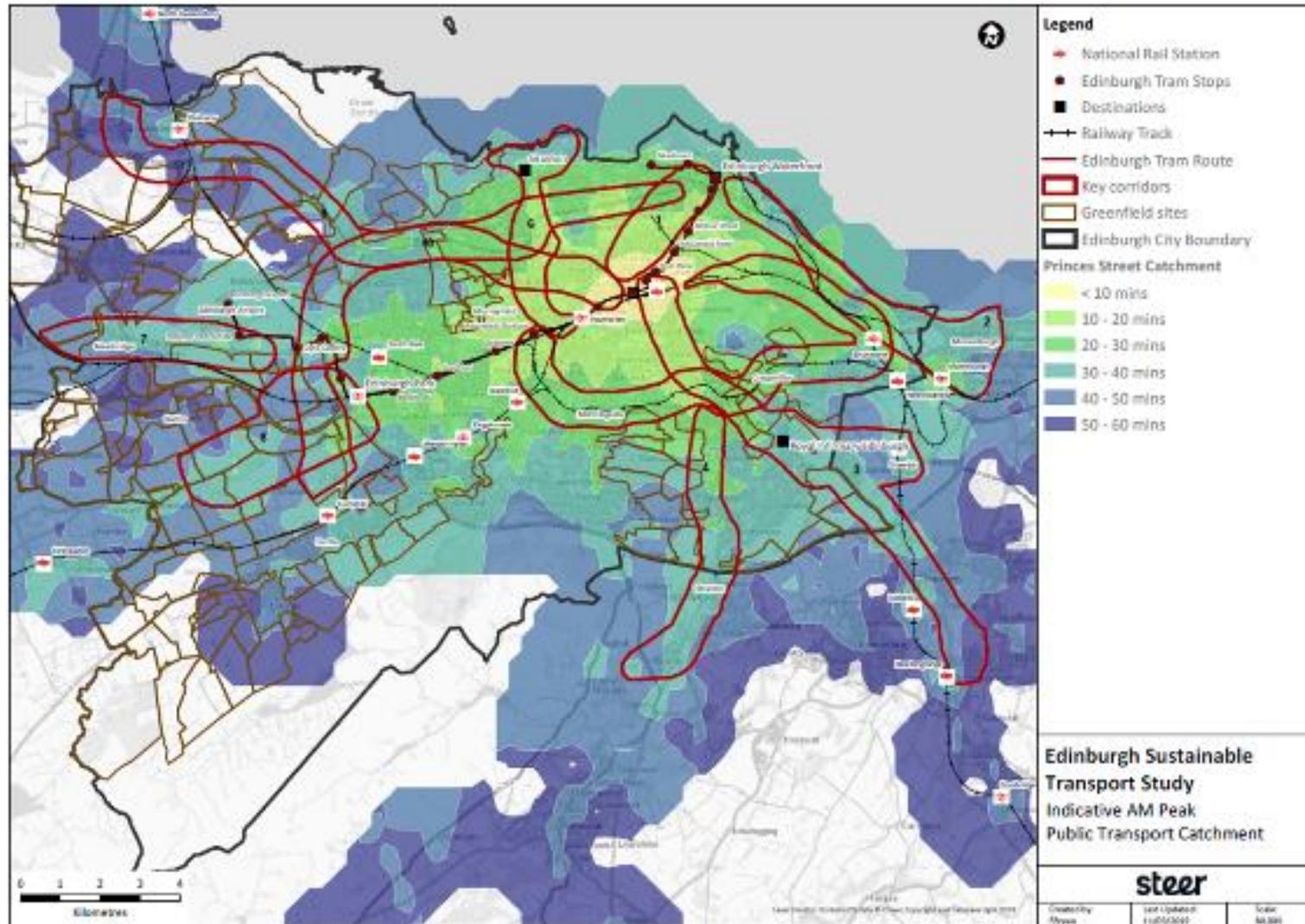


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Journey Times to the City Centre and Edinburgh Park

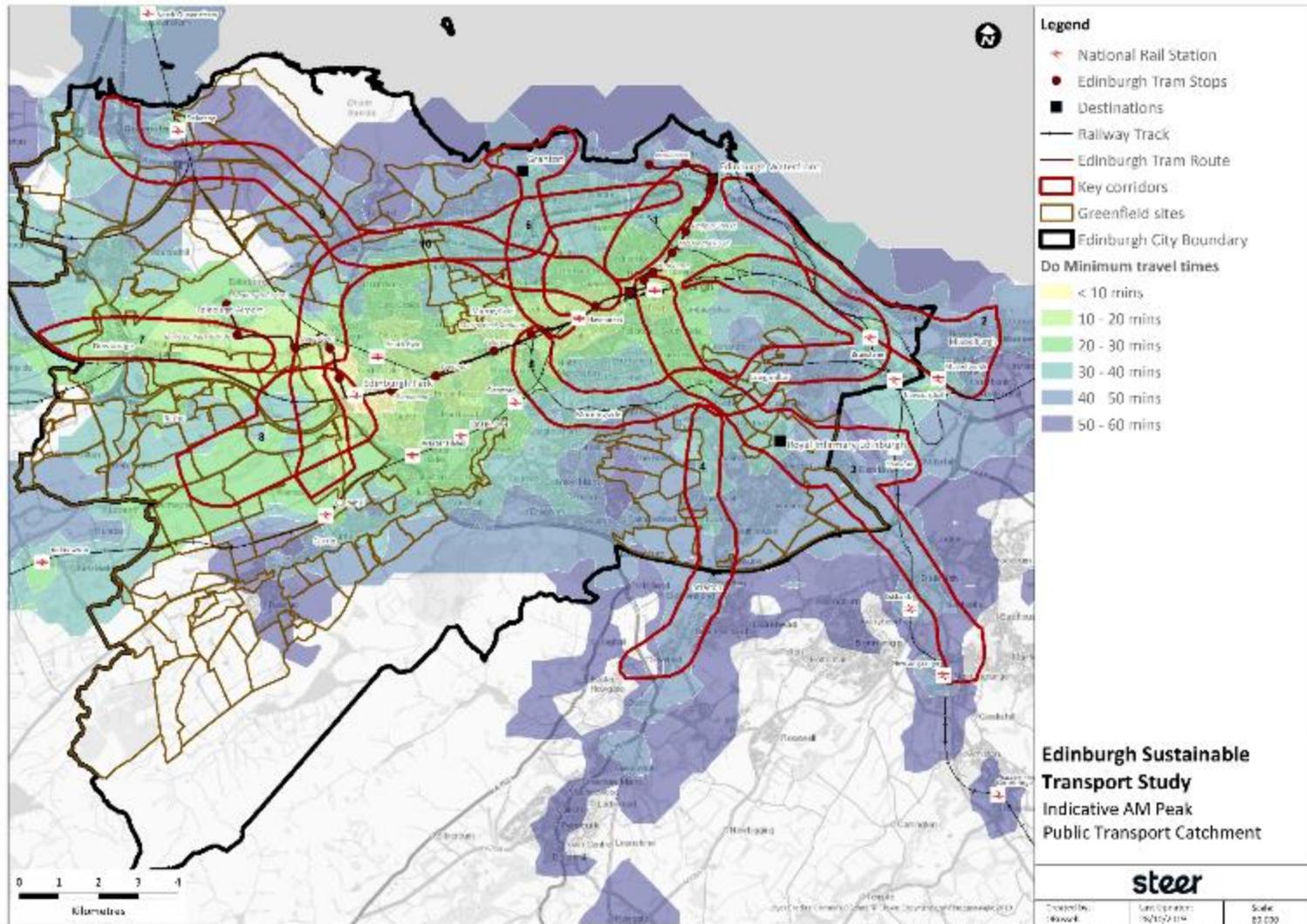
- 4.20 Public transport accessibility measured as a function of journey time to / from the city centre and to / from Edinburgh Park is shown in Figure 4-6 and Figure 4-7 respectively.
- 4.21 Journey time analysis to the **city centre** indicates similar patterns in transport accessibility to the PTAL analysis, emphasising short travel times for those travelling within the city centre, however those travelling from the city boundary (such as Queensferry in the north west) or from nearby communities in Midlothian (such as Newtongrange and Loanhead) can typically expect significantly longer journey times (up to an hour) despite distances being comparatively short (up to 8 miles).
- 4.22 When public transport accessibility is considered from strategic growth areas outside the city, such as **West Edinburgh**, travel times indicate poorer levels of accessibility particularly from north, south and south west Edinburgh. For example, journey times from areas such as Granton and Pilton in the north of the city (approximately 4 miles from Edinburgh Park, with a travel time of around 45 mins), Balerno and Currie in the south west (approximately 3 miles from Edinburgh Park, taking between 40mins and 1 hour travel time) and Gilmerton and Fairmilehead in the south (approximately 4.5 miles, and 40mins to 1 hour travel time) also have longer journey times than would be expected for the distance travelled.
- 4.23 A feature of strategic employment development areas is that, while they have good public transport accessibility to the city centre, the level of accessibility is significantly poorer for other movements. This reflects the city centre focus of much of the existing public transport network, and manifests itself in the form of considerably lower public transport mode shares for non-central locations.

Figure 4-6: Accessibility (Journey Time) to the City Centre



Source: Steer TRACC analysis

Figure 4-7: Accessibility (Journey Time) to West Edinburgh



Public Transport Demand

- 4.24 The case for transit-based solutions will tend to be stronger for corridors where existing public transport demand is higher. This is because transit can provide the overall capacity in an efficient manner (e.g. a tram has a capacity of nearly three times that of a bus) to cater effectively for high demand volumes, and support frequent service levels.
- 4.25 Analysis of modelled public transport demand has been undertaken using the City of Edinburgh Council VISUM multi-modal model. Figure 4-8 presents Bus, Rail and Tram passenger demand for the morning peak (07:00-08:00).
- 4.26 This shows that those arterial routes with high public transport accessibility levels and high population densities also have high passenger demand.

Figure 4-8: AM Base Model Public Transport Demand



Buses per Hour

- 4.27 Figure 4-9 highlights the number of buses per hour in an average AM peak hour. This shows that a significant number of buses travel through the city centre with a number of routes having over 75 buses per hour. Over 160 buses per hour travel along Princes Street from Lothian Road to Frederick Street.
- 4.28 The key routes with up to 75 buses per hour are arterial routes from the West along the A8 and Dalry Road, the south east along the A7 through Southside and Newington, the east via London Road and the north east along Leith Walk. These routes represent those areas with the highest public transport demand as outlined previously in Figure 4-8.
- 4.29 An analysis of bus volume over capacity has been undertaken based on the base year modelled public transport demand and the number of buses per hour. Volume per bus has been calculated as two hour modelled public transport demand from VISUM divided by the service frequency over two hours. Capacity per bus has been assumed to be 80 passengers, which reflects the typical number of seats per bus.
- 4.30 Results of this analysis are presented in Figure 4-10. Chiefly, these highlight areas where bus capacity is a constraint. The high number of buses per hour towards the city centre generally results in a low volume capacity ratio of under 50%. Areas of over-capacity, such as the area around the Gyle, are generally localised, possibly indicating that local movements are under-served. Future infrastructure and service improvements along Corridor 10 may help better serve demand in such areas.
- 4.31 Other localised areas with a bus volume capacity greater than 100% include Holyrood, an area in Corridor 1 around Pilrig and some sections in the southeast along Corridor 3 towards the BioQuarter and Royal Infirmary.

Figure 4-9: AM Base Model number of buses per hour



Figure 4-10: AM Base Model Bus Volume Capacity Ratio



5 Identification of Priority Transit Corridors (sifting stage)

5.1 The ten corridors have been reviewed and assessed to identify those that are more suitable for the consideration of transit solutions in the short to medium-term. As part of the review, the potential for each corridor for the development or enhancement of strategic active travel connections has also been reviewed.

Transit Assessment

5.2 The assessment considers the key drivers that underpin the rationale for development of transit. The key drivers have been used to develop a set of five performance criteria against which the potential suitability and viability of transit in each corridor was considered.

Key Drivers of Transit Assessment

5.3 We have developed five criteria that underpin whether transit is suitable in each to the ten corridors. The criteria, or key drivers of the assessment, are summarised in Table 5-1.

Table 5-1: Transit Assessment - Key Criteria

Key Driver of Assessment	Description / Success Factors	Evidence for assessment
The level of 'in-scope' existing demand.	<p>Transit provides an efficient and effective solution serving higher demand corridors. Key success factors for transit include:</p> <ul style="list-style-type: none"> • Key attractors on route. Typically, this could be city centre, key destination en route (e.g. Edinburgh Park, BioQuarter, Hospitals, Stadia etc.). • Strong in-scope residential demand. • Ability to extend effective catchment beyond immediate route through strategic P&R or major interchange (e.g. with rail network). • Presence of 'anchors' at / towards end of route, or major destinations at either end. Examples on the existing line include Edinburgh Park and the Airport, which serve to create strong 2-way flows which is positive in demand / capacity terms. 	<p>Informed by:</p> <ul style="list-style-type: none"> • Identification of major attractors / generators on route. • In-scope residential demand and employment demand, and existing public transport demand (from baseline assessment).

Key Driver of Assessment	Description / Success Factors	Evidence for assessment
Ability to serve / enable major development	<ul style="list-style-type: none"> Brownfield and greenfield. Transit can encourage high density development and increase the rate and value of sites. Demand from development sites can contribute to success of transit service. 	<ul style="list-style-type: none"> Review of proposed major developments – existing designations and potential new development areas. Review of routing opportunities and options for transit.
Baseline Inequality / Deprivation	<ul style="list-style-type: none"> Promoting equity is a key objective and transit can support positive equity outcomes where enhanced public transport provision improves accessibility to work, education, leisure and other opportunities. 	<ul style="list-style-type: none"> The Scottish Index of Multiple Deprivation provides a measure of deprivation at a detailed spatial level, which is used to inform the level of deprivation in the corridor.
Comparative journey-time vs. bus and other alternatives	<p>The proportion of in-scope demand attracted to transit will depend on how attractive transit is compared to 'existing' travel options. Key factors underpinning an attractive transit route are:</p> <ul style="list-style-type: none"> Direct routing. Results in faster journey times for point on the route (demand and benefits) and, other things being equal, would have a lower capital and operating cost. Faster and more reliable journey times, ideally achieved through segregation. Fewer stops. A tram route would typically have a stop every c. 800m whereas a bus route might be every 500m. 	<ul style="list-style-type: none"> Current journey times based on TRACC analysis, information from transport models. Understanding of bus journey time / reliability issues in corridors / sections. Review of transit options and scope / potential to deliver faster / more reliable journey times.
Ability to attract significant modal shift	<p>The success of transit in fostering a more sustainable transport network relies on its ability to attract people out of their car. This can be achieved through:</p> <ul style="list-style-type: none"> Strategic Park & Ride location which intercept vehicle traffic before it reaches more congested urban areas. Providing 'new' cross city connectivity, to increase the attractiveness of public transport for trips where car mode share is higher (e.g. orbital movements). 	<ul style="list-style-type: none"> Existing levels of car ownership and mode share. Understanding of key movements where car share is higher (e.g. to non-city centre locations, orbital and cross city movements). Scope for transit to significantly increase mode share through providing an attractive service. Presence of / scope for strategic P&R provision.
Route feasibility and cost	<p>Route / alignment feasibility:</p> <ul style="list-style-type: none"> Opportunity for / ease of securing a corridor serving key demand drivers, with high priority and / or segregation. 	<ul style="list-style-type: none"> Review of route / alignment opportunities on route. Engineering feasibility of securing an attractive route.

Key Driver of Assessment	Description / Success Factors	Evidence for assessment
	<ul style="list-style-type: none"> • Ability to utilise / extend from existing routes (for which incremental costs are lower). • Operational considerations – limitation of frequency / capacity. 	<ul style="list-style-type: none"> • Consideration of extendibility on existing lines, utilising the existing 'core' network. • Consideration of operational issues / constraints.

Transit Assessment – Summary Findings

- 5.9 Each corridor has been given a qualitative score (between 0 and +3), against each of the criteria in Table 5-1. A high score (e.g. +2 or +3) indicates that the corridor is more suitable for transit against an individual criterion. Results are summarised in Table 5-2.
- 5.10 The scores for each of the criteria have then been totalled to give an indication of those corridors that are more or less suitable for transit. The total scoring should not be viewed as an absolute measure of which corridors are best as there has been no attempt to weight criteria. Rather, the scores are intended to show there is a 'natural boundary' between those corridors that perform better across a range of criteria compared to those that don't.

Summary of Transport Recommendations by Corridor

- 5.11 Below we summarise those corridors that perform strongly in terms of their transit potential. These are then discussed in more detail in subsequent chapters.

Options / Corridors Taken Forward for Further Assessment

- 5.12 Based on the assessment, the following corridors were identified as being more suitable for the consideration and development of transit solutions.
- Corridor 3 – South East via BioQuarter
 - Corridor 6 – Granton
 - Corridor 7 – towards Newbridge
 - Corridor 8 – West of Hermiston

Note on Corridor 1 (to Newhaven)

- 5.13 The assessment identified a strong case for considering transit options serving Granton. The serving of Granton would be achieved either through a route along Corridor 6, or through an extension of the tram from Newhaven (which is under construction) along the Waterfront to serve Granton from the east (as an extension / leg of Corridor 1).
- 5.14 The recommendation is that the Newhaven to Granton option should be taken forward as a Granton / Corridor 6 sub-option, given that Corridor 6 and the extension from Newhaven essentially amount to alternative means by which transit could connect Granton to the city centre. A further option would be to develop a transit 'loop' which connected the Leith / Newhaven and Granton corridors via the city centre.

Table 5-2: Transit Assessment - Summary Findings

Corridor	Base demand	Development Demand (existing LDP)	Accessibility to support new areas for development in sustainable manner	Baseline inequality (Scottish IoMD)	Route alignment feasibility	Attractiveness to passengers (proxy for Value for Money)	Score (unweighted)	Suitability for tram / transit (Y / N)
New Town to Granton via Newhaven (1)	2	3	0	2	2	1	10	Y
Portobello / M'burgh (2)	2	2	0	2	1	1	8	N
South East via Bio-Q (3)	3	3	3	3	2	2	16	Y
Straiton (4)	2	1	2	2	1	1	9	N
South Suburban (5)	2	1	0	2	1	1	7	N
Granton (6)	2	3	1	3	2	2	13	Y
Newbridge (7)	1	2	3	1	3	2	12	Y
West of Hermiston (8)	1	1	3	1	3	2	11	Y
Queensferry (9)	2	1	2	1	1	1	8	N
W Edin North – South (10)	1	1	2	2	1	1	8	N

Transport Recommendations by Corridor – Options not Prioritised for Transit

- 5.15 The focus of this study, and of the sifting process outlined above, has been to identify those corridors that are more suitable for the development of transit options.
- 5.16 This assessment is therefore focused on corridor suitability specifically for a transit-type intervention. The assessment does not suggest that the transport issues or needs in other corridors (those not identified for transit) are less strategically important or of lower priority – merely that the likely range of interventions for these corridors will be based around non-transit options. Indeed, some corridors such as the A90 are strategic in nature and of importance at a national and regional (as well as city) level.
- 5.17 The reasons for which these corridors have not been shortlisted for transit-type interventions are summarised in Table 5-3. Though not the primary purpose of this study, the potential transport priorities and options for those corridors not prioritised for transit are also summarised in Table 5-3. Further detail is also provided in Appendix A for reference.

Table 5-3: Transport Priorities in non-Transit Corridors

Corridor	Why not prioritised for transit	Transport priorities for corridor
Corridor 2	<ul style="list-style-type: none"> Relatively low demand along corridor reflects the low population density of parts of the corridor, as well as the impact of the coast on limiting effective catchment. Routing via Leith (as proposed tram extension) would be circuitous and less direct than existing bus alternatives. This limits potential demand for the route and its likely benefits. Corridor includes brownfield development sites, but not at scale of other corridors. There are limited opportunities serving new sites under consideration as part of City Plan process. The feasibility of securing route priority and / or segregation alignment limited by highway and frontage constraints. Analysis of existing demand and capacity indicates growth is not constrained by transit. 	<ul style="list-style-type: none"> Enhancement of active travel links between Musselburgh, Portobello and Leith as part of an enhanced coastal network. Development of bus options to improve accessibility to key brownfield sites. Opportunities to integrate bus / active travel with tram extension at / around Leith.
Corridor 4	<ul style="list-style-type: none"> Inner section of corridor shared with Corridor 3, and Corridor 3 is the stronger option for transit development (lower base demand and development potential than Corridor 3). Feasibility of the parts of route limited by gradients. 	<ul style="list-style-type: none"> Focus on bus-based corridor enhancements. Depending on transit option proposed for Corridor 3, there would be opportunities to enhance provision towards Straiton.
Corridor 5	<ul style="list-style-type: none"> There are fundamental feasibility issues that mean that the use of south-suburban alignment for a transit / metro type service is likely to be undeliverable and unviable; these include: <ul style="list-style-type: none"> Inter-running with strategic freight route would not allow for high frequency passenger headway; Inability to access city centre limits potential. A rail option would be unfeasible due to constraints at Waverley / 	<ul style="list-style-type: none"> None

	<p>Haymarket. Tram-train mooted as alternative to overcome this; however, the city centre tram network's similar constraints represent a significant obstacle; and</p> <ul style="list-style-type: none"> - Tram-train cost and deliverability are very uncertain. There are myriad issues re overhead line, signalling, track compatibility, platforms, level access. • Notwithstanding feasibility issues, previous studies have suggested the business case is weak for a south-suburban rail option given the inability of options to adequately serve the city core, which would be fundamental to the demand and benefits case. • Relief of city centre constraints better utilised supporting service enhancements in other corridors. 	
Corridor 9	<ul style="list-style-type: none"> • Comparatively low population and employment density within much of corridor makes it unsuitable for transit. • Limited expected demand from existing LDP sites or potential future sites. • Consideration of demand and capacity indicates growth is not constrained by transit. • Feasibility of the route alignment is poor because of highway capacity constraints and congestion, and limited opportunity for priority or segregation. 	<ul style="list-style-type: none"> • To be considered in the context of STPR2. • Development of Park and Ride sites serving this primary traffic corridor. • Focus on A90 as a strategic corridor catering for public and private transport.
Corridor 10	<ul style="list-style-type: none"> • Base level and expected demand from new brownfield development is anticipated to be lower than on other corridors. • The corridor orbital nature and the dispersion of development along it makes it very hard to successfully serve with transit. • Transit solutions operate more effectively on linear corridors serving areas of high-demand. Corridor 10 is orbital in nature which means its demand potential is lower and is hard to effectively serve with a mass transit-based solution. • Consideration of demand and capacity indicates that growth is not constrained by transit. • No clear transit route / axis that could serve existing and development demand effectively. 	<ul style="list-style-type: none"> • Whereas transit is not considered viable for this orbital corridor, a focus should be on considering how / whether orbital bus services on the corridor could be made viable to cater sustainably for future development and increase accessibility for residents within the corridor. • Priority to consider how active travel connections on corridor and into key hubs (e.g. Edinburgh Gateway) could help promote sustainable development in the corridor.

6 Corridor 6: Granton Transit Options

Rationale for Transit in Corridor

- 6.1 A proposed transit corridor would most likely utilise the former trackbed to provide a north-south transit corridor between Haymarket and Granton Waterfront.
- 6.2 This could facilitate the provision of a corridor offering significant levels of segregation and priority to secure fast and reliable journey times, resulting in significantly enhanced transport accessibility within the corridor. This in turn would potentially support wider connectivity to the west of Edinburgh (via existing tram connections) and to the south / towards Leith (depending on future network development).
- 6.3 The corridor serves major existing destinations such as the Western General Hospital and Craighleith Retail Park. In addition, the northern section of the corridor includes major brownfield development opportunities around the Waterfront and the Gasworks site. There is also an opportunity to integrate transit with the emerging Granton Masterplan, which is currently under development.
- 6.4 The corridor also currently provides an established, predominantly off-road, active travel route which is of a high quality and exhibits high levels of use; this is also expected to increase as a result of future development.

How transit contributes to wider objectives?

- 6.5 The development of transit in the Granton corridor has the potential to support the objectives and related outcomes outlined in Table 6-1.

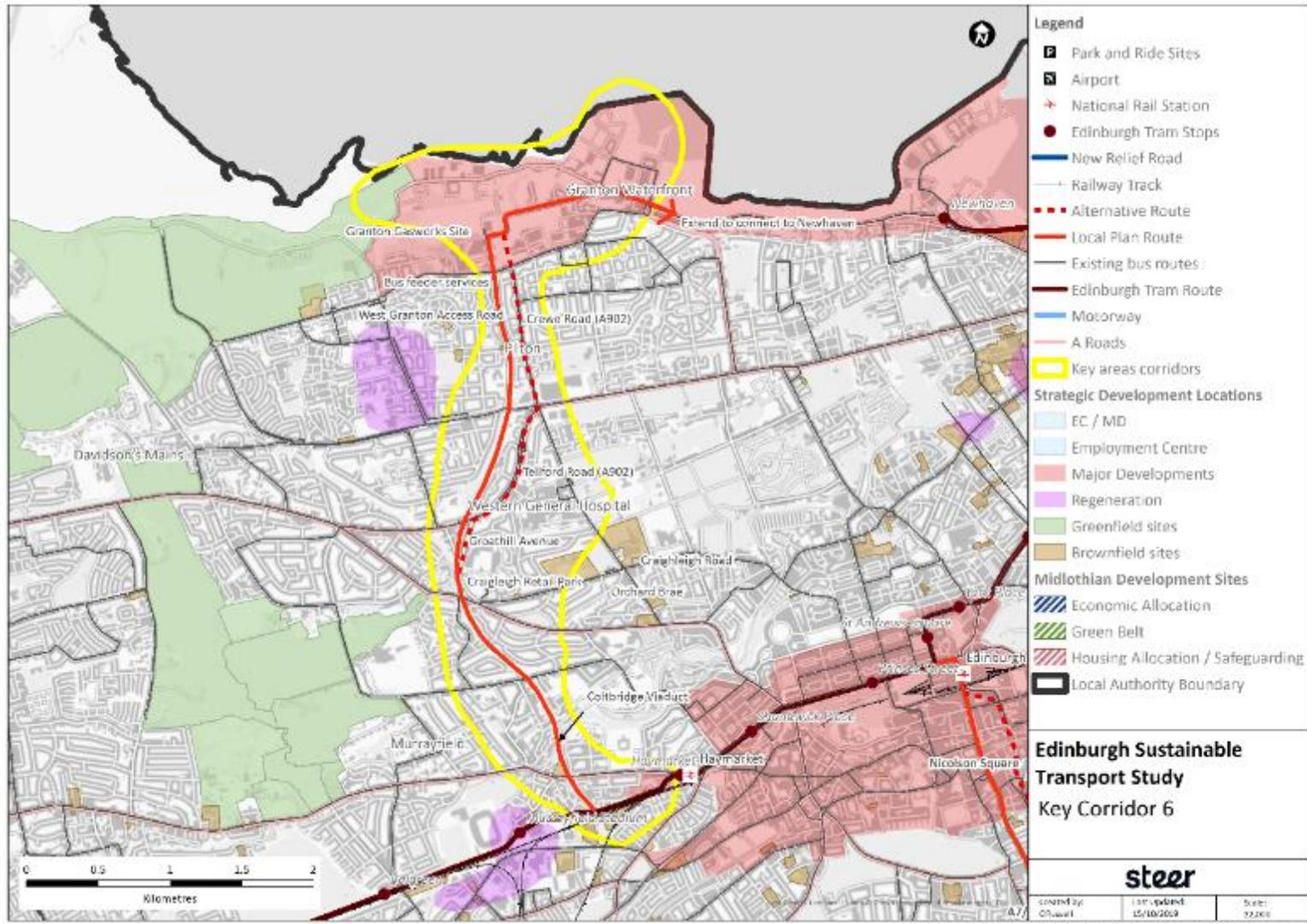
Transit Options – Modes and Routing

- 6.6 For this Phase of the study, we have identified potential route options as shown in Figure 6-1.
- 6.7 A tram route was developed in the early / mid-2000s and formed part of the route considered by the Scottish Parliament for powers and funding. The route to Granton was granted planning permission (now lapsed) but was not part of the tram route originally funded (which then comprised the route from the Airport to Newhaven). The route is safeguarded through the Local Development Plan 1.
- 6.8 The Local Plan Route supports an established and successful cycle corridor. The development of any transit option would need to ensure that active travel connections are maintained. The key constraint on this section is the Coltbridge Viaduct, which would need to accommodate both cycle and transit infrastructure.

Table 6-1: Granton Corridor compliance with objectives

ESSTS objective	Commentary	Assessment
Sustainable Economic Growth and Development	<ul style="list-style-type: none"> Supporting the rate, density and value of development in major brownfield sites. Increasing access to employment areas through enhanced connections to West Edinburgh (via existing tram) and potentially to the South East and / or Newhaven (dependent on future transit network development). Improving business efficiency for firms in the corridor. 	✓✓✓
Improved equity & social inclusion	<ul style="list-style-type: none"> Improved public transport accessibility to jobs, education, healthcare and leisure for residents of an area of high deprivation. Supporting regeneration of place through supporting redevelopment of brownfield areas and reducing traffic. 	✓✓✓
Reduce transport-related carbon emissions	<ul style="list-style-type: none"> Provision of direct high-quality public transport access to key housing / mixed use / employment sites could encourage fewer / shorter trips overall through the sustainable development of brownfield sites. Some mode shift potential, especially for movements currently poorly catered for by public transport (e.g. Granton to West Edinburgh). 	✓✓
Improved built & natural environment	<ul style="list-style-type: none"> Transit can support development of high-quality place in brownfield sites and provides opportunities to enhance streetscape along the corridor, and an indirect enabler of CCT through ability to reduce bus. Potential negative impacts on the natural environment and on what is currently essentially a linear park. Impacts would need to be mitigated through careful design. This could require additional greenspace to be provided at an adjacent / nearby location, and consideration as part of the City's green infrastructure (in the broader context of the Council's Climate Change Adaptation Plans). 	✓
Improved health, wellbeing & safety	<ul style="list-style-type: none"> Health enhanced through retention and further development of the active travel corridor in conjunction with enhanced public transport, leading to healthier lifestyles and fewer emissions. Potential impact on greenspace provision affecting local residents. Modal shift and scope to reduce traffic volumes / speed would reduce accidents and emissions. 	✓

Figure 6-1: Granton Corridor Transit Options



Modal Options

- 6.9 While both tram and BRT options would be potentially feasible, a tram-based option would offer the benefit of being able to connect with the existing route at Haymarket providing a connection direct to the city centre and, via interchange at Haymarket, a connection to Edinburgh Park and the Airport. The on-street options for a BRT option south of the Viaduct to connect through to the city centre are more limited.

Transit Route Options

- 6.10 The Local Plan route has been reviewed alongside potential alternative routings. The alternative options are presented for the southern and northern sections of the corridor.

Southern Section from Haymarket to Craighleith Road

- 6.11 The initial conclusion is that the former trackbed running south from Craighleith Road to Haymarket via the Coltbridge Viaduct offers the most viable transit option, and that on-street alternatives would not be able to deliver the degree of priority and segregation that would make transit an attractive viable option. The Coltbridge viaduct represents a key challenge for securing transit alignment, given width and level constraints and that the corridor is a high-quality and very popular walking and cycle route.

- 6.12 This reinforces the view that tram (rather than BRT) would be the more attractive mode on this section as securing an on-street alternative is extremely challenging within the southern section of the corridor and only tram could provide the quality of connection into the city centre via the existing tram route at Haymarket.

- 6.13 The trade-offs and issues for the route alternatives on the southern section are summarised in Table 6-2.

Northern Section from Craighleith Road to Granton Waterfront

- 6.14 The existing LDP safeguard Route runs partly along the former trackbed and partly alongside West Granton Access Road. This has the benefit of providing a segregated route, but this alignment does not service the major developments within the corridor (Western General Hospital and Craighleith Retail Park as well as an alternative on-street alignment using Groathill Avenue, A902 Telford Road and Crewe Road would. As well as the alignment, the fact that the former trackbed is in deep cutting would make stops on this section less attractive than if they were provided at-grade. The A902 is relatively wide and uncongested, meaning that securing an attractive transit alignment (i.e. with segregation and / or priority to secure journey time reliability) on this section should be feasible.
- 6.15 We therefore suggest that there is a strong case for considering an on-street routing option on the northern sections. An on-street option would also allow for reconsideration of how transit would serve and integrate with development proposals at Granton Waterfront.

Beyond Granton Waterfront

A further consideration is whether any transit route would terminate at Granton Waterfront (as per the existing LDP safeguard route) or be extended towards Newhaven. If developed as a tram solution then the Granton section running along the Waterfront would provide opportunity to join up with the tram at Newhaven. This would allow for various service options, including a potential loop service to operate.

Table 6-2: Granton Corridor Southern Section Options

Route section	Option A (Local Plan, viaduct and former trackbed)	Option B (on-street_	Initial view
Viaduct	<p>Viaduct (former rail, now cycle route).</p> <ul style="list-style-type: none"> Provides fully segregated route providing for attractive transit service. Co-location of tram / transit & cycling across Coltbridge Viaduct would require one-way working or 'tag on' cycle bridge. A 'tag on' solution was granted planning permission in 2007 but the quality of design was significantly lower than would now be considered acceptable. One-way working would impact on tram reliability and the width available for shared cycle/pedestrian use. 	<p>On-Street</p> <ul style="list-style-type: none"> A wholly on-street alternative via Orchard Brae is not considered suitable for a high-quality transit route due to alignment / corridor width constraints and delays from traffic congestion. An on-street route would require to cross Dean Bridge – this is an even more environmentally sensitive location than at Coltbridge. 	<ul style="list-style-type: none"> Viaduct option on southern section of route likely to be essential to delivering an attractive transit option. Must retain existing cycle/pedestrian facility. Integration with existing tram network makes tram a more attractive transit option, incl. access to Edinburgh Park and Airport.
Viaduct to Craigleith Road	<p>Former trackbed.</p> <ul style="list-style-type: none"> Provides fully segregated route providing for attractive transit service. Stops in deep cuttings (requiring lifts) reduces attractiveness. Established cycle corridor – retaining this would require extensive retaining works and major works at bridges to accommodate within cuttings. Significant tree and vegetation loss. 	<p>On-Street</p> <ul style="list-style-type: none"> No realistic alternative on-street option that would meet requirements to provide an attractive transit corridor [i.e. ability to provide a segregated route through southern section]. 	<ul style="list-style-type: none"> Former trackbed provides the more attractive and viable option for transit.

Commentary on Strategic Active Travel Connections

- 6.16 The Granton Corridor is already an established active travel corridor in the city providing high quality walking and cycling infrastructure for those travelling to / from north and north-west Edinburgh to the city centre. This connection through to Haymarket is due to be greatly enhanced by the proposed Roseburn to Union Canal project, which is due to be delivered by 2021. It is already well used, with average daily cycle flows over 1600, and use is expected to increase further.

- 6.17 City of Edinburgh Council has aspirations to further enhance the active travel infrastructure in the corridor to better cater for existing, and forecasted, demand. This presents large additional challenges for future combination with a new transit route, particularly in relation to the known constraints at Coltbridge Viaduct, and in relation to most road bridges over the former railway (e.g. Queensferry Road) and the need for large retaining structures to provide adequate width.
- 6.18 The City's long-term objectives will be best achieved through a corridor solution that provides for and prioritises the needs to enhanced transit and active-mode provision and capacity. There are inherent trade-offs within this, and these will need to be addressed through an integrated cross-modal corridor approach. This study has reaffirmed the conclusion that the best (and only, in terms of delivering step change) transit route would be via the former rail corridor (safeguarded in the Local Plan), but also acknowledges that challenges and trade-offs this entails with respect to active travel.

Key Issues / Challenges

- 6.19 There are several key challenges in developing a transit option in Granton. These mainly relate to the need to ensure that the transit alignment on the former trackbed sections and Coltbridge viaduct are developed and designed to ensure that:
- **Active Travel Requirements are fully catered for:** The design needs to ensure the current high-quality segregated cycleway is maintained / enhanced. Consideration needs to be given to the capacity requirements to support active travel and public transport volumes within the corridor. Walk and cycle usage has increased substantially in this corridor and active mode provision will need to be planned to accommodate further anticipated / forecast growth.
 - **Accessibility and mobility needs are met:** Previous proposals (those developed in the mid-2000s) for passengers with limited mobility are now unacceptable – e.g. long ramps at Ravelston Dykes stop would need to be replaced with lifts.
 - **Environmental Impacts are mitigated.** Significant potential environmental impacts at Coltbridge Viaduct and through Ravelston require mitigation through design.
- 6.20 Addressing the above will entail the development of enhanced design solutions from those developed in the 2000s. These are likely to be challenging and may require extensive works and / or increased land take to deliver a design solution that provides for the needs of active travel and transit.
- 6.21 While this will imply a higher cost, such measures are likely to be required to ensure the acceptability of the proposals (to local politicians and stakeholders) and to secure powers to construct a transit option. The measures would ensure that broader policy outcomes (healthier lifestyles, equity, environment) are integral to the scheme design and development.

Key Deliverability Issues

- 6.22 At this stage of scheme development, it is not possible to be definitive about the deliverability of transit in any particular corridor. However, through an appreciation of key deliverability risks and how these may apply in each corridor (and to a tram or bus based / BRT option) we have undertaken a high-level assessment of key deliverability risks. This is presented in Table 6-3.
- 6.23 The key findings, at this stage, are that:

- Overall, the deliverability risk associated with tram is lower than that of BRT.
- The key risks for either tram or BRT relate to the challenges of securing an acceptable transit alignment along the southern sections of route on the former rail alignment. This will entail the development of a high-quality design solution that provides for the accessibility needs of passengers and mitigated environmental impacts. The scheme would need to be developed as part of an integrated cross-modal strategy to deliver attractive transit and active travel solutions to cater for long-term demand.

Table 6-3: Deliverability Risks - Granton Corridor

Deliverability risk	Tram	BRT	Comment
Engineering feasibility risk	L / M	L / M	<ul style="list-style-type: none"> Transit option likely to be feasible, but will be challenging to achieve a design that also delivers a higher quality cycleway along the Craighleith to Roseburn section. Previous proposals for passengers with limited mobility now unacceptable – e.g. long ramps at Ravelston Dykes stop would need to be replaced with lifts. While a design solution is likely to be feasible, there will be significant trade-offs with cost and acceptability. BRT feasible, though may entail routing trade-offs.
Ability to secure desired transport outputs	L / M	M	<ul style="list-style-type: none"> Tram links to existing network provide stronger connectivity.
Technology risk	L	L	<ul style="list-style-type: none"> Both options use proven technology.
Environmental & property impacts risk	M	M	<ul style="list-style-type: none"> Significant potential environmental impacts at Coltbridge Viaduct and through Ravelston require mitigation through design. Impacts within corridor not possible to fully mitigate.
Acceptability risk	M	M	<ul style="list-style-type: none"> Tram likely to be more acceptable to politicians, stakeholders and public. Active travel trade-offs likely to be key acceptability issue.
Project complexity / interdependency risk	L / M	M	<ul style="list-style-type: none"> Integrates with development, but not dependent. BRT can't utilise existing tram network.
Value for Money risk	M	M	<ul style="list-style-type: none"> Uncertain, but will be a key challenge for both options. Achieving a feasible and acceptable engineering and design solution will have cost implications.
Planning risk - Powers & consents	L / M	M	<ul style="list-style-type: none"> Powers required for both options. Tram stronger policy-led grounding and powers previously secured.
Legal / regulatory risk	L	L / M	<ul style="list-style-type: none"> Operation of BRT would require consideration of operational model in conjunction with Lothian Buses and Edinburgh Tram.
Overall deliverability risk	M/H	M/H	<ul style="list-style-type: none"> Environmental / property impacts, and those on green corridor, pose biggest risks. These could emerge as showstopper risks.

Indicative Timeframe

- 6.24 The timeframe for delivery of transit is important to understand, in particular in relation to the emerging City Plan 2030 – which will consider spatial development options - and at a more local level to understand how transit can be developed to support and integrate with specific regeneration and development proposals, such as the Granton Masterplan.
- 6.25 The level of scheme development on the Granton corridor, from the work in the early 2000s provides a good basis from which to develop transit proposals. However, as the policy context and infrastructure needs have matured, our view is that, given the time required to undertake option and scheme development (STAG 1 and STAG 2), to secure funding and powers and then to procure and implement a transit option, delivery of transit towards the end of the City Plan 2030 period (i.e. late 2020s) would be a realistic delivery timeframe.

7 Corridor 3: South East Corridor Transit Options

Rationale for Transit in Corridor

- 7.1 The South East Corridor contains, from a strategic planning and demand-led perspective, all the key facets that support the development of a highly successful transit corridor. These include having strong existing demand generators (the University, Cameron Toll, Royal Infirmary), designated major employment centres (the BioQuarter), the potential for supporting further sustainable housing and mixed-use development, and the presence of strategic P&R. The corridor would also potentially serve existing and planned housing and employment areas in Midlothian.
- 7.2 The ability for the corridor to fulfil its full potential for sustainable growth and development has some limitations in overall effective capacity for significantly increased demand towards the city centre. While future development is possible, a transit solution is ideally required to enable and support growth of suitably high levels of density and value as we approach 2030.
- 7.3 However, the same constraints in overall effective capacity also serve to present the key challenge to securing an attractive transit alignment within the corridor.

How transit contributes to wider objectives?

- 7.4 The development of transit in the South East Corridor has the potential to support the objectives and related outcomes outlined in Table 7-1.

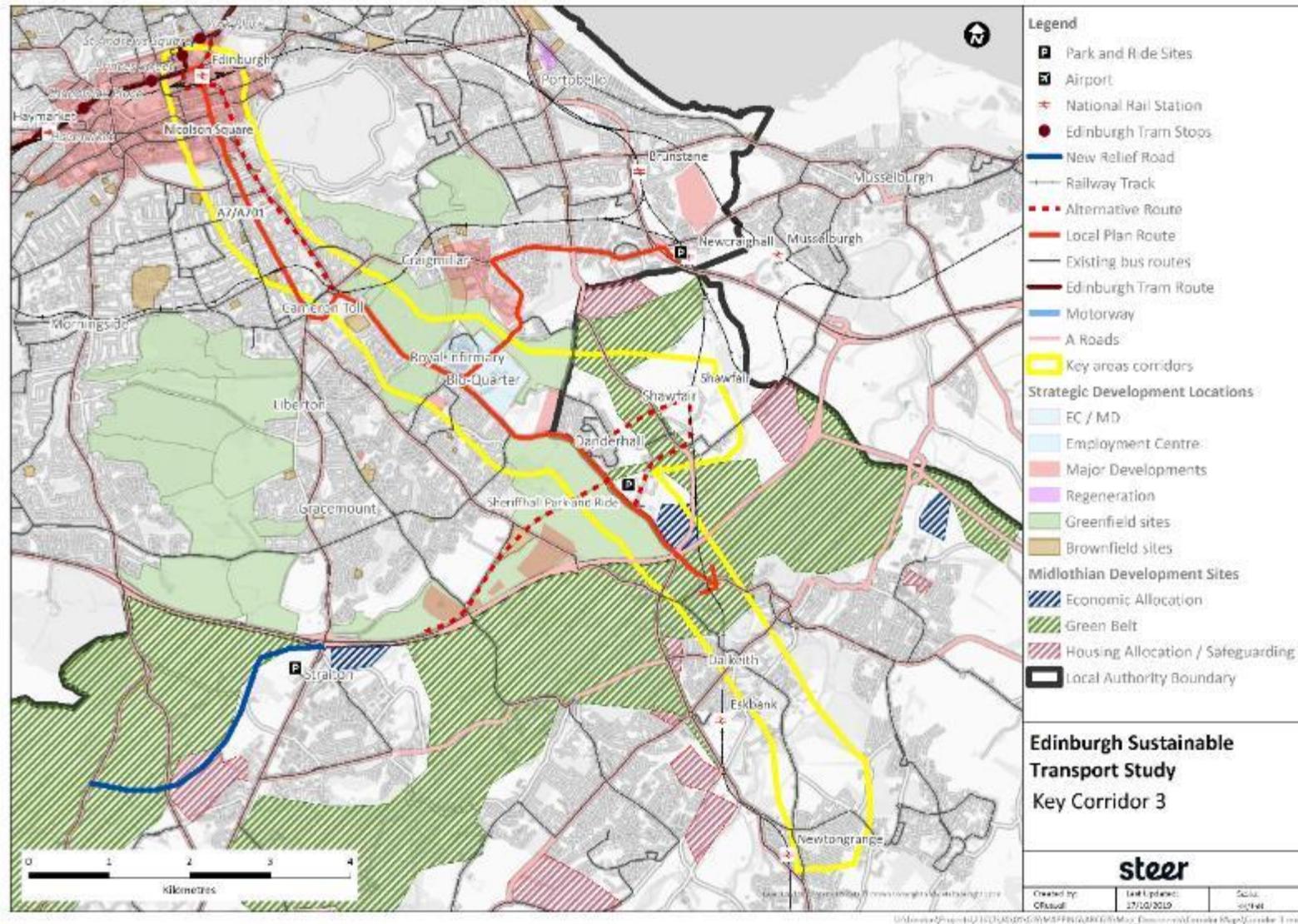
Transit Options – Modes and Routing

- 7.5 For this Phase of the study we have identified potential route options as shown in Figure 7-1.
- 7.6 An indicative tram route was developed in the early 2000s, and has been safeguarded through the Local Development Plan 1. The route development in the South East Corridor was significantly less developed than that in Granton. The Local Plan Routes comprise the A7 / A701 corridor is a key arterial corridor from the city centre to Sheriffhall Park & Ride / Dalkeith, and a spur to Newcraighall, as shown in Figure 7-1.
- 7.7 The inner section of the A7 / A701 corridor is highly constrained, with the highway width offering limited opportunity for segregation, high frontage activity and numerous side roads. These constraints become more acute towards the city centre, where the volume of pedestrians also increases substantially. The corridor is also a high-volume bus corridor (around 75 per hour per direction) and subject to high levels of congestion. These constraints imply that, to secure a transit route on this corridor, will involve a wider review of how limited road-space is used to accommodate public transport, walking and cycling and other road users.

Table 7-1: South East Corridor compliance with objectives

ESSTS objective	Commentary	Assessment
Sustainable Economic Growth and Development	<ul style="list-style-type: none"> Improving access to the city centre and the BioQuarter – a major employment designation located on the corridor. Potentially enhanced connections to West Edinburgh / Granton and / or Newhaven (dependent on future transit network development). Supporting the sustainable development of planned / potential development areas south of the BioQuarter including sites within Edinburgh and Midlothian. Improving business efficiency for firms in the corridor. 	✓✓✓
Improved equity & social inclusion	<ul style="list-style-type: none"> Improved public transport accessibility to jobs, education, healthcare and leisure for residents living in areas of high deprivation within the corridor. Supporting regeneration of place through supporting regeneration within the corridor, and by reducing traffic. 	✓✓✓
Reduce transport-related carbon emissions	<ul style="list-style-type: none"> Provision of direct high-quality public transport access to key housing / mixed use / employment sites could encourage fewer / shorter trips overall through the sustainable development of brownfield sites. Significant modal shift potential via P&R. Mode shift potential through the improvement of transit provision for movements currently poorly catered for by public transport (e.g. cross-city centre trips) – dependent upon the extent of a future transit network. 	✓✓✓
Improved built & natural environment	<ul style="list-style-type: none"> Transit can support development of high-quality place in brownfield sites, and opportunities to enhance streetscape along the corridor. Opportunity to enhance the streetscape between the BioQuarter and city centre through good design, and traffic reduction measures and bus rationalisation which could be facilitated by tram. 	✓✓
Improved health, wellbeing & safety	<ul style="list-style-type: none"> Health enhanced through provision of maintenance of active travel corridor and enhanced public transport, leading to healthier lifestyles and fewer emissions. Modal shift and scope to reduce traffic volumes / speed would reduce accidents and emissions. 	✓✓

Figure 7-1: South East Corridor Transit Options



Modal Options

- 7.8 Both tram and BRT options would be potentially feasible for this corridor. However, the potential routing options for each mode may differ, reflecting the greater flexibility of BRT in its ability to operate at steeper gradients and to operate on-street (without bespoke supporting infrastructure) in some places.

Transit Route Options

- 7.9 Essentially, a tram option would be limited to the A7 / A701 corridor on its inner section, whereas there would be the potential for BRT to use the parallel axis to the east running Cameron Toll – Dalkeith Rd – Pleasance – Market Street. The latter option is likely not to be viable for tram due to the gradient constraint at Pleasance.

Cameron Toll to City Centre

Table 7-2: Cameron Toll to City Centre Options

Route section	Option A (Local Plan) – Tram or BRT	Option B – BRT only	Initial view
Cameron Toll to city centre	<p>A7 / A701 corridor.</p> <ul style="list-style-type: none"> Only feasible routing for tram option (could be BRT). Significant challenges in securing attractive journey time and reliability. Segregation would not be feasible (acceptable – property take), and effective priority would be difficult to achieve. Consideration would need to be given to how a combination of bus rationalisation and traffic reduction could facilitate attractive journey times. 	<p>Inner – Re-examine Cameron Toll – Dalkeith Rd – Pleasance – Market Street – Waverley Bridge</p> <ul style="list-style-type: none"> Gradient at Pleasance likely to preclude tram as an option on this corridor. Bus-based options on this section could be considered as either an alternative or to complement a tram option. Could also accommodate services from Corridor 4 (Straiton). 	<ul style="list-style-type: none"> Need to consider both options in more detail. How routes connect into the city centre (and connect with or interchange with existing / future tram / transit network) will also be key.

Routing within / Across City Centre

- 7.10 Considering the routing of a potential tram network within the city centre there are two key issues:
- Buildability between North Bridge and Nicholson Square. Issues include: Utilities, impact on buses and general traffic, the ability to also cater for cyclist movements within this corridor, residents’ access and tram operational performance.
 - Constraints around capacity of Princes Street to accommodate additional trams.
- 7.11 City centre route options are considered further in Chapter 10 of this report.

Cameron Toll to Sheriffhall Road via BioQuarter

- 7.12 This section of the route provides an opportunity to serve key attractors directly. It is less constrained than within the city centre, so achieving attractive journey times would be feasible.

Beyond Sheriffhall Road

- 7.13 Beyond Sheriffhall Road, there is potential to extend the network towards Dalkeith. Here tram would be more suitable if demand is higher and focused on a linear corridor. Alternatively, BRT could potentially provide for more than one 'branch' feeding into core section. Options would need to be considered as a part of future option development.

Route / Spur to Craigmillar / P&R at Newcraighall

- 7.14 The Local Plan route included a spur to Craigmillar and onwards to the park & ride at Newcraighall. Our assessment is that a transit (tram or BRT) route would be circuitous and unlikely to offer journey time benefits over bus. This limits its demand potential and overall this routing is likely to be perform less well than the more direct route from Cameron Toll to Sheriffhall.
- 7.15 While there is significant current and future demand on this section of the corridor, a transit route to the city centre via the BioQuarter is unlikely to be the most effective means of catering for this. Rather, a range of options for serving area should be considered including transit, but also potential of bus enhancement on more direct routes and Borders Rail.

Commentary on Strategic Active Travel Connections

- 7.16 Active travel provision on the corridor is generally poor. On the edge of the city, the proposed grade separation of Sheriffhall roundabout includes additional separation for cyclists. Improved active travel connectivity at the Straiton junction is aimed at targeting severance impacts created by the city bypass. There are also proposals being developed for a high-quality segregated cycling facility from Cameron Toll to the BioQuarter (public consultation was held on these designs during October 2019).
- 7.17 North of Cameron Toll, bus lanes, particularly those on North and South Bridge cater for the majority of current cycle traffic travelling North-South on the east side of the city. This is because this corridor provides both the most attractive gradient over Waverley valley for those using cycles and the most direct link towards Leith from the southside, as well as being a cobble-free route.
- 7.18 In line with the City's objectives around active travel and those of the City Centre transformation, any transit corridor options would need to be developed alongside consideration of active travel in seeking to enhance the quality of provision and provide capacity for growth for transit and active travel alike.
- 7.19 Nevertheless, feasibility work to-date highlights that it would not be possible to deliver both transit and a segregated cycle route on the same constrained corridor. Unless the gradient constraint at the Pleasance can be overcome, tram in this corridor would need to follow the existing protected alignment via North and South Bridge.
- 7.20 With tram, cycling would still be permitted on both North and South Bridge (though there would not be space to accommodate a segregated cycle-route) but a tram-based transit option may require consideration of enhanced active travel located on the parallel Pleasance

corridor. While the gradients over the Pleasance section are an issue, this could be mitigated to an extent through the delivery of a new direct active travel route across Waverley Station and valley. Linking Leith Street with St Mary’s Street, this new connection, proposed as part of CCT, would need to be an integral element of an integrated tram / active travel corridor intervention.

7.21 For BRT-based transit there could be a different transit-active travel corridor strategy options, if BRT were to utilise the Pleasance corridor. Again, the core trade-offs between transit and active travel exist and an integrated corridor solution would need to be developed that catered for both.

Key Issues / Challenges

7.22 While both tram and BRT options are technically feasible, the key challenges is the need to secure journey times / reliability on inner section and into / across the city centre. Buildability of a transit route between North Bridge and Nicholson Square is a key concern with issues relating to utilities, impact on buses, general traffic residents’ access and tram operational performance.

7.23 The key challenge in developing an integrated corridor solution is to develop transit and active travel options that provide enhanced provision for both and meet the overall objectives of the City and are consistent with the CCT. As discussed above, this will necessarily involve some key trade-offs and choices. As above options will need to include designs for a high-quality cycleway. Providing such a facility would be challenging given:

- space constraints on the Bridges corridor which prohibit both tram and segregated cycle facilities.
- steep gradients on the Pleasance corridor (a particular challenge for cargo/ child-carrying bikes) and poor connectivity northwards to Leith Street from this route (without a major new structure).

7.24 More substantive work is required to develop combinations of route options for transit and active travel to identify options and, in due course, identify a likely preferred option.

Key Deliverability Issues

7.25 At this stage of scheme development, it is not possible to be definitive about the deliverability of transit in any particular corridor. However, through an appreciation of key deliverability risks and how these may apply in each corridor (and to a tram or bus based / BRT option) we have undertaken a high-level assessment of key deliverability risks.

7.26 This is presented in Table 7-3.

Table 7-3: Deliverability Risks – South East Corridor

Deliverability risk	Tram	BRT	Comment
Engineering feasibility risk	M	M	• Challenges in inner and city centre sections.
Ability to secure desired transport outputs	M / H	M / H	• Key challenge for both options.
Technology risk	L	L	• Both options would use proven technology

Environmental & property impacts risk	M	M	<ul style="list-style-type: none"> Townscape impacts in inner / central area.
Acceptability risk	M	M	<ul style="list-style-type: none"> Uncertain, as acceptability issues likely to be identified through design and consultation stages.
Project complexity / interdependency risk	M	M	<ul style="list-style-type: none"> The development of both tram and BRT options are dependent, in part, on whether other tram / transit extensions are planned (or planned for through design) Options would need to integrate with city centre transport (CCT) and other initiatives.
Value for Money risk	M	M	<ul style="list-style-type: none"> Uncertain, but will be a key challenge for both options.
Planning risk – Powers & consents	M	M	<ul style="list-style-type: none"> Powers would be required for tram, and likely to be required for BRT.
Legal / regulatory risk	L	L / M	<ul style="list-style-type: none"> Operation of BRT would require consideration of operational model in conjunction with Lothian Buses and Edinburgh Tram.
Overall deliverability risk	M	M	<ul style="list-style-type: none"> No showstopper risk, but a number of uncertainties at this stage.

7.27 The key findings are that although there are no showstopper risks identified at this stage, there are a number of areas that represent medium risks. These mostly relate to the issues which will need to be addressed in securing an attractive transit alignment on the inner section of route to, and within / across, the city centre and the need to accommodate enhanced provision for transit and active travel. Though the nature of these risks will differ between tram and BRT, the level of risk at this stage is similar for both modes.

7.28 The development of a transit option, particularly for the inner section of the corridor, would need to be considered in conjunction with the broader principles and range of measures that form part of the City Centre Transformation Strategy.

Indicative Timeframe

7.29 Substantial early-stage work is required to develop and assess transit options, to identify a preferred option which can then be taken forward through planning, powers and delivery. However, there is also an imperative given the strategic nature of the corridor and its constraints to identify and develop options to support planned and potential growth. Given this imperative, a realistic target date would be delivery of transit towards the end of the City Plan 2030 period (i.e. late 2020s).

8 Corridor 7: Towards Newbridge Transit Options

Rationale for Transit in Corridor

- 8.1 The Newbridge Corridor runs to the west of the existing tram route from Ingliston P&R towards Newbridge, along the A8 corridor. The land north of the A8 is a major development opportunity and part of the wider West Edinburgh Strategic Development Area, and there is therefore the opportunity to support development by improving public transport accessibility through transit provision.
- 8.2 The route would then serve Newbridge, where strategic P&R provision would also be possible. There is also opportunity for new sites to be developed south of the A8 and to the northeast of Newbridge, though these are subject to ongoing assessment by CEC through the City Plan process.
- 8.3 The corridor presents an opportunity to support the sustainable development of key sites, and at relatively low cost through the extension of the exiting tram network, or through bus-based solutions.

How transit contributes to wider objectives?

- 8.4 The development of transit in the Newbridge Corridor has the potential to support the objectives and related outcomes outlined in Table 8-1.

Transit Options – Modes and Routing

- 8.5 For this Phase of the study we have identified potential route options as shown in Figure 8-1.
- 8.6 An indicative tram route was developed in the early 2000s, and has been safeguarded through the Local Development Plan 1. The Local Plan Route runs immediately west from Ingliston towards the A8 and then runs to the south of the A8 to run along the southern side of Newbridge before crossing the M9 and then routing back in an easterly direction to serve central Newbridge, where the Local Plan Route terminated.

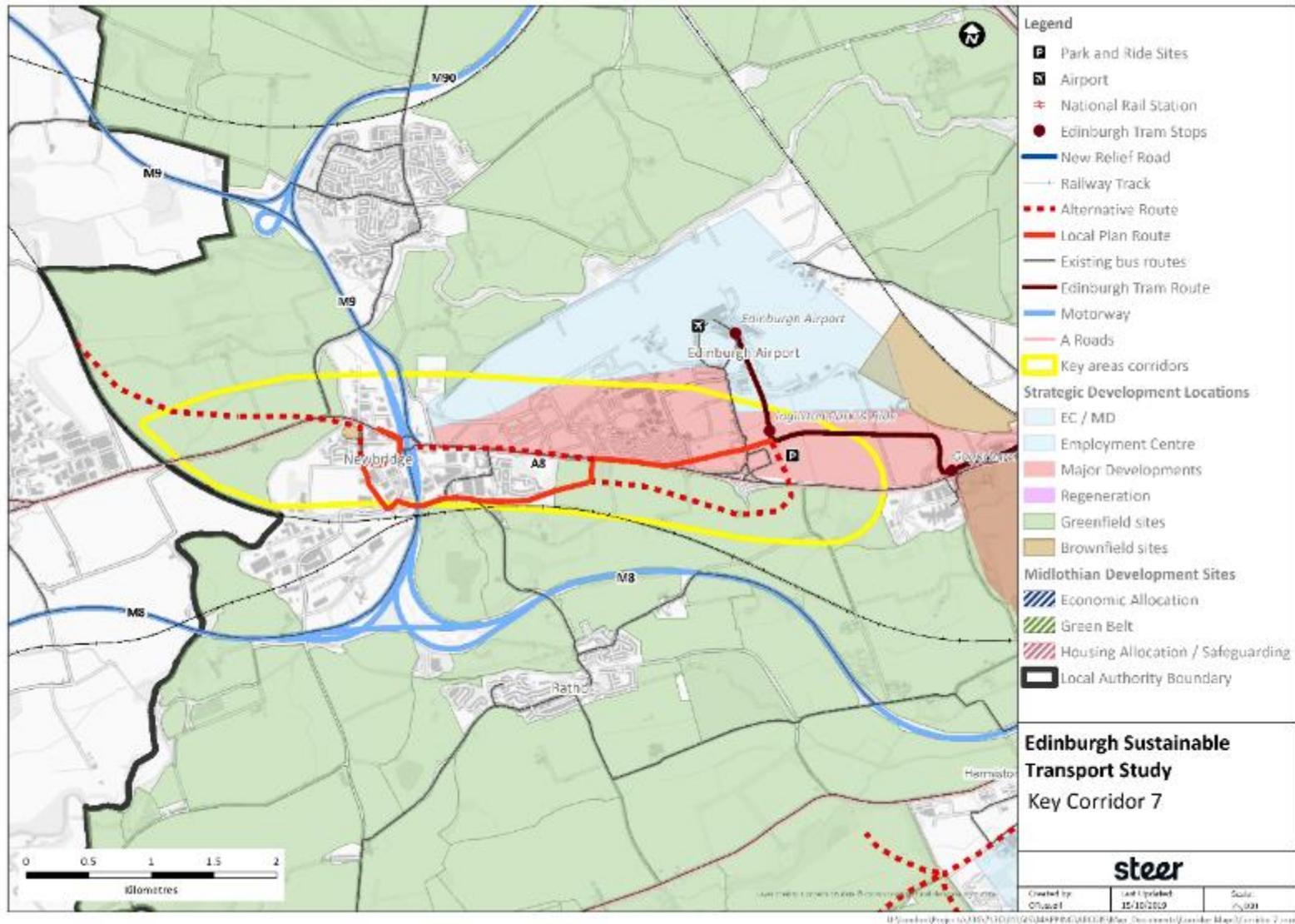
Modal Options

- 8.7 Both tram and BRT options would be potentially feasible for this corridor. A factor in the consideration of tram is that a tram extension connecting from the existing network to the west could only be implemented in either Corridor 7 or Corridor 8, but not both.

Table 8-1: Newbridge Corridor compliance with objectives

ESSTS objective	Commentary	Assessment
Sustainable Economic Growth and Development	<ul style="list-style-type: none"> Supporting the sustainable development of planned / potential development areas at the Showground site. Improving public transport connectivity between the Strategic Development Area, the rest of West Edinburgh and the city centre. Improving business efficiency for firms in the corridor. 	✓✓✓
Improved equity & social inclusion	<ul style="list-style-type: none"> Improved public transport accessibility to jobs, education, healthcare and leisure for residents of Newbridge. Supporting regeneration of place through supporting more higher-density sustainable development within the corridor, and by reducing traffic. 	✓✓
Reduce transport-related carbon emissions	<ul style="list-style-type: none"> Provision of direct high-quality public transport access to key housing / mixed use / employment sites could encourage fewer / shorter trips overall through the sustainable development of brownfield sites. Significant modal shift potential via P&R. Mode shift potential through the improving public transport provision for movements currently poorly catered for by public transport (e.g. cross-city centre trips) – dependent upon the extent of a future transit network. 	✓✓✓
Improved built & natural environment	<ul style="list-style-type: none"> Transit can support development of high-quality place in brownfield sites, and opportunities to enhance streetscape along the corridor. Opportunity to enhance quality and density of development through good design, and traffic reduction measures. 	✓✓
Improved health, wellbeing & safety	<ul style="list-style-type: none"> Health enhanced through provision of maintenance of active travel corridor and enhanced public transport, leading to healthier lifestyles and fewer emissions. Modal shift and scope to reduce traffic volumes / speed would reduce accidents and emissions. 	✓✓

Figure 8-1: Newbridge Corridor Transit Options



Transit Route Options

Ingliston to Newbridge

- 8.8 The overall recommendation for routing options in this corridor is that the identified Local Plan route is overly-circuitous and its routing does not materially open up areas for development that would not be served equally well from an alternative and more direct route running along the A8. This recommendation would hold for either tram or BRT options.
- 8.9 The A8 Corridor has the width to be able to accommodate a combination of transit and enhanced active travel links and could therefore support existing and planned development in a sustainable manner. A faster and more direct routing would also be key to making any future strategic P&R attractive to potential users.

Route within Newbridge

- 8.10 The Local Plan spur is circuitous and less attractive than a more direct route to Newbridge. The accessibility benefit of the spur into Newbridge is limited given the close proximity of the build-up areas to the Local Plan route terminus. The low-density development, shared running and circuitous routing all combine to support the case for a more direct routing option.
- 8.11 Should the route extend beyond Newbridge the case for a more direct route would be further reinforced (as it would reduce journey times compared to more circuitous options).

Beyond Newbridge

- 8.12 There is the option to serve potential development areas to north-west of Newbridge, should these be identified through the City Plan site options process. To the south, Hillwood Quarry, rail lines and M8 all act to constrain the serving of wider development areas.
- 8.13 Beyond Newbridge potential exists to develop a Park and Ride public transport interchange aside the A89 corridor that serves West Lothian and North Lanarkshire. Such an interchange would strongly support Corridor 7, and modal split.

Commentary on Strategic Active Travel Connections

- 8.14 The A8 could form a sustainable active travel corridor providing improved opportunities for cycling from Newbridge to the city and for commuting to employment at Edinburgh Airport/the forthcoming IBG. It would also support cycling at a regional level from settlements in West Lothian along the A89 and A899 such as Broxburn, Uphall and Bathgate.

Emerging Conclusions – Mode and Route

- 8.15 The emerging conclusions are that a bus-based or BRT transit option may be the more appropriate solution for this corridor, given the following:
- An A8 alignment would allow existing highway infrastructure to be upgraded to support the development of bus-transit and active travel, providing segregation and priority for both.
 - The timescale of implementation would be quicker than that of tram, allowing planned development to come forward in a more sustainable manner and providing opportunities to serve additional development areas.
 - The A8 Corridor into central Edinburgh is among the more direct and less congested radial corridors, meaning that bus-based options would be competitive with car, hence encouraging modal shift.

- There is a strong emphasis on strategic bus priority from the Scottish Government, whose Programme for Government published in September which includes a commitment to investing over £500 million in bus priority. The A8 Corridor has the characteristics that should support a strong bid for funding support.
- There is a strong case for the consideration of tram in Corridor 8. As tram could not be developed as a solution for both Corridors 7 and 8, our recommendation is that bus should be considered in the shorter-term. Should tram not be developed for Corridor 8, a tram extension to Newbridge could be developed at a later date utilising the A8 Corridor (i.e. migrating from bus-based transit to tram).

Key Issues / Challenges

- 8.16 The key challenge for a route on the A8 is around the acceptability of re-orientating the corridor to provide high-quality transit and active mode provision.
- 8.17 The other key issues, should this be developed as a bus-based option, are to consider how an attractive 'end to end' service could best be secured, maximising the benefits on enhanced transit infrastructure on the section of the A8 between Edinburgh Park and Newbridge. Securing reliable access in and out of any future P&R site will also be key to achieving the modal shift potential of the corridor.

Deliverability Issues

- 8.18 The deliverability risks are summarised in Table 8-2.

Table 8-2: Deliverability Risks – Newbridge Corridor

Deliverability risk	Tram	BRT	Comment
Engineering feasibility risk	L / M	L / M	• Options likely to be feasible.
Ability to secure desired transport outputs	L / M	L / M	• Tram option would deliver quality, largely-segregated, route in the corridor and into city centre. BRT option would offer a largely segregated / priority route on the extension, but overall attractiveness also determined by quality of 'end to end' route to city centre.
Technology risk	L	L	• Both options would use proven technology.
Environmental & property impacts risk	L / M	L / M	• Impacts are planning-related; scheme would be developed under a new area planning framework.
Acceptability risk	L / M	L / M	• Uncertain, though environmental and townscape character of corridor mean acceptability issues unlikely to represent high risk.
Project complexity / interdependency risk	L / M	L / M	• Key interdependency is the need to integrate land use planning and transport proposals. However, serves corridor containing existing land use designations and established demand, so not fully reliant on new land use proposals.
Value for Money risk	M	L / M	• Uncertain, but will be a key challenge for both options.
Planning risk - Powers & consents	M	L / M	• Powers required for tram. Bus-based option could have simpler consents process, though utilising existing infrastructure.

Legal / regulatory risk	L	L	<ul style="list-style-type: none"> Likely that a bus-based option would be integrated into existing bus operations, rather than as a separate entity.
Overall deliverability risk	M	L / M	<ul style="list-style-type: none"> No showstopper risk.

8.19 The key findings, at this stage, a bus-based option would be more deliverable, though there are no showstopper risks for either modal option.

Indicative Timeframe

8.20 If progressed as a bus-based option, there could be a phased implementation of measures and delivery of an integrated transit / active mode corridor around the mid-2020s. For a tram option delivery in the late 2020s would be a realistic timeframe.

9 Corridor 8: West of Hermiston Transit Options

Rationale for Transit in Corridor

- 9.1 The focus of the City Plan 2030 will be on delivering housing and employment growth at existing brownfield sites, and housing / mixed-use development in locations that have good public transport acceptability.
- 9.2 The long-term growth of Edinburgh and its city-region is likely, at some point (i.e. potentially beyond the City Plan to 2030), to require consideration of an extension of the existing urban area which, in line with policy, would need deliver sustainable communities supported by the provision of high-quality public transport and active modes.
- 9.3 The consideration of transit options in the Hermiston Corridor provides the opportunity to enable the sustainable development of new sites which, taken together, could form a major development area.
- 9.4 The corridor also benefits from a strong existing attractor in Heriot Watt University, an existing community at Currie and the opportunity for interchange at Curriehill Station. A P&R site is also located at Hermiston Gate.

How transit contributes to wider objectives?

- 9.5 The development of transit in the Newbridge Corridor has the potential to support the objectives and related outcomes outlined in Table 9-1.

Transit Options – Modes and Routing

- 9.6 For this Phase of the study we have identified potential route options as shown in Figure 9-1.

Modal Options

- 9.7 Both tram and BRT options would be potentially feasible for this corridor. A factor in the consideration of tram is that a tram extension connecting from the existing network to the west could only be implemented in either Corridor 7 or Corridor 8, but not both.

Table 9-1: West of Hermiston Corridor compliance with objectives

ESSTS objective	Commentary	Assessment
Sustainable Economic Growth and Development	<ul style="list-style-type: none"> • Potential for transit to support the development of large-scale development and sustainable communities, supporting the long-term growth needs of the city. • Improving public transport connectivity between Heriot Watt, Edinburgh Park, the city centre and beyond. • Improving business efficiency for firms in the corridor. 	✓✓✓
Improved equity & social inclusion	<ul style="list-style-type: none"> • Improved public transport accessibility to jobs, education, healthcare and leisure for existing residents of Currie. • Improved access to education (Heriot Watt) from across the city. • Opportunity to foster equity and social inclusion through the development of new communities. 	✓✓
Reduce transport-related carbon emissions	<ul style="list-style-type: none"> • Provision of direct high-quality public transport access to key housing / mixed use / employment sites could encourage fewer / shorter trips overall through the sustainable development of a major new development area. 	✓✓✓
Improved built & natural environment	<ul style="list-style-type: none"> • Transit can support development of high-quality place by supporting high-density and quality developments. • Transit and active travel provision can support high-quality streetscape. 	✓✓✓
Improved health, wellbeing & safety	<ul style="list-style-type: none"> • Health enhanced through provision of maintenance of active travel corridor and enhanced public transport, leading to healthier lifestyles and fewer emissions. • Modal shift and scope to reduce traffic volumes / speed would reduce accidents and emissions. 	✓✓

Transit Route Options

Connection towards West Edinburgh / City Centre

- 9.8 For a tram-based solution there would essentially be two main options for connecting into the existing tram network. First, a route connecting onto Edinburgh park north of the M8. A connection into Edinburgh park from the south would not be viable due to the constraints imposed by the M8 / Bypass multi-level junction / railway / canal. The second option would be to provide a tram alignment along Calder Road which could connect with the exiting alignment at Bankhead. The former would provide a direct connection into Edinburgh Park (and its major employment sites), whereas the latter would extend the accessibility of tram to a wider residential catchment.
- 9.9 For a BRT / bus-based option the most likely routing would be the Calder Way route currently used by the Route 25 from Hermiston P&R.

Heriot Watt Westwards to Development Site Opportunities

- 9.10 Given the greenfield nature of much of the corridor there are myriad routing options for both bus and tram. The relative merits of routes and modes would fundamentally depend on the location, scale, density and form of development within the corridor. Key consideration would be that:
- From a transit demand perspective, a routing serving Hermiston P&R and offering the best accessibility to and within the Heriot Watt campus should be the aim of option development in this section.
 - Beyond this section, tram would be better suited to:
 - Higher demand and ‘linear’ corridor development, preferably with key ‘anchors’ along and at the end of the route.
 - The development of the area as to attract employment uses, where developers and businesses (potential occupiers) are more likely to be attracted to a tram-based corridor.
 - BRT would be suited to:
 - development patterns more dispersed or along more than one corridor e.g. earlier to serve development corridor west of Heriot Watt and Curriehill station.
 - BRT can also be more easily phased i.e. transit infrastructure provided as part of development build-out, and extendable
- 9.11 The implication of the above is also that a tram-based options would need to be developed as part of an integrated masterplan which considered, and its success would be predicated on the development of a complementary and mutually reinforcing masterplanning framework. This would need to consider the type of development, development phasing, transit network development and to provide access to tram stops (or hubs) via walking and cycling.

Commentary on Strategic Active Travel Connections

- 9.12 As a new extension to the city, the corridor provides an excellent opportunity for strategic active travel infrastructure to be developed alongside transit infrastructure. Active travel infrastructure would need to link with all local destinations of significance, the West Edinburgh Link and national cycle network routes 754 and 75.
- 9.13 Whilst developing greenfield land offers the opportunity to provide high quality active travel linkages within the corridor and wider site, developing a sustainable community in this

location would require high quality active travel permeability into the rest of the existing city from this location. This will need a very significant investment in order to overcome the major barrier to active travel movement imposed by the city bypass. This barrier extends over a wide area and creates severance of communities on either side of the bypass. To provide a really effective connection, one or more substantial 'green bridges' or similar over the bypass would be required.

Key Issues / Challenges

- 9.14 The key deliverability challenge for this corridor relates to the need to develop transit proposals as part of an integrated development masterplan. Within this, there will be a number of challenges to ensure the necessary form, type, scale and density of development required to support transit. These risks include development viability and phasing, and how this informs the phasing and funding / financing of potential transit solutions. An essential prerequisite for a successful transit-based development will be a masterplan framework setting out clear standards for development density that ensure sufficient populations living within walking distance of the stops.

Deliverability Issues

- 9.15 The deliverability risks for the West of Hermiston Corridor are summarised in Table 9-2.

Table 9-2: Deliverability Risks – West of Hermiston Corridor

Deliverability risk	Tram	BRT	Comment
Engineering feasibility risk	L / M	L / M	<ul style="list-style-type: none"> Options likely to be feasible.
Ability to secure desired transport outputs	L / M	L / M	<ul style="list-style-type: none"> Tram option would deliver quality, largely-segregated, route into city centre. BRT option would need to consider how 'end to end' service could be delivered, or as 'feeder' into tram stop.
Technology risk	L	L	<ul style="list-style-type: none"> Both options would use proven technology.
Environmental & property impacts risk	M	M	<ul style="list-style-type: none"> Impacts are planning-related; scheme would be developed under a new area planning framework.
Acceptability risk	M	M	<ul style="list-style-type: none"> Uncertain. Greenfield nature of parts of corridor may represent greater risk from a planning perspective. Case to transit intertwined with land-use options.
Project complexity / interdependency risk	M	M	<ul style="list-style-type: none"> Key interdependency is the need to integrate land use planning and transport proposals. This would be through a Spatial Planning Framework.
Value for Money risk	M	M	<ul style="list-style-type: none"> Uncertain, but will be a key challenge for both options.

Planning risk - Powers & consents	M	M	<ul style="list-style-type: none"> • Powers required for both options.
Legal / regulatory risk	L	L	<ul style="list-style-type: none"> • Likely that a bus-based option would be integrated into existing bus operations, rather than as a separate entity.
Overall deliverability risk	M	M	<ul style="list-style-type: none"> • No showstopper risk.

9.16 The key risks are planning-related rather than directly transit-related at this stage, reflecting the planning and development-led nature of transit in this corridor.

Indicative Timeframe

9.17 Given there would be a requirement to establish a masterplan framework in order to inform the development of transit options, is it unlikely that transit could be developed within the timeframe of the City Plan 2030 period.

10 A Future Transit Network

An Illustrative Network Vision

- 10.1 The preceding sections of this report identify the potential for transit at an individual corridor level. This study suggests that the further consideration and potential development of transit should be considered for a number of these corridors.
- 10.2 There are potential benefits of developing transit solutions across corridors. These include making best use of shared infrastructure (lowering incremental costs), operational efficiencies and the ability to provide significant passenger benefits by providing connectivity and accessibility across corridors.
- 10.3 However, there is also a level of network development where the constraints imposed by core infrastructure – such as tram capacity through Princes Street – would require consideration of how additional core area capacity can be delivered. Indeed, the City Centre Transformation work identified the potential requirement for a new city centre tram axis to accommodate the requirements of a future potential tram network in conjunction with the placemaking aims of the CCT.

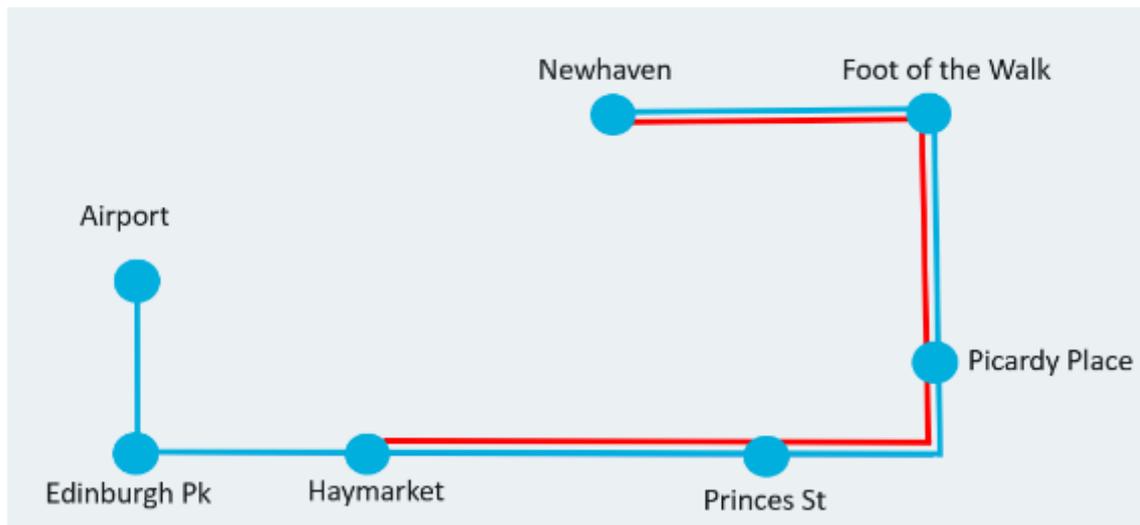
A Future Network - Tram

- 10.4 There would need to be further work to examine the case for transit solutions and the most appropriate mode in the priority corridors identified in this report. However, the development of a tram network has been a long-established ambition, reflected by current CEC policy, so we have considered what a future network, should tram be developed in key corridors, could look like from a route and operational perspective.

Do Minimum Network – Airport to Newhaven

- 10.5 The Tram Completion Project (Trams to Newhaven) was approved by CEC in March 2019, and is anticipated to open in 2023.
- 10.6 This will provide for an extension of the existing service to Newhaven, complemented by an additional service operating between Haymarket and Newhaven. The current assumptions (as per the Tram Completion Full Business Case) is that by 2030 there would be 16 trams per hour on the Newhaven section.
- 10.7 This is illustrated in Figure 10-1.

Figure 10-1 Do Minimum Tram Routing and Service Pattern



10.8 Over time it is likely that a tram frequency of 16tph to Edinburgh Park would be required to accommodate planned growth.

Extension to West (West of Hermiston or Newbridge) and Extension to Granton

10.9 An illustrative service pattern, should the tram network be extended westwards (towards either Newbridge or West of Hermiston), is presented in Figure 10-2.

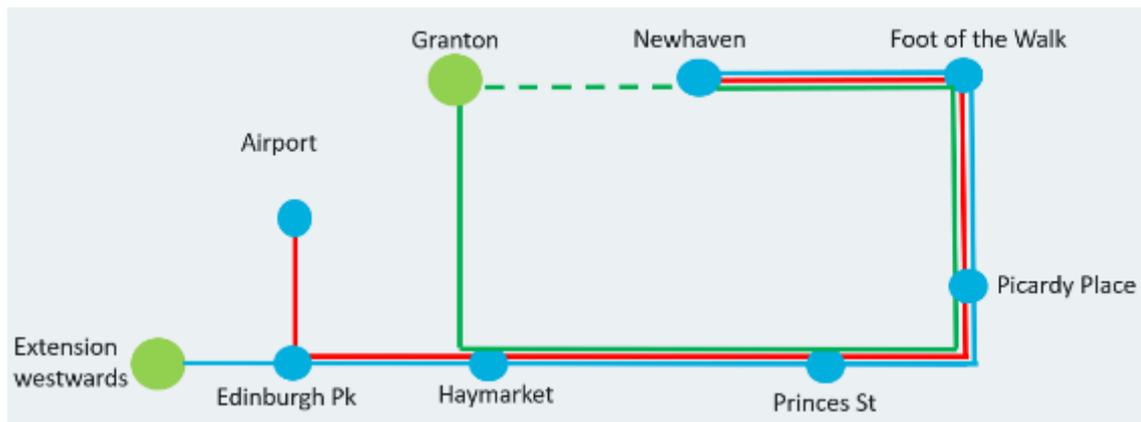
10.10 The existing infrastructure on Princes Street could accommodate further extension to west within the above (though there would be limits on frequency for spurs to the P&R & Airport) to around current level. As an illustrative scenario an extension only to the west could imply a service pattern of 8tph from the Airport to Newhaven and 8tph from a western extension to Newhaven. This would retain the current service frequency to the Airport (and Ingliston P&R) and 16tph between Edinburgh Park and Newhaven.

10.11 An extension to Granton (assuming 8 trams per hour) would imply a frequency of around 24 trams per hour through the city centre and to Newhaven.

10.12 There would need to be more detailed work to assess whether and how a frequency of 24tph could be accommodated through Princes Street. Our preliminary view is that a service level of 24 tph could be achievable, but would need to be enabled by supporting measures (in particular a significant reduction of buses) on Princes Street, which would be consistent with principles of the City Centre Transformation Programme.

10.13 There is the option to continue a Granton extension through to Newhaven (denoted by dashed line) which could then support either a 'loop' service or an extension of some services via Leith to Newhaven to serve an interchange at Granton.

Figure 10-2 Illustrative Tram Network with Extensions to Granton and West of Edinburgh Park



Extension to South East

- 10.14 The south east corridor is a high-demand corridor and, as such, a reasonable planning assumption is that it would require a tram service level of 16tph.
- 10.15 Based on the local plan route (there a route would turn from South Bridge to connect with the exiting tram route in Princes Street) this would imply service levels of around 32 trams per hour though the centre (if these were overlaid on the 16tph from Newhaven).
- 10.16 This is likely to be unachievable unless, for example, all buses were re-routed away from Princes Street, which is likely to be unacceptable. Moreover, a future network where all services funnel through Princes Street make operational reliability harder to achieve and also compromises the resilience of the network.
- 10.17 Our assessment is therefore that, in considering a wider network and in particular a route to the south, the case for additional city centre infrastructure should be assessed.

City Centre Infrastructure Options

There are two sections where we suggest consideration of additional central area infrastructure could improve the journey opportunities, operational reliability and resilience of the network. These are:

- A link from North Bridge to Picardy Place, allowing for a direct connection between Newhaven and the South East corridor, and reducing the throughput of trams through Princes Street.
- A new cross-city axis running between Nicholson Square to Haymarket via Potterrow, Lauriston Place, Bread Street and Morrison Street. This route would serve a strong catchment including the University of Edinburgh’s central campus, the Edinburgh International Conference Centre and adjacent Exchange office district. The route would also provide new routing opportunities with a more direct connections, avoiding Princes Street, from any potential South East Corridor to important employment opportunities in the west. This route was identified as a potential option in the CCT report.

These routes are both shown in Figure 10-3.

Development of the cross-city route does present some challenges however. These include:

- Shared running on a congested road network would require extensive traffic re-routing and management to keep delays to an acceptable level;

- There would be contentious changes to parking / loading / servicing arrangements to provide tram priority;
- There are some feasibility issues at pinch points. This includes land take at Nicolson Square and property demolition or single-track section at Bread Street / West Port triangle.

10.18 New city centre infrastructure as described above could facilitate a range of service options and increase the overall capacity, reliability and resilience of a future network.

10.19 Illustrative service patterns are presented below for a network with a new link between North Bridge and Picardy Place (Figure 10-4), and then the further addition of a new cross-city axis (Figure 10-5).

10.20 Again, it should be noted that these are illustrative service patterns only, and that in practice a range of variant options could be considered.

A Future Network – with BRT

10.21 There would be a number of further service options and variants that would be possible with bus-based transit / BRT options. It is difficult to speculate on how these could develop at a detailed level, but any future BRT network would need to be developed to maximise the opportunity for seamless cross-city connections, either through cross-city services or interchange between BRT and tram, supported by multi-operator off-vehicle ticketing.

Figure 10-3: Cross Centre Infrastructure Options

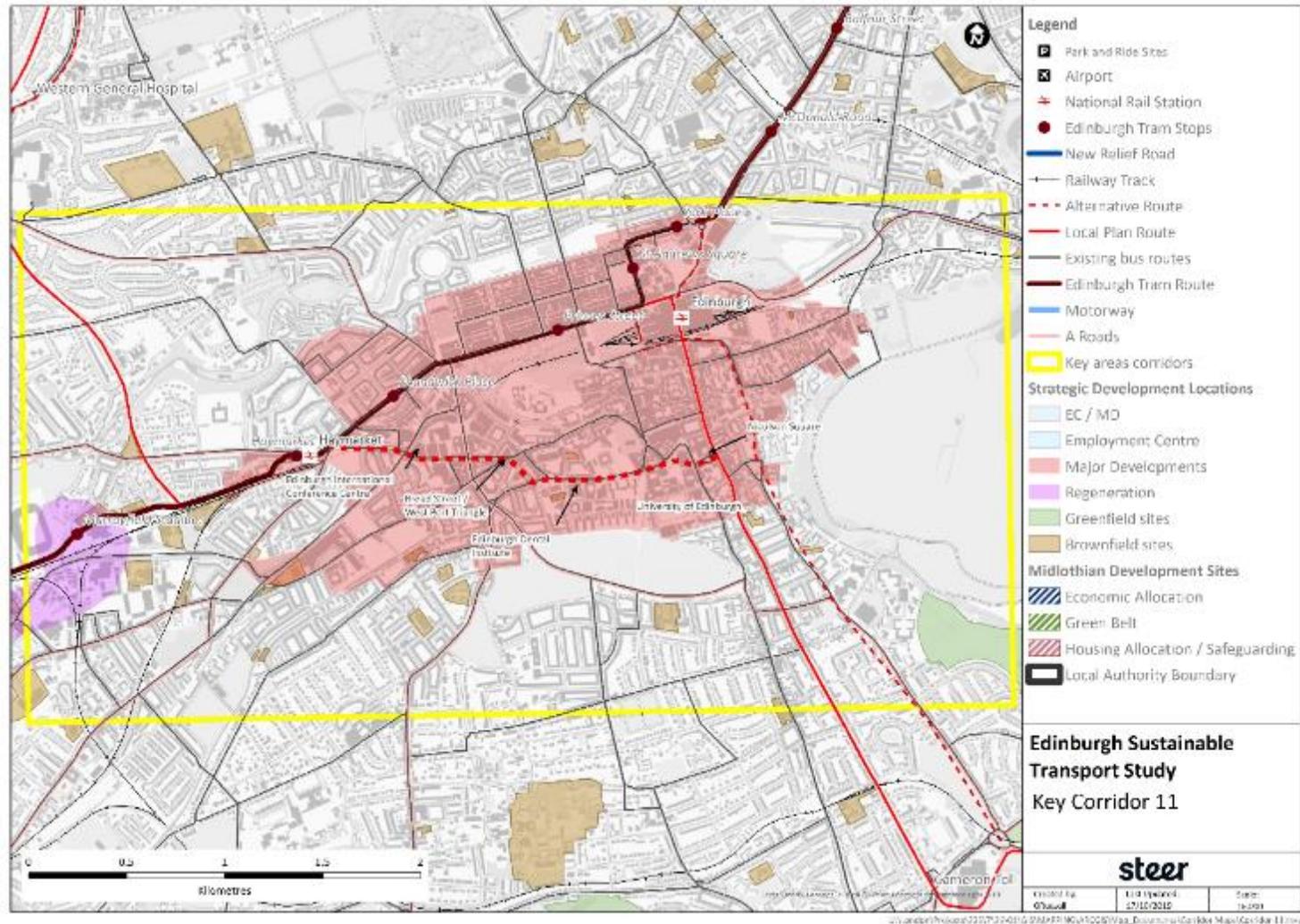


Figure 10-4 Full Network (link for North Bridge to Picardy Place)

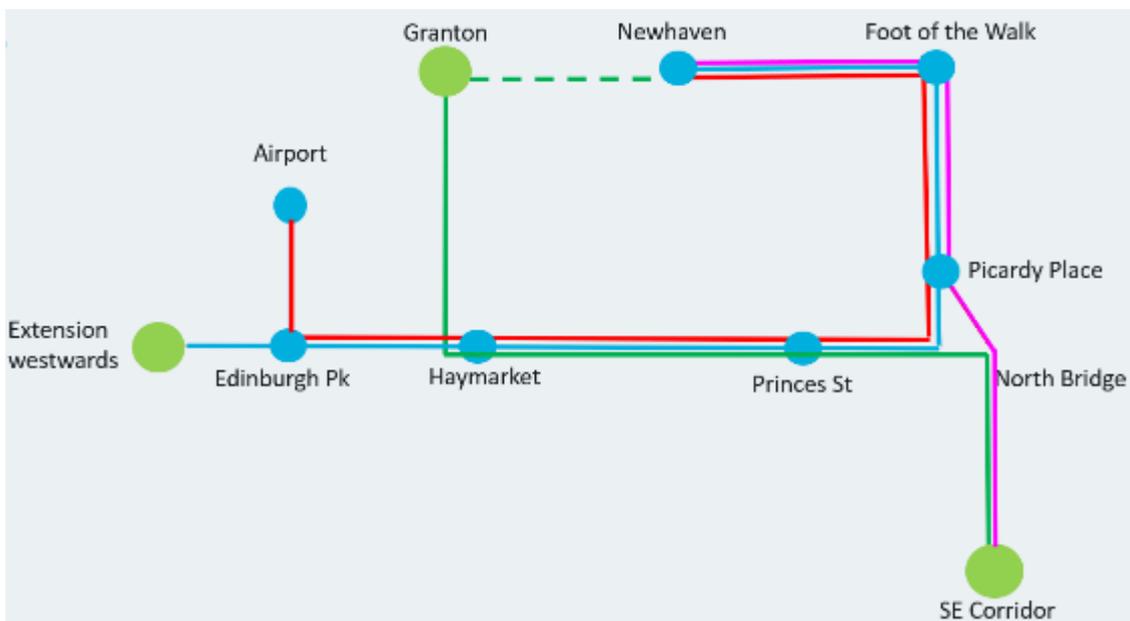
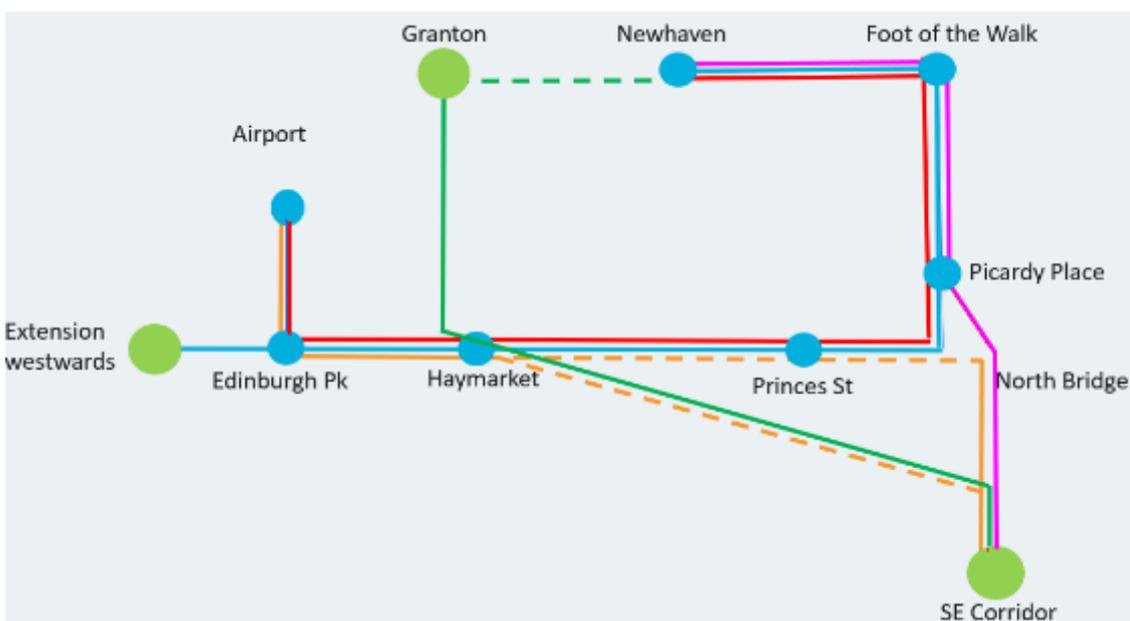


Figure 10-5 Full Network (link for North Bridge to Picardy Place, and new cross-city axis)



11 Conclusions and Next Steps

- 11.1 The case for a step-change in public transport provision, though the development of transit corridors, is compelling given the City's policy imperatives around sustainable growth and development, equity, climate change and health and wellbeing.
- 11.2 This study has considered the case for the development of transit across ten key corridors. Our analysis suggests that there are four corridors for which transit-based options should be considered further. These are Corridor 6 – Granton, Corridor 3 – South East via BioQuarter, Corridor 7 – Newbridge and Corridor 8 – West of Hermiston.
- 11.3 This Phase 1 study is relatively high-level and, while we provide an initial view and commentary on modal and routing options that we consider may be more suitable, these will be subject to more detailed work as part of further corridor and scheme development, and in-line with project development processes set out in Scottish Transport Appraisal Guidance.
- 11.4 The study concludes that the Local Plan tram alignments on the inner sections of the Granton and South East corridors remain the most viable and attractive routes *from a tram perspective*, and that no clear tram route alternatives exist in these corridors. The study recommends that bus-based / BRT options should be considered further on several corridors, and that this could provide for a 'quick-win' opportunity for Corridor 7 in particular.
- 11.5 The further development of options in in each corridor will also need to consider:
- **The development of transit as part of an integrated corridor strategy combining transit, active travel and other modes.** While passenger transport and active modes are both priorities for the City, there are issues and trade-offs that exist in each corridor in developing an overall strategy that provides an attractive route and caters for the long-term demand for both.
 - **The need for integrated transit and spatial planning.** Transit can help support an increased density, rate and value of development and therefore support sustainable land use development. To fully realise these benefits, land use and transport need to be planned in an integrated and mutually reinforcing manner. This is particularly the case for Corridor 8, where the development of transit is predicated on the development of a Masterplan Framework that includes development patterns and densities that will be enabled by, and supportive of, transit-led development.
 - **The regional dimension.** While transit infrastructure is likely to be largely focused within the City, it can deliver transport benefits and address issues that are regional in nature through, for example, strategic Park & Ride and interchange with rail services. Transit solutions should therefore be considered in a city-region and sub-regional context.

Appendices

A Information on Non-Transit Corridors

APPENDIX 3 – Vision and Objectives

To address the significant range of challenges facing people, places and movement across the city, and to strive towards carbon neutrality by 2030, there is a fundamental requirement for bold changes to be made to mobility and transport in Edinburgh.

The desired future for mobility and transport are set out below through a vision and its supporting objectives which are the more detailed aspirations to achieve the vision. The objectives are focused on people, places and movement.

Overleaf a spatial vision provides an illustrative concept for a safe and effective mobility system that the Plan is working towards for Edinburgh.



Objectives

People objectives to improve health, wellbeing, equality and inclusion:

- Improve travel choices for all travelling into, out of and across the city.
- Improve the safety for all travelling within the city.
- Increase the proportion of trips people make by healthy and sustainable travel modes.

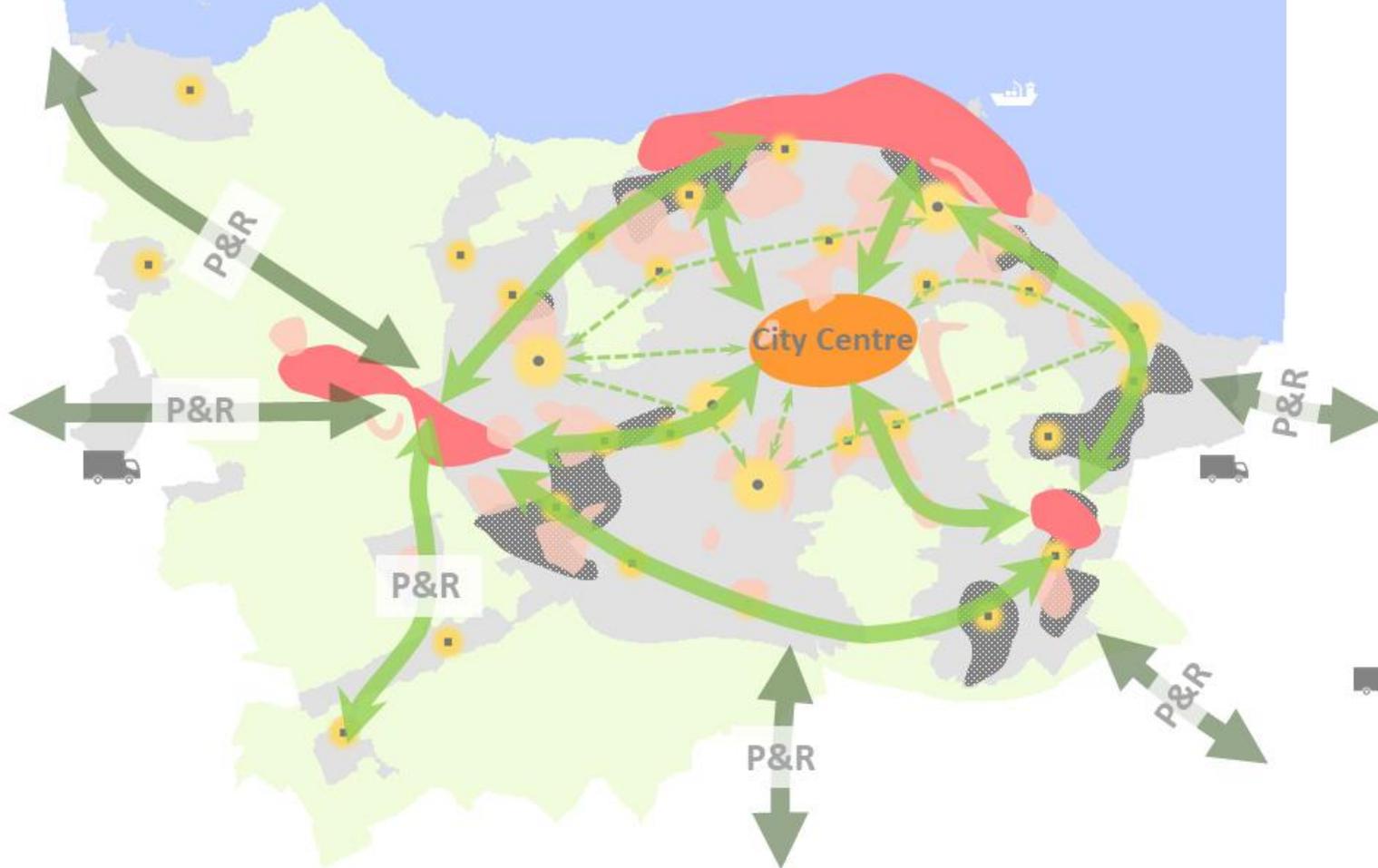
Place objectives to protect and enhance our environment and respond to climate change:

- Reduce emissions from road transport.
- Reduce the need to travel and distances travelled.
- Reduce vehicular dominance and improve the quality of our streets.

Movement objectives to support inclusive and sustainable economic growth:

- Maximise the efficiency of our streets to better move people and goods.

Spatial Vision



- Strategic development areas
 - Royal Infirmary/Bio-quarter
 - Waterfront
 - West Edinburgh
- City Centre Transformation proposals – prioritising walking cycling and public transport
- Vehicle use management area: (Combination of parking control, low emission zone, workplace parking levy and potentially road user charging)
- Improved walking and cycling access to town centres
- Improved walking and cycling access to local centres
- ↕ Improved public transport and walking and cycling routes connecting strategic development areas
- ↔ Improved public transport and walking and cycling connections between city and town centres
- ↕ Improved public transport connections beyond Edinburgh
- ↔ Freight consolidation
- P&R Upgraded or new Park and Ride interchange
- Multiple deprivation areas
- High concentration of people with low levels of access to public transport

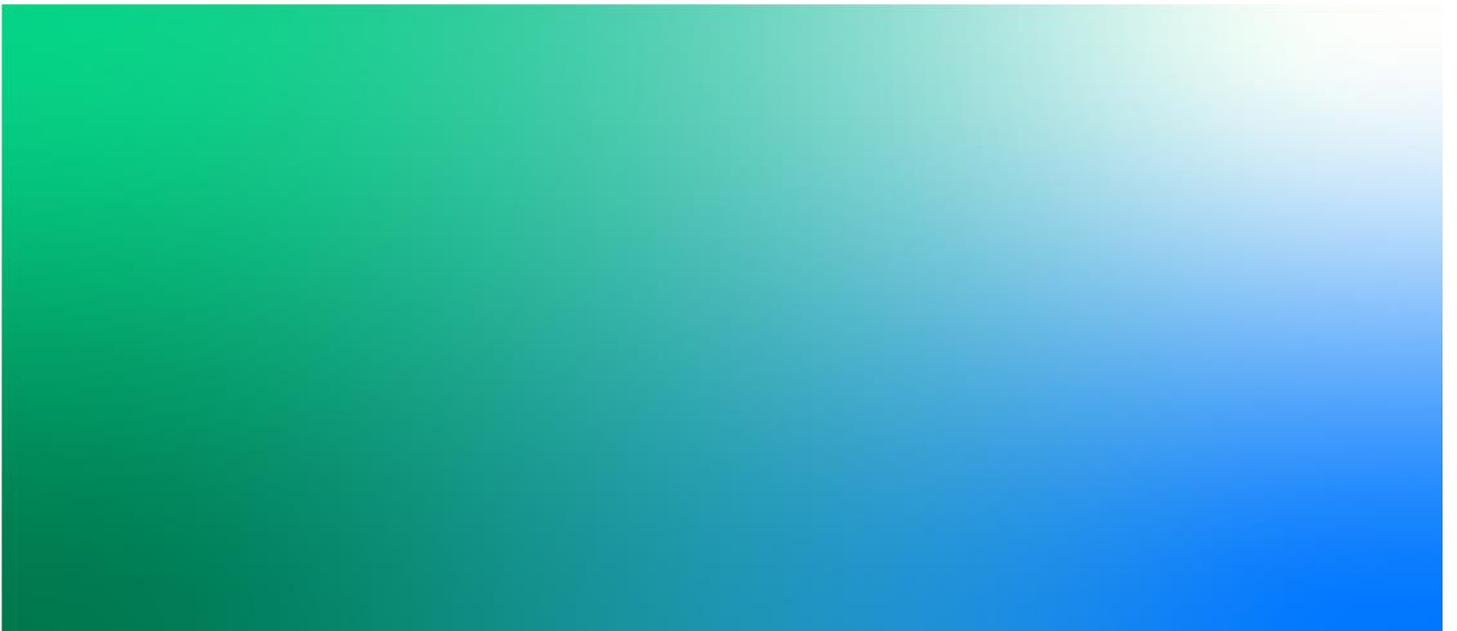


City Mobility Plan Strategic Environmental Assessment

Draft Environmental Report Non-Technical Summary

8 January 2020

Edinburgh City Council



City Mobility Plan Strategic Environmental Assessment

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Jacobs U.K. Limited

160 Dundee Street
 Edinburgh
 EH11 1DQ
 United Kingdom
 T +44 (0)131 659 1500
 F +44 (0)131 228 6177
 www.jacobs.com

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Document history and status

Revision	Date	Description	Author	Checked	Reviewed	Approved
0.1	08/01/20	Draft NTS	AC	ES	SI	SI

Non-Technical Summary

Key facts relating to the City Mobility Plan

Name of Responsible Authority	City of Edinburgh Council (CEC)
Title of plan, programme or strategy (PPS)	Edinburgh City Mobility Plan (CMP)
Requirement for the PPS	Edinburgh's current Local Transport Strategy, the fourth iteration, expired at the end of 2018 – it will be succeeded by the City Mobility Plan. Although there is no statutory requirement for local authorities to produce transport strategies, City of Edinburgh Council has routinely updated its Local Transport Strategy every five years.
Subject of the PPS	Transport, mobility and placemaking.
Period covered by the PPS	2020 - 2030
Frequency of updates	Reviewed every three years
Requirement for SEA	In accordance with The Environmental Assessment of Plans and Programmes (Scotland) Act 2005 (the Act), the CMP requires a SEA under Section 5(3) of the Act.
Geographic area covered by the PPS	The main focus of the CMP will be the City of Edinburgh Council area. However, it will also examine wider regional transport issues, seeking to address the adverse impacts of transport movements originating or terminating in Edinburgh.
Purpose and/or objectives of PPS	To set out the transport vision, objectives, policies and plans which support the Council's economic, social and environmental objectives. This includes how City of Edinburgh Council will meet national and regional objectives relevant to transport at a local level and details the actions required to meet current and future local challenges and achieve community objectives through a combination of short, medium and long-term action plans.

Introduction

This report summarises the findings of the Strategic Environmental Assessment (SEA) which was conducted for the City of Edinburgh Council's City Mobility Plan (CMP). The Environmental Assessment (Scotland) Act 2005 sets out the statutory requirements for conducting a SEA, which ensures the environment and other sustainability aspects are considered at an early stage of decision making when preparing public plans, programmes and strategies (PPS).

The purpose of the draft Environmental Report is to:

- Provide information on the draft Edinburgh CMP
- Identify, describe and evaluate the likely environmental influence of the draft Plan; and
- Provide an opportunity for the Consultation Authorities and the public to comment on any aspect of this draft Environmental Report.

Background to the Edinburgh City Mobility Plan

The CMP has been developed to support Edinburgh's ambitious target to be carbon neutral by 2030. The CMP contains a series of policy measures which will seek to deliver the following vision:

Edinburgh will be connected by a safer and more inclusive carbon neutral transport system delivering a healthier, thriving, fairer and compact capital city and a higher quality of life for all residents.

In line with European best practice (Developing Sustainable Urban Mobility Plans), the initial stages of preparing the CMP involved an extensive review of the existing transport strategy, identifying and understanding mobility issues, reviewing literature, exploring the best practice from other cities' approaches and analysis of feedback from relevant recent Council consultations (Economic Strategy 2018, and 2050 Edinburgh City Vision).

Following consultation on the prospectus, an interim report was drafted and presented to the CEC's Transport and Environment Committee (TEC) on 28th February 2019. The committee noted the findings of the engagement and approved the next stages involved in developing the CMP.

Further workshops were undertaken involving 100 stakeholders and the Transport Forum (which continues to serve as the stakeholder advisory group for mobility policy development), to help identify policy measures that would support the CMP.

In order to sift the initial long list of policy measures, each was considered against a series of questions including whether the objectives have been met, issues addressed (Traffic & Freight/Health & Wellbeing/Access & Equality/Built Environment) and delivery mechanisms/cost.

Following this initial sift, a set of draft objectives and preliminary list of policy measures were presented to the Transport and Environment Committee on the 17th May 2019.

Further internal consultation with CEC delivery teams and other plan teams including ECCT and City Plan was undertaken, to ensure alignment with current and future plans.

Public transport appraisals have also been undertaken by consultants to identify technical and cost issues, and develop business cases and where appropriate, add a spatial layer to policy measures, for example, identify where public transport corridors require to be developed/expanded.

Assessment Methodology

The SEA focuses on strategic level issues and does not consider detailed measures for specific developments and construction projects within the study area. Strategic mitigation for negative effects of the CMP has been identified throughout the assessment and this will form the basis of future project level assessments that focus on interventions identified in the CMP.

Listed below are the environmental topics that have been scoped into the SEA as it was concluded that the CMP has the potential to significantly impact each of these topics:

- air and climatic factors;
- land and soil;
- water;
- landscape and townscape;
- biodiversity, flora and fauna;
- material assets;
- population and human health; and
- cultural heritage.

The SEA assessment uses a set of SEA objectives and assessment criteria which cover each of the environmental topics scoped into the assessment. The SEA objectives and assessment criteria presented have been developed from a comprehensive review of the baseline and policy requirements to align with the SEA objectives with the forthcoming City Plan 2030 and the recently adopted City Centre Transformation Strategy.

To ensure the SEA influenced each stage of the CMP (including public consultation, stakeholder engagement, workshops, framework drafting), it was aligned with the CMP development. This informed refinement and revision of the proposed plan, as outlined in section 2 of the draft Environmental Report. SEA specialists worked with the CMP development team to conduct detailed assessments on the draft CMP and to improve the environmental and sustainability benefits resulting from the plan. This involved assessing:

- the compatibility of the SEA objectives with the CMP objectives;
- the policy measures against the SEA objectives to determine mitigation measures and enhancement recommendations;
- the effects of implementing these policies where mitigation measures and recommendations were adopted; and
- individual policy measures where further detail was required to identify effects of mitigation measures.

Where negative impacts or positive opportunities were identified, mitigation measures and recommendations were proposed. Recommendations included refinement to the CMP objectives, the addition of policies, amendments to policy wording, caveats and monitoring controls based on the environmental criteria that consider and respond to both direct and indirect, secondary and cumulative impacts.

In accordance with the 2005 Act, the statutory consultation authorities, which include: Scottish Natural Heritage; Scottish Environmental Protection Agency; and Historic Environment Scotland, were consulted on the scoping report and their comments and views were considered, provided in Appendix C of the draft Environmental Report.

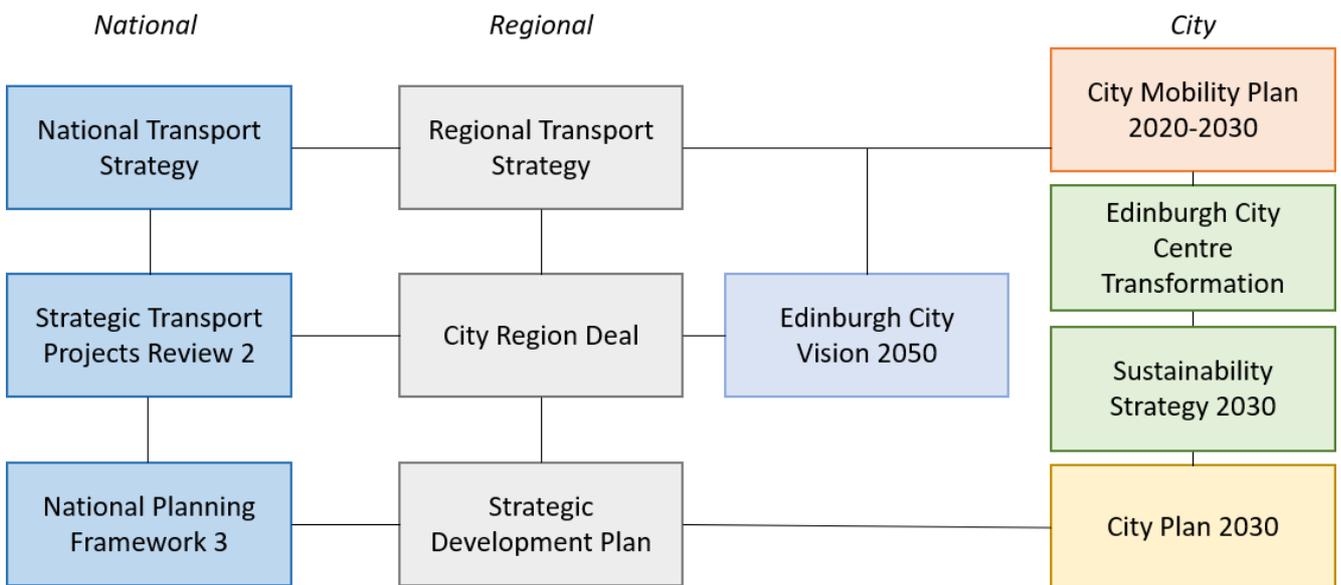
Policy Context

The City of Edinburgh Council's CMP sets out the strategic approach for the movement of people and goods into and around Edinburgh. The plan outlines policies to make Edinburgh a fair, thriving, connected and inspired

capital city, superseding the existing Local Transport Strategy for Edinburgh and plays a pivotal role in linking national, regional and city policy context through to guiding delivery plans and resourcing across the city.

The CMP plays a pivotal role in linking national, regional and city policy context through to guiding delivery plans and resourcing across the city which is illustrated in Figure 1.

Figure 1: Diagram showing how the City Mobility Plan links to national, regional and local strategies



The SEA considered the Plan within the context of a focussed range of other plans, programmes and strategies (PPS). This process helped to identify a range of environmental protection objectives and problems and issues that the Plan should take cognisance of and might support with its delivery. This comprehensive policy review has been undertaken and is included as Appendix B to the draft Environmental Report. A summary of the key environmental protection objectives identified from the review is provided in section 2 of the draft report.

Environmental Context

A baseline information gathering exercise was carried out in order to summarise the key environmental characteristics against the SEA topics. The full baseline report is provided in Appendix A of the draft Environmental Report.

An assessment was also undertaken to provide an overview of the key environmental issues and an assessment of the likely evolution of each baseline issue in the absence of the CMP (i.e. a do-nothing option). Key environmental issues and problems included:

- Transport is a significant contributor to carbon dioxide emissions in Edinburgh. Motorised transport results in poor air quality in parts of Edinburgh, as nitrogen dioxide and PM originate principally from road traffic.
- Edinburgh’s transport infrastructure needs to be resilient against adverse climate impacts, and also consider potential positive impacts, such as a longer summer season.
- Depending on where it is located, transport infrastructure can have a detrimental impact on soil through air/run off pollution and sealing.
- Run-off from roads and new transport infrastructure can negatively affect water or hydrological regimes. Regular flood events can increase the amount of run-off from roads and exacerbate the problem.
- Potential reduction in landscape/townscape visual amenity through the construction and operation of new transport infrastructure. Potential loss of access to important sites.

- Land take as a result of transport infrastructure can lead to loss, disturbance and fragmentation of habitats. The presence of people and vehicles associated with transport can create disturbances for local wildlife, including disturbance resulting from noise and artificial light.
- There are currently a number of deficiencies in Edinburgh's transport network, resulting in a transport system operating below its capabilities. These include congested roads, roads in need of maintenance, a limited cycle network, a limited bus lane network and poorly maintained public transport facilities in some locations.
- Increasing numbers of people living and working in, and visiting the city, puts pressure on the existing transport network.
- Transport has a number of negative impacts on human health, in terms of air quality, emissions of key air pollutants and noise. A transport system that is not conducive to walking and cycling reduces opportunities for people to undertake physical activity and can lead to an increase in obesity and other conditions arising from inactivity.
- New transport infrastructure could lead to the loss of or damage to known and previously undiscovered historical/heritage sites or features. Congestion in and around conservation areas can undermine the distinctive character of such areas. Street clutter, including inappropriate signage and materials can cause negative visual impacts. Air pollution can cause deterioration of buildings and monuments. Vibration from road traffic can damage historical/heritage sites or features.

In the absence of a new transport strategy, it is possible that some existing environmental problems would persist and even increase. In line with Schedule 3 of the 2005 Act, the environmental evolution without the PPS should be considered. Taking account of the environmental issues identified in the evolution of the environmental baseline, particularly the environmental problems and trends identified, are presented in section 3 of the draft Environmental Report.

Key Findings

The SEA concluded that the proposed strategy would have a predominantly positive effect across the SEA topics with key benefits identified for air quality and population and human health. Localised negative effects were identified where proposals could impact on natural or cultural heritage designations. It was determined that mitigation would be put in place as detailed proposals develop. A summary of the findings is presented in the table below against each of the SEA topics.

SEA Topic	Summary of Assessment Findings
Air Quality & Climatic Factors	<p>Significant positive effects were identified associated with an overall reduction in traffic due to stricter parking measures, traffic free zones, street closures and road user charges, freight consolidation zones, public transport accessibility improvements, integrated/flexible services and ticketing, low emissions zone and improved walking and cycling measures.</p> <p>To achieve significant benefits to air quality and climatic factors, a co-ordinated approach to modal shift is required, for example, similar timing of demand management package implementation to public transport and walking and cycling packages. Effect will be greater over time as more measures are implemented.</p> <p>Potential adverse effects could arise where parking controls and/or street closures result in the displacement of private vehicles to other parts of the city. A transport appraisal may be required to determine the impact of displacement effects - for example, the resulting effects on air quality.</p>
Land & Soil	<p>The draft CMP approach to effective integrated land use and mobility planning can prevent cities from becoming dispersed and polarised. Concentrating infrastructure and environmental costs could prevent large areas of land becoming affected by</p>

	<p>construction of transport infrastructure and car dominated developments. This should lead to reduced detrimental effects on land use change.</p> <p>Potential for some localised negative effects where new or expanded regional park and ride may require additional land take. Further environmental appraisal would be required as proposals are developed.</p>
Water	<p>The draft CMP approach to integrated land use planning is likely to reduce widespread construction across the city. This is likely to reduce flood risk, as natural drainage patterns are less likely to be affected by dispersed development and impermeable surfaces. It was also identified that the implementation of the CMP could improve water quality through reduced pollutants following a reduction in private vehicles and encouraging modal shift. Any new infrastructure should aim to improve sustainable drainage and pollutant filtration.</p>
Landscape	<p>A generally positive effect on landscape and townscape was identified with key benefits anticipated through the overall reduction of traffic and parking within the city facilitating public realm improvements. However, the location of any new freight consolidation centres, regional park and rides, logistics zones or hubs needs to be sympathetic to landscape considerations. The extension of the tram route and bus routes would also need to be designed sympathetically.</p>
Biodiversity, Flora and Fauna	<p>The draft CMP policies to concentrate infrastructure could prevent large areas of natural environment, including designated sites and protected species, from becoming affected by construction of transport infrastructure and car dominated developments. This should lead to reduced detrimental effects on biodiversity, flora and fauna. Reductions in usage of private vehicles through improved public transport and active travel networks will also improve air quality with a possible positive impact on biodiversity.</p> <p>Where site specific measures are proposed, there is the potential for adverse impacts to occur where proposed interventions result in habitat loss. However as more interventions are implemented the potential for habitat creation also increases in the long-term.</p>
Material assets	<p>Positive effects on material assets were identified through the overall improvement to the public transport network. Encouraging greater use of the network through more flexible services, improved accessibility and integrated fares and ticketing is likely to lead to less congestion on the roads due to a fewer number of cars. New bus routes servicing areas with current low public transport access will lead to reduced car use in more remote parts of the city.</p> <p>The introduction of walking and cycling measures would require improvements to cycle facilities and access to streets. It is likely that this would lead to an improvement to the existing transport network.</p>
Population and Human Health	<p>The improvements to public transport will also promote sustainable mass-transit opportunities for people to access work, education, social activities, healthcare and other services. Active travel network improvements promote a healthy lifestyle and quality of life will be improved through a more integrated network, better facilities and safety improvements such as secure bike storage. Human health will also be positively impacted by reductions in air pollutants and noise resulting from an overall reduction in traffic.</p>

<p>Cultural Heritage</p>	<p>Mixed effects were identified on Cultural Heritage. Dense developments could potentially affect townscape if taller buildings are part of the development. Heritage assets could also be affected by the construction of new freight consolidation centres, logistics zones or hubs and expansion of both bus and tram routes.</p> <p>There may be opportunities for improved accessibility to heritage assets through improvements to the public transport network and active travel routes and the visual setting of some heritage assets may be improved as there will be fewer cars on the streets.</p>
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Next Steps and Monitoring Framework

The draft Environmental Report will be issued alongside the draft CMP for **public consultation for a period of 8 weeks**. All comments and representatives will be considered before finalising the CMP and Environmental Report. Where elements of the plan change in response to consultation the assessment will be reviewed and updated within the Environmental Report prior to the adoption of the final CMP.

Best practice in SEA Monitoring requires that a detailed monitoring framework reflects the implementation of the Strategy actions, identifies where existing indicators (from the delivery of related PPS) can be used to track progress and, ideally, is embedded within the final Plan to ensure that monitoring is undertaken as part of CMP delivery.

It is proposed that the monitoring framework would align with the forthcoming City Plan 2030 and recently adopted Edinburgh City Centre Transformation Strategy, to ensure an integrated approach. Developing this integrated framework was discussed at a workshop with the Consultation Authorities following the public consultation. A monitoring framework and associated targets/indicators will be presented in the Post Adoption SEA statement, the final stage in the SEA process.