



STRATEGIC TRANSPORT PROJECTS REVIEW

PROTECTING OUR CLIMATE
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Initial Appraisal: Case for Change Edinburgh and South East Scotland Region

February 2021

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List of Acronyms

ACRONYM	
AADT	Annual Average Daily Traffic
AQMA	Air Quality Management Area
BRES	Business Register and Employment Survey
CAFS	Cleaner air for Scotland
CAV	Connected Autonomous Vehicles
CEC	City of Edinburgh Council
CO ₂	Carbon Dioxide
CRWIA	Children’s Rights and Wellbeing Impact Assessment
CSRGT	Continuing Survey of Road Goods Transport
EqIA	Equality Impact Assessment
ESES	Edinburgh and South East Scotland
EU	European Union
EV	Electric Vehicle
FSDA	Fairer Scotland Duty Assessment
GDP	Gross Domestic Product
GIS	Geographic Information System
GP	General Practitioner
GVA	Gross Value Added
HGV	Heavy Goods Vehicle
ICIA	Island Communities Impact Assessment
IT	Information Technology
KSI	Killed or Seriously Injured
LEZ	Low Emission Zone
LNR	Local Nature Reserve
MPA	Marine Protected Area
NCN	National Cycle Network
NNR	National Nature Reserve

NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NPF4	National Planning Framework 4
NSA	National Scenic Area
NTS2	National Transport Strategy 2
PM	Particulate Matter
PPM	Public Performance Measure
PT	Public Transport
RSPB	Royal Society for the Protection of
RTS	Regional Transport Strategy
RTWG	Regional Transport Working Group
SABI	Scottish Access to Bus Indicator
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SFBB	Super-Fast Broadband
SIMD	Scottish Indicator of Multiple Deprivation
SOSE	South of Scotland Enterprise
SPA	Special Protection Area
SRM	Strategic Regional Model
SSSI	Site of Special Scientific Interest
STAG	Scottish Transport Appraisal Guidance
STPR	Strategic Transport Projects Review
TMfS	Transport Model for Scotland
TPO	Transport Planning Objective
UFBB	Ultra-Fast Broadband

1. Introduction

1.1. Background and Report Purpose

Transport Scotland is currently undertaking the second Strategic Transport Projects Review (STPR2) to inform the Scottish Government’s transport investment programme in Scotland over the next 20 years (2022 – 2042). STPR2 takes a national overview of the transport network with a focus on regions and will help deliver the vision, priorities and outcomes that are set out in the National Transport Strategy (NTS2)¹.

STPR2 is being carried out in accordance with the Scottish Transport Appraisal Guidance (STAG)² which is an objective-led, evidence-based transport appraisal process. The 4 key phases of STAG are illustrated in Figure 1.



Figure 1: The 4 Key Phases to the Scottish Transport Appraisal Guidance (STAG)

This report sets out the Initial Appraisal: Case for Change for the Edinburgh and South East Scotland (ESES) region as shown in Figure 2 and forms 1 of 11 STPR2 regions (a larger version of Figure 3 can be found in Appendix A where more accessible versions of the report figures can be found). The Case for Change constitutes the first phase of STAG and sets out the evidence base for problems and opportunities linked to the transport network across the ESES region drawing on relevant data analysis, policy review and stakeholder engagement. The report set out a robust method, aligned with the principles of the NTS2, to generate, clean and sift options; ensuring a broad range of options across all modes are considered that address the problems and opportunities in the region. This report is supported by a [national level Case for Change report](#) which sets out the overarching vision for transport investment in Scotland and the challenges that must be addressed to support delivery of the priorities set out in NTS2.

It is recognised that the vision set out in NTS2 will only come to fruition through working in partnership with others, including Local Authorities and Regional Transport Partnerships. This is particularly in areas of transport for which local authorities are responsible and

¹ Transport Scotland, National Transport Strategy (NTS2), Feb 2020, www.transport.gov.scot/media/47052/national-transport-strategy.pdf

² Transport Scotland, Scottish Transport Appraisal Guidance (STAG), 2008, www.transport.gov.scot/media/41507/j9760.pdf

which are not within the scope of this national strategic transport review.

STPR2 specifically focusses on Scotland's key strategic transport assets, which are wide ranging and varied. In the context of STPR2, the strategic transport network is defined as being:

- All transport networks and services owned, operated and funded directly by Transport Scotland;
- Transport access to major ports³ and airports; and
- The inter-urban bus and active travel network and principal routes within the City Region areas.

³ List of major ports is still under review

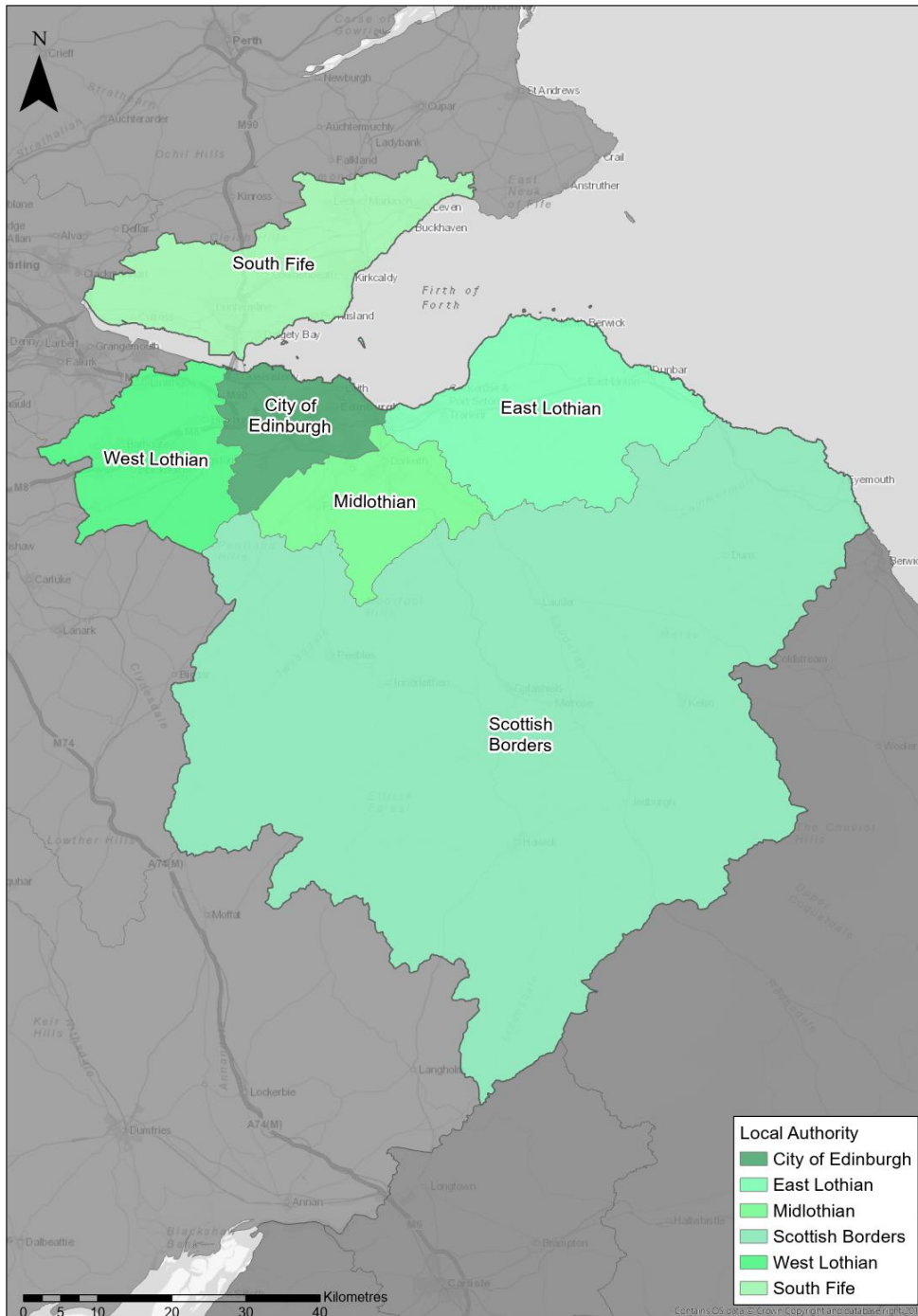


Figure 2: Edinburgh and South East Scotland (ESES) Study Area

(Click image to enlarge figure)

The ESES region comprises the 6 local authorities of East Lothian, Midlothian, West Lothian, the City of Edinburgh, Scottish Borders and Fife. For the purposes of STPR2, Fife Council spans 2 regions, with the southern part of Fife included in the Edinburgh and

South East Scotland (ESES) region and North East Fife included in the Tay Cities region. This is to align with the North East Fife area as defined and included in The Tay Cities Deal. The ESES region has an extensive transport network, including active travel, rail and road networks, and an international airport at Edinburgh.

To reflect the regional approach of STPR2 a Regional Transport Working Group (RTWG) has been established with representatives from the 6 local authorities, South East of Scotland Regional Transport Partnership (SEStran), Strategic Development Planning Authority for Edinburgh and South East Scotland (SESplan), ESES City Region Deal Project Management Office, ESES City Region Deal Higher/Further Education Consortium, Transport Scotland and the STPR2 consultant team.

The Scottish Borders Council is also represented at the ESES Regional Transport Working Group (RTWG), recognising the travel and transport relationship between the Borders and the Edinburgh City Region. However the Borders Transport Corridors Pre-Appraisal Study, undertaken prior to STPR2 commencing in 2019, identified the transport problems and opportunities with the transport system in the Scottish Borders and identified transport options to be carried forward for further appraisal as part of STPR2. The options identified through the Borders Study, including improved bus services, active travel, road and rail infrastructure in the region, will be taken forward to Preliminary Appraisal as part of STPR2 work for the Borders region, and be discussed at the South of Scotland RTWG.

Consideration of the Scottish Borders within the ESES region is not to duplicate or revisit that study, it is to capture the transport problems and opportunities relating to the Edinburgh City Region travel to work area. Other aspects, for example, internal movements within the Scottish Borders and also connections to other regions/cross-border movements were outlined in the Borders Study and will be considered within the context of the Borders region moving forward. Consideration has also been taken of the more recent ESES optioneering work to ensure that any options identified through this process specific to Scottish Borders are considered appropriately and not duplicated as explained in the Borders Region Option Sifting Update (January 2021) report available on the STPR2 project website - [Strategic Transport Projects Review 2](#).

This Case for Change report also presents a set of Transport Planning Objectives (TPO), aligned with the national STPR2 objectives. The Transport Planning Objectives express the outcomes sought for the region and provide the basis for the appraisal of alternative options and, during post appraisal, will be central to monitoring and evaluation.

A long list of multi-modal options to address the identified problems and opportunities in the study area was developed and sifted in line with the approach detailed later in this report.

Subsequent phases of the STAG process, the preliminary and detailed appraisal phases, involve more detailed appraisal work, considering the feasibility and performance of options to tackle the identified transport related problems and opportunities and will be developed as the STPR2 process moves forward.

The following chapter sets out the Socio-Economic, Environmental and Transport Context for the ESES region.

1.2. COVID-19 Impacts

The draft version of this report was published in February 2020 and draws on data and stakeholder engagement collected before the COVID-19 pandemic. It is recognised that the pandemic and the restrictions implemented have changed the way society works and travels and that the longer term impacts of the pandemic will have to be taken into consideration as STPR2 progresses. A more detailed review of the short term impacts of COVID-19 on STPR2 is provided in the [National Case for Change document](#).

2. Context

2.1. Policy Context

At the national, regional and local levels, relevant transport, planning and economic strategies and policies have been reviewed to provide background context against which this Case for Change has been developed. Figure 3 provides an overview of the strategies and policies reviewed, with a summary of key documents presented below:

- **Programme for Government⁴**; sets out the Scottish Government’s ambitions and aims to make Scotland a more successful country with opportunities and increased wellbeing for all.
- **National Transport Strategy (NTS2)⁵**; The NTS2 provides the national transport policy framework, setting out a clear vision of a sustainable, inclusive, safe and accessible transport system which helps deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. It sets out key priorities to support that vision: reduces inequalities; takes climate action; helps deliver inclusive economic growth; and improves our health & wellbeing. The NTS2 Delivery Plan was published on 17 December 2020 detailing the actions being taken by the Scottish Government between 2020 and 2022 to achieve the vision of the NTS2.
- **Climate Emergency⁶**; declared by the Scottish and UK Governments and multiple local authorities, including all 6 Local Authorities within the ESES region. As part of this, the Climate Change Bill commits the Scottish Government to a target of net zero emissions of all greenhouse gases by 2045. The Climate Change Plan update was published on 16 December 2020, and details Scottish Government’s plans to meet new ambitious targets to end our contribution to climate change by 2045.
- **Accelerating Growth Edinburgh and South East Scotland City Region Deal⁷**; The UK Government and Scottish Government are investing £600 million into the city region over next 15 years between 2017 and 2032 (23% of which has been allocated for transport schemes). Alongside partners, comprising: the 6 member authorities - The City of Edinburgh, East Lothian, Fife, Midlothian, Scottish Borders (recognising the Borderlands Inclusive Growth Deal) and West Lothian Councils; the city region’s universities and colleges; and the private and third sectors, £1.3 billion of investment will be delivered.

⁴ Scottish Government, Protecting Scotland, Renewing Scotland: The Government's Programme for Scotland 2020-2021, <https://www.gov.scot/publications/protecting-scotland-renewing-scotland-governments-programme-scotland-2020-2021/>

⁵ Transport Scotland, National Transport Strategy (NTS2), February 2020, www.transport.gov.scot/media/47052/national-transport-strategy.pdf

⁶ Scottish Government, The Global Climate Emergency - Scotland's Response: Climate Change Secretary Roseanna Cunningham's statement, May 2019, <https://www.gov.scot/publications/global-climate-emergency-scotlands-response-climate-change-secretary-roseanna-cunninghams-statement/>

⁷ Edinburgh and South East Scotland City Region Deal, <http://esescityregiondeal.org.uk/key-documents>

- **Borderlands Inclusive Growth Deal⁸**: The Borderlands Deal is being developed to address common economic and demographic challenges faced by the local authorities on both sides of the national border particularly in relation to low GDP, low wages, lack of economic diversification and outward migration by younger people.
- **SEStran Regional Transport Strategy (RTS) 2015-2025 Refresh⁹**; Updated in 2015, this sets out the strategic transport vision for the SEStran region and the shared goals of SEStran and its partners. The RTS is currently in the process of being updated by SEStran with the SEStran Main Issues Report in June 2020 to inform the review.
- **Other Regional and Local Policy Documents**; This includes local transport strategies¹⁰ as well as non-transport specific plans, such as local development plans and economic strategies, in which transport improvements play a key role in both the enabling and delivery of their outcomes.

A list of the relevant policy and strategy documents that have been reviewed is contained in Appendix B.

In addition to the 4 priorities presented above, the NTS2 supports the adoption of a Sustainable Transport Hierarchy, which promotes walking, wheeling, cycling, public transport and shared transport options in preference to single occupancy private car use, as well as a Sustainable Investment Hierarchy, which prioritises investment aimed at reducing the need to travel unsustainably and maintaining and safely operating existing assets ahead of new infrastructure investment.

⁸ Scottish Government, The Borderlands Partnership, Borderlands Inclusive Growth Deal 2019,
<https://www.borderlandsgrowth.com/Portals/0/Documents/News/Borderlands%20Growth%20Deal%20-%20Heads%20of%20Terms%202019.pdf>

⁹ SEStran, Regional Transport Strategy 2015-2025 Refresh,
<https://sestran.gov.uk/publications/regional-transport-strategy-2015-2025-refresh/>

¹⁰ City of Edinburgh Council, City of Edinburgh City Mobility Plan, 2020,
<https://consultationhub.edinburgh.gov.uk/sfc/city-mobility-plan/>
East Lothian Council, East Lothian Local Transport Strategy 2018-24, 2018,
https://www.eastlothian.gov.uk/downloads/file/28973/local_transport_strategy_2018-24
Midlothian Council, Midlothian Council Transport Strategy 2007-2010, 2007,
https://www.midlothian.gov.uk/downloads/download/198/transport_strategy
Fife Council, Local Transport Strategy for Fife 2006-2026, 2006,
http://publications.fifedirect.org.uk/c64_LocalTransportStrategy.pdf
Scottish Borders Council, Scottish Borders Local Access and Transport Strategy, 2008,
https://www.scotborders.gov.uk/info/20051/plans_and_guidance/127/transport_plans#:~:text=The%20local%20access%20and%20transport,transport%20strategy%2C%20published%20in%202008.

STPR2: Initial Appraisal: Case for Change – Edinburgh and South East Region

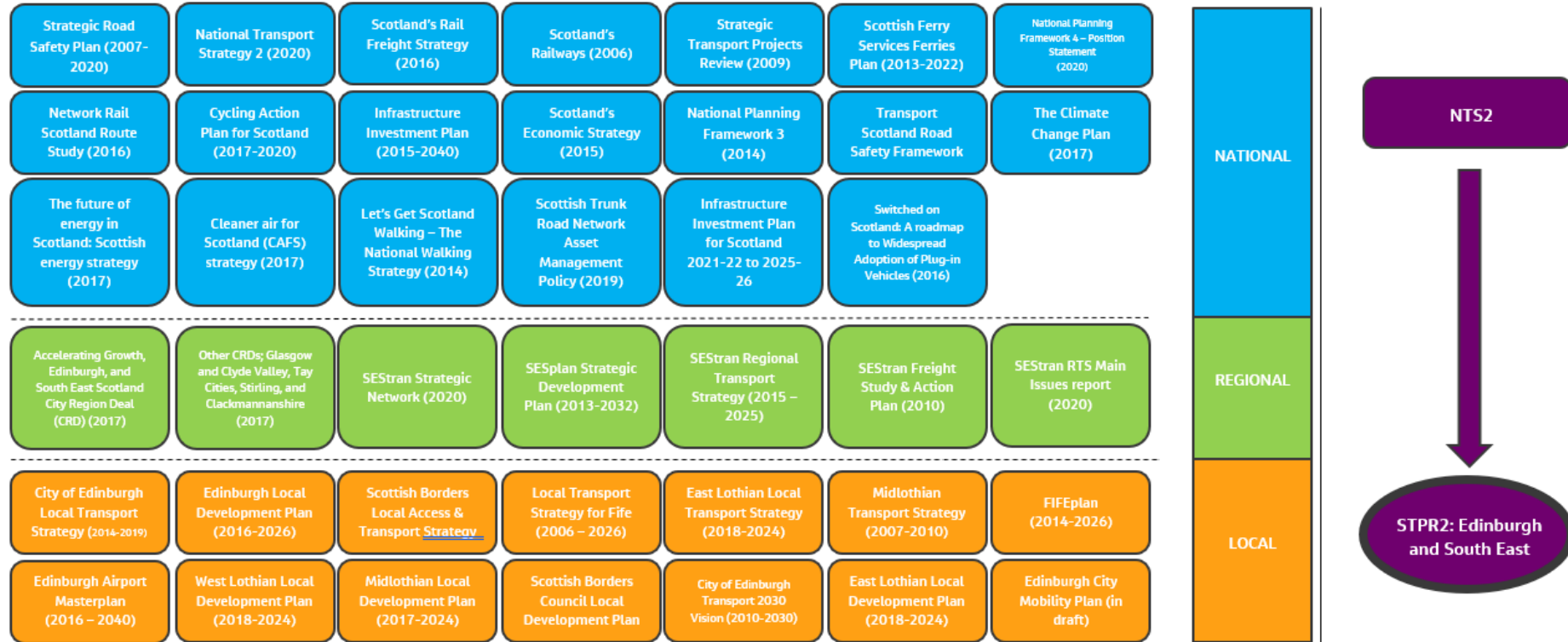


Figure 3: ESES Region Policy Review

(Click Image to enlarge figure)

To support and inform the development of STPR2, the Strategic Environmental Assessment (SEA) and the Equality Impact Assessment (EqIA) are being undertaken. Alongside these, assessments under the Fairer Scotland Duty Act (FSDA), and the Child Rights and Wellbeing Impact Assessment (CRWIA) and the Island Communities Impact Assessment (ICIA) are being undertaken. Early work on these assessments has informed this Case for Change document.

2.2. Geographical Context

To compare the performance of selected socio-economic indicators for the region, 'benchmark' categories were created using the Scottish Government's Urban Rural Classification 2016. The classification defines the urban and rural areas across Scotland, based upon 2 main criteria: population and accessibility. This area classification is defined across categories ranging from large urban area to remote rural, where the geographies of local authorities are divided up in percentage terms across these categories. The local authorities that have been included in the benchmark categories are considered to be most representative for comparison. For the ESES region, the following benchmark categories were used:

- Scottish Cities Benchmark (average of the 4 larger cities of Aberdeen, Dundee, Edinburgh and Glasgow), and
- Regional Benchmark (average of representative local authorities including Fife, Falkirk, Inverclyde, Midlothian, North Lanarkshire and West Lothian).

The ESES region includes a diverse mix of high-density urban conurbations as well as very low-density rural settlements. Based on the Scottish Government's Urban Rural Classification 2016¹¹, all classifications (6-fold basis) are represented within the region, with a Large Urban Area (City of Edinburgh), Other Urban Areas (towns such as Livingston, Dunfermline, Kirkcaldy, Galashiels, Penicuik and Bonnyrigg), Accessible Small Towns (for example Burntisland, South Queensferry, Haddington), Remote Small Towns (for example Kelso, North Berwick, Dunbar) and areas classified as either Accessible Rural or Remote Rural (only parts of East Lothian and the Scottish Borders fall into the Remote Rural class).

Figure 4 shows the urban/rural make-up of the region. In ESES, 41% of the region's population lives on land classified as Large Urban Area¹², 38% of Other Urban Areas, 9% of Accessible Small Town, 2% of Remote Small Town, 10% of Accessible Rural and 1% of Remote Rural).

It should be noted that in the following chapters, where the datasets used in the analysis

¹¹ Scottish Government, Scottish Government Urban Rural Classification, 2016, <https://www.gov.scot/publications/scottish-government-urban-rural-classification-2016/pages/2/>

¹² NRS, Mid-Year Population Estimates, 2019, <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates>

allows and it is appropriate to do so, the area of South Fife included in the ESES region will be disaggregated from the full Fife Council area. If the data available does not allow for this level of disaggregation, then the analysis will be undertaken and presented for the full Fife Council area.

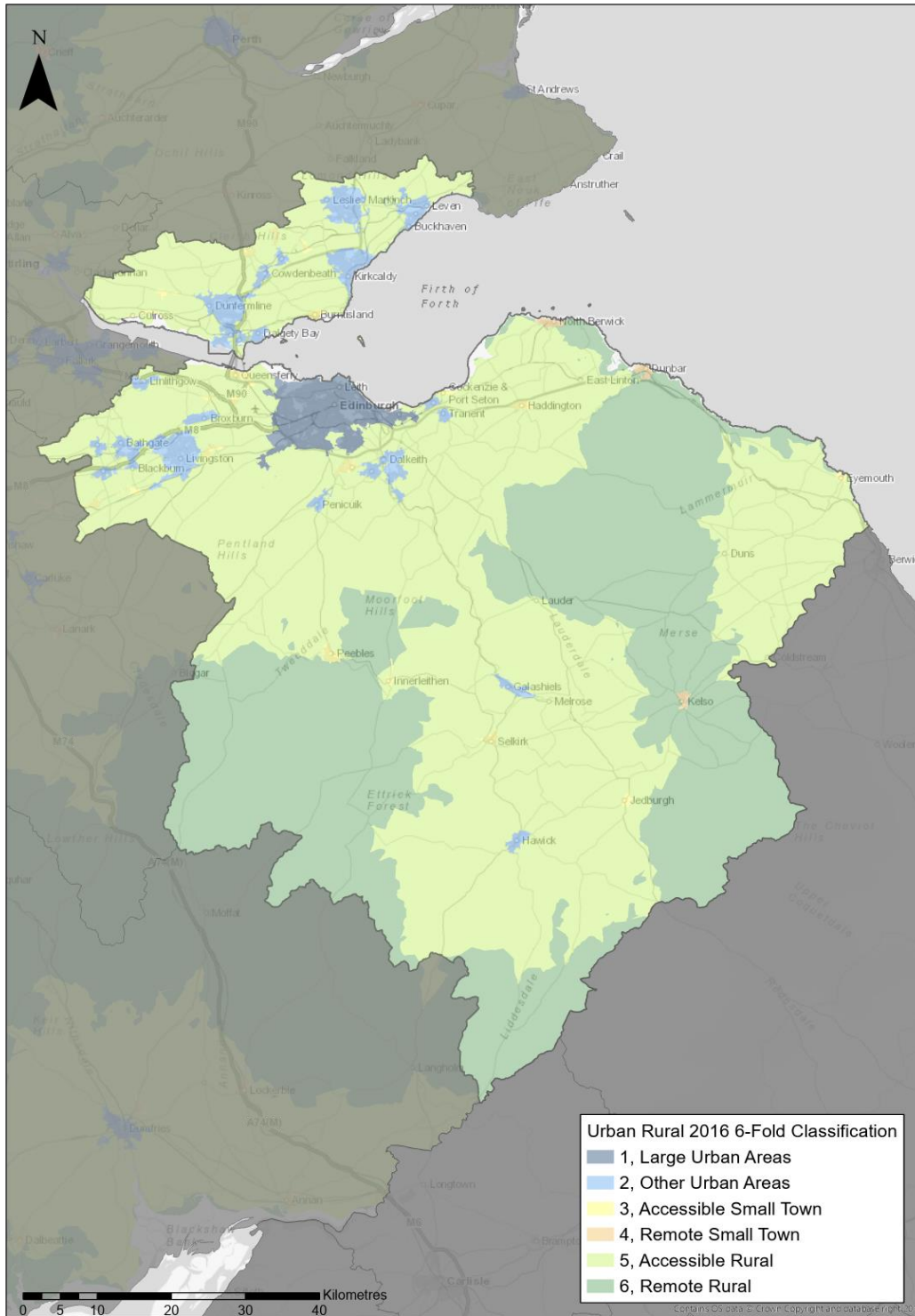


Figure 4: ESES Region Scottish Government Urban Rural Classification 2016

(Click image to enlarge figure)

2.3. Socio-Economic Context

Note that wherever possible the latest available datasets have been analysed to produce the statistics and results presented in this report. In some cases, however, the data used may not be fully up-to-date. This is typically because the latest data is not yet available, or because the data and/or the method of collection may have changed over time and can no longer be used in the same way. It is also recognised that the pandemic and the restrictions implemented have changed the way society works and travels. However, given the uncertainty over what the potential lasting impacts of the pandemic may be, pre-COVID-19 datasets have been used to reflect the baseline situation.

In 2019 the ESES region had a population of 1,320,974¹³ people with Edinburgh the most populous settlement accounting for 38% of the region’s population. The 10 largest settlements by population are presented in Figure 5 and between them they account for 60% of the region’s population.



Figure 5: ESES Largest Settlements by Population 2016 and Population Density 2018

In terms of the age profile of the population in the region¹⁴, approximately 65% of people are of working age (16 to 64 years of age), 17% aged 15 and under, and 17% aged 65 and over. This compares closely to the proportions for Scotland with 64% of people being of working age, 17% aged 15 and under, and 19% aged 65 and over. Between 2012 and 2016, Edinburgh’s population grew by 5%, as shown in Figure 6, which is the highest rate of growth when compared to the other 3 larger cities of Aberdeen (2%), Dundee (<1%) and Glasgow

¹³ NRS, Mid-Year Population Estimates, 2019, <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/mid-2019>

¹⁴ NRS, Mid-year Population Estimates, 2019, *ibid*

(4%).

Figure 6 also shows that of the largest settlements in the region the majority have recorded an increase in population between 2011 - 2016¹⁵; the exception to this is Glenrothes which has recorded a slight decline in population of 2%.

Top 10 Mid-2016 Population Localities – Change from 2012

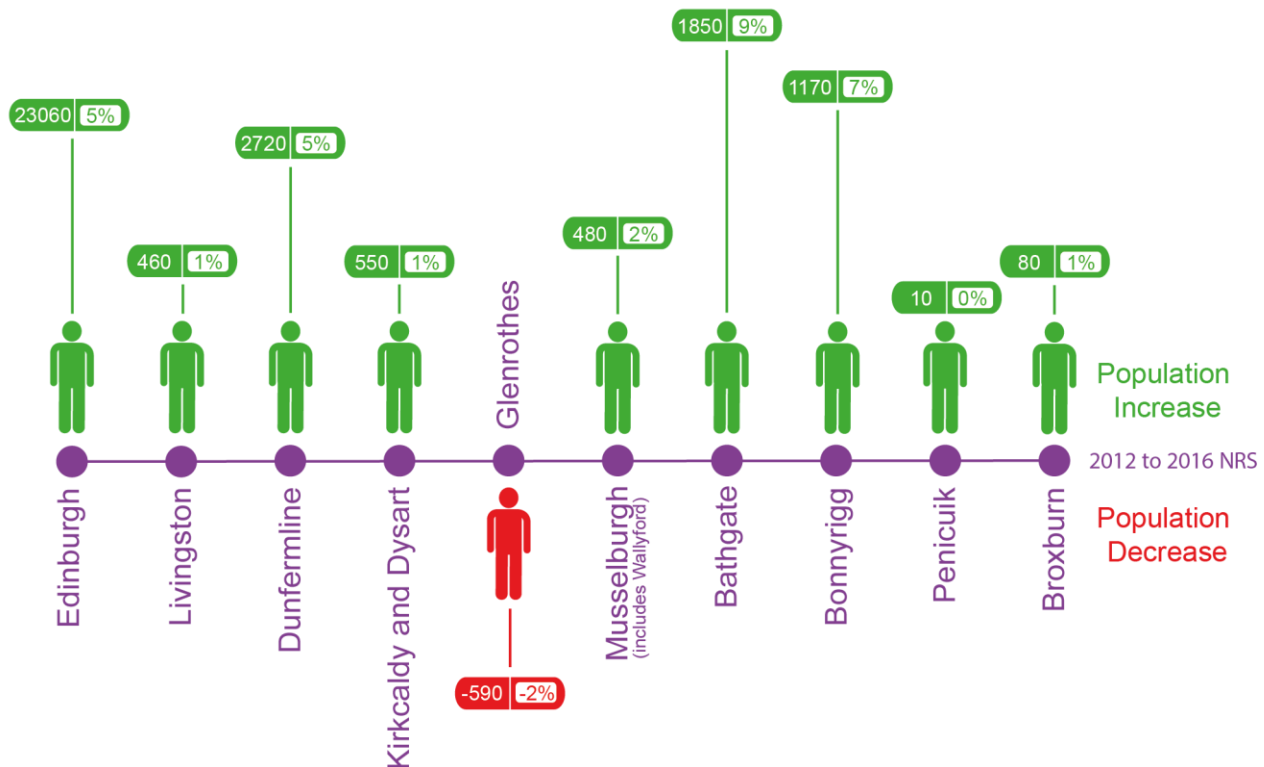


Figure 6: Population Change in the Largest ESES Settlements 2012 – 2016

2.3.1. Economic Activity

In the ESES region, 78% of the working age population (aged 16 to 64 years) in 2019 were economically active¹⁶, which is 0.7 percentage points higher than the national benchmark. In the City of Edinburgh this is slightly lower at 77%, which is 1.8 percentage points higher than the Scottish city benchmark.

¹⁵ NRS, Population Estimates for Settlements and Localities in Scotland, Mid 2016, <https://www.nrscotland.gov.uk/files//statistics/settlements-localities/set-loc-16/set-loc-2016-publication-updated.pdf>

¹⁶ ONS, NOMIS Economic Activity, 2018, <https://www.nomisweb.co.uk/census/2011/qs601ew>

The NOMIS annual population survey in 2019¹⁷ shows that the mean employment rate in the region is 76%, which is 1.0 percentage point higher than the national benchmark. Within the City of Edinburgh, the mean employment rate is 75%, which is 2.6 percentage points higher than the Scottish city benchmark. The mean unemployment rate in the region is 3%, which is lower than the national benchmark, and within the City of Edinburgh the mean unemployment rate is 3%, which was 1.2 percentage points lower than the Scottish city benchmark.

Over the period 2014 to 2019, the employment rate increased by 1 percentage point in the ESES region (1.2 percentage points less than the national average). More specifically within the region, this reflected an increase of 1.2 percentage points in the City of Edinburgh (1.5 percentage points less than the Scottish city average), and an increase of 0.9 percentage points in the wider ESES region (compared to the regional benchmark which shows an increase of 1.5 percentage points).

The ESES region contributed to 21% of Scotland's total benefits claimants¹⁸ in 2019. Of all of Scotland's benefit claimants, 6% were in the City of Edinburgh, which is low when compared to Glasgow (16%) but higher than Dundee (4%) and Aberdeen (3%).

The Edinburgh and South East Scotland City Region Deal¹⁹ outlines 7 key areas that can bring transformational change in the region. The Deal brings a commitment to deliver the 7 strategic sites within the city region - Blindwells (East Lothian); Calderwood (West Lothian); Dunfermline (Fife); Edinburgh's Waterfront (City of Edinburgh), Shawfair (Midlothian); Tweedbank (Scottish Borders); and Winchburgh (West Lothian). Collectively these sites will deliver over 45,000 new homes, create 7,800 jobs and contribute over £10 billion to the wider economy.

2.3.2. Industry Sectors

Figure 7 and Figure 8 show the economic sector profiles for Edinburgh and the wider ESES region (excluding Edinburgh) respectively based on the Business Register and Employment Survey (BRES)²⁰. Within Edinburgh, the Finance/IT/Real Estate sector accounted for the highest proportion of jobs employing over 16% of the workforce compared to 10% at the city average and 7% at the Scotland level. Excluding Edinburgh, the Wholesale and Retail Trade sector accounted for the highest proportion of jobs, at over 17% which is equivalent to the regional benchmark and slightly higher than the Scottish average.

¹⁷ ONS, NOMIS Employment Rate, 2018, <https://www.nomisweb.co.uk/census/2011/qs601ew>

¹⁸ ONS, NOMIS - benefit claimants, employment and support allowance, 2019, <https://www.nomisweb.co.uk/>

¹⁹ Edinburgh and South East Scotland City Region Deal, <http://esescityregiondeal.org.uk/key-documents>

²⁰ ONS, Business Register and Employment Survey (BRES), 2018, <https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/businessregisterandemploymentsurvey>

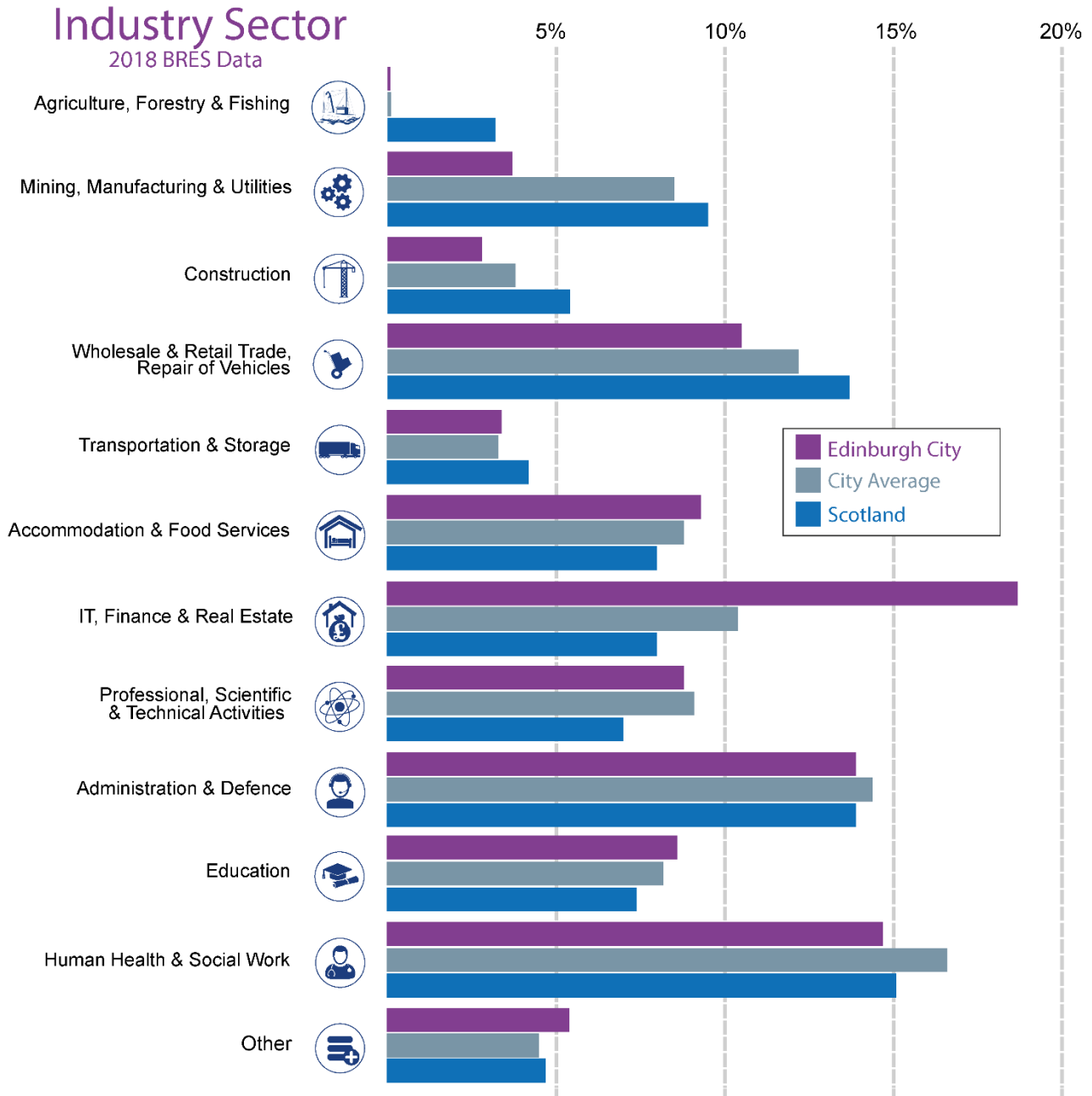


Figure 7: Industry Sectors – Edinburgh Comparison

Industry Sector

(Including the whole of Fife)
2018 BRES Data

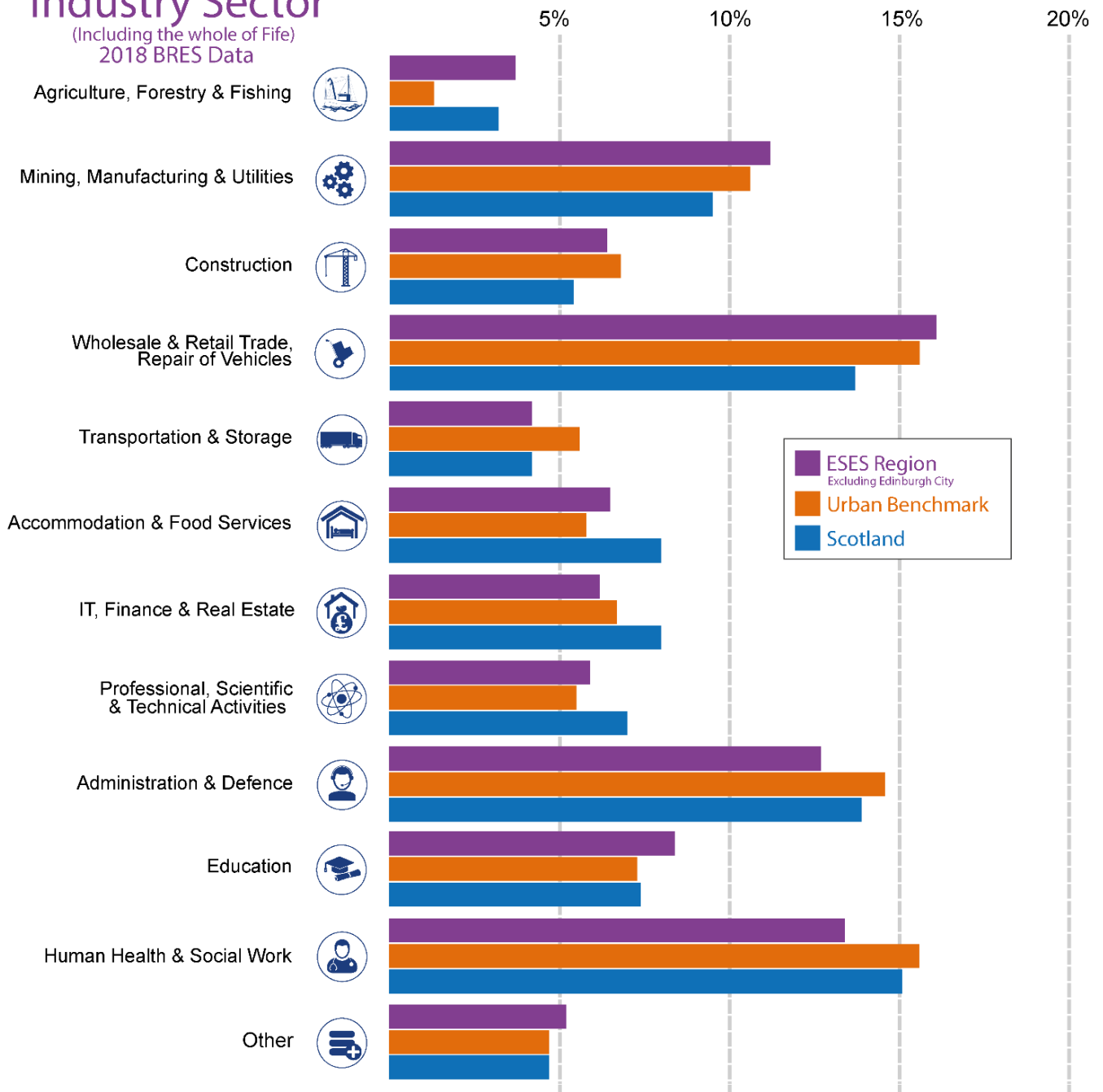


Figure 8: Industry Sectors - ESES Region (excluding Edinburgh) Comparison

Skills Development Scotland estimates that²¹ between 2019 and 2029 there will be a 3% growth in nationwide employment (which equates to approximately 89,900 new jobs). Of these, it is estimated that 52% (47,100 jobs) will be located within ESES.

Regional employment forecasting²² shows that, of the ESES regions estimated 47,100 new jobs generated between 2019 and 2029, 86% (40,300 jobs) will be located in the City of Edinburgh, East Lothian or Midlothian, 10% (4,800 jobs) in West Lothian and 2% (1,000 jobs) in both Fife and in West Lothian respectively.

In 2018, the Edinburgh and South East Region accounted for £42.27bn or approximately 30% of Scotland's total GVA of £142bn, with the City of Edinburgh contributing 17% and the wider region 12%. The region's GVA has also seen significant growth and increased by approximately 24% between 2013-2018 which is 9 percentage points more growth than the national benchmark increase²³.

Figure 9²⁴ shows that compared to the rest of Scotland, the GVA of the region has a larger Financial and Insurance sector share, which is over 6 percentage points greater than that for Scotland. Other sectors show a relatively small difference of between 1 and 2 percentage points.

²¹ Skills Development Scotland, RSA Infographic, 2019,
<https://www.skillsdevelopmentscotland.co.uk/media/46135/scotland.pdf>

²² Skills Development Scotland, Regional Skills Assessments:
<https://www.skillsdevelopmentscotland.co.uk/media/46129/edinburgh-east-and-midlothian-rsa-summary-report.pdf>
<https://www.skillsdevelopmentscotland.co.uk/media/46130/fife-rsa-summary-report.pdf>
<https://www.skillsdevelopmentscotland.co.uk/media/46136/scottish-borders-rsa-summary-report.pdf>
<https://www.skillsdevelopmentscotland.co.uk/media/46139/west-lothian-rsa-summary-report.pdf>

²³ Office for National Statistics, Regional gross value added (balanced) by local authority in the UK, 2019,
<https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgrossvalueaddedbalancedbylocalauthorityintheuk>

²⁴ Oxford Economics, International Research on Economies, 2019,
<https://www.scottishfuturestrust.org.uk/storage/uploads/internationalresearchonregionaleconomiesmay2019.pdf>

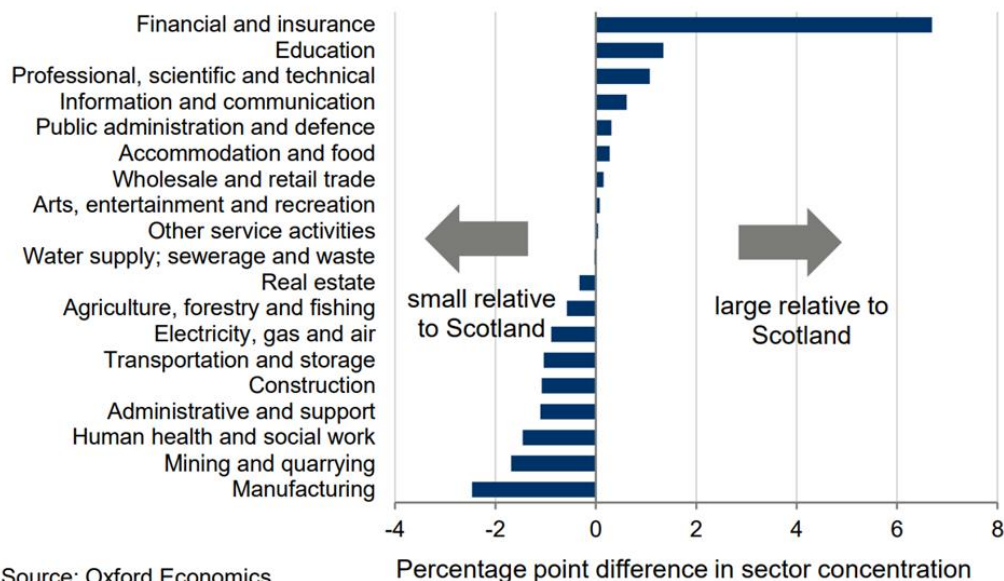


Figure 9: Sector GVA Share in ESES Relative to Scotland (Oxford Economics, 2019)

The Economic Strategies published by the local authorities in the ESES²⁵ region identify tourism as a key growth sector with significant implications for the GVA of both the region and for Scotland with continued significant levels of growth forecast for the coming years.

Growth has come from both domestic visitors (33% more than in 2010) and from overseas visitors (27% more than 2010).

Total spending by visitors staying overnight increased by 30% from 2010 - 2015²⁶. This level

²⁵ East Lothian, Fife, City of Edinburgh, Scottish Borders, West Lothian and Midlothian Local Authority Economic Strategies:

https://www.eastlothian.gov.uk/news/article/12896/ambitions_to_grow_a_thriving_and_dynamic_east_lothian_economy

<https://wordpress.fifedirect.org.uk/fifeeconomypartnership/wp-content/uploads/sites/10/2016/10/Fifes-Economic-Strategy-2017-27.pdf>

<https://www.edinburgh.gov.uk/downloads/file/25922/2018-full-version>

https://www.scotborders.gov.uk/download/downloads/id/456/economic_strategy.pdf

https://www.westlothian.gov.uk/media/8005/Economic-Strategy-2014/pdf/20140226_Economic_Strategy_2014.pdf?m=636355365437900000

<https://midlothian.cmis.uk.com/live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=8ZnOsU60TxaVqKAVgmBI5VV2XkRmOKII%2Bw%2Bo85Gs0QW8T%2FZORuvNxQ%3D%3D&rUzwRPf%2BZ3zd4E7lkn8Lyw%3D%3D=pwRE6>

²⁶ City of Edinburgh Council, Edinburgh 2020 Tourism Strategy, 2016,

<https://www.etag.org.uk/wp-content/uploads/2014/01/Ed2020-Review-Main-Report-Final-260916.pdf>

of growth is higher than the growth for Scotland as a whole.

Figure 10 and Figure 11 both highlight where there are BRES²⁷ key employment centres (largest settlements as identified in Figure 6) within the region.

Figure 10 shows the distribution of the region's population, based on 2011 Census data. This illustrates a higher population density within 5km of where employment opportunities are located (for example City of Edinburgh, Livingston and South Fife).

Figure 11 shows that travel to work distances (based on 2011 Census data) which are typically lower nearer to key employment centres and higher outside of these areas and in the wider region, where there are fewer key employment centres and so people typically travel further for employment.

²⁷ ONS, Business Register and Employment Survey (BRES), 2017
<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/businessregisterandemploymentsurveybresprovisionalresults/provisionalresults2017revisedresults2016>

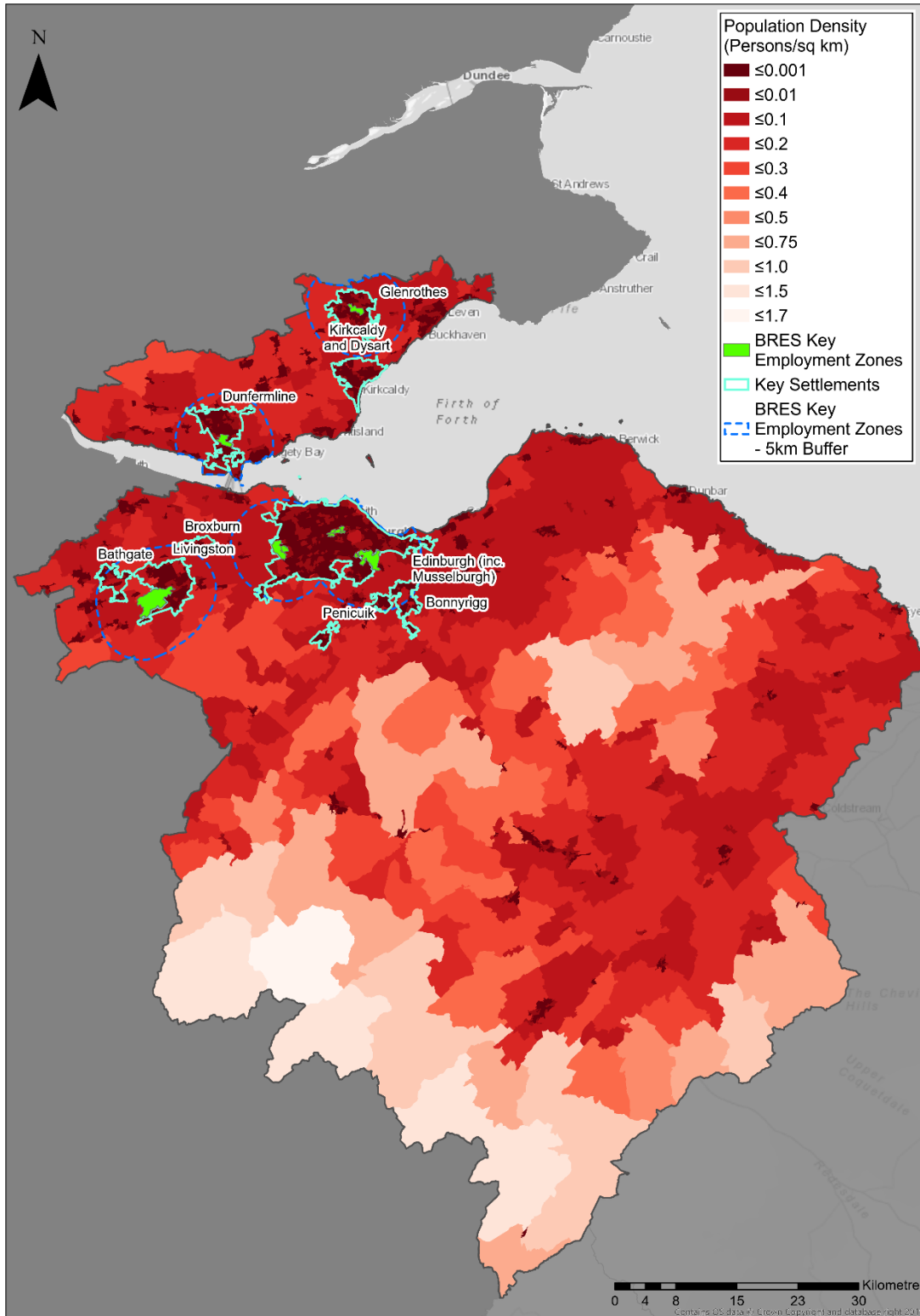


Figure 10: Population Density and BRES Key Employment centres within the ESES region

(Click image to enlarge figure)

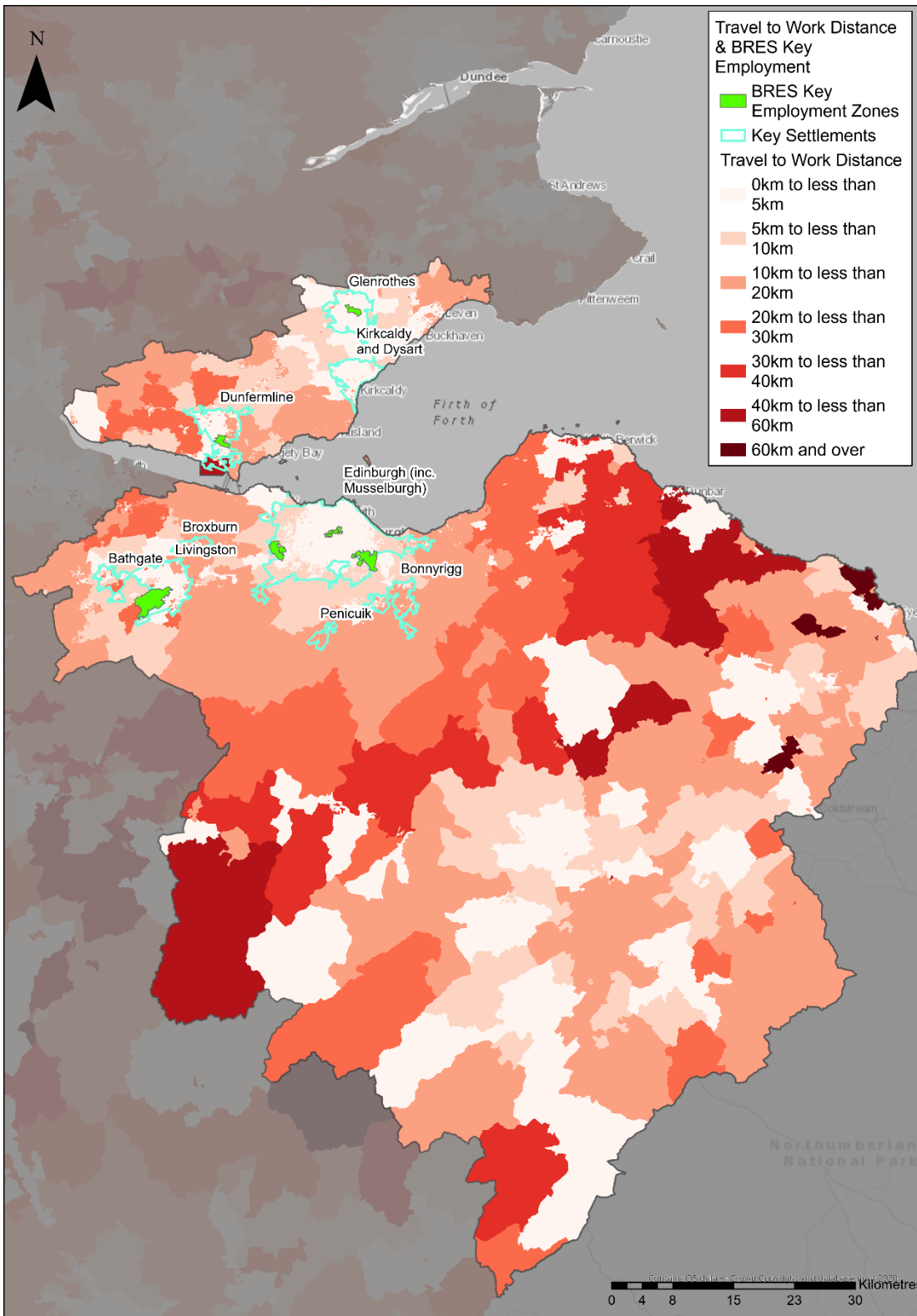


Figure 11: BRES Key Employment Centres and Travel to Work Distances

(Click image to enlarge figure)

Figure 11 shows that each of the settlements in the region have a proportion of trips that travel shorter distances (i.e. less than 5km) to work. These trips are associated with the people that live in the same settlement in which their place of employment is located.

For those people travelling more than 5km to work, the length of trip tends to broadly correspond to either the distance to the City of Edinburgh (the settlement supplying a high proportion of jobs within the region) or another settlement within the region (such as Dunfermline, Glenrothes or Livingston for example).

For example, Figure 10 shows that Penicuik is an area of higher population density than other more rural areas (areas with higher population densities will generate more travel to work trips than those areas with lower population densities).

Figure 11 shows that for people living in Penicuik, the majority of travel to work trips are between 10 and 20km in distance. Given that Edinburgh city centre is located approximately 13km from Penicuik, the majority of travel to work trips originating in Penicuik will be travelling to employment locations within the City of Edinburgh.

Considering the information shown in Figure 10 and Figure 11 in tandem allows for the general pattern of both travel to work trip origins (i.e. areas with higher population densities) and destinations (i.e. considering the travel to work distance for any chosen origin) within the region to be identified.

2.3.3. Digital Connectivity

Digital connectivity is important to the economy of the region in terms of business operations and productivity. It is also important to the economy at an individual level in terms of enabling opportunities to work from home and which in turn links to the demand for travel and use of the transport network in the region.

The availability of broadband and 4G penetration within rural areas of the region is relatively poor compared to the rest of the ESES region. Less than 5% of all premises in the Scottish Borders and 9% in East Lothian have access to Ultra-Fast Broadband (UFBB) compared to 25% in Midlothian, 53% in West Lothian and 82% in the City of Edinburgh²⁸.

Based on Ofcom data from 2019²⁹, approximately 94% of premises in the City of Edinburgh, East Lothian, West Lothian, Midlothian, and Fife have access to Super-Fast Broadband (SFBB) coverage (defined as >30Mbits/s).

Download speeds are highest in the City of Edinburgh at around 77.4Mbits/s compared to the mid-30s in East Lothian and the Scottish Borders. In the Scottish Borders, 13% of the A and B class road network has no reliable 4G signal. The other local authority areas within ESES have no more than 5% of the A and B class road network with no reliable 4G signal³⁰.

²⁸ Ofcom, Connected Nations, 2019, <https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2019/data-downloads>

²⁹ Ofcom, Connected Nations, 2019, *ibid*

³⁰ Ofcom, Connected Nations, 2019, <https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2019/data-downloads>

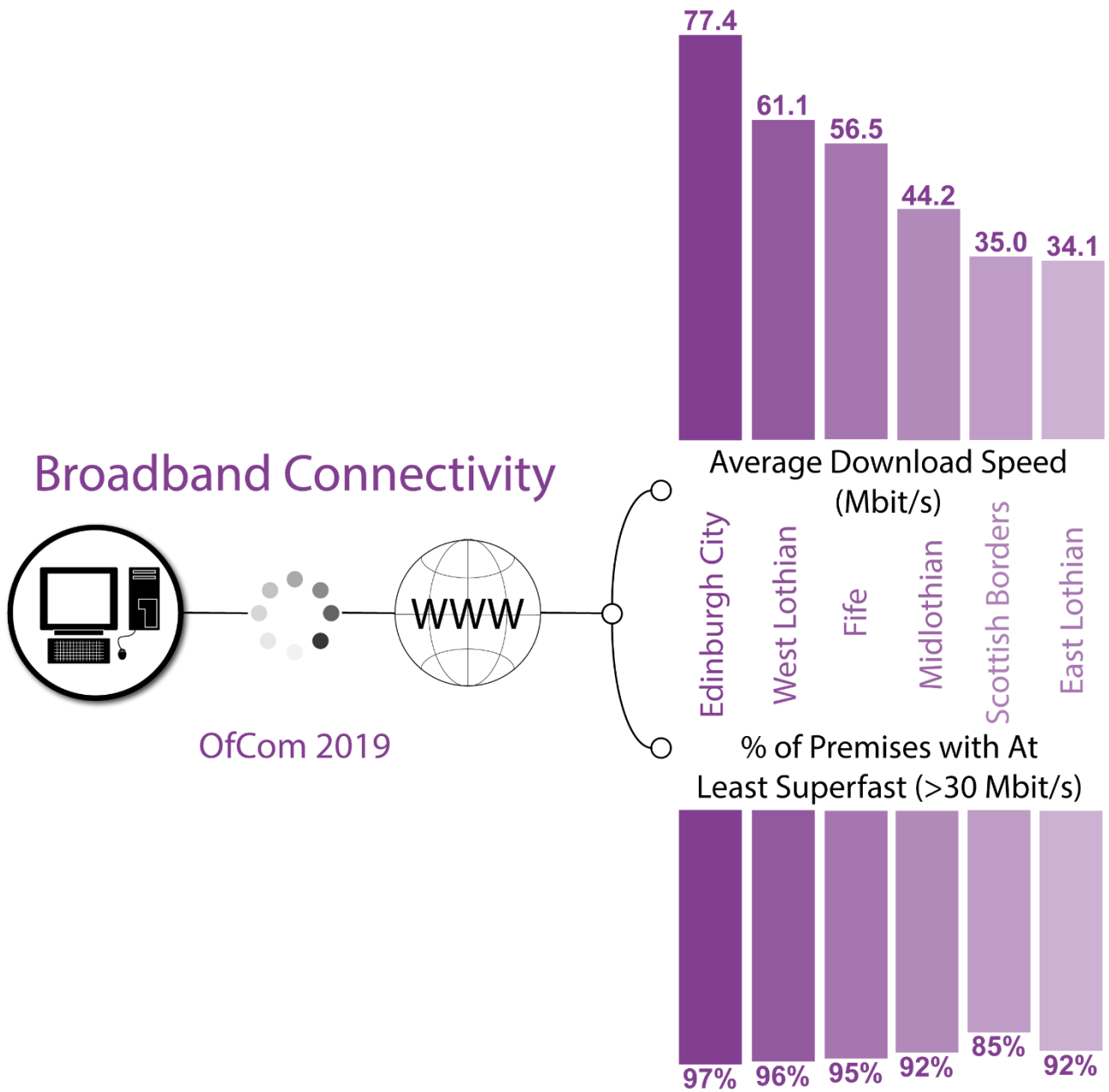


Figure 12: Broadband Connectivity

2.3.4. *Inequality*

The Scottish Index of Multiple Deprivation (SIMD)³¹ is the Scottish Government's standard approach to identify areas of multiple deprivation in Scotland across 6,976 small areas (called data zones). SIMD is an area-based measure of relative deprivation across 7 domains: income, employment, education, health, access to services, crime and housing. From a transport perspective, access to services considers average drive or public transport travel time to access services such as a GP surgery, retail centre or schools.

Outputs are reported by the ranking of geographical data zone areas from the most deprived (ranked 1) to the least deprived (ranked 6,976). The overall ranking is determined using a system that combines over 30 deprivation indicators using information and data across the 7 different domains.

Each data zone is ranked based upon the assessment of individual domains that are then used to determine the overall level of deprivation. The overall index for ESES is shown in Figure 13 and demonstrates the varied SIMD position across the region when all domains are considered.

Informed by SIMD information, each data zone is ranked and then grouped into a decile based upon that ranking. For example, data zones ranked as highly deprived and which sit in the top 10% of most deprived zones are grouped under decile 1, data zones with a ranking in the top 20% range of most deprived zones are grouped under decile 2 and data zones representing the least deprived areas have a higher ranking and are in the 90% - 100% range (decile 10).

Within the ESES region, 12% (71) of the total number of data zones within the City of Edinburgh (597) are ranked as being in the 20% most deprived data zones within Scotland which is lower than Glasgow (45%) and Dundee (37%) but higher than Aberdeen (10%). Similarly, across the wider region (excluding Edinburgh) 16% of the data zones are ranked as being in the 20% most deprived within Scotland.

³¹ Scottish Government, Scottish Index of Multiple Deprivation, 2020,
<https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/>

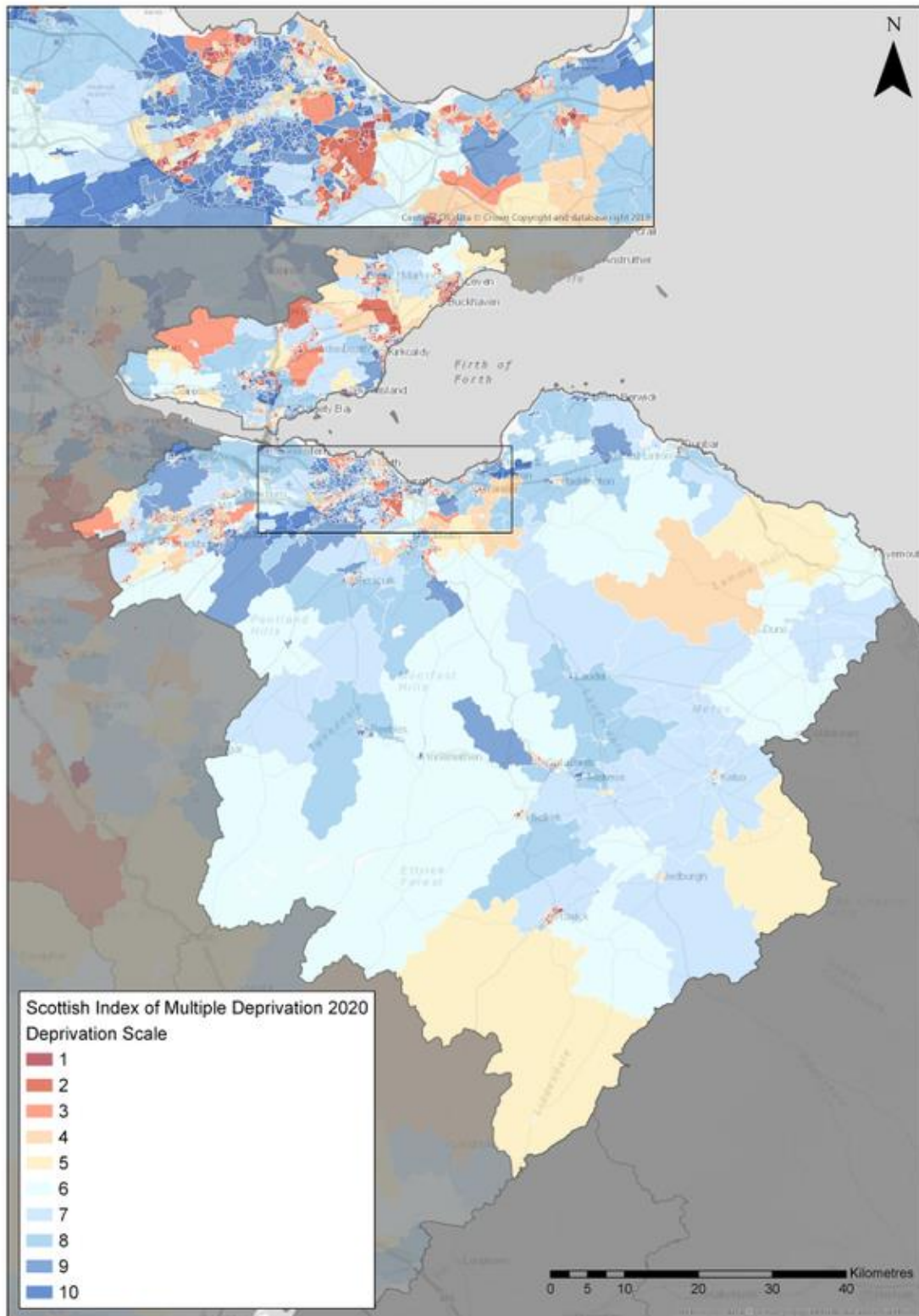


Figure 13: Scottish Index of Multiple Deprivation (SIMD) 2020
(Click image to enlarge figure)

2.3.5. Travel to Work

Figure 14 shows the mode share for travel to work-based trips across the region and in Scotland³². It should be noted that Figure 14 is based on Census 2011 data which pre-dates the opening of both the Borders Railway and Edinburgh Tram. Transport and Travel in Scotland³³ identifies that working from home has become an increasing activity for the workforce in the region (albeit it is recognised that this is not feasible for all types of industry sectors).

In 2007, 11% of employed people worked from home which increased to 16% in 2019. Figure 14 shows the proportion of people working from home in the ESES region.

As shown in Figure 14, car is the most popular mode of travel to work. Within the City of Edinburgh, the proportion of people using private car (either driving or as a passenger) to travel to work is much lower at 40% when compared to Glasgow (47%), Dundee (60%) and Aberdeen (58%). While car still accounts for the greatest number of travel to work trips in the City of Edinburgh, active travel and public transport combined account for a greater proportion (48%) of trips and is the only part of the ESES region where this is the case. The City of Edinburgh has a higher cycling mode share than other parts of the region, with 4% for the City of Edinburgh compared to 1% elsewhere in the region, and a significantly higher bus mode share of 26% when compared to the rest of the region at 8%.

In the wider region (excluding the City of Edinburgh), travel by private car has a higher mode share and accounts for 68% of travel to work trips. Active travel and public transport modes account for only 20% of trips overall. Travel by rail in the wider region is higher (3%) when compared to the City of Edinburgh (2%).

Analysis of car availability³⁴ across Scotland shows that 71% of households own at least 1 car (with 27% owning 2 or more cars). Across the ESES region, 70% of households own at least 1 car (with 26% owning 2 or more cars). In the City of Edinburgh, this decreases to 60% of households owning at least 1 car (with 18% owning 2 or more cars). For the ESES region, excluding the City of Edinburgh, 76% of households have access to at least 1 car (32% have access to 2 or more cars). Compared to other regions, the ESES region has the highest proportion of households with no car (30%).

³² NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

³³ Transport Scotland, Transport and Travel in Scotland 2019, Local Authority Table 2, 2019, <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/>

³⁴ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

Travel to Work Mode Share 2011

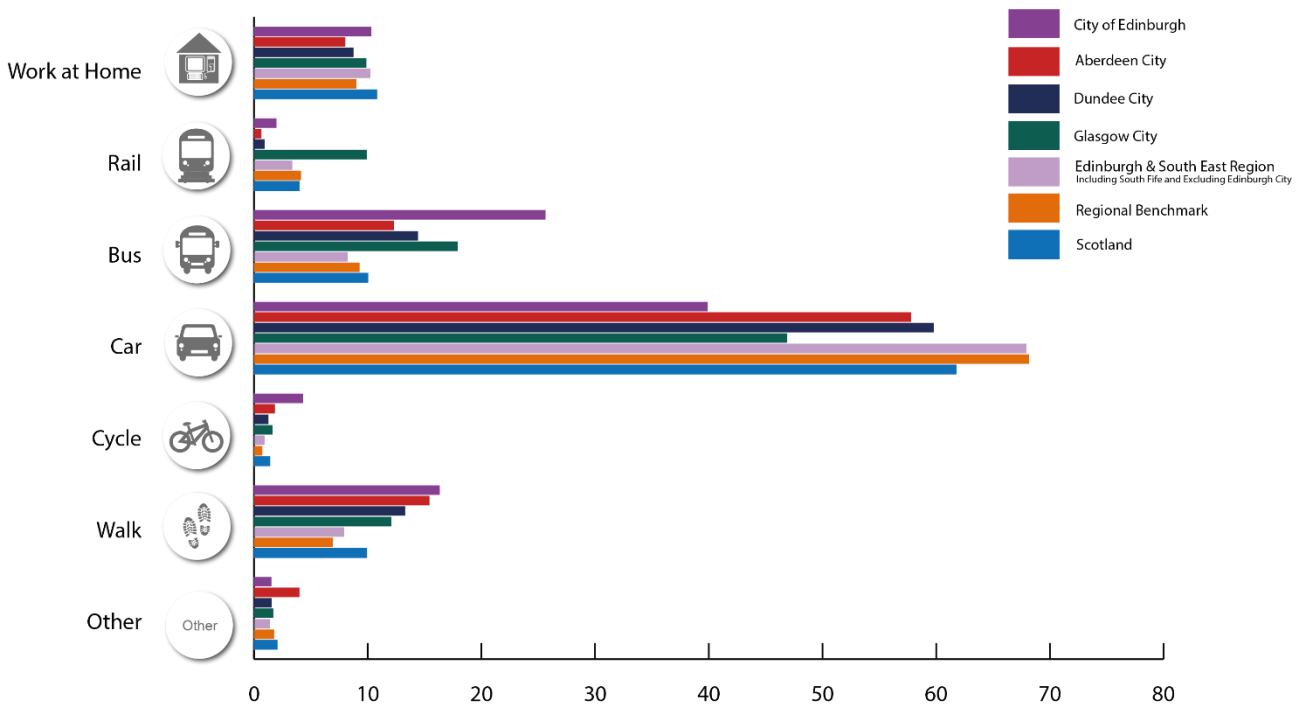


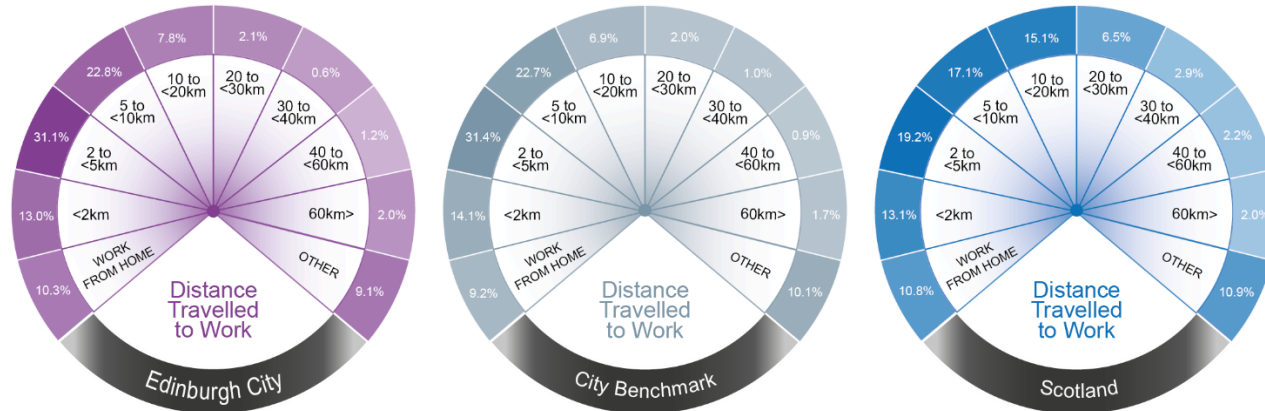
Figure 14: Mode of Travel to Work

As shown in Figure 15, distance travelled to work in the City of Edinburgh area³⁵ is considerably different than the remainder of the region, with over 75% of trips less than 10km. This is very similar to the city average (based upon a comparison of data from Glasgow, Aberdeen, Dundee and the City of Edinburgh).

Excluding the City of Edinburgh, the region has a slightly lower proportion of shorter journeys to work (less than 5km in length) at 14% compared to the regional benchmark (17%) and Scotland as a whole (19%). Within the City of Edinburgh, 31% of journeys to work are less than 5km.

³⁵ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

Distance Travelled to Work



Distance Travelled to Work

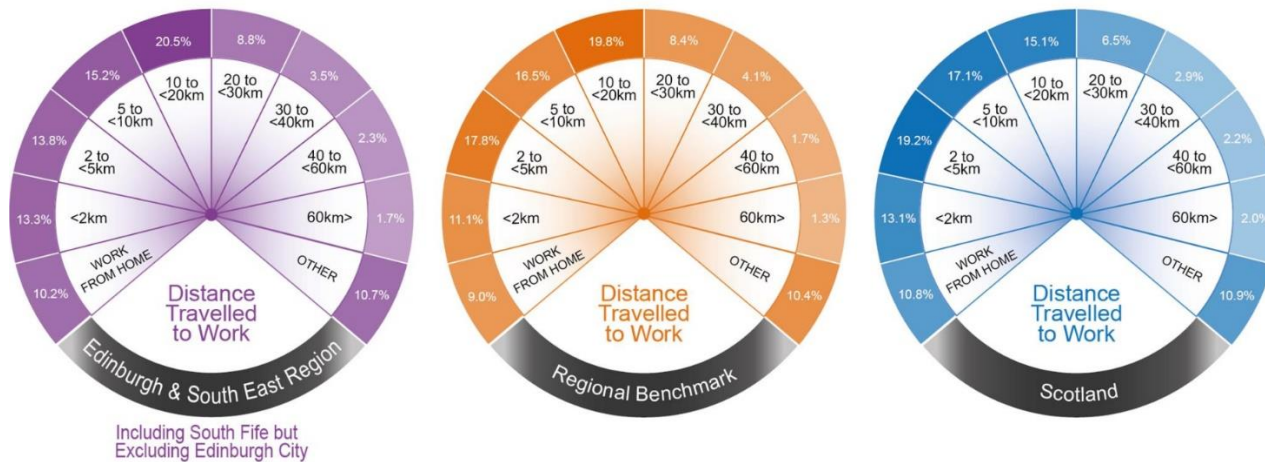


Figure 15: Distance Travelled to Work within the ESES region

Figure 16 provides information on car availability³⁶ within the ESES region (excluding the City of Edinburgh). It shows that the number of houses within the ESES region that do not have access to a car (25%) is lower than both the regional (28%) and national (31%) benchmarks.

Car or Van Availability per Household 2011 (Edinburgh and South East Scotland) Including South Fife and Excluding Edinburgh City

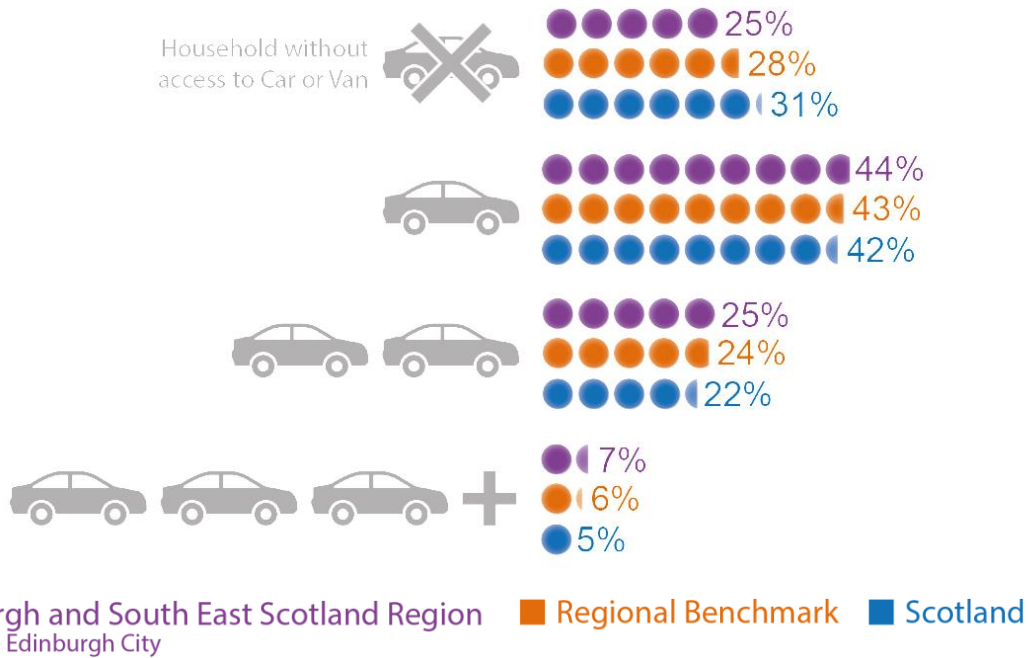


Figure 16: Car Availability within ESES and within Scottish cities

2011 Census based travel to work information³⁷ provides information detailing the origins and destinations of travel to work movements. Analysis of this information allows for cross boundary movements within the region to be identified. At the local authority level, the data shows that the dominant movements are into the City of Edinburgh from the wider region (as illustrated in Figure 17). It highlights the daily movement of inbound travel demand to the City of Edinburgh from the other Local Authority areas in the ESES region (denoted by the grey boxes). For comparison, Figure 18 shows a lower number of trips outbound from the City of Edinburgh to the wider region (again denoted by the grey boxes) with inbound movements up to 7 times larger than the corresponding outbound movements.

It should be noted that the data used in this analysis has been extracted from the 2011 Census which pre-dates the opening of the Borders Railway and Edinburgh Tram, and the rail movements from the Scottish Borders to/from the City of Edinburgh is lower than would currently be anticipated.

For context in terms of the number of passengers using the Borders Railway, Transport

³⁶ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

³⁷ NRS, 2011 Census (Scotland), 2011, *ibid*

Scotland reviewed patronage in 2017³⁸ (2 years after opening) and found that 1.2 million passengers were carried over the course of September 2015 to September 2016 which rose to 1.4m passengers (an increase of 9%) over the period September 2016 to September 2017.

In terms of employment within the region, 2011 census based daily travel to work information in Figure 17 and Figure 18 reflects that the City of Edinburgh represents the largest employment 'zone' in the region. The figures show movements between Local Authority areas within the ESES region and the City of Edinburgh (denoted by black arrows), trips taking place wholly within the City of Edinburgh (denoted by the red arrow) and trips between areas outside of the ESES region and the City of Edinburgh (denoted by the yellow arrows).

More recent figures show this pattern continues with almost 45% of Edinburgh's workforce commuting to work by private car (over 125,000 people) split almost equally by those living in the city and from neighbouring local authorities³⁹.

It is recognised that there are also wider travel to work movements made between the City of Edinburgh to/ from the rest of Scotland, but the number of these movements are relatively low when compared to those made wholly internally within the ESES region (as shown in Figure 17 and Figure 18).

There are approximately 3,000 daily trips inbound to the City of Edinburgh from the 'North' via the M90 covering areas including Perth and Kinross and Angus. In the opposite direction, there are approximately 1,200 daily trips travelling from Edinburgh to the 'North'.

From the 'North-west' via the M9 there are approximately 1,600 daily trips inbound to the City of Edinburgh and 800 daily trips outbound from/to areas including Stirling and Falkirk.

From the 'West' via the M8 there are 15,200 inbound daily trips to the City of Edinburgh from the Greater Glasgow area and 4,300 outbound daily trips. The disparity between the number of inbound and outbound trips between the City of Edinburgh and wider Scotland areas highlights the higher employment rate in the City of Edinburgh (when compared to other cities and settlements within Scotland).

The focus of travel from settlements within the ESES region to the City of Edinburgh can be attributed in part to the socio-economic context of the City of Edinburgh within the ESES region with a high proportion of the economically active population being employed within the City of Edinburgh (38%). Further, within the ESES region there a number of key employment centres identified in the BRES⁴⁰ with the City of Edinburgh having 53% of jobs in the region, Fife 41% and West Lothian 7%.

³⁸ Transport Scotland, Borders Railway - Year 2 Study, 2017, www.transport.gov.scot/media/41659/sct02189915561.pdf

³⁹ City of Edinburgh Council Transport and Environment Committee, 16th January 2020, <https://democracy.edinburgh.gov.uk/documents/s12642/City%20Mobility%20Plan.pdf>

⁴⁰ NOMIS, Business Register and Employment Survey 2018, 2018, <https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=189>

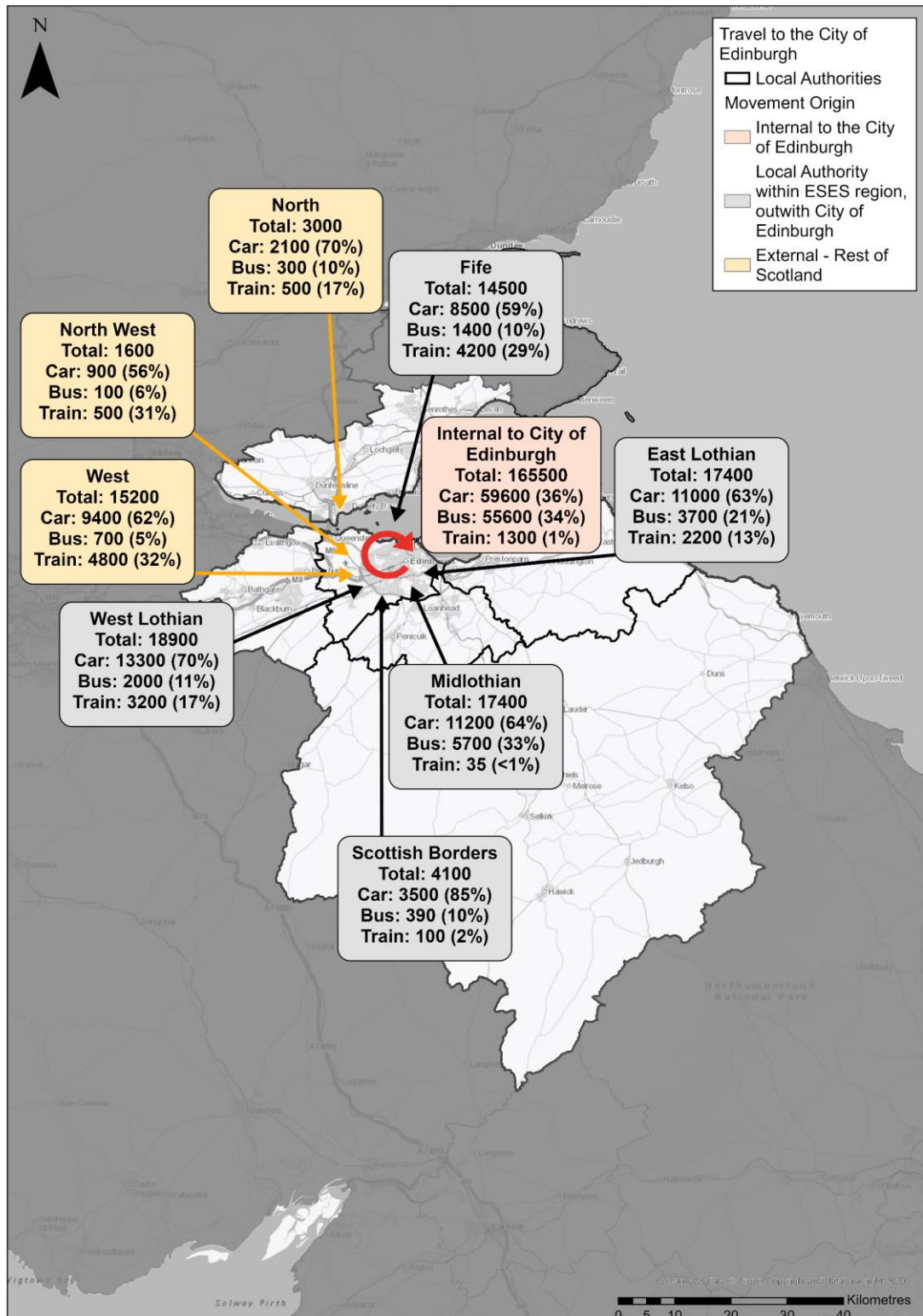


Figure 17: Census based Origin/Destination daily travel to work flows – Travel to the City of Edinburgh

(Click image to enlarge figure)

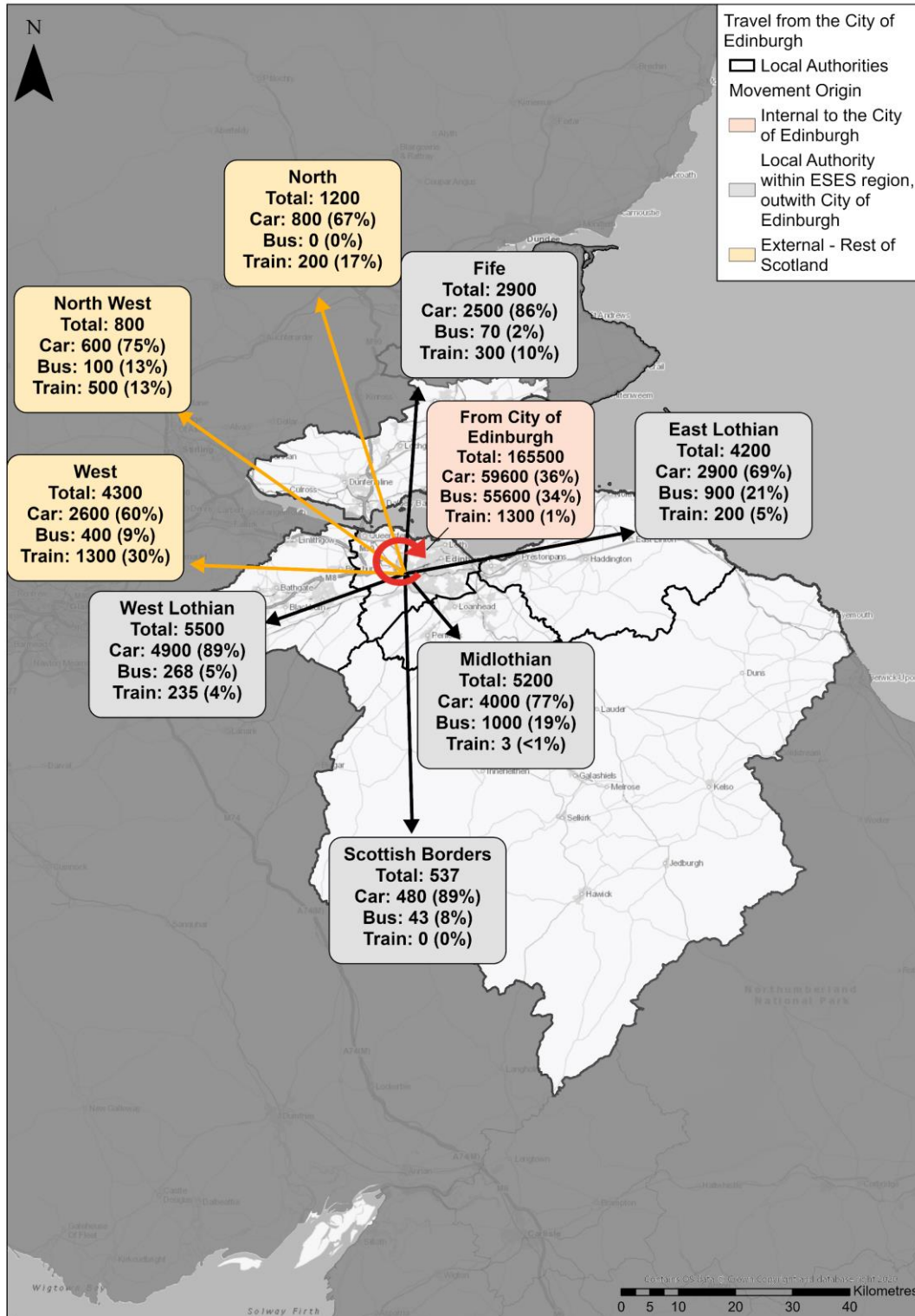


Figure 18: Census based Origin/Destination daily travel to work flows – Travel from the City of Edinburgh

(Click image to enlarge figure)

2.3.6. Household Income and Transport Expenditure

The Office for National Statistics collects information on average weekly expenditure on goods and services in the UK⁴¹, which is analysed by region, age and income group. Twelve categories of spending are included in the information including Transport, Food and Drink, Clothing, Household Goods and Education.

Based on the information available for the financial year ending 2018, the average household in Scotland spends £492.70 per week, with £68.30 or approximately 14% of this spent on transport. Of the 12 specified categories, transport is the category that has the highest level of expenditure. Figure 19⁴² shows annual income expenditure on transport and illustrates that there are more areas in the Scottish Borders and South Fife where the proportion of annual income spent on transport is higher compared to West Lothian, Midlothian, East Lothian and the City of Edinburgh. Within the City of Edinburgh, typically less than 16% of the total household income is spent on transport with a large proportion of residents spending less than 10%. In East Lothian, Midlothian and West Lothian expenditure is typically between 12% and 14%, and for South Fife and the Scottish Borders expenditure is in general higher than 16%.

⁴¹ ONS, Spending Patterns of UK households, 2018, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure>

⁴² ONS, Based on UK Average weekly household expenditure by Output Area Classification (OAC) group, Living costs and food survey - Financial Year ending 2018, <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure>

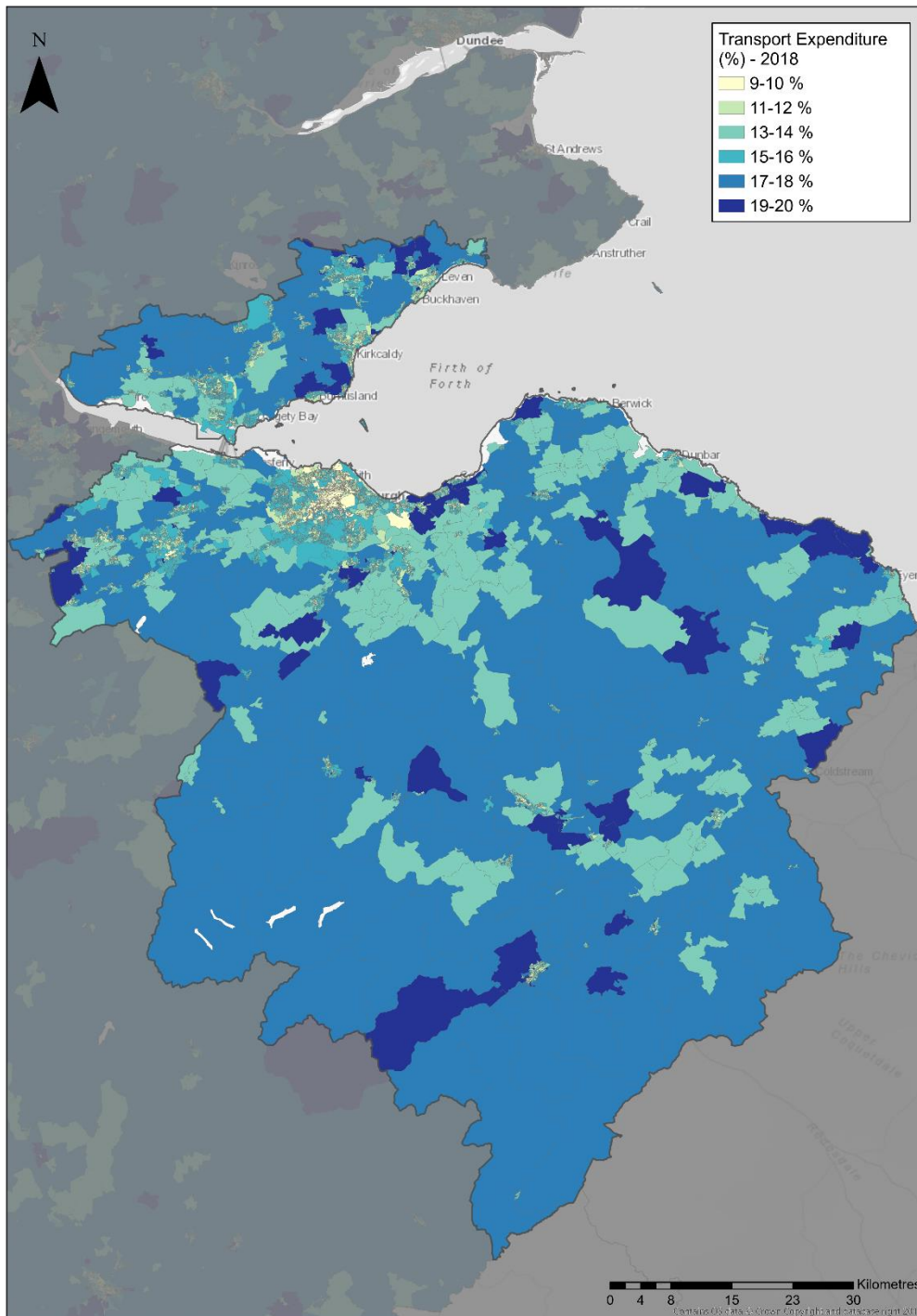


Figure 19: Transport Expenditure as a proportion of household income
(Click image to enlarge figure)

Across the ESES region, the proportion of household expenditure on transport typically increases with travel distance. For those travel to work trips⁴³ made up to 5 km, the proportion of household income spent on transport is between 12% and 13%, between 5 to 20 km the proportion increases to between 14% and 15%, and for trips over 20 km between 15% and 16% of household income is spent on transport.

2.4. Environmental Context

Within the ESES region, there are many areas classified as environmentally sensitive, with varying levels of statutory protection. Environmental designations within the region include the following biodiversity, landscape and heritage designations which fall either wholly or partly within the region:

- 164 Sites of Special Scientific Interest (SSSI)
- 10 Special Protection Areas (SPA)
- 12 Special Areas of Conservation (SAC)
- 6 Ramsar sites
- 3 National Nature Reserves (NNR)
- 19 Local Nature Reserves (LNR)
- 3 Royal Society for the Protection of Birds (RSPB) Reserves
- 1 Nature Conservation Marine Protected Area (MPA)
- 1 Marine Consultation Area
- 2 National Scenic Area (NSA)
- 2 Regional Parks
- 100 Gardens and designed landscapes
- 176 Conservation Areas
- 2 World Heritage Sites
- 11 Battlefield Sites
- 1,280 Scheduled Monuments
- 1 Heritage Marine Protected Area (MPA).

An environmental constraints mapping exercise has been undertaken, as presented in Figure 20⁴⁴. As can be seen, partly due to the mainly urban area of Edinburgh, the region has a low concentration of designated biodiversity sites.

In addition, the region contains a significant number of historic assets, including 2 designated World Heritage Sites (the Old and New Towns of Edinburgh and Forth Bridge between North and South Queensferry) and 20,682 Category A-C Listed buildings. The City of Edinburgh has a rich cultural heritage, with a significant number of listed assets and a high concentration of listed buildings in the city centre.

⁴³NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

⁴⁴Contains SNH information licensed under the Open Government Licence v3.0.

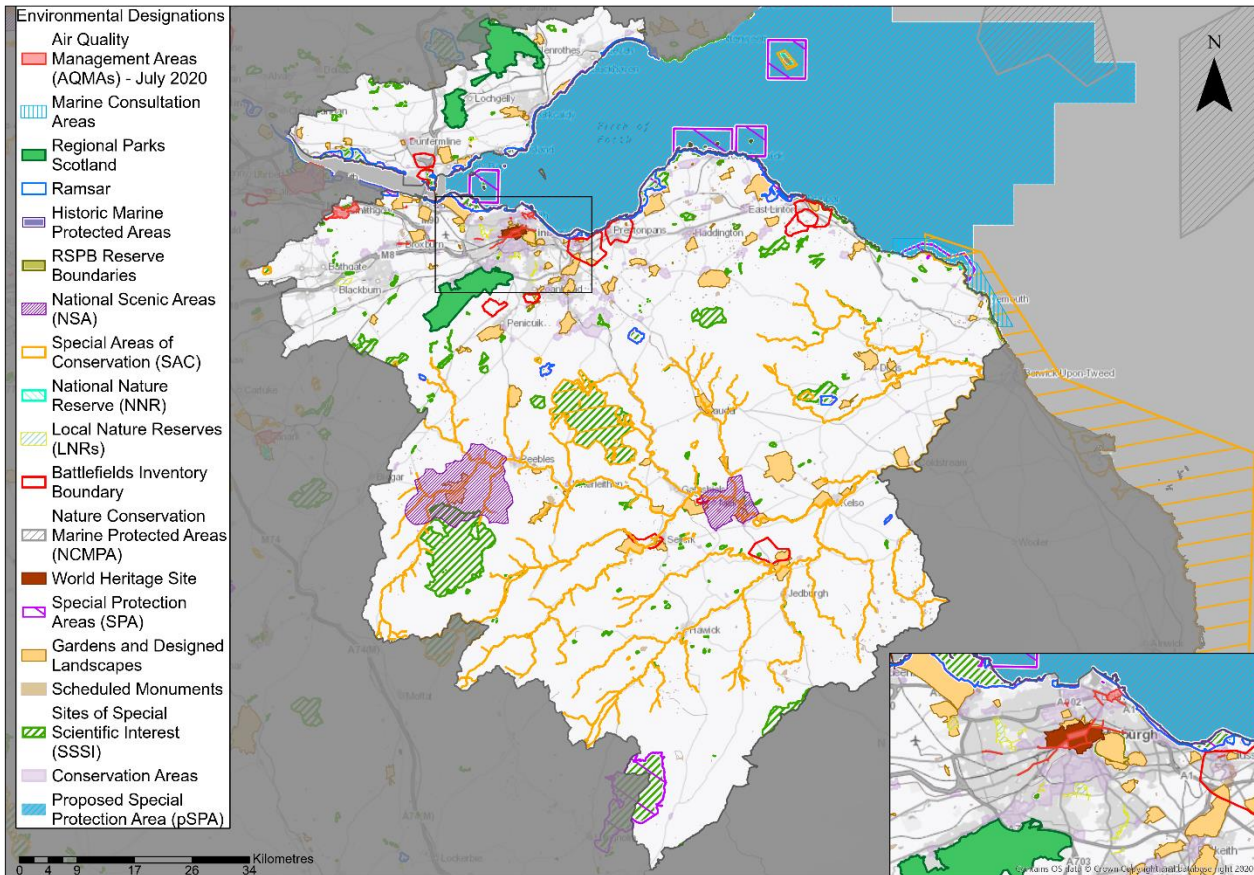


Figure 20: Environmental Designations for ESES region

(Click image to enlarge figure)

Scotland’s noise map illustrates noise exposure from rail, road, aviation and industry sources in response to the European Parliament and Council Directive for Assessment and Management of Environmental Noise 2002/49/EC. Scotland’s strategic noise mapping represents step one in the process for managing environmental noise; with step two requiring competent authorities to prepare noise action plans in response. The latest mapping (Round 3 data⁴⁵) mapped the following noise sources throughout Scotland: “roads with more than 3,000,000 (three million) vehicle passages per year; major railways with more than 30,000 (thirty thousand) train passages a year; major airports with more than 50,000 (fifty thousand) movements; and transport sources and industry in qualifying agglomerations (urban areas with populations in excess of 100,000 (two hundred and fifty thousand): Aberdeen, Dundee, Edinburgh and Glasgow)”⁴⁶.

⁴⁵ The noise mapping data is reviewed on a 5 year rolling programme. Round 3 is the latest 5 year update.

⁴⁶ Scottish Government, Scotland's Noise, 2017, <https://noise.environment.gov.scot/index.html>

Figure 21 illustrates the noise levels above 55 decibels (dB)⁴⁷ at specific points from modelled noise sources for the region, based on consolidated noise sources for the day (Lday), evening (Levening) and night (Lnight) metric (referred to as Lden). The 55 dB Lden is the EU indicator threshold for noise exposure defined in the Environmental Noise Directive (Directive 2002/49/EC)⁴⁸.

Figure 21⁴⁹ shows the greatest modelled noise levels to be located around the city of Edinburgh, primarily associated with Edinburgh Airport and trunk road network in the vicinity of the City of Edinburgh (including the M9, M8, A720 and A1). There are also relatively high noise levels associated with key local roads that connect to the strategic road network, as well as the Edinburgh to Glasgow via Falkirk High and the East Coast Main Line rail routes.

⁴⁷ Only modelled noise levels above 55 dB have been included on the figure, in order to depict those noise levels with the greatest potential to cause annoyance to the population.

⁴⁸ The European Noise Directive (END), Directive 2002/49/EC of the European Parliament and of the Council, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32002L0049&from=EN>

⁴⁹ Scottish Government, Scotland's Noise, 2017, <https://noise.environment.gov.scot/index.html>

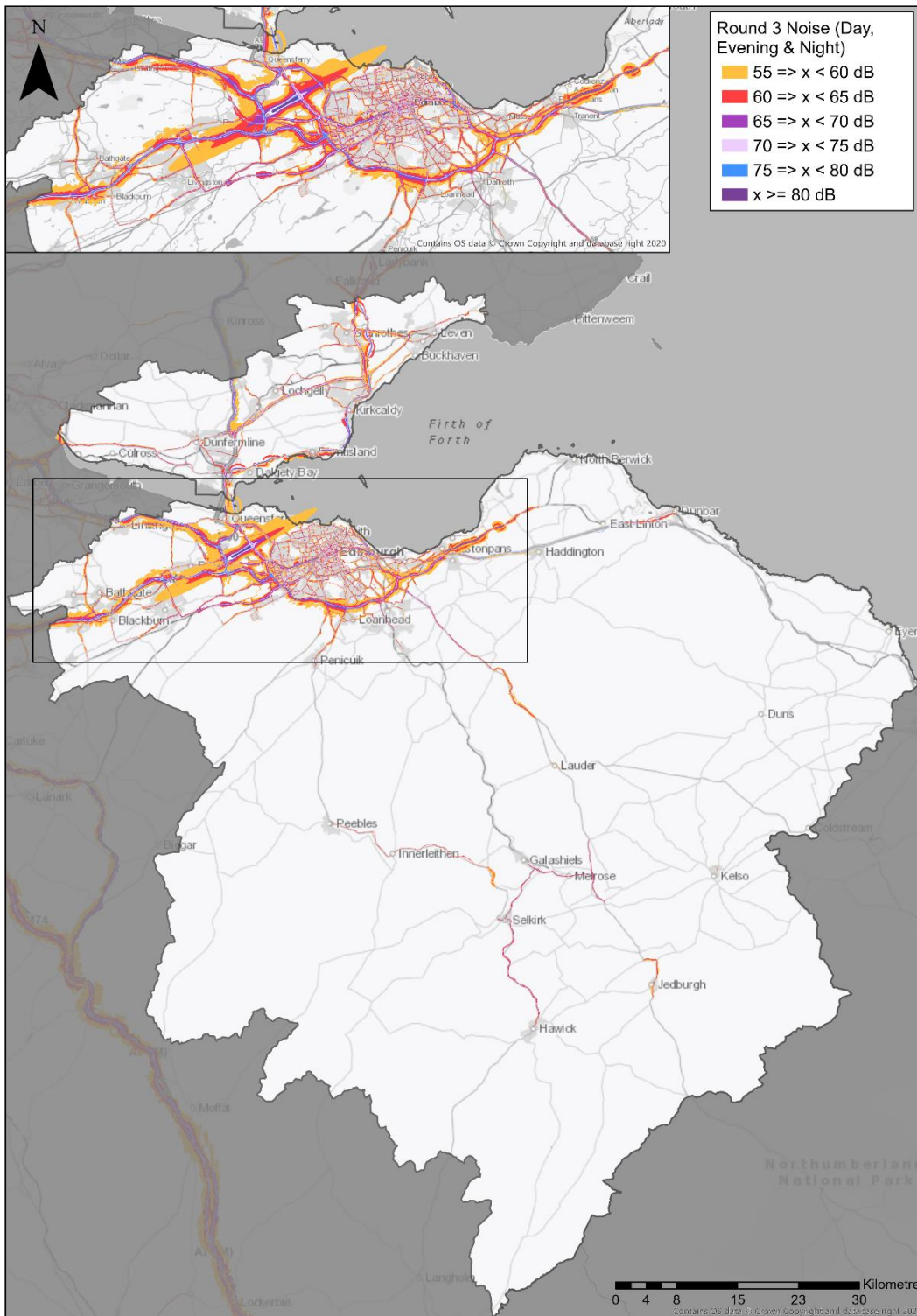


Figure 21: Noise Mapping for ESES region

(Click image to enlarge figure)

The Scottish Environmental Protection Agency (SEPA) flood risk from surface water, river and coastal flooding at medium (1 in 200 year) and high (1 in 10 year) likelihood of

flooding within the region. Settlements at greatest risk of coastal flooding are located along the Firth of Forth and include Cramond, Queensferry and Dunbar.

Areas of river flooding are predominantly located in the catchments of the River Ore, River Almond, Water of Leith and River Esk. Settlements at risk include Cowdenbeath, Kinross, Musselburgh, areas of Edinburgh and Edinburgh Airport.

Areas at high and medium risk of surface water flooding are scattered throughout the region. This is typically associated with surface water features, such as lochs, which are largely located within less populated areas of the region.

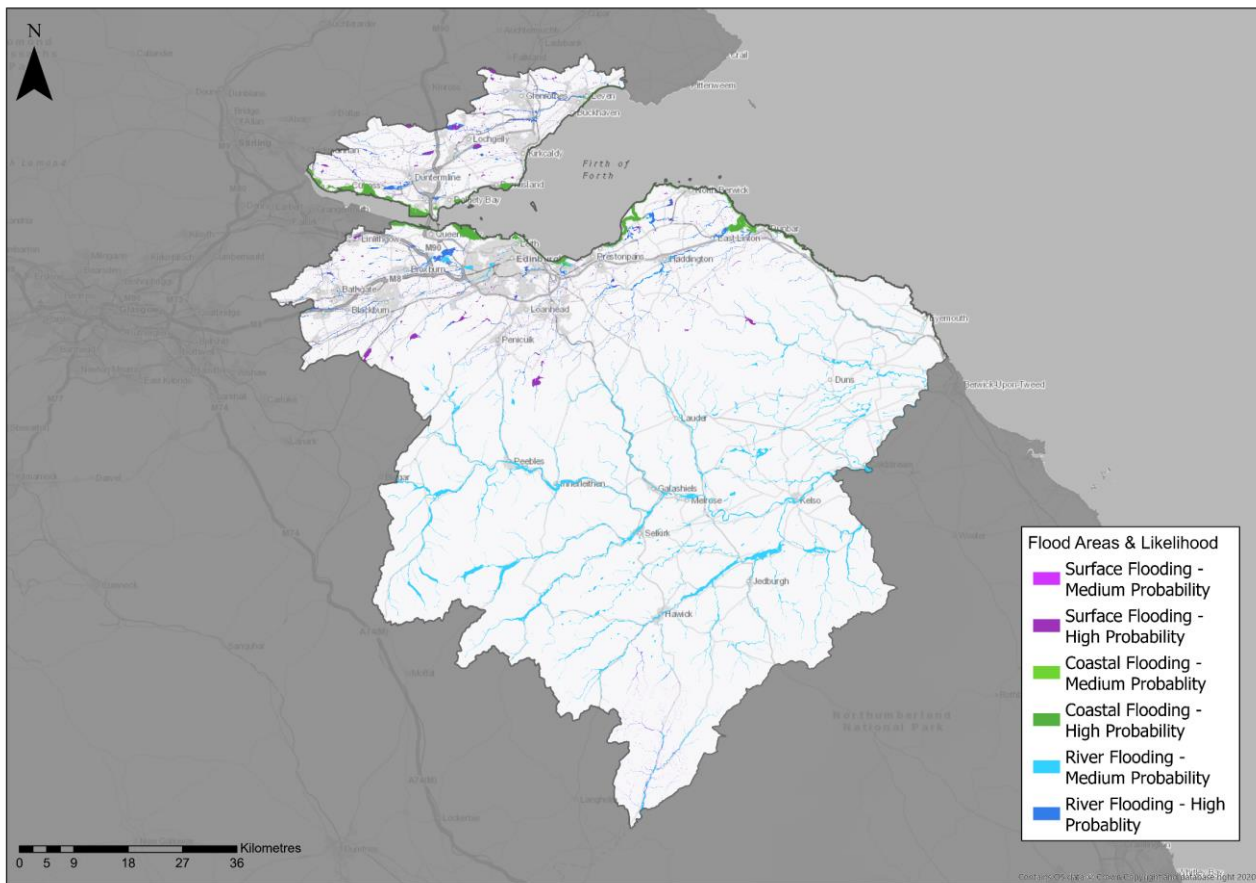


Figure 22: Flood Mapping for the ESES region⁵⁰

(Click image to enlarge figure)

Buried peats are an important carbon sink. More than 20% of Scotland is covered by peat soil; with soils representing over half of Scotland’s terrestrial store of carbon⁵¹. Soils in the

⁵⁰ Scottish Environmental Protection Agency (SEPA) 2021, <https://map.sepa.org.uk/floodmap/map.htm>, accessed 20/01/21

⁵¹ NatureScot, Managing nature for carbon capture, 2020, <https://www.nature.scot/professional-advice/land-and-sea-management/carbon-management/managing-nature-carbon-capture>

region mainly comprise of mineral gleys and brown soils. Figure 23⁵² illustrates the distribution of carbon and peatland classes for soils across the region. Classes 1 and 2 represent nationally important carbon-rich soils, deep peat and priority peatland habitat; Class 3 represents occasional peatland habitats with carbon-rich soils and some areas of deep peat; Class 4 represents predominantly mineral soils, unlikely to include carbon-rich soils; and Class 5 represents areas where no peatland habitat is recorded, however soils are carbon rich and deep peat⁵³.

⁵² Scottish Government, Scotland's Soils, 2016,
<https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/>

⁵³ Scottish Government, Scotland's Soils, 2016,
<https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/>

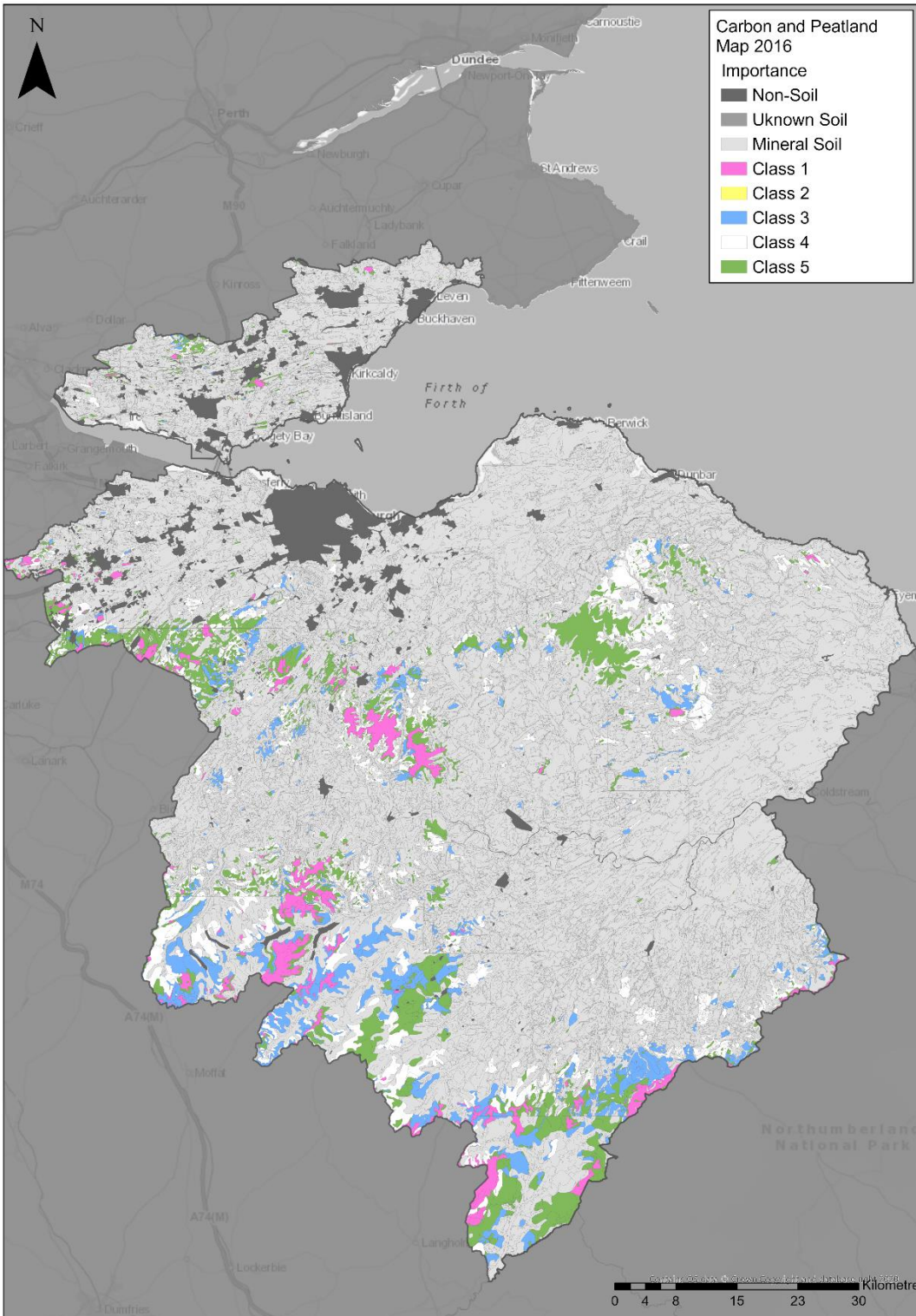


Figure 23: Carbon and Peatland Map for ESES region

(Click image to enlarge figure)

Within the ESES region there are 11 Air Quality Management Areas (AQMAs). The city of Edinburgh is identified as having air quality issues, apparent with the declaration of the following 6 AQMAs within the city boundaries:

- Air Quality Management Area (Glasgow Road) 2013, encompassing the section of the A8 Glasgow Road from Newbridge Roundabout extending east for 915m.
- Air Quality Management Area (Inverleith Row) 2013, comprising the junction of Ferry Road and Inverleith Row, that part of Ferry Road extending west from the junction for 76 metres to and including the junction with Inverleith Avenue, the section of Ferry Road extending eastward from the junction.
- Edinburgh AQMA No.1 (city centre), covering the city centre, including the main link roads into the city centre.
- Edinburgh AQMA No.2 (St John's Road), an area encompassing St John's Road Edinburgh from just east of the junction with the B701 to just east of the junction with Kaimes Road.
- Great Junction Street AQMA, covering part of Ferry Road, Edinburgh extending in length to 120 metres, which includes its junction with Great Junction Street, Edinburgh and extending down the length of Great Junction Street 720 metres to its junction with Constitution Street.
- Salamander Street AQMA, encompassing a section of the A199 including Salamander Street, Baltic Street, Bernard Street, and part of Seafield Road; an area to the north east as far as the East Sands of Leith and south of Baltic Street, extending to Queen Charlotte Street and Links Place.

A further AQMA has been identified in East Lothian (High Street Musselburgh AQMA), together with 1 in South Fife (Appin Crescent Dunfermline AQMA) and 3 in West Lothian (Broxburn, Linlithgow and Newtown AQMAs). There are currently no AQMAs in Midlothian or the Scottish Borders. The identified AQMAs reflect where there are breaches in PM₁₀ and/or NO₂ with further details in the AQMA plans of each authority⁵⁴.

In 2018⁵⁵, East Lothian recorded higher CO₂ emissions per capita relative to the other authority areas within the region, as shown in Table 1; whilst the City of Edinburgh,

⁵⁴ 2019 Air Quality Annual Progress Report (APR) for City of Edinburgh Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, October 2019

2019 Air Quality Annual Progress Report (APR) for East Lothian Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, September 2019

2019 Air Quality Annual Progress Report (APR) for Fife Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, June 2019

2019 Air Quality Annual Progress Report (APR) for Midlothian Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, August 2019

2019 Air Quality Annual Progress Report (APR) for Scottish Borders Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, June 2019

2019 Air Quality Annual Progress Report (APR) for West Lothian Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, June 2019

⁵⁵ Scottish Government, UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018. <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018>

Midlothian and Scottish Borders authority areas all recorded the lowest in the region. Within the region, the highest proportion of total emissions from transport were in Scottish Borders at 52%, with East Lothian recording the lowest proportion at 19%, followed by Fife at 22%. Table 1⁵⁶ shows that the combined ESES region’s percentage of total emissions from transport was lower than the Scotland National average (39%) at 30%.

Table 1: CO₂ Emissions Per Capita and Percentage of Transport Related Emissions

Area	Per Capita Emissions, 2018 (t) CO ₂	% of total emissions from transport
East Lothian	10.8	19%
City of Edinburgh	4.4	34%
Fife	7.5	22%
Midlothian	4.4	37%
Scottish Borders	4.4	52%
West Lothian	5.8	40%
Edinburgh and South East Scotland region	5.9	30%
Scotland average	5.3	39%

⁵⁶ Scottish Government, UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018, ibid

2.5. Transport Network

Figure 24 shows the key transport networks in the region, including the National Cycle Network (NCN), rail and tram stations and the trunk road network. It shows that the region has a wide-ranging transport network including cross-border connections to England.

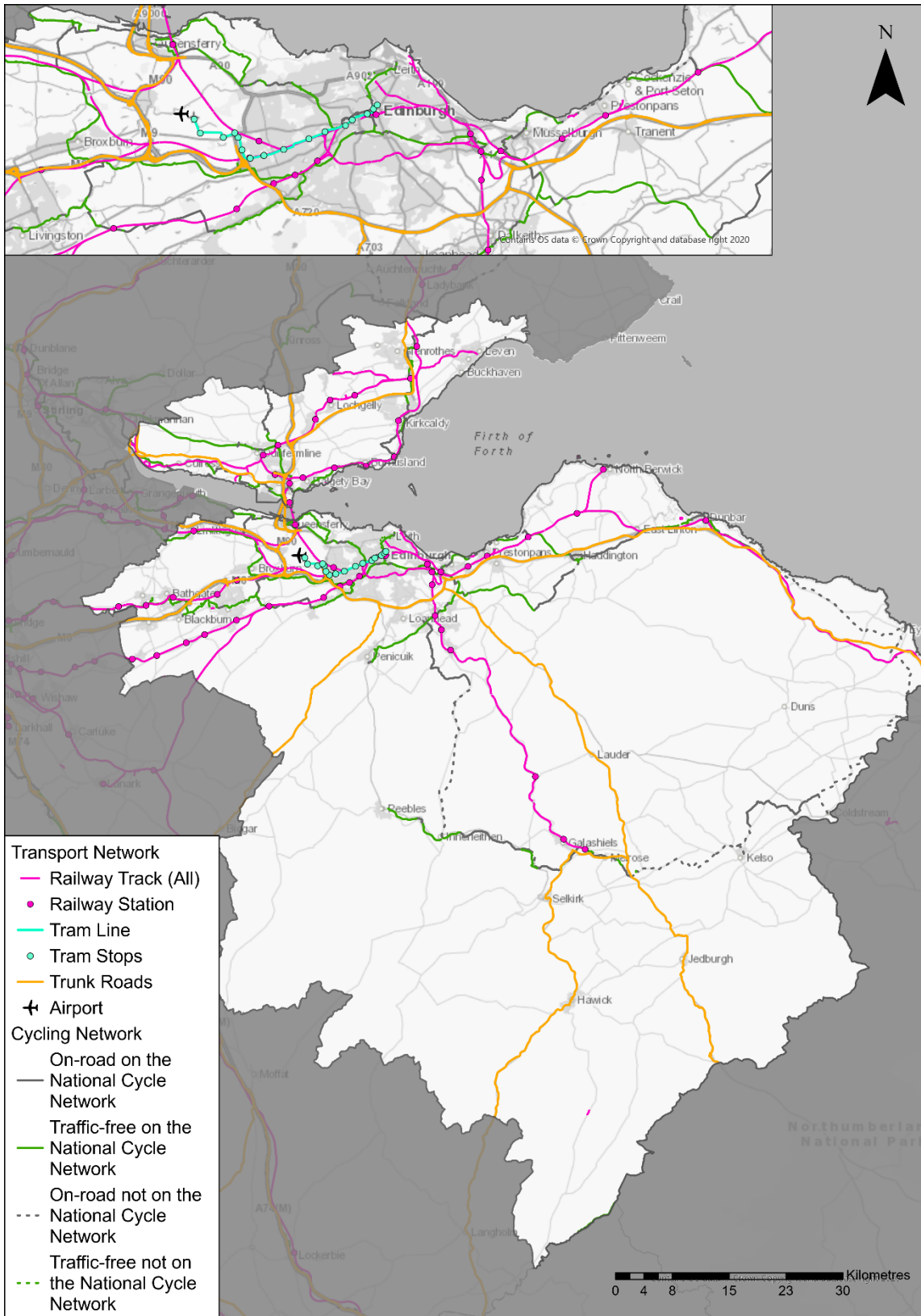


Figure 24: ESES Transport Network

(Click Image to enlarge figure)

2.5.1. Walking

The Core Paths Network is a system of paths sufficient for the purpose of giving the public access throughout the area. Core paths consist of paths, waterways or any other means of crossing land to facilitate, promote and manage access. There are, intentionally, no set physical standards for core paths. This means that core paths can physically be anything from a track across a field to a fully constructed path or pavement.

Across the ESES region, the core path network consists of 3,400km of routes which is more developed in South Fife, the City of Edinburgh, Midlothian and East Lothian areas. In West Lothian and in the Scottish Borders, the network is not as well developed with a relatively limited number of paths identified.

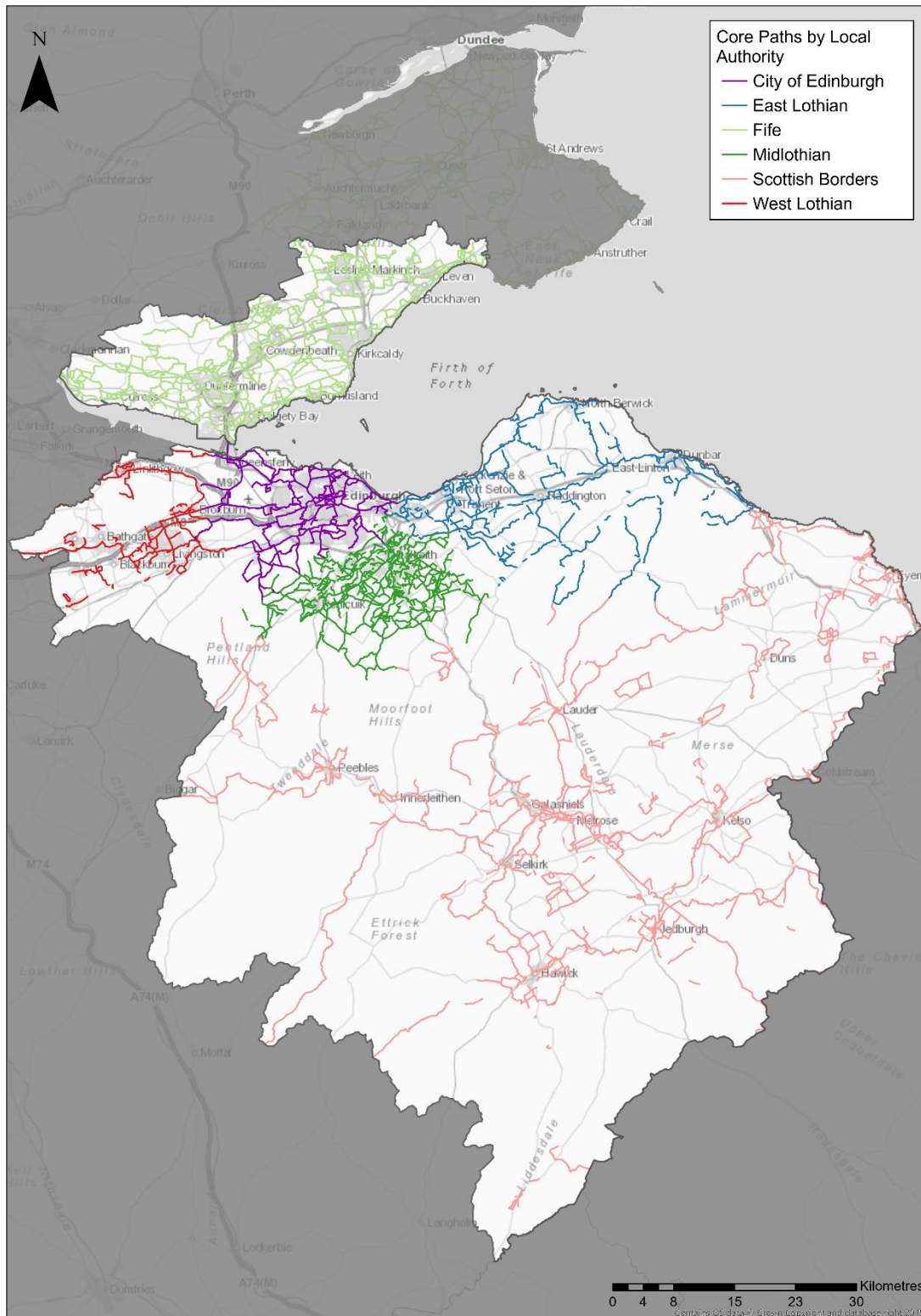


Figure 25: Core Paths by Local Authority in the ESES region

(Click image to enlarge figure)

As shown in Figure 14 walking accounts for 11% of travel to work mode share in the region⁵⁷; 1.2 percentage points higher than the national benchmark. Walking levels are higher in the City of Edinburgh at 16% (2 percentage points higher than the city Benchmark), and in the Scottish Borders at 13%, but are lower in the Lothians and South Fife, ranging between 6% and 8%.

2.5.2. Cycling

Several off-road and on-road cycle routes make up the NCN in the region, which includes:

- NCN Route 75 (Leith to Portavadie in Argyll: Passing through the City of Edinburgh, Livingston and Bathgate) – 60km;
- NCN Route 76 (Round the Forth: Passing through Eyemouth, Dunbar, Musselburgh and Kirkcaldy) – 167km;
- NCN Route 754 (City of Edinburgh to Glasgow City: Passing through south west Edinburgh, Ratho, Broxburn and Linlithgow) – 35km;
- NCN Route 1 (Dover to Shetland Islands: Passing through border towns of Coldstream, Kelso and Innerleithen, the City of Edinburgh, across Forth Road Bridge and through Dunfermline) – 194km;
- NCN Route 196 (Haddington to Penicuik) – 34 km;
- NCN Route 766 (Kirkcaldy to north of Glenrothes) – 21km;
- NCN Route 764 (Kincardine to Dunfermline) – 7 km; and
- NCN Route 10 (Kielder Forest) – 17km.

2% of travel to work in the region is by cycling⁵⁸, which is 0.8 percentage points higher than the national benchmark. The City of Edinburgh has a significantly higher rate of 4% compared to 1% across the other local authorities.

2.5.3. Bus Network

Bus services connecting settlements within the region are provided by a number of operators including Borders Buses, East Coast Buses, First, Lothian Buses and Stagecoach as well as a number of smaller operators who also provide services. School services, Community Transport and Demand Responsive Transport are also provided.

Figure 26⁵⁹ shows the change in share of population using the bus 4 or more days a week in the Scottish local authority areas between 2003 to 2017⁶⁰ and highlights that there has been a wide variation in performance across local authorities between 2003 to 2017.

Overall, there is a trend for most local authority areas to show a slight decline in bus use.

⁵⁷ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

⁵⁸ NRS, 2011 Census (Scotland), 2011, *ibid*

⁵⁹ Adults (16+) – use of local bus services, and train services, in the previous month. Transport and Travel in Scotland. Calculated on the basis of the average percentage change per annum across 2003/04, 2005/06, 2007/08, 2009/10, 2012/13, 2014, 2015, 2016 and 2017.

⁶⁰ Adults (16+) – use of local bus services, and train services, in the previous month. Transport and Travel in Scotland. Calculated on the basis of the average percentage change per annum across 2003/04, 2005/06, 2007/08, 2009/10, 2012/13, 2014, 2015, 2016 and 2017.

However, the Highlands, Scottish Islands (excluding Eilean Siar) and areas of the ESES region (City of Edinburgh and West Lothian) show a trend for general increase over time (as do Dundee City, Perth and Kinross, Dumfries and Galloway and South Ayrshire).

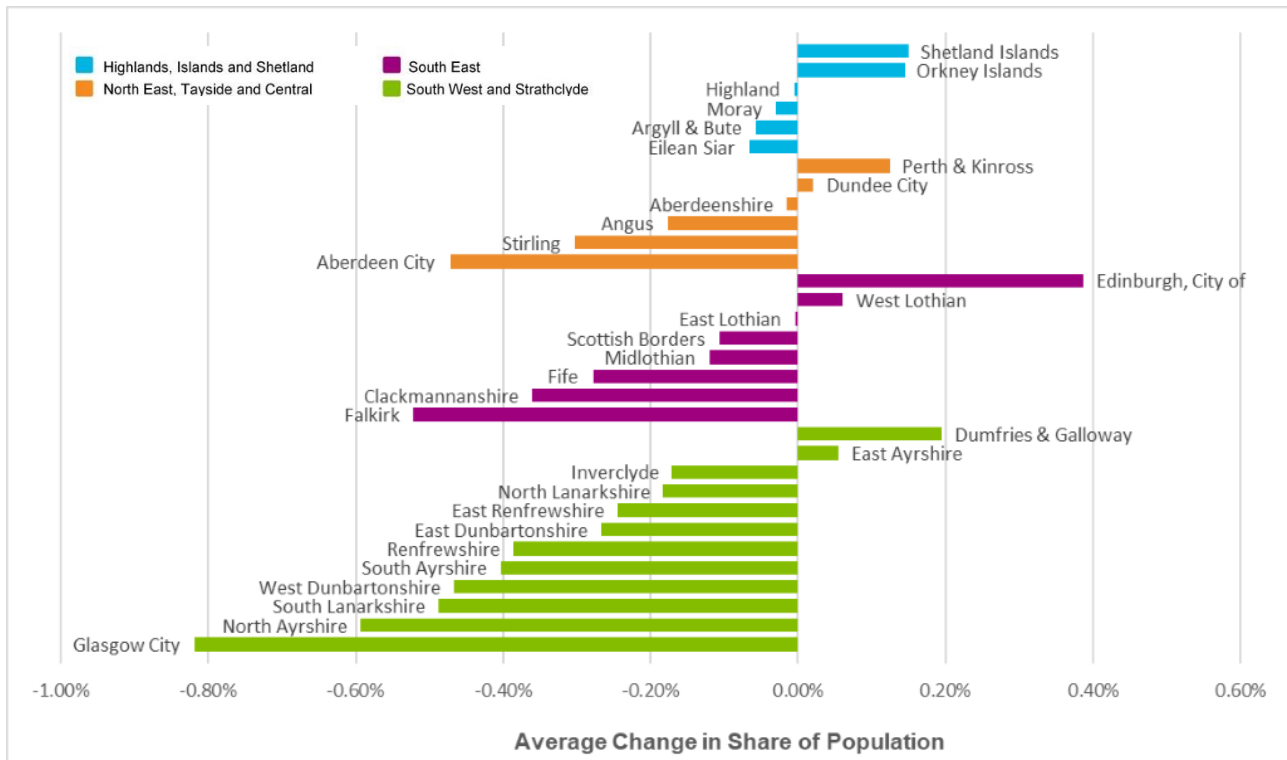


Figure 26: Change in share of population using the Bus 4 or More Days a Week, 2003 to 2017

Within the ESES region, the City of Edinburgh and West Lothian show increases of 0.4% and 0.05% respectively. The Scottish Borders, Midlothian and Fife show a decrease of approximately 0.1% and 0.3% respectively. East Lothian shows little or no change.

Table 2⁶¹ illustrates, by local authority area in ESES, the percentage of people using the bus 4 or more days a week and the percentage of people who use the bus as their main method of travelling to work.

⁶¹ Transport Scotland, Transport and Travel in Scotland 2019, Local Authority Table 11 and Table 1, 2019, <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/>

Table 2: People using the Bus 4 or More Days a Week (%) and People who use Bus as the Main Mode of Travel to Work (%)

Population using bus 4 or more days a week 2019 (%)		Bus: main mode of travel work 2019 (%)	
City of Edinburgh	25	City of Edinburgh	28
East Lothian	9	East Lothian	11
Fife	8	Fife	10
Midlothian	14	Midlothian	21
Scottish Borders	2	Scottish Borders	3
West Lothian	6	West Lothian	6

Both the percentage of people using the bus 4 or more days per week and as their main mode of travel to work is highest in Edinburgh (both in the ESES region and in Scotland). Within the City of Edinburgh bus accounts for a larger share of the population using the bus 4 or more days a week than its share of the travel to work market, with this difference also apparent for Midlothian and West Lothian.

2.5.4. Rail Network

The rail network in ESES is shown in Figure 24 in Section 2.4.1.

Edinburgh is well connected by rail, with direct services to all of Scotland’s cities, the East Coast Mainline providing cross-border connections and inter-regionally there are regular services between the City of Edinburgh and towns throughout the Lothians and South Fife. The Borders Railway opened in 2015 creating a rail link between stations within the City of Edinburgh (Waverley, Brunstane and Newcraighall), Galashiels and Tweedbank (with further intermediate stations at Shawfair, Eskbank, Newtongrange, Gorebridge and Stow).

There are 53 rail stations in the region - South Fife has 15 stations which is the highest in the region followed by West Lothian and City of Edinburgh where there are 12 stations each. In East Lothian, Midlothian and the Scottish Borders there are 7, 4 and 3 stations respectively.

Figure 27 shows where there has been a general increase in passenger numbers between 2008 and 2018. It should be noted that as the Borders Railway opened in September 2015, the data presented on this diagram relating to passenger growth for the Borders Railway represents growth from 2016 to 2018.

Based on total passenger numbers (entries and exits)⁶², Edinburgh Waverley (23,872,996), Haymarket (3,068,112), Bathgate (1,292,630) and Livingston North

⁶² Office of Road and Rail, Annual estimates of the number of entries/exits and interchanges at each station in Great Britain, Table 1415, 2018/2019, <https://dataportal.orr.gov.uk/statistics/usage/estimates-of-station-usage>

(1,247,760) were the busiest stations in ESES in 2018. Edinburgh Waverley is the second busiest rail station in Scotland (Glasgow Central Station being the busiest).

A review of patronage data shows that most rail stations in the region have recorded increases in rail patronage over the decade between 2008 and 2018. The increasing popularity of rail as a mode of travel in combination with increased employment within the City of Edinburgh has made rail a popular choice for travel to work within the city where Edinburgh Waverley and Haymarket stations have increased in patronage by 36% and 76% respectively.

However, South Gyle, Cardenden, Fauldhouse and Kingsknowe have shown decreases in patronage of 23%, 12%, 26% and 15% respectively. The reduction in patronage at the South Gyle can be attributed to the introduction of the Edinburgh Tram serving South Gyle in the intervening 10-year period between 2008 to 2018 which has become a popular alternative for some trips that were originally being made by train.

Reductions in patronage at Cardenden, Fauldhouse and Kingsknowe are due to the relatively low trip baseline and relatively small changes in absolute terms that are leading to larger changes in percentage terms. To give these reductions some context, they equate to a drop in entries \ exits to the stations of the order of 8 to 35 per day (on average) and are likely to have been as a result of factors such as a change in personal choice on the mode of travel or a change in the number and nature of the population local to the stations for example.

Patronage data for the Borders Railway is available from 2016 onwards and analysis shows a period of consistent growth at all stations through to 2019 compared to the 2016 baseline. Overall, the number of recorded entries/exits at all stations on the line has grown by 13% between 2016 and 2019.

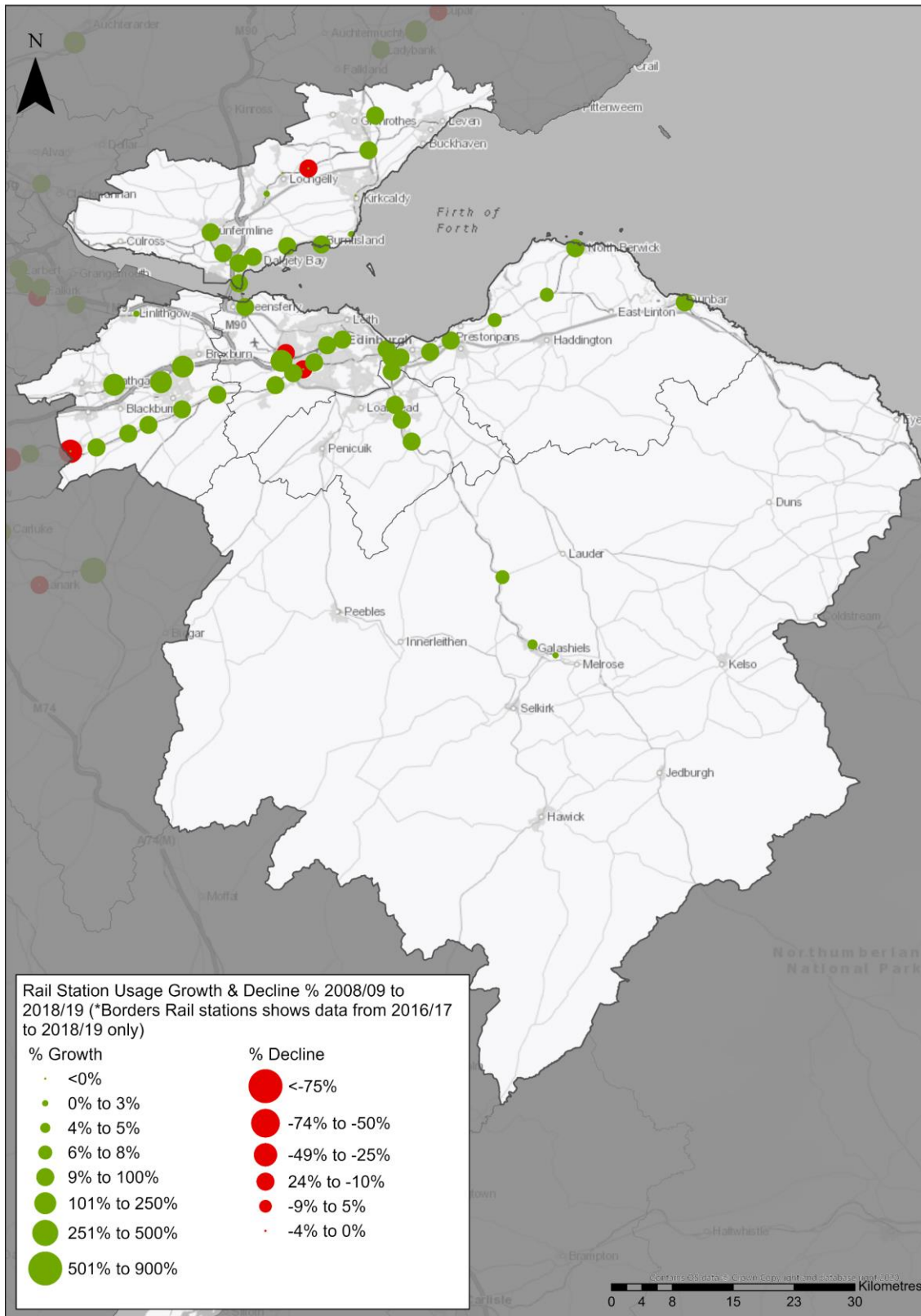


Figure 27: Change in Rail Station Patronage 2008 to 2018

(Click image to enlarge figure)

2.5.5. Park and Ride

There are 8 formalised Park and Ride (P&R) sites within the ESES region that are strategically at satellite locations around the City of Edinburgh.

Each of the sites are well served by the Trunk Road network and are located to cater primarily for the high level of demand associated with travel between the wider ESES region into the City of Edinburgh (as discussed in section 2.3.5). Halbeath and Ferrytoll also provide facilities for longer distance travel to and from Inverness, Dundee, Glasgow and Perth.

Halbeath and Ferrytoll are located in South Fife with catchments covering the main settlements of Dunfermline, Kirkcaldy, and parts of Glenrothes (i.e. within 10 miles or an approximately 15 minutes' drive of the P&R sites). Onward travel by public transport from these sites can be made by bus and the main destinations served are located south of the Forth Estuary and include the City of Edinburgh (where interchanges for onward connections can be made), Edinburgh Airport and Glasgow.

Ingliston P&R site is located on the western outskirts of the City of Edinburgh and is typically accessed via the M8, A8 and A89 from the west and the M9 from the north (two of the main approach corridors to the City of Edinburgh). Settlements within 10 miles of the site include Broxburn, Livingston, parts of Bathgate, Dunfermline, Rosyth and Burntisland. Onward travel by public transport from the site can be made by bus or tram.

Hermiston P&R site is located within the City of Edinburgh adjacent to the A71 at Hermiston. It is directly accessed via the A71 and also located in close proximity to the A720 Edinburgh Bypass. Settlements within 10 miles of the site include Broxburn, Livingston and parts of Bathgate. Onward travel by public transport can be made by bus only.

To the east and south-east of the City of Edinburgh, Wallyford, Newcraighall, Sherrifhall and Straiton P&R sites are located adjacent to either the A1 or the A720 City of Edinburgh Bypass. These P&R sites serve the settlements of Dalkeith, Bonnyrigg, Penicuik and Musselburgh. Settlements further to the east in East Lothian are also served by Wallyford and Newcraighall.. Onward travel by public transport from these sites can be made by bus from all of these sites. Rail is also an option from Wallyford and Newcraighall.

Figure 28 shows the location of P&R sites within ESES.

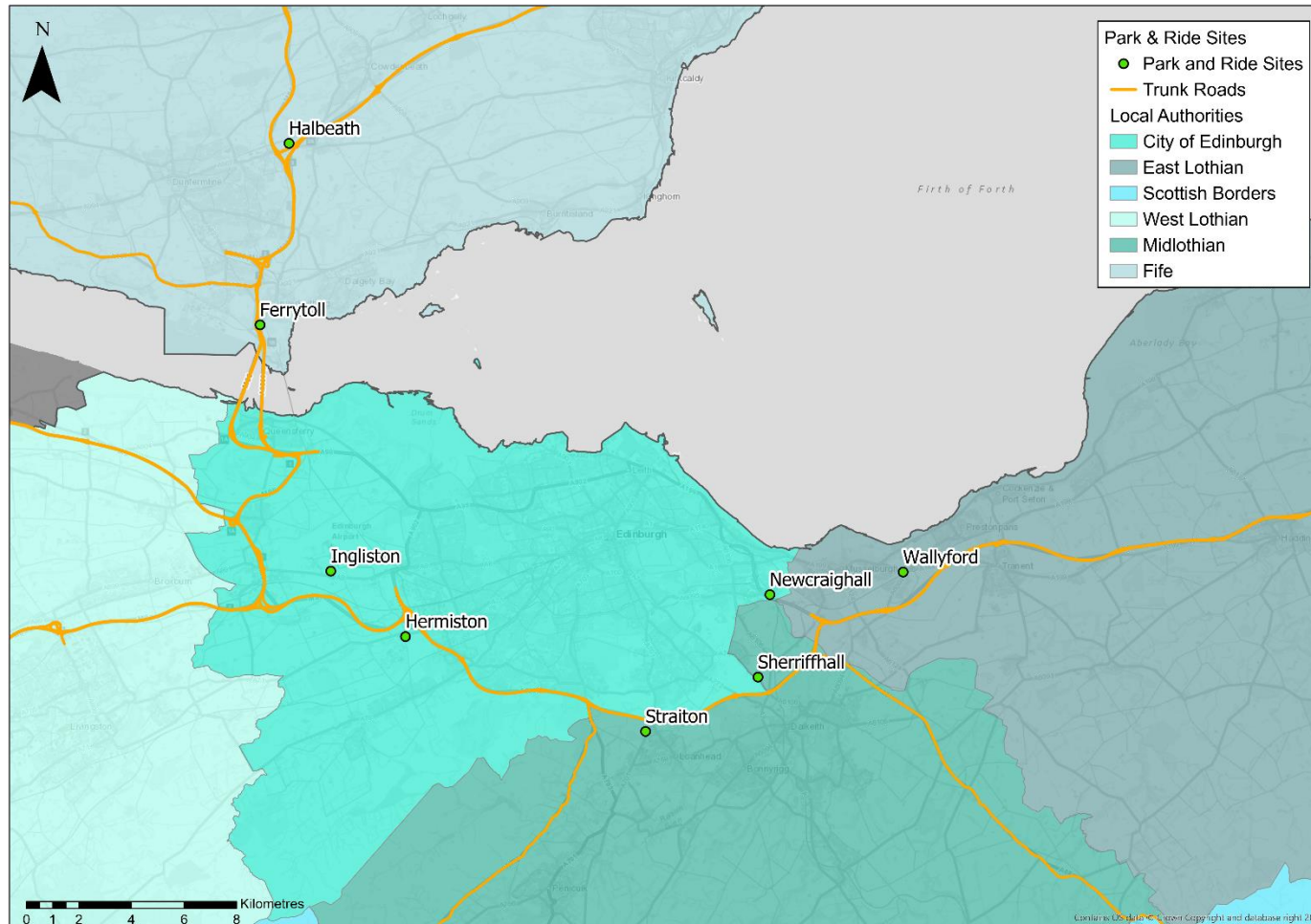


Figure 28: Park and Ride sites within the ESES region

(Click Image to enlarge figure)

Table 3 summarises the facilities at each of the Park and ride sites in the ESES region.

Table 3: Facilities available at ESES Park and Ride Sites

Park and Ride Site	Parking Spaces	Disabled Bays	Cycle Parking	Onward PT Modes		
				Rail	Bus	Tram
Halbeath	1021	48	10	N	Y	N
Ferrytoll	1040	38	11	N	Y	N
Ingliston	1085	46	0	N	Y	Y
Hermiston	450	1	18	N	Y	N
Straiton	600	37	0	N	Y	N
Sherrifhall	561	15	0	N	Y	N
Newcraighall	565	30	56	Y	Y	N
Wallyford	389	16	18	Y	Y	N

2.5.6. Trunk Road Network

The region has an extensive road network providing local, regional, national and cross-border connections. The region includes a number of Trunk Roads of differing standards ranging from motorways through to single carriageway A roads.

The M8 and M9 motorways are major strategic routes connecting the region to Glasgow and further West, and to Stirling and the Forth Valley. The A90 and the M90 provide the major route North to Fife and Perth. At Perth the M90 connects with the A90 to Dundee and Aberdeen and A9 to Inverness. Within ESES the M90 also connects with the A92 to Kirkcaldy and Glenrothes and wider area of East Fife.

The A720 City of Edinburgh Bypass provides a link around the city to other parts of the trunk road network, including the M8 and M9 (via the M8) to the west and A1 to the east. . The A720 also connects to the wider strategic network and other key routes to the south, including the A68, A702, A7 and A701. The A1, A68 and A7 also provide key cross-border connections to the north of England.

The Trunk Road network in ESES is shown in Figure 29.

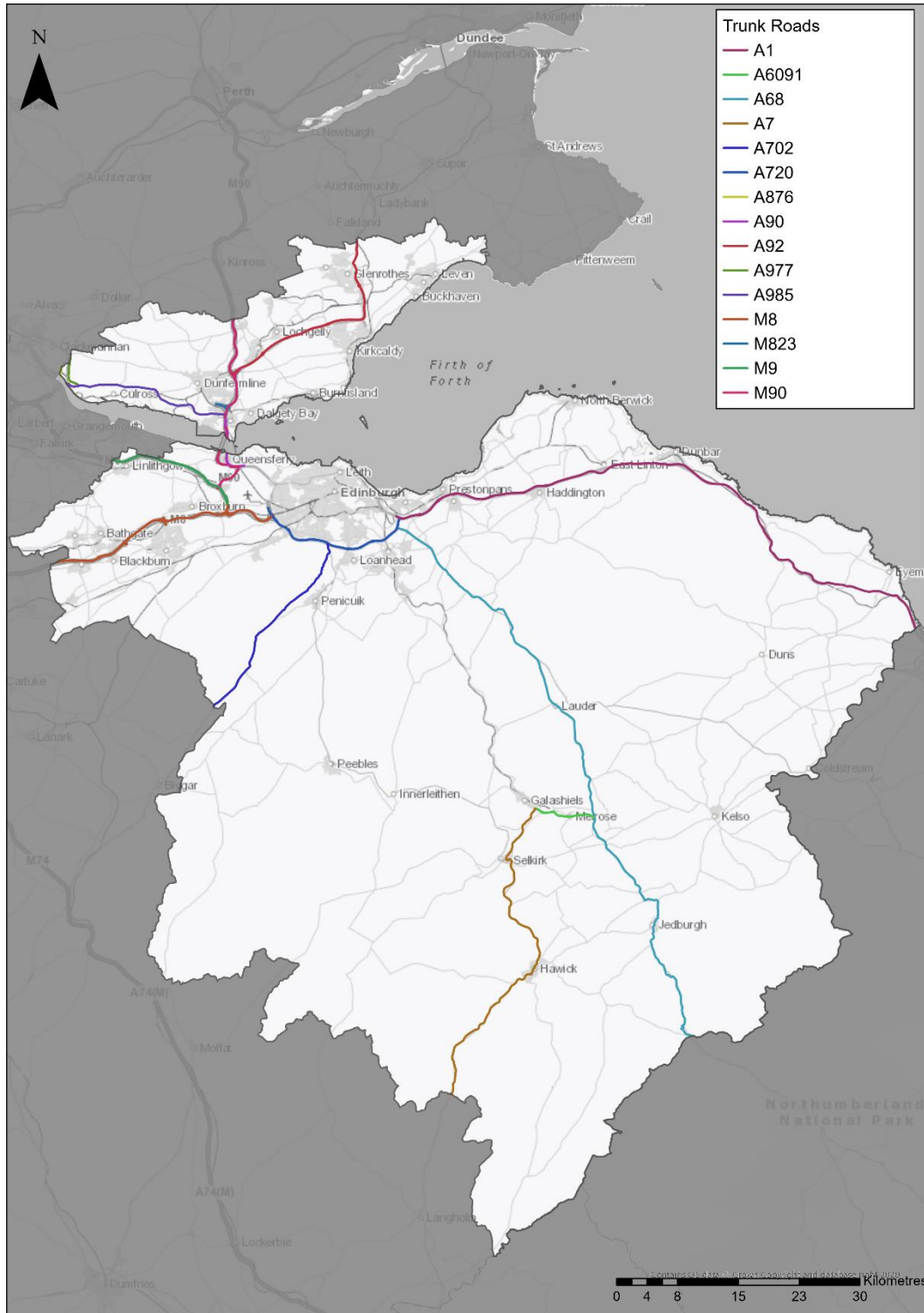


Figure 29: ESES Region Trunk Road Network

(Click image to enlarge figure)

2.5.7. Aviation

There is 1 airport in the region, at Edinburgh, 8 miles west of the city centre. This is the busiest commercial and passenger airport in Scotland with approximately 14.7 million passengers as of 2019⁶³.

Approximately 35% of all passengers arrive by public transport⁶⁴. Edinburgh is the only airport in Scotland which is served by tram. There are also frequent bus routes servicing the airport from within Edinburgh, the wider ESES region as well as neighbouring regions. The scheduled bus services include the following:

- Airlink 100: To Waverley Bridge, every 10 minutes 24/7;
- Skylink 200: To Ocean Terminal in Leith, every 30 minutes;
- Nightbus N22: To Ocean Terminal in Leith, every 30 minutes;
- Skylink 300: To Cameron Toll, every 20-30 minutes;
- Citylink Air: To Glasgow, every 30 minutes;
- Jet 747: Fife, every 15 minutes; and
- Citylink 909: Stirling, every 2 hours.

2.6. Context Summary

This section has discussed the context of the transport system in the ESES region informed through data analysis and stakeholder engagement set in the geographical, socio-economic, geographic, transport and environmental context of the region.

Key contextual points are:

- **Geographical Context:** ESES is a geographically diverse region that includes a major city, urban areas and accessible and remote rural communities.
- **Socio-Economic:** The majority of the region's population and employment opportunities are located within the City of Edinburgh. There has been a trend for increasing population and employment rate across the region from 2012. Finance/IT/Real Estate sector accounted from the highest proportion of jobs within the City of Edinburgh and in the wider region, Wholesale and retail trade sector was found to be the primary industry (based on 2018 BRES based employment data). GVA within the region has experienced strong growth compared to the rest of Scotland.
- **Transport:** Travel by private car is the dominant mode of transport within the ESES region. Compared to the national benchmark, travel by bus and active travel are also popular mode choice within the City of Edinburgh but these tend to cater for shorter trips within the city where there is better bus provision and where travel to work distances are shorter. Across the wider ESES region, there is a heavy dependence on the private car. There is a propensity for residents within the region to travel to work at locations within the City of Edinburgh leading to a significant daily in-flow of commuter trips. Over three quarters of the population are travelling less than 30km to reach

⁶³ Edinburgh Airport, Edinburgh Airport Facts and Figures, 2020,
<https://www.edinburghairport.com/about-us/facts-and-figures>

⁶⁴ Edinburgh Airport, Edinburgh Airport 2019 Corporate Social Responsibility Report, 2019,
https://assets.ctfassets.net/2hwzhse7szu0/71XIF7zqy8ccFEruSIF3r9/c7764804949cddd86749660b2d03696/20190909_CRR_2019.pdf

places of work.

The transport network within the ESES region is highly developed with an extensive network of trunk roads and a rail network spanning West Lothian, the City of Edinburgh, Fife, East Lothian and the Scottish Borders. For walking and cycling, there is an extensive network of Core Paths and established National Cycling Network routes throughout the region. Additionally, Edinburgh Airport is a key transport connection for domestic and international travel that contributes significantly to the region's economic growth as well as wider Scotland.

- **Environmental:** There are a number of cultural, natural and the heritage land designations throughout the ESES region that include: UNESCO World Heritage Sites, Sites of Special Scientific Interest, Special Areas of Conservation and Special Protection Areas. Transport has been identified as a key contributor to CO2 emissions within Scotland and the ESES region. A combination of problems around public transport connectivity and accessibility between rural areas and the City of Edinburgh is leading to more trips being made by less sustainable means. There is a recognition both nationally and across the region that transport related emissions are a contributing cause of lower air quality and public health.

3. Problems & Opportunities

3.1. Approach to Problem & Opportunity Identification

Deriving evidenced transport related problems and opportunities is a critical element of the Initial Appraisal: Case for Change. They are identified from a range of sources including a review of existing policy and strategy documents, data analysis and extensive stakeholder engagement. This chapter sets out the problems and opportunities with the transport network in the ESES region and details the approach to their identification.

Note that local problems and opportunities have been considered in analysis to gain a full understanding of the regional issues, but options to address these may not be within the scope of this strategic study. This is discussed further in Chapter 5.

3.2. Data Analysis

A wide range of data sources has been used to identify transport related problems and opportunities in the region. Analysis of the data has also enabled problems and opportunities identified through stakeholder engagement to be evidenced to understand the real and perceived nature of feedback and comments raised. Sources of analysis have included data such as INRIX journey time⁶⁵, accessibility analysis⁶⁶, Scotland's Census 2011, Scottish Index of Multiple Deprivation (SIMD), Scottish Transport Statistics, Labour Market Statistics (NOMIS), as well as data gathered from recent reports and studies in the region (see Appendix B). The data has been interrogated and collated making use of GIS tools and through the creation of data dashboards, developed as part of a bespoke digital database (known as ProjectMapper). Key findings from the data analysis are presented below to evidence the problem and opportunity themes set out.

3.3. Stakeholder Engagement

Stakeholder engagement is an important element in the identification of problems and opportunities (details of stakeholder events have been included in Appendix C). For the ESES region this has consisted of:

- **Problems and Opportunities workshops** held in the City of Edinburgh (2 workshops) and South Queensferry with regional stakeholders in June 2019. Over 100 stakeholders were invited with representation from local authorities, transport operators, tertiary education bodies, public sector and private sector organisations, business community and representative bodies.
- **Option workshops** were held in the City of Edinburgh and North Queensferry in November 2019 to generate potential options which may address the identified problems and opportunities. The same stakeholders invited to the June workshops were invited to these workshops.
- **Structured interviews** with representatives of local authorities and other organisations in the region.
- **Elected Members engagement** included a workshop held in December 2019 to

⁶⁵ INRIX is a private sector organisation whose data services consist of roadway analytics (including journey time metrics).

⁶⁶ TRACC: multimodal accessibility and journey time analysis tool

outline the purpose of STPR2, work undertaken to date and also gather views on options. Committee Conveners with transport, planning and economic development remits; SEStran Board and SESplan Board members were invited to the workshop.

- **National engagement** through the STPR2 Online Survey was undertaken in late 2019 to enable anyone in the country to feed into the STPR2 process. The survey generated 3,238 responses nationally of which 718 responses were from the ESES region (703 individuals and 15 on behalf of organisations).
- **Regional Transport Working Group meetings** which includes representatives from the constituent local authorities, SEStran, SESplan, the ESES City Region Deal Project Management Office, ESES City Region Deal Higher/Further Education Consortium, Transport Scotland and the STPR2 consultant team.
- **Schools engagement** has been undertaken across the country, with 2 primary schools (1 in the Scottish Borders and 1 in East Lothian) involved in undertaking an exercise to consider the transport problems and opportunities in their area and to develop this into a transport plan setting out what is required.

3.4. Problems

It is recognised that inter-dependencies between the identified problems exist and as such, these should not be read in isolation.

Based on the activities described above, the following transport related problems have been identified for the ESES region:

- Public Transport Connectivity
- Operational Constraints
- Active Travel
- Socio-Economic
- Health and Environment
- Relative Cost of Public Transport
- Freight
- Transport Integration
- Transport and Land use Planning Integration

Evidence to support the problem themes listed above is provided in this section.

PUBLIC TRANSPORT CONNECTIVITY

Due to the rural nature of parts of the region and the geographic spread of the population, together with the concentration of employment and other services in the City of Edinburgh and larger settlements in ESES, it is challenging to provide an extensive and inclusive public transport network.

Bus Network Coverage

Bus service provision operates within a deregulated market such that most services require to operate at a profit. Whilst socially necessary services are supported by the local authorities, funding for these services continues to come under pressure. The configuration of the bus and rail networks in the region are primarily radial in nature characterised by a focus on Edinburgh city centre with a lack of orbital routes providing direct connections between destinations outwith the city centre. Journeys within the city often require to make use of interchanges as a result.

Outside the City of Edinburgh there are problems relating to the bus network and services with more rural areas in the region being less well served with issues around quality, accessibility and reliability leading to lower bus mode share in these areas (see Figure 14).

The travel to work bus mode share⁶⁷ in the City of Edinburgh is highest of the 4 larger cities in Scotland at 26%. Mode share for travel to work by bus in more rural areas, such as the Scottish Borders, as well as parts of South Fife, West Lothian and East Lothian, is significantly lower ranging between 3% and 11%. For Scotland as a whole, bus mode share is 10%.

Analysis of weekday bus service frequencies shows that rural routes with reasonable frequencies (up to 5 buses per hour) are typically on arterial routes (A7, A68, A701) connecting rural communities to the City of Edinburgh with fewer services connecting settlements within the rural area and between rural and other semi-urban areas in the region. Figure 30 indicates the access to buses within the region based on the Scottish Access to Bus Indicator (SABI)⁶⁸. The darker blue areas represent where there is a higher frequency of bus services and lighter blue where there is lower frequency. This provides further evidence that the level of access to bus services is lower in rural areas within ESES.

⁶⁷ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

⁶⁸ Transport Scotland, Scottish Access to Bus Indicator (SABI), 2019, <https://statistics.gov.scot/data/bus-accessibility>

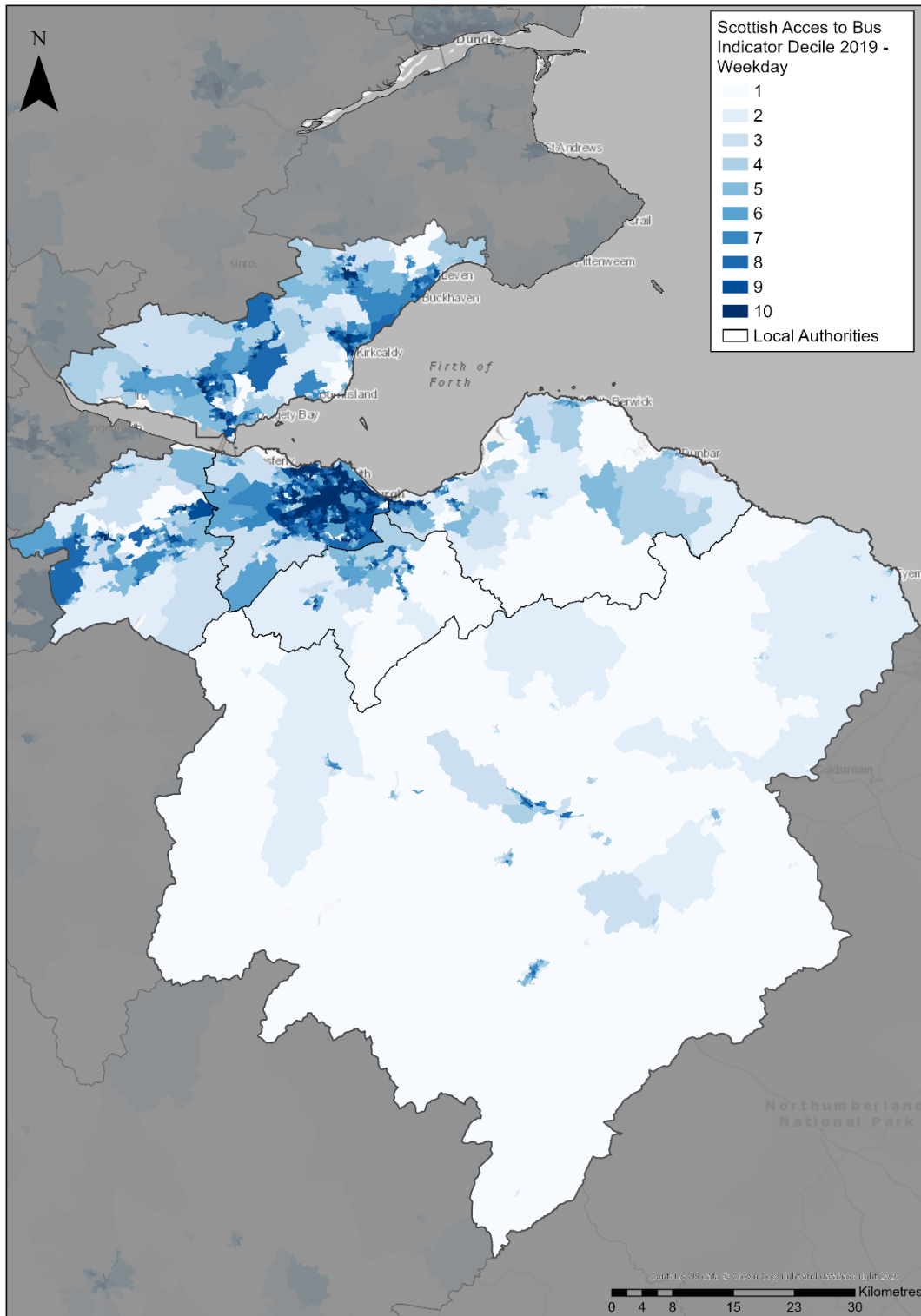


Figure 30: Scottish Access to Bus Indicator

(Click image to enlarge figure)

Analysis of bus service frequency in the region shows that the higher frequency services are running on the trunk road and A road networks connecting medium to large urban

centres. Outwith Edinburgh and other larger towns the frequency of services connecting rural settlements is lower. Figure 31 shows access to bus (within 400m walking distance) or rail (within 800m walking distance) within the region in the morning weekday peak period between 08:00 and 09:00 and Table 4 details the proportion of the population within each ESES local authority area that live within 400m of a bus stop and the number of services available to those people⁶⁹.

The information indicates that those areas with the highest levels of bus/rail services are generally within the most densely populated areas of the region (corridors between Edinburgh city centre and Livingston, and around the Rosyth/Dunfermline area, with often in excess of 12 services in the morning peak hour. The more rural parts of the region generally have lower levels of access to services with large proportions of the population in the Scottish Borders having access to less than 6 bus/rail services in the morning peak hour. Figure 30 and Figure 31 show in particular that there are large areas of Midlothian East Lothian, West Lothian and South Fife where the level of accessibility to public transport is considered to be poorer.

⁶⁹ TRACC based analysis in combination with 2011 Census data
<https://scotlandscensus.gov.uk/>

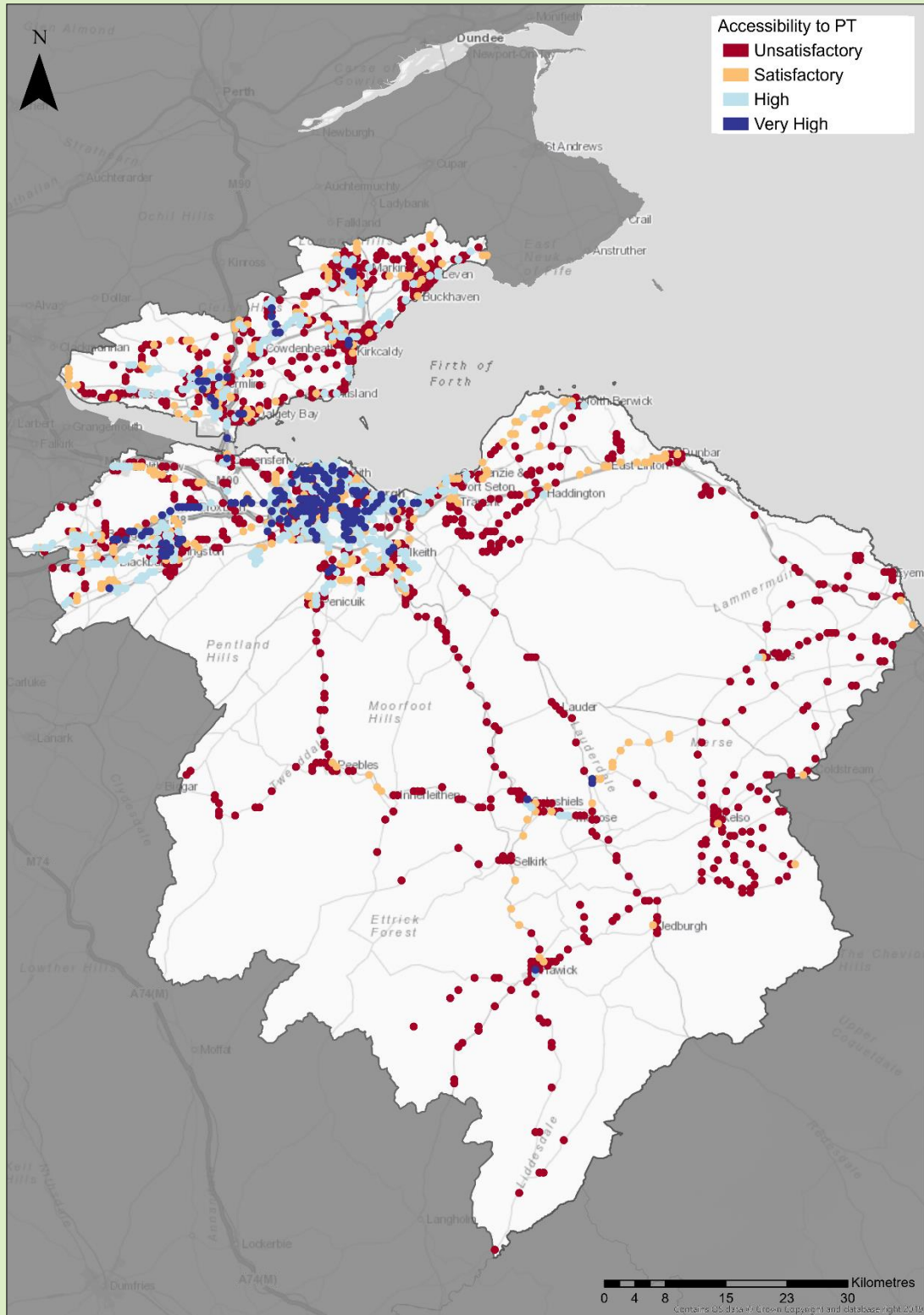


Figure 31: Access to bus/rail based on service frequency

(Click image to enlarge figure)

Table 4: Access to Public Transport by Local Authority Area

SUMMARY % POPULATION	≥ 12 SERVICES/HR	≥ 6 SERVICES/HR	≥ 4 SERVICES/HR	≤ 4 SERVICES/HR
City of Edinburgh	60.3%	84.3%	90.8%	95.5%
East Lothian	10.9%	32.4%	60.2%	87.1%
West Lothian	19.6%	57.1%	72.0%	90.2%
South Fife	8.1%	37.4%	53.5%	76.3%
Scottish Borders	5.2%	9.8%	19.4%	74.7%
Midlothian	4.1%	51.2%	71.3%	92.0%

As explained in Chapter 2 (see Figure 13), SIMD is an index that can be used to quantify the level of deprivation an area experiences and quantifies factors contributing to the level of social deprivation. One contributory factor used in calculating SIMD is the level of access to services based on 2 indicators: the average drive time to a petrol station, a GP surgery, a post office, a primary school, a secondary school, a retail centre, and public transport travel time to a GP surgery, a post office, a retail centre. In the ESES region, this SIMD based level of service index shows a relatively low level of accessibility to public transport services in rural areas as well as some specific urban areas (for example Blackhall, Colinton and Clermiston in the City of Edinburgh) when compared to other areas within the ESES region.

The SIMD and SABI data, shows that there are a lower number of bus services travelling from and connecting between rural communities/towns within rural areas (for example between Peebles and Melrose or between Haddington and North Berwick) and this is restricting travel choices (Census travel to work data from 2011⁷⁰ shows that these areas have a typically low bus mode share of around 8%).

Rail Network Coverage

The rail network predominantly serves east-west movements across the region with connections from East to West Lothian, via interchange in Edinburgh. It also serves north-south movements between Edinburgh and the Scottish Borders via the Borders Railway and between Edinburgh and South Fife.

Across the wider ESES region there are relatively fewer opportunities to make use of rail due to a combination of factors. Approximately 77% of the population of the ESES region lives further than 1.6km from a train station. The current rail network coverage within the region directly influences the potential for those living in and visiting the ESES region to travel by rail - this relates to both local access to the rail network (in terms of physical proximity to the station as well as walking/cycling routes, plus connecting bus services where stations are further away from communities) as well as the physical capacity of the network.

Travel to work by train accounts for 3% of the entire ESES region's travel to work mode

share⁷¹, which is 1 percentage point lower than the national benchmark (as noted previously, these figures pre-date the opening of the Borders Railway in 2015). However, there is significant regional variation in train travel to work mode share across the region with only 0.4% in Midlothian (where there are only 4 stations) but 5% in East Lothian (where there are 7 stations).

Despite this, as noted in Chapter 2, travel by rail across the region has seen a continued increase⁷², based on rail station usage between 2008 and 2018 and is higher in specific locations in the ESES region. For example, Longniddry has a relatively high rail travel to work mode share (census output areas within Longniddry show variation of between 5% and 15% train mode share depending on the census output areas assessed).

There are some exceptions in the region where rail station usage has declined in the period 2008 and 2018 such as Fauldhouse, which may be attributed to a 1% fall in the population local to the station between 2011 and 2018.

Where there are higher levels of availability of rail services within the region, demand for travel by rail is high, leading to some operational issues around rail travel for users; services are at capacity and combined with journey times reliability and performance issues limit the competitiveness of travel by rail.

Table 5⁷³ shows the AM peak period rail loading ratios for routes into Edinburgh informed by the Cross Boundary study which reported in 2017. In this context the Base Case is 2012 demand and infrastructure; Reference Case is 2024 forecast with committed development and infrastructure and Test Case is 2024 forecast with committed and non-committed development and infrastructure⁷⁴.

Table 5: Rail Loading Ratios for Routes to Edinburgh in AM peak period (07:00-10:00)

Line Section	Line	Base Case	Ref Case	Test Case
East of Uphall	Bathgate	71%	86%	90%
West of Edinburgh Park	Bathgate, Falkirk	78%	68%	71%
Brunstane to Newcraighall	Borders Railway	60%	96%	102%
Newcraighall to Shawfair	Borders Railway	54%	80%	87%
Eastbank to Newtongrange	Borders Railway	58%	82%	90%
East of Linlithgow	Falkirk	81%	65%	67%

⁷⁰ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

⁷¹ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

⁷² Office of Road and Rail, Annual estimates of the number of entries/exits and interchanges at each station in Great Britain, Table 1415, 2018/2019, <https://dataportal.orr.gov.uk/statistics/usage/estimates-of-station-usage>

⁷³ SESplan Cross Boundary and Land Use Appraisal – Final, April 2017 (included options identified in ‘Revolution in Rail’)

⁷⁴ Transport Scotland, SESplan Cross Boundary and Land Use Appraisal – Final, April 2017

South Gyle to Dalmeny	Fife	94%	104%	107%
Forth Bridge	Fife	85%	109%	111%
West of Musselburgh	North Berwick, ECML	85%	107%	109%
Wester Hailes to Curriehill	Shotts	65%	89%	90%

Table 5 shows that there are a number of services on the rail network within the region operating over capacity or forecast to operate over capacity by 2024 based on forecast development and infrastructure at the time of the study. Over capacity means that passengers will be required to stand on the services.

Public Transport Accessibility

Table 6 and Table 7 show information extracted from TRACC⁷⁵ summarising the level of access to employment and tertiary education within the region respectively from each local authority area (assuming that interchanges have been allowed along the length of the route). Table 8 shows access to health facilities based on general hospitals (including the current Royal Hospital for Sick Children) within the ESES region.

The methodology used in the analysis assessed travel from the point of origin (place of residence) to the nearest top 10 employment centres (the 10 areas identified as having the highest number of jobs) within the City of Edinburgh, and tertiary education destinations within the ESES region.

Travel to work times for Edinburgh, Fife, West Lothian and Midlothian are typically lower in areas where there are more connected transport networks offering a greater number of travel choices leading to better access to facilities within the region. Within these areas, travel times are typically less than 45 minutes to access employment and tertiary education.

For parts of the region and particularly East Lothian, West Lothian and Scottish Borders, public transport access to employment, education and health facilities is more limited⁷⁶. This leads to increased journey times for access to key opportunities and services, and some areas cannot access employment, educational or health facilities in less than 120 minutes travel time. Table 8 considers major hospitals of which there is one in the South Fife area (Victoria Hospital) and so high accessibility for South Fife would be expected. Despite this, the analysis shows a relatively low level of accessibility in South Fife which can be attributed to the location of the majority of the population's place of residence (i.e. in Dunfermline, Kirkcaldy and in Glenrothes). For trips from Dunfermline and Glenrothes town centres to Victoria hospital, route planning software shows that journey times are upwards of 40 minutes by public transport. Similarly, trips between Kirkcaldy and Victoria hospital are up to 30 minutes in length (depending upon the point of origin within Kirkcaldy). As a result, the analysis in South Fife tends to show longer journey times (i.e. greater than 45 mins) to healthcare for the majority of South Fife's population.

⁷⁵ TRACC - multimodal accessibility and journey time analysis tool

⁷⁶ TRACC - multimodal accessibility and journey time analysis tool

Table 6: Percentage of population able to access employment by bus and rail within specified journey time shown (based on BRES top 10 employment centres in ESES region)

	15 MIN	30 MIN	45 MIN	60 MIN	90 MIN	120 MIN
City of Edinburgh	57%	95%	100%	100%	100%	100%
East Lothian	12%	35%	73%	89%	96%	96%
West Lothian	15%	59%	92%	99%	88%	99%
South Fife	35%	84%	99%	100%	100%	100%
Scottish Borders	25%	48%	62%	74%	79%	80%
Midlothian	17%	91%	98%	99%	99%	99%

Table 7: Percentage of population able to access Tertiary education by bus and rail within specified journey time shown

	15 MIN	30 MIN	45 MIN	60 MIN	90 MIN	120 MIN
City of Edinburgh	51%	95%	100%	100%	100%	100%
East Lothian	0%	19%	48%	83%	95%	96%
West Lothian	9%	60%	94%	99%	99%	99%
South Fife	16%	47%	84%	98%	100%	100%
Scottish Borders	0%	0%	0%	2%	33%	37%
Midlothian	3%	19%	85%	98%	99%	99%

Table 8: Percentage of population able to access health facilities by bus and rail within specified journey time shown

	15 MIN	30 MIN	45 MIN	60 MIN	90 MIN	120 MIN
City of Edinburgh	13%	42%	86%	98%	100%	100%
East Lothian	0%	1%	17%	53%	90%	96%
West Lothian	6%	40%	78%	96%	99%	99%
South Fife	7%	20%	48%	77%	99%	99%
Scottish Borders	0%	11%	23%	39%	74%	75%
Midlothian	2%	26%	86%	98%	99%	99%

OPERATIONAL CONSTRAINTS

Car Commuting

As outlined in Chapter 2, the majority of travel to work trips in the region are made by private car, based on 2011 Census data with movements focused on the City of Edinburgh, West Edinburgh, Edinburgh Bio Quarter and other bigger settlements in the region including Livingston, Dunfermline, Glenrothes. Almost 45% of the City of

Edinburgh's workforce commute to work by private car daily⁷⁷ (over 125,000 people), split almost equally between those from neighbouring local authority areas and those living within the City of Edinburgh. The Transport Model for Scotland (TMfS14) indicates that Edinburgh city centre is one of the most congested areas in the region and that conditions are expected to worsen by 2027.

This travel demand in turn places pressure on particular areas of the transport network in the region.

Road Congestion

The highest traffic volumes on the Trunk Road network within the ESES region are on the key approaches to Edinburgh and on the A720 City of Edinburgh Bypass.

The M8 immediately west of the A720 shows the highest AADT of approximately 70,000 trips reflecting the volume of traffic it carries in providing a direct link for trips travelling east to west and west to east within the central belt.

The A1, M9 and A720 also show relatively high volumes of traffic with AADT's of between 40,000 and 50,00 vehicles. Again the high volumes at these locations relate to the demand for travel between the wider ESES region and the City of Edinburgh, and the A1 and wider central belt.

The M90 has an AADT of between 25,000 and 30,000 vehicles reflecting it provides a key link over the Forth Estuary via the Queensferry Crossing connecting Edinburgh, Fife and destinations to the north (such as Perth, Dundee and Aberdeen).

The A68, A1 (east of Dunbar) and the A985 have relatively low AADT's of between 10,000 to 15,000 vehicles.

Trunk Road Annual Average Daily Traffic volumes (2019) are shown in Figure 32.

⁷⁷ NRS, 2011 Census (Scotland), 2011, *ibid*

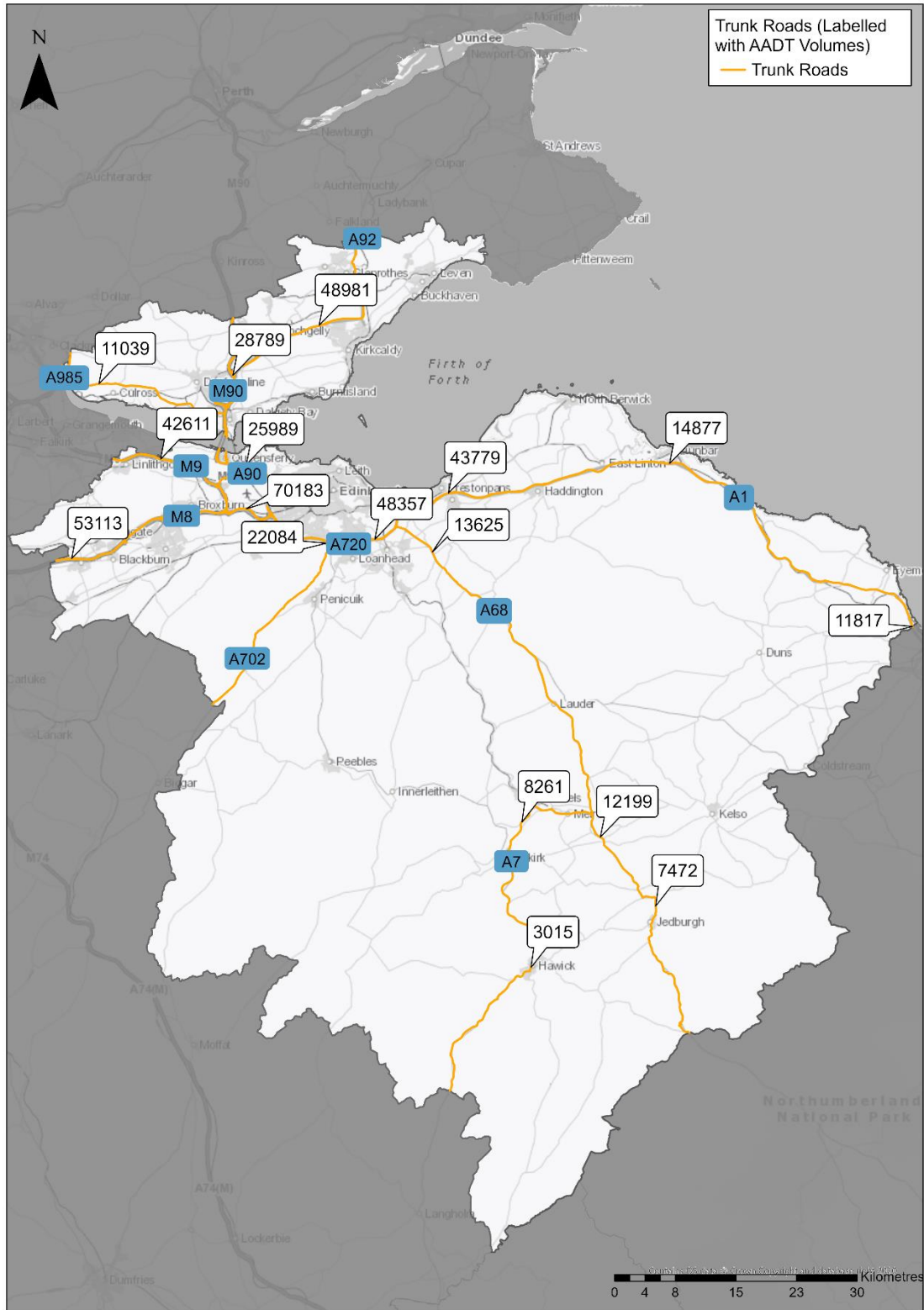


Figure 32: Trunk Road AADT Volumes

(Click image to enlarge figure)

Consideration of journey times for key routes across the region shows there are some areas where road-based journey times are slow and/or where journey times can be highly variable.

An analysis of INRIX based journey time data from 2018 shows that for travel from origins in the wider ESES region to Edinburgh city centre, faster average travel speeds are achieved on the arterial routes approaching the City of Edinburgh boundary and outside of the A720 Bypass. Delay then typically increases when vehicles reach the A720 Bypass and travel onward to Edinburgh city centre where average speeds are slower (typically less than 25kph) during the peak hours and get slower in closer proximity to the city centre (<10kph).

Considering journey times for key routes across the region there are some areas where road-based journey times are slow and/or where journey times can be highly variable. For key routes across the region, the slowest routes are arterial routes to/ from Edinburgh City. During the AM peak, slowest routes are: M8 eastbound (30kph); A720 City of Edinburgh Bypass westbound to Lothianburn Junction (20kph), M9 southbound to M8 Junction 2 (30kph), A70 eastbound on approach to Gillespie Crossroads (10kph), A701 northbound towards the A720 (10kph) and A702 northbound on approach to the A720 (10kph).

During the PM peak, slowest speeds are observed on the M8 westbound on approach to Junction 2 (10kph), Queensferry crossing northbound (30kph), A8 westbound on approach to Newbridge (20kph) and A702 both eastbound and westbound in the vicinity of Hermiston Gait and Baberton junctions (10kph and 20kph respectively).

In terms of journey time reliability, INRIX based journey times shows that for key arterial routes to Edinburgh journey times can be highly variable; M90 northbound between Edinburgh and Fife can vary between 22 and 79 minutes, A720 between Gogar and Old Craighall can vary from between 14 and 65 minutes and M8 between J4a and Hermiston Gait can vary between 15 and 129 minutes.

The Transport Model for Scotland 14 (TMfS14) indicates significant congestion on the road network in/around Edinburgh at AM and PM peak periods in 2017 (A720, A90, Queensferry Crossing, Ferry Road, etc). By 2027 much of the road network will be operating at/over capacity with areas such as between the M8/A720 Hermiston Gait Roundabout and the A720 Dreghorn Junction having a volume-capacity ratio⁷⁸ of between 1.75 and 2.25 in both the AM (07:00-08:00) and PM (17:00-18:00) peak periods (a volume capacity ratio of 1.00 indicates a junction is at capacity). Elsewhere, the eastbound and westbound approaches to the Sheriffhall Roundabout are expected to be exceeding or close to exceeding capacity in both the AM and PM peak periods (this assumes the roundabout is not grade-separated in 2027). The model indicates that there

⁷⁸ Volume to capacity ratio is a measure of how congested or saturated with vehicles a particular road is. When the volume to capacity ratio of a link approaches or exceeds one, congestion can be expected.

are capacity issues in on the M8, M9 Junction 6 and A801 (non-trunk road).

Figure 33 shows road congestion points⁷⁹ around the Edinburgh City boundary during peak periods based on volume to capacity ratio. Where there are points of congestion, this affects all road users and will have impacts on bus journey times and bus journey time reliability.

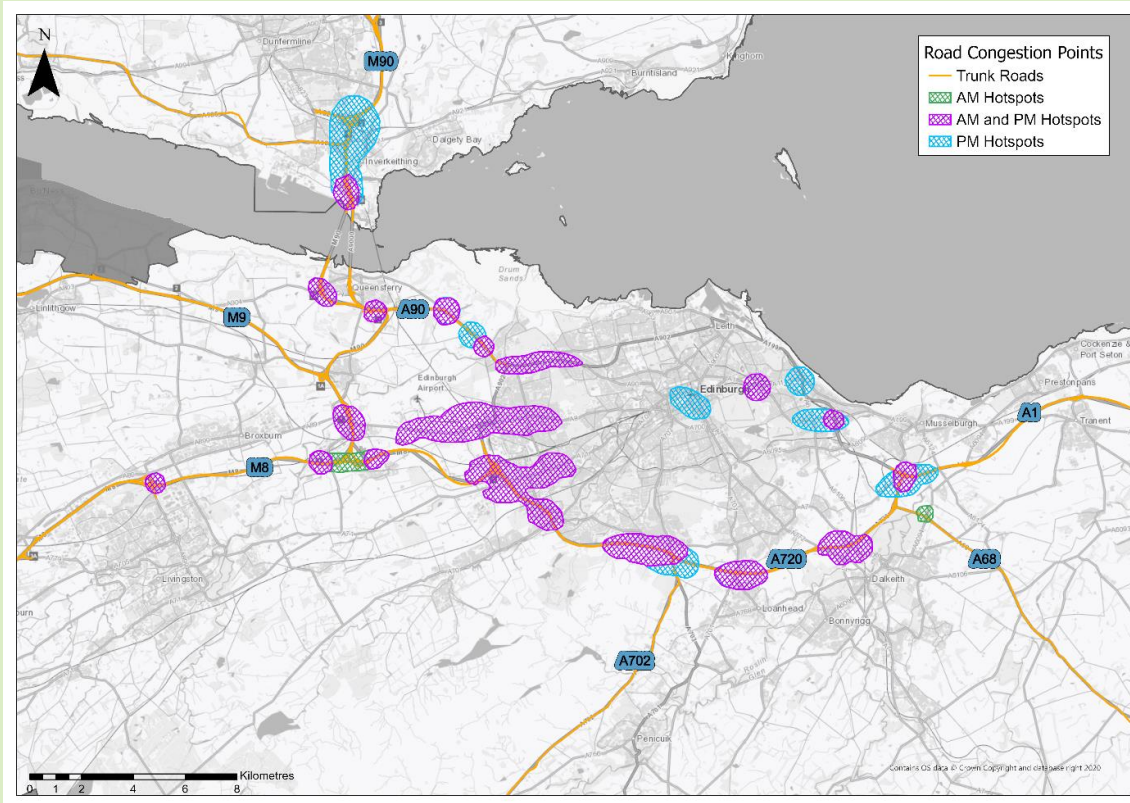


Figure 33: Road Congestion Points (Volume to capacity ratio >1)

(Click image to enlarge figure)

This results in congestion points on the Trunk Road network at key locations that include the A720 City Bypass, M90 approach to the Queensferry Crossing and Forth Bridge; M8/M9 approaches at Newbridge as well as local road corridors connecting with the Trunk Road network such as the A8 and A89.

To the east of the City of Edinburgh, key congestion hotspots are typically located on and around the A1 and at Newcraighall where traffic approaches the City of Edinburgh from the east and the south.

Network Capacity – Bus Operations

The road network in the region is also impacted by the routing of bus services. Much of the local, regional and long-distance bus travel in the region is focused on Edinburgh city centre and requires users to travel into Edinburgh city centre in order to interchange with

⁷⁹ Transport Scotland, SESplan Cross Boundary and Land Use Appraisal – Final, April 2017

other bus/rail services or simply continue their journey onward from the city centre.

Within Edinburgh city centre the configuration of bus routes centres on Princes Street meaning that there are over 100 services per hour operating via Princes Street and in proximity to Edinburgh Bus Station. This number of buses also presents operational issues in terms of congestion and journey times (i.e. high and/or unreliable) both in this area and for services travelling through the city centre.

The reliance on interchanges within Edinburgh (and lack of alternative interchanges) impacts end-to-end journey times and journey time reliability due to the capacity constraints currently experienced on the strategic and local road network.

Given the level of private car trips within the region, routing of local, regional and inter-city bus services and resulting congestion shown in Figure 33 travel by bus in the region is impacted by congestion on key routes, particularly during the AM and PM peak periods, when journey times and service reliability suffers as speeds are restricted by the speed of general traffic. Bus operations are reliant on achieving consistent journey times between destinations in order to be able to deliver a reliable service. Variable journey times, particularly on key routes around the City of Edinburgh, therefore, make it difficult to achieve journey time reliability. See the Socio-Economic section of Chapter 3.

Network Capacity – Rail Operations

For travel to work trips within ESES, most are made by private car and travel is focused on the key routes to and from the City of Edinburgh where there are existing operational pressures and issues experienced on the strategic road network (see Socio-Economic section of Chapter 3. Similarly, for the rail network travel demand focused on to/from the City of Edinburgh is creating pressure on the network particularly during the peak periods and impacting on service punctuality and the resilience of the rail network. The result is that compared to the rest of the country, there are lower levels of rail punctuality and reliability of services.

Train reliability is a key factor in attracting and retaining passengers⁸⁰. ScotRail's Public Performance Measure (PPM) reports on the percentage of trains which arrive at their terminating station within 5 minutes of the booked arrival time. PPM also takes account of reliability in terms of the number of trains which operate.

The PPM figures are based on annual rolling 12-month statistics. In ESES, based on the pre-COVID-19 pandemic figures (12-month period to January 2020) the PPM for the following stations is: Edinburgh Waverley (84%), Haymarket (87%), Kirkcaldy (81%) and Tweedbank (84%). For comparison, the average PPM for stations within the ESES region is 86% over this period. The Moving Annual Average PPM target set by ScotRail is 93% suggesting that stations in the region are performing below standard. Markinch was the poorest performing of all terminal stations throughout Scotland with a PPM of 61% over the same period.

In the ESES region, rail travel between South Fife and the City of Edinburgh is an

⁸⁰ScotRail, Performance Update, 26th July to 22nd August 2020,
https://www.scotrail.co.uk/sites/default/files/assets/download_ct/20200828/VTGmWQNDeZY01EQ6uiA6Bu7-8eoFSyTA4TKw-d5RkM/performance_update_26july-22august.pdf

important route to consider as the Forth Bridge is a key link connecting South Fife stations (such as Kirkcaldy, Markinch and Glenrothes for example) to the City of Edinburgh as well as South East Scotland to other regional stations (for example Dundee, Aberdeen, Perth and Inverness).

Competitiveness of Modes

Figure 34 below shows the comparison between journey times for car, bus and rail journeys from various towns within the region to Edinburgh city centre.

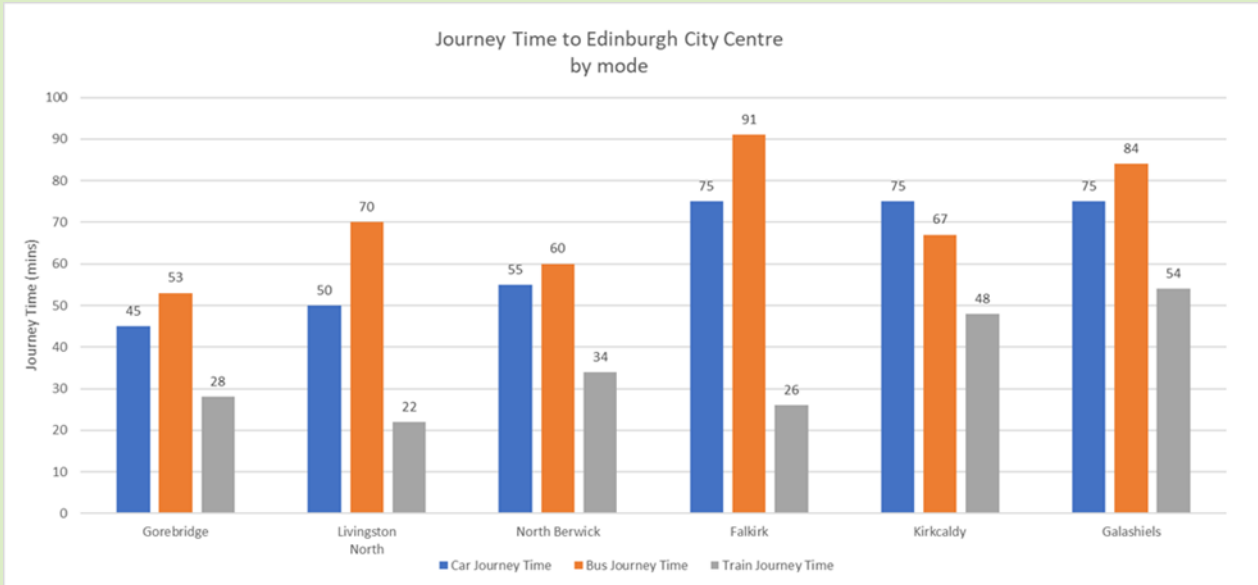


Figure 34: AM Peak Journey Times for trips by car, bus and rail to Edinburgh city centre

The above figure shows that for trips to Edinburgh from various locations throughout the region, travel by car in the AM peak is slower than timetabled rail services. However, with the exception of Kirkcaldy to Edinburgh, car travel during the AM peak hour (08:00-09:00), is typically quicker than the quickest bus service.

ACTIVE TRAVEL

Low Levels of Active Travel

Within ESES mode share for active travel (walking and cycling) to work⁸¹ is highest in the City of Edinburgh area with over 20% of trips by foot or cycle, however car still accounts for most journeys to work in all parts of the region (see Figure 14). Analysis of distance travelled to work highlights the opportunity to change the mode of travel for shorter trips under 5km to walking or cycling. The data also indicates that the majority of journeys to work may involve distances longer than a typical active travel journey, however active travel still has an important role to play in the end-to-end journey, if there is good access to bus and rail services as part of an overall trip.

With most travel to work trips in the region under 5km still being made by private car,

⁸¹ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

this would suggest that the existing active travel network within the ESES region is not attractive enough and a point raised by stakeholders; either routes are not developed to the point where their quality means they attract trips by walking/cycling or they are not providing direct, safe connections between trip origins and destinations.

There are several different perceived and real barriers (provision of quality off-road routes; lack of lighting on routes; integration with public transport and personal security issues) leading to a limit in mode shift to active travel modes. There is also a perceived lack of active travel routes and the integration of new developments across the region to existing walking and cycling route. As well as the infrastructure element, sustained behavioural changes to walking and cycling and individual confidence to walk/cycle are further potential barriers.

Route Choice and Quality

The National Cycle Network (NCN) within the region consists of multiple off-road routes connecting the East and West areas, but there are limited connections for North/South movements. These cycle routes also vary in quality and type with some sections being off-road and other sections being on-road, which can act as a barrier for encouraging cycling due to the higher likelihood of conflict with traffic and the safety concerns associated with that. The SEStran Strategic Network⁸² identifies that for an uptake in cross boundary cycling to be realised, a high-quality route should be a continuous route providing an attractive, safe, comfortable, and direct connection linking multiple destinations. It goes on to identify where there are specific routes in the region that are not fully connected and so do not form an established network. Currently, the existing cycle network is not developed enough to cater for the appetite for travel by bike.

The focus going forward for the strategy is not to ‘connect the dots’ but rather to identify a targeted series of improvements that connect settlements allowing for more trips to be taken by sustainable means.

A spatial analysis of the Sustrans National Cycle Network within the ESES region shows that 60% of the routes make use of on-road facilities with the remaining 40% being categorised as off-road.

Analysis of cycling activity in the City of Edinburgh, based on ‘Just Eat’ Edinburgh Cycle Hire Share Scheme demand data⁸³, shows that demand for trips is highest where there are high quality segregated routes (segregated from both pedestrians and from traffic) that connect, for example, employment and residential locations.

Analysis of the cycle hire scheme demand data⁸⁴ also shows that the greatest number

⁸² SEStran Strategic Network, SEStran, 2020

<https://sestran.gov.uk/wp-content/uploads/2020/05/SEStran-Strategic-Network-Final-Publication.pdf>

⁸³ Edinburgh Cycle Hire, ‘Just Eat’ Cycle Hire Information, 2019,

<https://edinburghcyclehire.com/open-data/historical>

⁸⁴ Edinburgh Cycle Hire, ‘Just Eat’ Cycle Hire Information, 2019,

<https://edinburghcyclehire.com/open-data/historical>

of trips within the city (i.e. the area covered by the ‘JustEat’ cycles scheme) is between Edinburgh city centre and locations on the periphery of the city centre that are connected by existing off-road routes. For example, the predominant movements are between St Andrews Square, Canonmills, Leith and Newhaven; destinations connected by NCN75 (a route that is predominantly off road). Other routes that are predominantly on-road show lower levels of demand.

Safety – Real and Perceived

It is also the case that on-road routes present a higher risk in terms of cyclist safety than segregated routes. A review of STATS19⁸⁵ accident data for the ESES region shows that the majority of recorded accidents involving cyclists take place on roads with 70% occurring in urban areas of the region.

Between 2014 and 2018 there were a total of 17 fatalities, 480 serious injuries and 2460 slight injuries involving cyclists. Accident data (STATS19) illustrates that the majority of accidents involving cyclists, particularly Killed or Seriously Injured accidents (KSI), have occurred on urban arterial routes within the City of Edinburgh. During the same period there were a total of 106 pedestrians killed, with 75% of these occurring in urban parts of the region.

Analysis of road accident statistics within the region indicated that the trunk roads are generally performing in line with national averages, however it was recognised that both real and perceived safety concerns have been raised in relation to the A92 to the north of Glenrothes.⁸⁶

A wider study by the Department for Transport (DfT)⁸⁷ concludes that almost half of all on road cycle accidents (45%) take place within 20 metres of a junction (where there is a higher degree of conflict between cyclists and motorised vehicles). There is also a perception that some off-road routes are unsafe (in terms of being unlit) and unattractive for some cycle users (for example some off road routes are tracks and paths rather than formally surfaced routes that are not suitable for all users).

⁸⁵ Department for Transport, STATS19 Road Safety Data, 2019, <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>

⁸⁶ Transport Scotland, Case for Change - Pre-Appraisal and Initial Appraisal Study 2018 - A92 Freuchie Balfarg Cadham, 2018, <https://www.transport.gov.scot/publication/case-for-change-pre-appraisal-and-initial-appraisal-study-2018-a92-freuchie-balfarg-cadham/>

⁸⁷ Department for Transport, Pedal Cycling Road Safety Factsheet, 2018, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/686969/pedal-cycle-factsheet-2017.pdf

SOCIO-ECONOMIC

Employment

Edinburgh city centre is where 38%⁸⁸ of the region's working population is employed. There are upwards of 60,000 in-commuting trips to the City of Edinburgh at present, the majority of which are undertaken by the private car⁸⁹.

TELMoS (Transport and Economic Land-use Model of Scotland)⁹⁰ identifies that the largest increases in population for committed and non-committed housing developments between 2012 - 2024 are expected to be in West Lothian (12,800 people) and Midlothian (9,200 people) whilst the largest increase in employment is expected to be in the City of Edinburgh (32,900 jobs).

⁸⁸ Scotland Census, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

⁸⁹ City of Edinburgh Council, City Mobility Plan – Draft for Consultation, 2020, <https://consultationhub.edinburgh.gov.uk/sfc/city-mobility-plan/>

⁹⁰ Transport and Economic Land-use Model of Scotland (TELMoS), <https://www.transport.gov.scot/our-approach/industry-guidance/land-use-and-transport-integrations-in-scotland-latis#42984>

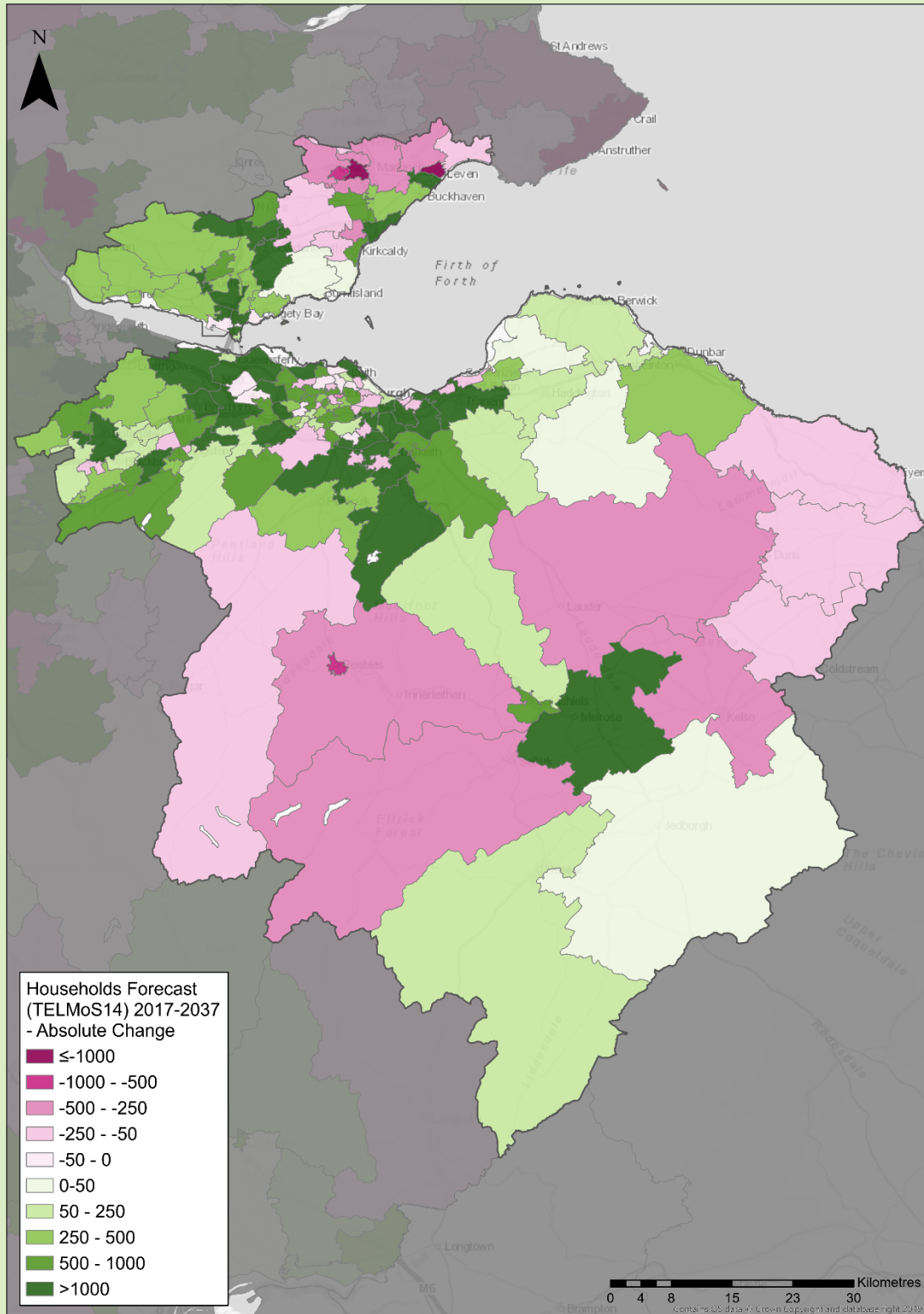


Figure 35: Housing Forecasts (TELMOs14) 2017-2037

(Click Image to enlarge figure)

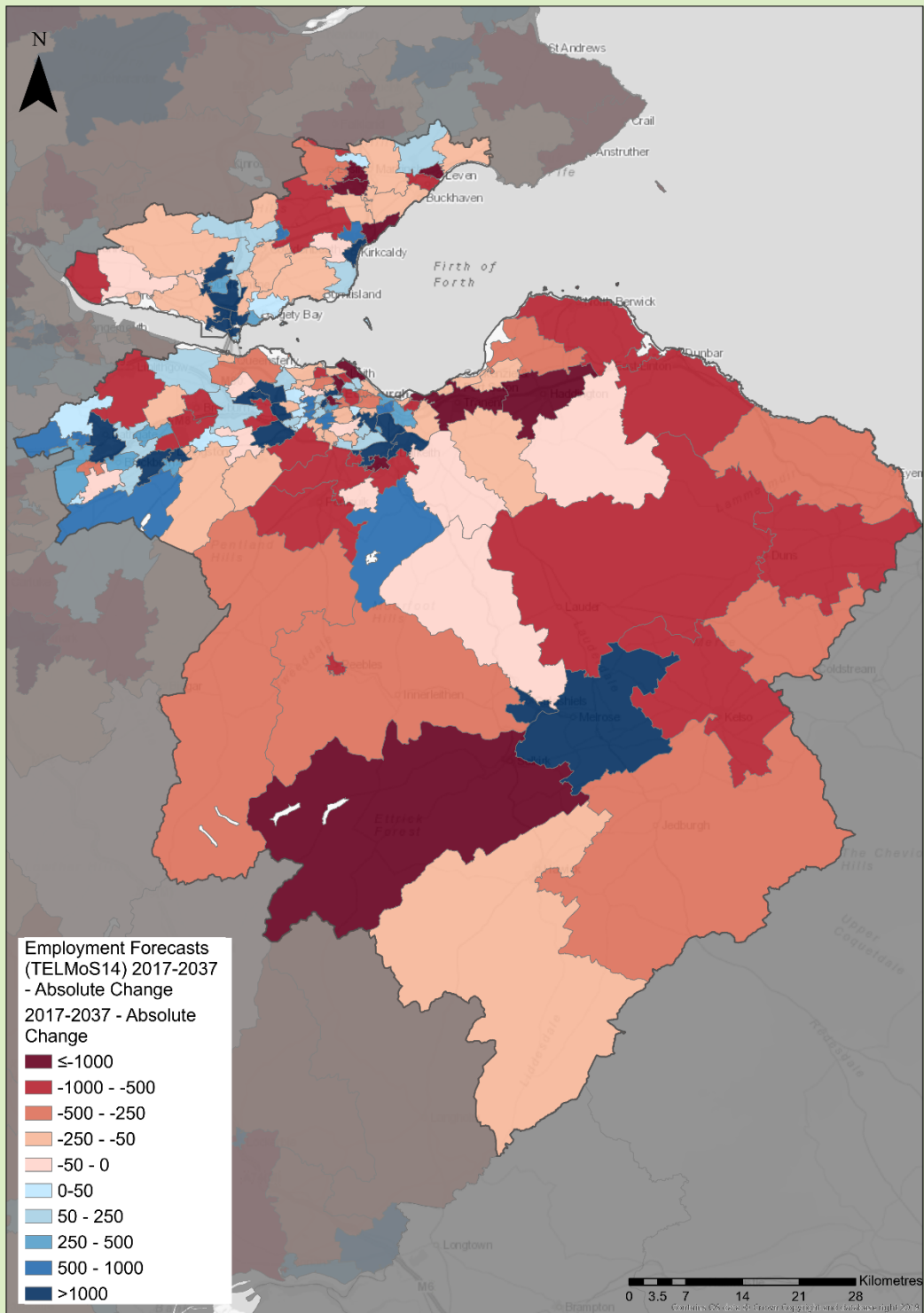


Figure 36: Employment Forecasts (TELMoS14) 2017-2037

(Click Image to enlarge figure)

Given that job densities are already relatively high in these areas (compared to other areas within the ESES region) as illustrated by the BRES data presented in Chapter 2, the delivery of the forecast growth of employment opportunities identified will lead to the continued focus on the development of the economy in areas that are already more economically developed (i.e. Edinburgh city centre, West Edinburgh, South Fife and West Lothian) than other areas throughout the wider region.

This is forecast to result in additional pressure on the transport network in areas where road congestion and public transport capacity issues already exist (see Figure 33).

Property Market

In 2018, house prices in the City of Edinburgh⁹¹ were 44% greater than the city benchmark and almost £100,000 more than the national average. Since 2013, the average house price in the City of Edinburgh increased from £219,771 to £280,643 (28%) while in the Scottish Borders the average house price increased from £166,616 to £180,143 (8%).

The Scottish Government's Housing and Social Justice Directorate⁹² published information on the cost of renting properties between 2010 and 2018. This shows that the cumulative percentage change in the cost of rent in broad rental market areas, in the City of Edinburgh and the Lothians (City of Edinburgh, East Lothian and Midlothian are combined in the published data), has increased by 42%, in West Lothian by 15%, in Fife by 18% and in the Scottish Borders by 8%.

The increase in the number of Airbnb in the City of Edinburgh is impacting on the availability of property, particularly for first time buyers and from both a wider local rental and owner-occupier perspective.

There are 9,000 Airbnb's listings in the City of Edinburgh, an increase of 43% from 2016 – 2017⁹³. City of Edinburgh Council has within their 2030 Choices for City Plan consultation set out a proposal to designate Edinburgh, or parts of Edinburgh, as a 'Short Term Let Control Area' where planning permission will always be required for the change of use of whole properties for short-term lets.⁹⁴

An increasing buy-to-let and short-term letting rental market in the City of Edinburgh is placing pressures on the housing market leading to increased housing costs within the City of Edinburgh. This impacts locally, in particular on lower income (but also middle income) households having to locate further away from employment centres in the region (primarily the City of Edinburgh) to areas where housing costs are lower, but which results in longer journeys and also leading to an increase in the proportion of income spent on transport as discussed in Chapter 2.

The employment, services, housing and locational factors described above impact upon the distance travelled, amount of household income spent on transport and in turn the affordability of transport for some of the population with a negative impact in terms of increasing transport poverty (i.e. transport services are lacking attractiveness in terms of affordability, convenience or connections).

Figure 37 shows the level of risk associated with transport poverty within the region using a methodology based on the Transport Poverty in Scotland⁹⁵ tool developed by

Sustrans. The tool defines transport poverty by car availability, household income and access to services by public transport. This illustrates higher levels of transport poverty in the Scottish Borders and South Fife in particular. There are also pockets of high risk of transport poverty in East Lothian, West Lothian and Midlothian and lower levels in the City of Edinburgh, although areas of higher poverty exist in Edinburgh where more disadvantaged communities have to travel further to access services and also experience lower levels of car availability increasing dependence on public transport.

⁹¹ Scottish Government, House Prices: Data Cube Spreadsheet, 2018,
<https://statistics.gov.scot/slice?dataset=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fhouse-sales-prices&http%3A%2F%2Fpurl.org%2Flinked-data%2Fcube%23measureType=http%3A%2F%2Fstatistics.gov.scot%2Fdef%2Fmeasure-properties%2Fmean>

⁹² Scottish Government, Private Sector Rent Statistics 2010 – 2018, 2018,
<https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2018/11/private-sector-rent-statistics-2010-2018/documents/00543368-pdf/00543368-pdf/govscot%3Adocument/00543368.pdf?forceDownload=true>

⁹³ Airbnb, Airbnb Position Paper, 2017, [Airbnb Position Paper](#)

⁹⁴ City of Edinburgh Council, Choices for City Plan 2030, 2020,
<https://www.edinburgh.gov.uk/downloads/file/26927/choices-for-city-plan-2030>

⁹⁵ Sustrans, Transport Poverty in Scotland, 2016,
https://www.sustrans.org.uk/media/2880/transport_poverty_in_scotland_2016.pdf

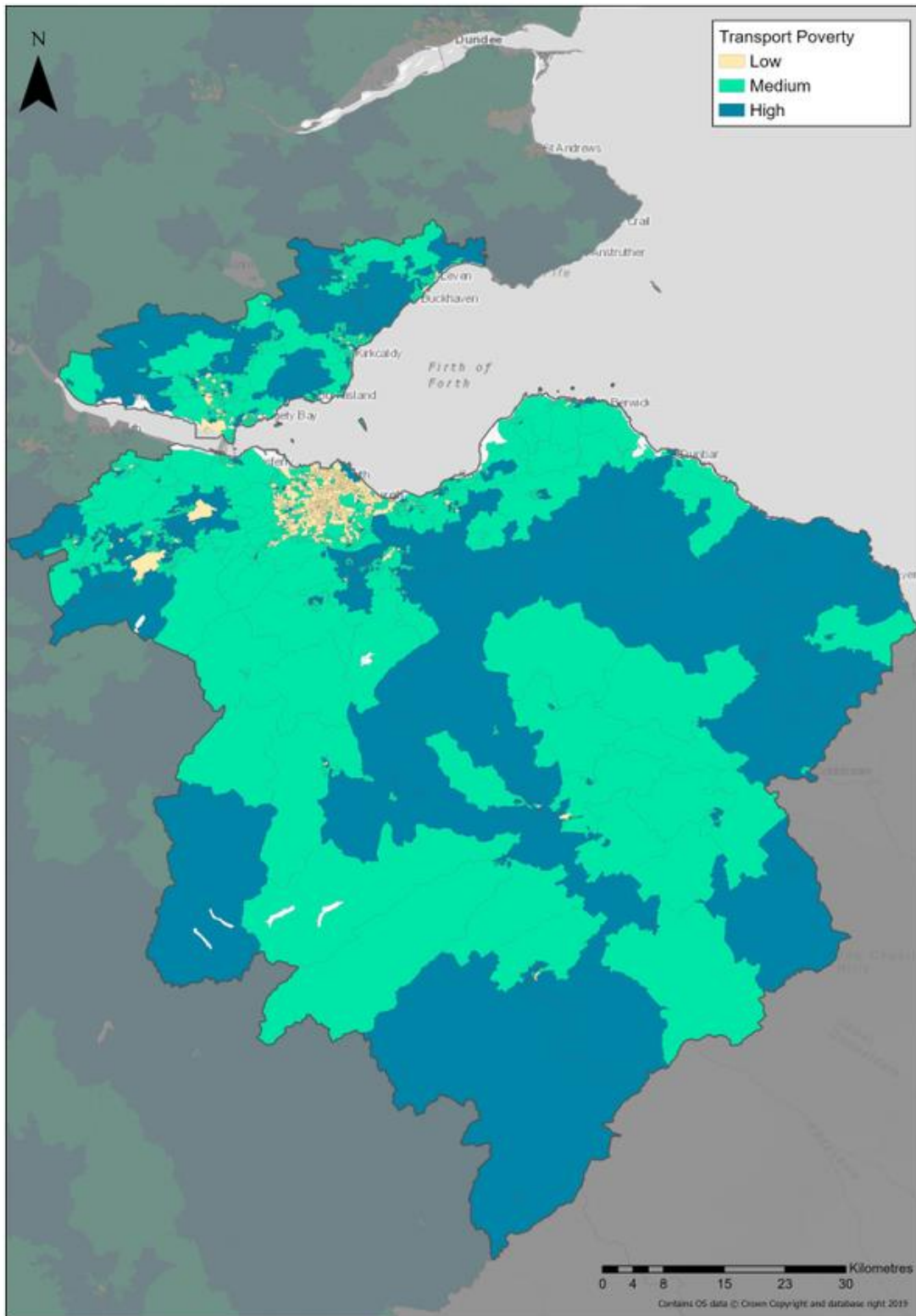


Figure 37: Transport Poverty 2020

(Click Image to enlarge figure)

Within the ESES region, those in more deprived areas (SIMD decile of 6 and less) and rural areas typically spend around 15% of their annual income on transport, compared to less deprived areas (SIMD decile of 6 or more) and urban areas where spend is generally less than 10% of annual household income.

Travel to Work

Census based travel to work data that allows the identification of the origins and destinations of trips shows that there are relatively low levels of cross-regional movements within the ESES region (i.e. work trips between the respective local authority areas that surround Edinburgh). With the exception of the Scottish Borders and prior to opening of the Borders Railway in 2015, the predominant travel to work flows are focused on inbound travel to the City of Edinburgh, with at least 86% of travel to work trips originating in each of the other ESES local authorities travelling to Edinburgh. As noted previously, the City of Edinburgh Council⁹⁶ have determined that there is in excess of 60,000 in-commuting trips to the City of Edinburgh each day, the majority of which are undertaken by car, placing pressure on key arterial routes as well as the local road network.

Table 9⁹⁷ shows the intra-regional commuter trips throughout the ESES region (pre-Borders Rail opening in 2015).

Table 9: Travel to Work person trips in the ESES region

		DESTINATIONS						
		CoE	EL	WL	F	SB	ML	Tot
ORIGINS	CoE	165,500	4,200	5,500	2,900	537	5,200	183,837
	EL	17,400	-	450	180	310	2,000	20,340
	WL	18,900	290	-	950	60	680	20,880
	F	14,500	180	1,800	-	33	380	16,893
	SB	4,100	780	200	80	-	1,100	6,260
	ML	17,400	1,300	730	230	330	-	19,990
	Tot	237,800	6,750	8,680	4,340	1,270	9,360	268,200

(F =South Fife) (CoE = City of Edinburgh) (ML = Midlothian) (WL = West Lothian) (EL = East Lothian) (SB = Scottish Borders) (Tot = Total)

The table shows that approximately 87% of work trips from Midlothian, 86% from East Lothian, 91% from West Lothian and 86% from South Fife travel to the City of Edinburgh. For the Scottish Borders, 65% of work trips are to the City of Edinburgh and, compared to the other local authorities, there are more work trips from the Scottish Borders to East Lothian (12%) and Midlothian (18%).

⁹⁶ City of Edinburgh Council, City Mobility Plan, 16 January 2020, https://consultationhub.edinburgh.gov.uk/sfc/city-mobility-plan/user_uploads/city-mobility-plan-february-2020.pdf

⁹⁷ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

The concentration of travel to work flows into the City of Edinburgh by car places pressure at key locations on the trunk road and arterial road networks within the city limits that leads to delay and slow journey times within the city and on the perimeter of the city (see ‘Operational Constraints’ in Section 3.4 for further details).

Figure 38 shows the origins and destinations of AM peak traffic (extracted from the SEStran Regional Model [SRM]) travelling on the A720 in the westbound direction.

This ‘select link analysis’ has been undertaken by selecting the westbound link on the A720 just to the west of the Dreghorn junction at the location highlighted by the blue arrow shown in Figure 38. This allows the routes taken by all trips that travel in the westbound direction along the highlighted link on the A720 to be displayed, from their respective origins to their respective destinations. The routes taken are displayed in red on the figure with the level of flow represented by the thickness of the lines shown, such that higher flows for example on the A720 and the M8 are represented by the thicker lines shown in the figure.

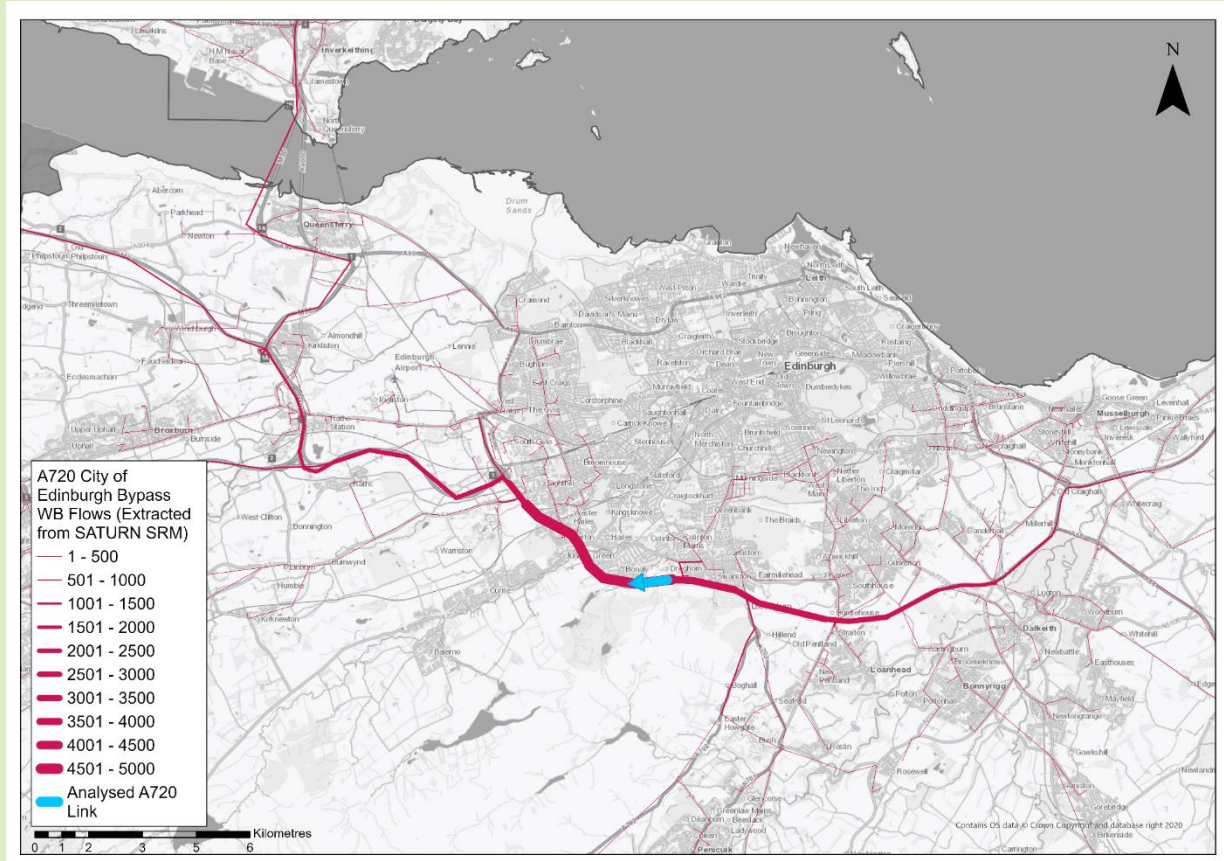


Figure 38: Origins and Destinations of AM Peak westbound flows on the A720

(Click image to enlarge figure)

The figure shows the various routes that are used by trips to access the A720 to travel west, and represent trips that originate from a number of areas to the south and east of Edinburgh (including Gilmerton and Liberton), from Midlothian (including Dalkeith and Bonnyrigg) and from East Lothian (including Musselburgh). There are also trips

travelling from further afield on the A1, the A68, the A701 and the A702 that join the A720 and travel west through the highlighted link.

In terms of where these trips are travelling to as their destination, Figure 39 shows that the majority of these trips are travelling via the A720 to then join the M8 at Hermiston to travel further west. There is also a further spread of trips accessing the M9 and the M90 to destinations further west and north respectively.

Figure 38 highlights that journeys travelling via the A720 have both origins and destinations that are spread over an extensive geographical area, both within and external to the ESES region. As such, providing standard timetabled public transport services to meet this dispersed demand is a challenge. As a result, the lack of more direct public transport options for travel between the widely dispersed trip origins to areas on the outskirts of the city area further encourages a higher proportion of trips to be made by private car, which in turn increases congestion on the A720.

To illustrate this point, Figure 39 shows the location and totals for travel to work⁹⁸ employment destinations within the City of Edinburgh based on the 2011 Census data. This shows the Gyle and the Edinburgh Bioquarter are examples that represent locations on the outskirts of the City of Edinburgh which attract relatively high proportions of travel to work trips with approximately 11,700 trips and 4,800 trips respectively.

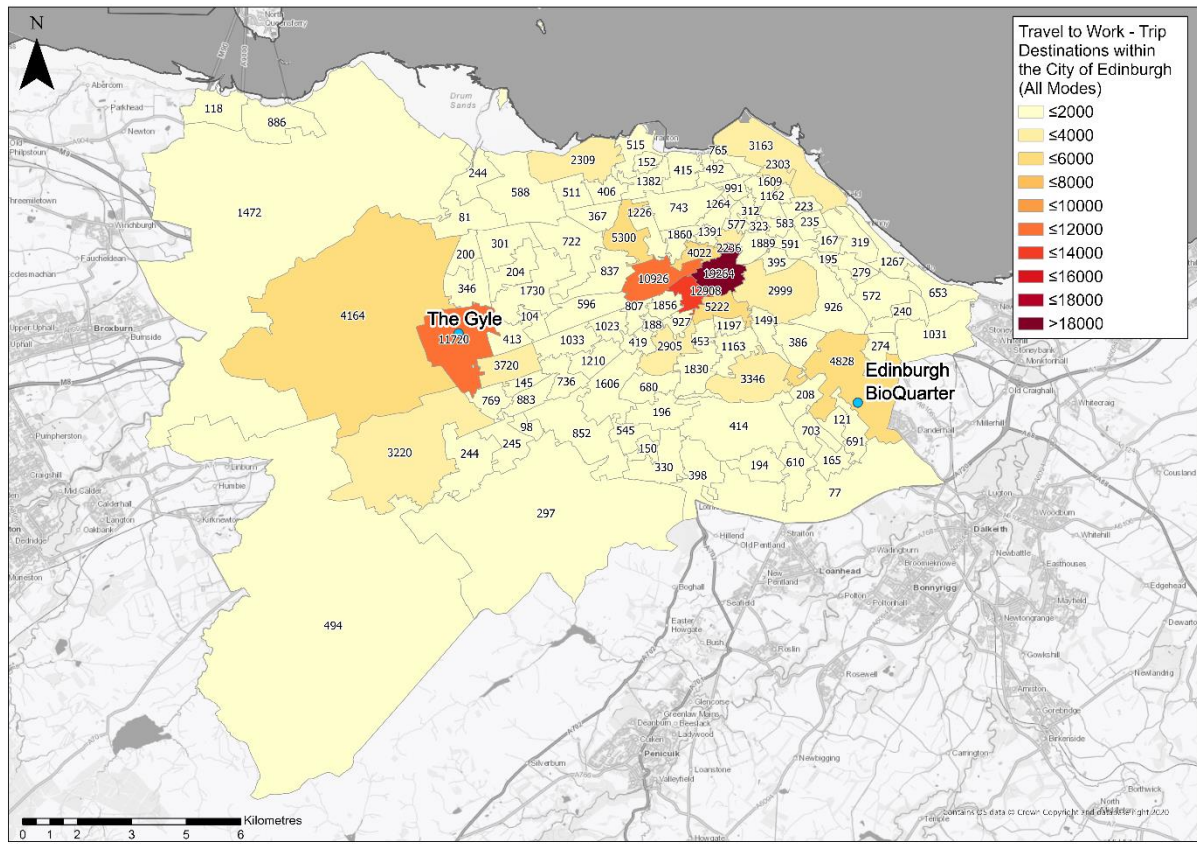


Figure 39: Travel to Work destinations within the City of Edinburgh

(Click image to enlarge figure)

Figure 40 shows the origins of trips travelling to the Gyle area. It can be seen that trips to the Gyle area predominantly travel to the area from origins (places of residence) in the City of Edinburgh (11,720 trips) and West Lothian (3,025 trips). There are also a lower number of trips that travel from East Lothian (1,014 trips), Midlothian (1,397 trips) and the Scottish Borders (329 trips). Depending on origin, journey times by public transport can take over 60 minutes compared to 30 to 40 minutes by car.

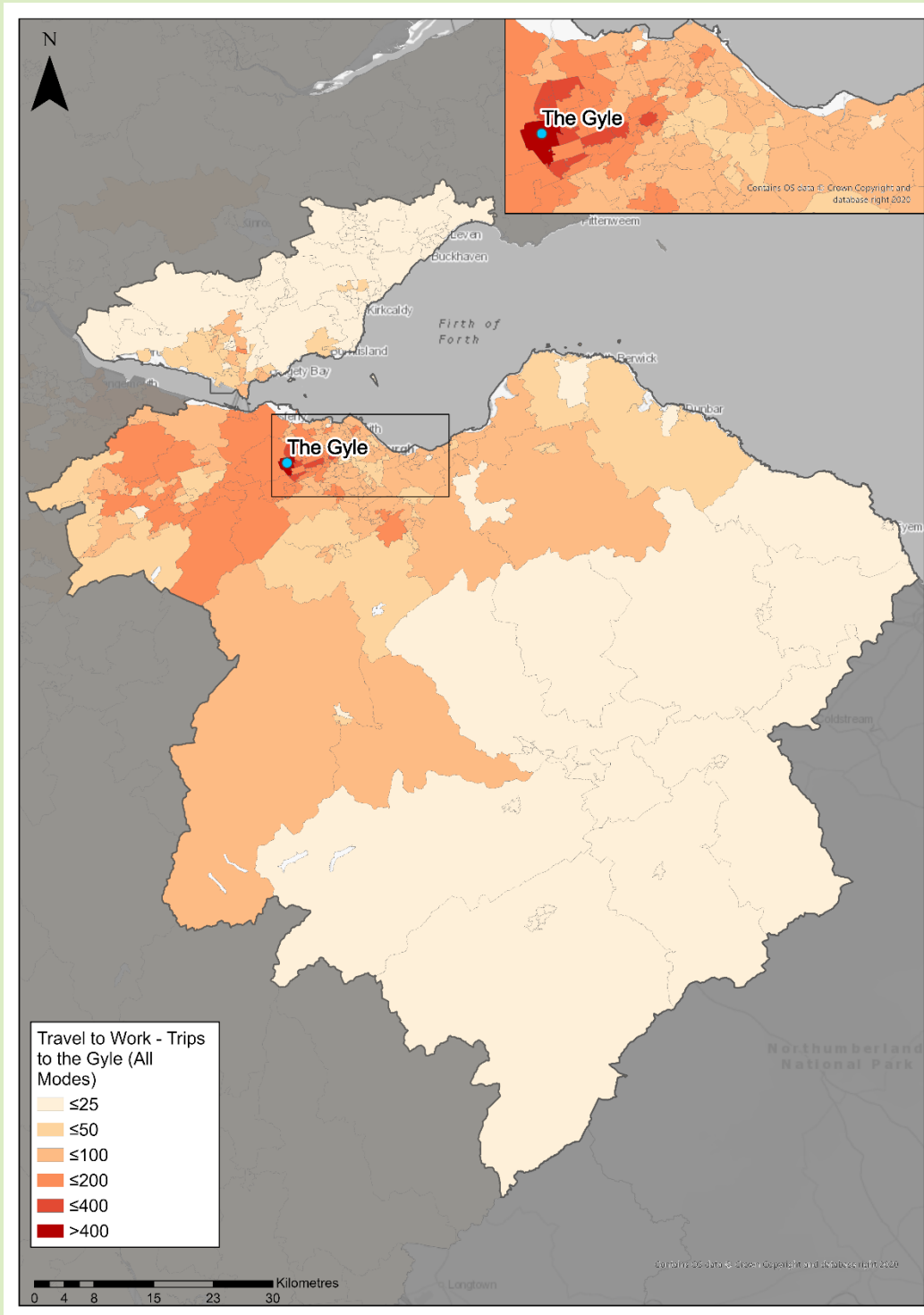


Figure 40: Origins of Trips travelling to the Gyle Area

(Click image to enlarge figure)

Figure 41 shows the origins of travel to work trips⁹⁹ travelling to the Edinburgh Bioquarter. There are relatively high volumes of trips travelling to the site from the City of

Edinburgh (4,828 trips), from Midlothian (1,261 trips) and from East Lothian (738 trips), with lower volumes travelling to the area from Fife (174 trips), West Lothian (292 trips) and the Scottish Borders (226 trips). Depending on origin, journey times by public transport can take over 60 minutes compared to 30 minutes by car.

In summary, public transport journey times to these employment destinations are not competitive when compared to journey times by private car. However, it is also evident that the dispersed pattern of origins of work trips to the Gyle area and the Bioquarter pose a particular challenge in meeting the travel demand by standard timetabled public transport services.

⁹⁹ NRS, 2011 Census (Scotland), 2011, <https://scotlandscensus.gov.uk/>

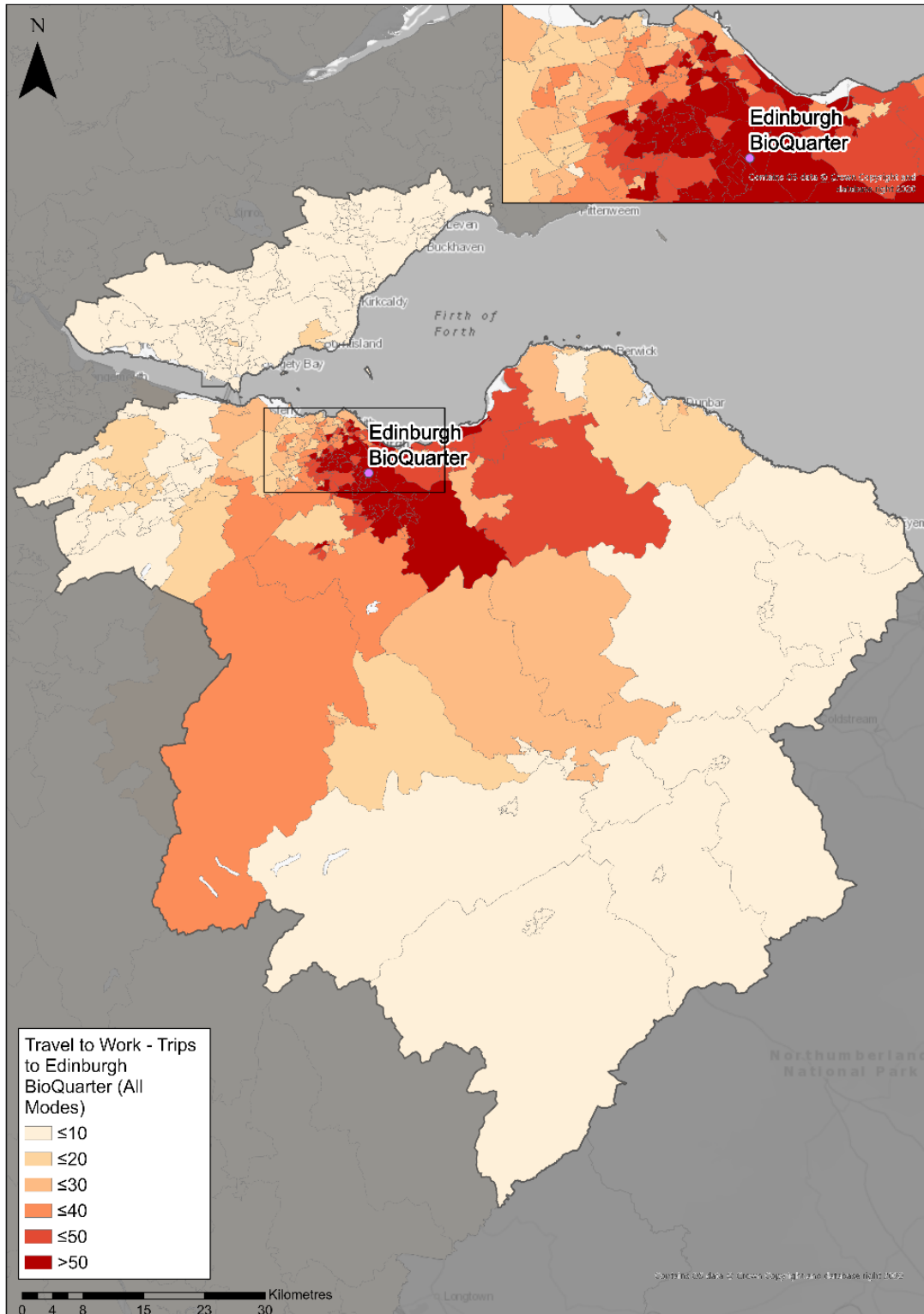


Figure 41: Origins of Trips travelling to the Edinburgh BioQuarter

(Click image to enlarge figure)

HEALTH AND ENVIRONMENT

Global Air Quality

In 2017, as discussed in in Chapter 2, transport accounted for 37% of Scotland's total greenhouse gases¹⁰⁰.

In response, all 6 constituent local authorities in the ESES region have declared a Climate Emergency and committed to reduce their carbon emissions. With transport a key contributor to emissions and the predominance of travel by private car across the region, there is an increasing need to increase the number of trips by active travel and public transport supported by alternative travel choices for the population, workforce and businesses in the region.

The Local Authorities within the ESES region have plans for more environmentally progressive policies, with a number of local authorities in the region planning to be carbon neutral. For example, the City of Edinburgh Council intends to be carbon neutral by 2030 and Fife Council is committed to cut CO₂ emissions by 75% by 2030.

Local Air Quality

The regions 6 constituent local authorities within the region have all recognised the need to declare a Climate Emergency and have plans for more environmentally progressive policies, with both East Lothian and Midlothian aiming to reduce their emissions for council operations to achieve net zero impact. A number of local authorities in the region have plans in place to be carbon neutral, for example the City of Edinburgh Council intends to be carbon neutral by 2030 and Fife Council is committed to cut CO₂ emissions by 75% by 2030.

There are also plans to introduce a Low Emissions Zone (LEZ) within the City of Edinburgh by the end of 2022, with varying grace periods for commercial vehicles/private vehicles.

Within the ESES region there are 11 Air Quality Management Areas (AQMAs) that are shown in Figure 42 with six located in the City of Edinburgh, one in East Lothian, one in South Fife and three in West Lothian. There are currently no AQMAs in Midlothian or the Scottish Borders. The AQMAs reflect where there are breaches in PM₁₀ and/or NO₂ with further details in the AQMA plans of each authority¹⁰¹.

¹⁰⁰ Transport Scotland, National Transport Strategy 2, 2020,
<https://www.transport.gov.scot/media/47052/national-transport-strategy.pdf>

¹⁰¹ 2019 Air Quality Annual Progress Report (APR) for City of Edinburgh Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, October 2019
2019 Air Quality Annual Progress Report (APR) for East Lothian Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, September 2019
2019 Air Quality Annual Progress Report (APR) for Fife Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, June 2019
2019 Air Quality Annual Progress Report (APR) for Midlothian Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, August 2019
2019 Air Quality Annual Progress Report (APR) for Scottish Borders Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, June 2019

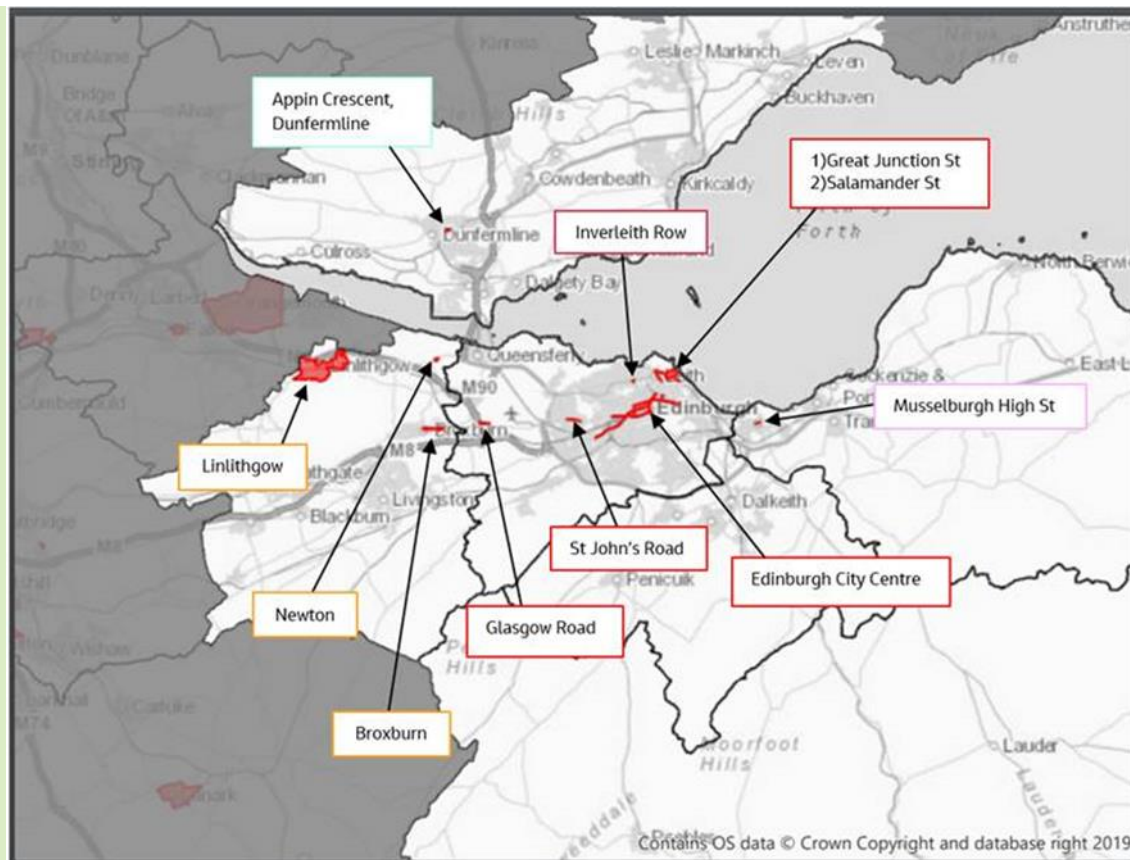


Figure 42: AQMA's in the ESES Region

As Figure 42 shows, there are a number of AQMAs in proximity to and which interface with the strategic road network in the ESES region. For example, the AQMAs at St John's Road and Glasgow Road in Edinburgh are located on a corridor which is a key route for private vehicles and inter-urban buses travelling on the M8, M9, M90 (via the A8) as well as the A720 to/from Edinburgh city centre.

The combination of the concentration of both the region's population and its traffic within the City of Edinburgh means that the effects of air pollution on health are felt the most within the City of Edinburgh.

Within the City of Edinburgh, the long-term trends of NO₂ and PM₁₀ show that concentrations are generally decreasing. With respect to NO₂ the monitoring results show that many locations are within the current prescribed legal standards. However, there are locations within the Central, St John's Road and Glasgow Road AQMAs where breaches of the annual mean exist. With respect to PM₁₀ the results from data in 2018 shows that concentrations at Queensferry Road and Salamander Street show breaches of the Scottish Government objectives, although all monitoring locations meet the UK National Objectives. In East Lothian, 2018 monitoring data showed no exceedances of any Air Quality Objectives and followed the same result for 2017. The last exceedance for the

2019 Air Quality Annual Progress Report (APR) for West Lothian Council - In fulfilment of Part IV of the Environment Act 1995 - Local Air Quality Management, June 2019

Musselburgh High Street AQMA was recorded in 2016.

In Fife, the Appin Crescent, Dunfermline AQMA (which is within the South Fife area included as part of the ESES region), the 2018 data shows that all annual mean concentrations were below the Air Quality Objectives for Scotland for NO₂ and PM₁₀.

In Midlothian, no new issues were identified in 2018 as requiring further assessment and Midlothian Council therefore currently has no air quality issues. Following the revocation of the Pathhead AQMA in 2014 there are currently no AQMAs in the Midlothian Council area.

The latest data continues to show that there are no areas in the Scottish Borders that are at risk of exceeding Air Quality Objectives for Scotland for any of the prescribed pollutants.

For West Lothian, the 2018 data shows that the long-term average Air Quality Objectives for Scotland have been met for NO₂ and PM₁₀ at all continuous monitoring stations in the three AQMAs. In the Linlithgow AQMA the 2018 PM₁₀ levels increased slightly over 2017 levels, whilst NO₂ decreased slightly in 2018 compare to 2017. For the Broxburn AQMA both the NO₂ and PM₁₀ for 2018 showed a slight decrease compared to 2017 and continued the trend in meeting the Air Quality Objectives. The results for the Newton AQMA, that was recently declared in 2016, showed that the annual average levels of both PM₁₀ and NO₂ decreased in 2018 compared to 2017. The short term PM₁₀ and NO₂ Air Quality Objectives were also met during 2018.

Given that the transport system is linked to negative impacts on air quality, pollutants such as PM₁₀, NO₂, CO₂ and Benzene emitted by road vehicles have a significant detrimental impact on health.

COST OF PUBLIC TRANSPORT

There is a perception that the cost of using public transport in ESES is high when compared to the private car.

Bus Travel Costs

The cost of monthly bus tickets varies within the region and cover specific network areas only. For example, a monthly bus ticket bought within the City of Edinburgh will provide unlimited travel by bus wherever Lothian Buses operate (typically limited to within the City of Edinburgh and towns located close to the City of Edinburgh boundary), however the ticket is non-transferable to other operators with different network coverage. This can act as a deterrent from using bus as it may mean purchasing tickets covering 2 or more regions in order to reach a particular destination with associated cost and convenience implications to travel choices.

The differing costs in areas of ESES, as of February 2020, is as follows - Scottish Borders (no monthly ticket available), East Lothian (£165 - 28 County Plus Tickets), West Lothian (£100 - Lothian West x20 Day tickets), Midlothian (£60 - 4 week advance purchase Lothian Ridacard), City of Edinburgh (£60 - 4 week advance purchase Lothian Ridacard) and South Fife (£115 - Fife 4 week Megarider Plus). In the Scottish Borders, Borders Bus do not offer a monthly ticket however a weekly ticket costs £42 for travel across Edinburgh, the Lothians, Scottish Borders and Carlisle.

Rail Travel Costs

The cost of peak hour travel by train between Edinburgh city centre and a number of destinations has been considered (cost per kilometre), as shown in Table 10. These values have been calculated using the cost of a single peak hour ticket to Edinburgh city centre divided by the distance travelled. The cost of travel for these locations ranges between £0.17 and £0.32 per km and averages at £0.24 per km on the city limits

Table 10: Peak Hour Cost of rail travel between Edinburgh city centre and various towns within the region

Local Authority	Towns	Rail	
		Peak Single Price	Price per km
Fife	Inverkeithing	£5.80	£0.26
Fife	Kirkcaldy	£8.80	£0.22
Scottish Borders	Galashiels	£10.50	£0.22
East Lothian	North Berwick	£7.10	£0.20
Midlothian	Gorebridge	£6.00	£0.32
West Lothian	Livingston	£5.70	£0.24
West Lothian	Linlithgow	£5.80	£0.20

Rail remains comparatively more expensive than the equivalent journey by car (based on the direct cost i.e. fuel); around twice as expensive when compared to the UK Government’s advisory fuel costs (£0.13 per km) for the equivalent car trip adding weight to the perception that car travel is cheaper than by public transport.

Some rail costs in ESES (particularly to stations in South Fife) are also relatively expensive when compared to travel between comparable journeys to Aberdeen, Dundee and Glasgow. Comparing the cost of rail travel in the ESES region to other regions within Scotland shows that the costs of a typical commuter trip to/from Edinburgh is broadly in line with an equivalent trip to Aberdeen, Glasgow or Dundee.

Comparison of Public Transport Costs

Figure 43 allows comparison of monthly ticket prices for both rail and bus journeys within each of the local authority areas. The (costs for bus tickets have been determined using information published on individual bus operators’ websites and the cost of rail has been determined using information extracted from National Rail enquiries (correct as of December 2020). However, it should be noted that monthly bus tickets cover trips on the network that vary per region per operator. The equivalent ticket for regional monthly rail tickets are not available. Instead monthly tickets can be purchased from a certain origin (i.e. Kirkcaldy) to a certain destination (i.e. Edinburgh Waverley). The rail tickets can only be used for the specified destinations and any intermediate stop on route. The costs for the bus tickets have been determined using information published on individual bus operator’s websites and the cost of rail has been determined using information extracted from National Rail enquiries.

Monthly Bus and Rail Tickets and Car Fuel Costs Comparison to Edinburgh City Centre



Figure 43: Monthly Bus and Rail Ticket Costs within each Local Authority Area

The above figure highlights that monthly rail tickets within the region are in most cases noticeably more expensive than an equivalent monthly bus ticket. Based on travel time comparisons within the region, rail journey times are typically faster than bus therefore a higher fare may in part be expected.

Figure 43 also highlights that in areas within the region where there is limited access to bus services, there is considerably more expenditure associated with rail travel in the region.

Figure 43 shows a comparison of rail and bus journey costs and times for travel between key settlements in the region and Edinburgh city centre. It shows that, whilst costs for travel by rail are consistently higher than travel by bus, travel by rail is faster. The table also shows a degree of variance between journeys to Edinburgh from the towns in the surrounding local authorities, with the relative cost by rail being reasonably consistent for journeys from Fife, Scottish Borders, East Lothian and Midlothian.

Figure 44 summarises the costs by mode (expressed as pounds per hour) for these trips. travel between selected towns in the surrounding authorities and the City of Edinburgh.

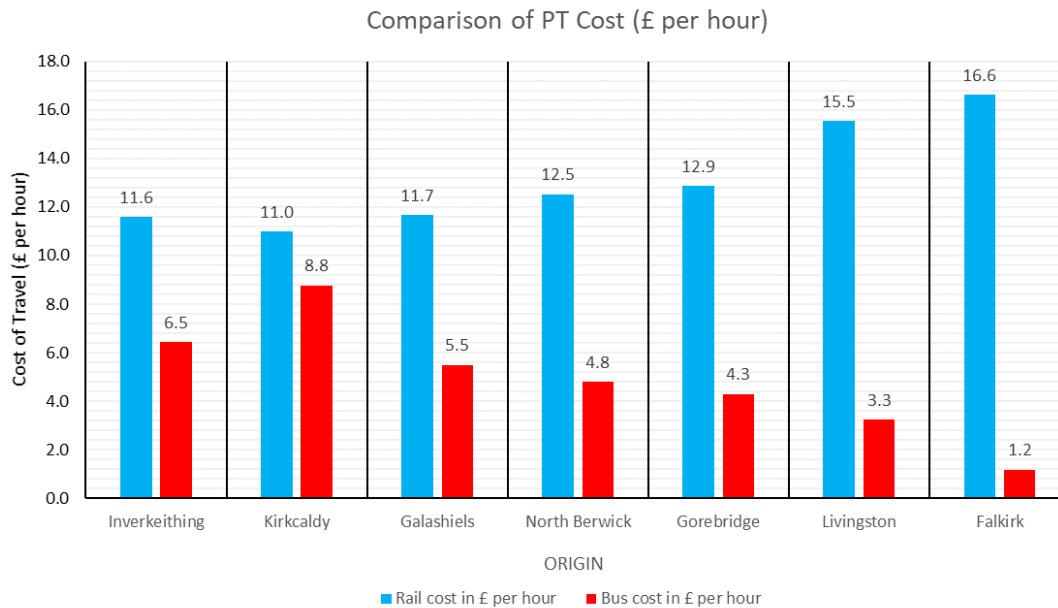


Figure 44: Comparison of Rail and Bus journey costs per hour

The figure shows that travel by rail is relatively expensive when compared to travel by bus. Rail costs range between approximately £11 and £17 per hour depending on the point of origin. The relative cost of travel by bus is lower compared to rail and appears to have a lower cost when travelling from locations south of the Forth Estuary.

Overall, the information shown in Figure 44 suggests that travellers are willing to pay a premium for the savings in journey times (see Figure 43). Trips with the greatest disparity in rail and bus costs per hour are those where travel by rail offers the greatest journey time savings when compared to travel by bus, suggesting that bus journey times need to reduce to be more competitive with rail.

FREIGHT

There are a number of key freight centres located either in or in close proximity to the ESES region with Forth Ports operations¹⁰² including the ports of Rosyth, Leith and Grangemouth that cater for maritime freight. These ports handle a combined total of

¹⁰² Forth Ports, Accessed January 2021, <https://www.forthports.co.uk/our-ports/grangemouth/#:~:text=Forth%20Ports%20Grangemouth%20is%20Scotland's,liquid%20and%20general%20cargo%20terminals.>

approximately 25 million tonnes of cargo per annum. There are also satellite ports operated by Forth Ports in Fife at Burntisland, Kirkcaldy and Methil. Edinburgh Airport is an international gateway for air freight handling just over 20 thousand tonnes of cargo in 2018¹⁰³, and rail links connect the region to the Mossend Strategic Rail Freight Interchange in North Lanarkshire. In addition, the trunk road network in the region provides a key connection for road-based freight between northern and central Scotland as well as cross-border connections to England and onward to the rest of the UK. The trunk road network also provides key connections to the sea, air and rail-based freight facilities within the region.

Although a number of key strategic freight interchanges lie outside the ESES region, the geographic location of the region means that the trunk road and rail networks carry a range of freight movements to and passing through the region including cross-border movements to England. For example, although the port of Grangemouth lies within the Forth Valley region, key road connections to and from the port pass through ESES including the M9, A720 and A1.

In terms of road freight, over the period from 2008 to 2018 goods moved by HGVs with both origins and destinations within Scotland increased by approximately 7% (from 8,321 million tonne-kilometres to 8,873 million tonne-kilometres)¹⁰⁴. For the same period, goods moved from Scotland to the rest of the UK increased by approximately 22% (from 4,530 million tonne-kilometres in 2008 to 5,521 million tonne-kilometres in 2018), and goods from the rest of the UK to Scotland increased by approximately 10% (from 6,080 million tonne-kilometres in 2008 to 6,690 million tonne-kilometres in 2018). Although specific freight data is not readily available for the ESES region, some 26% of the average freight lifted by UK HGVs annually and travelling to or from Scotland have journeys that either started or ended in the SEStran area¹⁰⁵. It is therefore likely that the ESES region has experienced similar levels of growth in road freight as the total for Scotland.

In the ESES region, Department for Transport (DfT) vehicle licencing statistics¹⁰⁶ show that the number of total licenced vehicles registered within the region has grown by 13% between 2009 and 2019 (which can be largely attributed to the growth in the number of cars licensed). Over this time however, the number of commercial vehicles licensed in the ESES region has also increased. Although the number of HGVs licensed has reduced from 8,300 in 2009 to 7,200 in 2019 (a reduction of 13%), the number of LGVs has shown continued growth increasing from 48,500 in 2009 to 62,600 in 2019 (an increase of 29%). Overall, the total number of commercial vehicles within the region has increased from 56,800 vehicles in 2009 to 69,800 in 2019 (a 23% increase overall) primarily as a result of

¹⁰³ Transport Scotland, Scottish Transport Statistics No. 38 2019 Edition, Table 8.13, <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-38-2019-edition/chapter-8-air-transport-in-scotland/>

¹⁰⁴ Transport Scotland, Scottish Transport Statistics No. 38 2019 Edition, <https://www.transport.gov.scot/media/47300/scottish-transport-statistics-2019.pdf>

¹⁰⁵ Transport Scotland, Scottish Transport Statistics No. 38 2019 Edition, Table 3.8, <https://www.transport.gov.scot/media/47300/scottish-transport-statistics-2019.pdf>

¹⁰⁶ Department for Transport, Statistical data set Table VEH0105, <https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01>

the increase in the number of LGVs licensed.

Road based freight movements within and passing through the ESES region impact on the road network, contributing to congestion and affecting the operation of key strategic roads in the region.

As noted in the Operational Constraints section, there are a number of key locations on the trunk road network that experience significant congestion including the M90 approaches to the Queensferry Crossing, the M8/M9 approaches at Newbridge, the M8 at Junction 2 Claylands and Junction 1 Hermiston and the A720 City Bypass all of which represent key connections between freight facilities within ESES (where road freight accounts for between 6-8% of all traffic movements). As well as impacting on road based freight, these operational constraints also impact key corridors that serve the maritime, air and rail freight activities in the region.

In addition to road freight being a contributory factor to congestion in the area, the SEStran Freight Study and Action Plan¹⁰⁷ reported that congestion on the A720, A1, sections of the M8, M9 Junction 6 and A801 also has a reciprocal impact in terms of increasing business costs, and frustrations with peak time delays impacting the ability to distribute goods reliably. It is noted that a Regional Freight Study is being undertaken by SEStran¹⁰⁸. However, this is not due for publication until March 2022.

Road freight also contributes to global and local air quality problems and in 2017 accounted for 25% of all transport related greenhouse emissions in Scotland¹⁰⁹. In the UK LGVs accounted for 56% of the CO₂, 81% of the NO_x and 76% of the PM₁₀ total emissions generated by commercial vehicles in 2018¹¹⁰. As noted above, LGVs have experienced the highest growth in commercial vehicle numbers in the ESES region over the last 10 years and have driven an overall increase in the total number of road freight vehicles. The trend over this period within ESES indicates that this level of growth is likely to continue meaning that road freight emissions will rise. In addition, data from the DfT¹¹¹ reported that approximately 30% of annual vehicle kilometres driven by freight vehicles are without any load, leading to emissions also being produced when no goods are being transported leading to unnecessary movements being made on the road network with additional

¹⁰⁷ SEStran, Freight Study & Action Plan, August 2010, https://sestran.gov.uk/wp-content/uploads/2017/01/SEStran_Freight.pdf

¹⁰⁸ SEStran Regional Freight Study, 2020, <https://sestran.gov.uk/projects/regional-freight-study/>

¹⁰⁹ Transport Scotland, Scottish Transport Statistics No. 38, 2019, <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-38-2019-edition/chapter-13-environment-and-emissions/>

¹¹⁰ Department for Transport, Energy and environment data tables, Table ENV0301: Air pollutant emissions by transport mode: United Kingdom, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/944690/env0301 ods

¹¹¹ Department for Transport, Road Freight Statistics Table RFS0112, 2020, <https://www.gov.uk/government/statistical-data-sets/rfs01-goods-lifted-and-distance-hauled#overall-trends-in-domestic-road-freight>

emissions produced.

In terms of driver facilities within the ESES region the availability of services including lorry parking and welfare facilities is relatively sparse. Information available from Traffic Scotland shows that there are 3 lorry parking facilities located in the ESES region - on the A1 at the Cedar Café south of Grantshouse, on the M90 Junction 3 at Kingdom Services and on the A199 in Portobello at The Edinburgh Coach and Truck Park. In contrast, there are 11 lorry park facilities located along the M74/A74(M) route alone.

In summary, the ESES region has a number of freight sites with operational constraints on the trunk road network directly impacting on road freight operations and also the key corridors which serve non-road based freight facilities. Freight activities are also a contributing factor to CO₂ emissions and local air quality emissions, particularly road freight which has seen an increasing trend in vehicle numbers over the past 10 years especially in the LGV.

TRANSPORT INTEGRATION

Integrated Travel

Integration between bus services and other modes of transport is also an issue. The lack of services and facilities available in some locations means that it can often be difficult to make journeys that require more than 1 bus service or a change between modes to be made. The cause of this can be attributed to a number of factors such as public transport network coverage or timetabling issues for example.

Table 11 provides an indication of integration levels for travel within the region. The table shows the proportion of the population within each of the local authority areas that can access Edinburgh city centre by bus or rail by comparing journeys where multiple interchanges are allowed, with the equivalent journeys where no interchange is allowed (i.e. a direct bus or train).

In this analysis a maximum walking distance of 500m from the journey origin (i.e. the household of origin) to the first public transport stop was included. A 500m maximum walking distance was selected to reflect the fact that the analysis covers both bus and rail modes, and lies between the 400m and 800m walk distances typically defined as the maximum walking distance to a bus stop or rail station respectively.

The journey destination for this analysis was defined as a central area within Edinburgh city centre and includes Waverley and Haymarket stations, and analysis accounts for a walking time between the final public transport stop and a series of final destination points within this central area.

Table 11: Public Transport Access to Edinburgh city centre (within 500m walk of Public Transport)

	30mins		60mins	
	Interchanges	No Interchanges	Interchanges	No Interchanges
City of Edinburgh	91%	91%	99%	98%
East Lothian	11%	2%	76%	64%
West Lothian	4%	4%	82%	32%
South Fife	0%	0%	27%	11%
Borders	0%	0%	3%	3%
Midlothian	5%	5%	96%	89%
ESES Region	37%	36%	69%	56%
	90mins		120mins	
	Interchanges	No Interchanges	Interchanges	No Interchanges
City of Edinburgh	99%	98%	99%	98%
East Lothian	91%	82%	91%	83%
West Lothian	95%	60%	96%	70%
South Fife	79%	21%	98%	25%
Borders	28%	19%	33%	25%
Midlothian	97%	94%	97%	94%
ESES Region	86%	66%	91%	69%

Figure 45 and Figure 46 show accessibility within 120 minutes to Edinburgh city centre from points throughout the region based on zero interchanges and multiple interchange options respectively.

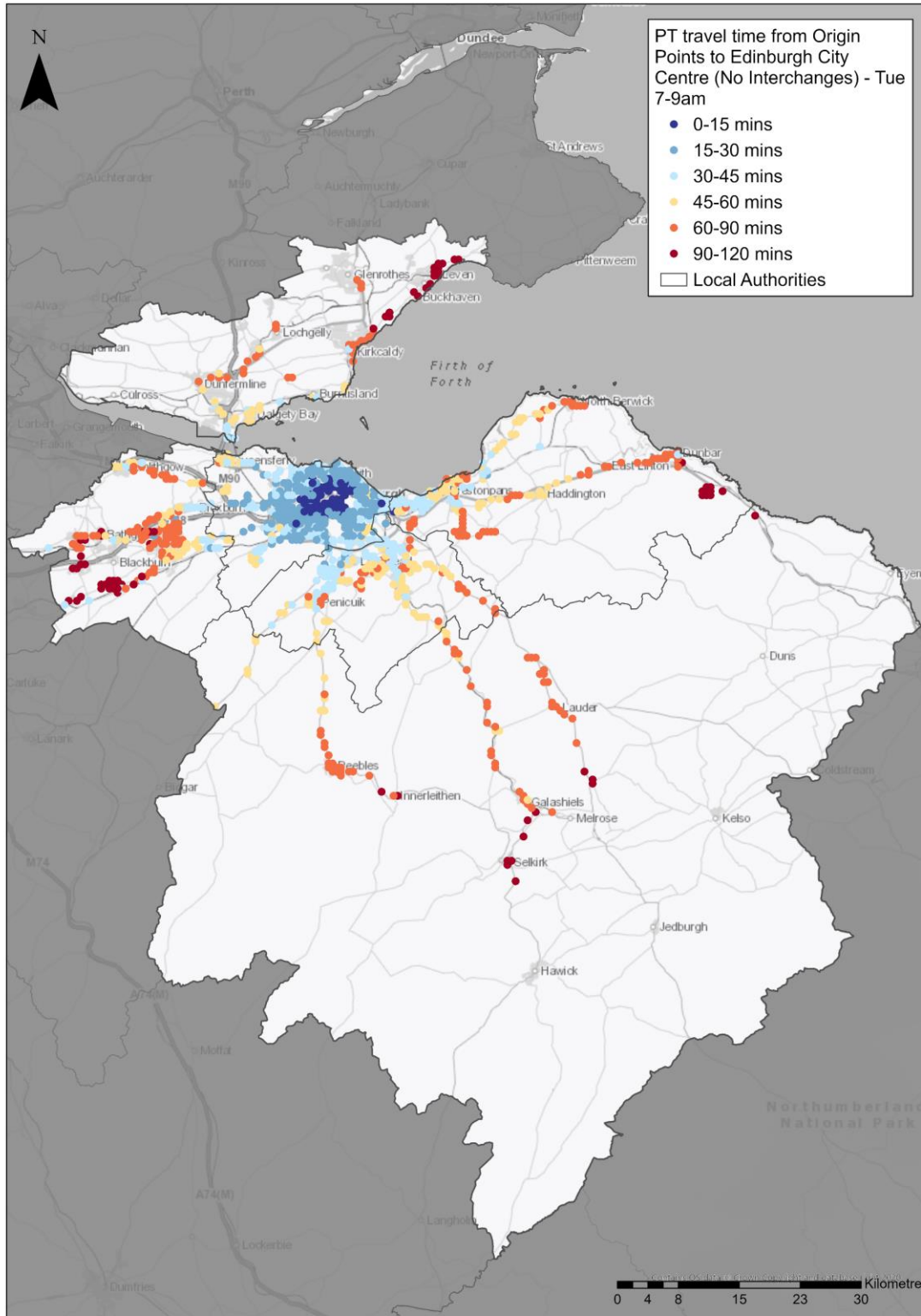


Figure 45: Public Transport Access to Edinburgh City Centre with No Interchanges

(Click image to enlarge figure)

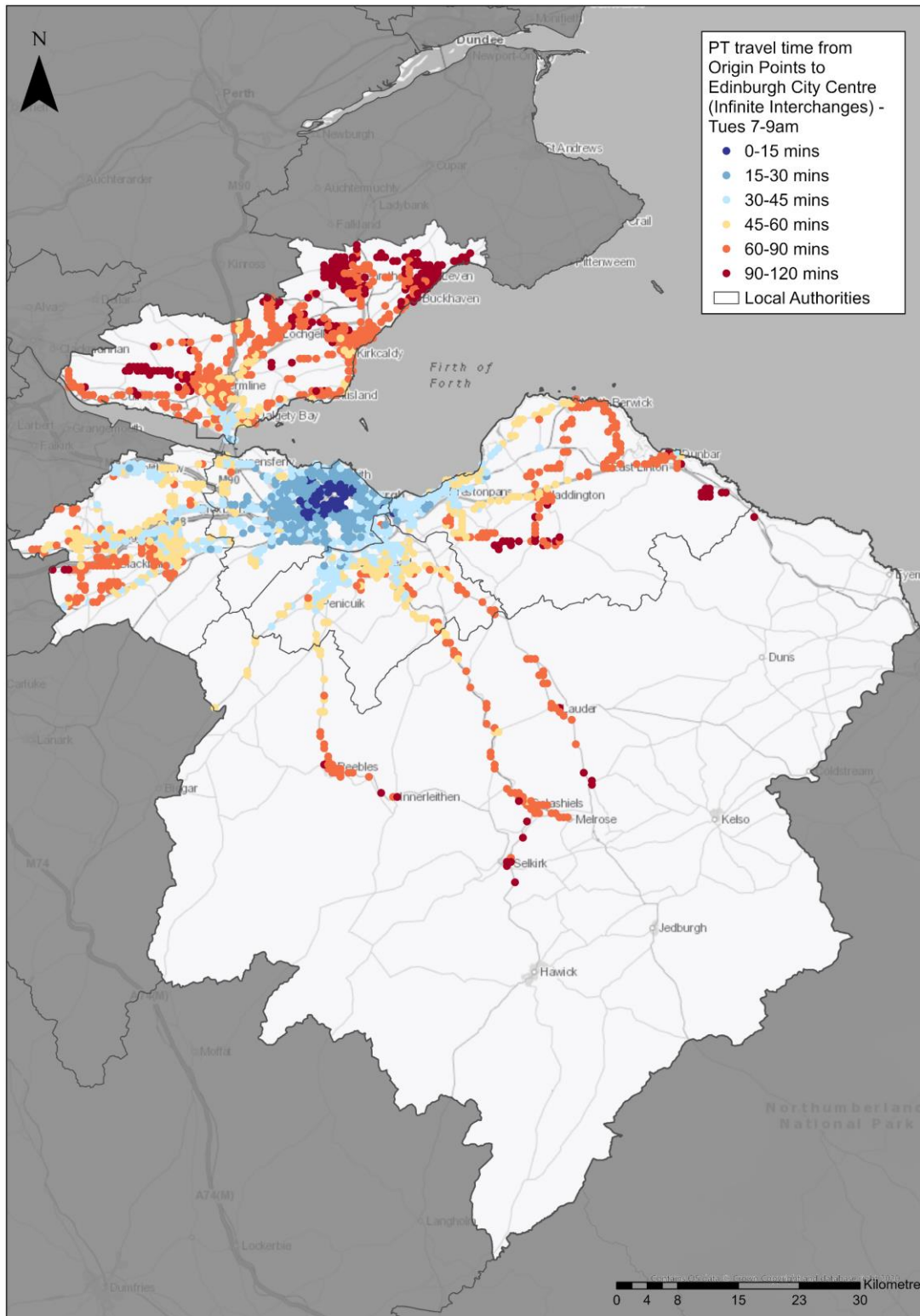


Figure 46: Public Transport Access to Edinburgh City Centre with Multiple Interchanges

(Click image to enlarge figure)

Comparing the figures shows that access to multiple interchanges expands the catchment of Edinburgh city centre, within 60 to 120 minutes into large parts of South Fife, and also within 45 to 90 minutes in parts of West Lothian.

In summary, a lack of integration between transport networks limits travel choice, impacts on the cost of travel, impacts on journey times and in doing so reduces the competitiveness of public transport and serves to increase the attractiveness of travel by car. However, improving the quality and number of integration opportunities can increase the accessibility of key locations within the region.

Active Travel Integration

Outside of the main travel hubs in the region, there is a lack of interchange opportunities between active travel and public transport. Rail travel can be difficult to integrate for walking unless stations are available near to the trip origin and destination and difficult to integrate with cycling due to a lack of storage spaces on trains.

A limited number of stations and rail coverage for some settlements within the region means that travel by rail is not a viable mode to integrate with walking. Where there are stations available, the perception of route safety can deter people from making walking trips to stations.

Cycle storage varies per line and model of train, however on Class 385 trains operating between the City of Edinburgh and Glasgow City or the Class 170 Turbostar trains operating on the Fife Circle line there is typically limited space, particularly on commuter services. Some routes in the region (between Edinburgh and Glasgow, Aberdeen and Inverness) also require cycle storage to be booked in advance of travel. Many bus operators do not permit bicycles on-board unless they are foldable which are often unsuitable for non-urban cycling therefore limiting the opportunity for mode integration.

Furthermore, Park & Ride/Park & Choose sites are often lacking in the provision of suitable and secure cycle storage and infrastructure which can prevent further growth in active travel to access bus and rail services. Neither Ingliston Park and Ride or Newcraighall rail station Park and Ride locations have secure bicycle storage facilities¹¹².

Active travel also has a role to play in end-to-end longer journeys, with walking and cycling providing access to bus/rail stations and/or bus stops as well as end destinations/'last mile' leg.

Integrated Ticketing

The ticketing system across modes and operators is also a problem, reflecting the fragmented delivery of services and public transport journey proposition for users travelling across modes within an area of ESES; across ESES and between ESES and other regions in Scotland.

Within the City of Edinburgh, the Ridacard covers travel on Lothian Buses and Edinburgh Tram with future proposals including consideration to extend use to the Edinburgh Cycle Hire scheme. This lack of integrated ticketing serves to increase the cost of travel across different areas of the region as well as between ESES and other regions and reduces

¹¹² Traffic Scotland website (Traffic Info map/Park and Ride)

convenience for the user making journeys involving multiple modes and operators. In addition, for passengers making fewer journeys per week by bus and rail, the option to buy an integrated season pass covering both modes can be more expensive than buying individual season tickets for both bus and rail. However, outside of the City of Edinburgh, there are no integrated ticketing options available for cross-modal or inter-operator travel.

TRANSPORT AND LAND USE PLANNING INTEGRATION

As discussed in the Socio-Economic section of this chapter, the majority of travel to work trips within ESES are made by private car and travel is focused on the key routes to and from the City of Edinburgh where there are existing operational pressures and issues experienced on the trunk road network and key corridors within the region. The travel to work characteristics are reflective of the City of Edinburgh accounting for 38% of the employed population in the region. However, property prices and rent are both relatively high within the City of Edinburgh area leading the population to live further out from places of employment or education with an associated impact on travel distances and volume of trip-making.

In terms of future growth within the region, the SESplan Cross Boundary and Land Use Appraisal Report¹¹³ identified that population, number of households and employment was forecast to grow in the area by 7%, 15% and 14% respectively between 2012 and 2024 leading to an increase in the numbers of trips. Given that employment was forecast to grow approximately twice as much as population, the study identified that this growth would lead to a number of operational issues on the strategic road network. In particular, the study recognised that the concentration of employment sites will lead to an increase in the demand for travel on the strategic road network with the greatest concentration of employment development located off the A8 near to Edinburgh Airport, the A720 and the M8 at Livingston. Pressure on specific junctions that provide access to and from the strategic network, include Newbridge, Gogar, Hermiston Gait, Sheriffhall, Newcraighall and M8 junction 3 (as shown in Figure 32).

Through the Edinburgh and South East Scotland City Deal¹¹⁴ the Partners have committed to put in place a Regional Developer Contributions framework based on findings of the Cross Boundary Study. The Deal notes that these interventions and commitments, taken with the additional transport investment to enable the innovation and housing projects, will help ensure the city region continues to grow and flourish.

Figure 47 shows that vehicle-kilometres are forecast to increase during all peak periods, for each of the forecast years (2022, 2027, 2032 and 2037). This increase is expected to exacerbate existing operational issues on the trunk road network within the region. These forecasts are based on the outputs from the Transport Model for Scotland 2014 (TMfS:14) and represent future travel conditions assuming that nothing would change in terms of the key drivers of travel demand and that the situation as it existed pre-COVID-19 will continue.

¹¹³ Transport Scotland, SESplan Cross Boundary and Land Use Appraisal – Final, April 2017

¹¹⁴ City Region Deal Edinburgh & South East Scotland, Accelerating Growth, 2020, <https://static1.squarespace.com/static/55c87967e4b05aa55020f656/t/5c263201898583ec74c01146/1546007049724/ESESCR+Deal+Document+6+August+2018+signed.pdf>

The long term impacts of COVID-19 are further discussed in the National Case for Change COVID-19 Addendum referenced in Chapter 1 and future conditions are also considered in section 3.6 of this report.

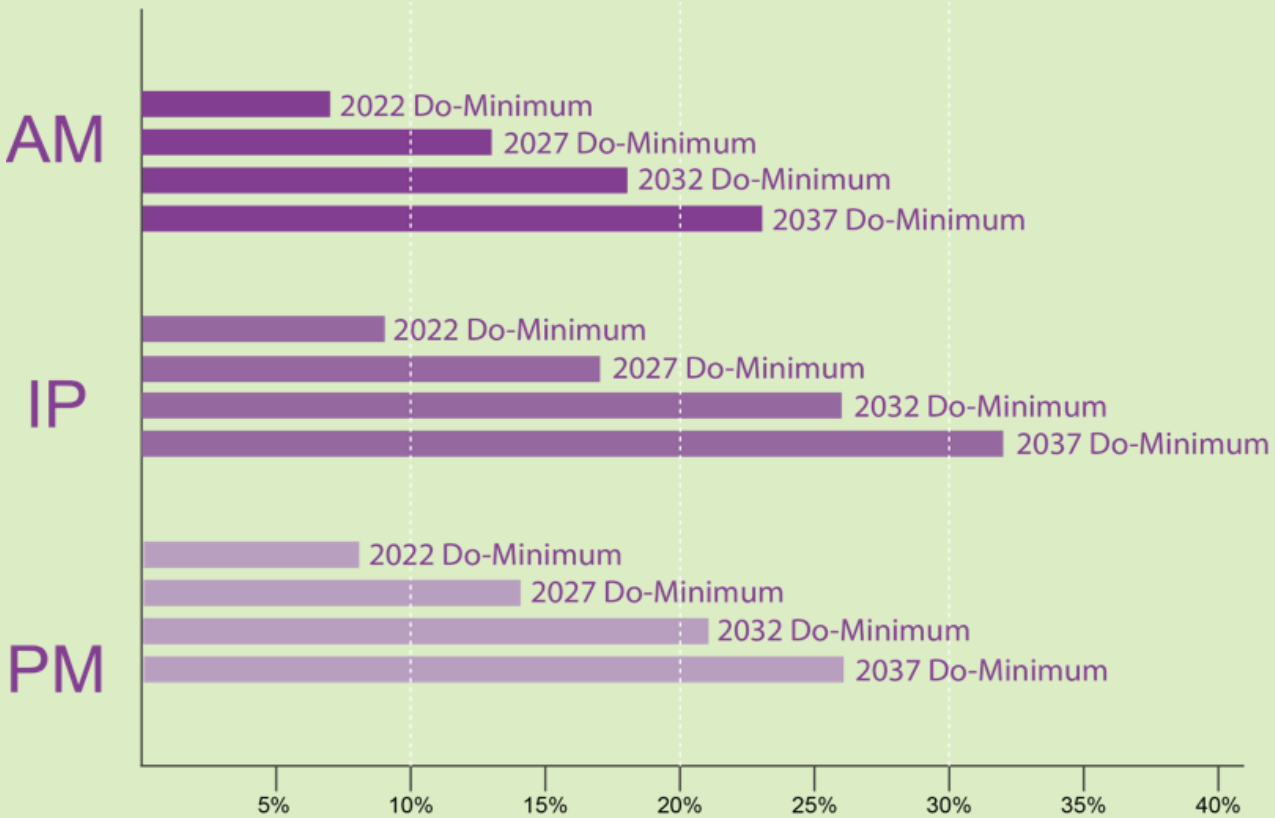


Figure 47: Forecast Change in Vehicle-Kilometres within the ESES region during peak periods (TMfS:14)

A continued focus of growth in employment areas on the outskirts of the City of Edinburgh and other key employment centres in the region (see Figure 10 and Figure 11) will further focus travel on key routes to these areas of the region. Following the publication of NTS2, the emerging National Planning Framework 4¹¹⁵ (NPF4) is the Scottish Government’s spatial plan for Scotland that will set out policies and proposals for the development and use of land. NPF4 will promote future patterns of development that embed the National Transport Strategy 2 (NTS2) Sustainable Travel Hierarchy in decision making and will seek to promote high quality walking, wheeling and cycling environments, public transport and shared transport options in preference to single occupancy private car use. The strategy framework will help in meeting climate change targets and transition towards healthier, more local, zero carbon living and working.

¹¹⁵ National Planning Framework 4 (NPF4), Transport Scotland, 2020, <https://www.gov.scot/publications/scotlands-fourth-national-planning-framework-position-statement/>

3.4.1. Online Survey: Reported Problems in ESES

As part of the wide-ranging engagement exercise undertaken for STPR2, an online survey was promoted to collect the views from the public and organisations across Scotland on the transport issues and challenges that impact their day to day journeys. A total of 3,025 responses to the survey were received, with 24% (718) submitted for ESES region. As part of the survey, respondents were asked to rank their top 3 priority problems.

The commonly raised problems for the region included:

- Cycling - Availability of safe cycling infrastructure
- Roads - Level of traffic congestion
- Roads - Quality of roads infrastructure
- Rail - Cost of rail travel
- Bus – Journey times relative to car
- Environment – Air quality

The findings from the survey have been used to inform and where appropriate act as a cross-check with the identification of the transport related problems described in this section.

3.5. Opportunities

Based on the activities described at the start of this chapter, the following transport related opportunities have been identified for the ESES region. Evidence to support the themes listed below is provided in this section.

- Increase in Active Travel Mode Share
- Tourism
- Digital Connectivity
- Maximise Benefits Associated with Changing Legislation
- Technology
- Priority for Public Transport
- Improve the Integration of a Sustainable Transport Network Within New Developments
- Improved Transport Integration Outwith Urban Areas
- Transport Hubs

ACTIVE TRAVEL MODE SHARE

Given the high volume of travel to work trips of less than 5km, by private car, within ESES, there is an opportunity to improve active travel provision to attract these shorter journeys onto more sustainable modes. However, currently real and perceived barriers relating to route quality, lack of lighting on routes, personal security issues and integration with the wider transport network, in particular bus and rail services impacts on the uptake of more journeys in the region being undertaken by walking and cycling.

Active travel is identified as of importance to health, social equality and the environment. An increase in the uptake of active travel has the potential to improve air quality and therefore reduce the harmful effects of transport on individual's physical health.

Policy and strategy documents at national, regional and local levels identify walking and cycling at the top of the transport hierarchy. This in turn provides a stronger platform to increase levels of active travel, both from a transport and wider societal and policy point of view and to build on the current platform in the ESES region. On this basis, there is a clear opportunity to deliver the strategic active travel network identified in the 'SEStran Strategic Network – Cross Boundary Active Travel Routes' within the ESES region.

The strategic network presents routes that are safe, attractive, accessible and connected networks of walking and cycling. They serve local centres as well as provide connections to public transport services to access employment, education, health and other services. Improved routes would also offer the opportunity to help address transport poverty and deprivation where it is higher in the ESES region (including within urban areas as well as in more rural areas).

There is an opportunity to improve integration between cycling and public transport modes by increasing cycle provision and improving facilities for cycle storage at Park and Ride sites at Ingliston, Wallyford, Musselburgh and at Newcraighall rail stations.

Further, cycling is a relatively low-cost efficient method for completing medium length journeys (compared to travel by private car or by public transport). Cycling also offers a method of travel that can be more direct in that it can avoid travel on radial public transport routes and instead trips can be taken using more orbital routes avoiding a

need for interchange between services and/or between modes.

For longer trips, carriage of bikes by rail has a reasonably high uptake and can facilitate longer multi modal cycling-based trips. There is now also provision for cycles on buses available on selected services in the region (for example Borders Buses service X62 and service 253). Whilst space for cycles on buses is limited, the innovation provides some scope for integrating cycle and bus travel and highlights the potential for including bikes on other services. In particular, in the City of Edinburgh there is scope to integrate the 'Just Eat' hire cycles with the bus services operating within the city by providing integrated ticketing between 'Just Eat bikes' and city centre bus services as well as providing cycle carriage on city centre buses.

In addition, given the rising popularity of cycling, there is an opportunity to capitalise on this by introducing multi-modal transport hubs, with provision for cyclists (i.e. dedicated cycle lanes connecting with hubs providing access to onward public transport services, secure cycle storage and new or developing opportunities for cycle carriage on onward modes of transport), across the region but with a focus on travel to key destinations within the city. These facilities will widen access to employment, healthcare, education and other services by bike (for at least part of the overall journey).

TOURISM

As noted in Chapter 2, tourism is expected to be one of the sectors in the region to experience strong growth in the future. The Economic Strategies published by the local authorities in the ESES region also identify tourism as a key growth sector with significant implications for the GVA of both the region and for Scotland.

The GVA generated by the tourism industry within the ESES region has shown continued year on year growth over the period 2008 to 2018 with GVA almost doubling from £670 million to £1,330 million (and accounting for 32% of tourism generated GVA in Scotland)¹¹⁶. Over the same period, there has been an increase in holiday trips to Scotland of approximately 11%, increasing from approximately 5.9 million in 2008 to approximately 6.6 million in 2018¹¹⁷. There has also been corresponding increases in visitor spend (from £1,574 million to £1,830 million) over the same period with a slight reduction in length of stay (from 4.3 nights to 3.7 nights).

The City of Edinburgh and the Lothians were the most popular Scottish region to visit for both domestic and international travellers in 2019¹¹⁸. Between 2018 and 2019, the number of visits decreased by 1% to 5,348 thousand visits but average length of stay

¹¹⁶ Scottish Government Growth Sector Statistics, Table 2.2 of the International Tourism Database, 2020, <https://www.gov.scot/publications/growth-sector-statistics/>

¹¹⁷ Visit Britain, The Great British Tourist Survey, 2019, https://www.visitbritain.org/sites/default/files/vb-corporate/gb_tourist_annual_report_2019_final.pdf

¹¹⁸ Visit Scotland, Edinburgh and the Lothians Factsheet, 2019, <https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers-2/regional-factsheets/edinburgh-and-lothians-factsheet-2019.pdf>

within the region increased by 23% for international visitors (an increase to 5.6 nights) and by 2% for domestic visitors (an increase to 2.6 nights). There has also been increase in visitor spend per visit of 2% to £1,980 million.

It is recognised that the COVID-19 pandemic has had a major impact on the tourism industry over the last year, affecting Scotland as a whole as well as the ESES region. For example, Edinburgh Airport reported¹¹⁹ a 91% drop in passenger numbers between 2019 and 2020, and Edinburgh Castle (the region's number 1 visitor attraction) reported a 98% reduction in visitor numbers in 2020 compared to the number of average daily visitors in 2019¹²⁰.

Although overall tourist numbers are significantly reduced due to COVID-19 and the impacts of the pandemic on tourism remain uncertain, a higher proportion of people chose to holiday within the UK rather than go abroad during 2020¹²¹. It is unclear when tourism will recover and to what level, but with the horizon of STPR2 extending over 20 years it is anticipated that the tourism sector will recover with there being the opportunity to capitalise, initially, on the domestic tourist market within the region as restrictions in Scotland and wider UK ease.

The Scottish Government's Update to the Climate Change Plan¹²² also acknowledges that sustainable tourism will be key in developing Scotland's future net zero economy, and the opportunities that the green recovery can bring such as ecotourism.

Visit Scotland identifies that 10 of Scotland's top 20 most visited tourist destinations (top 10 paid attractions and top 10 free attractions)¹²³ are located within the City of Edinburgh. The attractions on offer and other annual events/festivals combined with the available travel options from/to and within the City of Edinburgh, means the city will continue as a major tourist destination as well as a gateway for visitors to access the rest of the region and Scotland.

Across the region, there are also a range of tourist attractions on offer including

¹¹⁹ Edinburgh Airport: Changes to airport forecourt; access January 2020, <https://corporate.edinburghairport.com/media-centre/news-releases/changes-to-airport-forecourt>

¹²⁰ BBC News, Accessed January 2020, <https://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-54840314>

¹²¹ Cumberland and Research Without Barriers, 2020, <https://www.cumberland.co.uk/news/staycation-survey>

¹²² Scottish Government, Update to the Climate Change Plan 2018-2032, 2020, <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/pages/4/>

¹²³ Visit Scotland, Scotland's Most Visited Tourist Destinations, 2020, <https://www.visitscotland.com/see-do/attractions/most-visited/>

nationally recognised historical sites¹²⁴ and nature and wildlife centres¹²⁵, such as Tantallon Castle, Jedburgh Abbey, Rosslyn Chapel, Scotland's Secret Bunker and Linlithgow Palace for example. These attractions are, however, less accessible by sustainable transport modes given that a high number of them have low frequency bus services (see Figure 30) or are remote from a rail station (see Figure 24) with trips by public transport to these locations often taking significantly longer than the equivalent trip by car to/from the City of Edinburgh.

A strategic transport system within ESES which offers sustainable travel choices for visitors together with the range of attractions on offer, provides the opportunity to further enhance the region's attractiveness as a key tourism destination. This also provides the opportunity to bring benefits to local communities in the region, including economic benefits through related employment in the tourism sector and visitor spend.

DIGITAL CONNECTIVITY

Less than 5% of all premises in the Scottish Borders and 9% in East Lothian have access to UFBB compared to 25% in Midlothian, 53% in West Lothian and 82% in the City of Edinburgh¹²⁶.

The availability of broadband and 4G penetration within rural areas is relatively poor (compared to the rest of the ESES region) which limits opportunities for home working¹²⁷.

Good quality broadband enables the scaling up of local businesses to allow them to compete on a global scale leading to new business and employment opportunities across the region.

Given the level of in-commuting from the wider region to the City of Edinburgh, there is scope for an increase in home working to reduce the need to travel unsustainably.

MAXIMISE BENEFITS ASSOCIATED WITH CHANGING LEGISLATION

Based on the existing plans to introduce a city centre and city-wide LEZ within the City of Edinburgh area, there is an opportunity to build on potential mode shift by improving opportunities for sustainable travel within the entire region in parallel to introducing vehicle restrictions. Given the level of in-commuting to Edinburgh city centre and 45% of trips being undertaken by the private car, there is the potential for significant levels of mode shift towards more sustainable modes if the restrictions put in place for the LEZ are complemented by improved provision for active travel and public transport offer for travel within the region.

It is recognised that there may be other opportunities associated with changing

¹²⁴ Historic Scotland, Historic Scotland Properties, 2020, <https://members.historic-scotland.gov.uk/places>

¹²⁵ Wildlife Trust Scotland, Nature and Wildlife Centres, 2020, <https://scottishwildlifetrust.org.uk/things-to-do/visit-our-reserves-and-visitor-centres/>

¹²⁶ Ofcom, Connected Nations, 2019, <https://www.ofcom.org.uk/research-and-data/multi-sector-research/infrastructure-research/connected-nations-2019/data-downloads>

¹²⁷ Ofcom, Connected Nations, 2019, *ibid*

legislation that could be capitalised upon to engender improvements to the transport network.

TECHNOLOGY

Within a geographically diverse region that includes a major city, urban areas and accessible and remote rural communities, there is an opportunity to embrace potential changes in demand for travel and future travel choices through the promotion of Mobility as a Service (MaaS).

Increased provision for Electric Vehicle (EV) charging infrastructure is also a potential opportunity as there is a varied level of provision for EV charging throughout the region, with some areas providing less coverage than expected compared with other similar areas. Within Scotland there is on average 37 charging devices per 100,000¹²⁸ of the population, however within the ESES region the availability of charging points varies as follows with the number of charging locations in brackets - City of Edinburgh (117), West Lothian (43), Fife (93), East Lothian (103), Midlothian(38) and Scottish Borders (41) Council areas.

Infrastructure constraints related to the number of charging points, electricity infrastructure and parking re-allocation may be contributing factors to deter further uptake of EVs in areas of the region.

PRIORITY FOR PUBLIC TRANSPORT

There is an opportunity to capitalise on the positive benefits that can be achieved by giving priority to public transport modes over general traffic, particularly on the key trunk roads and the major public transport corridors within the ESES region.

The Forth Replacement Crossing Public Transport Strategy (PTS)¹²⁹ was developed in partnership with a range of organisations, including local authorities and providers of public transport. The strategy was first published in January 2010 and subsequently refreshed and republished in August 2012. A key component of the strategy was that, after the opening of the new Queensferry Crossing, the Forth Road Bridge was closed to general traffic and now provides a dedicated public transport corridor for buses, taxis, pedestrians and cyclists.

The Forth Replacement Crossing Project One Year After Opening Evaluation report¹³⁰

¹²⁸ Department for Transport, Electric vehicle charging device statistics, October 2020, <https://www.gov.uk/government/statistics/electric-vehicle-charging-device-statistics-july-2020>

¹²⁹ Various Partners, Forth Replacement Crossing Refreshed Public Transport Strategy, August 2012, https://www.transport.gov.scot/media/33660/frc_-_pts_-_forth_replacement_crossing_-_public_transport_strategy.pdf

¹³⁰ Transport Scotland, Forth Replacement Crossing One Year After Opening Evaluation, December 2020, <https://www.transport.gov.scot/media/48814/frc-project-1ya-evaluation-report.pdf>

includes consideration of the performance of the Public Transport Strategy to date and notes the significant journey time savings observed for public transport travelling southbound between Halbeath and Barnton/Newbridge in the morning peak period in particular via the dedicated public transport corridor. Journey times have also shown an overall improvement southbound in the morning period from selected origins in Fife to some of the largest employment areas in Edinburgh and West Lothian such as the Gyle Centre and Broxburn East. These journey time improvements range from approximately four minutes to 19 minutes using the dedicated public transport corridor

The quicker journey times have been accompanied by a steady increase in the number of buses observed using the Forth Road Bridge to in excess of 500 per day by November 2019. The average demand has also increased at both the Halbeath and Ferrytoll Park and Ride sites from 2014 to 2018, with around a 10% increase at Ferrytoll and 40% at Halbeath.

Operators also report a positive impact, with Stagecoach reporting an 8% reduction in journey times and 17% growth in passenger numbers pre COVID-19. Stagecoach now also operate an increased service frequency along the Fife – Edinburgh express corridor of 15 buses per hour which is an extra three services per hour. Stagecoach does, however, also cite that a lack of public transport priority in other areas continues to affect journey times on this part of the network to Edinburgh city centre.

The Forth Bridge public transport corridor provides an example within the ESES region of how providing priority to public transport improves journey times and journey time reliability combined with an improved service offer in turn leads to increased patronage . Within the region, the West Edinburgh project of the Edinburgh and South East Scotland City Deal will also see investment in a strategic package of transport improvements. As part of this, the Scottish Government has committed £20 million for investment to support public transport infrastructure improvements identified by the West Edinburgh Transport Appraisal (WETA) and the City of Edinburgh Council has committed £16 million.

Both the Forth Bridge public transport corridor and West Edinburgh project provide a basis to bring forward further public transport priority in the region and encourage mode shift to more sustainable travel options.

IMPROVE THE INTEGRATION OF A SUSTAINABLE TRANSPORT NETWORK WITH NEW DEVELOPMENTS

Household, population and employment forecasts show general growth (and an ageing population). In particular, there is a focus on growth in employment areas on the periphery of the City of Edinburgh that will further focus travel on key routes from the wider ESES area to these areas. The ESES City Region Deal also includes 7 strategic development areas which provide the opportunity to define the delivery of transport and land use developments in the city region in an integrated and sustainable manner.

Given that the configuration of bus and rail networks in the region are primarily radial in nature with a focus on Edinburgh city centre, there are a lack of orbital routes providing connections between destinations out with the city centre. Improved integration of the transport network in the region outwith Edinburgh could help to mitigate current

constraints on the transport network into Edinburgh as well as demand from future development areas. In doing so, this would support wider progress to embed the sustainable travel hierarchy in land use planning to enable and encourage sustainable travel choices.

IMPROVED TRANSPORT INTEGRATION OUTWITH URBAN AREAS

Improved connectivity and accessibility between more rural settlements across the region and other urban areas could reduce the need to travel to the City of Edinburgh and other key centres in the region. An increase in employment and commercial opportunities across the wider ESES region could lead to shorter distance trips that can be made more easily by walking, cycling and public transport. This could also result in an associated increase in the catchment area to a skilled labour market for employers within the region and businesses further afield. Such changes could also potentially encourage people to stay in more rural areas of the region which would be supportive of changes brought forward by the Planning Act (2019)¹³¹ which requires that an outcome of the National Planning Framework is to increase the population of rural areas.

This would also complement the workforce mobility project being taken forward through the Edinburgh and South East Scotland City Region Deal¹³² to examine the role of travel in supporting vulnerable or disengaged members of the region's workforce to move into and sustain good learning or work opportunities, while also opening up new talent pools for employers.

The project will explore the potential of the National Entitlement Card to be the mechanism for a single concessionary travel offer, examine how the existing combined travel support offer can be used to maximise the positive impact on disadvantaged groups seeking work or learning, and finally how to work with transport to identify opportunities to create active travel options that widen the range of transport options for disadvantaged jobseekers and learners.

TRANSPORT HUBS

There are some rail stations located on the outskirts of the City of Edinburgh (such as Curriehill, Wester Hailes, Eskbank, Wallyford and Edinburgh Gateway) with the potential to function as transport hubs for travel into Edinburgh city centre. Integration between walking, cycling and rail at these locations, together with ensuring that any new facilities cater for the mobility impaired, could result in a reduction in the reliance on private car for short trips between residences and stations.

3.6. Future Conditions

¹³¹ Scottish Government, Planning (Scotland) Act, 2019,
<https://www.legislation.gov.uk/asp/2019/13/contents/enacted>

¹³² Edinburgh and South East Scotland City Region Deal,
<http://esescityregiondeal.org.uk/key-documents>

The problems and opportunities identified above are focused on the transport system pre COVID-19 drawing on the findings from data analysis and engagement. Given the timescales for the delivery of STPR2, there is a need for 'horizon scanning' to better understand how potential future uncertainties could impact the operation and management of the transport network, a knowledge of which will support the identification of interventions that are resilient in the face of potential alternative futures. This process of scenario planning will consider major transport disrupters and uncertainties and is accordingly being carried out at a national level for the STPR2 programme as a whole. However, to support this, consideration has also been, and will continue to be, given to future network conditions and uncertainties at a regional level.

3.7. Summary

This section has discussed the transport problems and opportunities in the ESES region informed through data analysis, stakeholder engagement and policy review and set in the socio-economic, geographic, transport and environmental context of the region.

Key problems of note are:

Public Transport Accessibility: ESES is a geographically diverse region that includes a major city, urban areas and accessible and remote rural communities, with corresponding variable access to public transport throughout. Large sections of the rural areas (particularly in East Lothian and the Scottish Borders) have lower than desired levels of access to public transport, thus limiting their travel options when travelling to access employment, education and health facilities.

Public Transport Connectivity: Whilst connectivity into Edinburgh city centre is generally good, there are some particular destinations on the outskirts of the city that can be difficult to access for some particularly by public transport, which can drive up the number of trips being taken by private car. In addition, the lack of integrated transport within parts of the region (particularly East Lothian and the Scottish Borders) can result in large proportions of the population, in these areas, experiencing longer journey times by public transport than desired to access key services including health, education and employment. A lack of direct sustainable transport options means that trip choices between locations by public transport are limited by high journey times when compared to travel by private car. The travel to work bus mode share in the City of Edinburgh is significantly higher than the more rural areas, such as the Scottish Borders, as well as parts of South Fife, West Lothian and East Lothian. Issues around rail network coverage, rail capacity and access to rail stations also contributes to lower levels of sustainable mode share.

Operational Constraints: Within the region, the City of Edinburgh is the largest attractor of trips with up to approximately 90,000 inbound commuting trips travelling to the city each day, of which approximately 65% are by car. This creates significant congestion on radial routes the majority of which are also key public transport corridors and are served by local, regional and inter-city buses. As a result key locations on the trunk road including the A720, the M8 and M9 at Newbridge, the M8 at Claylands and Hermiston Gate and the M90 approaches to the Queensferry Crossing as well as key corridors on the local road network experience congestion in the AM and PM peak period, which also impacts on the journey times and reliability of bus services to/from Edinburgh. The rail network also experiences high demand focussed on travel to and from Edinburgh Waverley and

Haymarket Stations, and is reflected in the punctuality and reliability metrics for stations in the area.

Active Travel: Although the City of Edinburgh has a relatively high level of mode share for active travel (walking and cycling), accounting for approximately 20% of travel to work trips, there is still a significant number of trips under 5km being made by private car. The cycle network in the ESES region varies in quality and type, with around 40% of the National Cycle Network routes being categorised as off-road and the remaining 60% making use of on-road facilities. This creates a number of real and perceived barriers including safety concerns that can suppress the demand.

Socio-Economic: Property prices and rent are both relatively high within the City of Edinburgh area leading the population to move further out from places of employment or education and that has an associated impact on travel distances, the cost of travel and the volume of trip-making. With variable public transport accessibility and connectivity throughout the region, public transport travel options can be limited and can lead to higher transport costs. These areas are at increased risk of transport poverty and this has a greater impact in the more deprived areas according to the SIMD ranking with typically around 15% of annual income spent on transport.

Health and Environment: Air pollution presents a problem for the ESES region as it does for Scotland as a whole, with transport being a key contributor accounting for 37% of Scotland's total greenhouse gas emissions. Given that the transport system and road transport in particular impacts air quality, vehicles emissions of pollutants including PM₁₀ particulates, NO_x oxides of nitrogen and CO₂ have detrimental impacts on health. The concentration of the region's population and the levels of traffic within the City of Edinburgh means that the health impacts are greatest in the city.

Relative Cost of Public Transport: In terms of monthly travel tickets the cost of rail travel to Edinburgh is generally more expensive than the equivalent cost by bus. The cost of rail travel is also higher than the equivalent cost by private car for journeys up to around 30km, although as travel distances increase the cost by private car becomes higher than the cost by rail. There is also a degree of variation in the cost of rail from selected stations across the ESES region, with for example a higher cost per kilometre calculated from Inverkeithing and Gorebridge compared to the other stations used as representative examples for the calculation.

Freight: Road-based freight movements in the ESES region contribute to congestion and air quality impacts. The movement of goods within the ESES region and to/from external markets, including the rest of the UK and international markets, travels via key sections of the trunk road network. This leads to increased congestion on the trunk road network at key locations including sections of the M8 and M8, the M90, the A720 and the A1, and which also has the impact of increasing costs to business as a result of reduced journey time reliability. Freight activities are also a contributing factor to CO₂ emissions and local air quality issues, particularly with respect to road freight with an increasing trend in tonne-kilometres being moved and the number of licensed LGVs.

Transport Integration: Although the level of transport integration within the City of Edinburgh itself is high, for journeys to the city from across the wider ESES region there is a lack of integration with journeys requiring an interchange(s) for a significant proportion of

the population. This results in a number of impacts including reduced travel choices, increased costs of travel and increased journey time that contribute to reducing the overall competitiveness of public transport compared to the private car.

Key opportunities include:

Active Travel: As national, regional and local policy frameworks place walking and cycling at the top of the transport hierarchy, there is a very strong platform to increase the mode share of active travel.

Tourism: A strategic transport system within ESES which offers sustainable travel choices for visitors together with the range of attractions on offer, provides the opportunity to further enhance the region's attractiveness as a key tourism destination.

Digital Connectivity and Technology: Digital connectivity and technology advances provide the potential for improved ways of working, connecting and informing people of their travel choices, and advances around lower emission/zero emission fuels.

Priority for Public Transport: Building on the positive outcomes from the Forth Bridge public transport corridor and the proposals for West Edinburgh project, provides the opportunity to bring forward further public transport priority in the region and encourage mode shift to more sustainable travel options.

Improved Transport Integration: Improved connectivity and accessibility outwith the more urban areas of the region, and improved integration of the transport system including with active travel provides the opportunity to increase the mode share of sustainable transport across the ESES region.

Integration of Transport and Land Use Planning: The ESES region is one of growth, underlined by the 7 strategic development areas outlined in the Edinburgh and South East Scotland City Region Deal. This provides the opportunity to define the future delivery of transport and land use developments in the city region in an integrated and sustainable manner.

4 Transport Planning Objectives

4.1 National and Regional Objectives

Transport Planning Objectives (TPOs) are of central importance to the STAG process. In line with STAG, TPOs should align with the outcomes sought by the study, be based on a comprehensive and evidenced understanding of problems and opportunities and lend themselves to inform a clear and transparent appraisal of the performance of transport options. They will be a key appraisal tool from initial option identification and sifting through to full scheme appraisal and subsequent monitoring/evaluation.

For STPR2, TPOs have been developed to sit at a national level, supported by regional sub-objectives. At a national level, an overarching set of programme-level TPOs have been established which are closely aligned with the vision, 4 priorities, 12 outcomes and 14 policies contained within NTS2. The national TPOs are presented in Table 12 below.

A series of regional sub-objectives sit within the overall direction of the national TPOs but with a focus on the specific evidence-based problems and opportunities for the ESES region. The national TPOs and regional sub-objectives are presented in Table 12 below.

Table 12: STPR2 Objectives and ESES regional sub-objectives

STPR2 OBJECTIVE	ESES REGIONAL SUB-OBJECTIVES
<p>A sustainable strategic transport system that contributes significantly to the Scottish Government’s net zero emissions target.</p>	<ul style="list-style-type: none"> ▪ Reduce the consumption of fossil fuels through managing travel demand, particularly on corridors with high traffic volumes and enable a shift to more sustainable modes of transport. ▪ Increase the mode share of active travel, particularly for shorter journeys within the region and as part of longer multi-modal end-to-end journeys. ▪ Increase the mode share of public transport, with a particular focus on the key corridors and transport facilities in the region that serve the main current and future employment centres. ▪ Reduce emissions from road-based travel, with a particular focus on the key corridors in the region.
<p>An inclusive strategic transport system that improves the affordability and accessibility of public transport.</p>	<ul style="list-style-type: none"> ▪ Increase public transport mode share by improving the interchange opportunities for active travel and public transport modes to facilitate integrated journeys across the region. ▪ Improve mobility and inclusion, with a particular focus on improving inclusion in locations identified as being in the 15% most deprived zones (according to SIMD). ▪ Reduce transport poverty in relation to the level of household income spent on transport, particularly in more deprived areas of the region. ▪ Reduce the reliance on private car, by improving public transport as a viable alternative for a greater proportion of the

	<p>region’s population to access the key existing and future health, employment and further education centres in the region.</p>
<p>A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing.</p>	<ul style="list-style-type: none"> ▪ Reduce demand for unsustainable travel and the adverse impacts of transport on people and places/communities by supporting and embedding place-making principles in the strategic transport system across the region. ▪ Increase the mode share of active travel, particularly for shorter journeys within the region and as part of longer multi-modal end-to-end journeys. ▪ Reduce demand for unsustainable travel arising from nationally significant growth areas, taking cognisance of the emerging NPF4.
<p>An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland.</p>	<ul style="list-style-type: none"> ▪ Increase access to key centres for employment, education and training, particularly for areas not currently well served by public transport and recognising the demand for cross regional movements. ▪ Increase the competitiveness of the region by improving the accessibility and operation of the strategic transport network to allow businesses to expand their labour catchments and connect with international and domestic markets via the region’s key gateways. ▪ Increase the mode share of freight by sustainable modes. ▪ Improve the sustainable travel choices available to visitors to enhance the attractiveness of the region as a key tourism destination.
<p>A reliable and resilient strategic transport system that is safe and secure for users.</p>	<ul style="list-style-type: none"> ▪ Increase resilience from operational disruption on the region’s trunk road and rail infrastructure. ▪ Reduce transport related casualties in line with reduction targets, with a focus on reducing Killed or Seriously Injured (KSI) accidents on strategic roads in the region. ▪ Improve perceived and actual safety and security on the transport system across the region with a particular focus on active travel.

Table 13: Mapping of Problem and Opportunity Themes to Transport Planning Objectives

National Objective/Outcome	Regional Sub-Objective/Outcome	Problem Theme										Opportunity Theme						
		Public Transport Connectivity	Operational Constraints	Active Travel	Socio-Economic	Health and Environment	Cost of Public Transport	Freight	Transport Integration	Transport and Land Use Planning Integration	Increase in Active Travel Mode Share	Tourism	Digital Connectivity	Maximise Benefits Associated with	Technology	Improve the Integration of a Sustainable	Improved Transport Integration Outwith	Transport Hubs
A sustainable strategic transport system that contributes significantly to the Scottish Government's net zero emissions target	Reduce the consumption of fossil fuels through managing travel demand, particularly on corridors with high traffic volumes and enable a shift to more sustainable modes of transport.																	
	Increase the mode share of active travel, particularly for shorter journeys within the region and as part of longer multi-modal end-to-end journeys.																	
	Increase the mode share of public transport, with a particular focus on the key corridors and transport facilities in the region that serve the main current and future employment centres.																	
	Reduce emissions from road-based travel, with a particular focus on the key corridors in the region																	
An inclusive strategic transport system that improves the affordability and accessibility of public transport	Increase public transport mode share by improving the interchange opportunities for active travel and public transport modes to facilitate integrated journeys across the region.																	
	Improve mobility and inclusion, with a particular focus on improving inclusion in locations identified as being in the 15% most deprived zones (according to SIMD).																	
	Reduce transport poverty in relation to the level of household income spent on transport, particularly in more deprived areas of the region.																	
	Reduce the reliance on private car, by improving public transport as a viable alternative for a greater proportion of the region's population to access the key existing and future health, employment and further education centres in the region.																	
A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing	Reduce demand for unsustainable travel and the adverse impacts of transport on people and places/communities by supporting and embedding place-making principles in the strategic transport system across the region.																	
	Increase the mode share of active travel, particularly for shorter journeys within the region and as part of longer multi-modal end-to-end journeys.																	
	Reduce demand for unsustainable travel arising from nationally significant growth areas, taking cognisance of Local Development Plans and the emerging NPF4.																	

National Objective/Outcome	Regional Sub-Objective/Outcome	Problem Theme									Opportunity Theme							
		Public Transport Connectivity	Operational Constraints	Active Travel	Socio-Economic	Health and Environment	Cost of Public Transport	Freight	Transport Integration	Transport and Land Use Planning Integration	Increase in Active Travel Mode Share	Tourism	Digital Connectivity	Maximise Benefits Associated with	Technology	Improve the Integration of a Sustainable	Improved Transport Integration Outwith	Transport Hubs
An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland	Increase access to key centres for employment, education and training, particularly for areas not currently well served by public transport and recognising the demand for cross regional movements.																	
	Increase the competitiveness of the region by improving the accessibility and operation of the strategic transport network to allow businesses to expand their labour catchments and connect with international and domestic markets via the region's key gateways																	
	Increase the mode share of freight by sustainable modes																	
	Increase the availability of sustainable travel choices to connect domestic and international visitors to the region's major attractions																	
A reliable and resilient strategic transport system that is safe and secure for users	Increase resilience from operational disruption on the region's trunk road and rail infrastructure.																	
	Reduce transport related casualties in line with reduction targets, with a focus on reducing Killed or Seriously Injured (KSI) accidents on strategic roads in the region.																	
	Improve perceived and actual safety and security on the transport system across the region with a particular focus on active travel.																	

5 Option Generation and Sifting

5.1 Strategic Options

As set out earlier, STPR2 specifically focusses on Scotland's key strategic transport assets. In the context of STPR2, a strategic transport project is defined as any transport project that materially contributes to Scottish Government and Transport Scotland policies and strategies. Specifically, this will include:

- Any transport project that plays a significant part in supporting the 4 NTS2 priorities and related outcomes;
- Projects or groups of projects related to transport networks owned, operated and funded directly by Transport Scotland;
- Passenger and freight access to ports and airports of national significance; and
- The inter-urban bus and active travel networks and principal corridors within urban areas.

Within the overall definition above, the interventions considered within STPR2 may include:

- Appropriate transport policy and financial instruments (that are within the responsibility of Scottish Government);
- Demand management measures, including use of technology, innovation and behavioural change;
- Asset management and safety measures;
- Measures to increase travel by active travel modes;
- Public transport improvements, including interchanges, road space allocation, technology and ticketing;
- Transport links to/from areas of economic activity of national significance;
- Targeted infrastructure improvements on the transport networks owned, operated and funded directly by Transport Scotland;
- Changes to the operation of ferry terminals and services that are part of the CHFS and NIFS network;
- Infrastructure measures at ports and harbours of national significance; and
- Improved access to major airports.

5.2 Approach

In keeping with the principles of STAG, the Initial Appraisal: Case for Change has been developed to provide a robust method, to generate, clean and sift options; ensuring a broad range of options across all modes are considered. The STPR2 option generation, cleaning and sifting approach is summarised in Figure 48 alongside the number of options

generated at the various key stages that are specific to the ESES Region.

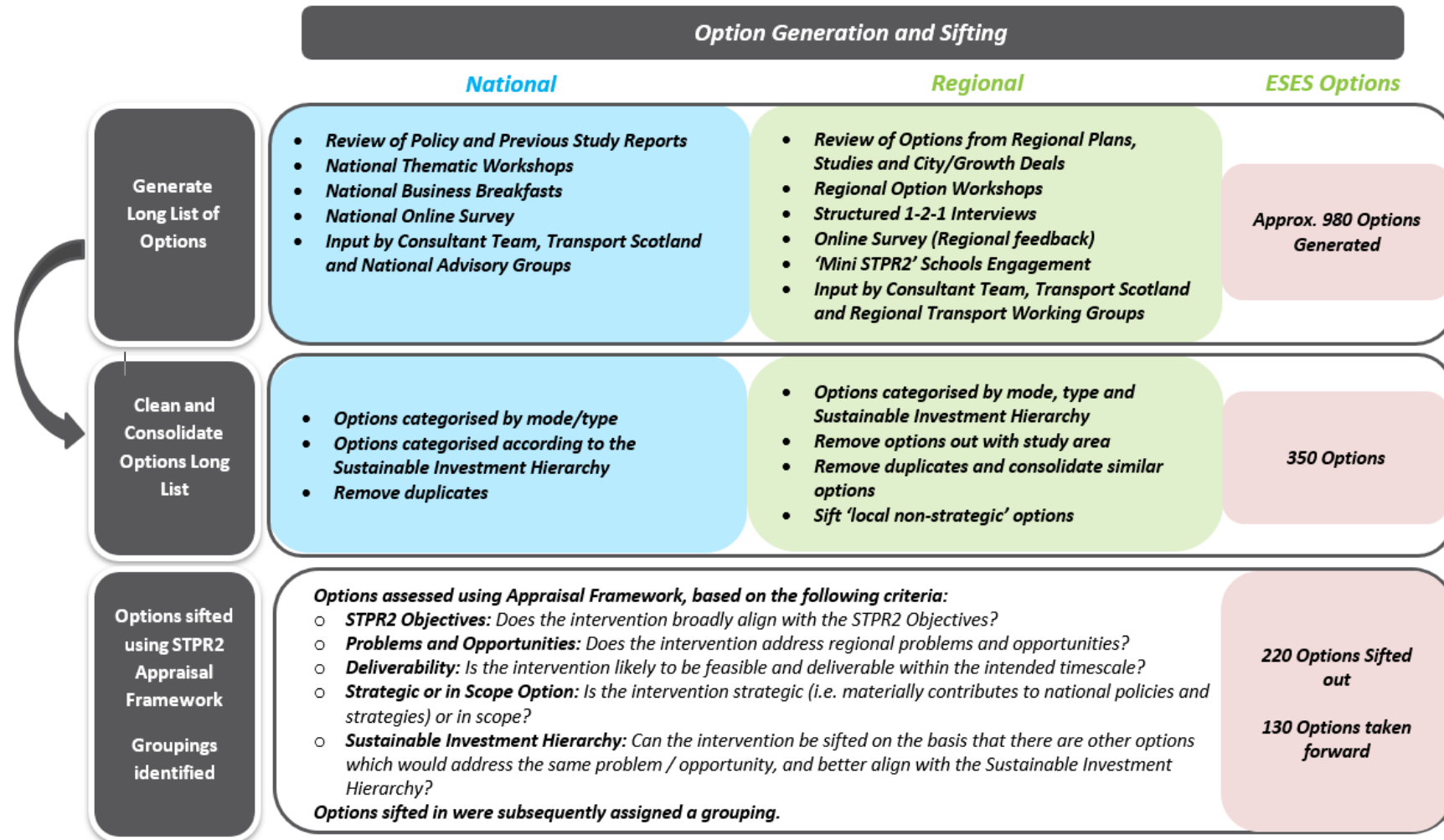


Figure 48: Approach to Option Generation and Sifting

5.2.1 Generate Long List of Options

A long list of initial transport options was generated based on a range of sources, including: a review of options identified from recent local and regional studies and via extensive stakeholder engagement and public consultation activities. This included Stakeholder Workshops, Structured Telephone Interviews, an Elected Members briefing and an Online Survey. Options were also generated through discussions with the Regional Transport Working Group and supplemented by the Consultant team. Options were identified across all modes and encapsulate many of the main routes and key centres across the regions. . Some of these options were well developed and had a clearly defined output, others were suggestions and ideas. . All these ideas/suggestions/options were collated and considered at this stage.

Specific to the Edinburgh and South East Scotland region, there were 980 options generated.

5.2.2 Option Cleaning

Although 980 individual ideas/suggestions/options were identified, this included a number that required further definition, duplicated options and options which were broadly similar. As such, an exercise was undertaken to clean this 'long list'. Options were reviewed at a regional level or a national level depending on the initial source of the information. Options that required further definition were developed, and similar options were consolidated.

Following the option cleaning exercise, 350 options were retained. in the long list of interventions to be sifted specific to the Edinburgh and South East Region.

5.2.3 Option Sifting

Each of the options included in the long list, following cleaning, have been assessed using an Option Sifting methodology developed to drive consistency in the sifting of options across STPR2.

The methodology assesses options against the range of criteria shown Figure 48 in to ensure that any options removed from this stage of the process are done so on a robust and transparent basis. Importantly, this included consideration of the Sustainable Investment Hierarchy. Figure 49 provides more detail of the sifting process.

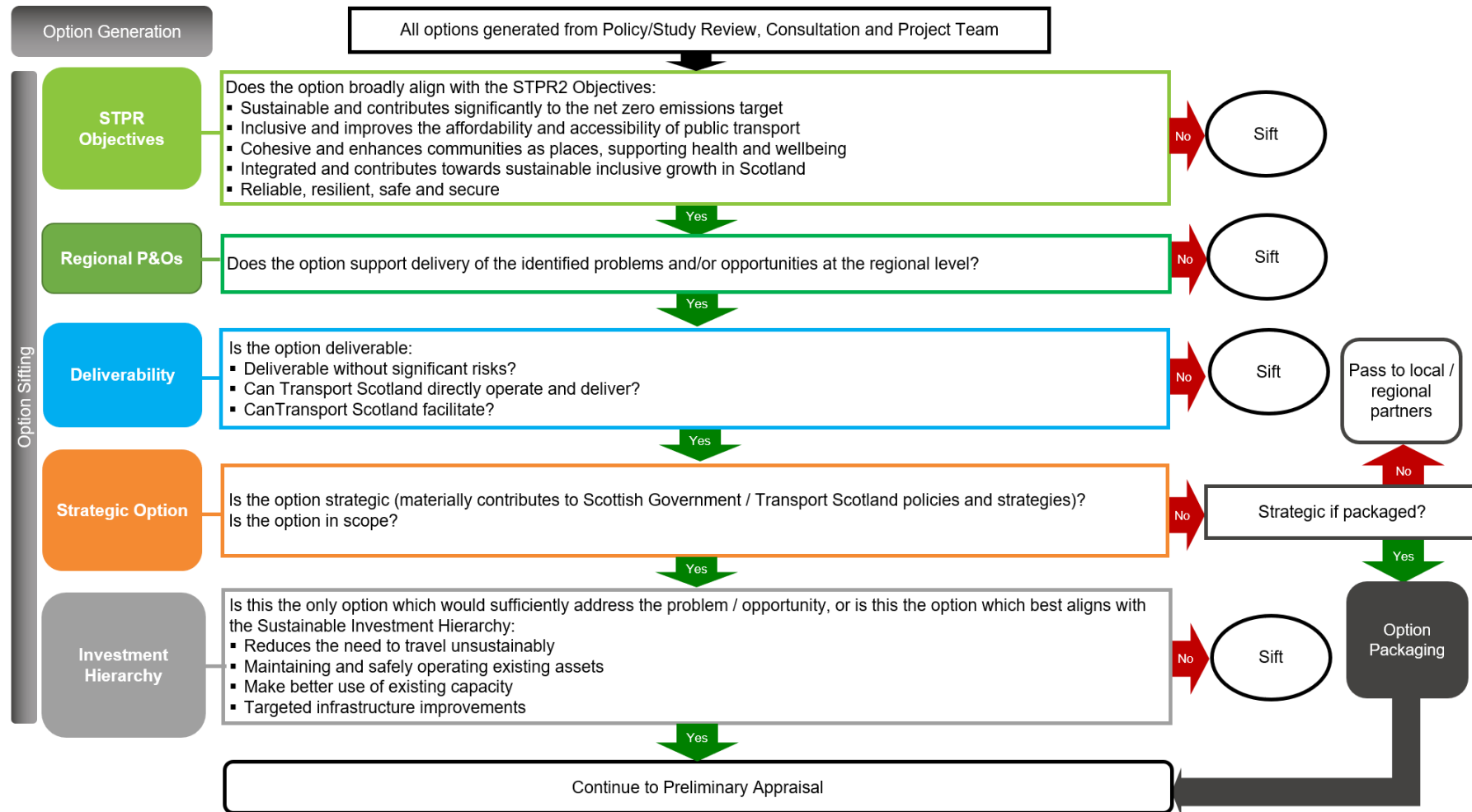


Figure 49: Option sifting process

Based on the methodology, options were either:

- Sifted in for further consideration; or
- Sifted out from the process. If appropriate, these will be passed to other areas of Transport Scotland / Scottish Government, or the appropriate local/regional transport authorities and partnerships (through the RTWGs) for consideration out with STPR2.

5.2.4 Options sifted out

Options were sifted out at this stage for 1 of the following reasons:

- Option is out of scope and/or
- Option does not address the problems / opportunities in the region and/or
- Poor performance against transport planning objectives/sifting criteria, and/or
- Deliverability concerns and/or
- The problems/ opportunities are better addressed through another option and/or
- The option is being progressed out with STPR2.

A full list of options that were sifted out across all regions and at a national level is provided as an Appendix to the [National Case for Change](#). In the ESES Region, 220 options were sifted out at this stage.

5.2.5 Options sifted in

Following the sifting exercise, 130 options specific to the ESES Region remain in the process. There are many of these options that share common traits across the regions and many options which in isolation would not deliver the strategic improvements STPR2 is seeking to deliver. Recognising the strategic and national dimension, options that have been sifted in for further appraisal have been allocated to Groupings. . Groupings have been established to:

- allow similar options to be collated together to provide a more manageable list for further appraisal;
- collate similar options across regions, thus aiding consistency in definition and appraisal; and, where appropriate;
- allow options that may, on their own merit, not be considered strategic, however when grouped address the identified national and regional Problems and Opportunities.

These Groupings will be appraised in the next stages of STPR2. The Groupings represent the range of interventions that STPR2 will consider in the appraisal stages. .

The list of Groupings along with a short description is provided in Table 14 and a full list of options sifted in for further consideration alongside their allocated Grouping is provided in an Appendix to the [National Case for Change](#).

Table 14: Groupings proposed to progress for STPR2 appraisal

Category	Grouping Name	Grouping Description
Active Travel	Access to Bikes	Options to improve access to bikes (conventional and e-bikes) and equipment such as charging facilities, lights, locks and helmets through bike libraries and other initiatives
Active Travel	Active Travel Hubs	Options to provide active travel hubs in Scotland’s cities and major towns that provide advice, bike storage and maintenance facilities
Active Travel	Connect More Settlements to the National Cycle Network (NCN)	Options to expand the NCN to reach more settlements
Active Travel	Cycle / Public Transport Integration	Options (outside of franchise commitments) which allow the safe and efficient transport of bikes on public transport (bus, rail and ferry) and at transport hubs.
Active Travel	Current National Cycle Network	Options to upgrade the existing NCN, including addressing issues where there are safety concerns at on-road sections since their addition to the network.
Active Travel	Information & Signage for Active Travel	Options to provide good quality information, journey planning and signage of active travel networks and facilities

Category	Grouping Name	Grouping Description
Active Travel	Major Trip Attractor Accessibility by Active Travel	Options to provide safe, high quality active travel routes that enable easy access to major trip attractors (e.g. hospitals, major employment sites) in Scotland’s cities and towns
Active Travel	Liveable Neighbourhoods	Options to make urban and suburban neighbourhoods in Scotland’s cities and towns more conducive for active travel by improving conditions for walking, wheeling and cycling and reducing traffic dominance
Active Travel	Strategic Road Severance	Options to improve facilities and crossings for pedestrians and cyclists in locations where strategic roads have a significant severance effect in communities
Active Travel	Public Bike Hire Schemes	Options to facilitate the roll out of public bike hire schemes to enable their use by more people in more locations across Scotland
Active Travel	Quiet Roads	Options to implement quiet roads, potentially including measures such as traffic calming measures and speed limit reductions that form parts of strategic active travel networks, where appropriate
Active Travel	School Active Travel	Options to provide opportunities for safe and high quality active travel routes that enables school pupils resident in Scotland’s cities and towns to walk, wheel or cycle to school

Category	Grouping Name	Grouping Description
Active Travel	Strategic Expansions of the National Cycle Network	Options to expand the NCN to reach more settlements and complete strategic gaps in the network.
Active Travel	Footway Enhancements on Strategic Routes	Options to upgrade existing footways on trunk roads and principal routes in our towns and cities, such as width, surfacing, drainage and drop kerbs at crossings. In addition, safe crossing facilities on major desire lines and adequate security (such as sightlines, lighting) where feasible.
Active Travel	Strategic Active Travel Corridors within and between Urban Areas (Active Freeways)	Options to provide high quality, segregated active travel routes on major distributor routes in Scotland’s towns and cities, with connections to major trip attractors
Active Travel	Thriving Centres	Options to make town and neighbourhood centres more conducive for active travel by improving the urban realm and reducing the dominance of vehicular traffic and car parking
Active Travel	Transport Node Connectivity	Options to provide high quality active travel routes between public transport nodes (rail stations, bus stations, interchange facilities) and their catchments (such as residential and key trip attractors), along with high quality cycle parking at the nodes

Category	Grouping Name	Grouping Description
Active Travel	Village – Town Active Travel Connections	Options to provide active travel routes from villages to a nearby town or regional centre.
Active Travel	Former Rail Route Re-use for active travel	Options to create more active travel routes on former rail lines
Active Travel	Urban Placemaking	Options to facilitate placemaking schemes to improve the quality and ambience of street spaces in Scotland’s cities, towns and villages
Behaviour Change	School Streets	Options to facilitate traffic exclusion zones on streets where it is appropriate to do so near schools at school start/end times
Behaviour Change	National Behaviour Change Programme	Options to implement a national, long-term campaign to promote the benefits of active and sustainable travel and give information on appropriate-opportunities to do so
Behaviour Change	Regional Behaviour Change Programmes	Options to support regional, long-term campaigns to promote the benefits of active and sustainable travel and give information on appropriate local opportunities to do so
Behaviour Change	Expansion of Car Clubs	Options to expand car club availability and use across Scotland

Category	Grouping Name	Grouping Description
Behaviour Change	Improved Information on Sustainable Travel Modes	Options to improve information (such as printed, real time and on-vehicle announcements) about active and sustainable travel routes and services
Behaviour Change	Sustainable Travel towns/Cities	City/Town-wide initiatives to give a holistic programme of promotion on active and sustainable travel choices
Behaviour Change	Road Safety Campaigns	Options that consider a national, long-term campaign (and/or support local/regional campaigns) to promote better driver behaviour and reduce road safety fears including people travelling actively
Behaviour Change	Travel Demand Management	Measures to effectively manage travel demand and encourage more sustainable travel options.
Behaviour Change	Low Emission Zones (LEZ)	Options related to Low Emission Zones (LEZ), i.e. where only certain vehicles are allowed to enter, based on their emissions standards.
Bus	Bus Priority Infrastructure	Options to increase the roll out of bus priority measures, and where already available, improve existing measures
Bus	Decarbonisation of the Bus Network	Options related to decarbonisation of the bus network (incl. fleet).

Category	Grouping Name	Grouping Description
Bus	Demand Responsive Transport (DRT) / Community Transport	Measures to support Demand Responsive (DRT) and Community Transport, excluding revenue funding
Rail	Central & North East Scotland Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements
Rail	Glasgow, West Coast and South West Scotland Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements
Rail	Edinburgh, East Coast and Borders Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements
Rail	Highland and Far North Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements
Rail	Decarbonisation of the Rail Network	Options related to decarbonisation of the rail network (incl. rolling stock).
Rail	High Speed Rail	Development of High Speed Rail north of HS2 to Scotland and / or within Scotland

Category	Grouping Name	Grouping Description
Rail	New Rail Lines, Including Re-Opening of Disused Lines for rail services	Options related to re-opening of disused rail corridors for rail and opening new rail lines including associated new stations
Rail	New Rail Stations	Options related to opening new rail stations on the existing rail network
Rail	New Sleeper Routes	Option related to the introduction of new or extensions to existing rail sleeper routes
Rail	Rolling Stock Quality	Improvements to the quality of heavy rail rolling stock not already committed to within the relevant ScotRail and Caledonian Sleeper franchise. This does not include decarbonisation options which are covered under RL5.
Public Transport	Public Transport Network Coverage, Frequency and Service Integration	Options to improve the network coverage, frequency and service integration of bus and rail, excluding revenue funding. Particularly access to key services such as healthcare, education, leisure and retail.
Public Transport	Mobility Hubs and Multi-modal Interchanges	Implement new / upgrade existing strategically important mobility hubs, Park & Ride sites and other multi-modal interchanges.
Public Transport	Regional Passenger Facilities/Station Enhancements	Bus and rail passenger facilities and station enhancement improvements, including improved accessibility to facilities for passengers with reduced mobility.

Category	Grouping Name	Grouping Description
Public Transport	Integrated Public Transport Ticketing	Integration of ticketing across public transport (bus, rail, light rail and ferries).
Ferries / Island Connectivity	Ferry Service Improvements on the CHFS and NIFS network	Options related to CHFS or NIFS network that suggest a change to ferry services, such as capacity, frequency or related port infrastructure.
Ferries / Island Connectivity	New Ferry Routes (Internal to Scotland)	Options related to new internal ferry routes (within Scotland) which may reduce operating costs or subsidy on the CHFS or NIFS network.
Ferries / Island Connectivity	New International Ferry Routes	Options relating to new international ferry services that could bring positive economic benefit to Scotland but which are not sufficiently attractive to the market.
Ferries / Island Connectivity	Decarbonisation of Ferry Network	Options related to decarbonisation of the ferry network (incl. vessels).
Ferries / Island Connectivity	Fixed Links	Options related to fixed links which meet at least one of the following criteria: Connect the Scottish mainland to an island; Reduce the operating costs of the CHFS or NIFS network; Address a strategic problem as identified through evidence-based appraisal that cannot be addressed by reasonable alternatives.

Category	Grouping Name	Grouping Description
Road	North West Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	North East Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	South West Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	South East Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	Low Emission/Ultra Low Emission/Electric Vehicle National Action Plan	A National Action Plan to support the shift to Low Emission/Ultra Low Emission/Electric Vehicles and help deliver Scottish Governments net zero targets.
Road	Road Safety (Vision Zero) Measures	A national package of road safety measures, such as road safety campaigns and technology to target casualty reduction.

Category	Grouping Name	Grouping Description
Road	Trunk Road Space Reallocation	Package of measures to reallocate road space on the trunk road network, such as reduction of on-street parking, high occupancy vehicle lanes and no parking zones.
Road	Review of speed limits (national)	Review of speed limits across the road network, including the potential to implement 20mph zones
Freight	Decarbonisation of Freight Deliveries	Measures to encourage low carbon fuels (including electric, hydrogen, CNG/LNG) that will decarbonise the freight transport sector in line with the Scottish Government targets and commitments.
Freight	Freight Consolidation Measures	Measures related to Freight Consolidation and Multimodal Hubs to help facilitate sustainable freight deliveries.
Freight	Freight Rest Stops	Measures to help facilitate the introduction of freight rest stops for HGV drivers to take breaks and rest periods as required by regulation.
Freight	Freight Reliability and Efficiency Improvements	Measures aimed at improving the reliability and efficiency of freight journeys.

Category	Grouping Name	Grouping Description
Freight	Last-Mile Logistics	Moving freight deliveries to low/zero carbon forms of transport, by encouraging the use of active travel measures and electric vehicles to service last-mile logistics
Freight	Sustainable Modal Shift of Freight	Transferring the delivery of freight from road vehicles to more sustainable modes, such as rail and water freight.
Freight	Rail Freight Enhancements	Measures to facilitate the growth of rail freight in Scotland, such as Gauge, Route Availability, Trailing Length, Terminals and Pathing
Technology	Connected Autonomous Vehicles (CAV)	Measures related to Connected Autonomous Vehicles (CAV), i.e. the operation of vehicles without direct driver input to control. This grouping relates to all modes of transport.
Technology	Co-operative Intelligent Transport Systems (C-ITS)	Measures related to C-ITS, which are a group of technologies and applications that allow effective data exchange through wireless technologies between vehicles and infrastructure which can also be-applied to vulnerable road users such as pedestrians, cyclists or motorcyclists.
Technology	Transport Scotland Operational Communications	Options related to both wireless and fibre communications to support the management and operation of Transport Scotland services

Category	Grouping Name	Grouping Description
Technology	Nationwide Open Data, Passenger Information and Communications	Options related to transport data and the provision of public transport information and passenger communications for journey planning.
Technology	Adaptive Traffic Control on the Trunk Road	Options that allow optimisation of the performance of the Trunk Road Network through adaptive control.
Technology	Incident Management System Upgrade	Measures to improve the system software or architecture of Incident Management Systems.
Technology	Control Centre of the Future	Development of operation functions and procedures within the Traffic Scotland National Control Centre to adapt to changing requirements
Technology	Intelligent Transport Systems (ITS) Roadside Infrastructure on Motorways and Trunk Road Network	Options to improve transport outcomes such as transport safety, transport productivity, travel reliability, informed travel choices, social equity, environmental performance and network operation resilience
Multimodal	Improve Routes to Major Ports and Airports	Options related to improving surface access to Major Ports and Airports, by all modes.

Category	Grouping Name	Grouping Description
Multimodal	Improved Resilience of the trunk road and rail networks	Options to improve the resilience of the trunk road and rail network including the impacts from climate change.
Multimodal	Mobility as a Service (MaaS) Digital Platform	Options which assist in the development and adoption of a MaaS digital platform for Scotland across a wide range of existing public, shared and demand-responsive transport services.
Mass Transit	Glasgow Metro	Development of the public transport network within the Glasgow city region, with consideration of bus rapid transport, rail conversion, light rail and underground elements
Mass Transit	Edinburgh Mass Transit Options	Development of the public transport network within the Edinburgh City Region with consideration of bus rapid transit, rail conversion, and tram network extension
Mass Transit	Aberdeen Mass Transit Options	Development of the public transport network within the Aberdeen City Region, with consideration of bus rapid transit, and light rail

5.3 Next Steps

This chapter has described the process undertaken to arrive at a sifted list of options for STPR2. These options, presented within Groupings, will be taken forward for more detailed development and appraisal through the next stage of the STPR2 process.

This will include an assessment of the likely impacts of Groupings against the:

- STPR2 Transport Planning Objectives;
- STAG criteria [Environment, Safety, Economy, Integration, and Accessibility and Social Inclusion];
- Established policy directives; and
- Feasibility, affordability and public acceptability of options.

Commenting on this Report

As part of the STPR2 engagement process, feedback on the Transport Options contained within this STPR2 Case for Change report can be submitted using a comments form that can be accessed [here](#). The closing date for comments is midnight on 31 March 2021.

APPENDICES

Appendix A: Report Figures

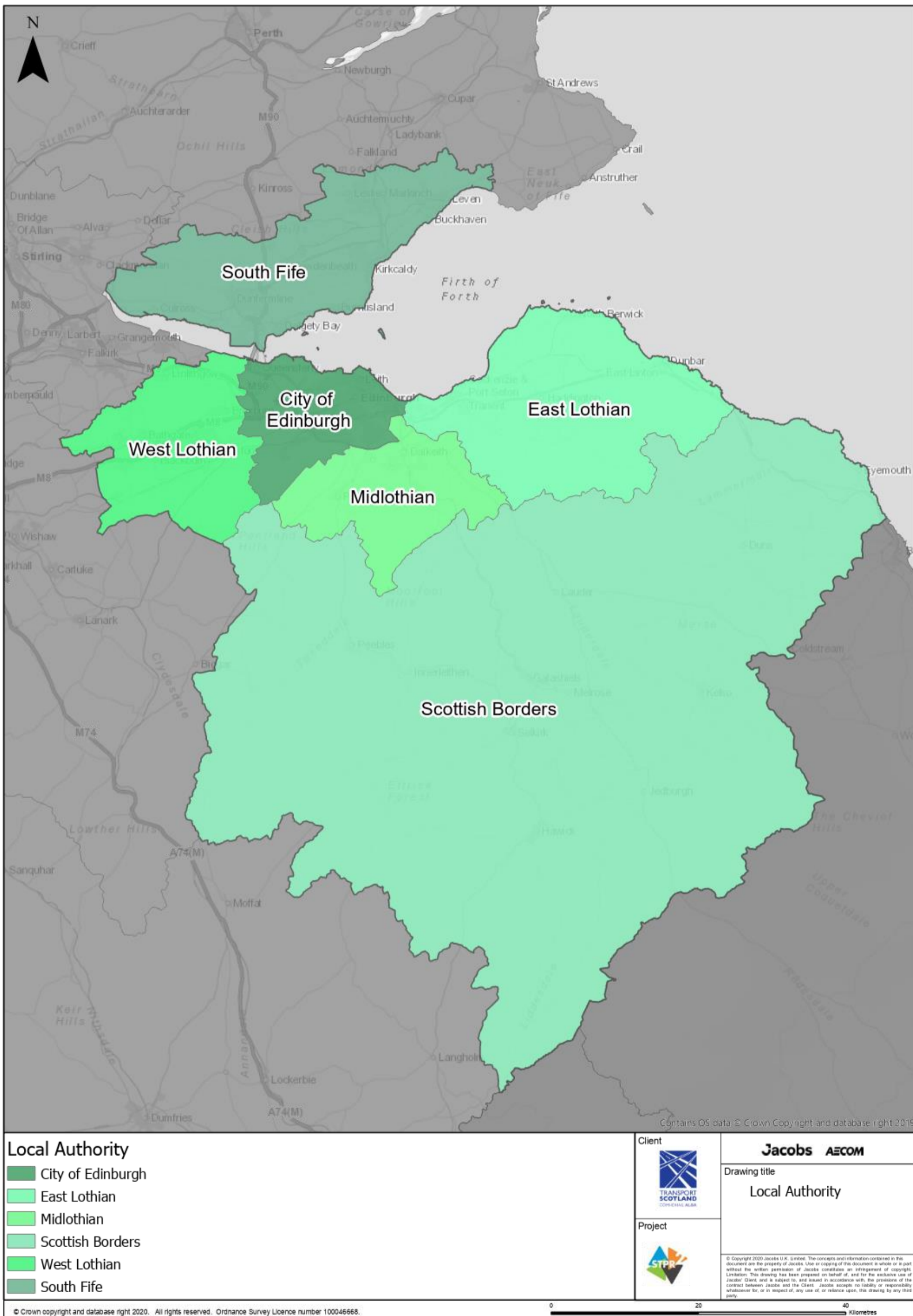


Figure A 1: Edinburgh and South East Scotland (ESES) Study Area (Click image to go back to main report)



Figure A 2: ESES Region Policy Review (Click image to go back to main report)

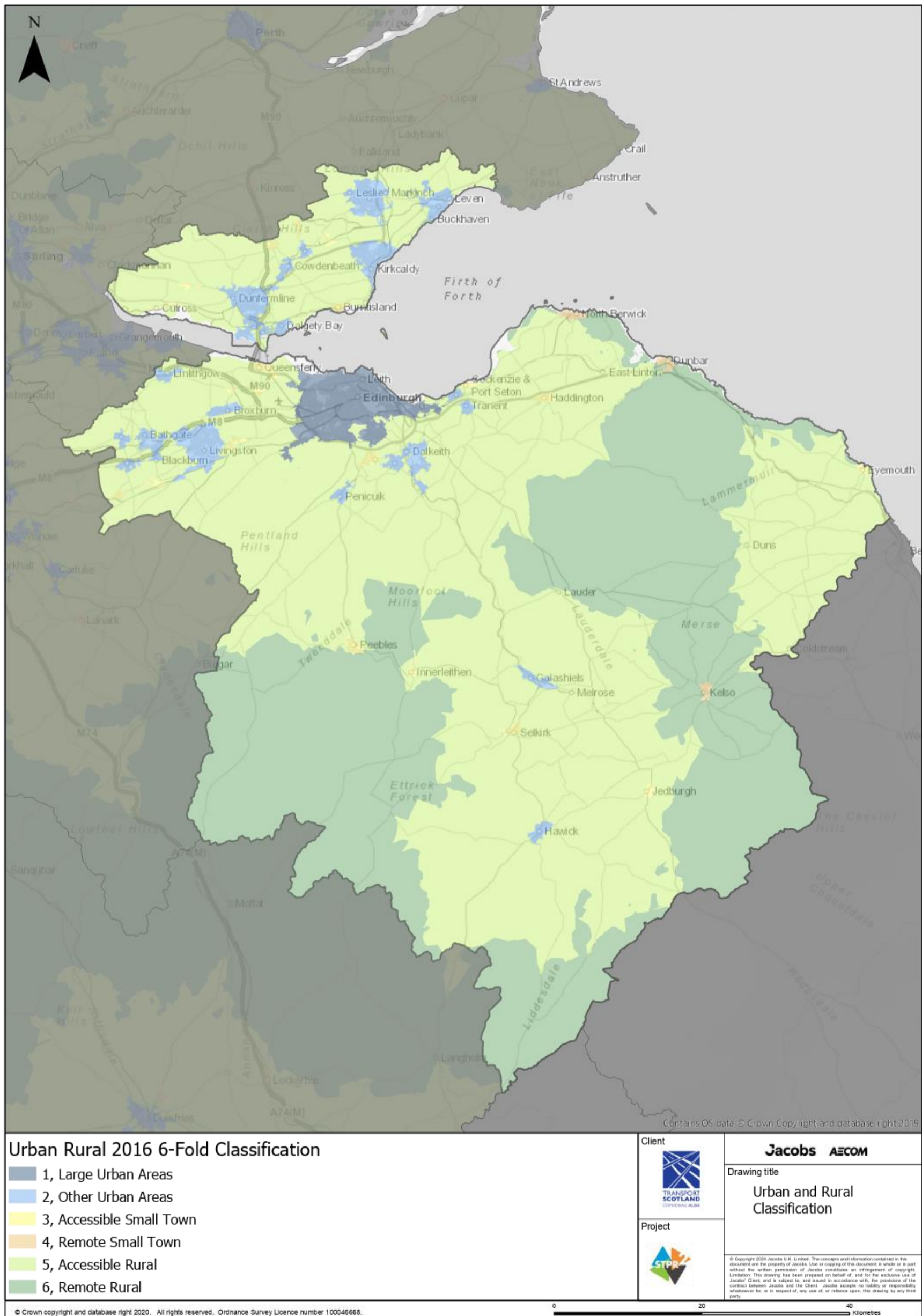


Figure A 3: ESES Region Scottish Government Urban Rural Classification 2016 (Click image to go back to main report)

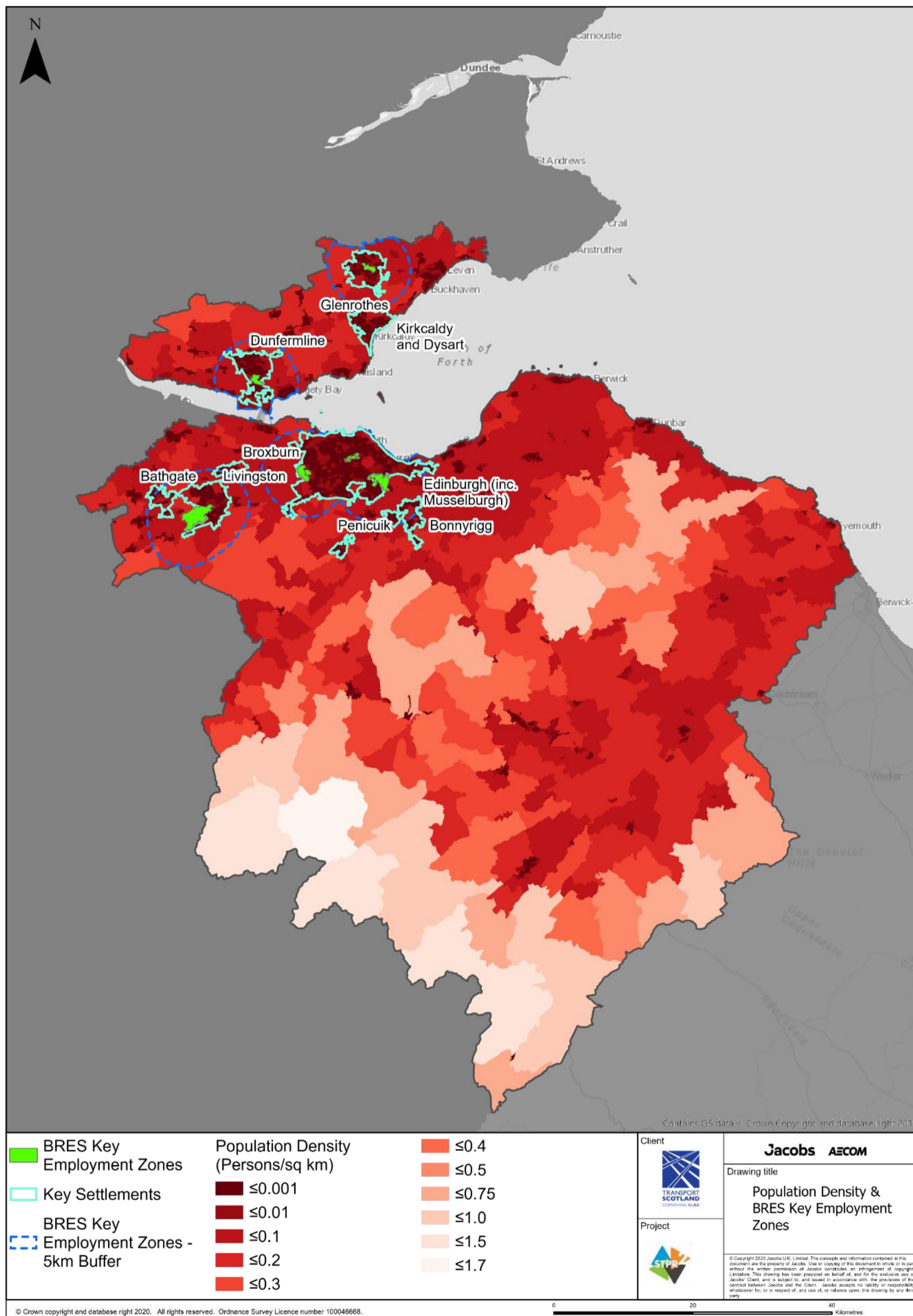


Figure A 4: Population Density and BRES Key Employment centres within the ESES region (Click image to go back to main report)

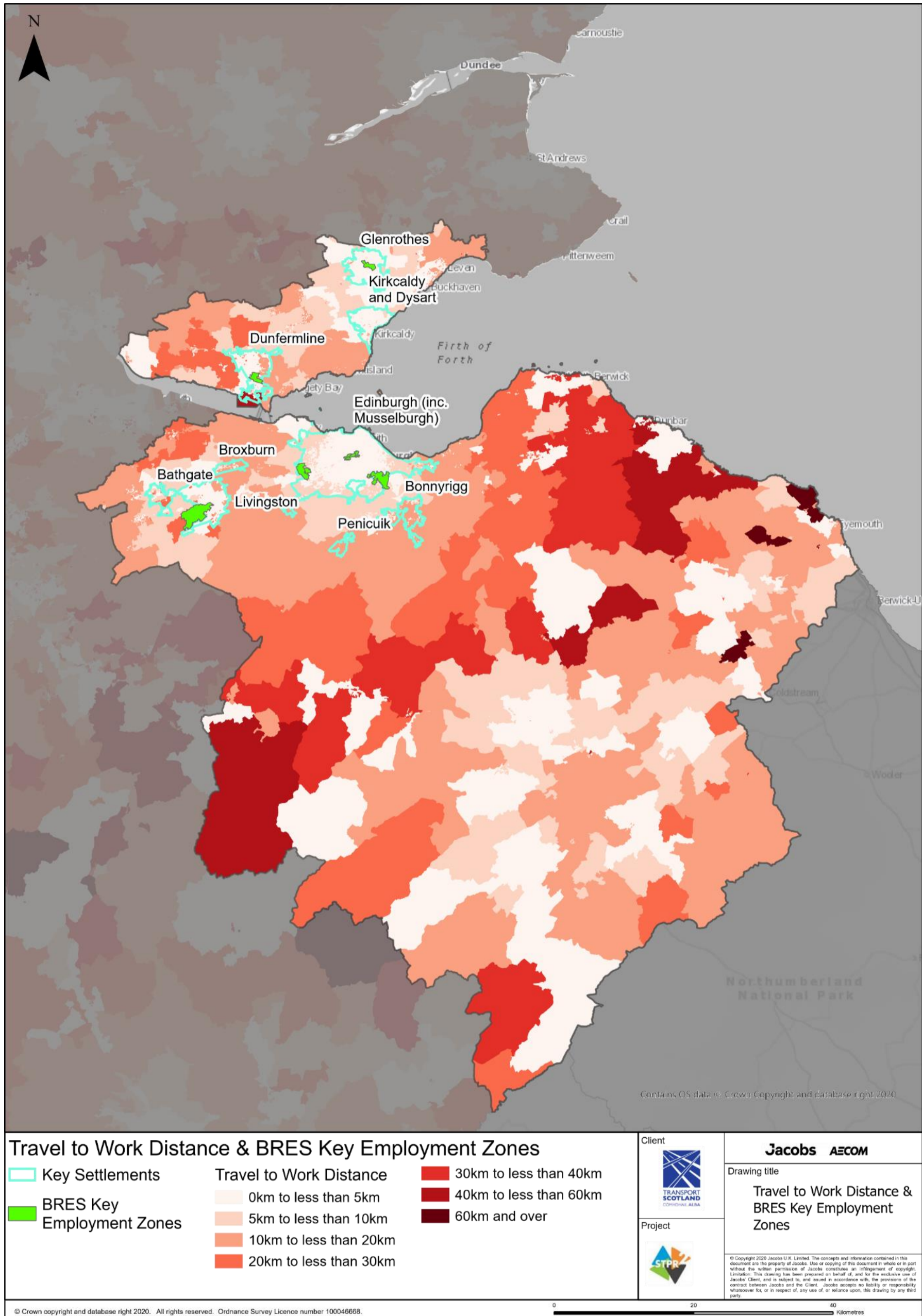


Figure A 5: BRES Key Employment Centres and Travel to Work Distances (Click image to go back to main report)

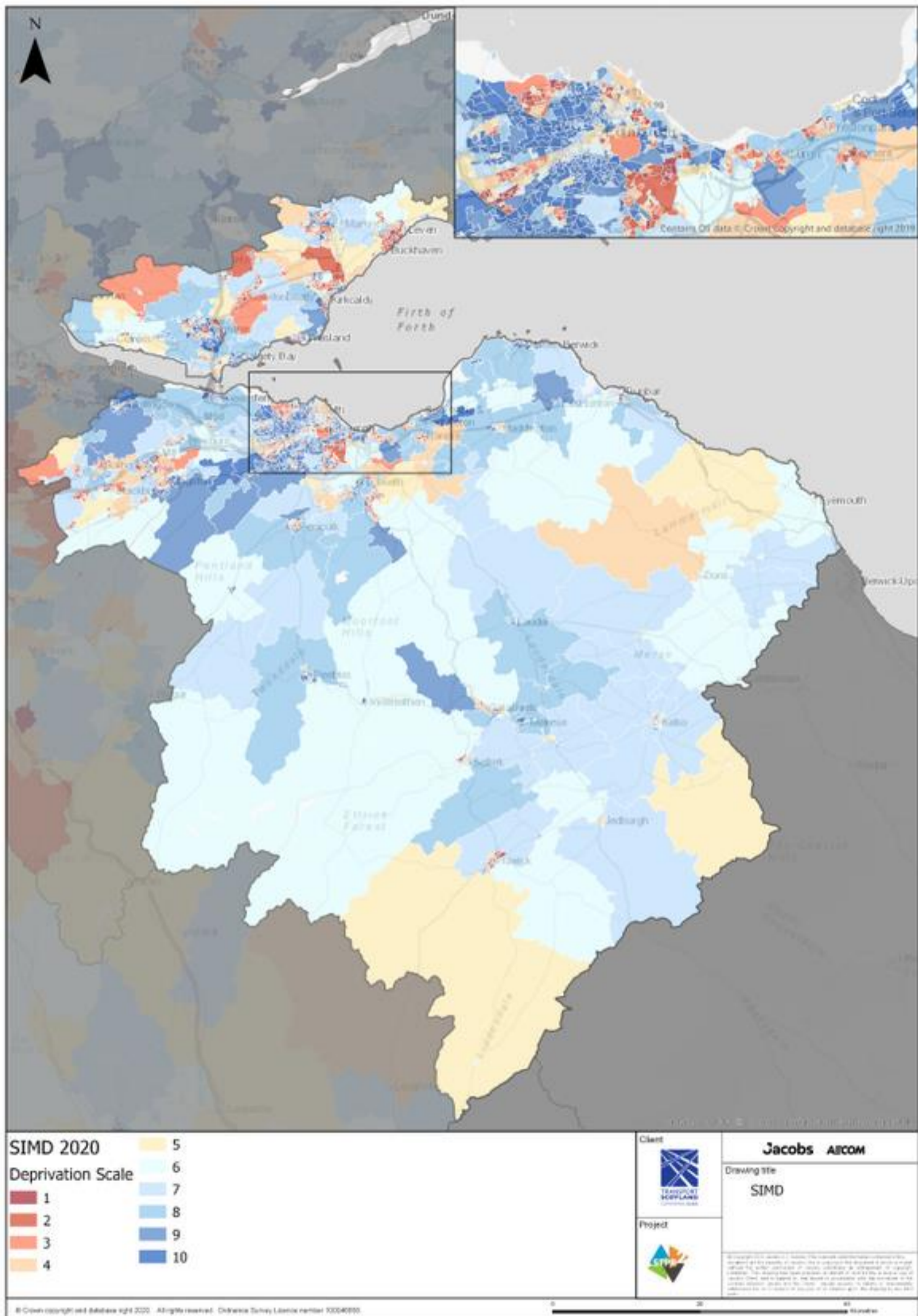


Figure A 6: Scottish Index of Multiple Deprivation (SIMD) 2020 (Click image to go back to main report)

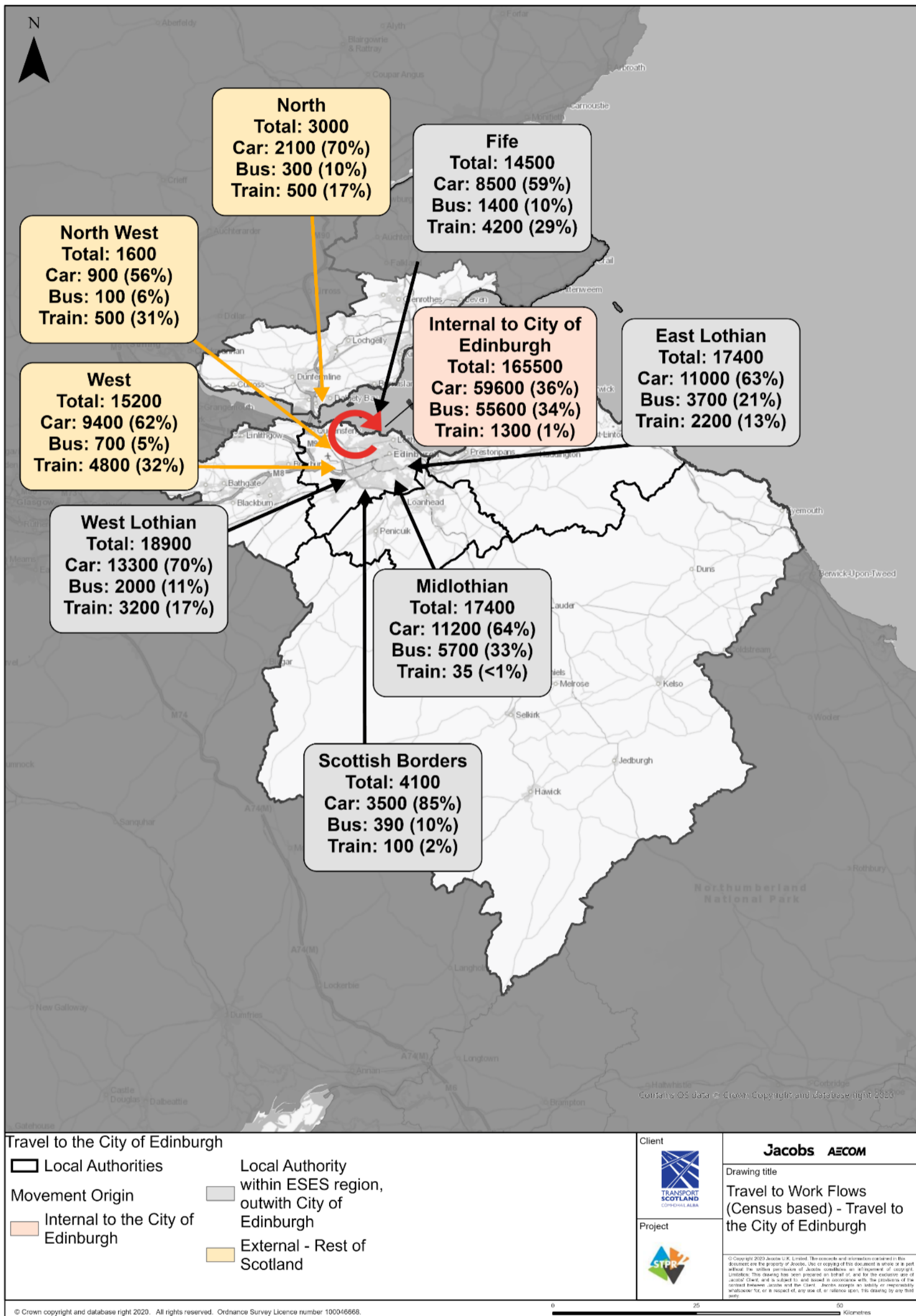


Figure A 7: Census based Origin/Destination daily travel to work flows – Travel to the City of Edinburgh (Click image to go back to main report)

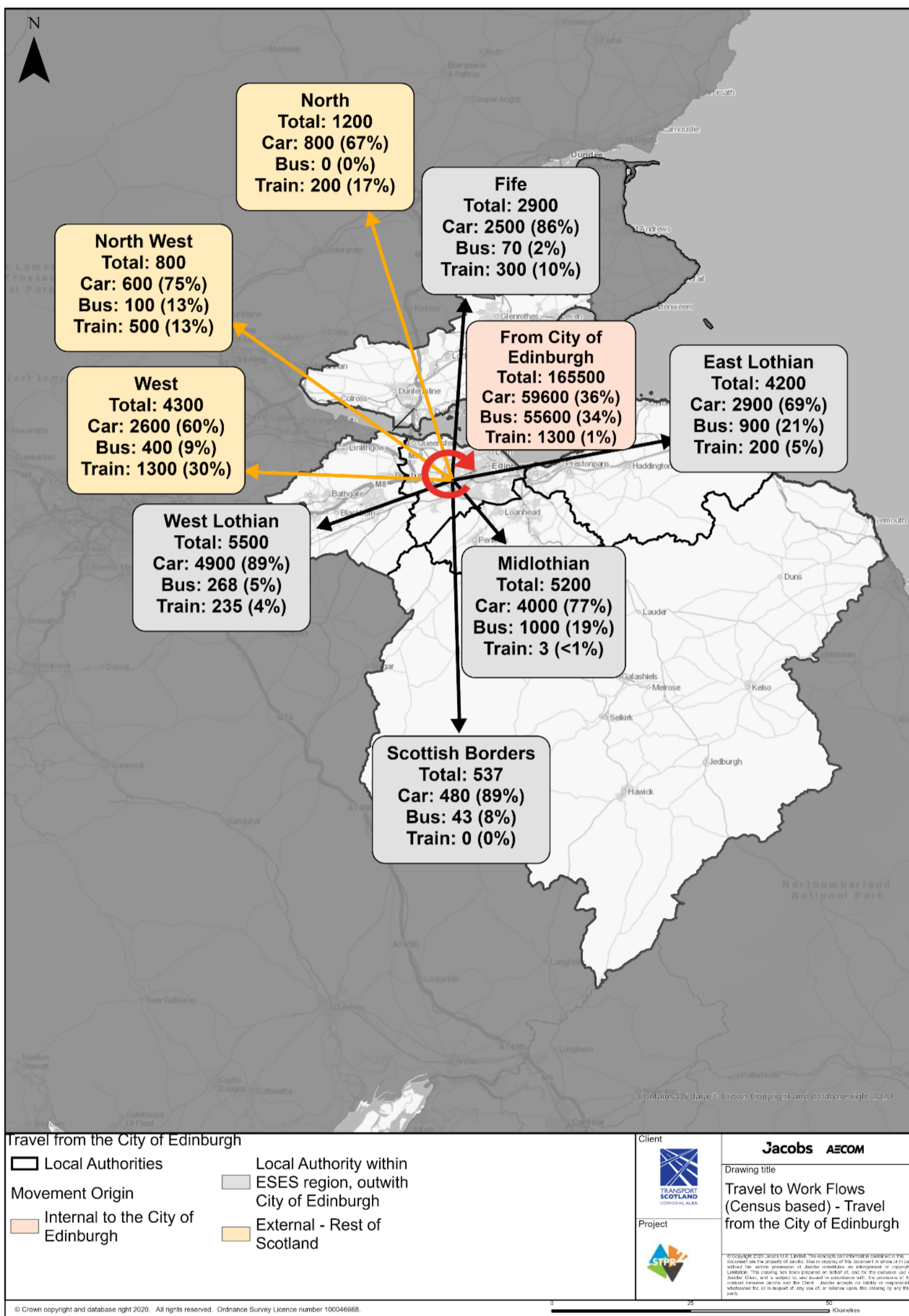


Figure A 8: Census based Origin/Destination daily travel to work flows – Travel from the City of Edinburgh (Click image to go back to main report)

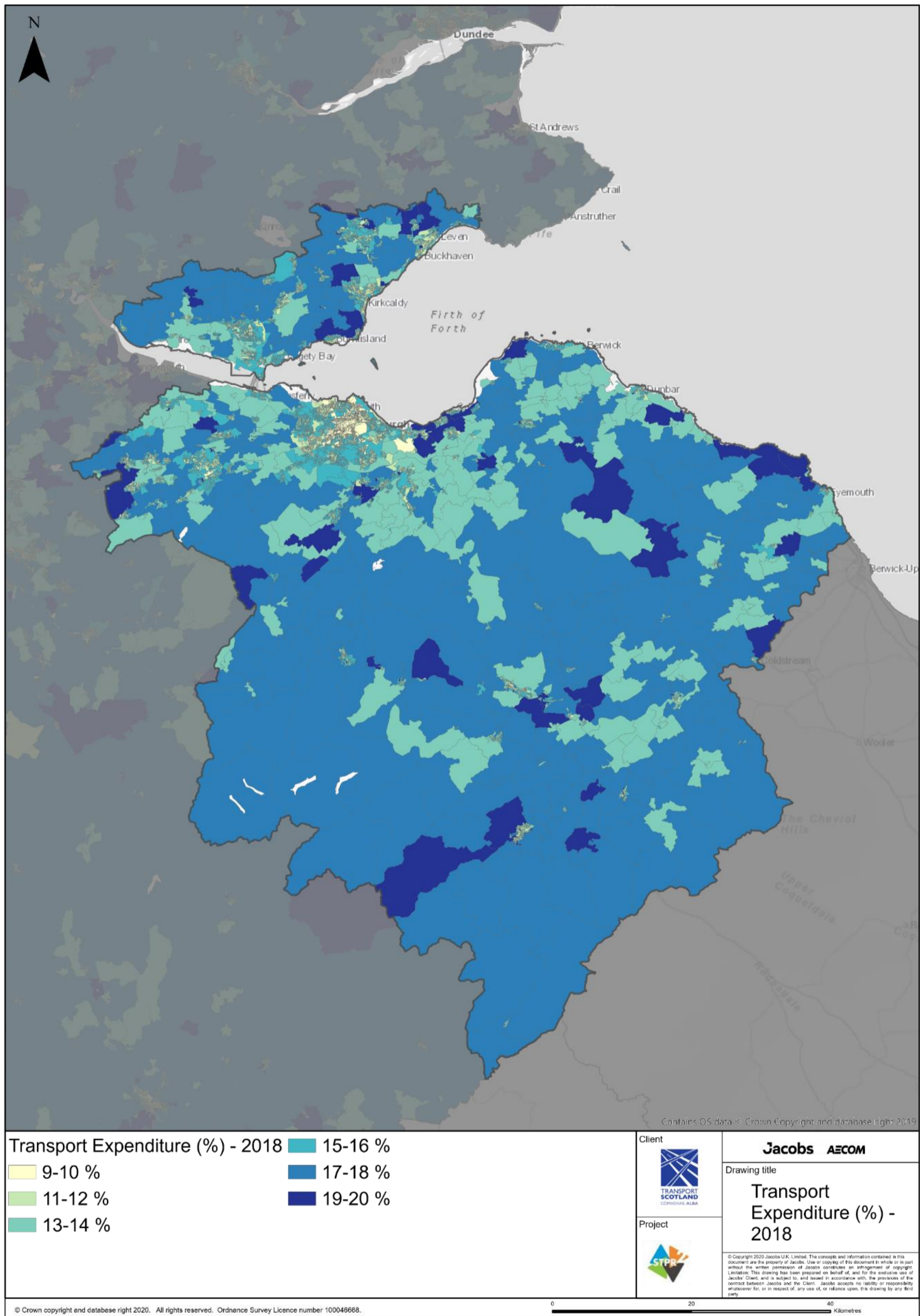


Figure A 9: Transport Expenditure as a proportion of household income (Click image to go back to main report)

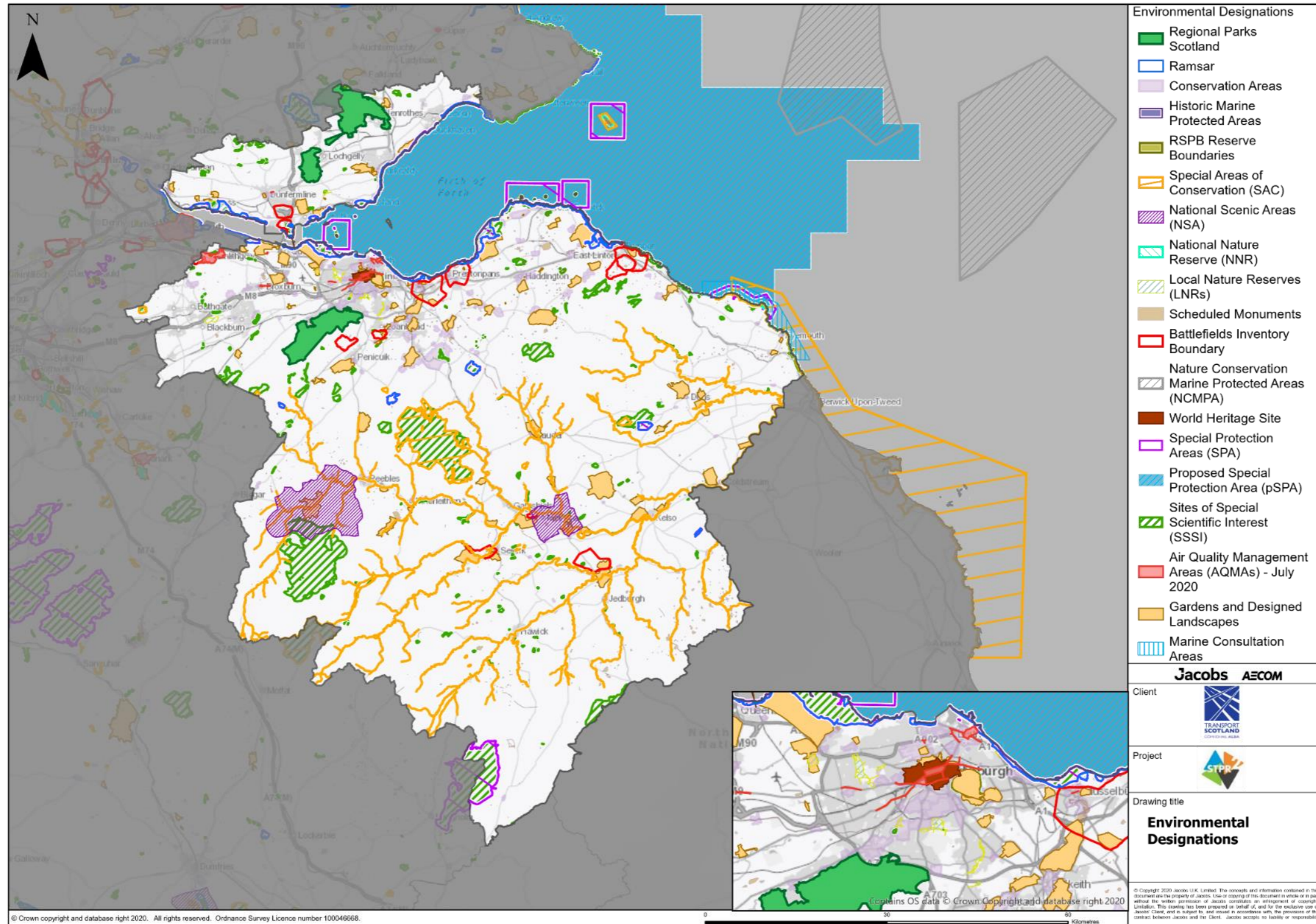


Figure A 10: Land designated as protected or managed within the ESES region (Click image to go back to main report)

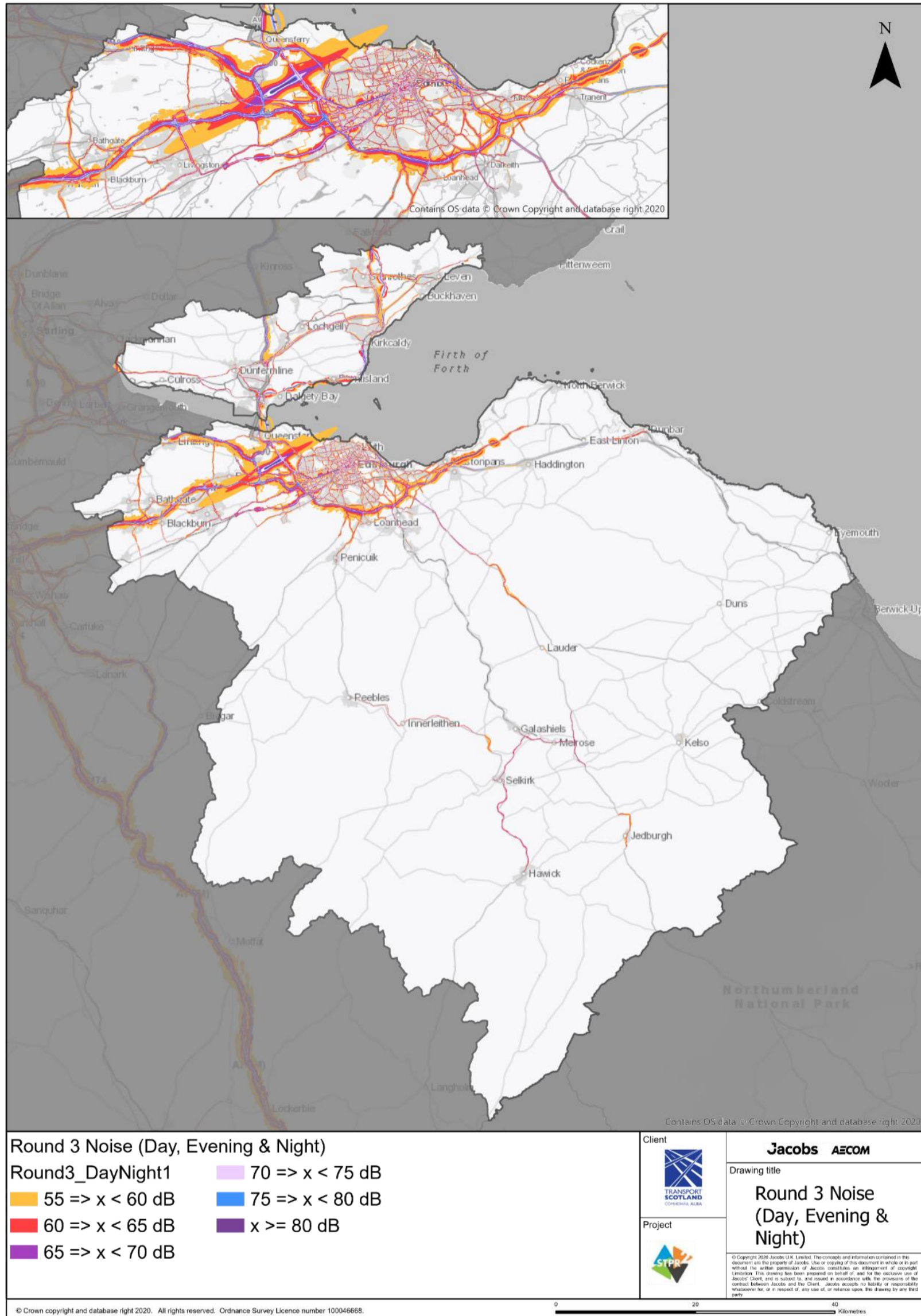


Figure A 11: Noise Mapping for ESES region (Click image to go back to main report)

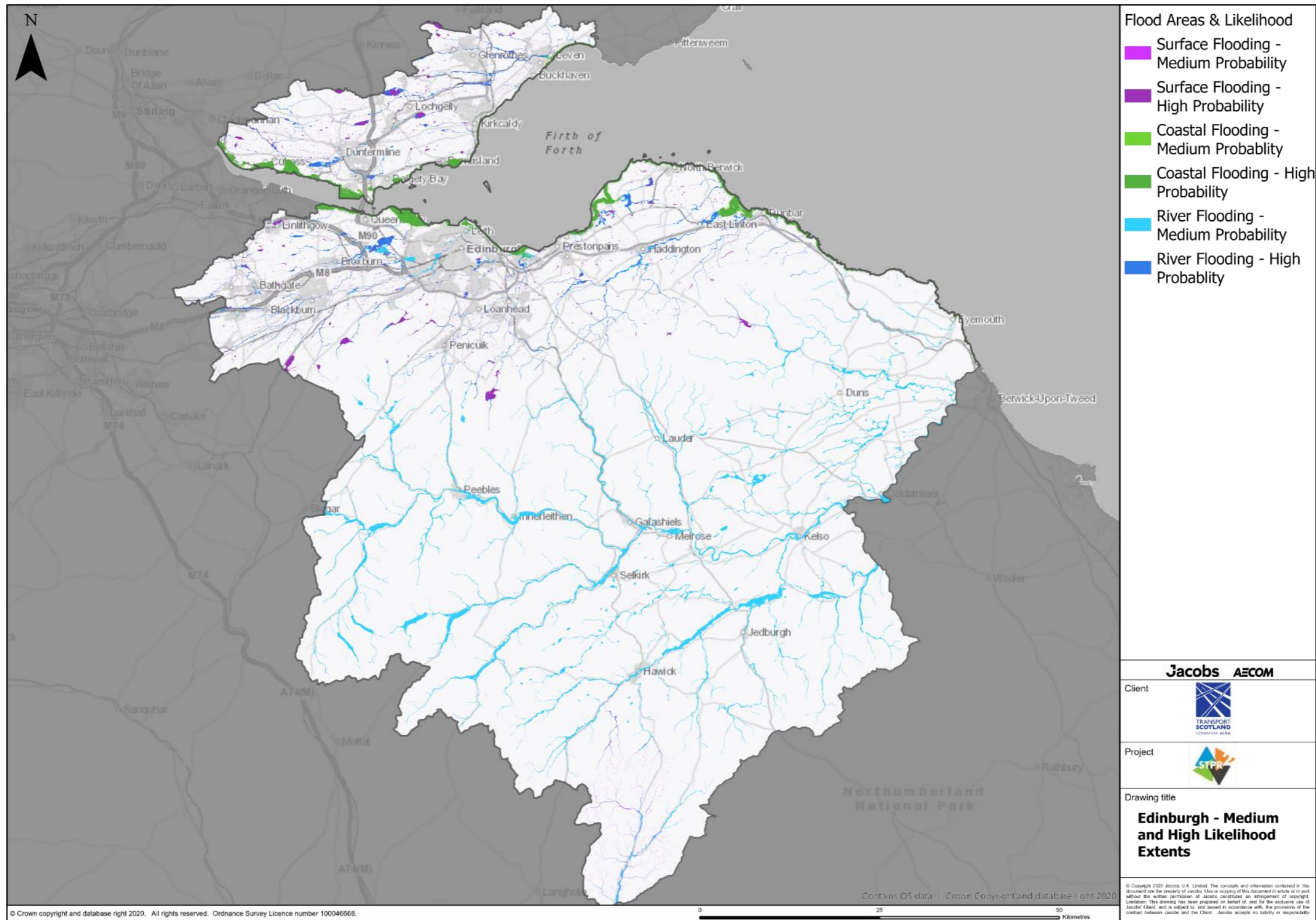


Figure A 12: Flood Mapping for ESES region (Click image to go back to main report)

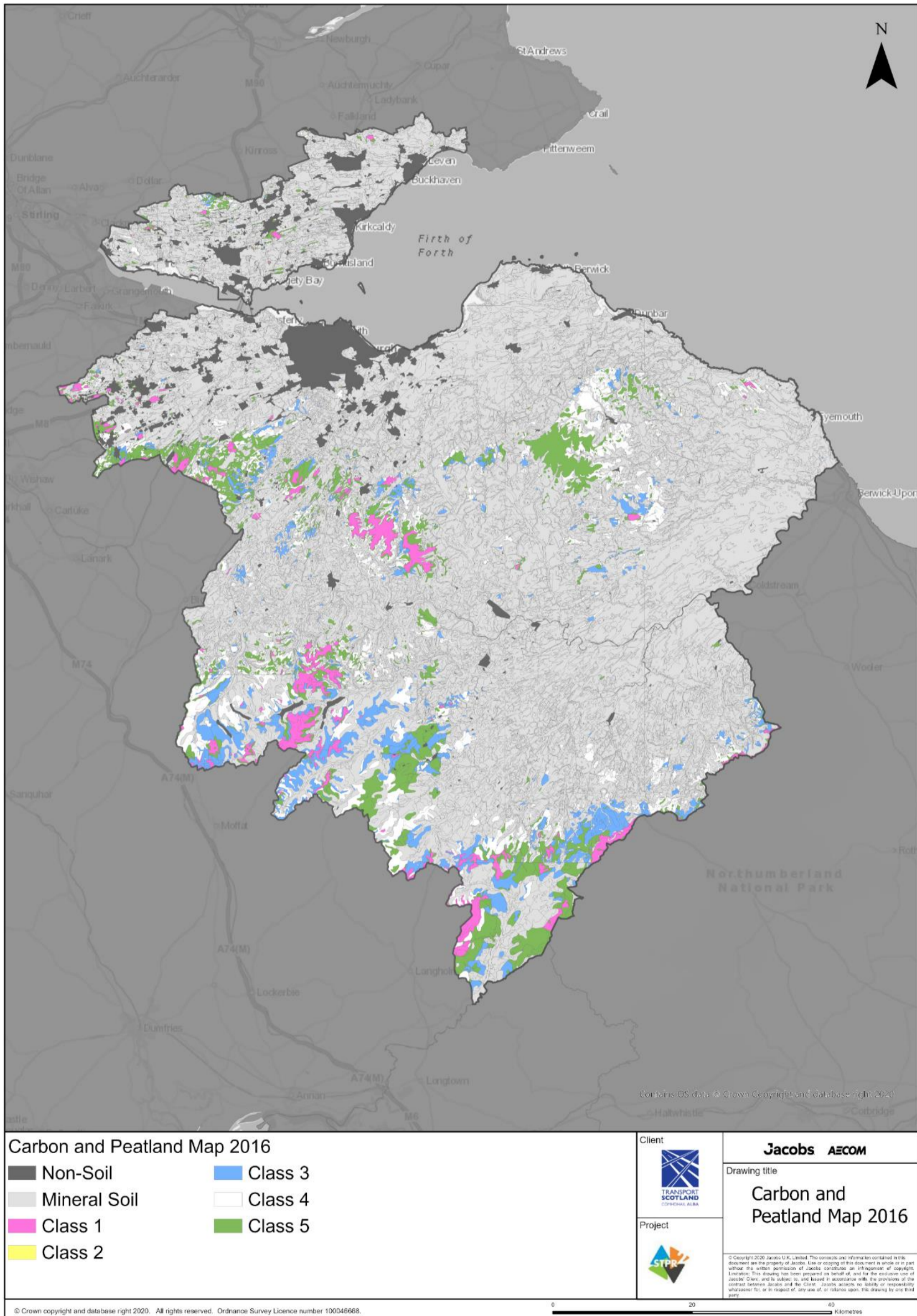


Figure A 13: Carbon and Peatland Map for ESES region (Click image to go back to main report)

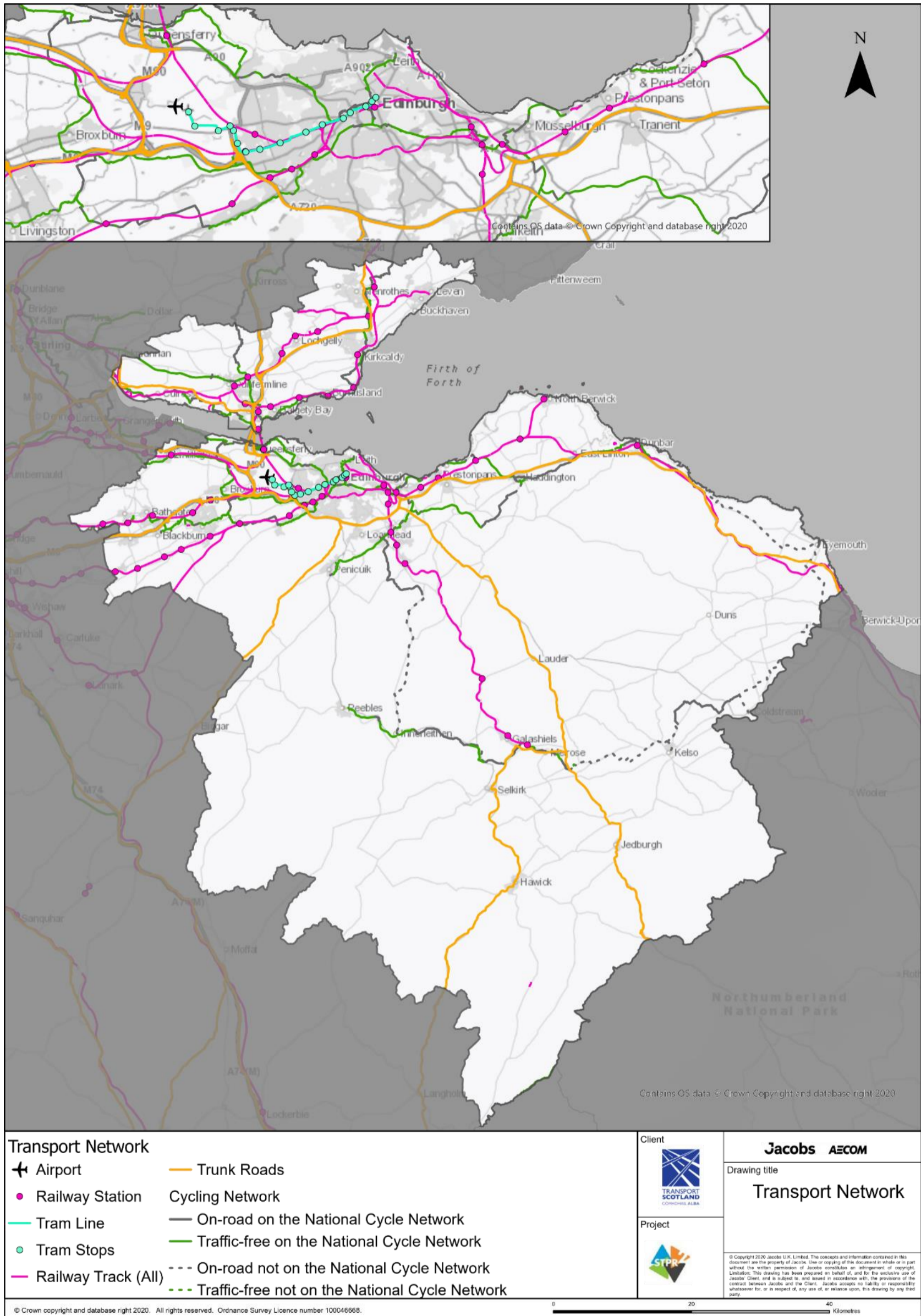


Figure A 14: ESES Transport Network (Click image to go back to main report)

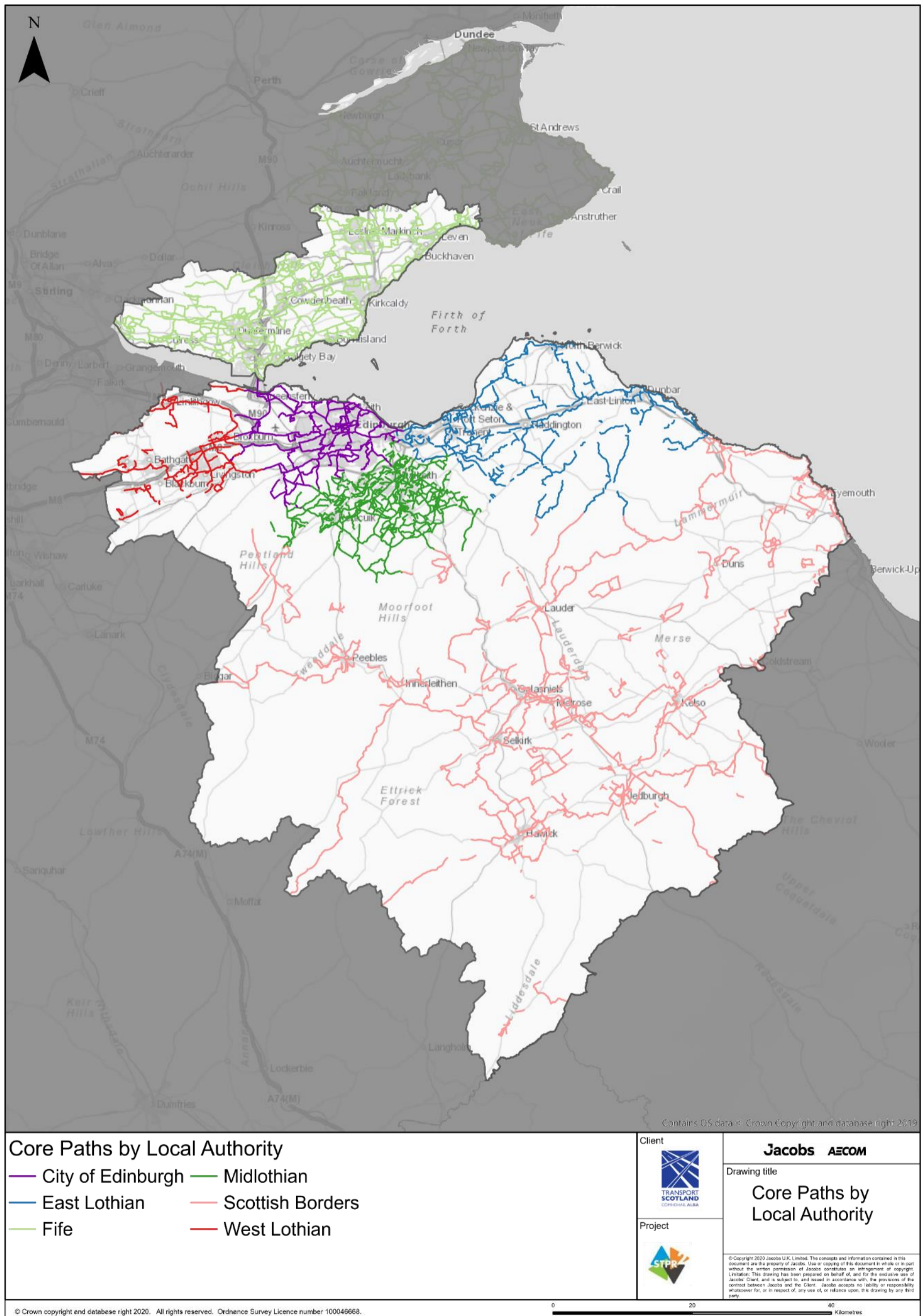


Figure A 15: Core Paths by Local Authority in the ESES Region (Click image to go back to main report)

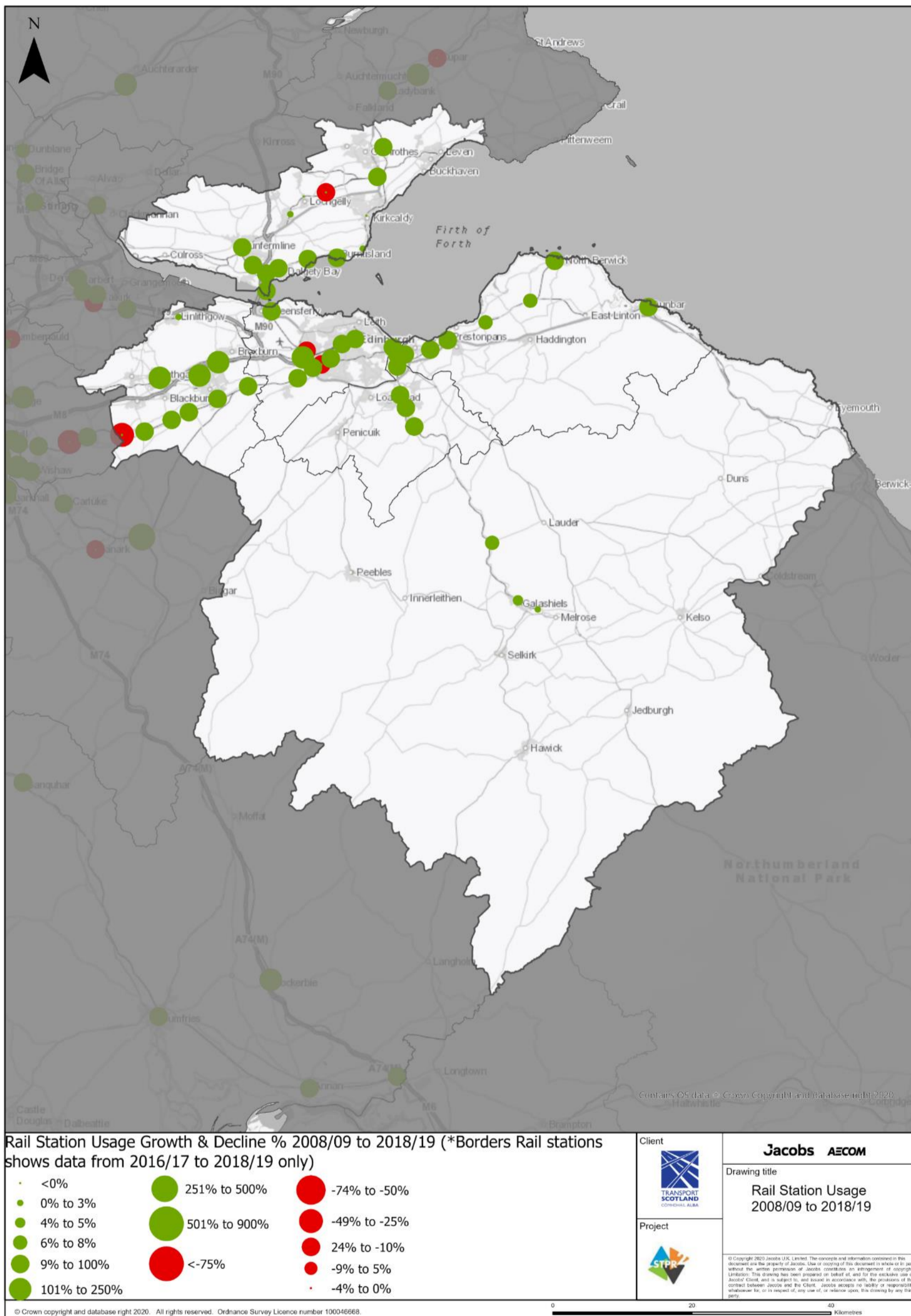


Figure A 16: Change in Rail Station Patronage 2008 to 2018 (Click image to go back to main report)

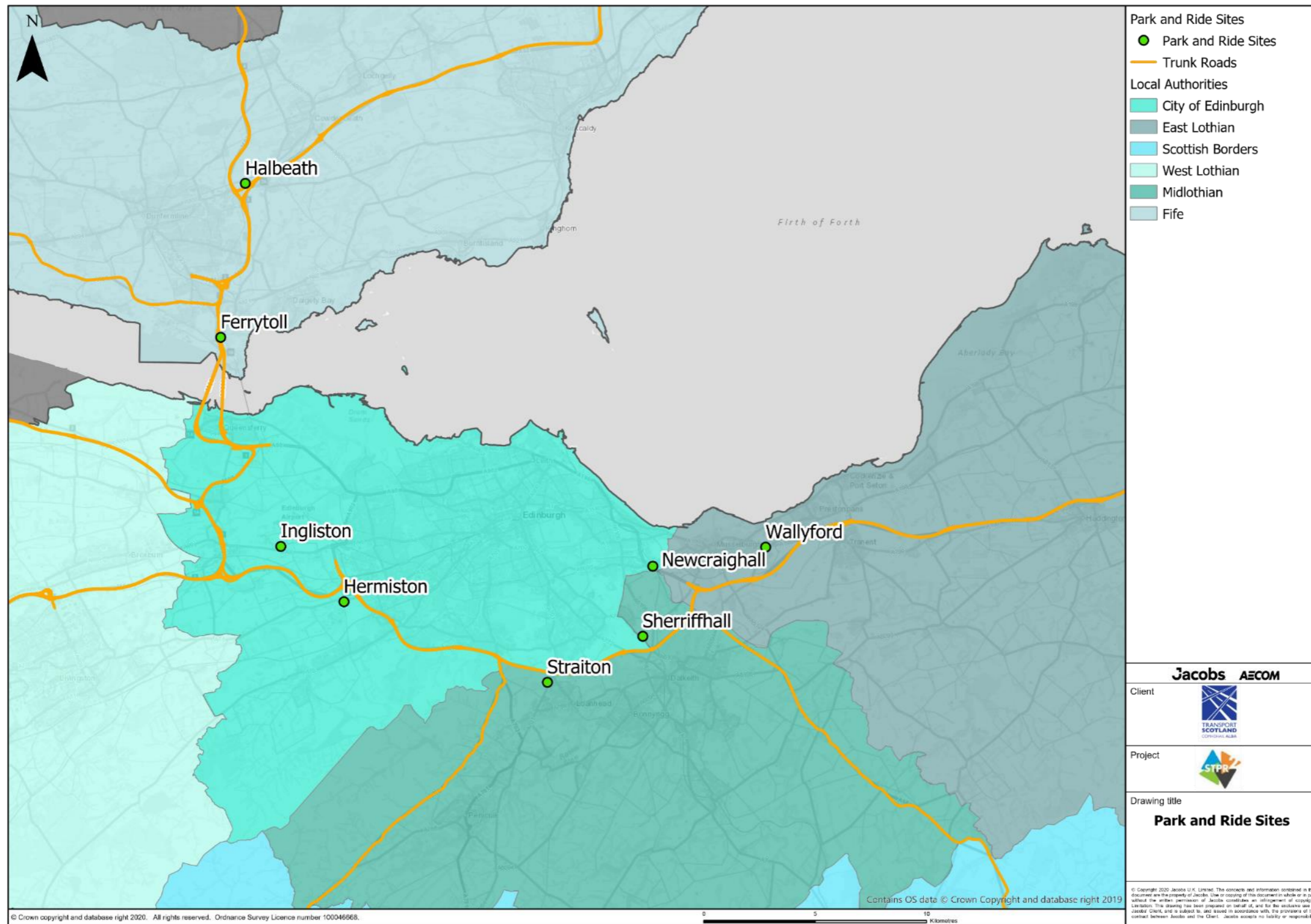


Figure A 17: Park and Ride sites within the ESES Region (Click image to go back to main report)

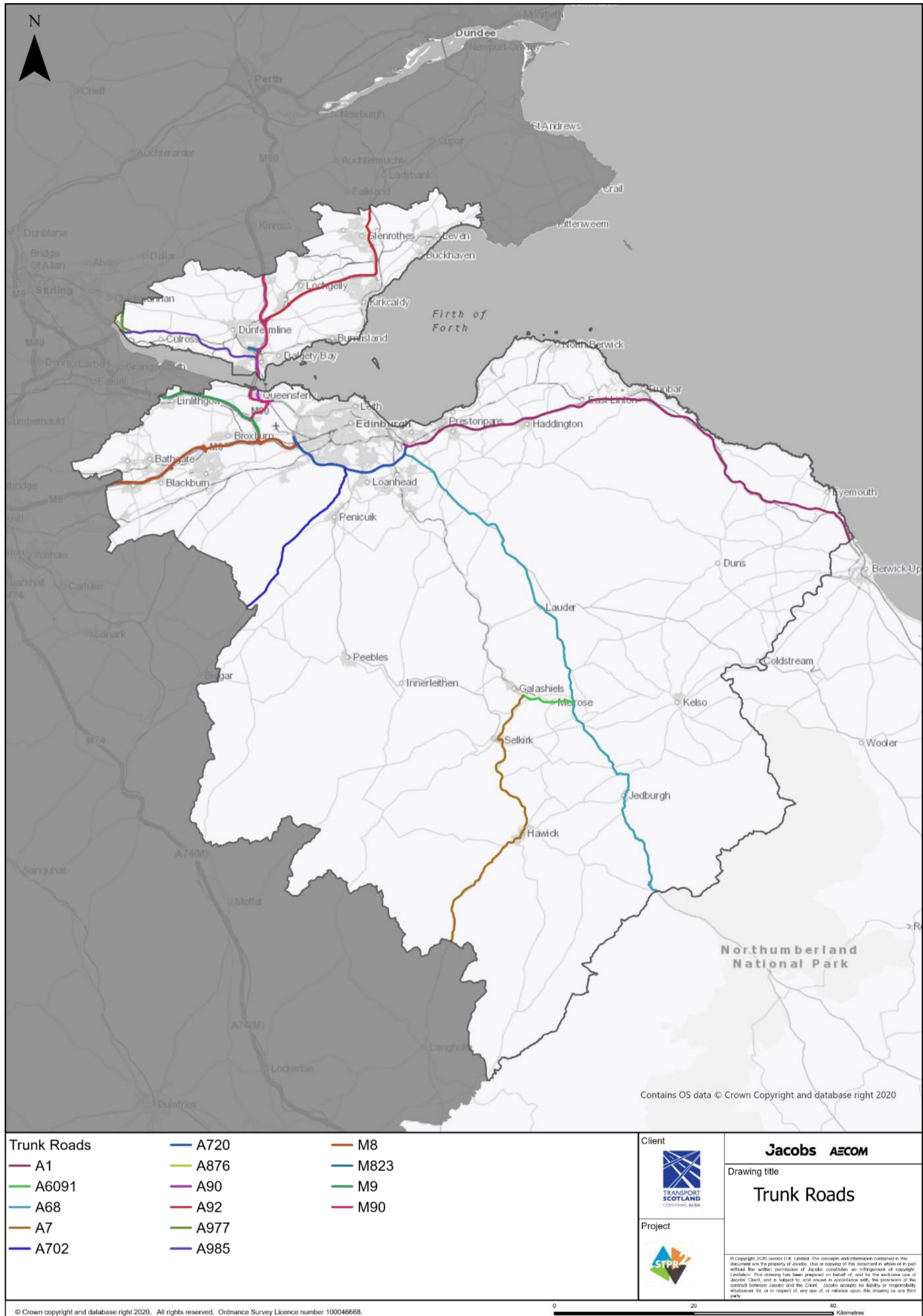


Figure A 18: ESES Region Trunk Road Network (Click image to go back to main report)

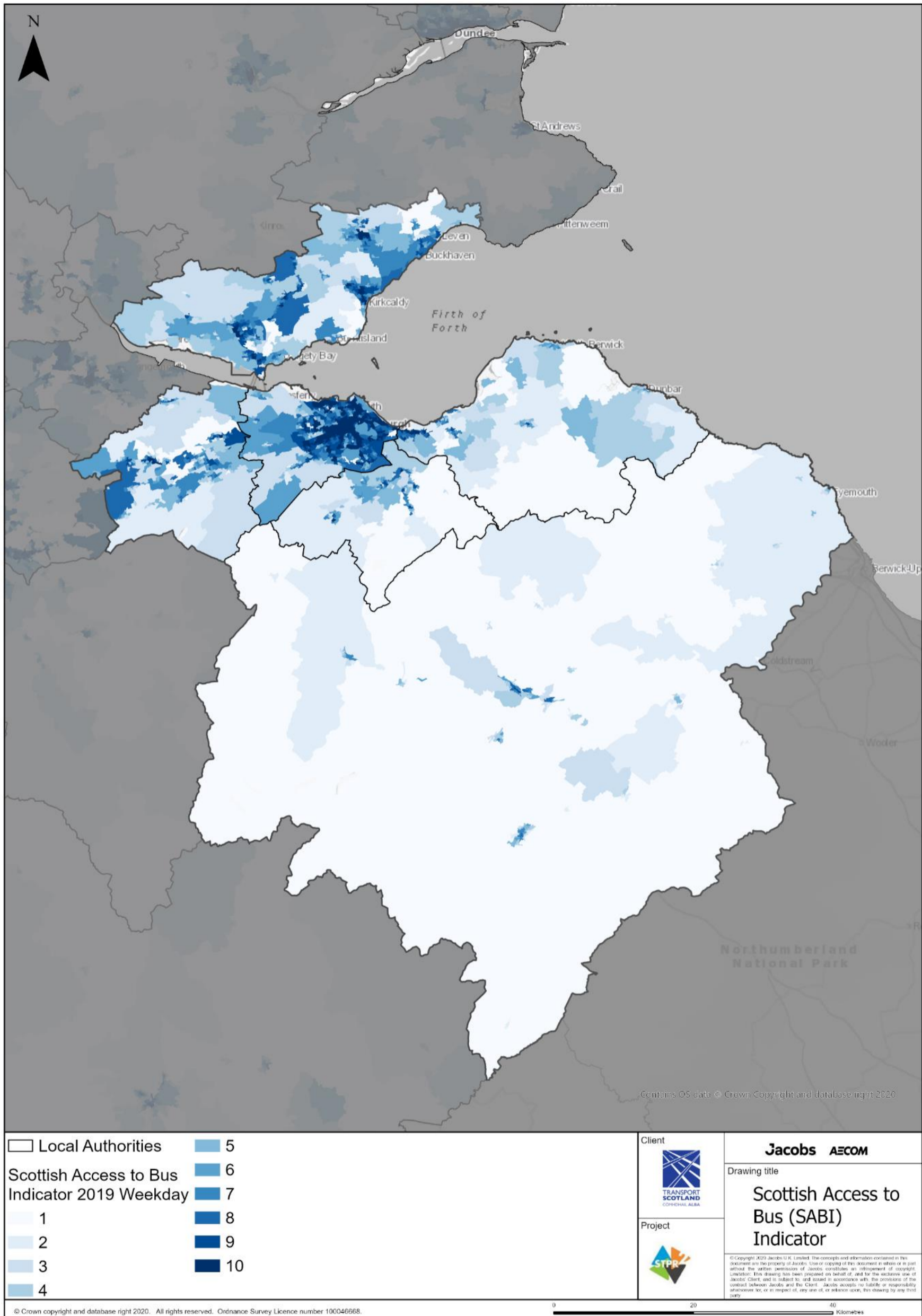


Figure A 19: Scottish Access to Bus Indicator Decile (Weekday) (Click image to go back to main report)

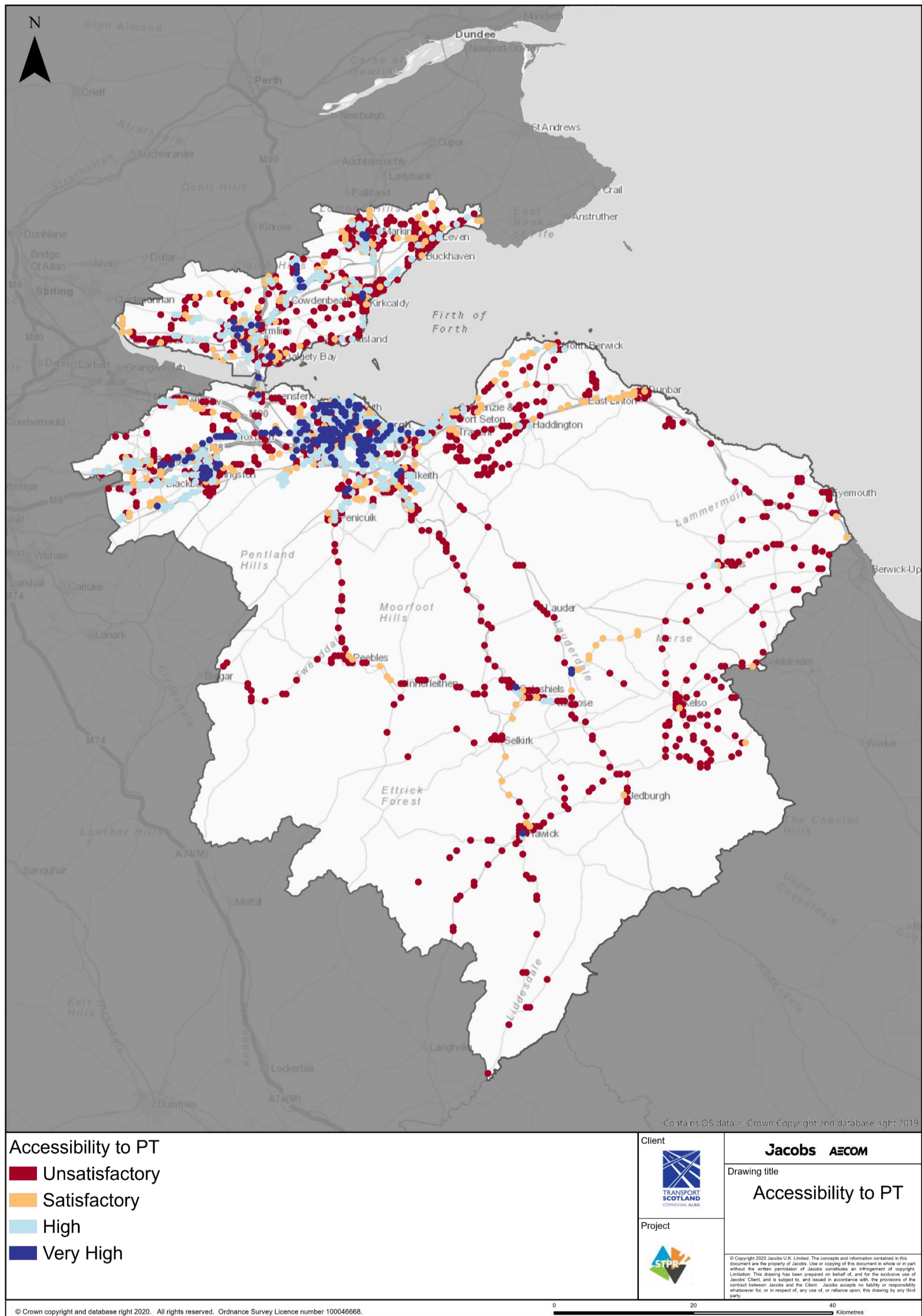


Figure A 20: Access to bus/rail based on service frequency (Click image to go back to main report)

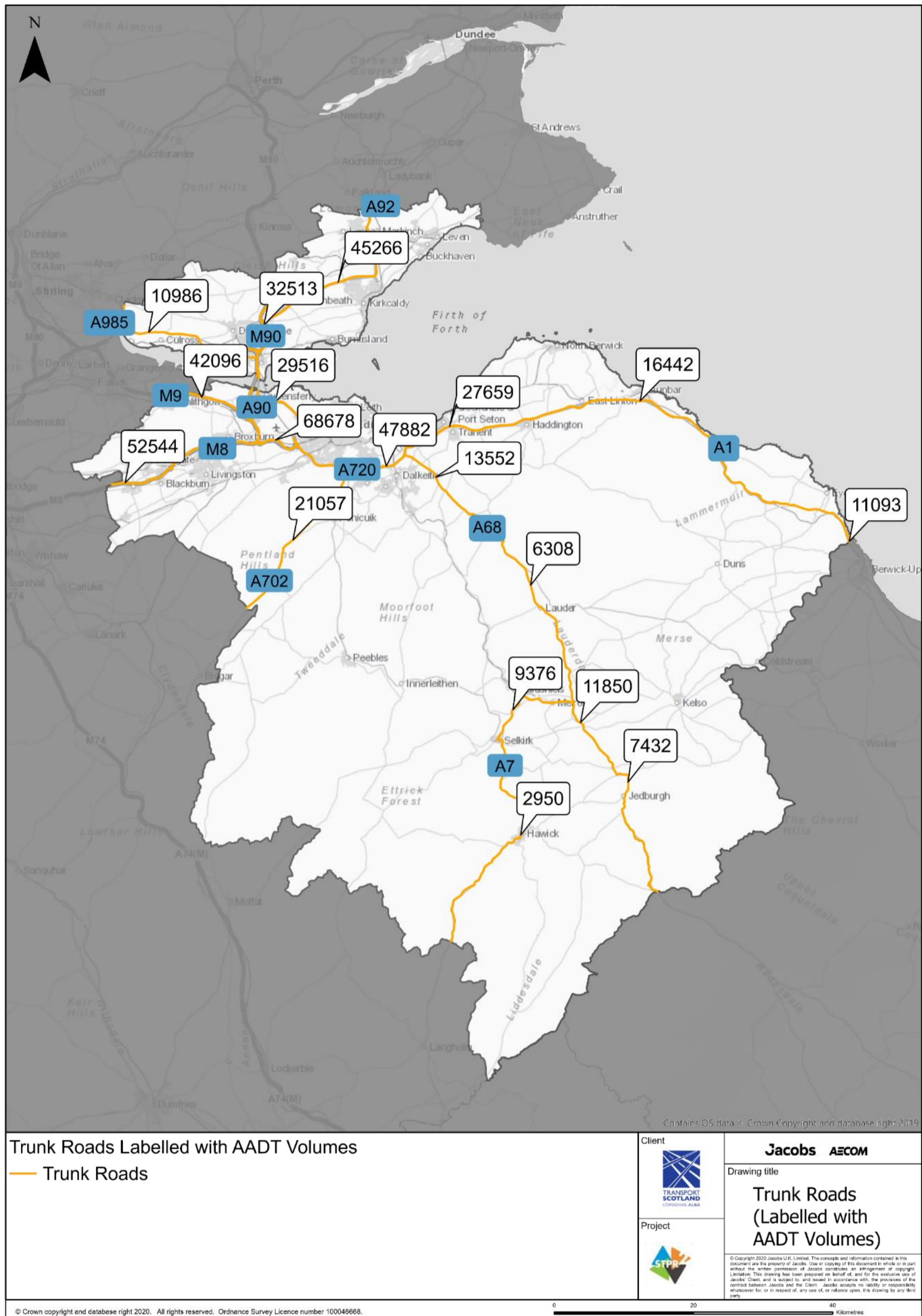


Figure A 21: Trunk Road AADT Volumes (Click image to go back to main report)

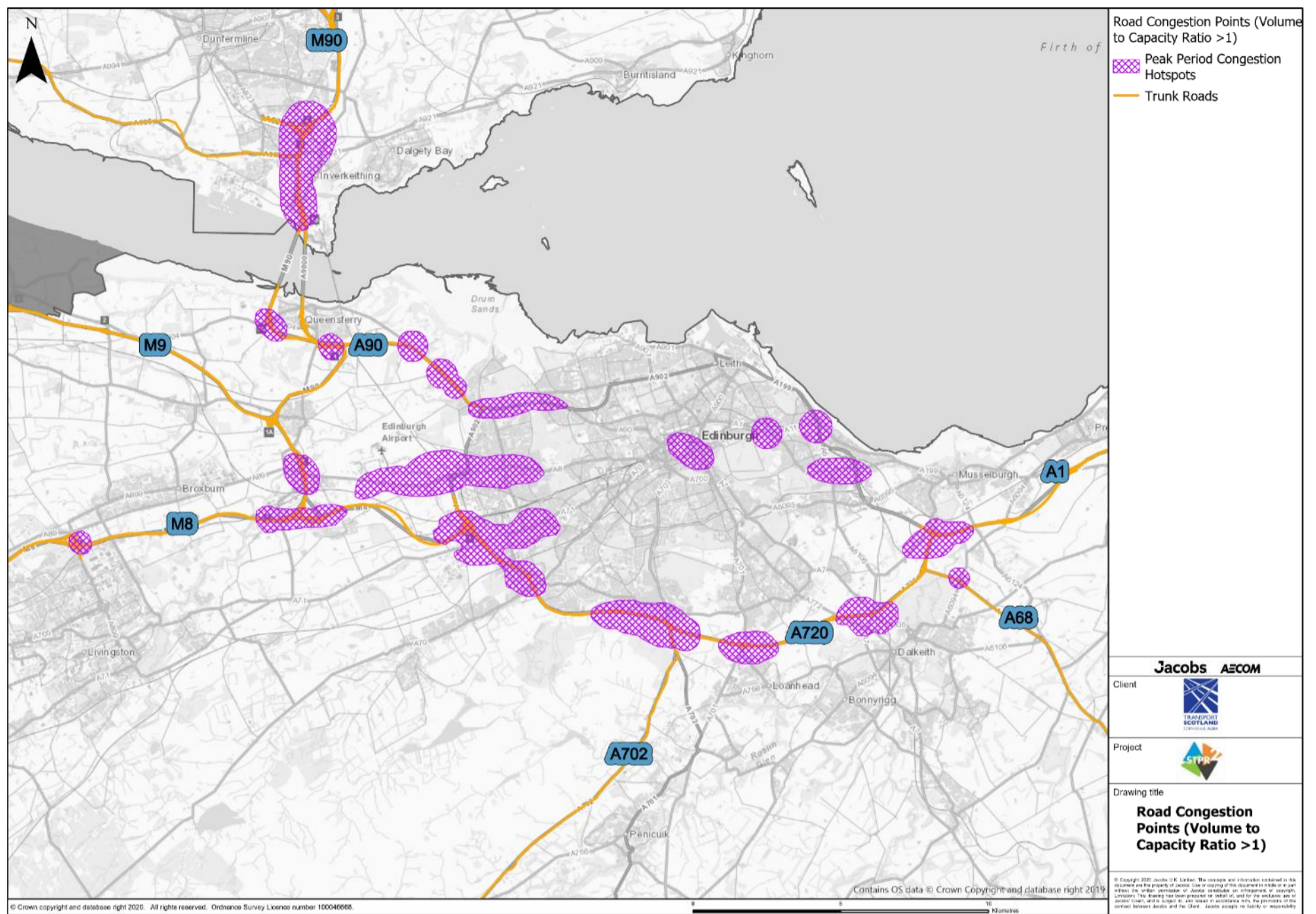


Figure A 22: Road Congestion Points (Volume to Capacity ratio >1) (Click image to go back to main report)

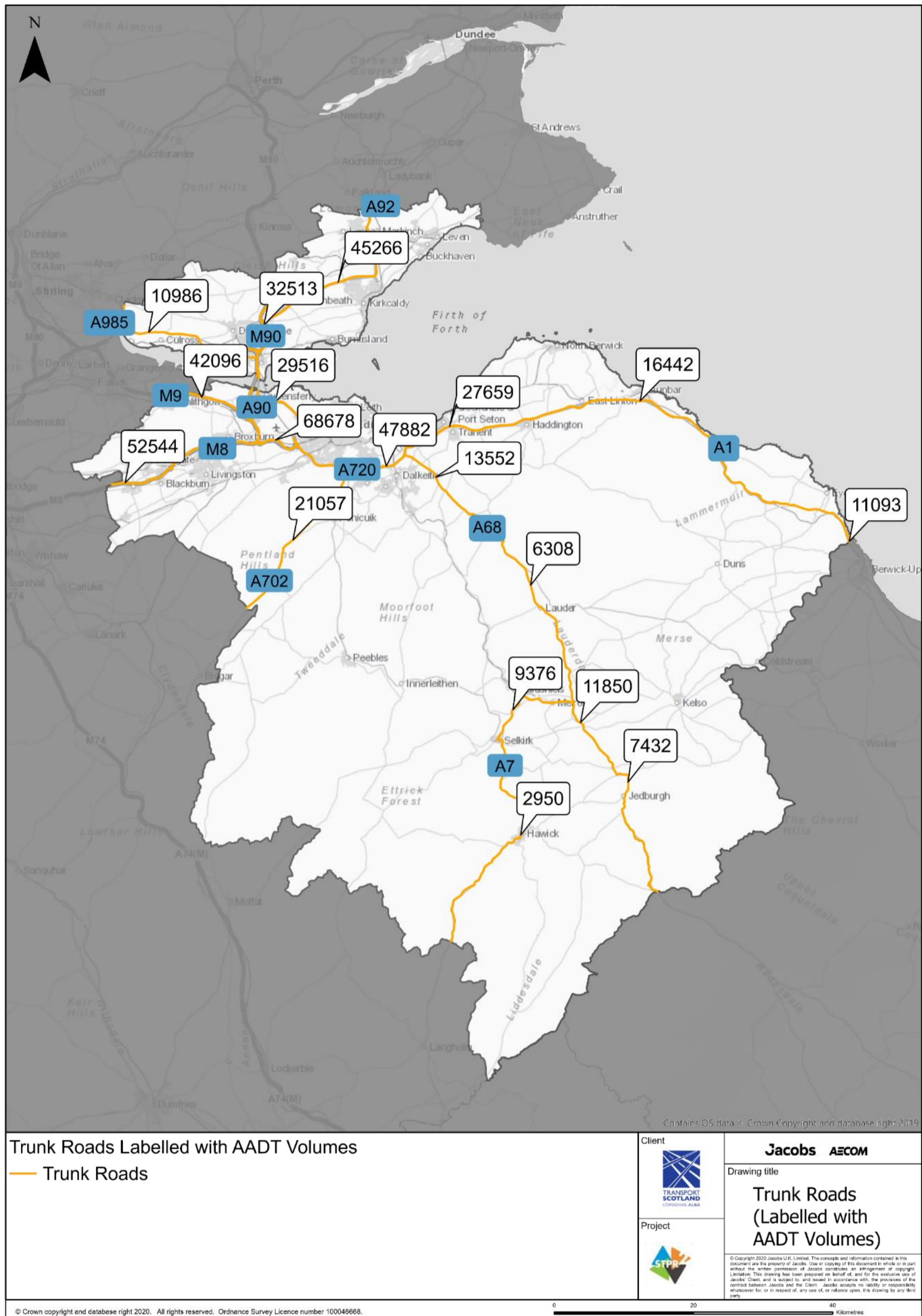


Figure A 22: Trunk Road AADT Volumes (Click image to go back to main report)

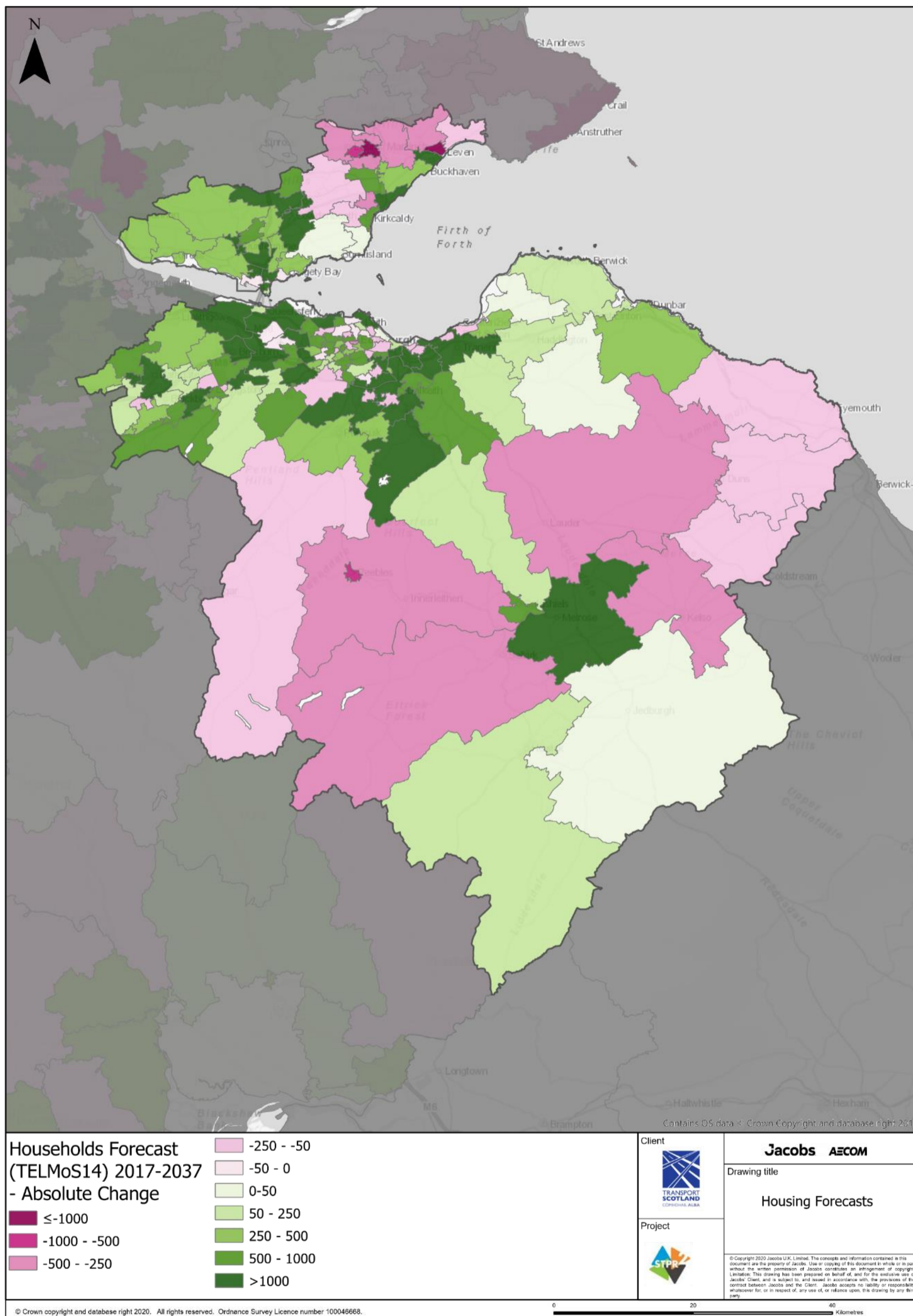


Figure A 23: Housing Forecasts (TEL MoS14) 2017-2037 (Click image to go back to main report)

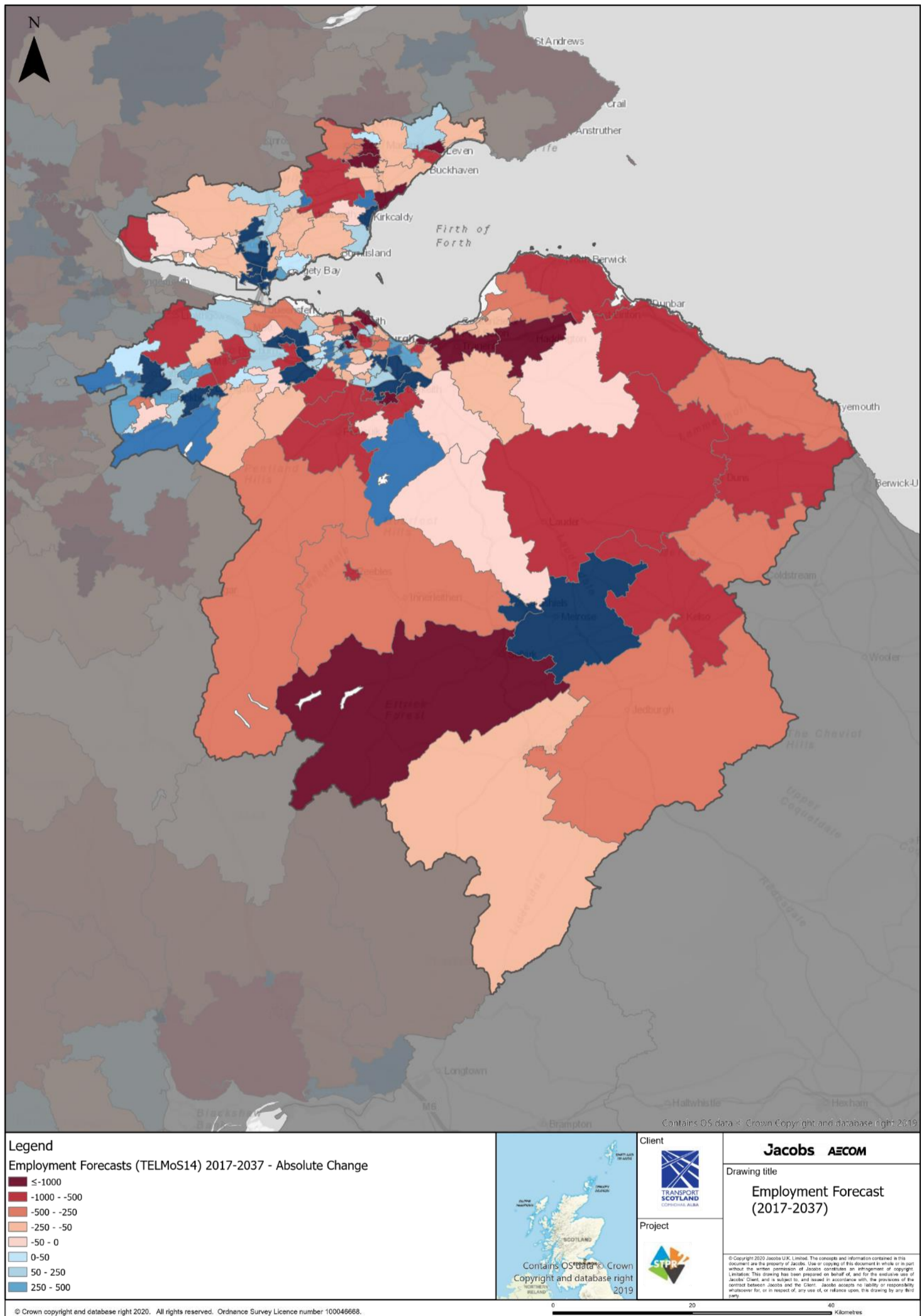


Figure A 24: Employment Forecasts (TELMoS14) 2017-2037 (Click image to go back to main report)

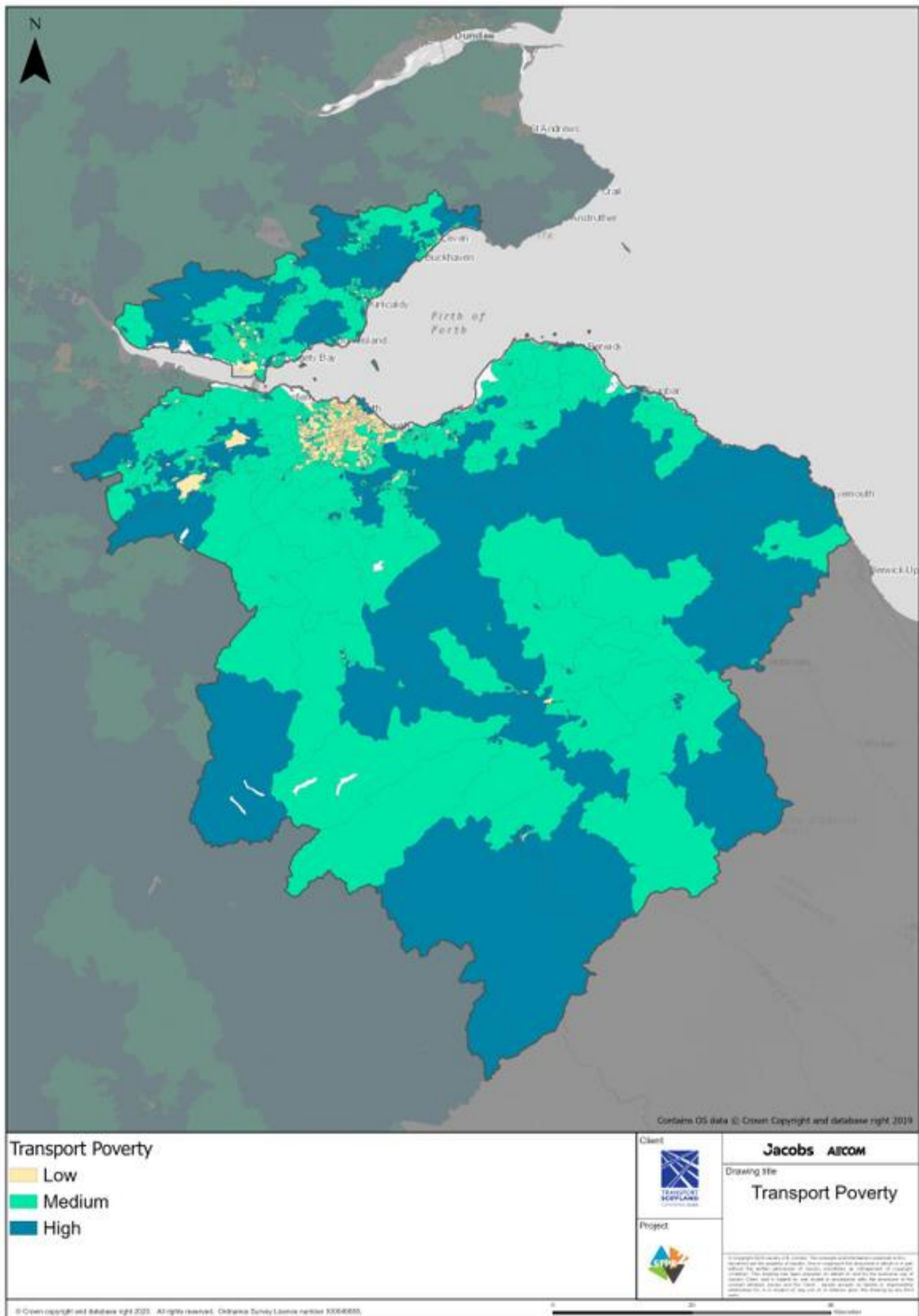


Figure A 25: Transport Poverty 2020 (Click image to go back to main report)

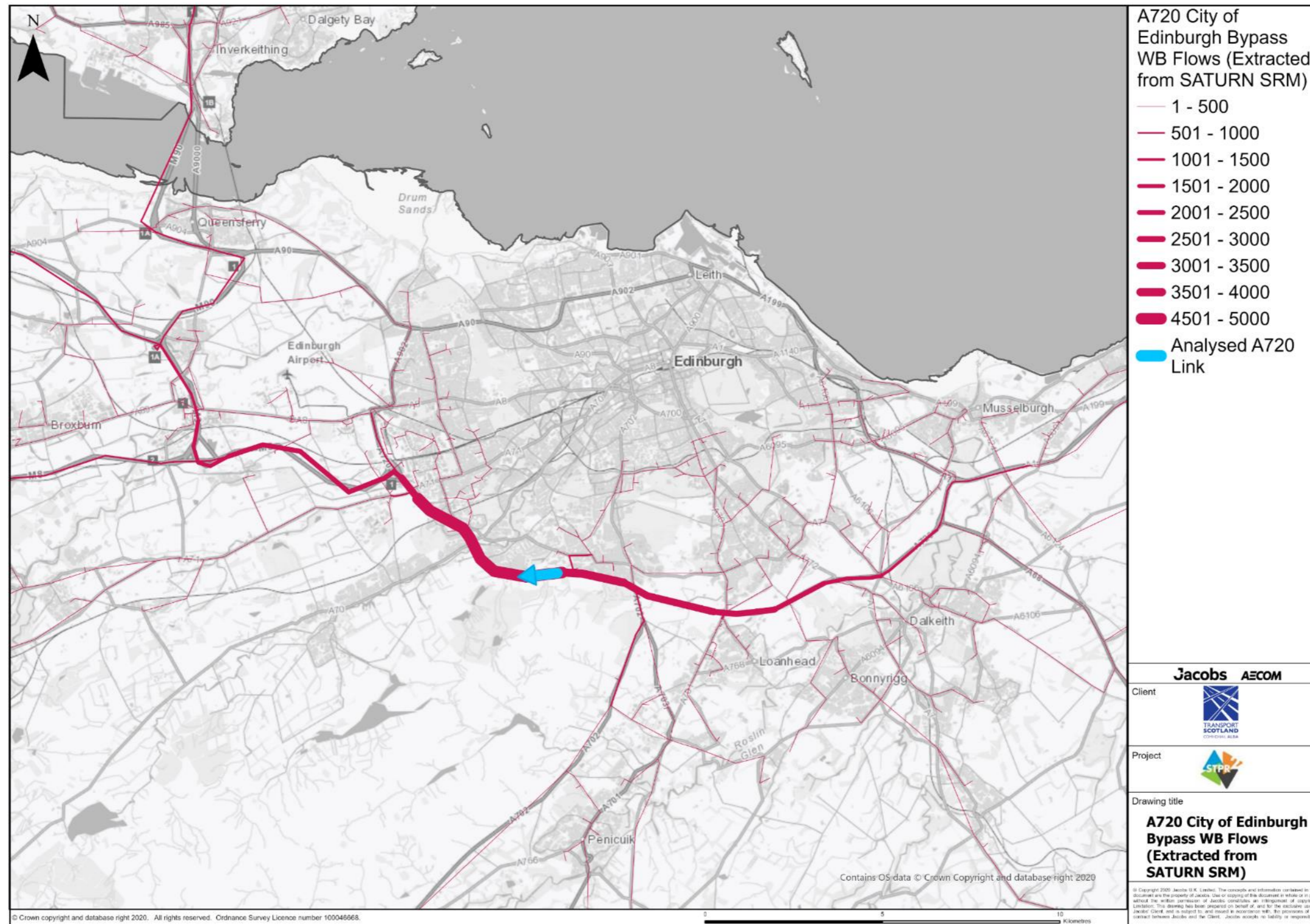


Figure A 26: SEStran SRM Model flows on the A720 (Click image to go back to main report)

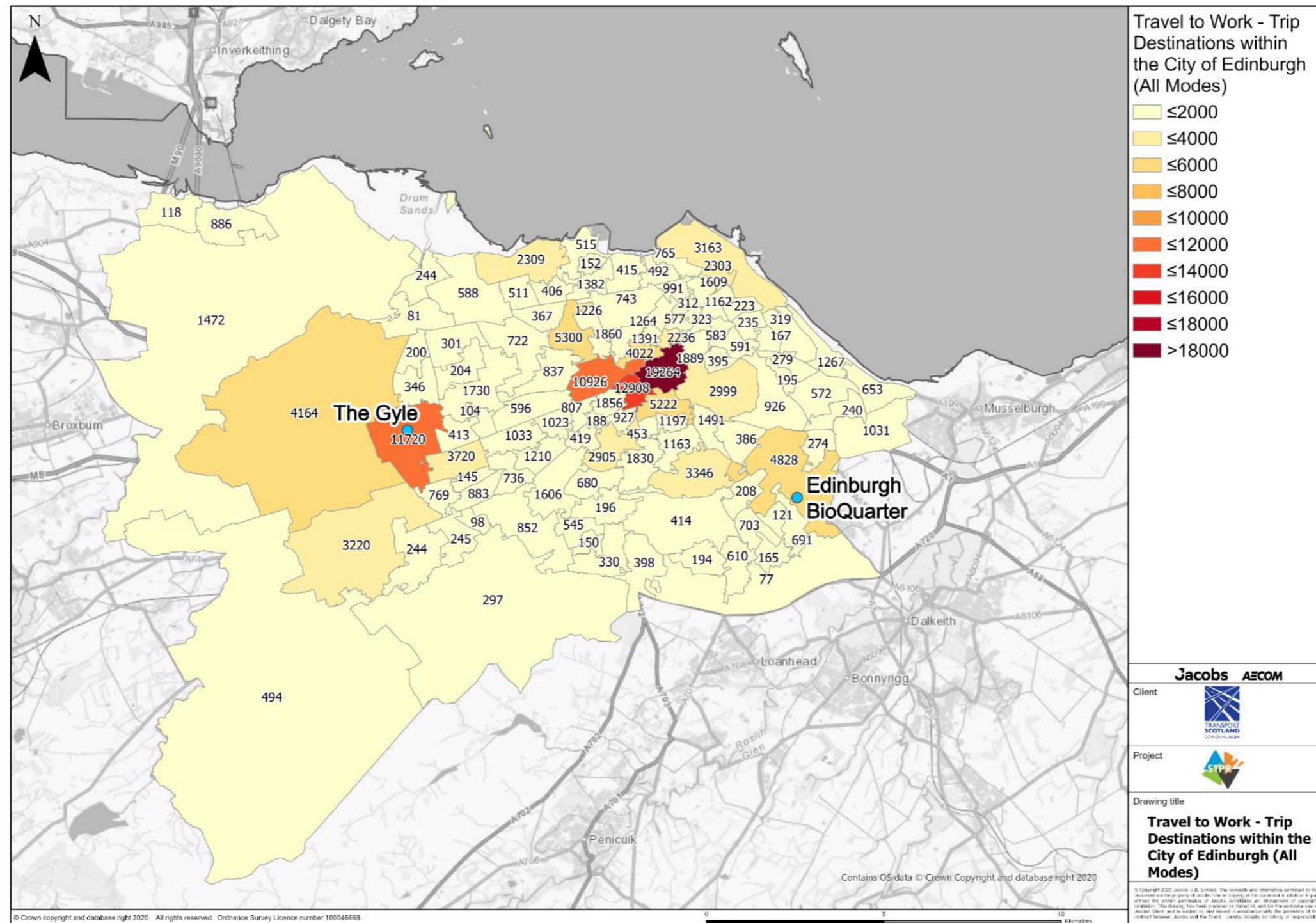


Figure A27: Travel to Work destinations within the City of Edinburgh (Click image to go back to main report)

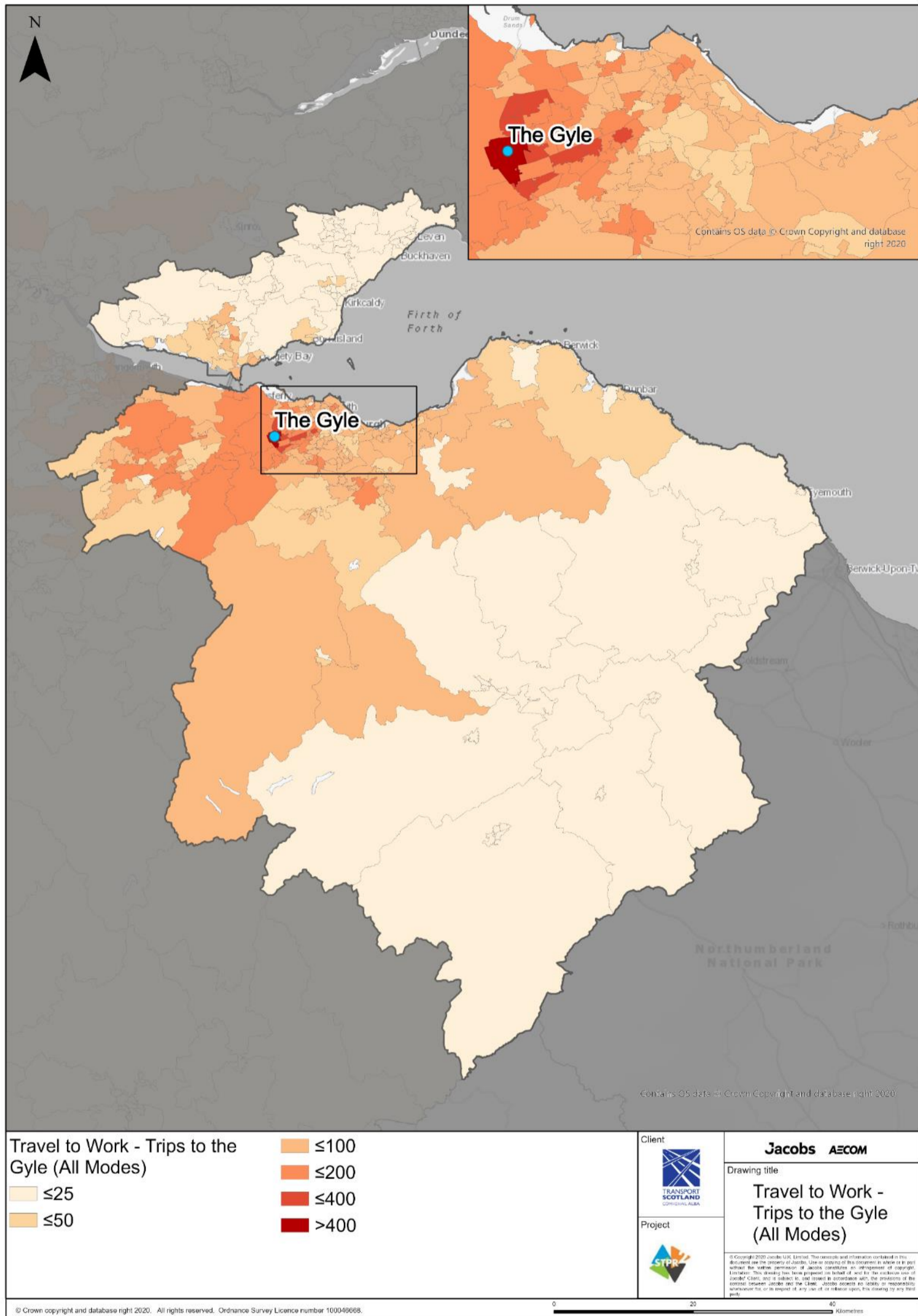


Figure A 28: Origins of trips travelling to the Gyle (Click image to go back to main report)

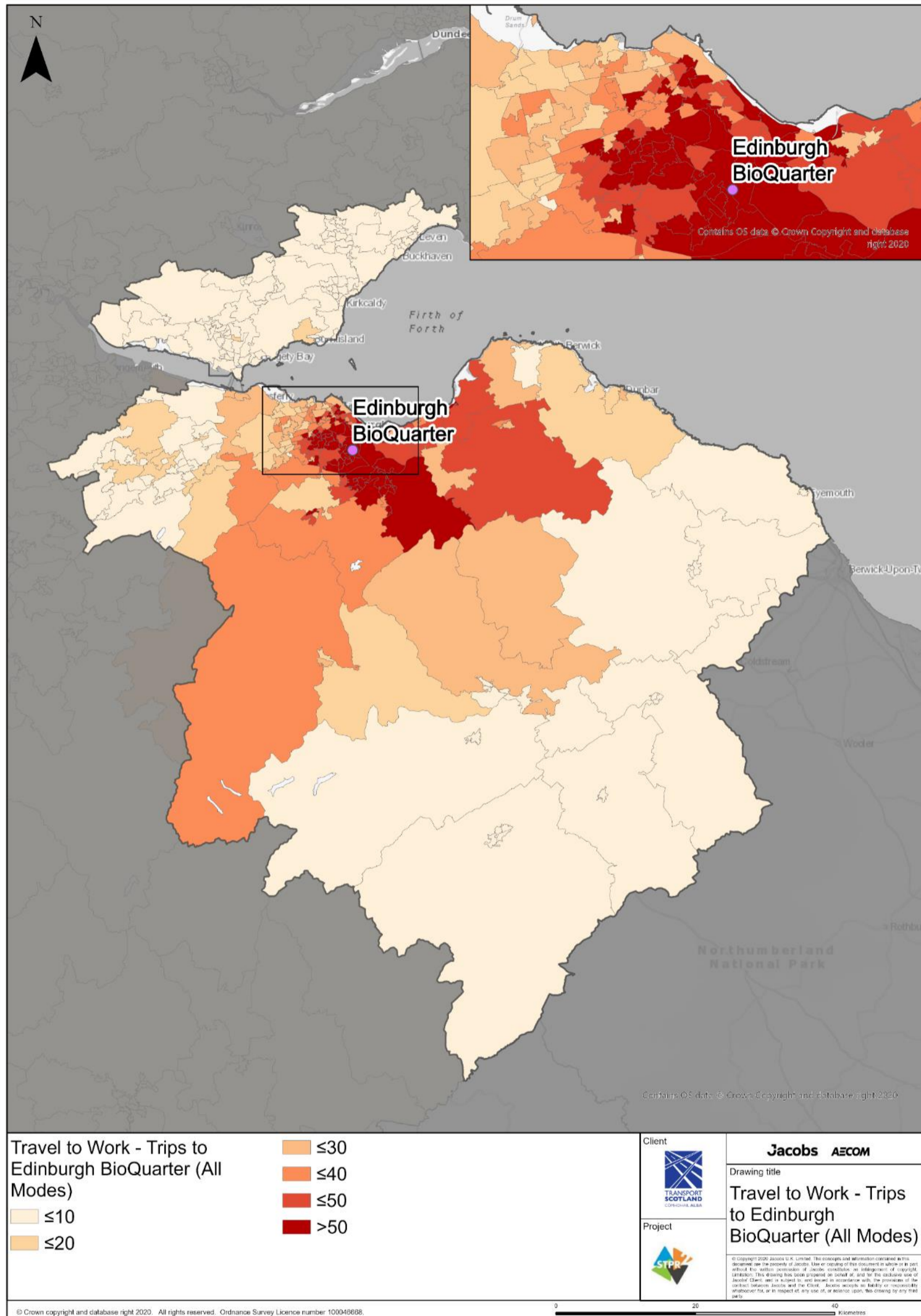


Figure A 29: Origins of trips travelling to the Edinburgh BioQuarter (Click image to go back to main report)

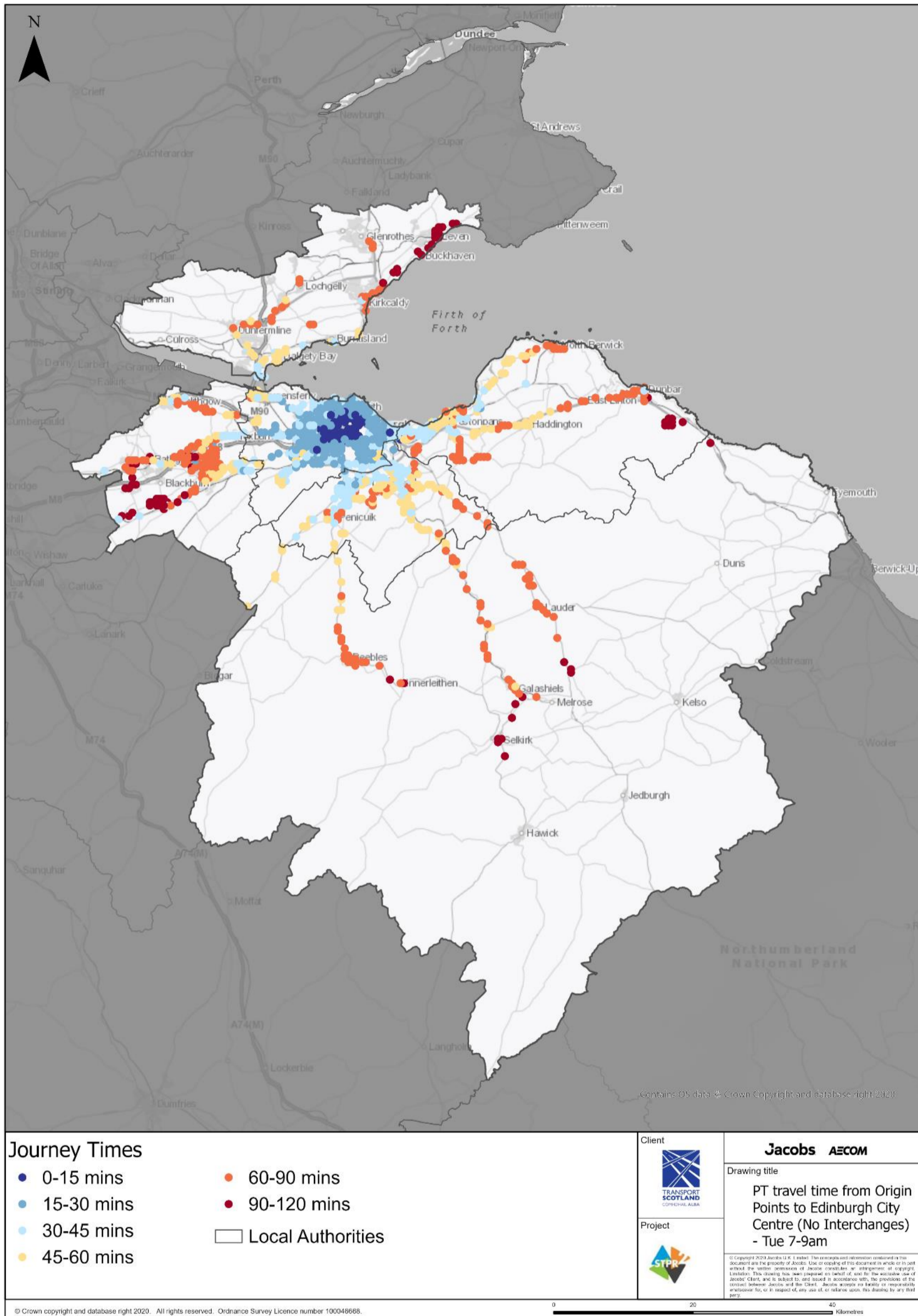


Figure A 30: Public Transport Access to Edinburgh City Centre with No Interchanges (Click image to go back to main report)

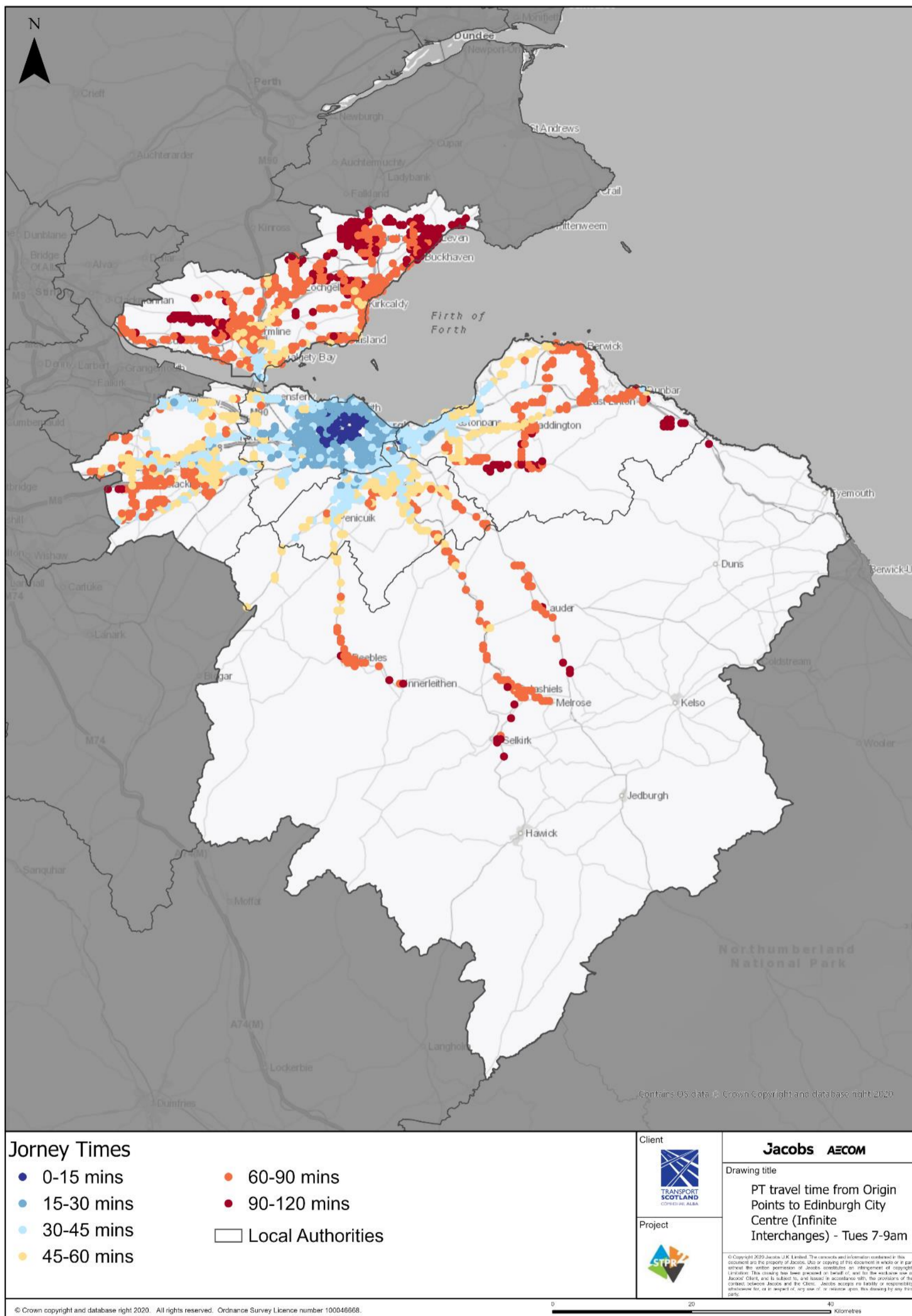


Figure A 31: Public Transport Access to Edinburgh City Centre with Multiple Interchanges (Click image to go back to main report)

Appendix B: List of Reviewed Regional Policy Documents and Studies

Theme	Title	Author	Year
Transport	Summary Case for a New Cross-Border Rail Link	Campaign for Borders Rail	2017
Transport	City of Edinburgh Local Transport Strategy 2014 – 2019	City of Edinburgh Council	2014
Transport	City Mobility Plan – Draft for consultation	City of Edinburgh Council	2020
Transport	CEC Edinburgh Sustainable Transport Study Phase 1	City of Edinburgh Council	2019
Transport	Transport 2030 Vision	City of Edinburgh Council	2020
Transport	Road Safety Plan for Edinburgh to 2020	City of Edinburgh Council	2010
Development	Edinburgh Local Development Plan	City of Edinburgh Council	2016
Economy	Edinburgh Economic Strategy, Enabling Good Growth	City of Edinburgh Council	2018
Transport	West Edinburgh Transport Appraisal Refresh	City of Edinburgh Council	2016
Economy	City Region Deal, Accelerating Growth Edinburgh and South East Scotland City Region	City Region Deal Partners	2019
Economy	Glasgow and Clyde Valley City Region Deal	City Region Deal Partners	2019
Economy	Tay Cities Deal	City Region Deal Partners	2019
Economy	Stirling and Clackmannanshire City Region Deal	City Region Deal Partners	2019
Transport	East Lothian Local Transport Strategy 2018 – 2024 Draft	East Lothian Council	2018
Transport	East Lothian Access Study STAG Appraisal	East Lothian Council	2019
Development	East Lothian Local Development Plan	East Lothian Council	2018
Development	East Lothian Economic Development Strategy: State of Play Report for East Lothian Council	East Lothian Council	2018
Transport	Edinburgh – Dunbar – Berwick-upon-Tweed Study	East Lothian Council, Scottish Borders Council and SEStran	2013
Tourism	East Lothian Tourism Action Plan 2016-18	East Lothian Council, Visit Scotland	2016
Transport	East Lothian Partnership Road Safety Plan 2016 – 2020 Draft	East Lothian Partnership	2016
Other	East Lothian Plan 2017-27	East Lothian Partnership	2017
Other	Edinburgh Airport Masterplan 2016 – 2040	Edinburgh Airport	2016
Tourism	Edinburgh 2020: The Edinburgh Tourism Strategy	Edinburgh Tourism Action Group	2012
Transport	Local Transport Strategy for Fife 2006 – 2026	Fife Council	2006
Transport	Fife Road Safety Engineering Action Plan 2016 – 2020	Fife Council	2016
Development	FIFEplan	Fife Council	2017
Economy	Fife's Economic Strategy 2017 – 2027	Fife Council, Fife Economy Partnership, Opportunities Fife	2017
Tourism	Fife Tourism Strategy 2014 – 2024	Fife Council, Fife Tourism Partnership	2014
Other	Plan for Fife Local Outcome Improvement Plan 2017-2027	Fife Partnership	2017
Tourism	Scottish Borders Tourism Action Plan 2017	Midlothian and Borders Tourism Action Group	2017
Transport	Midlothian Transport Strategy 2007-2010	Midlothian Council	2007
Development	Midlothian Local Development Plan 2017	Midlothian Council	2017
Other	Single Midlothian Plan 2018-19	Midlothian Council	2018
Tourism	Midlothian Tourism Action Plan 2016-20	Midlothian Council, Visit Midlothian	2016
Transport	Network Rail Scotland Route Study 2016	Network Rail	2016
Other	Scottish Borders Community Plan	Scottish Borders Community Planning Partnership	2018
Transport	Local Access and Transport Strategy Main Issues Report	Scottish Borders Council	2015
Transport	Scottish Borders Road Safety Plan 2010-2020	Scottish Borders Council	2010
Development	Scottish Borders Council Local Development Plan	Scottish Borders Council	2016
Economy	Scottish Borders Economic Strategy 2023	Scottish Borders Council	2013
Transport	Scottish Borders Local Access & Transport Strategy	Scottish Borders Council	2008
Development	National Planning Framework 3	Scottish Government	2014
Economy	Scotland's Economic Strategy 2015	Scottish Government	2015
Transport	Infrastructure Investment Plan 2015-2040	Scottish Government	2015
Transport	Let's Get Scotland Walking - The National Walking Strategy 2014	Scottish Government	2014
Transport	Infrastructure Investment Plan for Scotland 2021-22 to 2025-26	Scottish Government	2020
Transport	The future of energy in Scotland: Scottish energy strategy (2017)	Scottish Government	2017
Transport	Cleaner air for Scotland (CAFS) strategy (2017)	Scottish Government	2015
Transport	Cleaner air for Scotland 2: Consultation	Scottish Government	2020

Theme	Title	Author	Year
Other	The Climate Change Plan (2017)	Scottish Government	2017
Other	Borders Railway Maximising the Impact: A Blueprint for the Future	Scottish Government and Local Authority Partners	2014
Development	SESplan Strategic Development Plan	SESplan	2013
Transport	SEStran Regional Transport Strategy 2015 – 2025 Refresh	SEStran	2015
Transport	SEStran Freight Study & Action Plan	SEStran	2010
Transport	SEStran Strategic Network	SEStran	2020
Transport	SEStran RTS Main Issues Report	SEStran	2020
Transport	A71 Cycle & Active Travel Corridor Feasibility Study	SEStran, West Lothian Council and City of Edinburgh Council	2016
Other	Edinburgh Partnership Community Plan 2018 – 2028	The Edinburgh Partnership	2018
Transport	Strategic Transport Projects Review 2009	Transport Scotland	2009
Other	SESplan Cross Boundary and Land Use Appraisal	Transport Scotland	2016
Transport	Case for Change - Pre-Appraisal and Initial Appraisal Study 2018 - A92 Freuchie Balfarg Cadham	Transport Scotland	2018
Transport	Strategic Road Safety Plan 2007-2020	Transport Scotland	2007
Transport	National Transport Strategy 2 Delivery Plan	Transport Scotland	2020
Transport	National Transport Strategy 2	Transport Scotland	2020
Transport	Scotland's Rail Freight Strategy 2016	Transport Scotland	2016
Transport	Scotland's Railways 2006	Transport Scotland	2006
Transport	Scottish Ferry Services Ferries Plan 2013-2022	Transport Scotland	2013
Transport	Cycling Action Plan for Scotland 2017-2020	Transport Scotland	2017
Transport	Transport Scotland Road Safety Framework	Transport Scotland	2020
Transport	Scottish Trunk Road Network Asset Management Policy	Transport Scotland	2018
Transport	Switched On Scotland: A Roadmap to Widespread Adoption of Plug-in Vehicles (2017)	Transport Scotland	2017
Other	Local Outcomes Improvement Plan 2013 – 2023	West Lothian Community Planning Partnership	2017
Transport	Road Safety Plan for West Lothian 2012 – 2015	West Lothian Council	2012
Development	West Lothian Local Development Plan	West Lothian Council	2018
Economy	West Lothian Economic Partnership Strategy and Action Plan 2014-17	West Lothian Council	2014

Appendix C: Stakeholder Engagement

Engagement Type	Date	Venue	Purpose and Details	No. of Attendees
Problems and Opportunities Workshop	18 June 2019	City Arts Centre, Market Street, Edinburgh, EH1 1DE	Workshop with invited stakeholders including representatives from local authorities, transport operators, tertiary education bodies, public sector and private sector organisations, business community and representative bodies	24
Problems and Opportunities Workshop	19 June 2019	City Arts Centre, Market Street, Edinburgh, EH1 1DE	Workshop with invited stakeholders including representatives from local authorities, transport operators, tertiary education bodies, public sector and private sector organisations, business community and representative bodies	7
Problems and Opportunities Workshop	25 June 2019	Dakota Hotel, Ferrymuir, Queensferry, South Queensferry, EH30 9QZ	Workshop with invited stakeholders including representatives from local authorities, transport operators, tertiary education bodies, public sector and private sector organisations, business community and representative bodies	21
Structured Interviews	September to October 2019	Interviews undertaken by telephone and in person	Interviews with senior officers across the local authorities and other organisations in the region.	9
Option Workshop	19 November 2019	City Chambers, 253 High St, Edinburgh, EH1 1YJ	Workshop with invited stakeholders including representatives from local authorities, transport operators, tertiary education bodies, public sector and private sector organisations, business community and representative bodies	19
Option Workshop	20 September 2019	DoubleTree by Hilton, St Margaret's Head, North Queensferry, KY11 1HP	Workshop with invited stakeholders including representatives from local authorities, transport operators, tertiary education bodies, public sector and private sector	13

Engagement Type	Date	Venue	Purpose and Details	No. of Attendees
			organisations, business community and representative bodies	
Elected Members Workshop	06 December 2019	City Chambers, 253 High St, Edinburgh, EH1 1YJ	Included Committee Conveners with transport, planning and economic development remits; SEStran Board and SESplan Board members	19
Online Survey	2nd December 2019 - 10th January 2020	Online Survey	Online survey promoted to members of the public and organisations to validate emerging problems from the STPR2 process and to provide feedback on potential interventions at a local, regional or national level.	718 respondents (713 individuals and 15 organisations)