

# Strategic Transport Projects Review (STPR2) Consultancy Support Services Contract



## Initial Appraisal: Case for Change Edinburgh and South East Scotland Region

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## List of Acronyms and Abbreviations

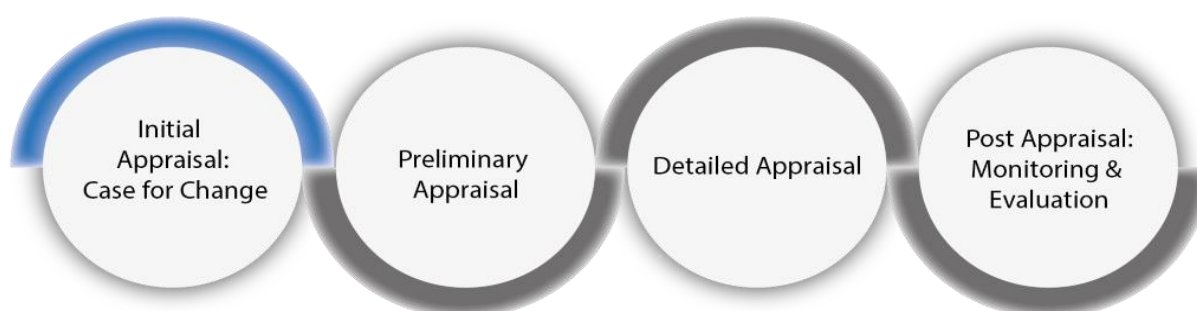
ABBREVIATION	
AADT	Annual Average Daily Traffic
AQMAs	Air Quality Management Areas
BRES	Business Register and Employment Survey
CO <sub>2</sub>	Carbon Dioxide
CRD	City Region Deal
CRWIA	Children's Rights and Wellbeing Impact Assessment
DfT	Department
EqIA	Equality Impact Assessment
ESES	Edinburgh and South East Scotland
EV	Electrical Vehicle
GP	General Practice
GVA	Gross Value Added
KSI	Killed or Seriously Injured
LEZ	Low Emission Zone
MaaS	Mobility as a Service
NCN	National Cycle Network
NOMIS	National Online Manpower Information System
NO <sub>x</sub>	Nitrous Oxide
NTS	National Transport Strategy
Ofcom	Office of Communications
P&R	Park and Ride
PM <sub>10</sub>	Particulate Matter of less than 10 microns in diameter
PPM	Public Performance Measure
RTWG	Regional Transport Working Group
SABI	Scottish Access to Bus Indicator
SAC	Special Areas of Conservation
SEA	Strategic Environmental Assessment
SESplan	Strategic Development Planning Authority for Edinburgh and South East Scotland
SEStran	South East of Scotland Regional Transport Partnership
SFBB	Super-Fast Broadband
SIMD	Scottish Index of Multiple Deprivation
SPA	Special Protection Areas
SSSI	Site of Special Specific Interest
STAG	Scottish Transport Appraisal Guidance
STPR	Strategic Transport Project Review
TELMoS	Transport and Economic Land-use Model of Scotland
TMfS	Transport Model for Scotland
TPOs	Transport Planning Objectives
UFBB	Ultra-Fast Broadband
UNESCO	United Nations Educational, Scientific and Cultural Organisation's

# 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 new National Transport Strategy (NTS2)<sup>1</sup>.

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



**Figure 1: The Four 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 one of eleven STPR2 regions (a larger version of Figure 2 can be found in Appendix A where more accessible versions of some 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 strategic transport network across the ESES region drawing on relevant data analysis, policy review and stakeholder engagement. 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.

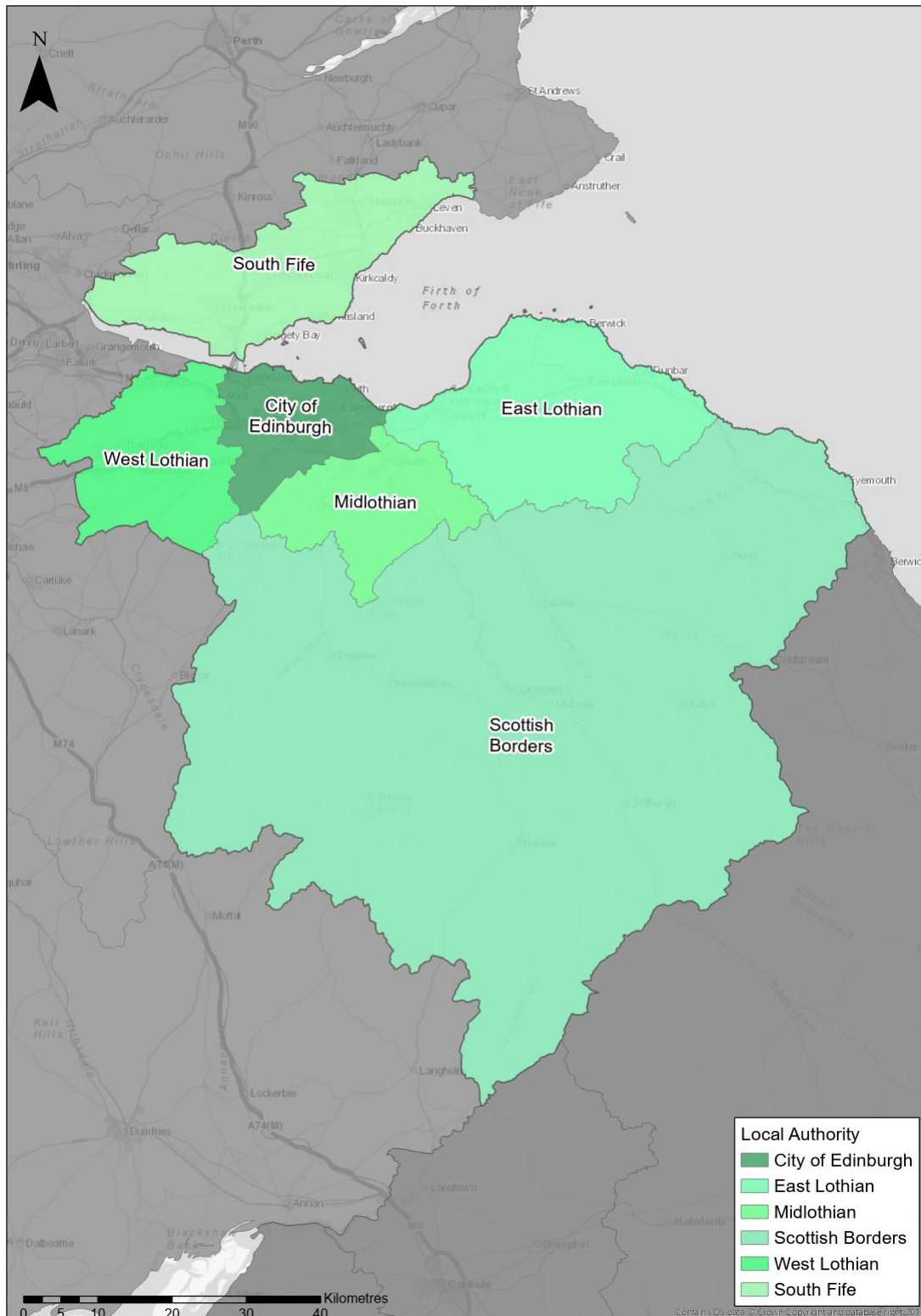
STPR2 specifically focusses on Scotland’s key strategic transport assets, which are wide ranging and varied. In the context of STPR2, the strategic transport network is defined as being:

- All transport networks and services owned, operated and funded directly by Transport Scotland;
- Transport Access to Major Ports and Airports; and
- The inter-urban bus and active travel network and principal routes within the City Region areas.

<sup>1</sup> National Transport Strategy (NTS2) (Transport Scotland, Feb 2020) [www.transport.gov.scot/media/47052/national-transport-strategy.pdf](http://www.transport.gov.scot/media/47052/national-transport-strategy.pdf)

<sup>2</sup> Scottish Transport Appraisal Guidance (STAG) (Transport Scotland) [www.transport.gov.scot/media/41507/j9760.pdf](http://www.transport.gov.scot/media/41507/j9760.pdf)

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

(Click Image to enlarge figure)



The ESES region comprises the six local authorities of East Lothian, Midlothian, West Lothian, the city of Edinburgh, Scottish Borders and Fife. For the purposes of STPR2, Fife Council spans two 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 included in The Tay Cities Deal. The 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 six 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.

In advance of STPR2 commencing in 2019, the Borders Transport Corridors Pre-Appraisal<sup>3</sup> study was undertaken to identify the cross-modal problems and opportunities with the transport system in the Scottish Borders and identify transport options to be carried forward for further appraisal as part of STPR2. The findings of the study identified a range of options, including improved bus services, active travel, road and rail infrastructure in the region, which will be taken forward to the Preliminary Appraisal for the STPR2 Scottish Borders region. Options of a cross-boundary nature with respect to ESES will be considered within the future appraisal stages for the ESES region.

This Case for Change report also presents a draft set of Transport Planning Objectives, aligned with the national STPR2 objectives. The Transport Planning Objectives express the outcomes sought for the region and describe how problems may be alleviated. Additionally, the Transport Planning Objectives 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 is currently being developed and will be sifted in line with the proposed approach presented 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.

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<sup>3</sup> Borders Transport Corridors Pre-Appraisal (Transport Scotland, 2018)  
[www.transport.gov.scot/media/44271/borders-transport-corridors-pre-appraisal-report.pdf](http://www.transport.gov.scot/media/44271/borders-transport-corridors-pre-appraisal-report.pdf)





## 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 2 provides an overview of the strategies and policies reviewed, with a summary of key documents presented below:

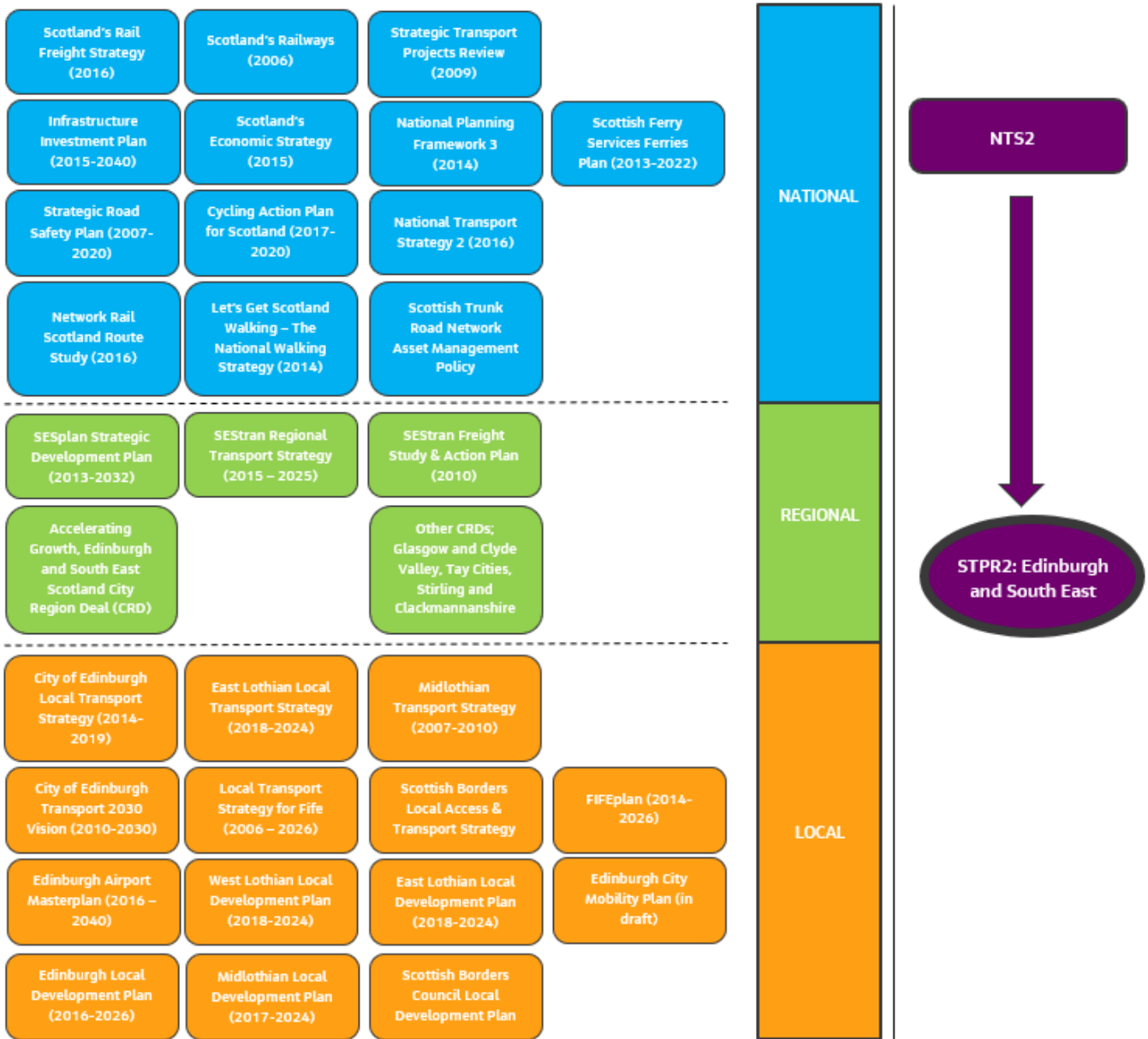
- **Programme for Government:** sets out the Scottish Government's ambitions and aims to make Scotland a more successful country with opportunities and increased wellbeing for all.
- **National Transport Strategy 2:** the NTS2 provides the emerging national transport policy framework, setting out a clear 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 and wellbeing.
- **Climate Emergency:** declared by the Scottish and UK Government's and multiple local authorities, including City of Edinburgh, Fife, West Lothian, Midlothian and East Lothian, in 2019. 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.
- **Accelerating Growth Edinburgh and South East Scotland City Region Deal:** 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 six member authorities - The City of Edinburgh, East Lothian, Fife, Midlothian, Scottish Borders 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.
- **SEStran Regional Transport Strategy 2015-2025 Refresh:** Updated in 2015, this sets out the strategic transport vision for the SEStran region and the shared goals of SEStran and its partners.
- **Other Regional and Local Policy Documents:** This includes Local Transport Strategies as well as non-transport specific plans, such as Local Development Plans and Economic Strategies, 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 four 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.



**Figure 2: ESES Region Policy Review**

(Click Image to enlarge figure)

In addition, supporting and informing the development of STPR2, a Strategic Environmental Assessment (SEA), an Equality Impact Assessment (EqIA), a Children’s Rights and Wellbeing Impact Assessment (CRWIA), a Fairer Scotland Duty Assessment (FSDA) and an Island Communities Impact Assessment (ICIA) are being undertaken. Early work on these assessments has informed this Case for Change.



## 2.2. Geographical Context

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 2016<sup>4</sup>, all classifications (six-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 3 shows the urban/rural make-up of the region. In ESES, 39% of the region's population lives on land classified as Large Urban Area, 39% of Other Urban Areas, 8% of Accessible Small Town, 2% of Remote Small Town, 11% of Accessible Rural and 1% of Remote Rural).

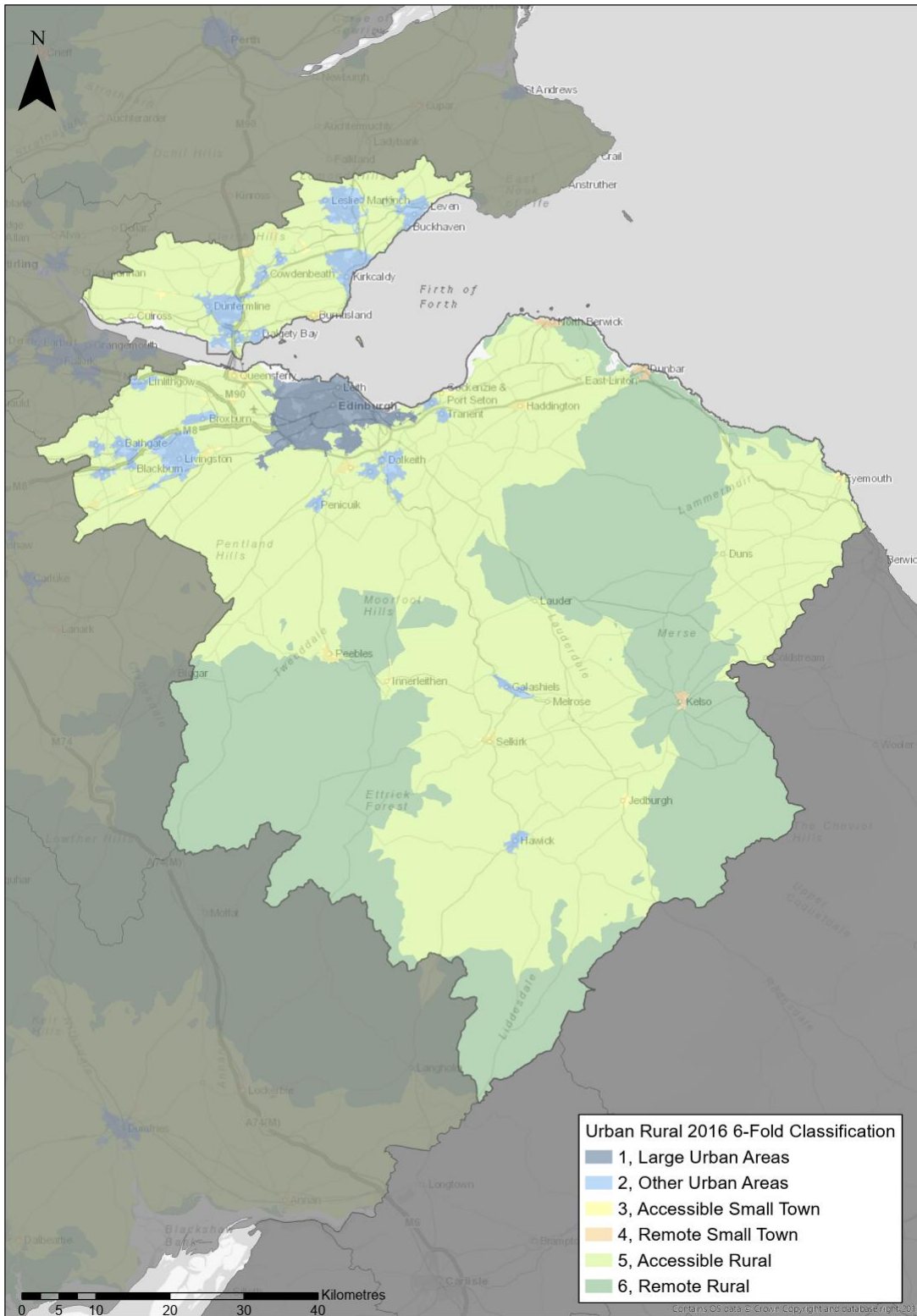
It should be noted that in the following chapters, where the datasets used in the analysis allows and it is appropriate to do so, the area of South Fife included in the ESES region will be disaggregated from the full Fife Council area. If the data available does not allow for this level of disaggregation,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

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 two 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 four 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).

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<sup>4</sup> Scottish Government Urban Rural Classification (Scottish Government, 2016)  
<https://www.gov.scot/publications/scottish-government-urban-rural-classification-2016/pages/2/>



**Figure 3: ESES Region Scottish Government Urban Rural Classification 2016**

(Click Image to enlarge figure)

### 2.3. Socio-Economic Context

In 2018 the ESES region had a population of approximately 1,310,000<sup>5</sup> people with Edinburgh the most populous settlement accounting for 37% of the region’s population. The ten largest settlements by population are presented in Figure 3 and between them they account for 60% of the region’s population.



**Figure 4: ESES Largest Settlements by Population 2016**

In terms of the age profile of the population in the region, approximately 67% of people are of working age (16 to 64 years of age), 17% aged 15 and under, and 16% aged 65 and over. This compares closely to the national proportions for Scotland with 66% of people being of working age, 17% aged 15 and under, and 17% aged 65 and over.

Between 2012 - 2016, Edinburgh’s population grew by 5% which is the highest rate of growth when compared to the other three larger cities of Aberdeen (2%), Dundee (0.4%) and Glasgow (3.5%).

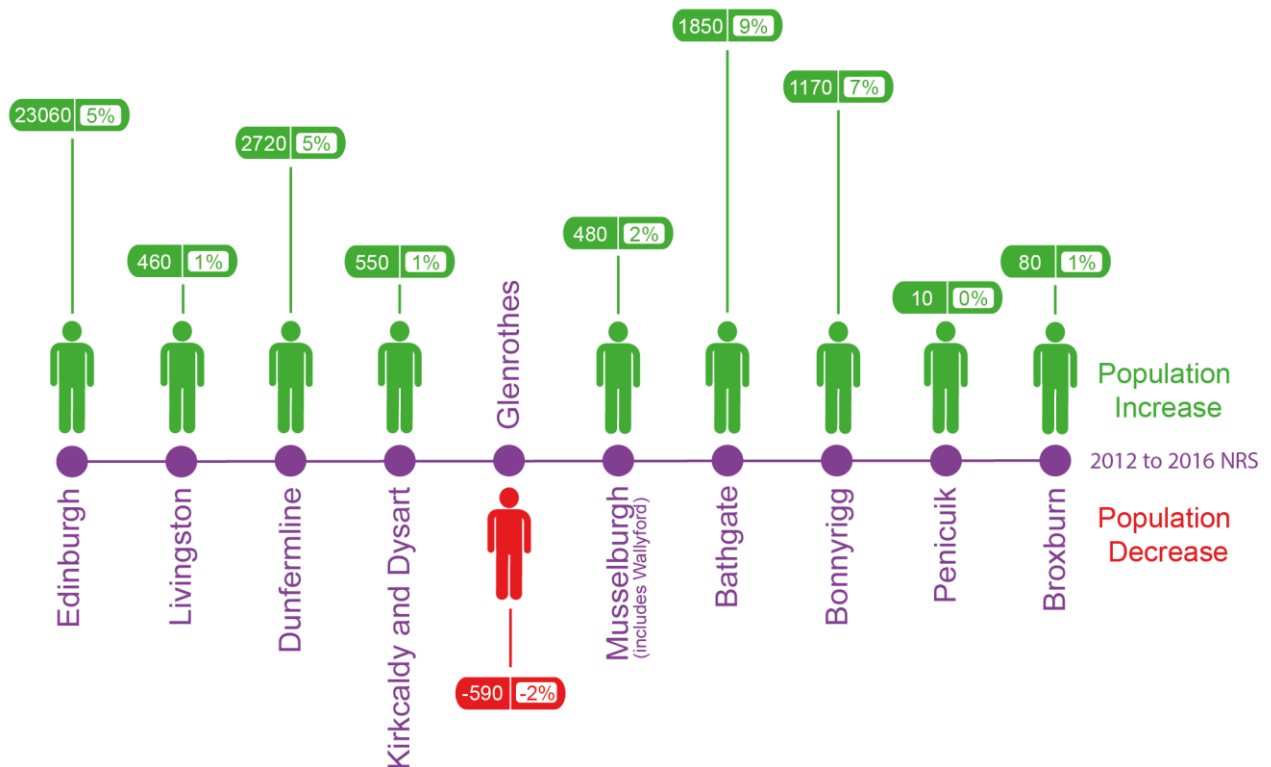
Figure 5 shows that of the largest settlements in the region multiple settlements have recorded an increase in population between 2011 - 2016<sup>6</sup>; the exception to this is Glenrothes which has recorded a slight decline in population of 2%.

<sup>5</sup> Mid-Year Population Estimates (National Records of Scotland, 2016) <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates>

<sup>6</sup> Population Estimates for Settlements and Localities in Scotland, Mid 2016 (National Records of Scotland) <https://www.nrscotland.gov.uk/files//statistics/settlements-localities/set-loc-16/set-loc-2016-publication-updated.pdf>



## Top 10 Mid-2016 Population Localities – Change from 2012



**Figure 5: Population Change in the Largest ESES Settlements 2012 – 2016**

### 2.3.1. Economic Activity

In the ESES region, 80% of the working age population (aged 16 to 64 years) in 2018<sup>7</sup> were employed, which is 2.5% higher than the national benchmark. In the City of Edinburgh this is slightly higher at 81%, and is approximately 6% higher than the Scottish city benchmark.

The NOMIS annual population survey in 2018<sup>8</sup> shows that the mean employment rate in the region is 77%, which is 2.5% higher than the national benchmark. Within the City of Edinburgh, the mean employment rate is also 77%, which is 6% higher than the Scottish city benchmark. The mean unemployment rate in the region is 4%, which is lower than the national benchmark, and within the City of Edinburgh the mean unemployment rate is 5%, which was 1% lower than the Scottish city benchmark.

Over the five-year period 2014 - 2018, the employment rate increased by 1.8% in the ESES region (0.3% more than the national average). More specifically within the region, this reflected an increase of 3.1% in the City of Edinburgh (1.8% more than the Scottish city average), and an increase of 1% in the wider ESES region (compared to the regional benchmark which shows a reduction of 0.4%).

<sup>7</sup> NOMIS Economic Activity (Office of National Statistics, 2018) <https://www.nomisweb.co.uk/census/2011/qs601ew>

<sup>8</sup> NOMIS Employment Rate (Office of National Statistics, 2018) <https://www.nomisweb.co.uk/census/2011/qs601ew>



The ESES region contributed to 21% of Scotland's total benefits claims<sup>9</sup> in 2018. Of all of Scotland's benefit claims, 5% were made in the City of Edinburgh, which is low when compared to Glasgow (15%) but higher than Dundee (4%) and Aberdeen (3%).

The Edinburgh and South East Scotland City Region Deal<sup>10</sup> outlines seven key areas that can bring transformational change in the region. The Deal brings a commitment to deliver the seven 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 6 and Figure 7 show the economic sector profiles for Edinburgh and the wider ESES region (excluding Edinburgh) respectively based on the Business Register and Employment Survey (BRES). Within Edinburgh, Finance/IT/Real Estate accounted for the highest proportion of jobs employing over 15% of the workforce compared to 9% at the city average and Scotland level. Excluding Edinburgh, Health & Social Care accounted for the highest proportion of jobs, again at over 15% which is comparable to the regional benchmark and slightly higher than the Scottish average.

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<sup>9</sup> NOMIS - benefit claimants, employment and support allowance (Office of National Statistics, 2018) <https://www.nomisweb.co.uk/datasets/besa>

<sup>10</sup> Edinburgh and South East Scotland City Region Deal - <http://www.acceleratinggrowth.org.uk/>

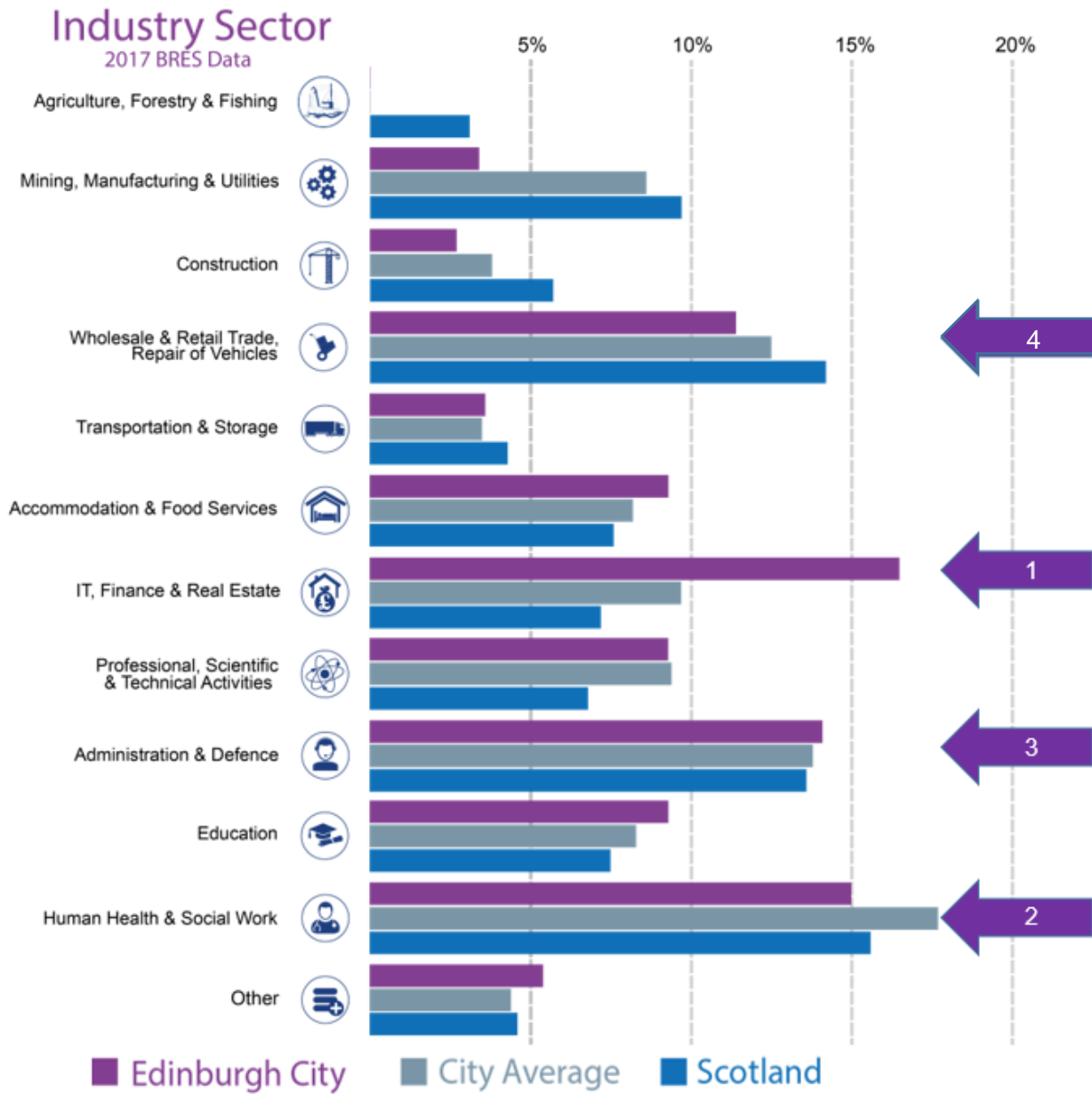
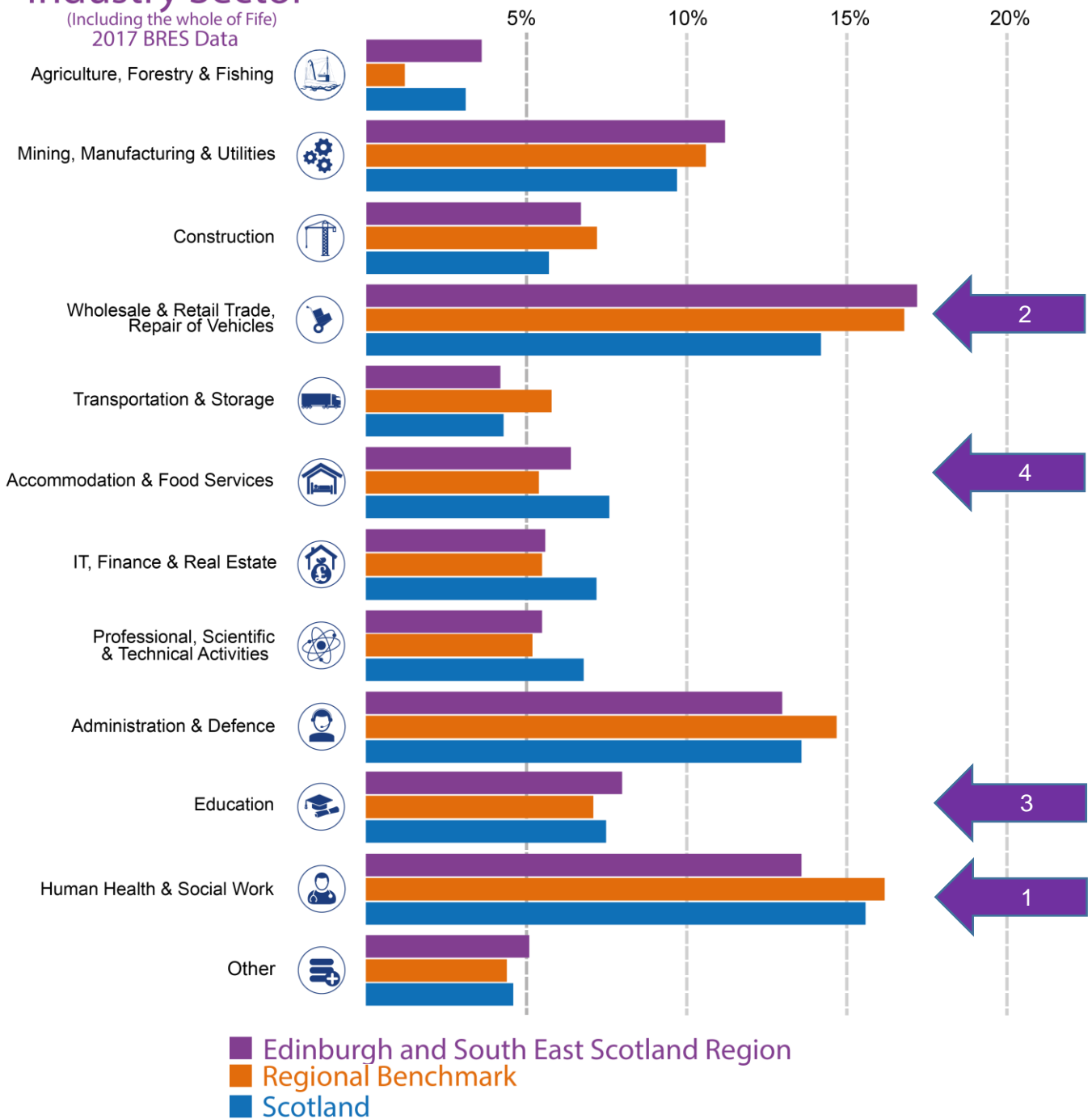


Figure 6: Industry Sectors – Edinburgh Comparison

## Industry Sector

(Including the whole of Fife)  
2017 BRES Data



**Figure 7: Industry Sectors - ESES Region (excluding Edinburgh) Comparison**

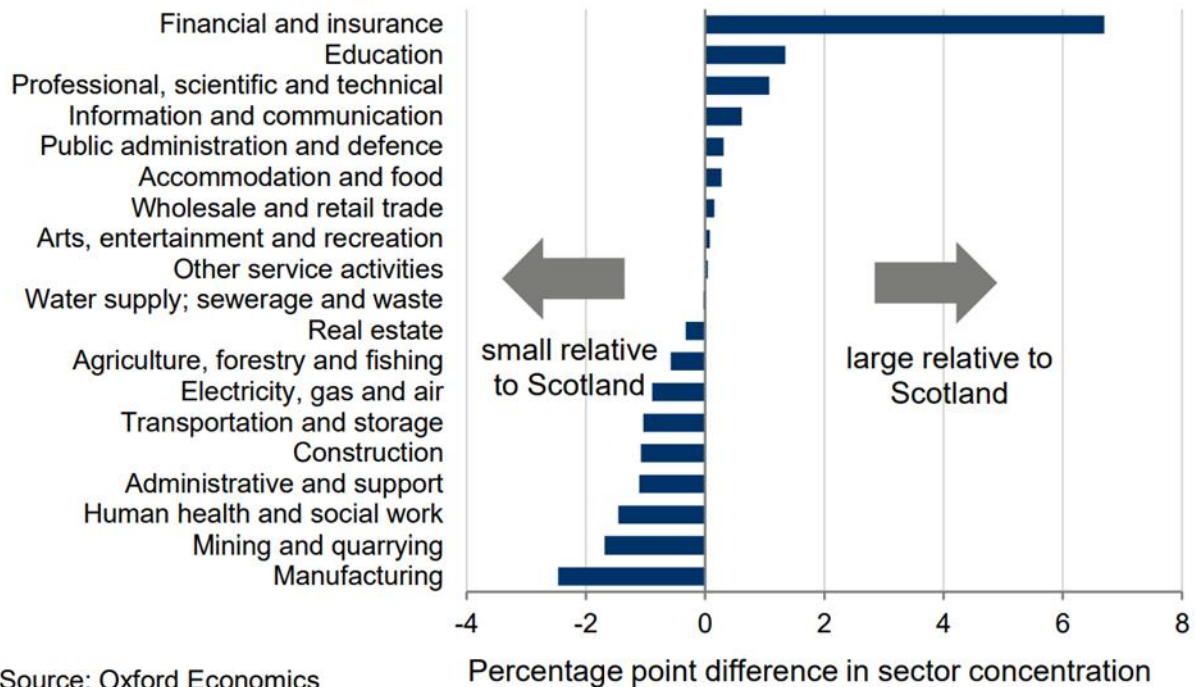
Skills Development Scotland identify the tourism sector as the one which is to experience strongest growth over the next decade within the ESES region. It is expected that there will be a substantial increase in employment within this time (of 6,100 expansion in the number of jobs between 2019 and 2029<sup>11</sup>).

<sup>11</sup> Skills Development Scotland Regional Skills Assessments:



In 2018, the Edinburgh and South East region accounted for £36.6bn or approximately 27% of Scotland’s total GVA of £134bn, with the City of Edinburgh contributing 15% and the wider region 12%. The region’s GVA has also seen significant growth and increased by approximately 21% between 2011 - 2016, which is 2.5% more growth than the national benchmark increase.

Figure 8 shows that compared to the rest of Scotland, the GVA of the region has a larger Financial and Insurance sector share, that is over 6% greater than that for Scotland. Other sectors show a relatively small difference of 1-2%.



**Figure 8: Sector GVA Share in ESES Relative to Scotland (Source, 2018)**

The Economic Strategies published by the local authorities in the ESES<sup>12</sup> 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.

Edinburgh, East and Midlothian Report (Skills Development Scotland, 2019) <https://www.skillsdevelopmentscotland.co.uk/media/46129/edinburgh-east-and-midlothian-rsa-summary-report.pdf>  
 Fife Report (Skills Development Scotland, 2019): <https://www.skillsdevelopmentscotland.co.uk/media/46130/fife-rsa-summary-report.pdf>  
 Scottish Borders Report (Skills Development Scotland, 2019): <https://www.skillsdevelopmentscotland.co.uk/media/46136/scottish-borders-rsa-summary-report.pdf>  
 West Lothian Report (2019): <https://www.skillsdevelopmentscotland.co.uk/media/46139/west-lothian-rsa-summary-report.pdf>

<sup>12</sup> ESES Local Authority Economic Strategies:  
 East Lothian Economic Development Strategy Review and Refresh (East Lothian Council, 2018): [https://www.eastlothian.gov.uk/news/article/12896/ambitions\\_to\\_grow\\_a\\_thriving\\_and\\_dynamic\\_east\\_lothian\\_economy](https://www.eastlothian.gov.uk/news/article/12896/ambitions_to_grow_a_thriving_and_dynamic_east_lothian_economy)  
 Fife’s Economic Strategy 2017-2027 (Fife Council, 2017): <https://wordpress.fifedirect.org.uk/fifeeconomypartnership/wp-content/uploads/sites/10/2016/10/Fifes-Economic-Strategy-2017-27.pdf>  
 Edinburgh Economy Strategy (City of Edinburgh Council, 2018): <https://www.edinburgh.gov.uk/downloads/file/25922/2018-full-version>  
 Scottish Borders Economic Strategy 2023 (Scottish Borders Council, 2013): [https://www.scotborders.gov.uk/download/downloads/id/456/economic\\_strategy.pdf](https://www.scotborders.gov.uk/download/downloads/id/456/economic_strategy.pdf)





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 - 2015<sup>13</sup>. This is level of growth is higher than the growth for Scotland as a whole.

Figure 9 shows the Business Register and Employment Survey (BRES)<sup>14</sup> key employment zones within ESES based on the number of employees. This illustrates a focus of employment within the City of Edinburgh, Livingston, Dunfermline and Glenrothes. Figure 9 also 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 10<sup>15</sup> shows BRES key employment centres, a 5km buffer from key employment centres, the location of settlements (as identified in Figure 6) and population density within the region.

Analysis of Figure 10 shows that travel to work distances (based on 2011 Census data) are typically lower where there are key employment centres located 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. Those locations further from Edinburgh show travel to work distances that are higher, and which broadly correspond to their approximate distance from Edinburgh. A similar pattern is shown for the key employment centres around Livingston, Dunfermline and Glenrothes.

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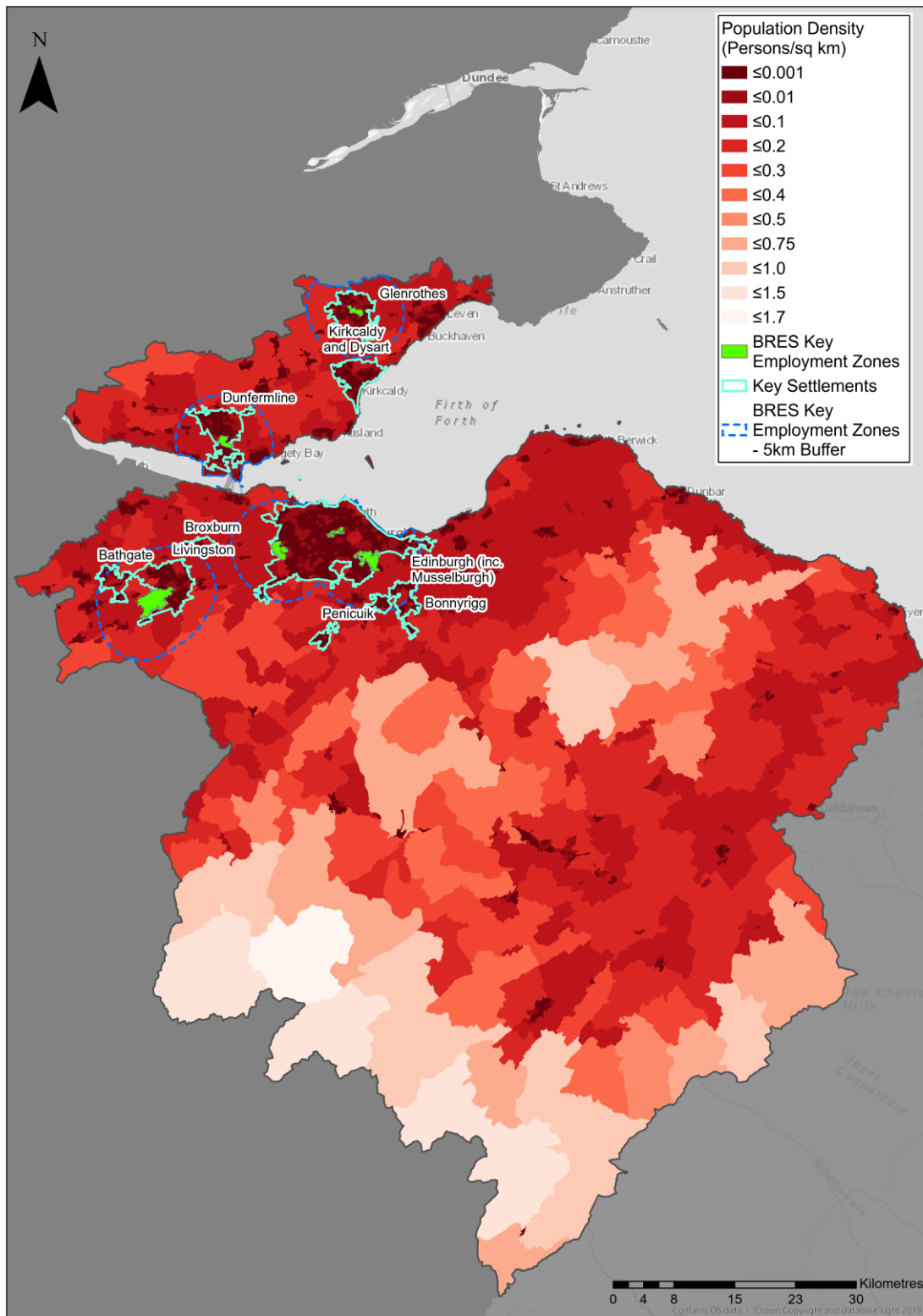
West Lothian Economic Partnership Strategy and Action Plan 2014-17 (West Lothian Council, 2014):

[https://www.westlothian.gov.uk/media/8005/Economic-Strategy-2014/pdf/20140226\\_Economic\\_Strategy\\_2014.pdf?m=636355365437900000](https://www.westlothian.gov.uk/media/8005/Economic-Strategy-2014/pdf/20140226_Economic_Strategy_2014.pdf?m=636355365437900000)

Midlothian Economic Growth Strategy 2020-2025 (Midlothian Council, 2019):

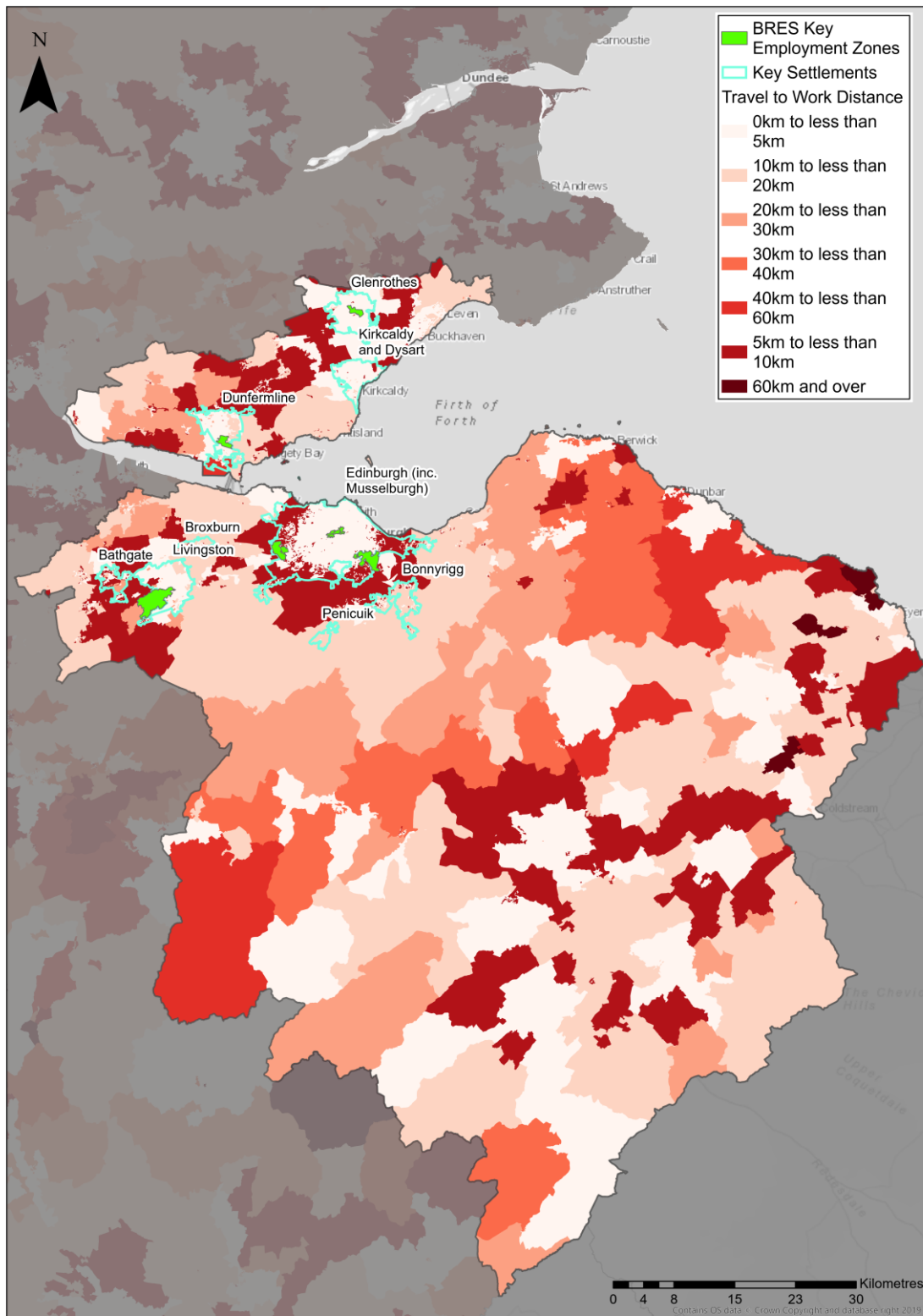
<https://midlothian.cmis.uk.com/live/Document.ashx?czJKcaeAi5tUFL1DTL2UE4zNRBcoShgo=8ZnOsU60TxaVgKAVgmBI5VV2XkRmOKII%2Bw%2Bo85Gs0QW8T%2FZORuvNxQ%3D%3D&rUzwRPf%2BZ3zd4E7Ikn8Lyw%3D%3D=pwRE6>

<sup>13</sup> Edinburgh 2020 Tourism Strategy (City of Edinburgh Council, 2016): <https://www.etag.org.uk/wp-content/uploads/2014/01/Ed2020-Review-Main-Report-Final-260916.pdf>



**Figure 9: Population Density and BRES Key Employment centres within the ESES region**

(Click Image to enlarge figure)



**Figure 10: BRES Key Employment Centres and Travel to Work Distances**

(Click Image to enlarge figure)



### 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.

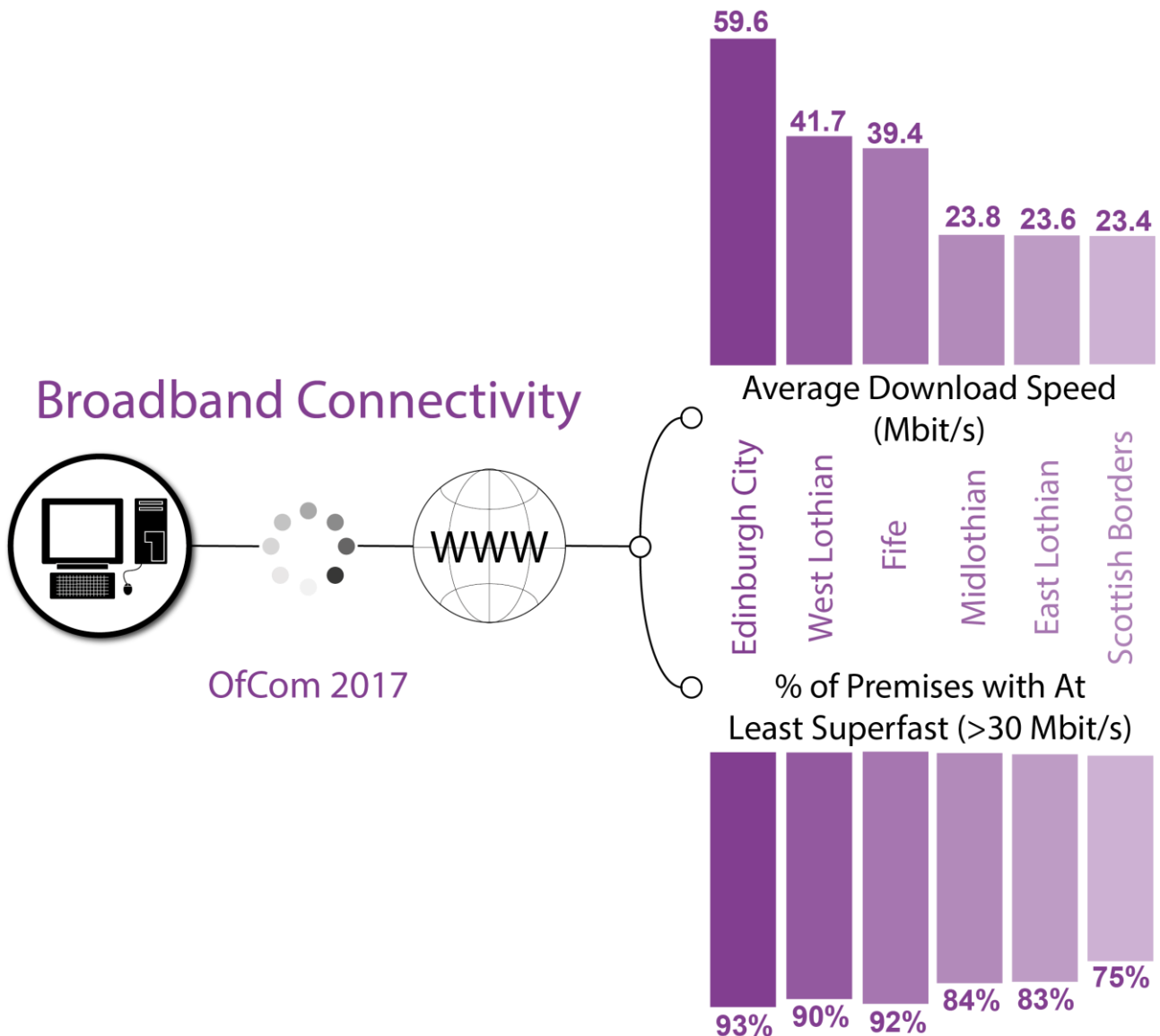
The availability of broadband and 4G penetration within rural areas of the region is relatively poor compared to the rest of the ESES region. Less than 1% of premises in the Borders, East Lothian and Midlothian have access to Ultra-Fast Broadband (UFBB) compared to 72% of the City of Edinburgh<sup>16</sup>.

Based on Ofcom data from 2017<sup>17</sup>, 80% of premises in the City of Edinburgh, East Lothian, West Lothian, Midlothian, and Fife have access to Super-Fast Broadband (SFFB) coverage (defined as >30Mbits/s). Most residential areas in the City of Edinburgh have 100% SFFB penetration. Less than 75% of the Scottish Borders has access to SFFB.

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<sup>16</sup> Broadband Speed Survey (Ofcom, 2017) [https://www.ofcom.org.uk/\\_data/assets/file/0021/108831/fixed-local-authority-2017.csv](https://www.ofcom.org.uk/_data/assets/file/0021/108831/fixed-local-authority-2017.csv)

<sup>17</sup> Broadband Speed Survey (Ofcom, 2017) [https://www.ofcom.org.uk/\\_data/assets/file/0021/108831/fixed-local-authority-2017.csv](https://www.ofcom.org.uk/_data/assets/file/0021/108831/fixed-local-authority-2017.csv)



**Figure 11: Broadband Connectivity**

Download speeds are highest in the City of Edinburgh at nearly 60Mbits/s compared to the low 20s in Midlothian, East Lothian and Scottish Borders.

In the Scottish Borders<sup>18</sup>, 45% of the local authority area has access to 4G networks which is relatively poor compared to the rest of the region. For the remaining local authority areas within ESES, at least 70% of the area has 4G coverage.

#### 2.3.4. Inequality

The Scottish Index of Multiple Deprivation (SIMD)<sup>19</sup> 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 seven domains: income, employment, education, health, access to services, crime and housing.

<sup>18</sup> Mobile Broadband Speed Survey (Ofcom, 2017) <https://www.ofcom.org.uk/data/assets/file/0019/113572/Mobile-Local-Authority-Area-201801.csv>

<sup>19</sup> Scottish Index of Multiple Deprivation (Scottish Government, 2020) <https://www.gov.scot/collections/scottish-index-of-multiple-deprivation-2020/>





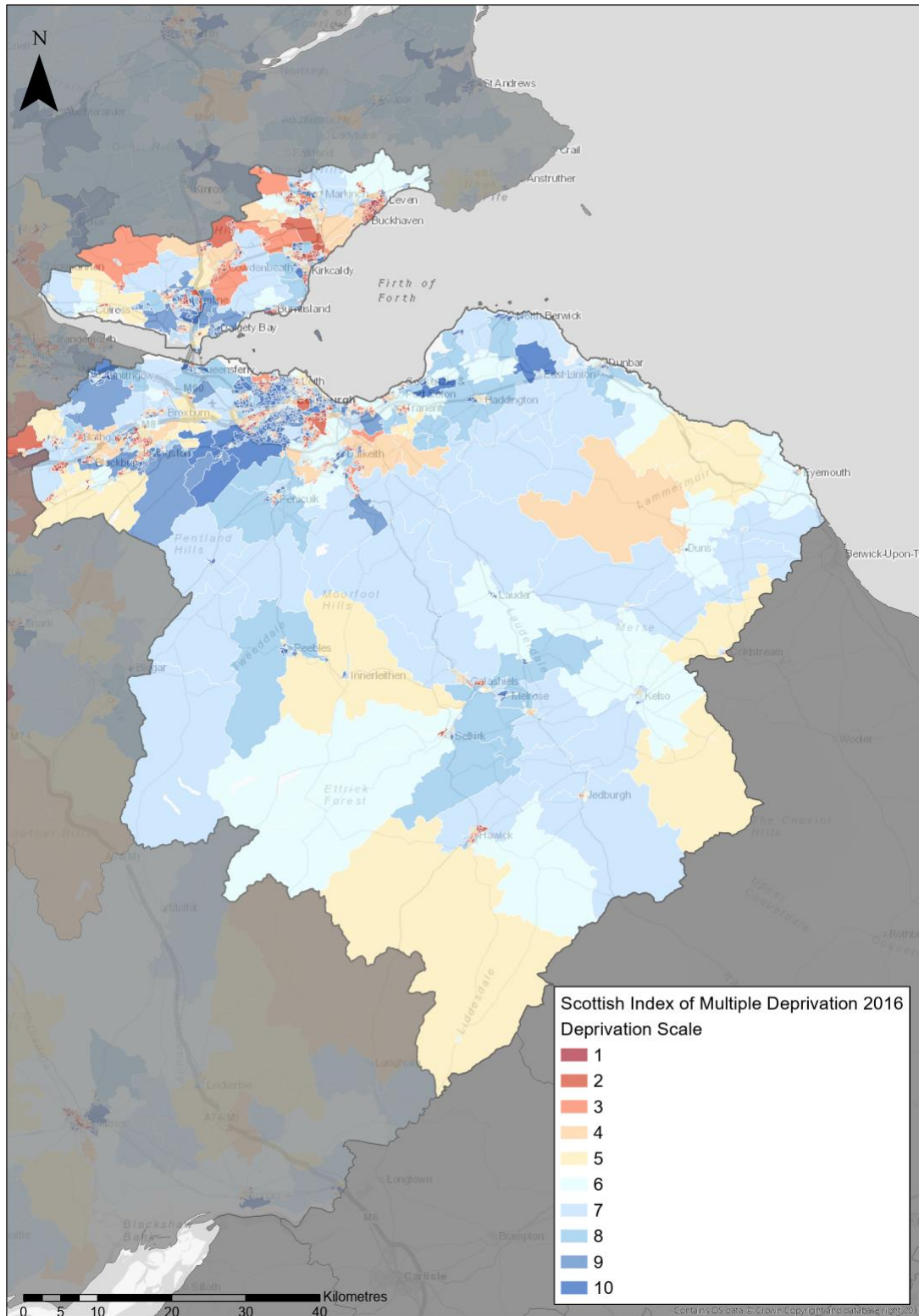
From a transport perspective, access to services considers average drive or public transport travel time to access services such as a GP surgery, retail centre or schools.

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 seven 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 12 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 are 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, 14% (82) 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 (48%) and Dundee (37%) but higher than Aberdeen (8%). Similarly, across the wider region (excluding Edinburgh) 14% of the data zones are ranked as being in the 20% most deprived within Scotland compared with 4% for the regional benchmark.



**Figure 12: Scottish Index of Multiple Deprivation (SIMD) 2016**  
(Click Image to enlarge figure)

### 2.3.5. Travel to Work

Figure 13 shows the mode share for travel to work-based trips across the region and in Scotland<sup>20</sup>. It should be noted that the Figure 13 is based on Census 2011 data which pre-dates the opening of both the Borders Railway and Edinburgh Tram. Transport and Travel in Scotland<sup>21</sup> 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, 11.2% of employed people worked from home which increased to 14.5% in 2016. Figure 13 shows the proportion of people working from home in the ESES region.

As shown in Figure 13, 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 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%).



**Figure 13: Mode of Travel to Work**

<sup>20</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

<sup>21</sup> Transport and Travel in Scotland (Transport Scotland, 2017) <https://www.transport.gov.scot/media/39692/sct09170037961.pdf>



As shown in Figure 14, distance travelled to work in the City of Edinburgh area<sup>22</sup> 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).

The higher employment rate in the City of Edinburgh (when compared to other cities within Scotland) can be attributed in part to the regional context of the City of Edinburgh within the ESES region with a high proportion of the economically active population being located within the City of Edinburgh (38%).

Further, within the ESES region there a number of key employment centres identified in the BRES<sup>23</sup> with the City of Edinburgh having 53% of jobs in the region, Fife 41% and West Lothian 7%.

Excluding the City of Edinburgh, the region has a slightly lower proportion of shorter journeys (less than 5km in length) at 13.8% compared to the regional benchmark (17.2%) and Scotland as a whole (19.2%).

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<sup>22</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

<sup>23</sup> Business Register and Employment Survey 2018 (NOMIS, 2018)  
<https://www.nomisweb.co.uk/query/construct/summary.asp?mode=construct&version=0&dataset=189>



## Distance Travelled to Work

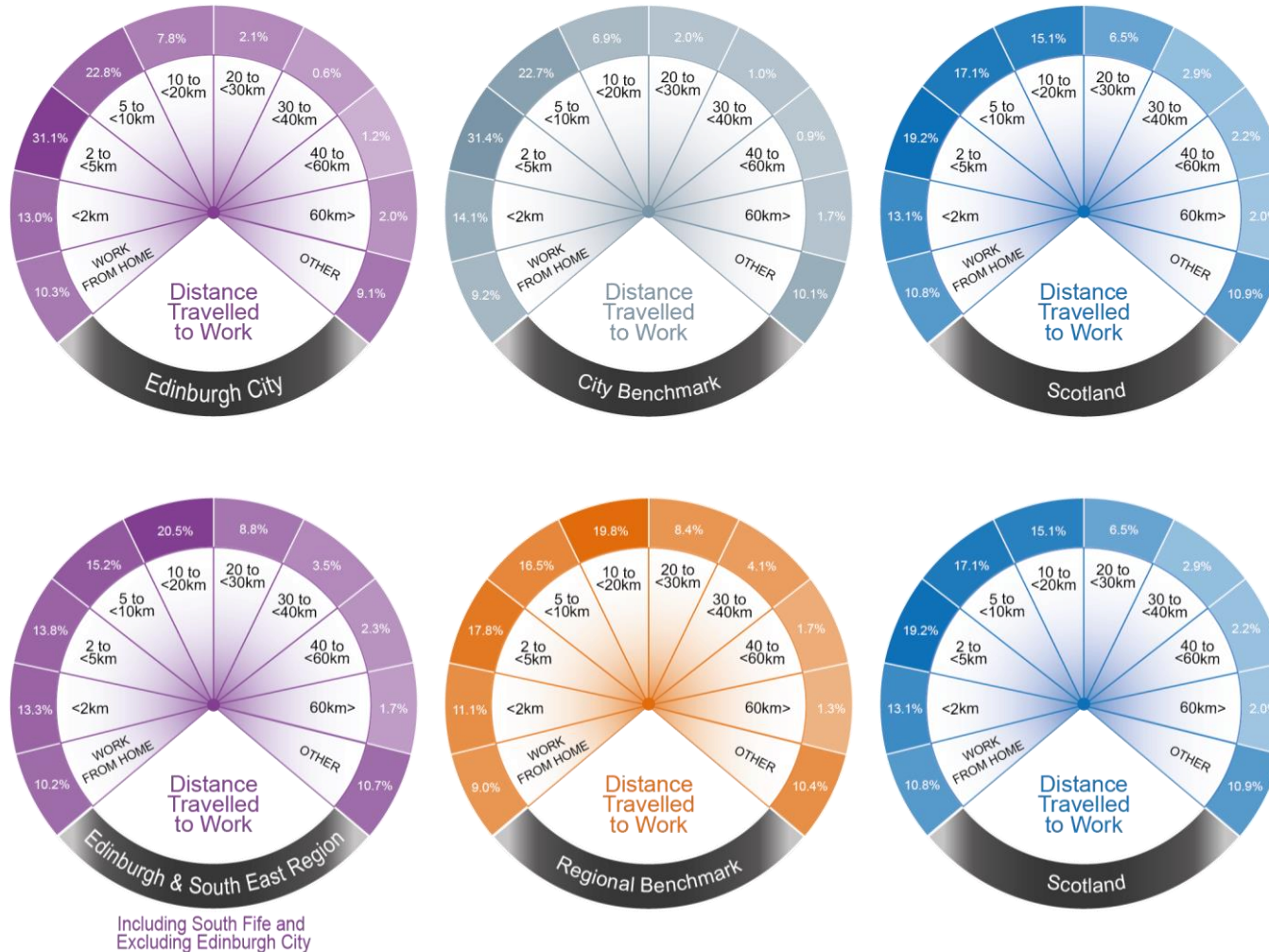
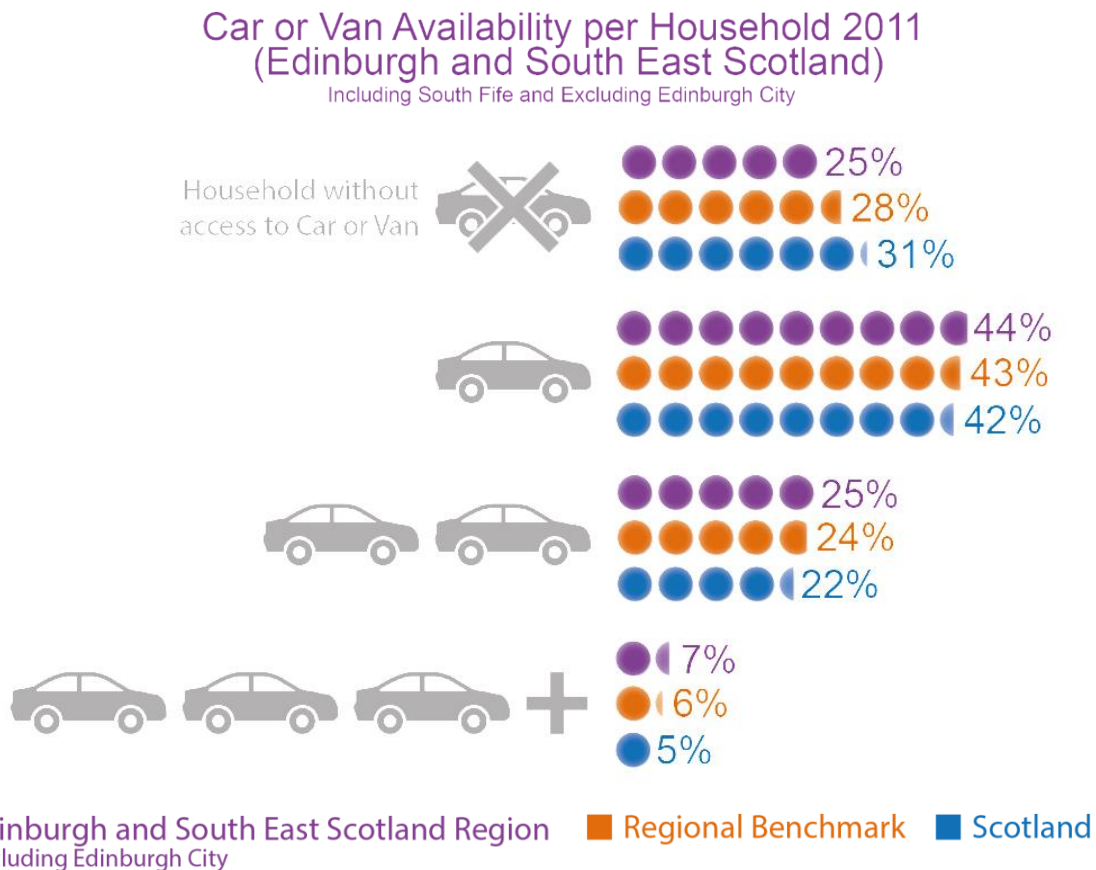


Figure 14: Distance Travel to Work within the ESES region



In terms of travel to work patterns, an assessment of the cross-boundary movements at the local authority level shows that the dominant movements are into the City of Edinburgh from the wider region.

Figure 15 provides information on car ownership<sup>24</sup> 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.



**Figure 15: Car Ownership within ESES and within Scottish cities**

Figure 16 summarises 2011 Census based travel to work information<sup>25</sup> that highlights the movement of inbound travel demand to the City of Edinburgh. For comparison, Figure 17 shows a lower number of trips outbound from the City of Edinburgh to the wider region with inbound movements up to seven 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 and Edinburgh Tram, Transport Scotland reviewed the patronage of the Borders Railway in 2017<sup>26</sup> (two years after opening) and found that 1.2 million passengers were carried over

<sup>24</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

<sup>25</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

<sup>26</sup> Borders Railway - Year 2 Study (Transport Scotland, 2017) [www.transport.gov.scot/media/41659/sct02189915561.pdf](http://www.transport.gov.scot/media/41659/sct02189915561.pdf)



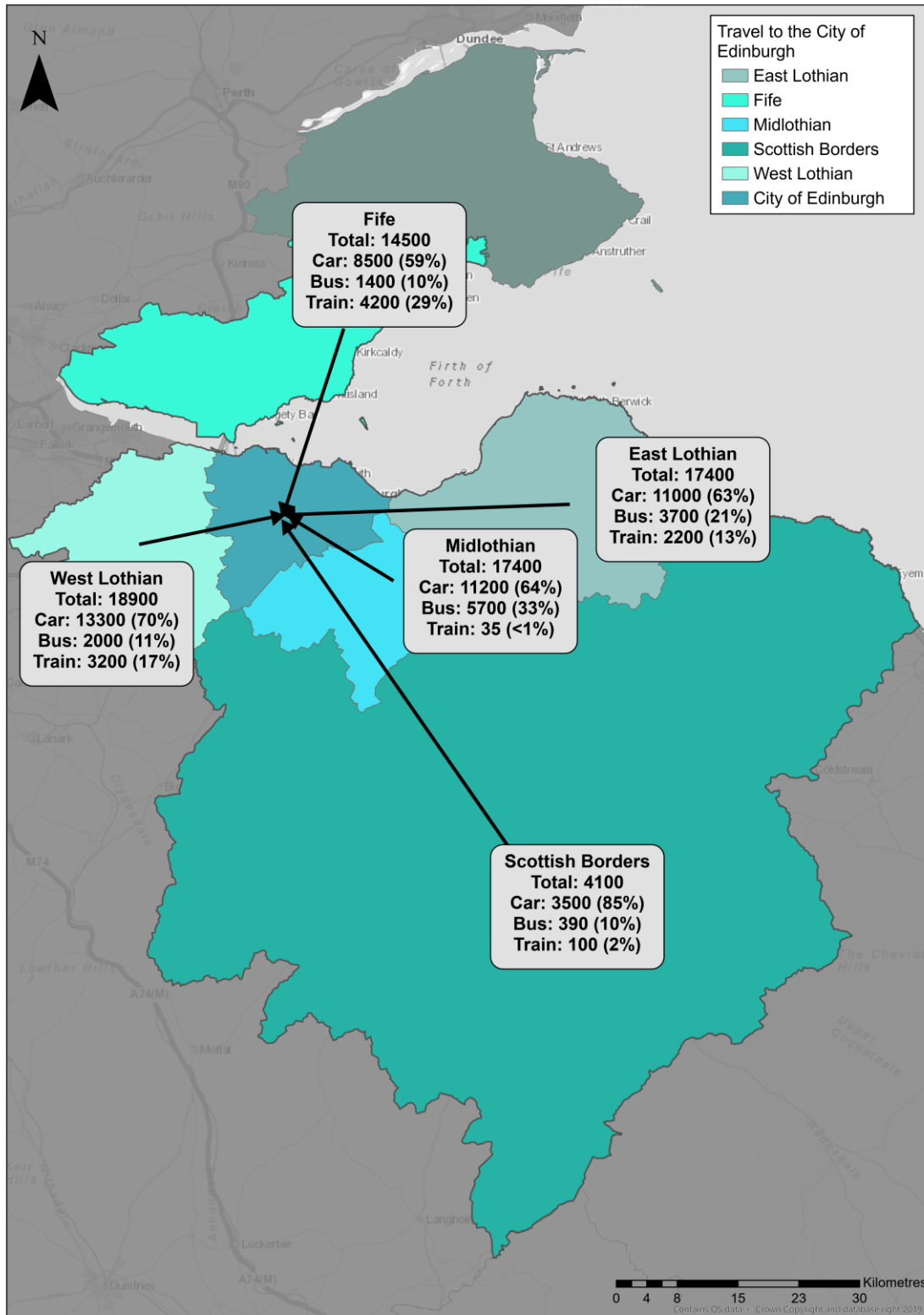


the course of September 2015 to September 2016 which rose to 1.4m passengers (an increase of 9.5%) over the period September 2016 to September 2017.

In terms of employment within the region, 2011 census based travel to work information in Figure 16 and Figure 17 reflects that the City of Edinburgh represents the largest employment 'zone' in the region, with the majority of travel to work based movements travelling in to the City. 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 centre and from neighbouring local authorities.<sup>27</sup>

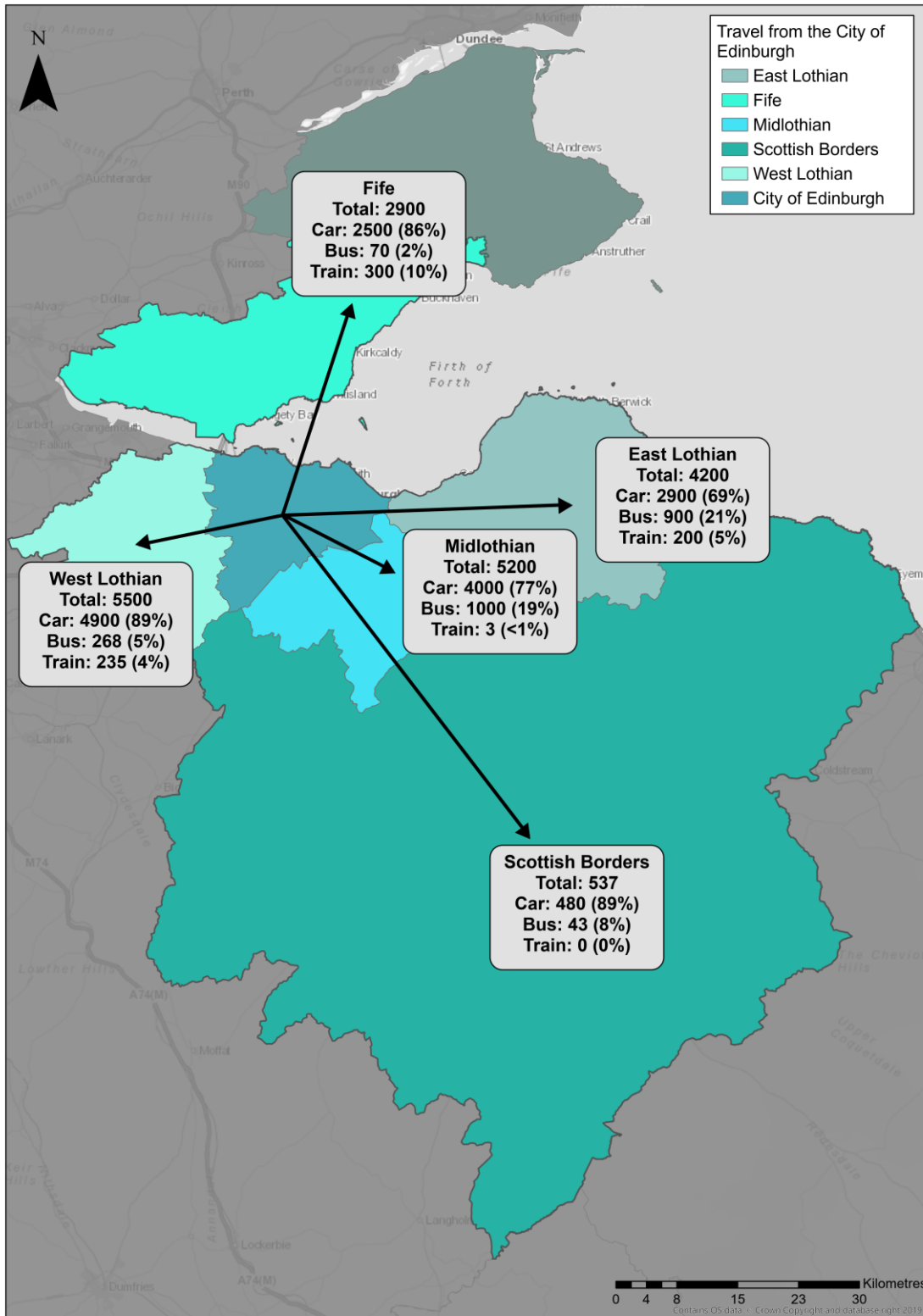
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<sup>27</sup> City of Edinburgh Council City Mobility Plan – Draft for Consultation (Transport and Environment Committee, 16<sup>th</sup> January 2020)



**Figure 16: Census based Origin/Destination daily travel to work flows – Travel to the City of Edinburgh**

(Click Image to enlarge figure)



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

(Click Image to enlarge figure)



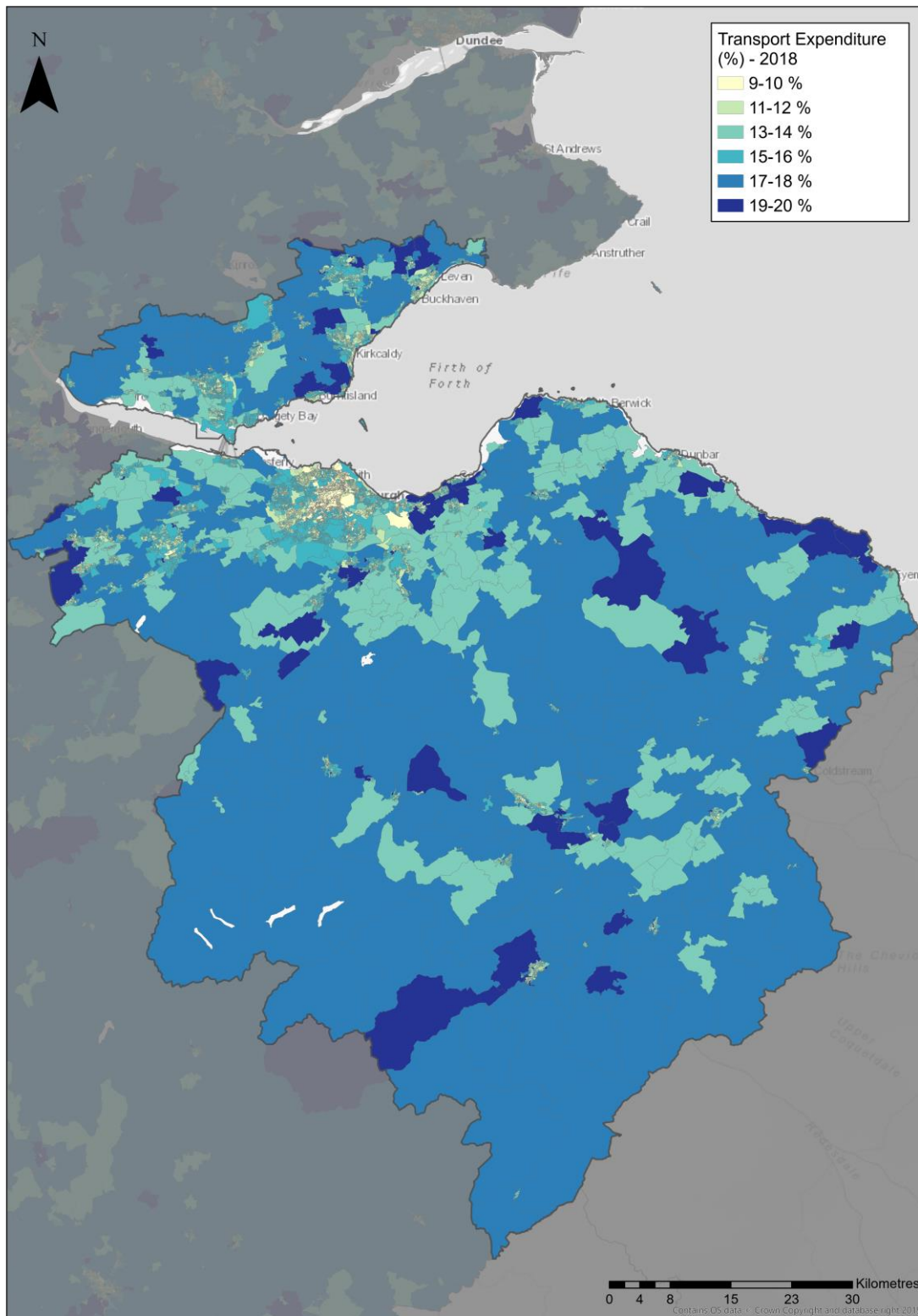
### 2.3.6. Household Income and Transport Expenditure

The Office for National Statistics collects information on average weekly expenditure on goods and services in the UK<sup>28</sup>, 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 £492.20 per week, with £68.20 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 18 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% - 14%, and for South Fife and the Scottish Borders expenditure is in general higher than 16%.

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<sup>28</sup> Spending Patterns of UK households (ONS, 2018)  
<https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure>



**Figure 18: 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 trips<sup>29</sup> made up to 5 km, the proportion of household income spent on transport is between 12% - 13%, between 5 to 20 km the proportion increases to between 14% - 15%, and for trips over 20 km between 15% - 16% of household income is spent on transport.

## 2.4. Environmental Context

A baseline information gathering exercise was carried out in order to summarise the key environmental characteristics within the region and identified a number of key environmental issues relating to the transport system.

The natural environment and historical and heritage sites are important assets to the region both in terms of wildlife and habitat, and also in terms of generating income from tourism.

Figure 19 shows the areas of land designated as protected or managed within the ESES region. In summary, there are:

- Two World Heritage Sites.
- 284 Sites of Special Scientific Interest (SSIs).
- 22 Special Areas of Conservation (SAC).
- 41 Special Protection Areas (SPAs).

Key environmental characteristics of the ESES region are further described below.

### 2.4.1. Cultural Heritage and Environmental Constraints

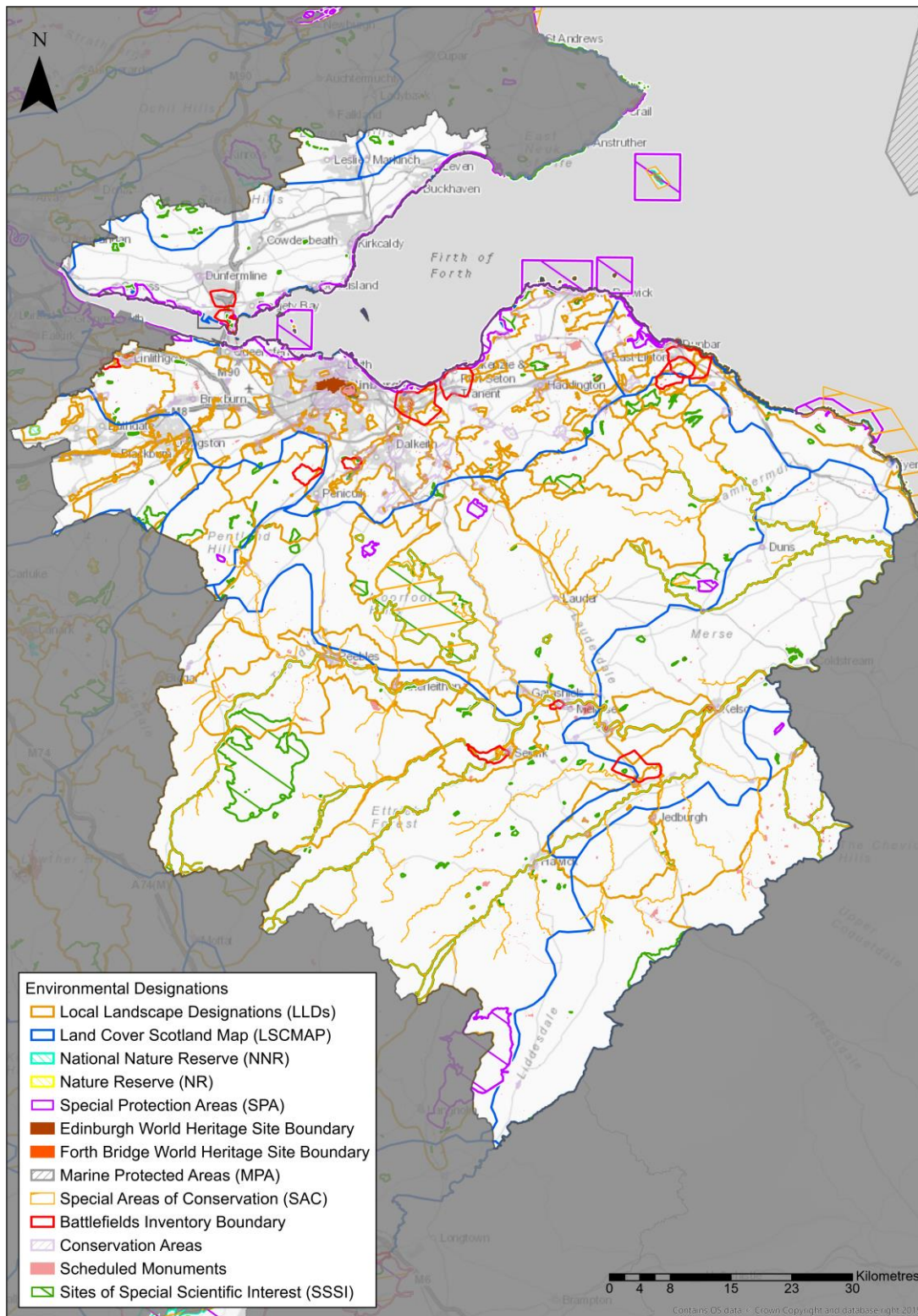
World Heritage Sites are cultural and/or natural sites of Outstanding Universal Value. They are nominated by their countries of origin for inclusion on the World Heritage List. The ESES region has two of the six UNESCO World Heritage Sites in Scotland – the Old and New Towns of Edinburgh and Forth Bridge. Both sites have a management plan as required by UNESCO. These plans set out the special qualities and values of the sites, establish frameworks for decision making, and provide information on threats and opportunities for each site. Once a World Heritage Site is inscribed on the List, there is a duty to protect, conserve and present it for future generations.

The Old and New Towns of Edinburgh World Heritage site was added to the United Nations Educational, Scientific and Cultural Organisation's (UNESCO's) list of World Heritage sites in 1995. The Forth Bridge was inscribed as a UNESCO World Heritage Site in 2015.

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<sup>29</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>





**Figure 19 : Land designated as protected or managed within the ESES region**

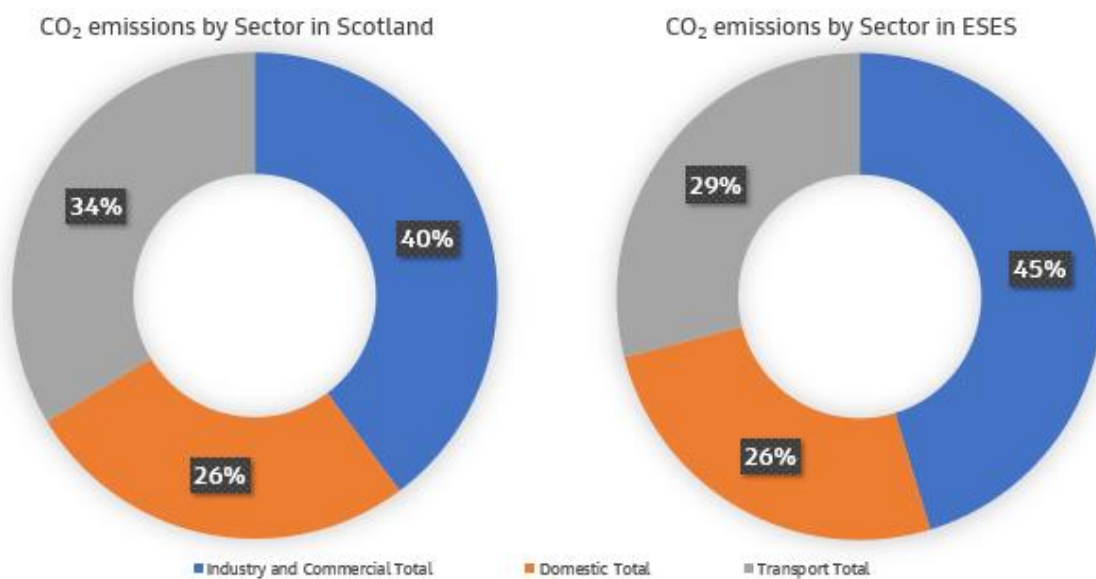
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### 2.4.2. Global Air Quality

As noted in section 2.1, the Scottish Government declared a Climate Emergency in 2019 as have a number of the local authorities in ESES. Transport is currently Scotland’s largest sector emitter of greenhouse gas emissions, accounting for 37% of Scotland’s emissions in 2017. The largest source of transport emissions is cars at 40% followed by aviation and shipping at both 15%.<sup>30</sup>

Looking more specifically at CO<sub>2</sub> emissions, the proportion of emissions generated by different sectors both in Scotland and in the ESES region over 2017 is shown in Figure 20<sup>31</sup>.

As illustrated, transport is a significant contributor both at a Scotland and ESES region level accounting for 34% of CO<sub>2</sub> emissions nationally and 29% within the region.



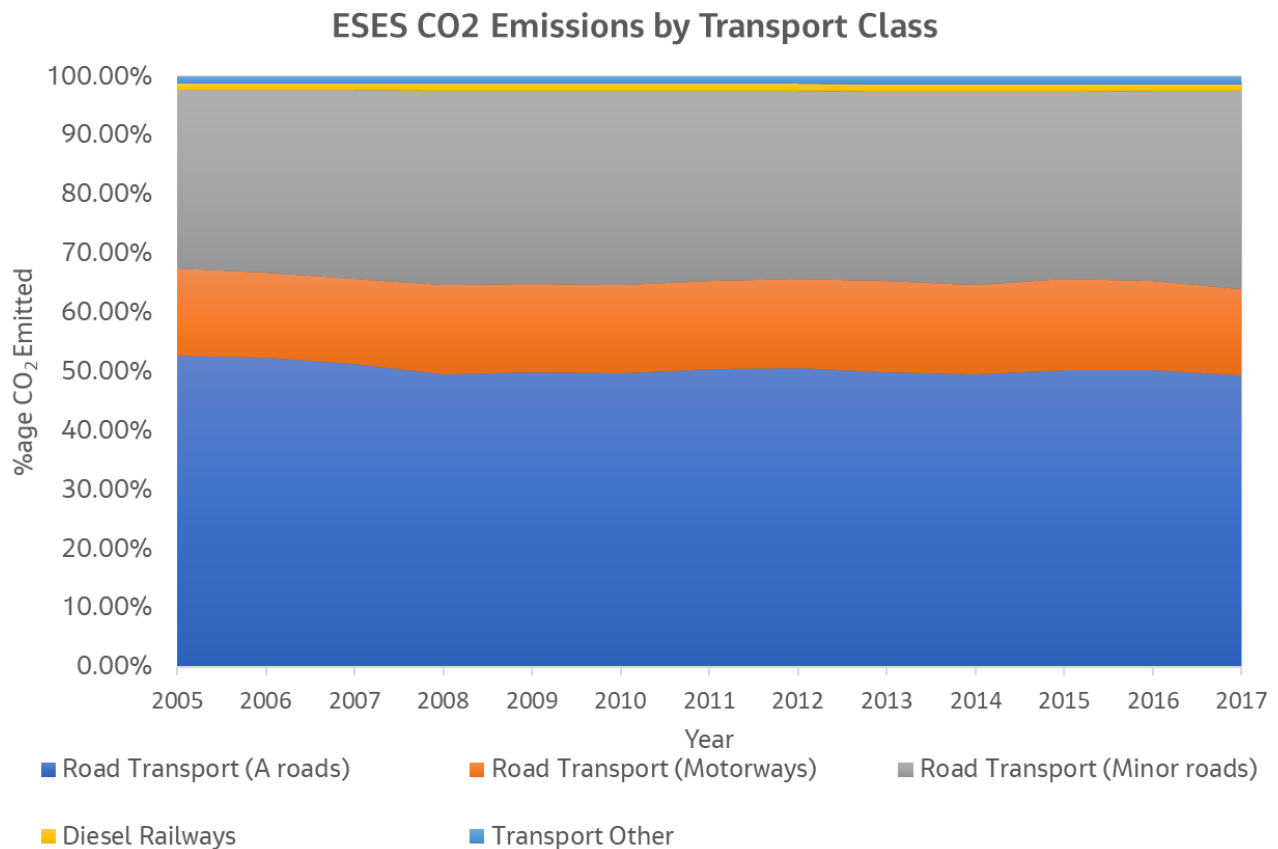
**Figure 20: CO<sub>2</sub> Emissions by Sector**

Figure 21<sup>32</sup> shows CO<sub>2</sub> emissions by transport source in the ESES region. This illustrates that between 2005 – 2017, road transport accounted for 95% - 99% of transport related CO<sub>2</sub> emissions.

<sup>30</sup> National Transport Strategy 2 (Transport Scotland, 2020) [www.transport.gov.scot/media/47052/national-transport-strategy.pdf](http://www.transport.gov.scot/media/47052/national-transport-strategy.pdf)

<sup>31</sup> UK Local Authority and Regional Carbon Dioxide Emissions National Statistics 2005 to 2017 (Department for Business, Energy and Industrial Strategy, 2019) [www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017](http://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017)

<sup>32</sup> As above.



**Figure 21 : ESES Transport Based CO<sub>2</sub> Emissions by Transport Class**

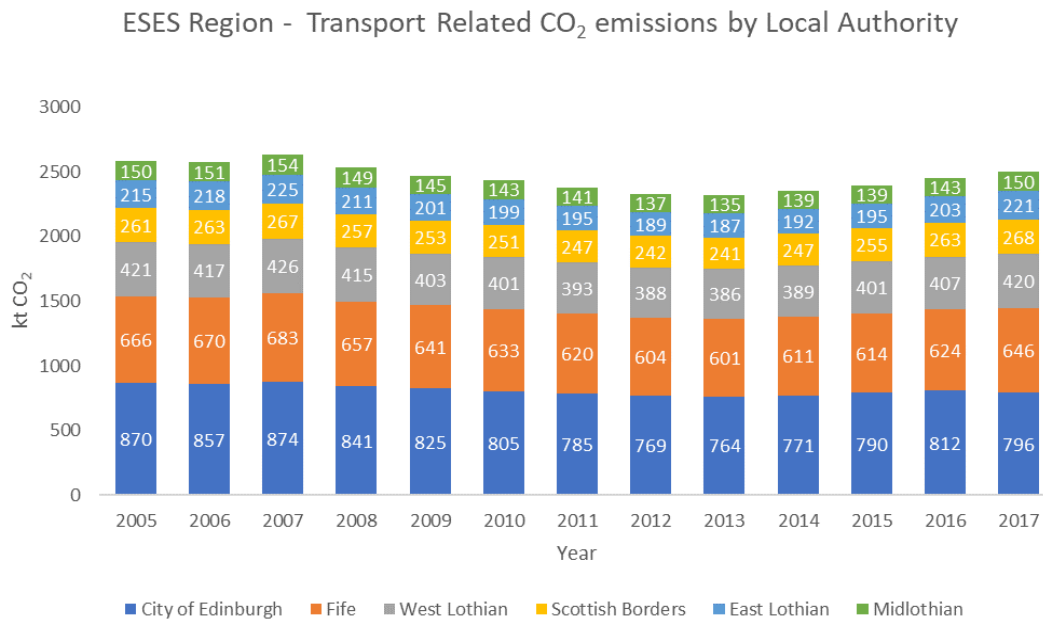
Figure 21<sup>33</sup> shows the relative contributions to transport emissions generated by each Local Authority in the region. Over time the total volume of CO<sub>2</sub> emitted by road transport in the ESES region reached a peak in 2007 and lowest in 2013. Between 2005 - 2013, there was a downward trend in emissions although there is evidence of an increasing trend between 2013 - 2017. At a local authority level, City of Edinburgh accounted for the largest contribution followed by Fife (the data shown in Figure 22 is only available for the whole Fife Council area) with Midlothian contributing the smallest.

City of Edinburgh, Fife Council, West Lothian, East Lothian and Midlothian all recognise there is 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 CO<sub>2</sub> 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 2020, with varying grace periods for commercial vehicles/private

<sup>33</sup> UK Local Authority and Regional Carbon Dioxide Emissions National Statistics 2005 to 2017 (Department for Business, Energy and Industrial Strategy, 2019) [www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017](http://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017)

vehicles running until 2023, when both a city centre boundary and city-wide boundary LEZ will be fully operational.



**Figure 22: Transport Based CO<sub>2</sub> emissions by Local Authority in the ESES region**

### 2.4.3. Local Air Quality

The transport system is also linked to negative impacts on air quality. Transport generates just over one-sixth of Scotland’s particulate matter (PM<sub>10</sub>) and over one-third of nitrogen oxides (NO<sub>x</sub>) with the majority arising from road transport. While there is a trend in the reduction of these emissions from transport this is not at the anticipated rate<sup>34</sup>.

Within the ESES region there are 11 Air Quality Management Areas (AQMA) that are shown in Figure 23 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 PM<sub>10</sub> and/or NO<sub>2</sub> with further details in the AQMA plans of each authority<sup>35</sup>.

Figure 23 shows AQMAs are located close to a number of key junctions on the road network in the ESES region, including the strategic network and specifically the AQMA on the A8 to the east of Newbridge. The AQMA on St John’s Road in Edinburgh is also

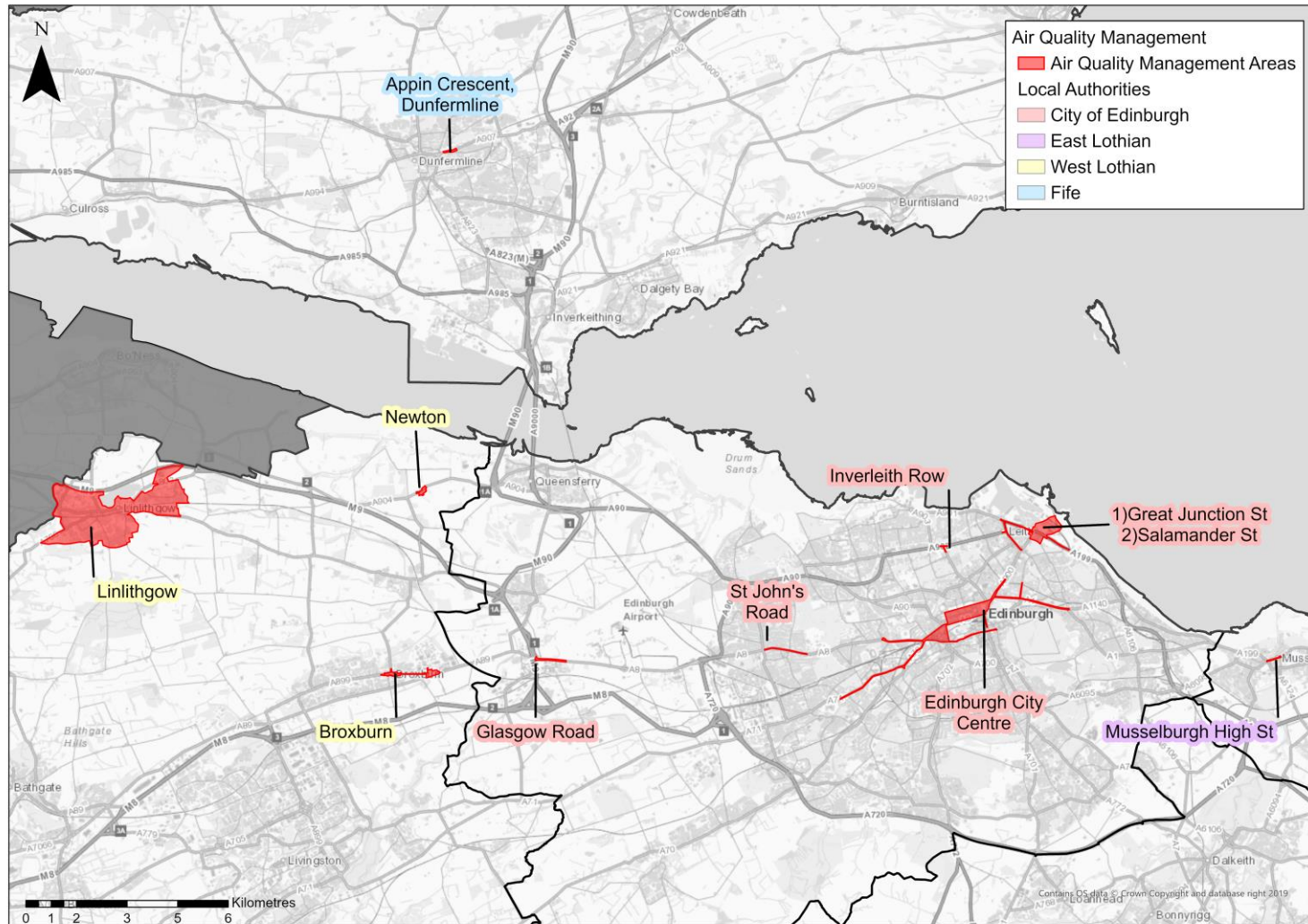
<sup>34</sup> National Transport Strategy 2 (Transport Scotland, 2020) [www.transport.gov.scot/media/47052/national-transport-strategy.pdf](http://www.transport.gov.scot/media/47052/national-transport-strategy.pdf)

<sup>35</sup> 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



located on a local corridor which connects with the wider strategic transport network and a key route for private vehicles and inter-urban bus services accessing Edinburgh city centre from the west.





**Figure 23: AQMAs in the ESES Region**

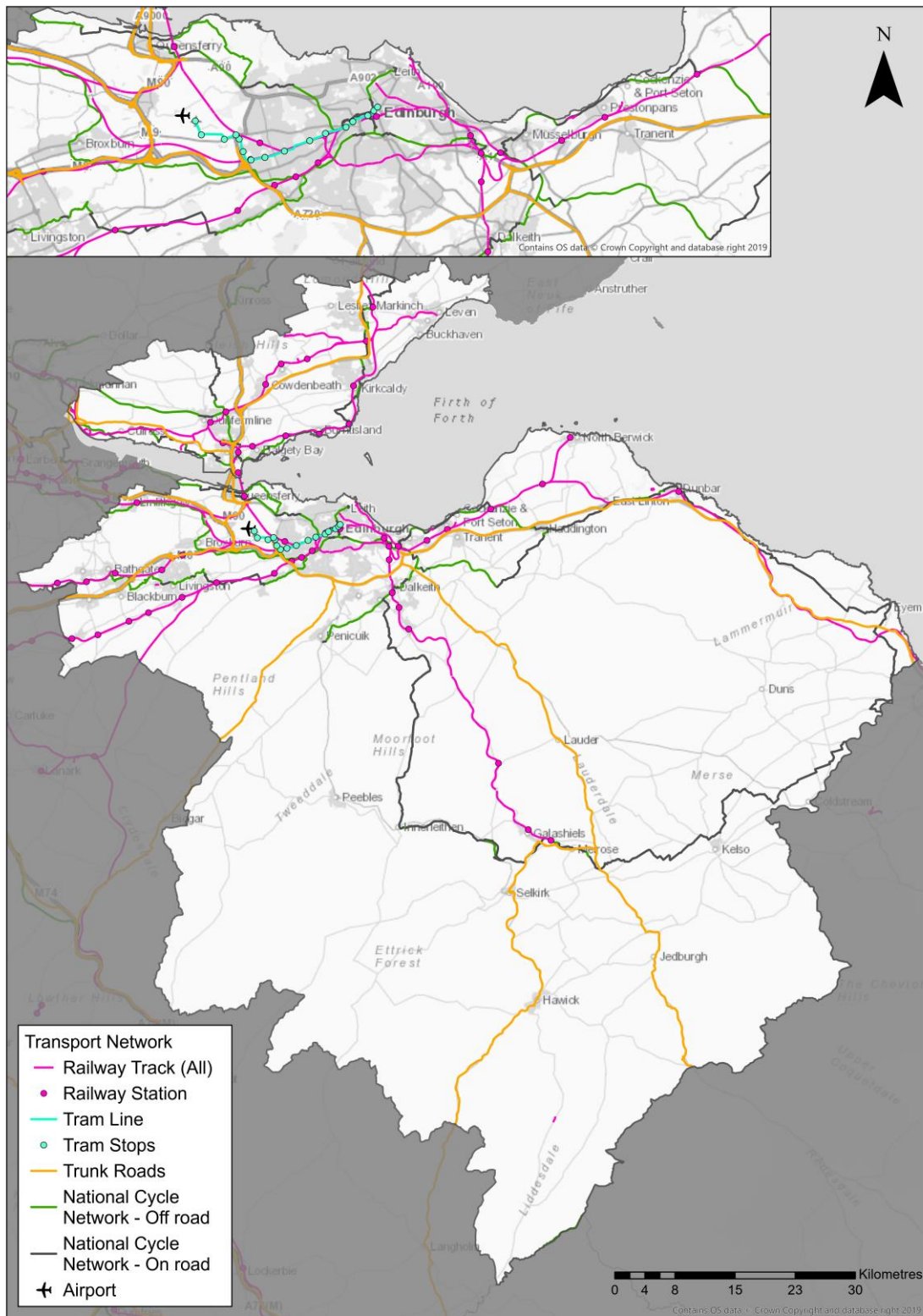
(Click Image to enlarge figure)





## 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**

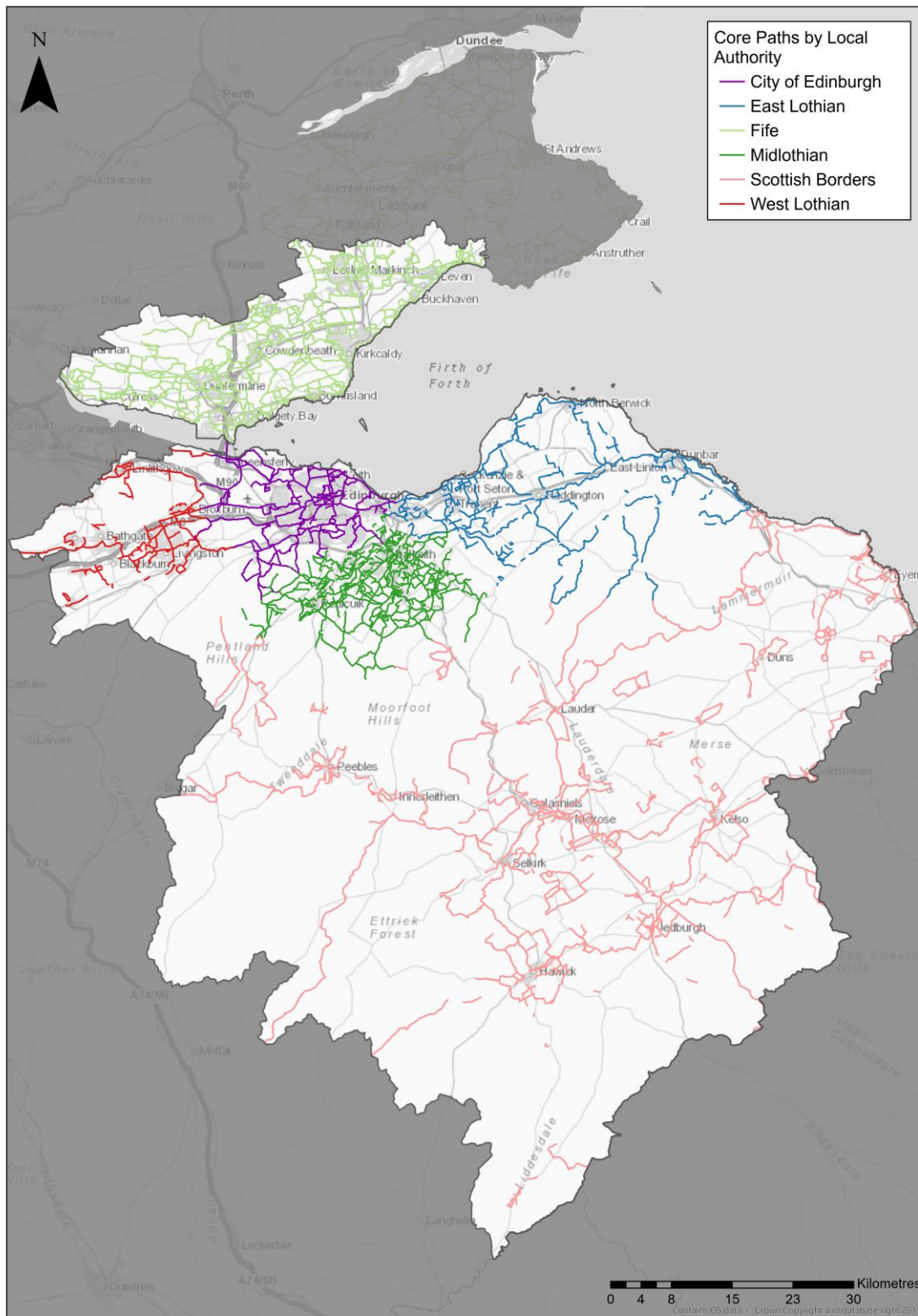
(Click Image to enlarge figure)



### 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 13 walking accounts for 11% of travel to work mode share in the region; 1.2% higher than the national benchmark. Walking levels are higher in the City of Edinburgh at 16.3% (2% higher than the city Benchmark), and in the Scottish Borders at 13.4%, but are lower in the Lothians and south Fife, ranging between 6.1% and 7.9%.

### 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.

2.2% of travel to work in the region is by cycling, which is 0.8% higher than the national benchmark. The City of Edinburgh has a significantly higher rate of 4.3% compared to 1% across in 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.

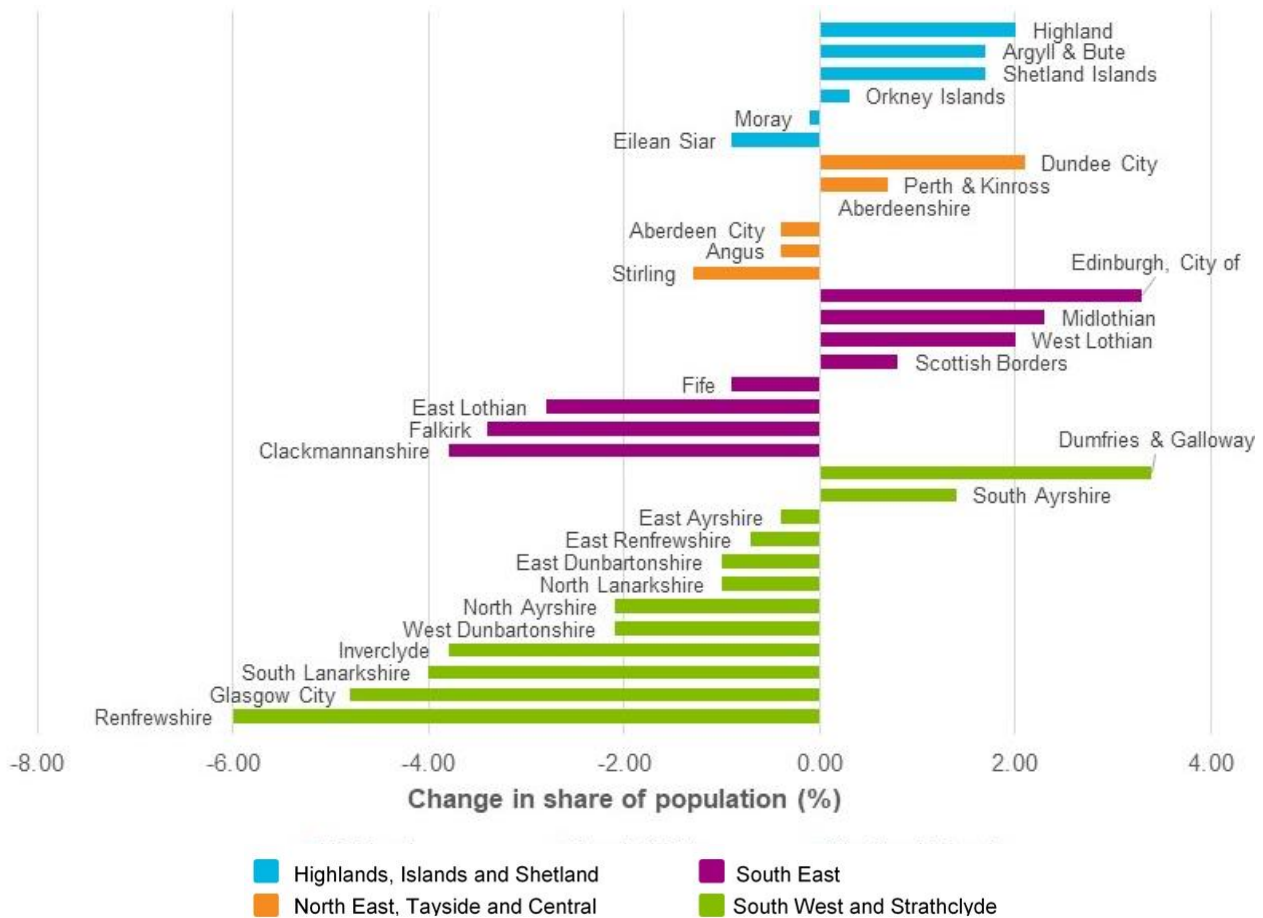
Figure 26 shows the change in share of population using the bus four or more days a week in the Scottish local authority areas between 2003/2004 - 2017<sup>36</sup> and highlights that there has been a wide variation in performance across local authorities between 2003/2004 - 2017.

Overall, there is a trend for most local authority areas to show a general decline in bus use. However, the Highlands, Scottish Islands (excluding Eilean Siar) and areas of the ESES region show a trend for general increase over time (as do Dundee City, Perth and Kinross, Dumfries and Galloway and South Ayrshire).

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<sup>36</sup> Transport and Travel in Scotland 2017 (Transport Scotland, 2017) [www.transport.gov.scot/publication/transport-and-travel-in-scotland-2017/](http://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2017/)





**Figure 26: Change in share of population using the Bus Four or More Days a Week, 2003/2004 – 2017**

Within the ESES region, the City of Edinburgh, West Lothian, and Midlothian show larger increases of 2% or more and the Scottish Borders shows an increase of approximately 1.5%. Fife and East Lothian show reductions of approximately 1% and 3% respectively.

Table 1<sup>37</sup> illustrates, by local authority area in ESES, the percentage of people using the bus four or more days a week and the percentage of people who use the bus as their main method of travelling to work.

<sup>37</sup> Transport and Travel in Scotland 2017 (Transport Scotland, 2017) [www.transport.gov.scot/publication/transport-and-travel-in-scotland-2017/](http://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2017/)



**Table 1: People using the Bus Four or More Days a Week (%) and People who use Bus as the Main Mode of Travel to Work (%)**

POPULATION USING BUS FOUR OR MORE DAYS A WEEK 2017 (%)		BUS: MAIN MODE OF TRAVEL TO WORK 2017 (%)	
City of Edinburgh	26.3	City of Edinburgh	18.4
East Lothian	7.2	East Lothian	5.9
Fife	7.1	Fife	6.1
Midlothian	15.3	Midlothian	9.7
Scottish Borders	3.8	Scottish Borders	5.3
West Lothian	9	West Lothian	4.3

Both the percentage of people using the bus four 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 four 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 Main Line 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 seven, four and three stations respectively.

Figure 27 shows where there has been a general increase in passenger numbers between 2007/2008 and 2017/2018. It should be noted that the data presented on this diagram pre-dates the opening of the Borders Railway and so this information is not shown.

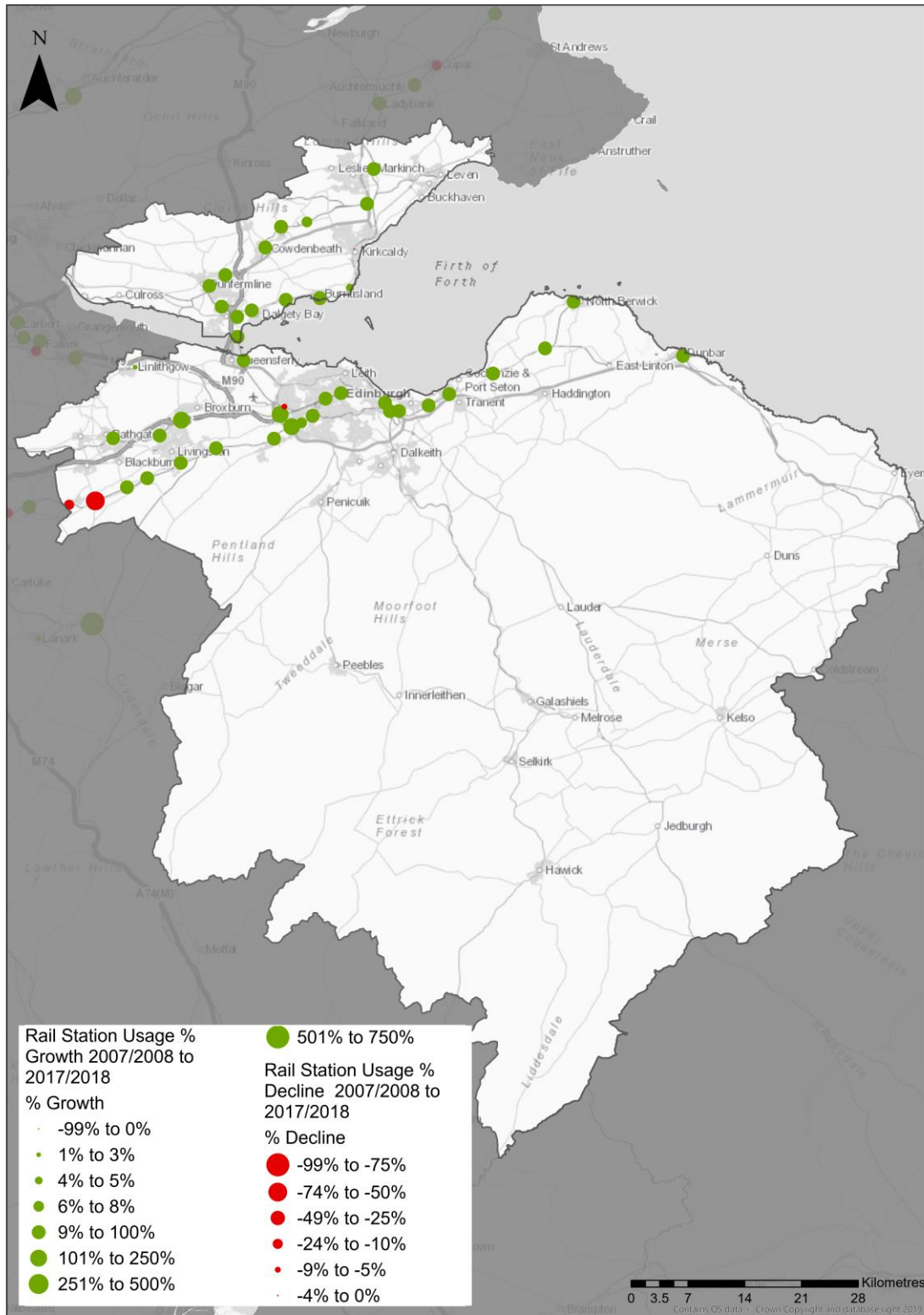
Based on total passenger numbers (entries and exits)<sup>38</sup>, Edinburgh Waverley (23,872,996), Haymarket (3,068,112), Bathgate (1,292,630) and Livingston North (1,247,760) were the busiest stations in ESES in 2018/2019. Edinburgh Waverley is the second busiest rail station in Scotland (Glasgow Central Station being the busiest) with over 20 million entries and exits per year.

A review of patronage data shows that many rail stations in the region have recorded large increases in rail patronage numbers in recent years. For example, Edinburgh Gateway patronage increased by 14% between 2017/2018 – 2018/2019, Eskbank by 8% and Livingston North by nearly 5% over the same period. There has also been a decline in patronage at Fauldhouse and Breich stations over this period. The decline at Breich was due to the closure of the station for a 12 week period commencing on 23 June 2018 as

<sup>38</sup> Office for Rail and Road (ORR, 2019): 2018/19 Rail Stations Entries / Exits (Not available online)



part of the work to electrify the Shotts line between Edinburgh and Glasgow Central. The decline at Fauldhouse may have been as a result of a combination of factors such as timetable changes or a fall in the population local to the station for example.



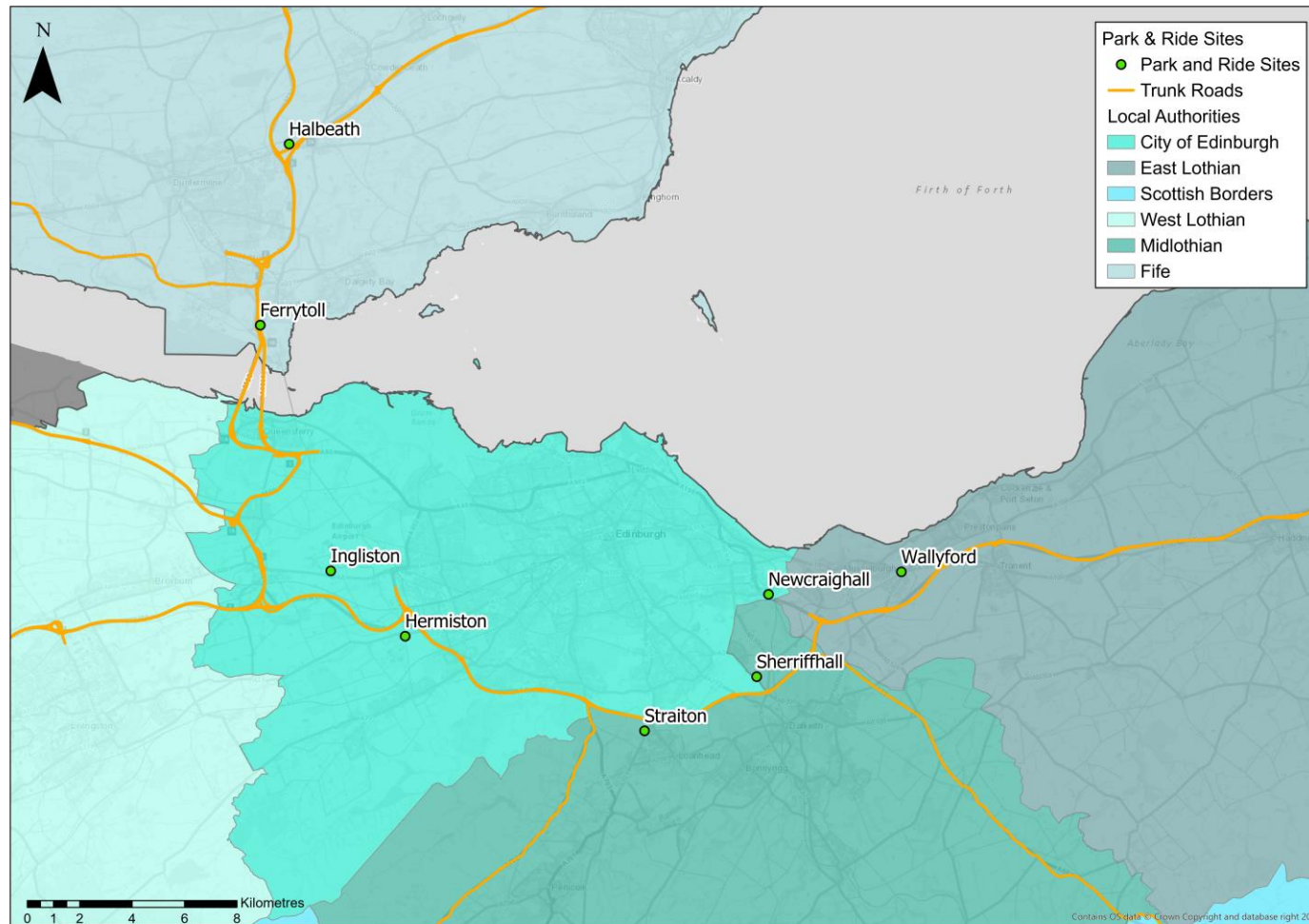
**Figure 27: Change in Rail Station Patronage 2007/2008 to 2017/2018**

(Click Image to enlarge figure)



### 2.5.5. *Park and Ride*

There are eight formalised Park and Ride (P&R) sites within the ESES region that are strategically at satellite locations around the City of Edinburgh. Figure 28 shows their locations.



**Figure 28: Park and Ride sites within the ESES Region**

(Click Image to enlarge figure)



Each of the sites are well served by the Trunk Road network and are located to cater for the heavy level of demand associated with travel between the wider ESES region into the City of Edinburgh.

Halbeath and Ferrytoll are located within 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).

To the west of the City of Edinburgh, Ingliston and Hermiston are located adjacent to the M8 and the M9 (two of the main approaches to the City of Edinburgh) and settlements within 10 miles of the sites include Broxburn, Livingston and parts of Bathgate.

To the east of the City of Edinburgh, Wallyford, Newcraighall, Sherrifhall and Straiton P&R sites are located adjacent to the A1 and the A720 City of Edinburgh bypass serving the settlements of Bonnyrigg, Penicuik and Musselburgh as well as the wider ESES areas within East Lothian, Midlothian and the Scottish Borders.

#### 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.

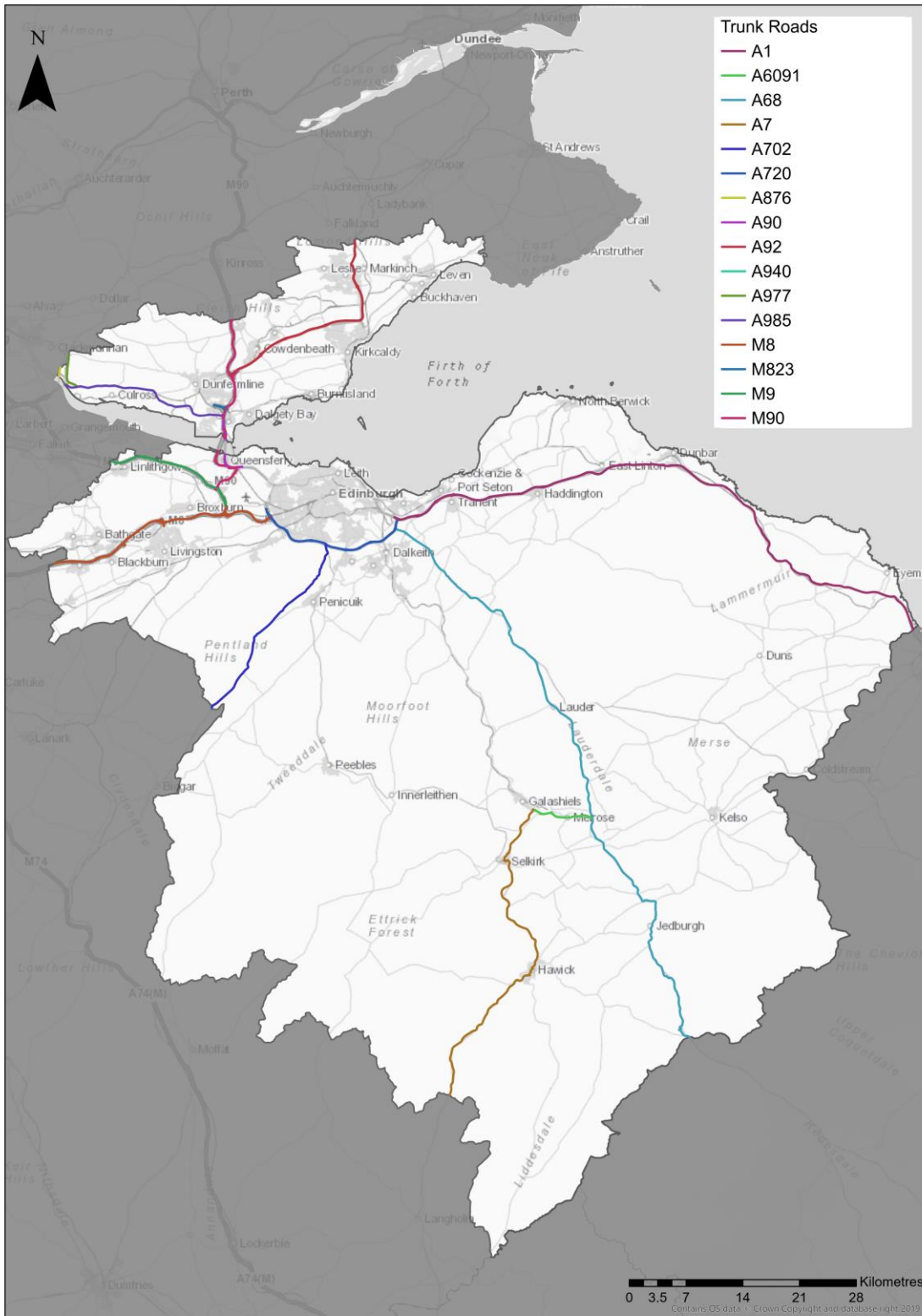
The M8 and M9 motorways are major strategic routes connecting the region to Glasgow and further West, and to Stirling and the Forth Valley. The A90 and the M90 provide the major route North to Fife and Perth. At Perth the M90 connects with the A90 to Dundee and Aberdeen and A9 to Inverness. Within ESES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

The A720 City of Edinburgh bypass provides a direct link around the city to the south and connects the A1 to the East with the M8 and the A71 and A8 to the West. The A720 also connects to the A68 and the A702 Trunk Roads to the South as well as providing connections to other major A class roads in the region including the A7, the A701 and the A70.

The A1, A68 and A7 Trunk Roads also provide key cross-border links from the region to the South.

The Trunk Road network in ESES is shown in Figure 29 and Trunk Road Annual Average Daily Traffic flows (AADT) volumes are shown in Figure 36 in section 3.4.13.





**Figure 29: ESES Region Trunk Road Network**

(Click Image to enlarge figure)



### 2.5.7. Aviation

There is one airport in the region, at Edinburgh, eight miles west of the city centre. This is the busiest commercial and passenger airport in Scotland with approximately 14.3m passengers as of 2018<sup>39</sup>.

Approximately 33% of all passengers arrive by public transport<sup>40</sup>. 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. An Urban Rural Classification system has been adopted to allow for comparisons between similar areas to be made. This area classification is split and defined across categories ranging from large urban area to remote rural.
- **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, Health and Social Care was found to be the primary industry (based on 2017 BRES based employment data). GVA within the region has experienced strong growth compared to the rest of Scotland.

<sup>39</sup> Edinburgh Airport Facts and Figures (Edinburgh Airport, 2019) <https://www.edinburghairport.com/about-us/facts-and-figures>

<sup>40</sup> Edinburgh Airport 2018 Corporate Social Responsibility Report (Edinburgh Airport, 2018) [https://s3-eu-west-1.amazonaws.com/edinburghairport/files/2018/07/20180712\\_CRR\\_2018.pdf](https://s3-eu-west-1.amazonaws.com/edinburghairport/files/2018/07/20180712_CRR_2018.pdf)



- **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. 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 travelling less than 30km to reach places of work.
  - The transport network within the ESES region is highly developed with an extensive network of Trunk Roads and a Railway 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 CO<sub>2</sub> emissions of which road transport is the main contributing emitter.

## 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, data analysis, a review of existing policy and strategy documents and extensive stakeholder engagement. This Chapter sets out the problems and opportunities with the strategic transport network in the ESES region and details the approach to their identification.

### 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 time<sup>41, 42</sup> accessibility analysis, 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 senior officers across the local authorities and other organisations in the region.
- **Elected Members engagement** included a workshop held in December 2019 to outline the purpose of STPR2, work undertaken to date and also gather views on

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<sup>41</sup> INRIX is a private sector organisation whose data services consist of roadway analytics (including journey time metrics).

<sup>42</sup> TRACC: multimodal accessibility and journey time analysis tool



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** is underway throughout the country, with two primary schools (one in the Scottish Borders and second 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

Based on the activities described above, the following transport-related problems have been identified for the ESES region. Evidence to support the themes listed below is provided in this section.

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

## 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.

### 3.4.1. Bus Network Coverage

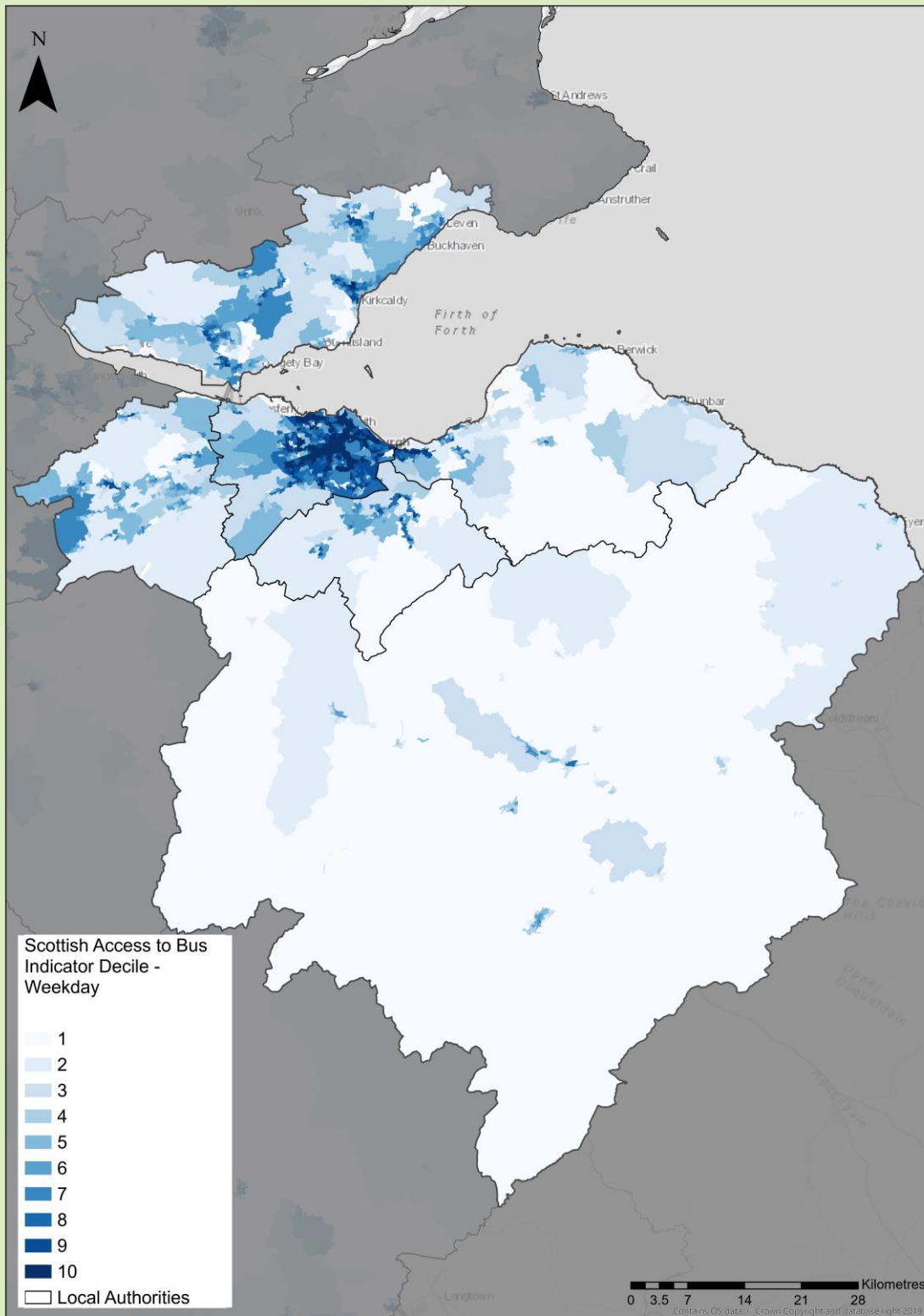
Bus service provision operates within a deregulated market such that most services require to operate at a profit. Whilst socially necessary services are supported by the local authorities, funding for these services continues to come under pressure. The configuration of the bus and rail networks in 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. Outside the larger towns (for example Livingston and Dunfermline) and 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 by bus. As a result, there is a greater reliance on the private car to access employment, education and services.

The travel to work bus mode share<sup>43</sup> in the City of Edinburgh is highest of the four larger cities in Scotland at 25.6%. 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% - 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)<sup>44</sup>. The darker blue areas represent where this 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 poorer in rural areas within ESES.

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

<sup>44</sup> Scottish Access to Bus Indicator (SABI) (Transport Scotland, 2019) <https://statistics.gov.scot/data/bus-accessibility>



**Figure 30: Scottish Access to Bus Indicator Decile (Weekday)**

(Click Image to enlarge figure)

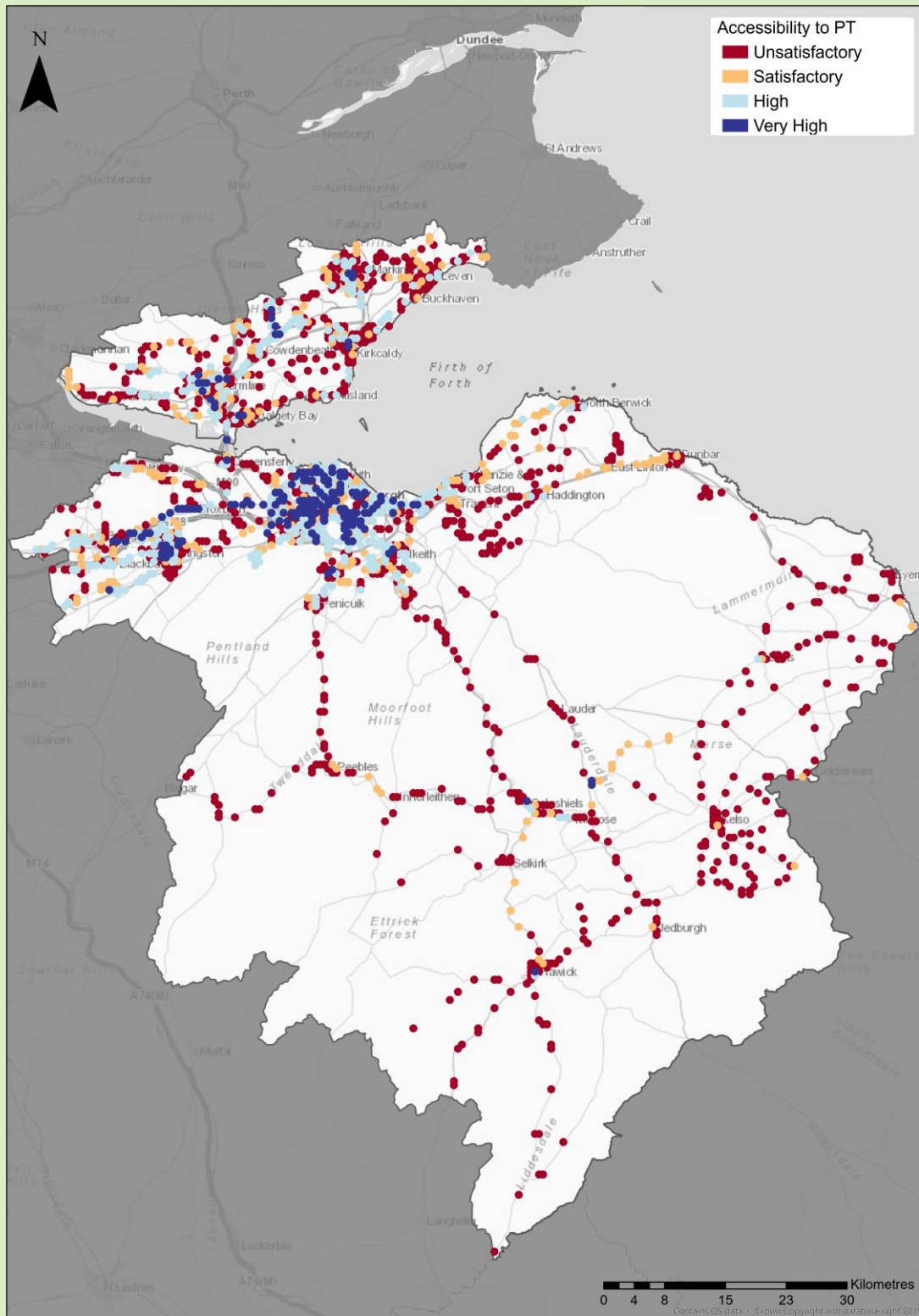


Analysis of bus service frequency in the region shows that the higher frequency services are running on the Trunk Road and A road networks connecting medium to large urban centres. Outwith Edinburgh and other larger towns, (for example Livingston and Dunfermline), the frequency of services connecting rural settlements is lower. Figure 31 shows access to bus (within 400m) or rail (within 800m) within the region in the morning weekday peak period between 08:00 – 09:00 and Table 2 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 people<sup>45</sup>.

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 six bus/rail services in the morning peak hour. There are also large areas of East Lothian, West Lothian and South Fife where the level of accessibility to public transport is considered to be unsatisfactory.

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<sup>45</sup> 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 2: Access of Population 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, 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 two indicators (i) the average drive time to a petrol station, a GP surgery, a post office, a primary school, a secondary school, a retail centre, and (ii) 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 poor 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 2011 shows that these areas have a typically low bus mode share of around 8%).

### 3.4.2. 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 2.7% of the entire ESES region's travel to work mode share<sup>46</sup>, which is 1% 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 four stations) but 5.4% in East Lothian (where there are seven stations).

<sup>46</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

Despite this, as noted in Chapter 2, travel by rail across the region has seen a continued increase<sup>47</sup> based on rail station usage between 2007/2008 - 2017/2018 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% - 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 2007/2008 - 2017/2018 such as Fauldhouse and Breich, which can be attributed to a 1.3% fall in the population local to the station between 2011 and 2018 and a station closure as Breich station was closed for 12 weeks from 23 June 2018 as part of the work to electrify the Shotts line between Edinburgh and Glasgow Central respectively.

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 3 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 infrastructure<sup>48</sup>.

**Table 3: Rail Loading Ratios for Routes to Edinburgh in AM peak period (07:00-10:00)**<sup>49</sup>

LINE SECTION	LINE	BASE CASE	REFERENCE 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%
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 3 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.

<sup>47</sup> 2018/2019 Rail Stations Entries/Exits (ORR, 2019) (Not available online)

<sup>48</sup> SESplan Cross Boundary and Land Use Appraisal – Final (Transport Scotland, April 2017).

<sup>49</sup> SESplan Cross Boundary and Land Use Appraisal – Final (Transport Scotland, April 2017).

### 3.4.3. *Public Transport Accessibility*

Table 4 and Table 5 show information extracted from TRACC<sup>50</sup> summarising the level of access to employment and Tertiary Education within the region respectively from each local authority area. Table 6 shows access to health facilities based on General Hospitals (including the current Royal Hospital for Sick Children) within the ESES region).

Travel to work times for Edinburgh, Fife, West Lothian and Midlothian are typically lower than the rest of the region and 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 limited<sup>51</sup>. 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.

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<sup>50</sup> TRACC - multimodal accessibility and journey time analysis tool

<sup>51</sup> TRACC - multimodal accessibility and journey time analysis tool

**Table 4: 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 5: 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 6: 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%

## ACTIVE TRAVEL

### 3.4.4. *Low Levels of Active Travel*

Within ESES mode share for active travel (walking and cycling) to work<sup>52</sup> 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 13 in section 2.2.5). 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, 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.

### 3.4.5. *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.

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 data<sup>53</sup>, 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 data<sup>54</sup> also shows that the greatest number 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

<sup>52</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

<sup>53</sup> 'Just Eat' Cycle Hire Information (Edinburgh Cycle Hire, 2019) <https://edinburghcyclehire.com/open-data/historical>

<sup>54</sup> 'Just Eat' Cycle Hire Information (Edinburgh Cycle Hire, 2019) <https://edinburghcyclehire.com/open-data/historical>



by NCN75 (a route that is predominantly off road). Other routes that are predominantly on-road show lower levels of demand.

#### 3.4.6. *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 STATS19<sup>55</sup> accident data for the ESES region shows that the majority of recorded accidents involving cyclists take place on roads (with most fatal trips occurring on busier arterial routes connecting employment centres). Analysis of pedestrian accident indicates that the majority (70%) of occur in urban sections of the region.

Between 2013 - 2017, there were a total of eight fatalities, 208 serious injuries and 1,148 slight injuries involving cyclists in the region. 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 26 pedestrians killed, with 70% 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 as expected, however it was recognised that both real and perceived safety concerns have been raised in relation to the A92 to the north of Glenrothes.<sup>56</sup>

A wider study by the Department for Transport (DfT)<sup>57</sup> concludes that almost half of all on road cycle accidents (45%) take place within 20 meters 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).

## SOCIO-ECONOMIC

#### 3.4.7. *Employment*

Edinburgh city centre is where 38.4%<sup>58</sup> 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 car<sup>59</sup>.

TELMoS (Transport and Economic Land-use Model of Scotland)<sup>60</sup> 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

<sup>55</sup> STATS19 Road Safety Data (Department for Transport, 2019) <https://data.gov.uk/dataset/cb7ae6f0-4be6-4935-9277-47e5ce24a11f/road-safety-data>

<sup>56</sup> Case for Change - Pre-Appraisal and Initial Appraisal Study 2018 - A92 Freuchie Balfarg Cadham (Transport Scotland, 2018) <https://www.transport.gov.scot/publication/case-for-change-pre-appraisal-and-initial-appraisal-study-2018-a92-freuchie-balfarg-cadham/>

<sup>57</sup> Pedal Cycling Road Safety Factsheet (Department for Transport, 2018) [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/686969/pedal-cycle-factsheet-2017.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/686969/pedal-cycle-factsheet-2017.pdf)

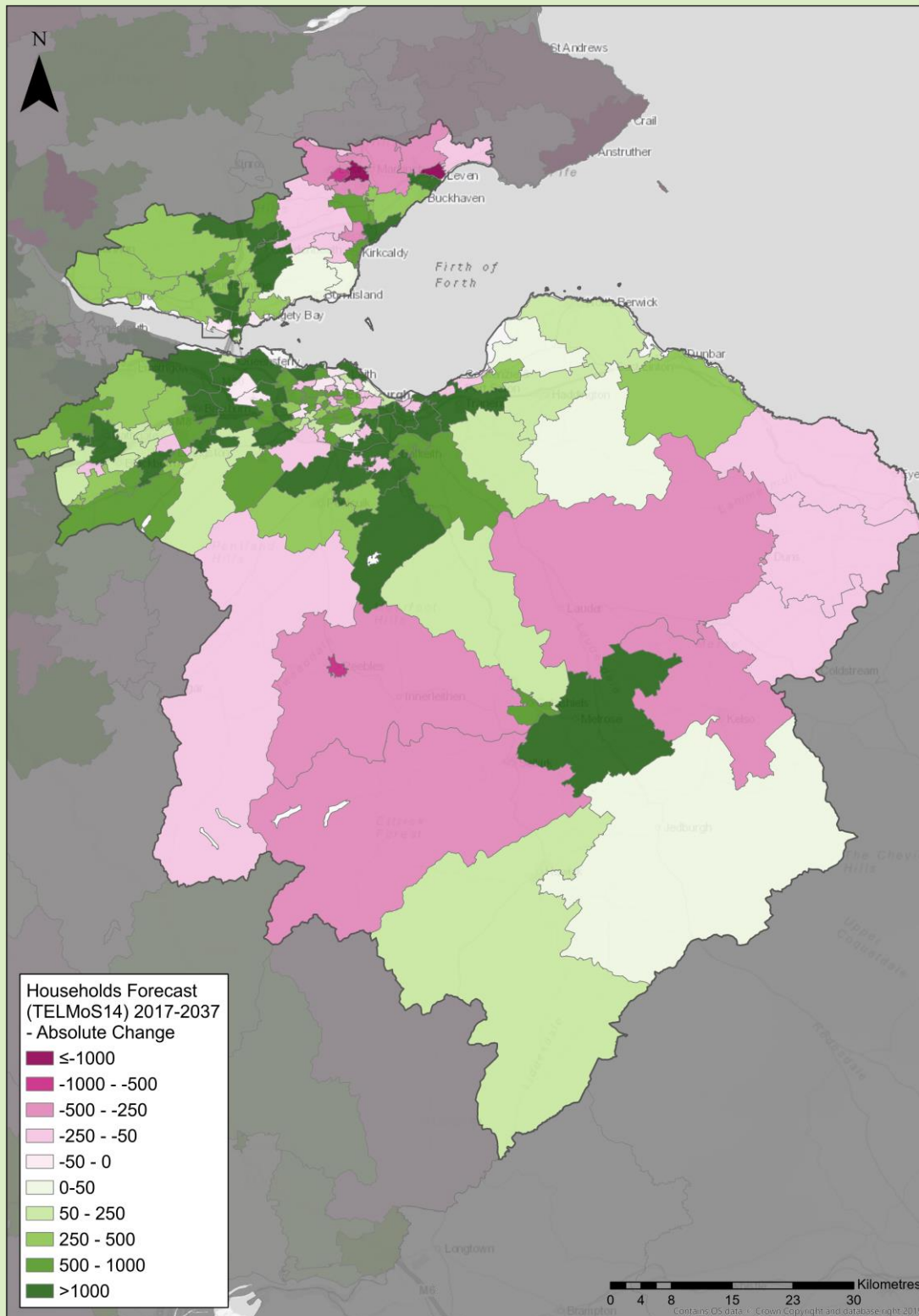
<sup>58</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

<sup>59</sup> City Mobility Plan – Draft for Consultation (City of Edinburgh Council, 2020) <https://consultationhub.edinburgh.gov.uk/sfc/city-mobility-plan/>

<sup>60</sup> 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>

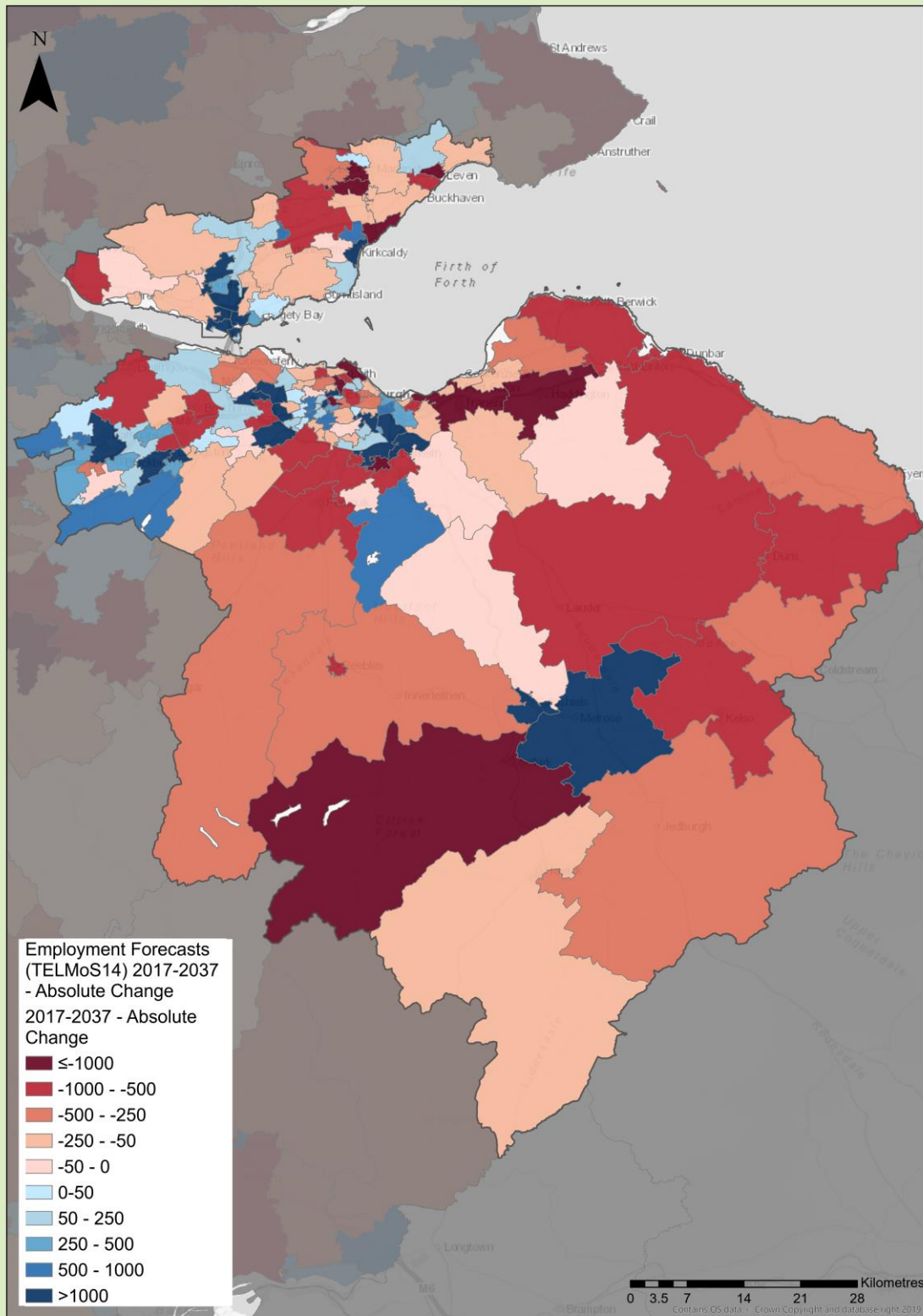


(9,200 people) whilst the largest increase in employment is expected to be in the City of Edinburgh (32,900 jobs).



**Figure 32: Housing Forecasts (TEL MoS14) 2017-2037**

(Click Image to enlarge figure)



**Figure 33: Employment Forecasts (TEL MoS14) 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.

#### 3.4.8. *Property Market*

In 2017, house prices in the City of Edinburgh<sup>61</sup> were 33.4% greater than the city benchmark and over £80,000 more than the national average. Since 2007, the average house price in the City of Edinburgh increased from £217,372 to £262,868 (21%) while in Midlothian the average house price increased from £181,151 to £197,955 (9.3%). The average house price in the Scottish Borders is not set to increase from 2017 - 2037 whilst house prices in Fife, East Lothian and Midlothian are predicted to increase up to 15%, West Lothian up to 25% and the City of Edinburgh up to 35%.

The Scottish Government's Housing and Social Justice Directorate<sup>62</sup> published information on the cost of renting properties between 2010 - 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 42.3%, in West Lothian by 15.4%, in Fife by 18.1% and in the Scottish Borders by 8.2%.

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 – 2017<sup>63</sup> and of the 32,000 listings in May 2018 2,700 listings were recorded in Edinburgh. 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.<sup>64</sup>

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 34 shows the level of risk associated with transport poverty within the region based on a Transport Poverty in Scotland 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 ownership increasing dependence on public transport.

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<sup>61</sup> House Prices: Data Cube Spreadsheet (Scottish Government, 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>

<sup>62</sup> Private Sector Rent Statistics 2010 – 2018 (Scottish Government, 2018)

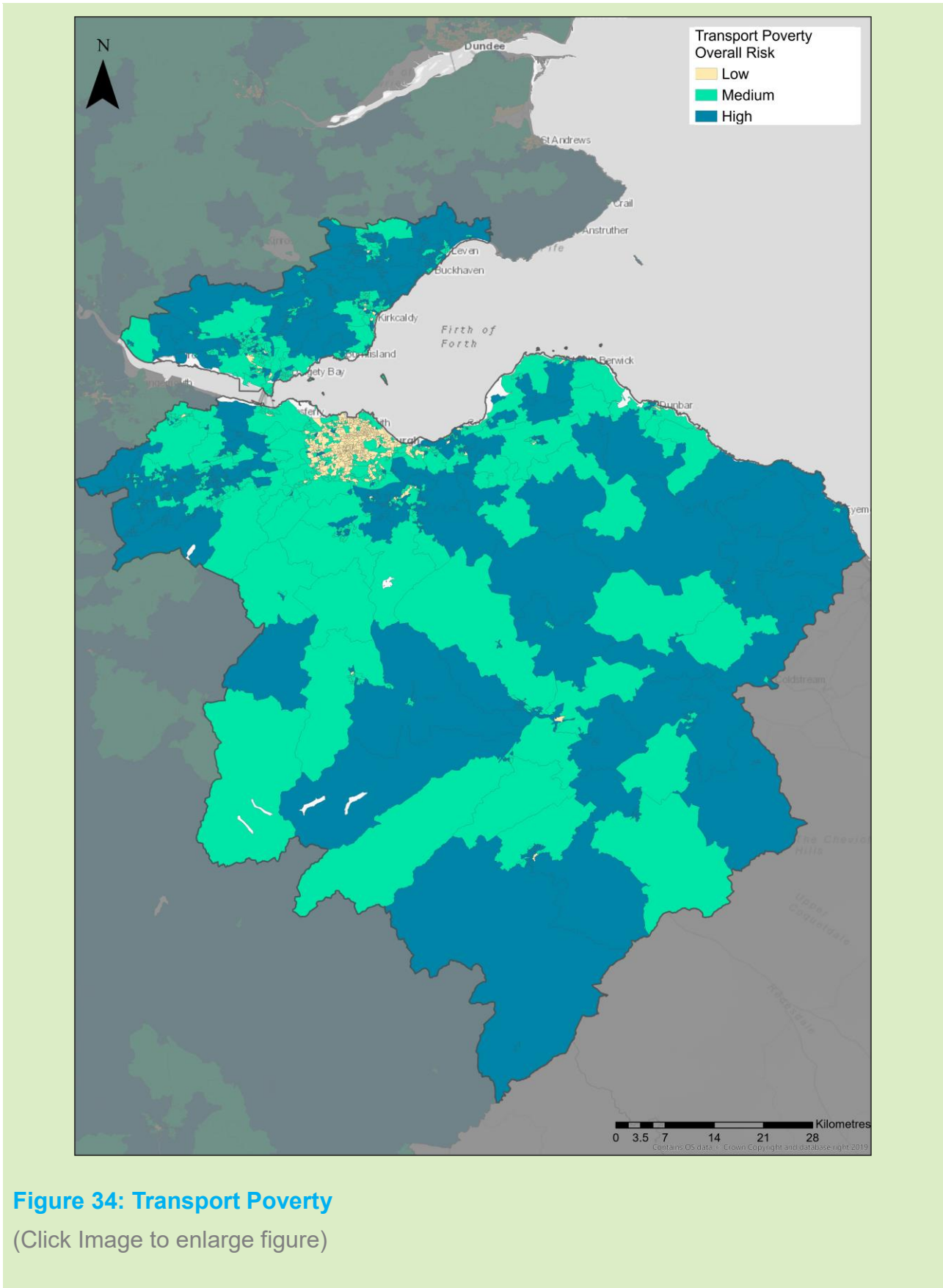
<https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2018/11/private-sector-rent-statistics-2010-2018/documents/00543368-pdf/00543368-pdf/govscot%3Adocument/00543368.pdf?forceDownload=true>

<sup>63</sup> Airbnb Position Paper (Airbnb, 2017) [Airbnb Position Paper](#)

<sup>64</sup> Choices for City Plan 2030 (City of Edinburgh Council, 2020)

<https://www.edinburgh.gov.uk/downloads/file/26927/choices-for-city-plan-2030>





**Figure 34: Transport Poverty**  
(Click Image to enlarge figure)

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

### 3.4.9. Travel to Work

In terms of distance travelled to work<sup>65</sup>, travel to work data shows that the majority of people within the ESES region who live within the City of Edinburgh or on its periphery travel less than 10km to work.

Census based data that identifies journey to work trip origin and destination shows that there are limited cross-regional, inter-rural movements within the ESES region. With the exception of the Scottish Borders and prior to opening of the Borders Railway in 2015, the predominant movement of travel to work flows are focused on travel to the City of Edinburgh where at least 86% of travel to work trips originating in each local authority are travelling to. As previously detailed, the City of Edinburgh Council estimates<sup>66</sup> 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 arterial routes as well as the local road network. 55% of people in Midlothian and 48% of people in East Lothian work in the City of Edinburgh. For the Scottish Borders, 65% of trips travel to the City of Edinburgh and, compared to other local authorities, there are more trips travelling to East Lothian (12%) and Midlothian (18%). Table 7 shows the inter-regional commuter trips throughout the ESES region (pre-Borders Rail opening in 2015).

**Table 7: Travel to Work person trips in the ESES region**

		DESTINATIONS						TOTAL
		FIFE	CITY OF EDINBURGH	MIDLOTHIAN	WEST LOTHIAN	EAST LOTHIAN	SCOTTISH BORDERS	
ORIGINS	CITY OF EDINBURGH	-	14500	380	1800	180	33	<b>16893</b>
	EAST LOTHIAN	2900	-	5200	5500	4200	537	<b>18337</b>
	WEST LOTHIAN	230	17400	-	730	1300	330	<b>19990</b>
	SOUTH FIFE	950	18900	680	-	290	60	<b>20880</b>
	SCOTTISH BORDERS	180	17400	2000	450	-	310	<b>20340</b>
	MIDLOTHIAN	80	4100	1100	200	780	-	<b>6260</b>
	TOTAL	<b>4340</b>	<b>72300</b>	<b>9360</b>	<b>8680</b>	<b>6750</b>	<b>1270</b>	<b>102700</b>

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 (see Figure 35 locations) that leads to delay and slow journey times within the city and on the city limits. The section on 'Operational Constraints' discusses these problems more fully.

<sup>65</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

<sup>66</sup> Rural Economy and Connectivity Committee 8 January 2020 (Scottish Government, 2020) [www.parliament.scot/parliamentarybusiness/report.aspx?r=12450&i=112559](http://www.parliament.scot/parliamentarybusiness/report.aspx?r=12450&i=112559)

## HEALTH AND ENVIRONMENT

### 3.4.10. *Global Air Quality*

As noted in Chapter 2, transport continues to be the single biggest contributor to carbon dioxide (CO<sub>2</sub>) levels – in 2017, transport accounted for 34% of Scotland's CO<sub>2</sub> emissions. It is also a similar picture for the region<sup>67</sup> where 95% - 99% of the transport related CO<sub>2</sub> emissions are road based.

Within ESES, just under one-third of the City of Edinburgh's CO<sub>2</sub> emissions in 2017 were derived from road transport<sup>68</sup>.

In response, a number of the 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 as well as visitors.

### 3.4.11. *Local Air Quality*

As noted in Chapter 2, the transport system is also linked to negative impacts on air quality. Pollutants such as PM<sub>10</sub>, NO<sub>2</sub>, CO<sub>2</sub> and Benzene emitted by road vehicles have a significant detrimental impact on health.

Within the region there are 11 AQMAs. In terms of local air quality emissions, higher concentrations are located in the ESES region in and around the more urbanised areas and on key corridors connecting settlements throughout the rural areas.

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. A number of AQMAs are in proximity to and 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 to/from Edinburgh on the M8, M9, M90 (via the A8) as well as the A720 via the Gyle in West Edinburgh.

## OPERATIONAL CONSTRAINTS

### 3.4.12. *Car Ownership*

Analysis of car ownership<sup>69</sup> across Scotland shows that 71% of households own at least one car (with 27% owning two or more cars). Across the ESES region, 70% of households own at least one car (with 26% owning two or more cars). In the City of Edinburgh, this decreases to 60% of households owning at least one car (with 18% owning two or more cars). For the ESES region excluding the City of Edinburgh, 76%

<sup>67</sup> Scottish Greenhouse Gas Emissions (Scottish Government, 2017)  
<https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2019/06/scottish-greenhouse-gas-emissions-2017/documents/scottish-greenhouse-gas-emissions-2017/scottish-greenhouse-gas-emissions-2017/govscot%3Adocument/scottish-greenhouse-gas-emissions-2017.pdf>

<sup>68</sup> City Mobility Plan – Draft for consultation (City of Edinburgh Council, 2020)  
[https://consultationhub.edinburgh.gov.uk/sfc/city-mobility-plan/user\\_uploads/city-mobility-plan---draft-for-consultation-1.pdf](https://consultationhub.edinburgh.gov.uk/sfc/city-mobility-plan/user_uploads/city-mobility-plan---draft-for-consultation-1.pdf)

<sup>69</sup> 2011 Census (Scotland) <https://scotlandscensus.gov.uk/>

of households have access to at least one car (32% have access to two or more cars). Compared to other regions, the ESES region has the highest proportion of households with no car (30%).

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 daily<sup>70</sup> (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.

### 3.4.13. Road Congestion

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 lower (typically less than 25kph) during the peak hours and get lower 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 20 kph respectively).

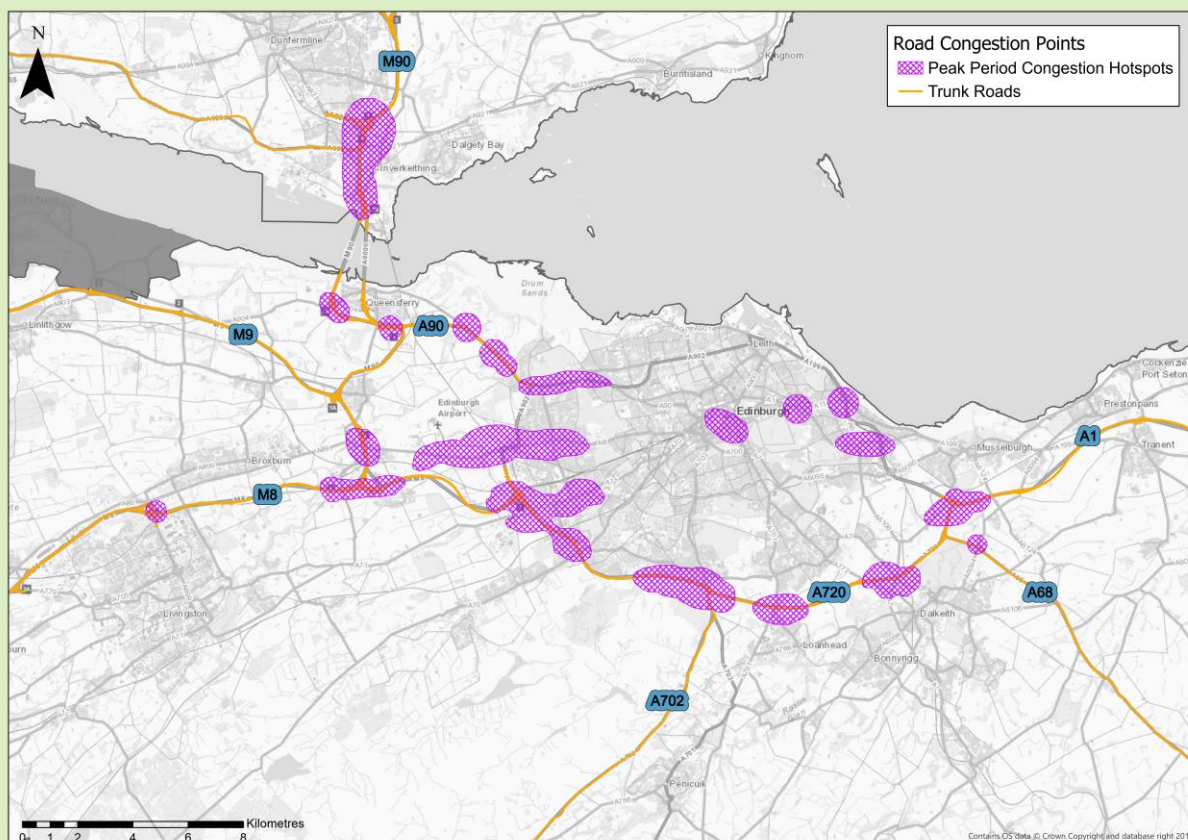
In terms of journey time reliability, INRIX based journey times shows that for key arterial routes to Edinburgh journey times can be highly variable; M90 northbound between Edinburgh and Fife can vary between 22 and 79 minutes, A720 between Gogar and Old Craighall can vary from between 14 and 65 minutes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

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



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 ratio<sup>71</sup> 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 are capacity issues in on the M8, M9 Junction 6 and A801.

Figure 35 shows road congestion points around the Edinburgh city boundary during peak periods based on volume to capacity ratio.



**Figure 35: Road Congestion Points (Volume to capacity ratio >1)**

(Click Image to enlarge figure)

Travel to the city from the West Lothian and from Fife results in high volumes of traffic approaching the City of Edinburgh’s western and northern periphery. From this point a large proportion of traffic will either continue to travel into the city (on the A90, the A8 or the A71) or continue on an orbital route on the City of Edinburgh bypass. Trunk Road Annual Average Daily Traffic volumes are shown in Figure 36.

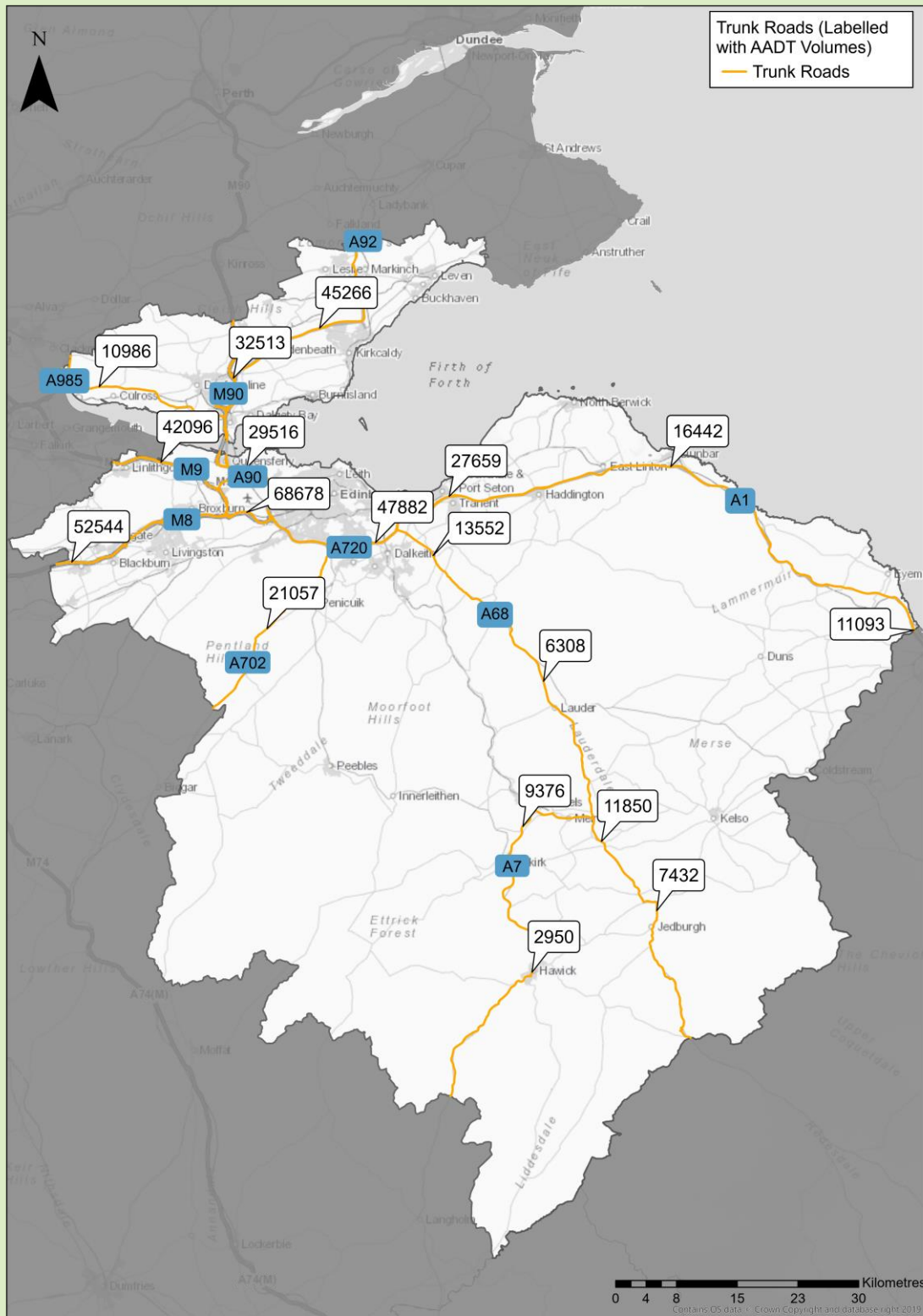
<sup>71</sup> Volume to capacity ratio is a measure of how congested or saturated with vehicles a particular road is. When the volume to capacity ratio of a link approaches or exceeds one, congestion can be expected.



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.





**Figure 36: Trunk Road AADT Volumes**

(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.

#### 3.4.14. *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 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 35, 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 section 3.4.13).

#### 3.4.15. *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 section 3.4.13). 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 passengers<sup>72</sup>. ScotRail's Public Performance Measure (PPM) reports on the percentage of trains which arrive at their terminating station within five minutes of the booked arrival time. PPM also takes account of reliability in terms of the number of trains which operate.

<sup>72</sup> Scotrail Performance and Reliability Report (accessed December 2019): <https://www.scotrail.co.uk/performance-and-reliability>

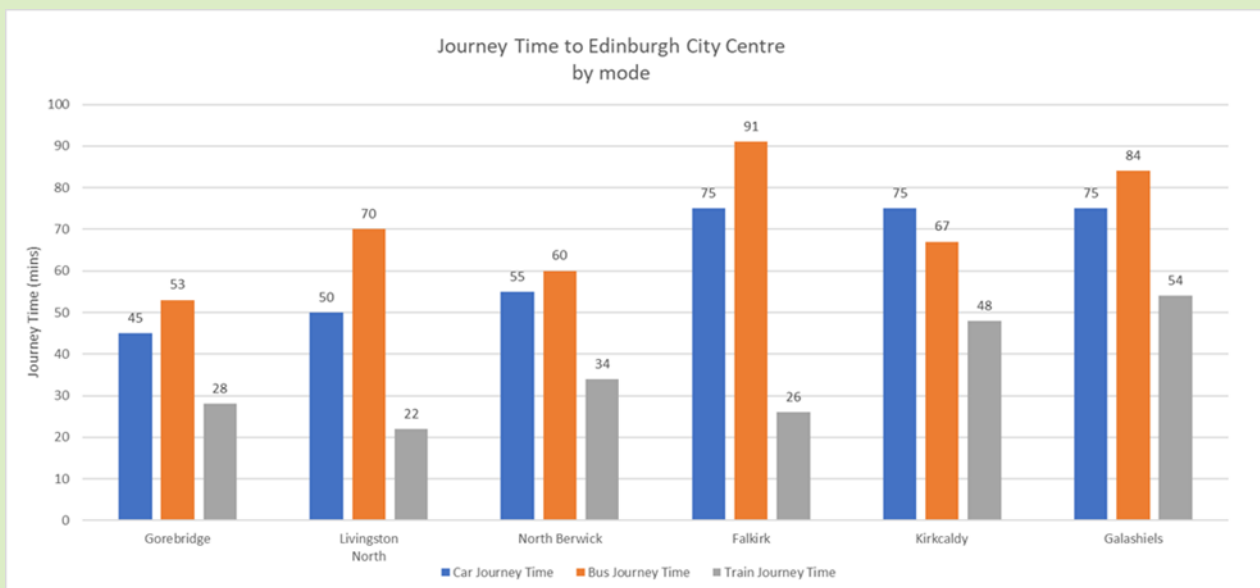
The PPM figures are based on annual rolling 12-month statistics. In ESES, based on the most recent update (4-week period to January 2020) the PPM for the following stations is: Edinburgh Waverley (82%), Haymarket (86%), Kirkcaldy (81%) and Tweedbank (84%). For comparison, the average PPM for stations within the ESES region is 83% over this period. The Moving Annual Average PPM target set by ScotRail is 92.5% 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 61.7% over the same period.

In the ESES region, rail travel between South Fife and the City of Edinburgh is an important route to consider as the Forth Bridge is a key link connecting South Fife stations (for example 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).

Based on ScotRail PPM data for the 4-week period to January 2020, services arrived at Tweedbank station within 5 minutes of the booked arrival time approximately 83.6% of the time.

### 3.4.16. Competitiveness of Modes

Figure 37 below shows the comparison between journey times for car, bus and rail journeys from various towns within the region to Edinburgh city centre.



**Figure 37: 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 is slower than timetabled rail services. However with the exception of Kirkcaldy to Edinburgh, car travel during the AM peak hour (0800-0900), is typically quicker than the quickest bus service.

## 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.

### 3.4.17. *Bus Travel Costs*

The cost of monthly bus tickets varies within the region and cover limited 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 two 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.

### 3.4.18. *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 8. The cost of travel for these locations ranges between £0.16 and £0.32 per km and averages at £0.21 per km on the city limits

**Table 8: 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	£0.16
	Dunfermline	£6.70	£0.22
	Glenrothes	£9.40	£0.17
	Kirkcaldy	£8.80	£0.21
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
Falkirk	Falkirk	£7.20	£0.18

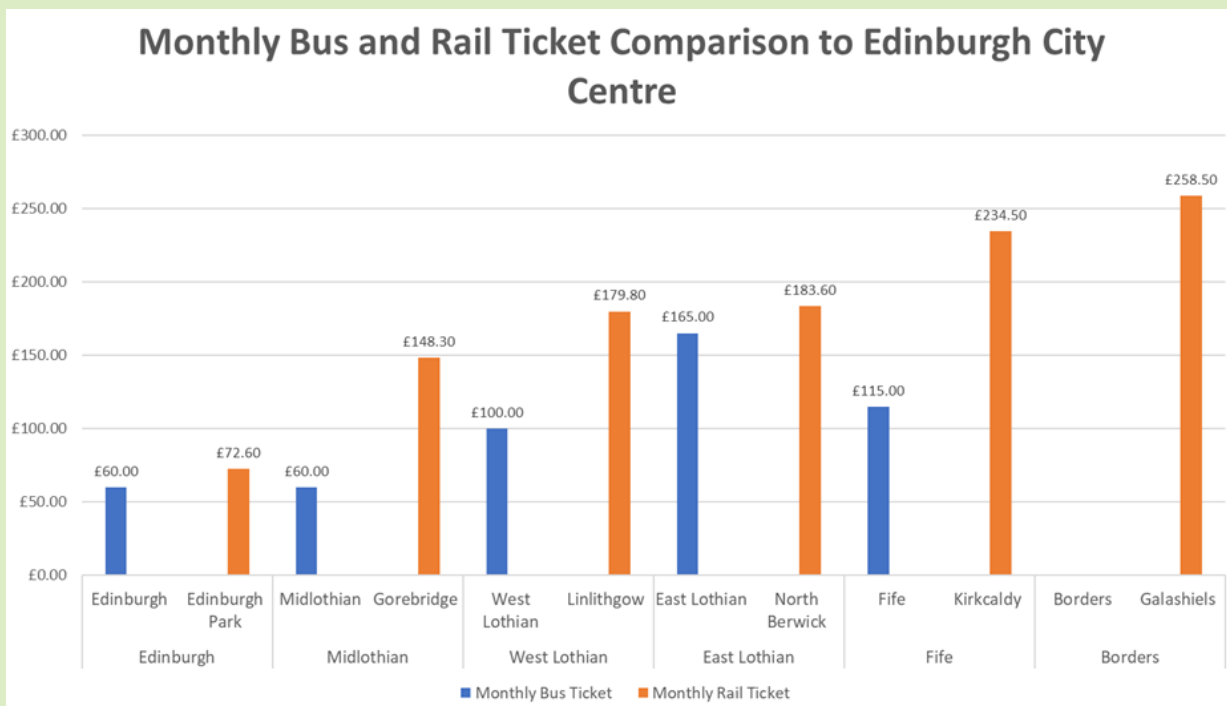
Rail remains comparatively more expensive than the equivalent journey by car (based on the direct cost i.e. fuel); between two and six times more expensive when compared to the UK Government's advisory fuel costs (£0.13 per km) for the equivalent car trip adding weight to the perception that car travel 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.

### 3.4.19. Comparison of Public Transport Costs

Figure 38 allows comparison of monthly ticket prices for both rail and bus journeys within each of the local authority areas. However, it should be noted that monthly bus tickets covers 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.



**Figure 38: Monthly Bus and Rail Ticket Costs within each Local Authority Area**

The above figure highlights that monthly rail tickets within the region are typically considerably more expensive than an equivalent monthly bus ticket. Based on travel time comparisons within the region, rail journey times are typically lower than bus therefore a higher fare may be expected. Figure 38 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.

## TRANSPORT INTEGRATION

### 3.4.20. Integrated Travel

Integration between bus services is also an issue.

Table 9 provides an indication of integration levels for travel by 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 and a walk time for this leg of the journey has been accounted for.

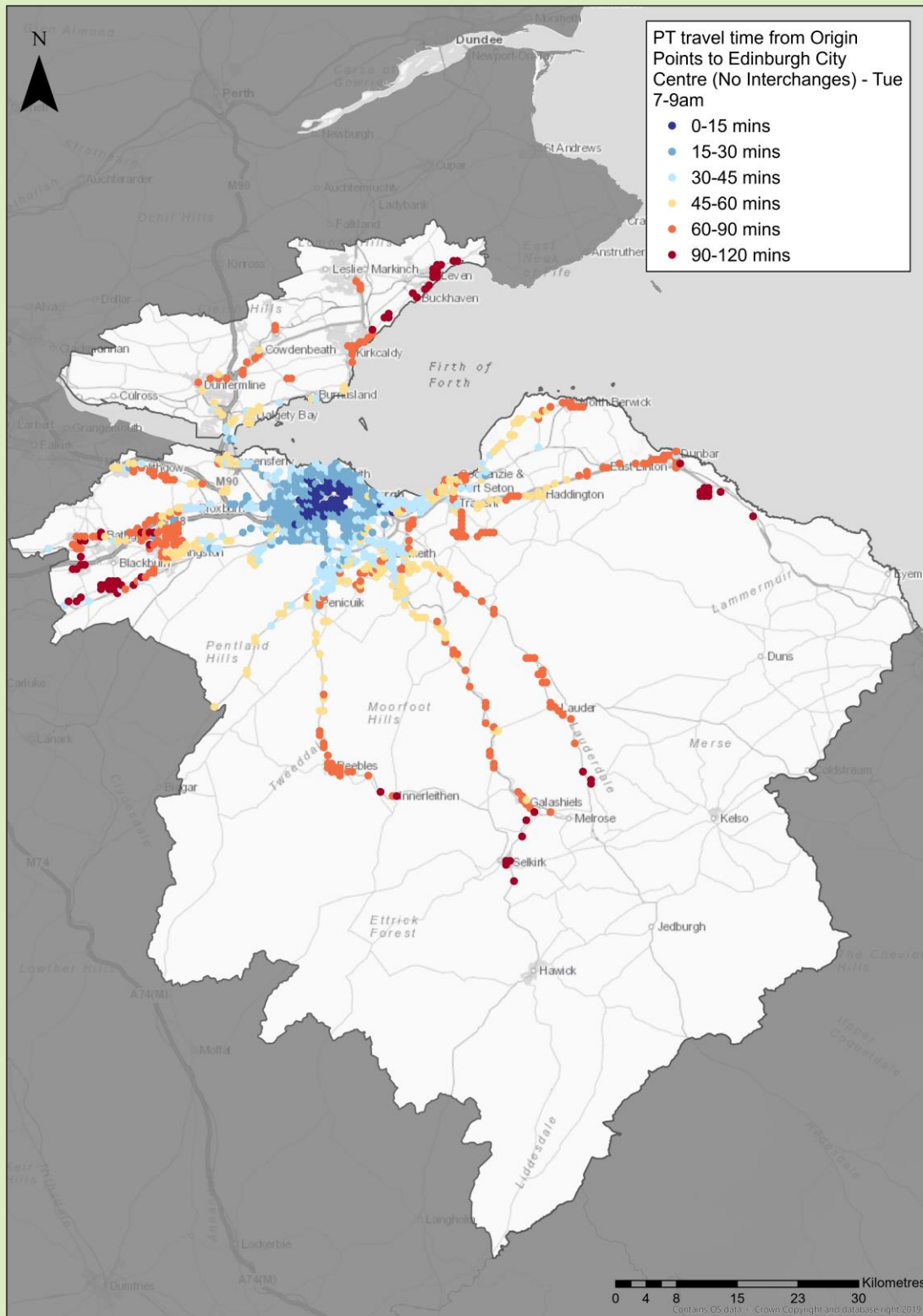
The journey destination for this analysis was defined as a central area within Edinburgh city centre and includes Waverley and Haymarket stations, and analysis accounts for a walking time between the final public transport stop and a series of final destination points within this central area.

**Table 9: Public Transport Access to Edinburgh city centre (within 500m walk of Public Transport)**

	30 mins		60mins		90mins		120mins	
	Interchanges	0 Interchanges	Interchanges	0 Interchanges	Interchanges	0 Interchanges	Interchanges	0 Interchanges
City of Edinburgh	91%	91%	99%	98%	99%	98%	99%	98%
East Lothian	11%	2%	76%	64%	91%	82%	91%	83%
West Lothian	4%	4%	82%	32%	95%	60%	96%	70%
South Fife	0%	0%	27%	11%	79%	21%	98%	25%
Borders	0%	0%	3%	3%	28%	19%	33%	25%
Midlothian	5%	5%	96%	89%	97%	94%	97%	94%

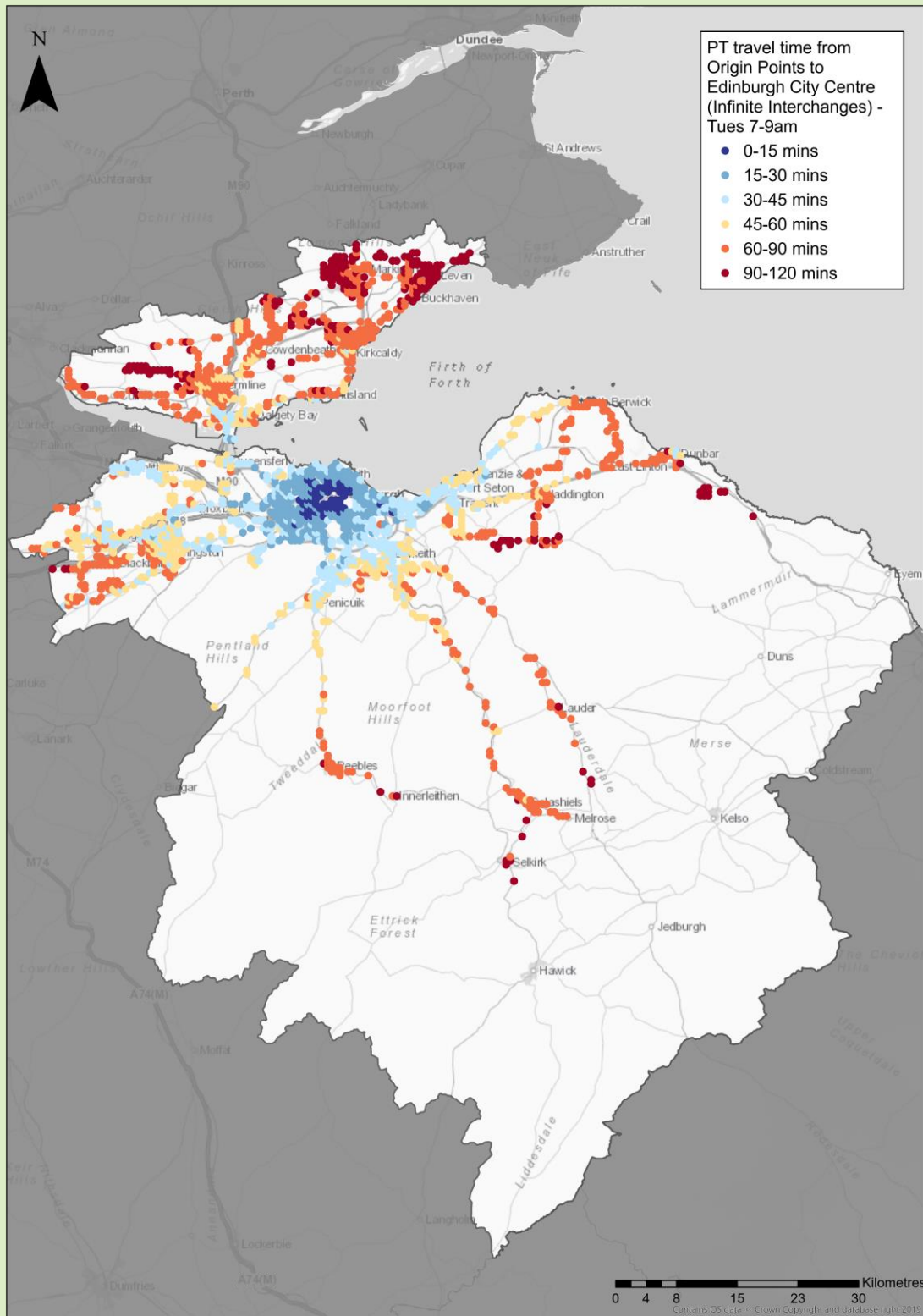
Figure 39 and Figure 40 show accessibility within 120 minutes to Edinburgh city centre from points throughout the region based on zero interchanges and multiple interchange options respectively.





**Figure 39: Public Transport Access to Edinburgh City Centre with No Interchanges**

(Click Image to enlarge figure)



**Figure 40: 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 reach of access to 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.

#### 3.4.21. *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 with cycling due to a lack of storage spaces on trains.

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 facilities<sup>73</sup>.

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.

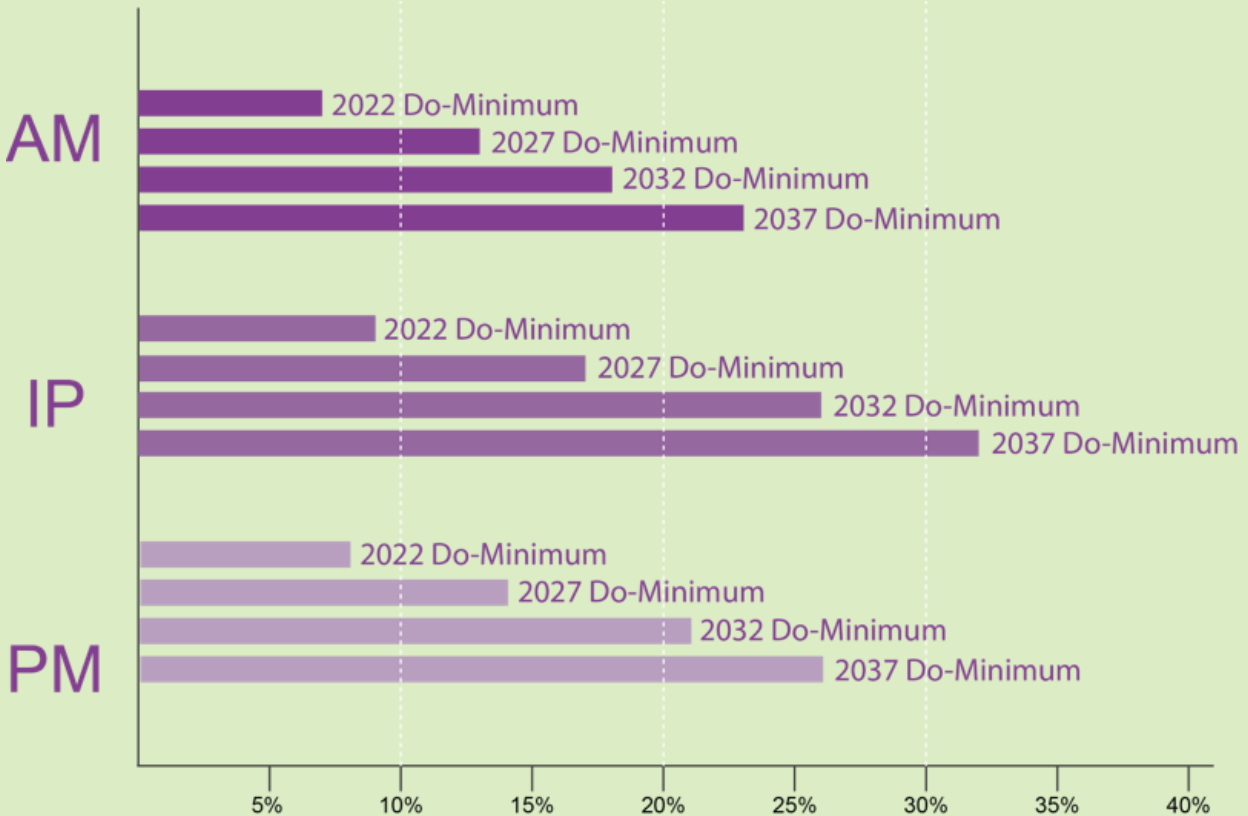
#### 3.4.22. *Integrated Ticketing*

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 convenience for the user making journeys involving multiple modes and operators. 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**

Population across the region is set to grow by 9.3% until 2041. In the City of Edinburgh, 11.6% growth is expected by 2041 and for the rest of the ESES region, population will grow by 7.8%. Figure 41 shows the forecast change in vehicle-kilometres from the national transport model (TMfS:14) for the AM, Inter and PM peak periods for the model forecast years of 2022, 2027, 2032 and 2037 based on the Do-Minimum model scenario<sup>74</sup>.



**Figure 41: Forecast Change in Vehicle-Kilometres within the ESES region during peak periods (TMfS:14)**

Figure 41 shows that vehicle-kilometres are forecast to increase during all peak periods, for each of the forecast years. This increase is expected to exacerbate existing operational issues on the Trunk Road network within the region.

With 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 developing areas.

Given that the configuration of bus and rail networks in the region are primarily radial in nature with a focus on Edinburgh city centre (see section on Operational Constraints), there are a lack of orbital routes providing connections between destinations outwith the city centre. Section 3.6 further considers the associated increase in veh-km by mode and wider context around the uncertainties of future travel demand.

<sup>73</sup> Traffic Scotland website (Traffic Info map/Park and Ride)

<sup>74</sup> Do-Minimum Scenario is based on existing network transport with committed developments



### 3.4.23. *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 above, 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
- Digital Connectivity
- Maximise Benefits Associated with Changing Legislation
- Technology
- Improve the Integration of a Sustainable Transport Network Within New Developments
- Improved Transport Integration Outwith Urban Areas
- Transport Hubs

#### INCREASE IN 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.

Safe, attractive, accessible and connected networks of walking and cycling routes that serve local centres as well as provide connections to public transport services to employment, education and services 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 active travel and public transport modes by increasing cycle provision and improving facilities for cycle storage at Park and Ride sites at Ingliston and Newcraighall rail station.

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.



## DIGITAL CONNECTIVITY

Less than 1% of the Scottish Borders, East Lothian and Midlothian have access to UFBB compared to 72% of the City of Edinburgh and less than 75% of the Scottish Borders has access to SFFB<sup>75</sup>.

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 working<sup>76</sup>.

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. Considering the industry sector make up presented in Chapter 2 suitable industries such as IT, Finance and Administration are popular industries within Edinburgh, and potentially well suited for the promotion of home working.

## 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.

## 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). For example, demand responsive travel could be of a particular benefit to those areas where accessibility to rail or bus services is limited and MaaS can support this by providing a sustainable transport system that can better meet the needs of the more sparsely populated parts of the region where fixed route services may be less attractive to privately funded providers.

Increased provision for Electric Vehicle 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 32 charging devices per 100,000 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 (21), West Lothian (19) and Fife (Fife Council area) (21) Council areas the number of charging

<sup>75</sup> Mobile Broadband Speed Survey (Ofcom, 2017) <https://www.ofcom.org.uk/data/assets/file/0019/113572/Mobile-Local-Authority-Area-201801.csv>

<sup>76</sup> Mobile Broadband Speed Survey (Ofcom, 2017) <https://www.ofcom.org.uk/data/assets/file/0021/108831/fixed-local-authority-2017.csv>

points is lower than the national level, however East Lothian has significantly greater availability with 47 charging points per 100,000 of the population.

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.

### 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 seven 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. 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.

With future growth of the region, including the seven strategic development sites, there is the opportunity to ensure new developments are tailored towards providing for active travel and public transport from the outset.

### 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.

### TRANSPORT HUBS

There are some rail stations located on the periphery 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 could result in a reduction in the reliance on private car for short trips between residences and stations.



### 3.6. Future Conditions

The problems and opportunities identified above are focused on current issues 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 strategic 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 disrupters and uncertainties (e.g. alternative working practices, new transport technologies, future transport policy developments) 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 given to future network conditions and uncertainties at a more localised level.

For the ESES Region, a review of the national transport model, TMfS, has suggested as outlined above significant increases in road traffic and rail patronage in the coming decades, but a reduction in bus patronage. It should be noted that these forecasts as based on existing forecasts and the new National Transport Strategy sets out to 'reduce the need to travel unsustainably. These forecasts therefore should be revisited considering the new National Transport Strategy.

### 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.
- **Connectivity:** Whilst connectivity into Edinburgh city centre is generally good, 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 services.
- **Operational Issues:** Within the region, the City of Edinburgh is the largest attractor of trips with approximately 60,000 in-commuting trips each day. This creates significant congestion on radial routes and which is compounded by the routing of local, regional and inter-city buses. As a result, the Trunk Road and 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 similar demand centred on Edinburgh Waverley and Haymarket Stations and reflected in punctuality and reliability metrics for stations in the area.
- **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 associated impact on travel distances, cost of travel and volume of trip-making. With varied public transport accessibility throughout the region, options can be limited and therefore lead to higher transport costs (for example monthly rail tickets are considerably more expensive than the equivalent monthly bus tickets) as well as a higher number of trips by car.

Key opportunities include:

- **Integrated Transport Offer:** The current public transport network is fragmented in terms of service and ticketing offer. Opportunity exists to improve this and to also further the integration of active travel as part of longer end-to-end journeys.
- **Integration of Transport and Land Use Planning:** The ESES region is one of growth, underlined by the seven 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.
- **Active Travel:** The private car still accounts for most journeys to work in the region. Given that many (46%) of travel to work journeys are less than 5km and particularly in Edinburgh where there is high employment, there is scope to increase the level of active travel trips in the region.
- **Low Carbon:** 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 away from private car if the restrictions put in place for the City of Edinburgh LEZ are complemented by improved provision for active travel and public transport offer for travel within the region.



## 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. The TPOs are a key element of the appraisal process from initial option identification and sifting through to Preliminary and Detailed appraisal and subsequent monitoring/evaluation.

For STPR2, TPOs have been developed to sit at both the national and regional levels. At a national level, an overarching set of STPR2 programme-level TPOs, supported by national sub-objectives, have been established which are closely aligned with the four priorities, twelve outcomes and 24 policies contained within NTS2.

A series of regional transport planning objectives sit within the overall direction of the STPR2 objectives but with a particular focus on the specific evidence-based problems and opportunities in the ESES region. The draft emerging regional focused sub-objectives are also presented in Table 10 detailed below.

**Table 10: STPR2 Objectives and ESES Regional Sub-Objectives**

STPR2 OBJECTIVE	SUB-OBJECTIVES
A sustainable strategic transport system that contributes significantly to the Scottish Government's net zero emissions target.	<ul style="list-style-type: none"> <li>▪ 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.</li> <li>▪ Increase the share of active travel, particularly for shorter journeys within the region and as part of longer multi-modal end-to-end journeys.</li> <li>▪ Increase the share of public transport, with a particular focus on the key corridors in the region that link to the main current and future employment centres.</li> <li>▪ Reduce emissions from road-based travel, with a particular focus on the key corridors in the region.</li> </ul>
An inclusive strategic transport system that improves the affordability and accessibility of public transport.	<ul style="list-style-type: none"> <li>▪ Increase public transport share by improving the interchange opportunities for active travel and public transport modes to facilitate integrated journeys across the region.</li> <li>▪ 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).</li> <li>▪ Reduce transport poverty in relation to the level of household income spent on transport, particularly in more deprived areas of the region.</li> </ul>



	<ul style="list-style-type: none"> <li>▪ 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 hospitals, key employment centres and further education opportunities (university/colleges) in the region.</li> </ul>
<p>A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing.</p>	<ul style="list-style-type: none"> <li>▪ 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.</li> <li>▪ Increase the share of active travel, particularly for shorter journeys within the region and as part of longer multi-modal end-to-end journeys.</li> <li>▪ Reduce demand for unsustainable travel arising from nationally significant growth areas, taking cognisance of Local Development Plans and the emerging NPF4.</li> </ul>
<p>An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland.</p>	<ul style="list-style-type: none"> <li>▪ 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.</li> <li>▪ 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</li> <li>▪ Make better use of existing transport infrastructure through the adoption of beneficial transport innovations</li> <li>▪ Increase the mode share of freight by sustainable modes.</li> </ul>
<p>A reliable and resilient strategic transport system that is safe and secure for users.</p>	<ul style="list-style-type: none"> <li>▪ Increase resilience from operational disruption on the region’s Trunk Road and rail infrastructure.</li> <li>▪ Reduce transport related casualties in line with reduction targets, with a focus on reducing Killed or Seriously Injured (KSI) accidents on Trunk Roads in the region.</li> <li>▪ Improve perceived and actual safety and security on the transport system across the region with a particular focus on active travel.</li> </ul>





**Table 11: Mapping of Problem and Opportunity Themes to Transport Planning Objectives**

National Objective/Outcome	Regional Sub-Objective/Outcome	Problem Theme							Opportunity Theme						
		Public Transport Connectivity	Active Travel	Socio-Economic	Health and Environment	Operational Constraints	Cost of Public Transport	Transport Integration	Transport and Land Use Planning Integration	Increase in Active Travel Mode Share	Digital Connectivity	Maximise Benefits Associated with Changing Legislation	Technology	Improve the Integration of a Sustainable Transport Network with New Developments	Improved Transport Integration Outwith Urban Areas
<b>A sustainable strategic transport system that contributes significantly to the Scottish Government's net zero emissions target</b>	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 share of active travel, particularly for shorter journeys within the region and as part of longer multi-modal end-to-end journeys.														
	Increase the share of public transport, with a particular focus on the key corridors in the region that link to the main current and future employment centres.														
	Reduce emissions from road-based travel, with a particular focus on the key corridors in the region.														
<b>An inclusive strategic transport system that improves the affordability and accessibility of public transport</b>	Increase public transport 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 hospitals, key employment centres and further education opportunities (university/colleges) in the region.														
<b>A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing</b>	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 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.														
<b>An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland</b>	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														
	Make better use of existing transport infrastructure through the adoption of beneficial transport innovations.														
	Increase the mode share of freight by sustainable modes.														
<b>A reliable and resilient strategic transport system that is safe and secure for users</b>	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 Trunk 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 Approach to 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/Transport Scotland policies and strategies.

Specifically, this will include:

- Any transport project that plays a significant part in supporting the four 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 options considered within the STPR2 may include:

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

A strategic transport project will not include:

- Changes in vehicle regulation and taxation;
- Planning led initiatives (e.g. changes to the statutory planning process);
- Changes to the governance framework within which transport delivery and operation takes place;
- Concessionary fares; or
- Routine and cyclic maintenance measures.



## 5.2 Approach

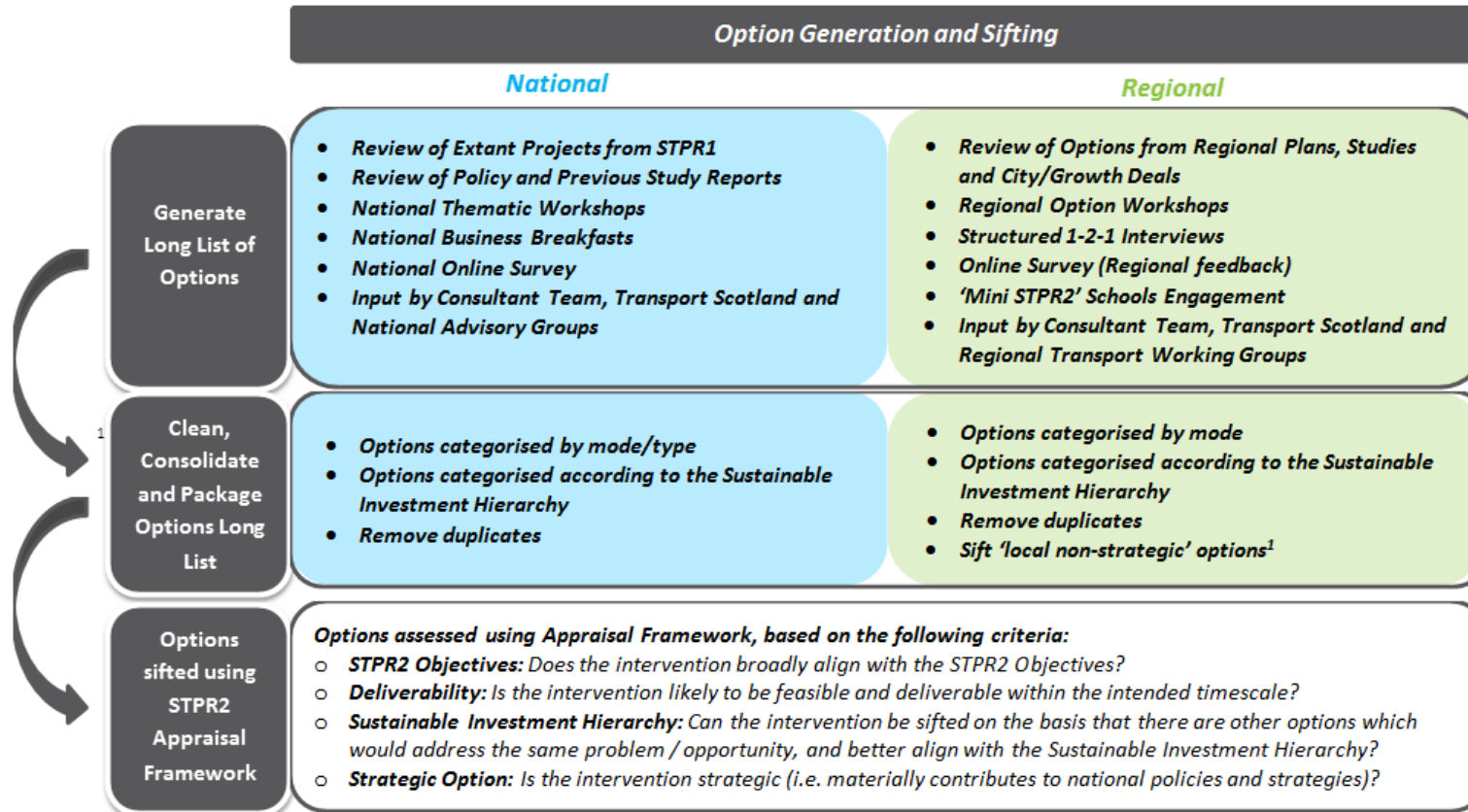


Figure 42: Development of Options: Sources

The approach to the generation of options for STPR2, including the options identified at the regional level for ESES, is summarised in Figure 42.

The process of option generation for STPR2 is being informed and structured around the sustainable investment hierarchy which is outlined within the new NTS2, shown in Figure 43.



**Figure 43: The Sustainable Investment Hierarchy**



### 5.3 Next Steps

Going forward, the long list of options will be developed and sifted in line with the approach set out in Section 5.2, with the resulting short list of interventions appraised in line with the STAG based Appraisal Framework developed for STPR2.

#### Commenting on this Report

As part of ongoing engagement, comments on this draft Case for Change Report can be submitted using a comments form that can be accessed [here](#). The closing date for comments is midnight on Wednesday 8<sup>th</sup> April 2020.”



## APPENDICES

### Appendix A – Report Figures



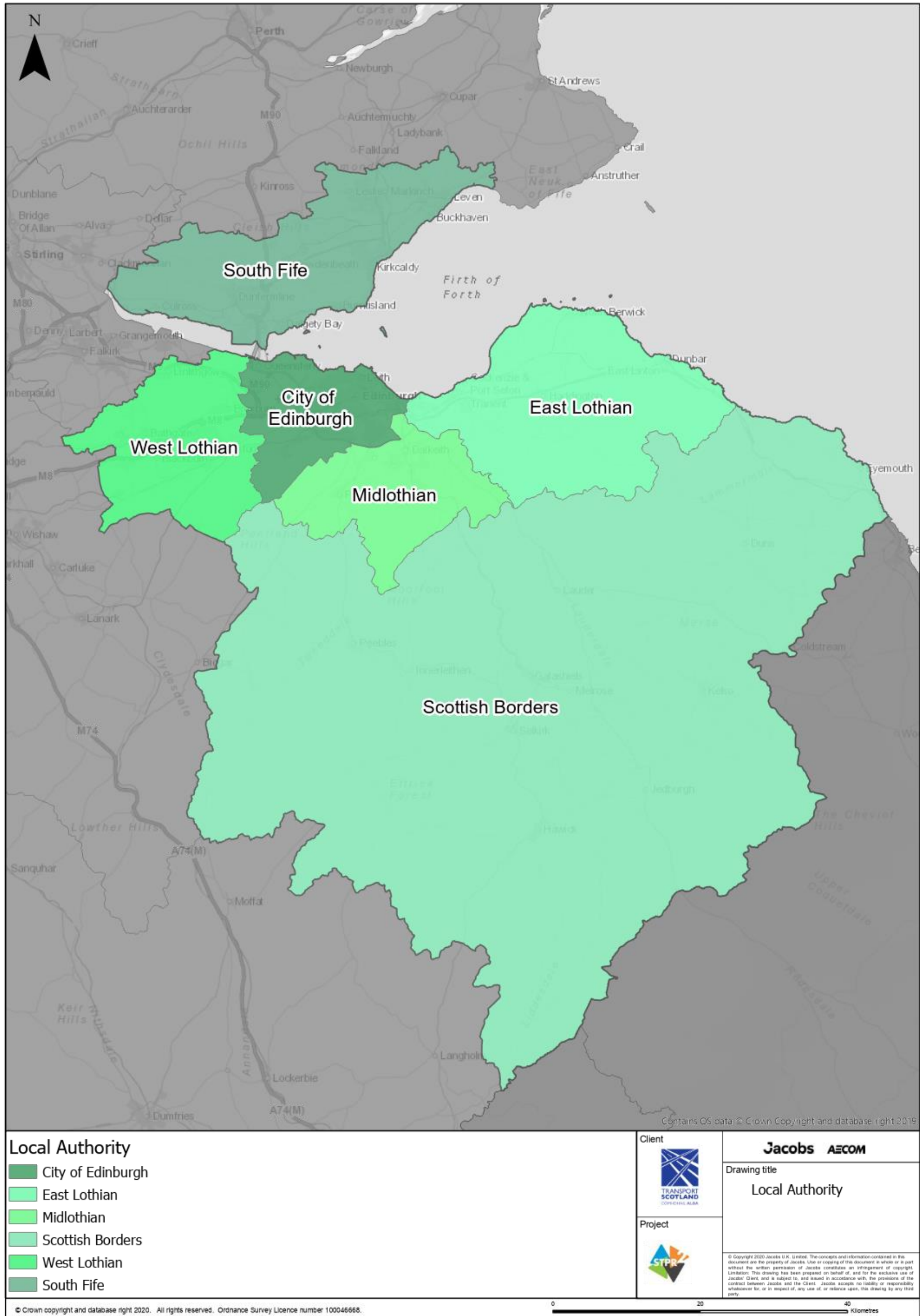


Figure 1: Edinburgh and South East Scotland (ESES) Study Area (Click image to go back to main report)

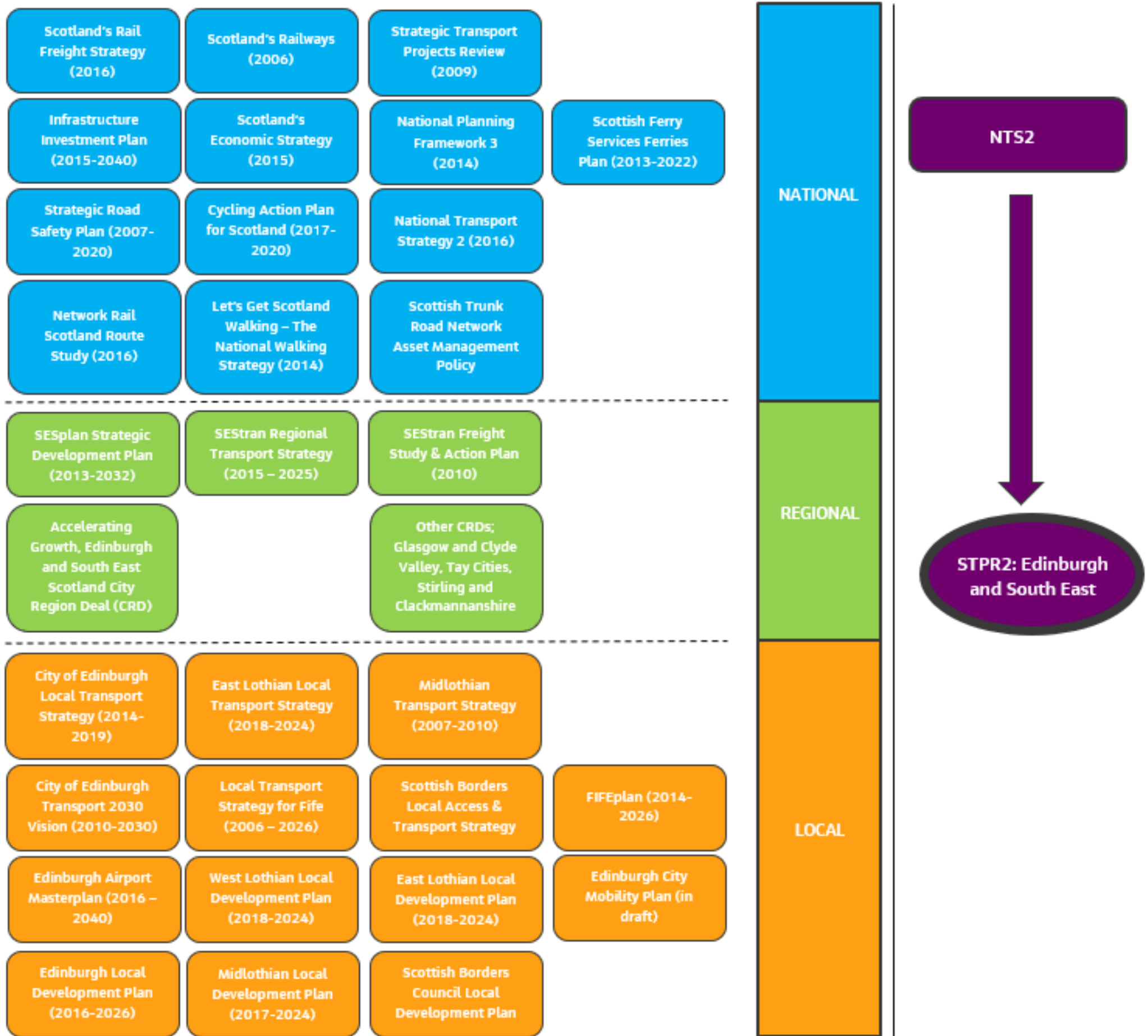


Figure 3: ESES Region Policy Review (Click image to go back to main report)



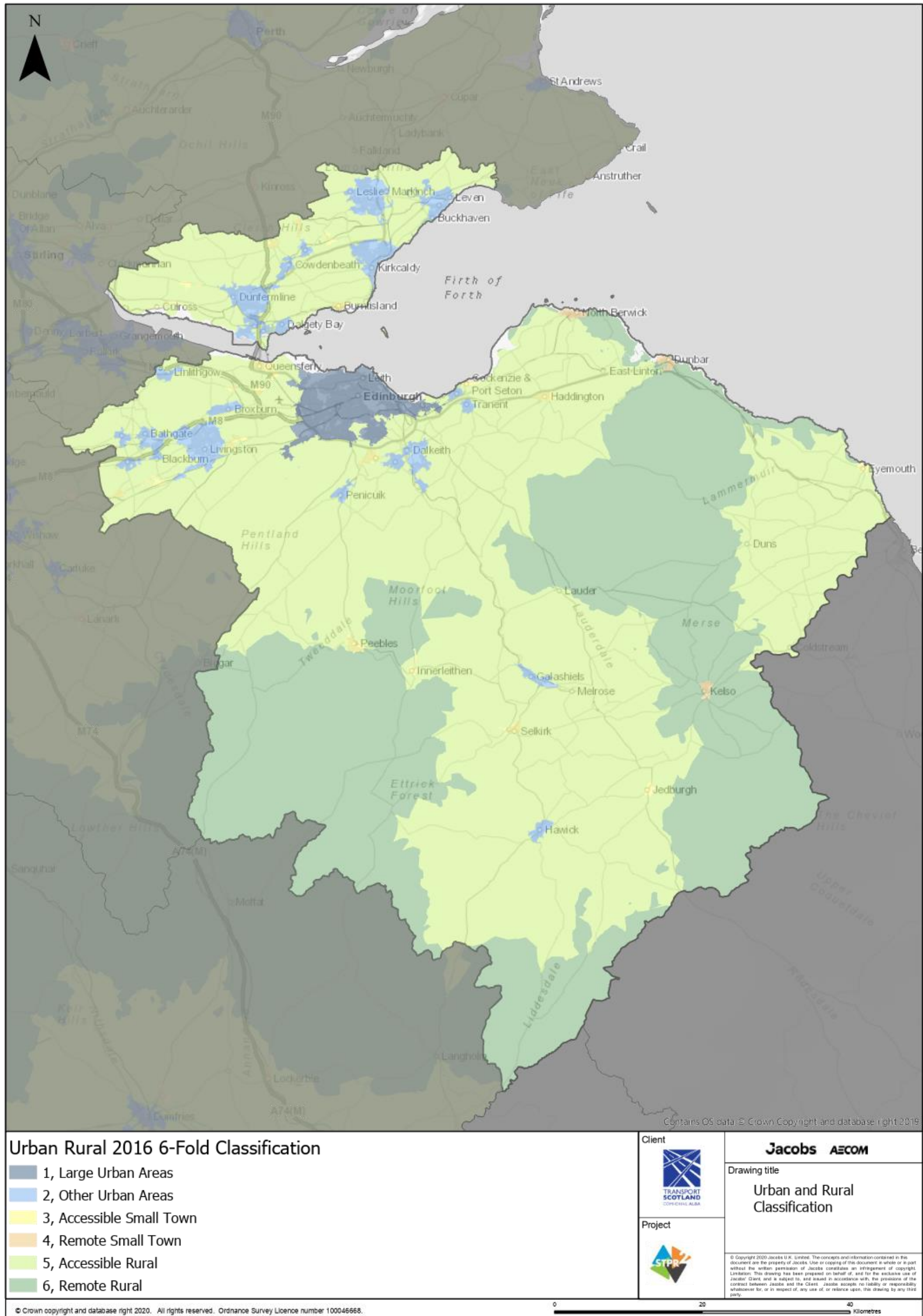


Figure 4: ESES Region Scottish Government Urban Rural Classification 2016 (Click image to go back to main report)

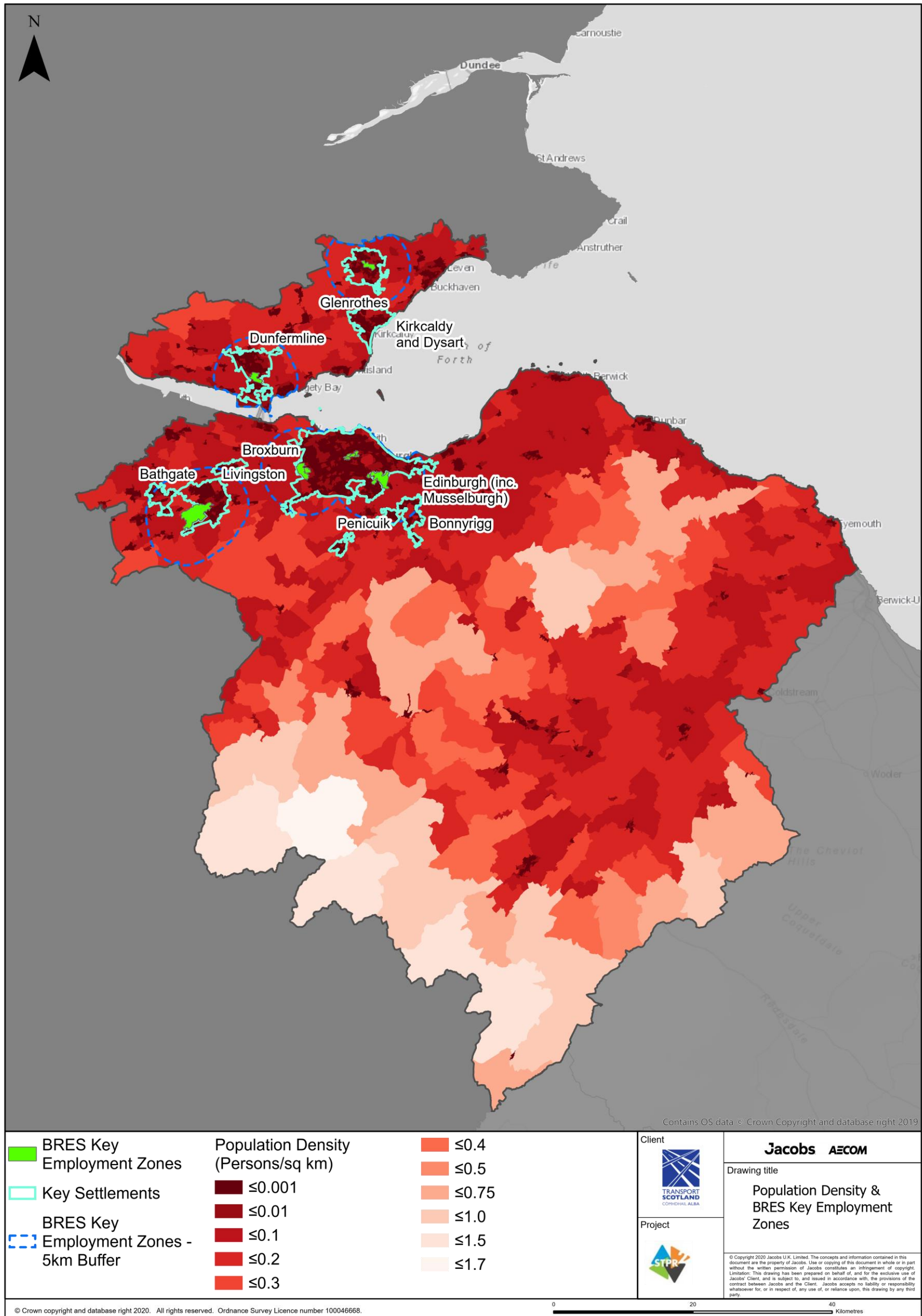


Figure 10: Population Density and BRES Key Employment centres within the ESES region (Click image to go back to main report)



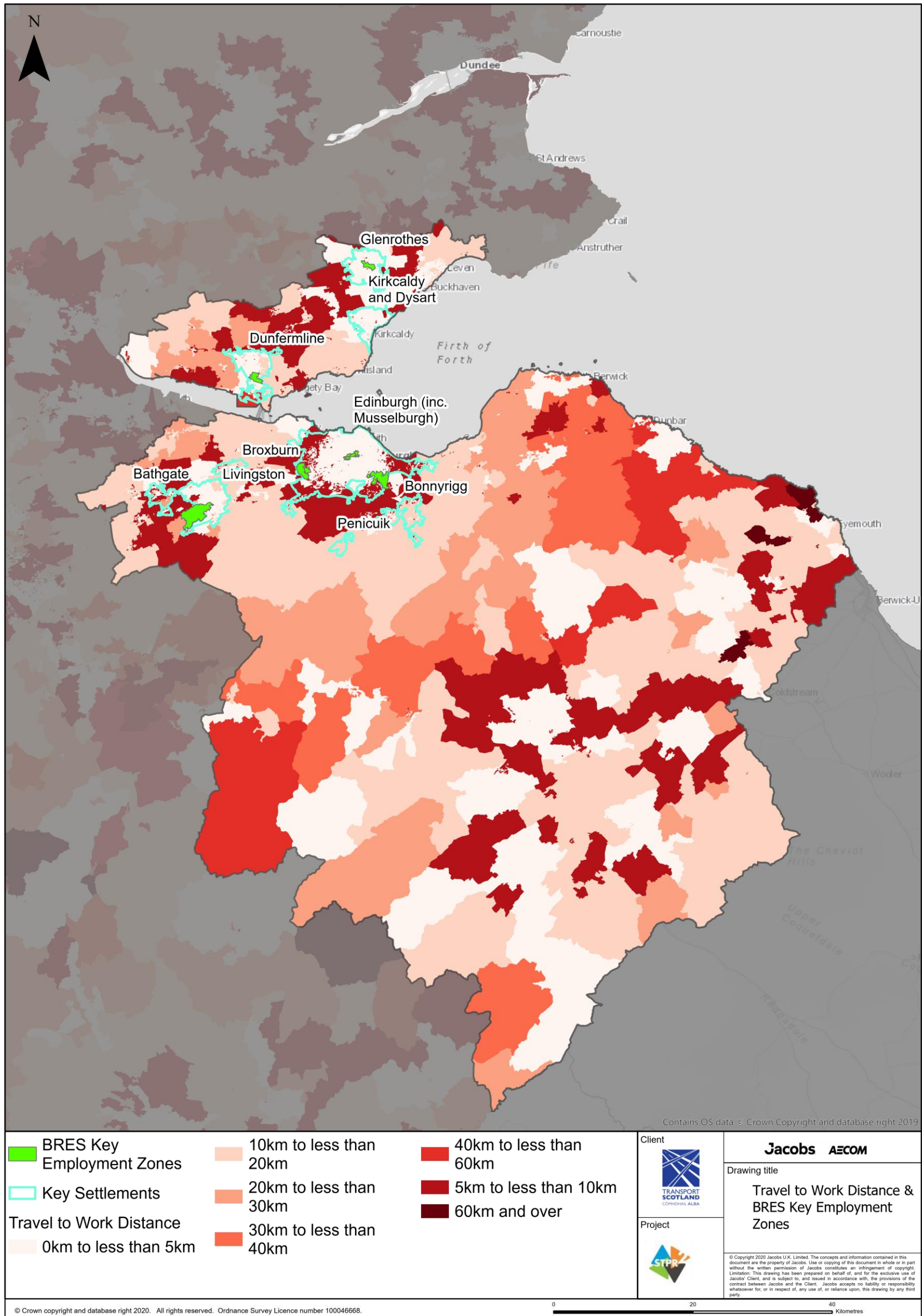


Figure 11: BRES Key Employment Centres and Travel to Work Distances (Click image to go back to main report)



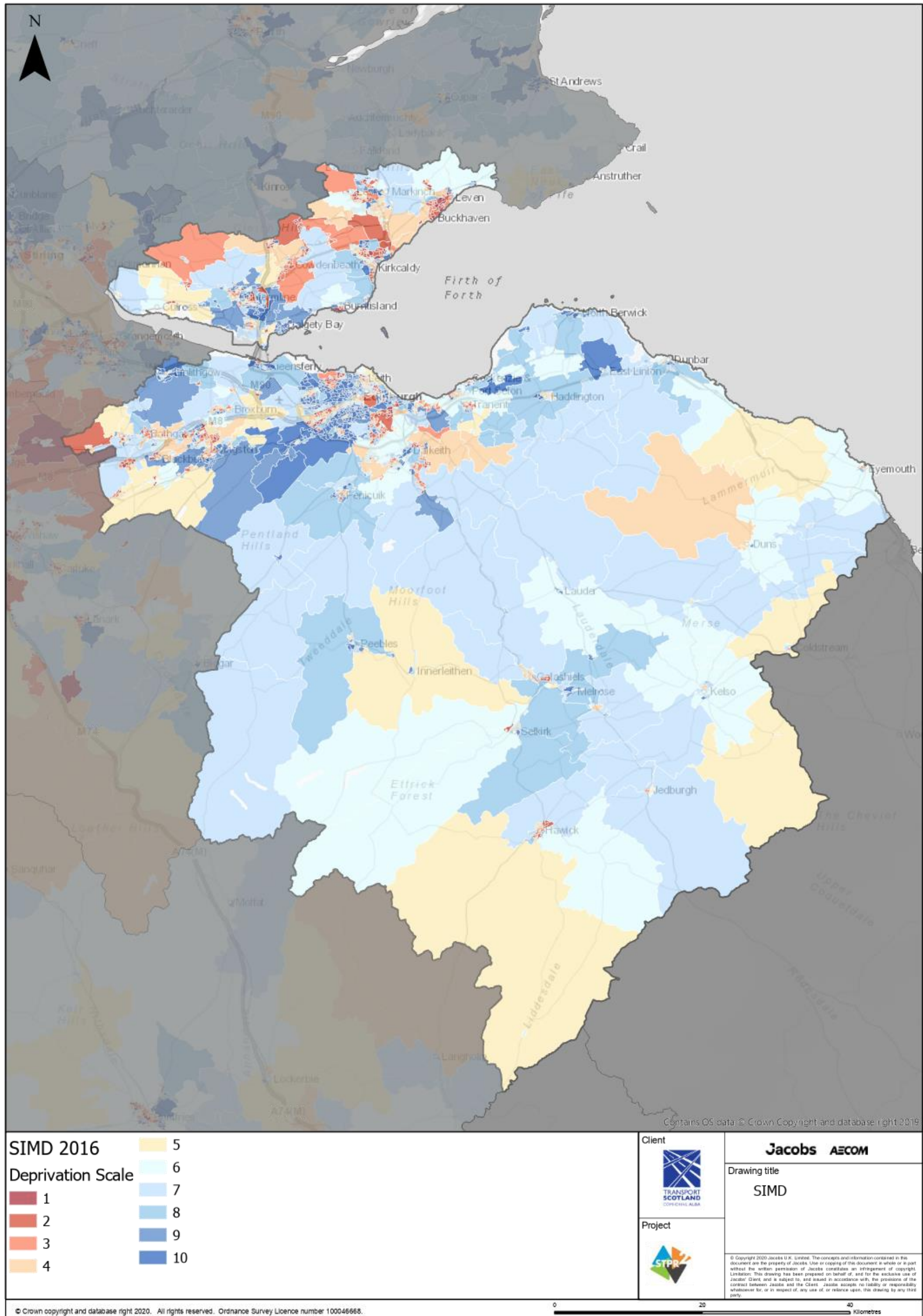


Figure 13: Scottish Index of Multiple Deprivation (SIMD) 2016 (Click image to go back to main report)



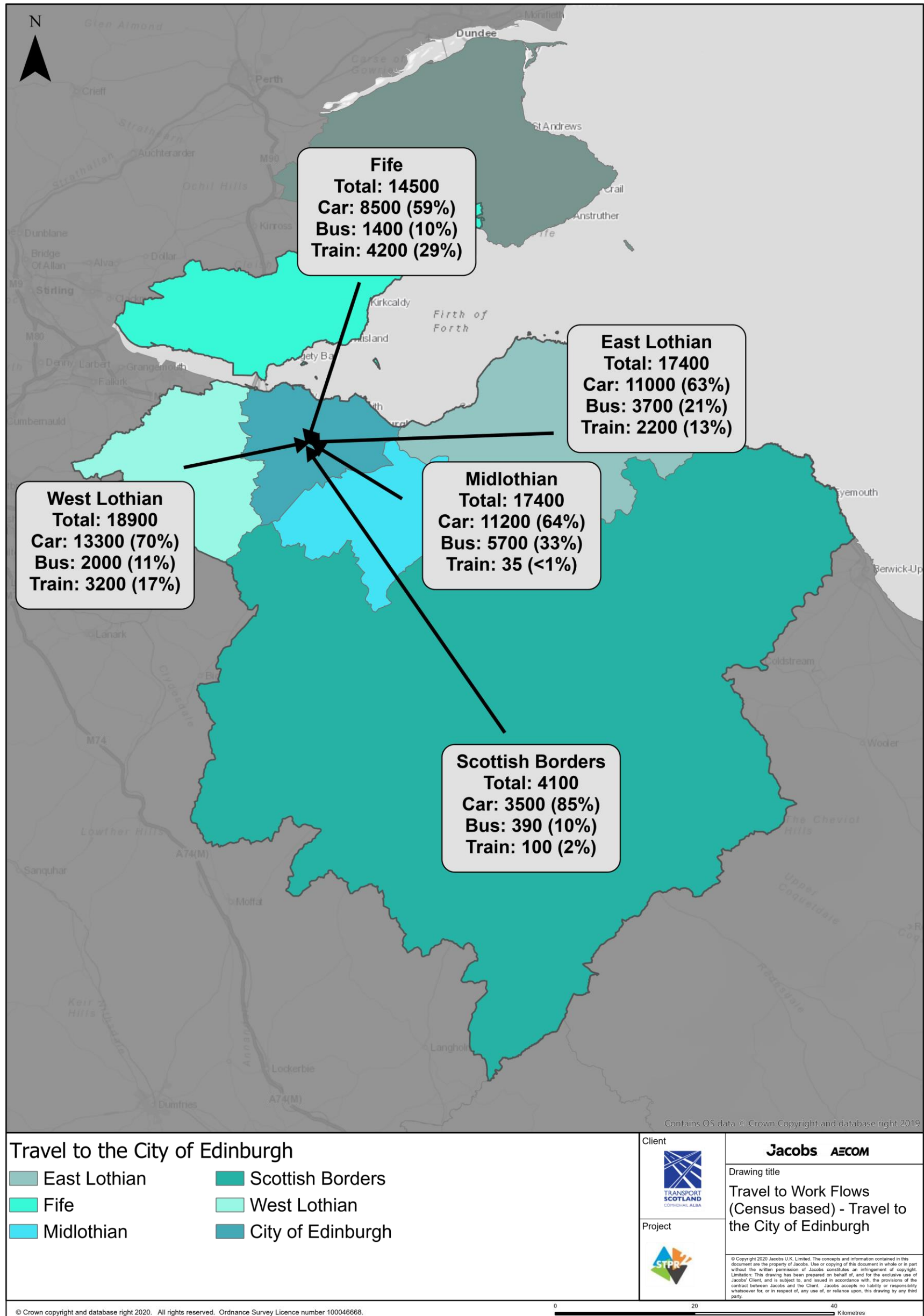


Figure 17: Census based Origin/Destination daily travel to work flows – Travel to the City of Edinburgh (Click image to go back to main report)

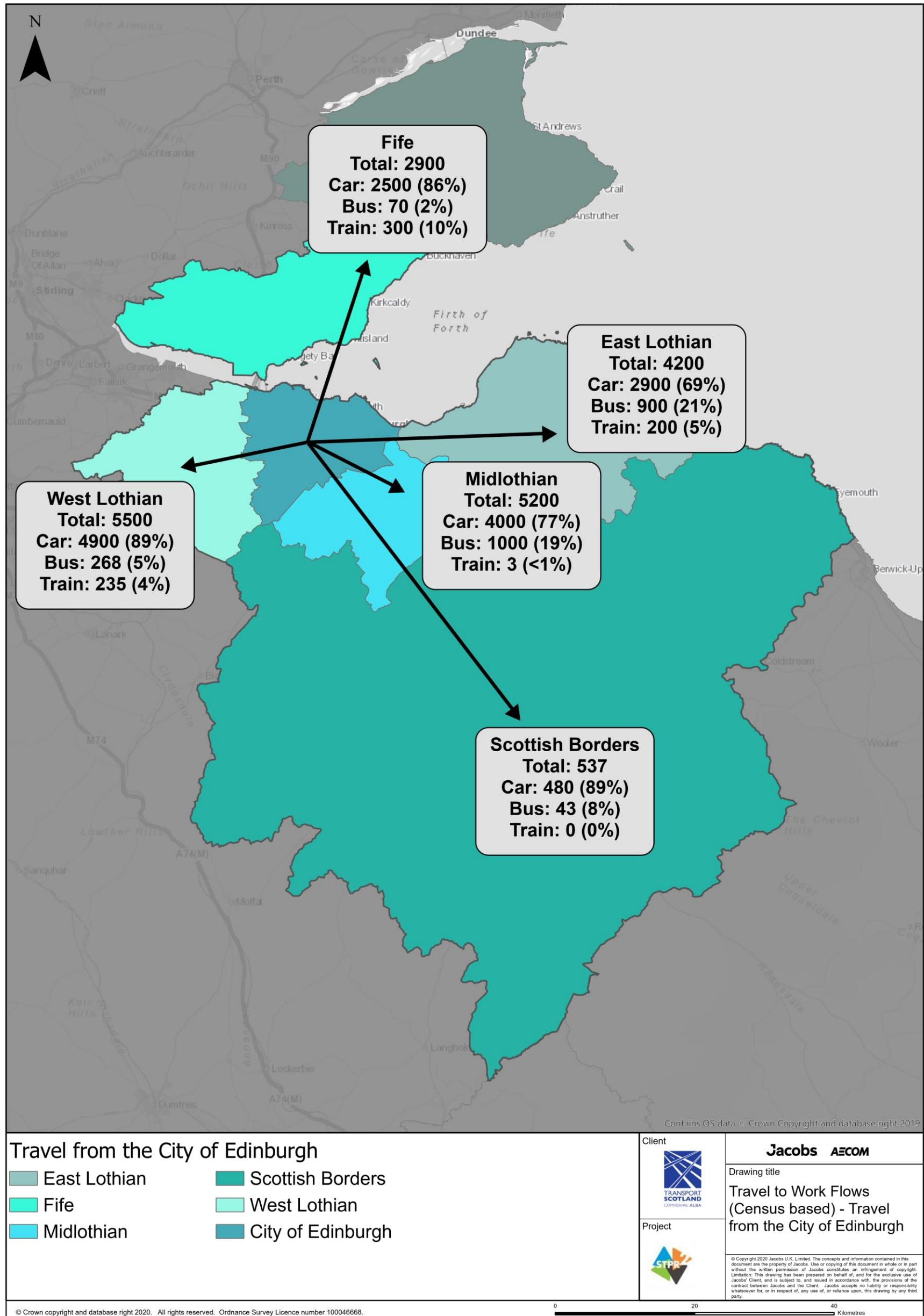


Figure 18: Census based Origin/Destination daily travel to work flows – Travel from the City of Edinburgh (Click image to go back to main report)



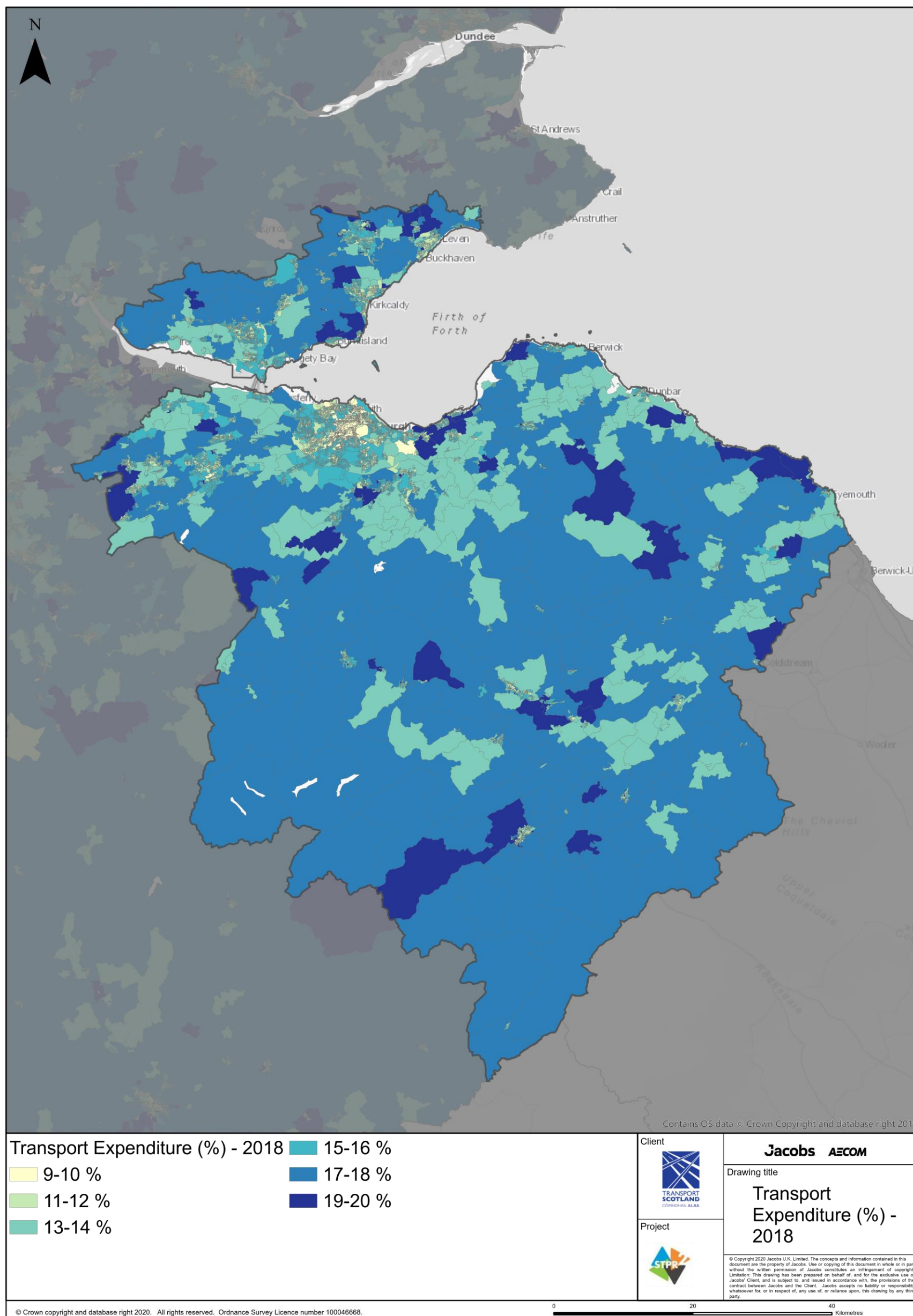


Figure 19: Transport Expenditure as a proportion of household income (Click image to go back to main report)



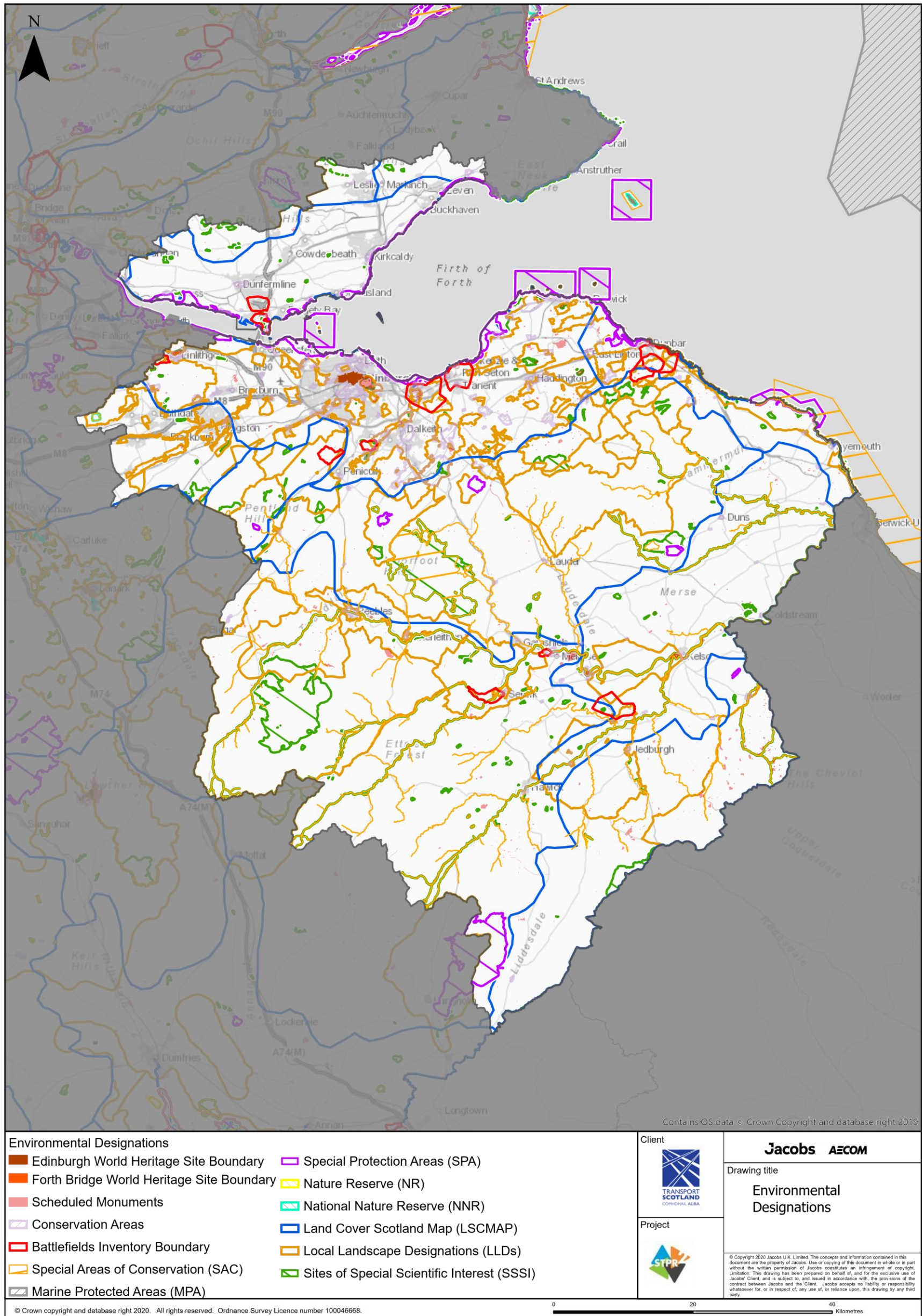


Figure 20: Land designated as protected or managed within the ESES region (Click image to go back to main report)



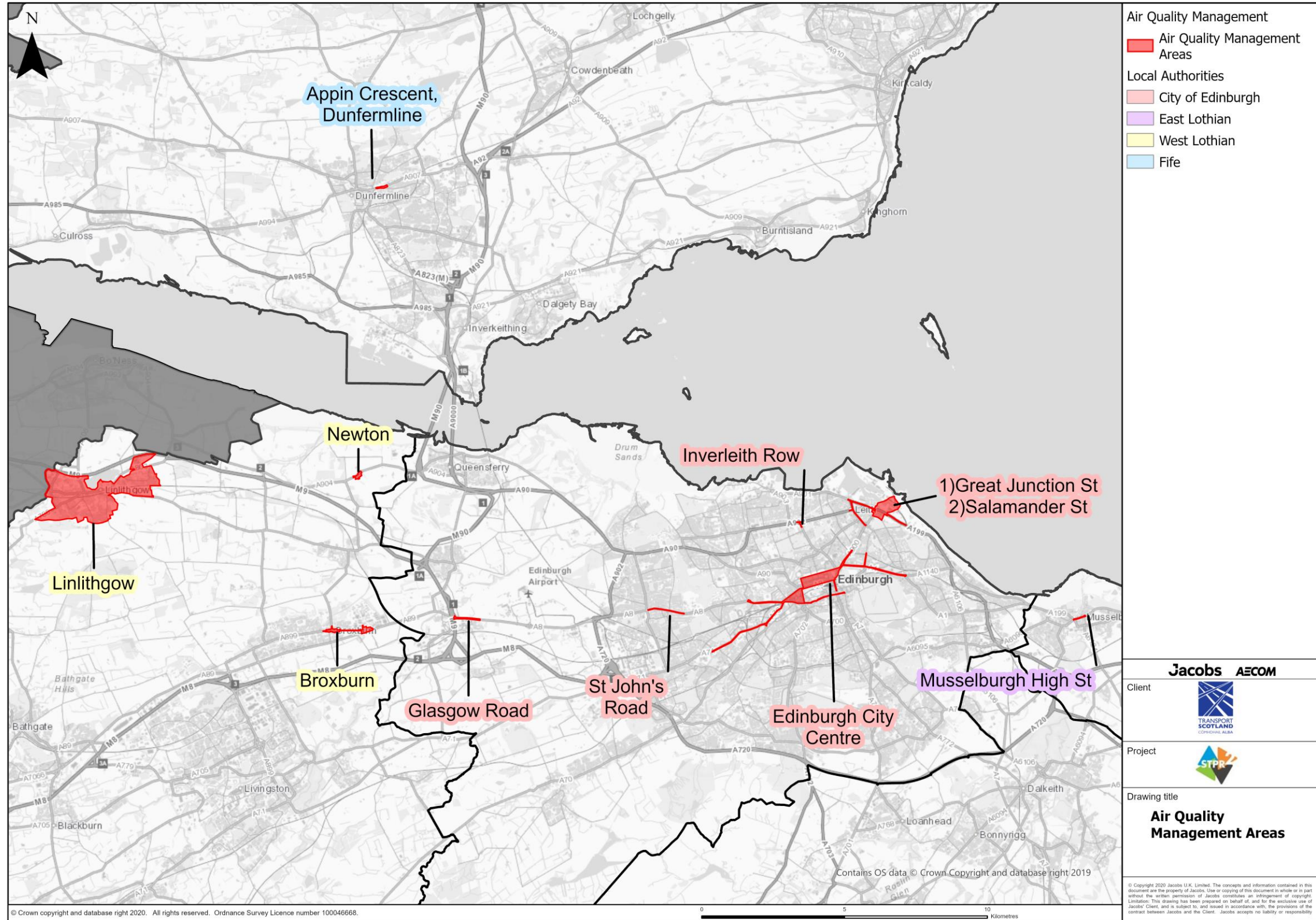


Figure 24: AQMA's in the ESES Region (Click image to go back to main report)



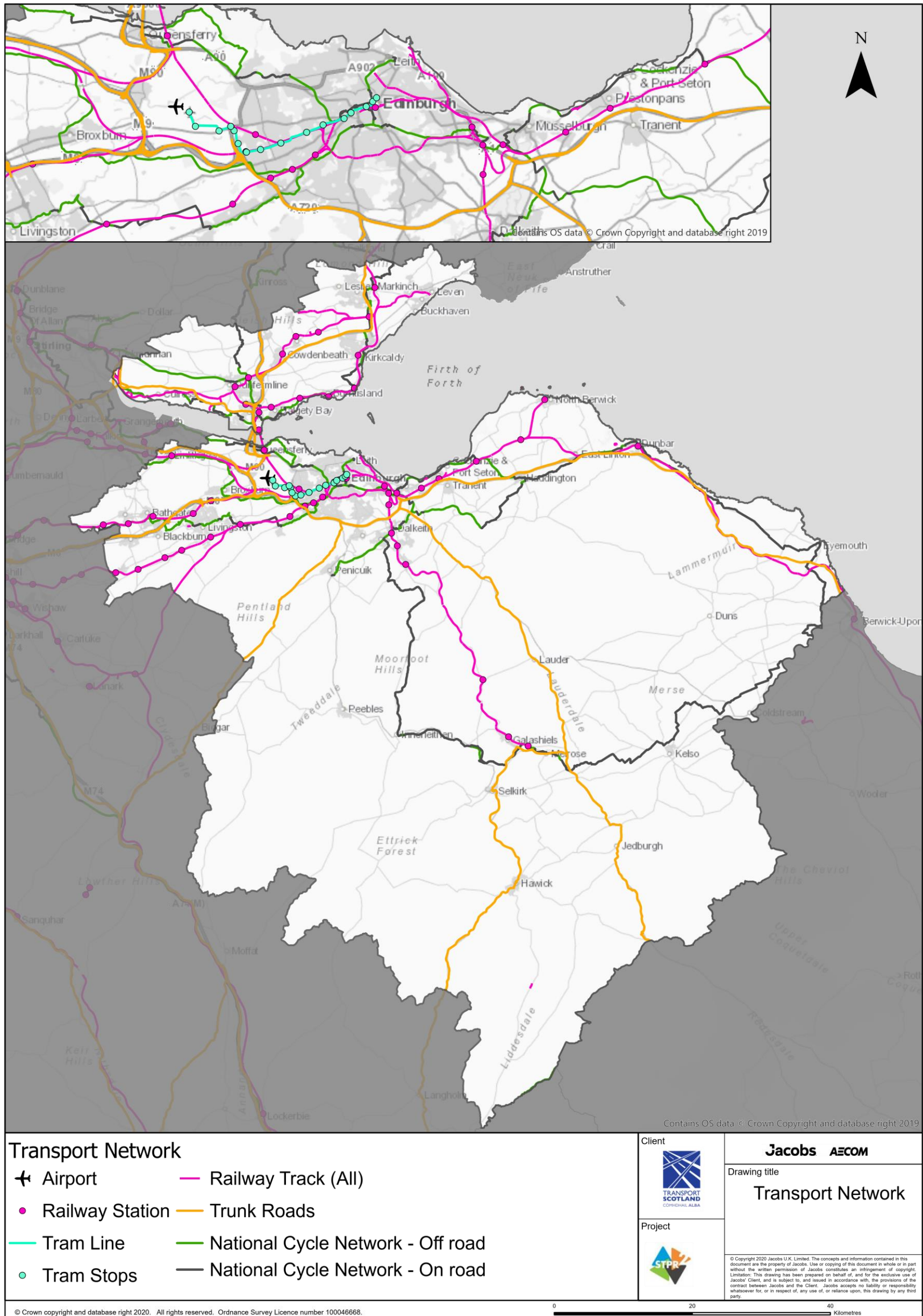


Figure 25: ESES Transport Network (Click image to go back to main report)



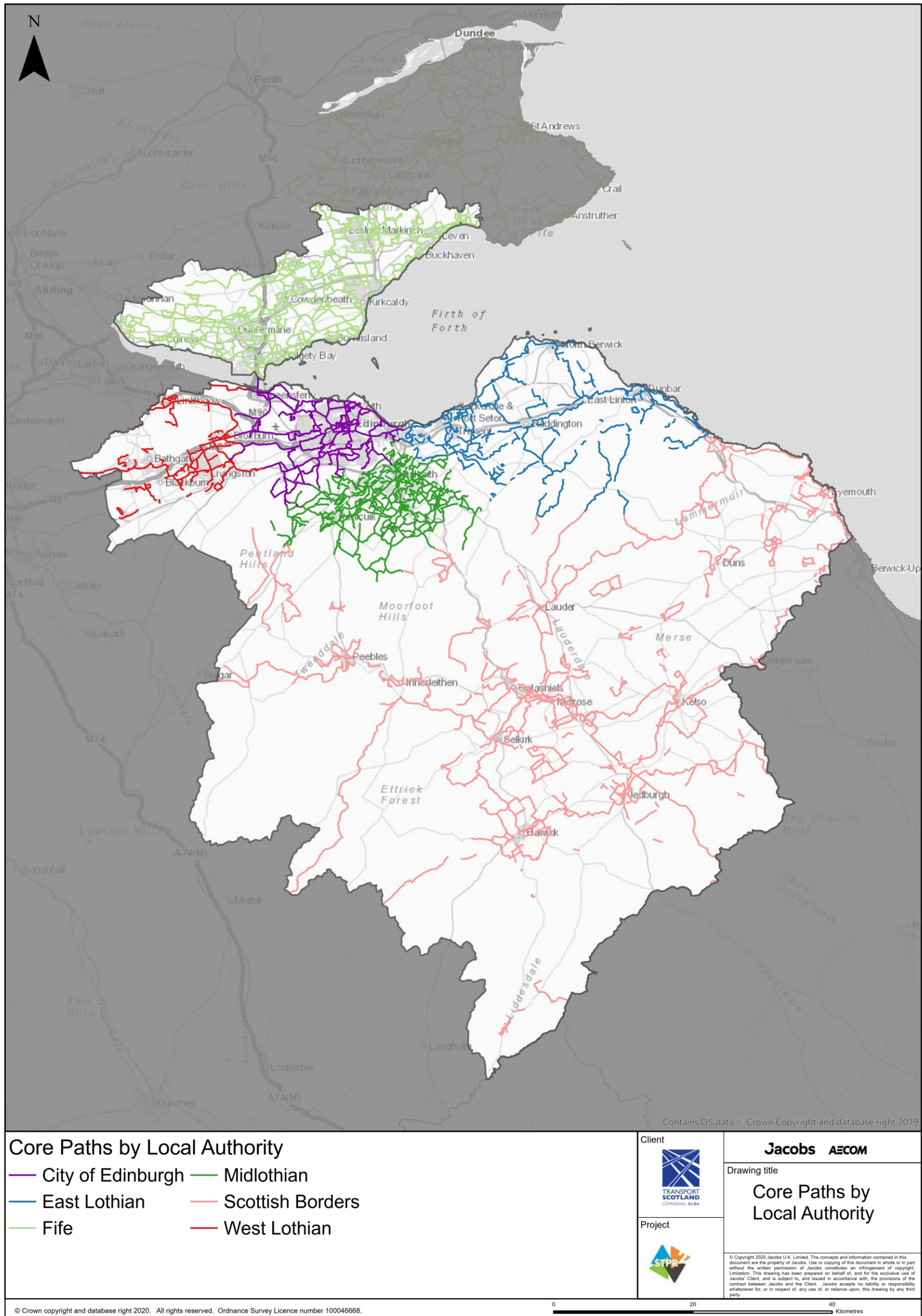


Figure 26: Core Paths by Local Authority in the ESES Region (Click image to go back to main report)

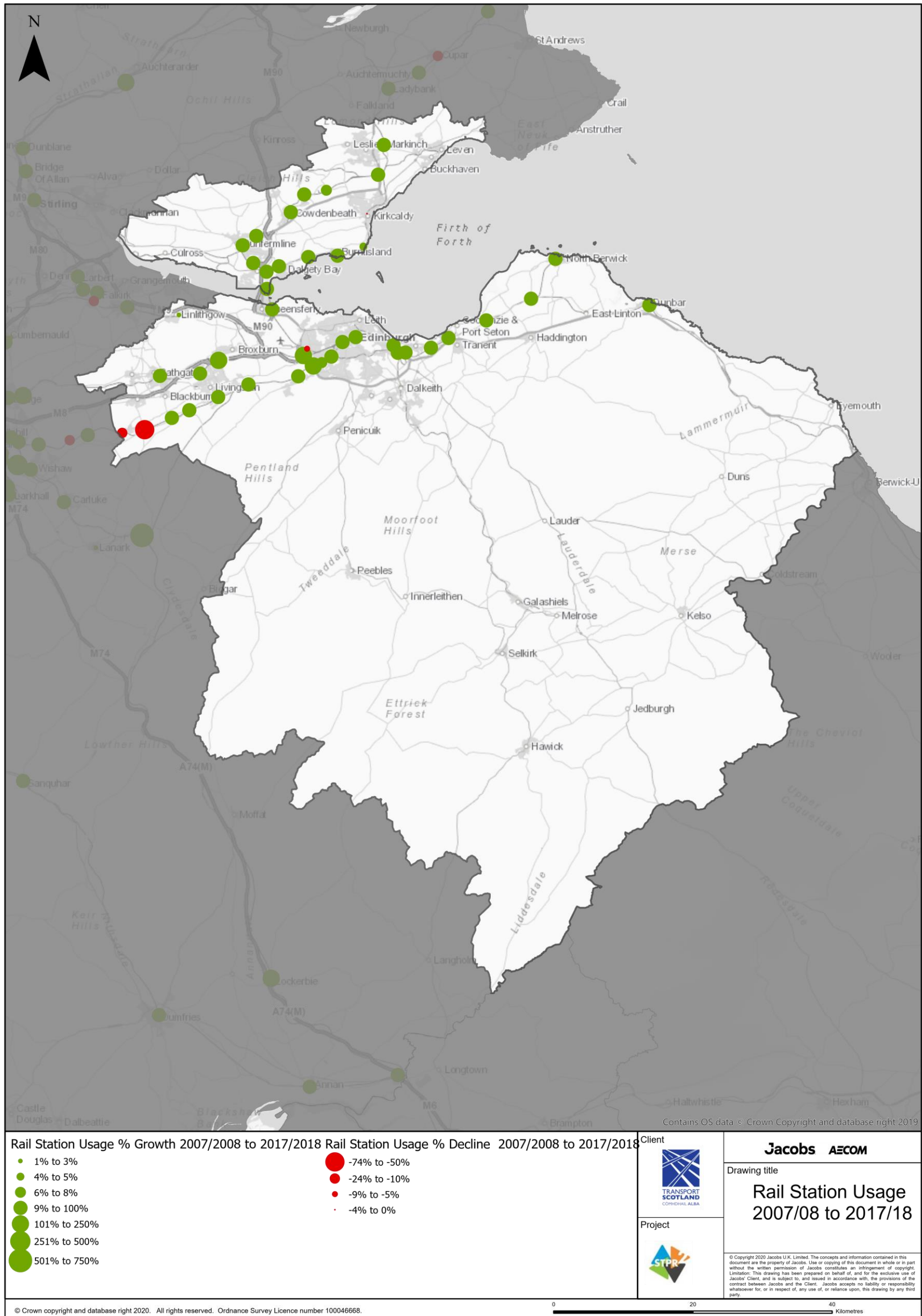


Figure 28: Change in Rail Station Patronage 2007/2008 to 2017/2018 (Click image to go back to main report)



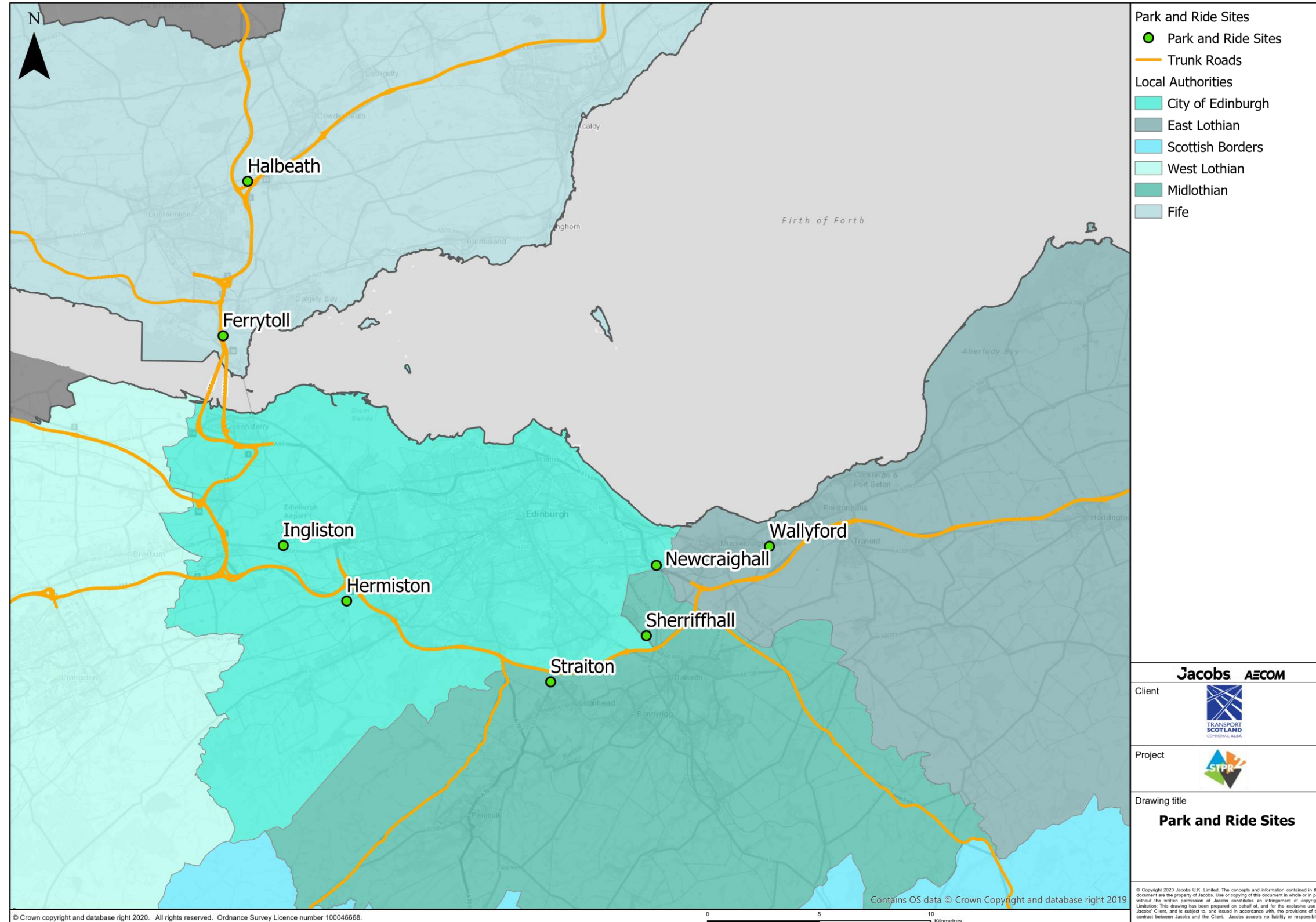


Figure 29: Park and Ride sites within the ESES Region (Click image to go back to main report)

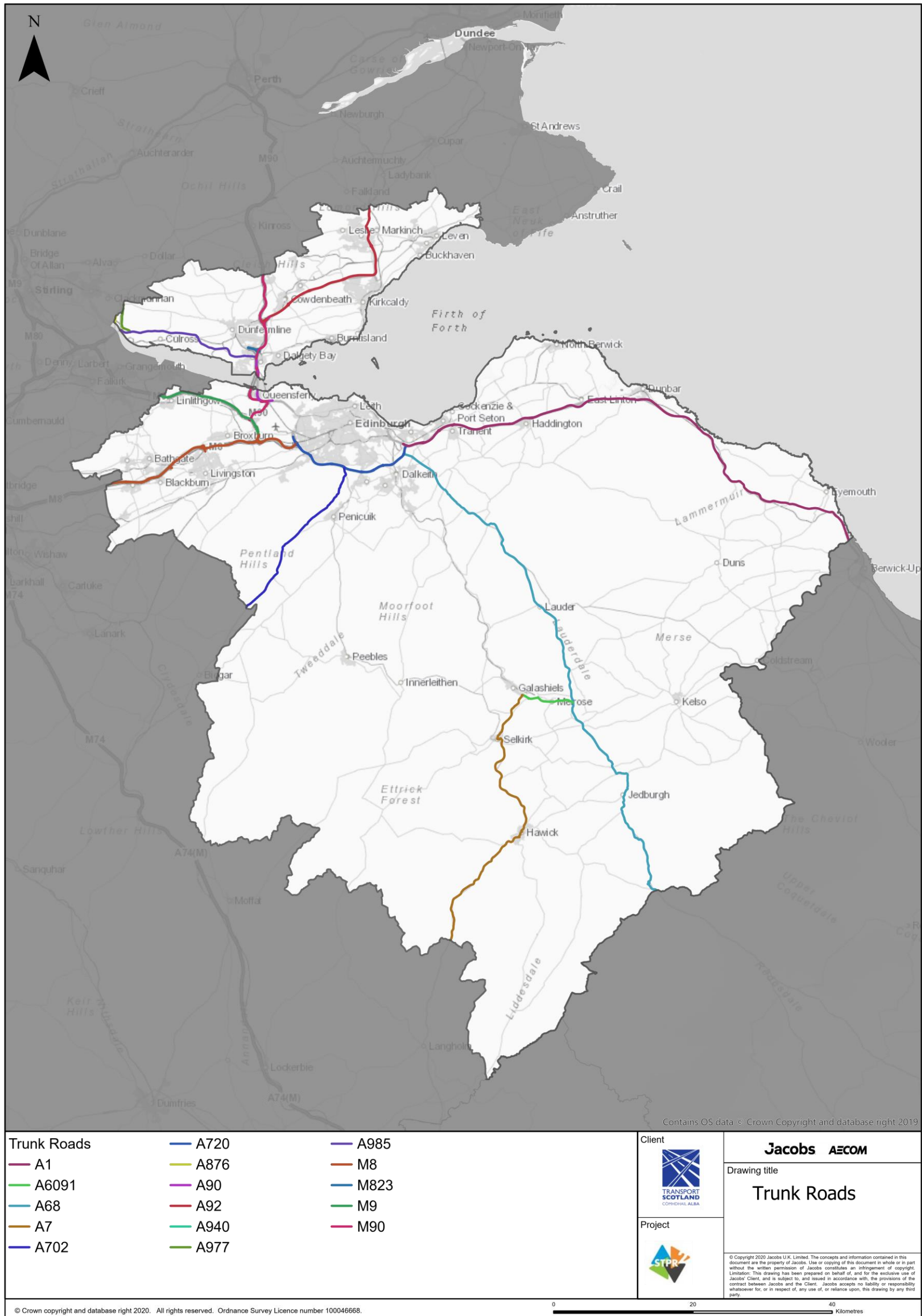


Figure 30: ESES Region Trunk Road Network (Click image to go back to main report)



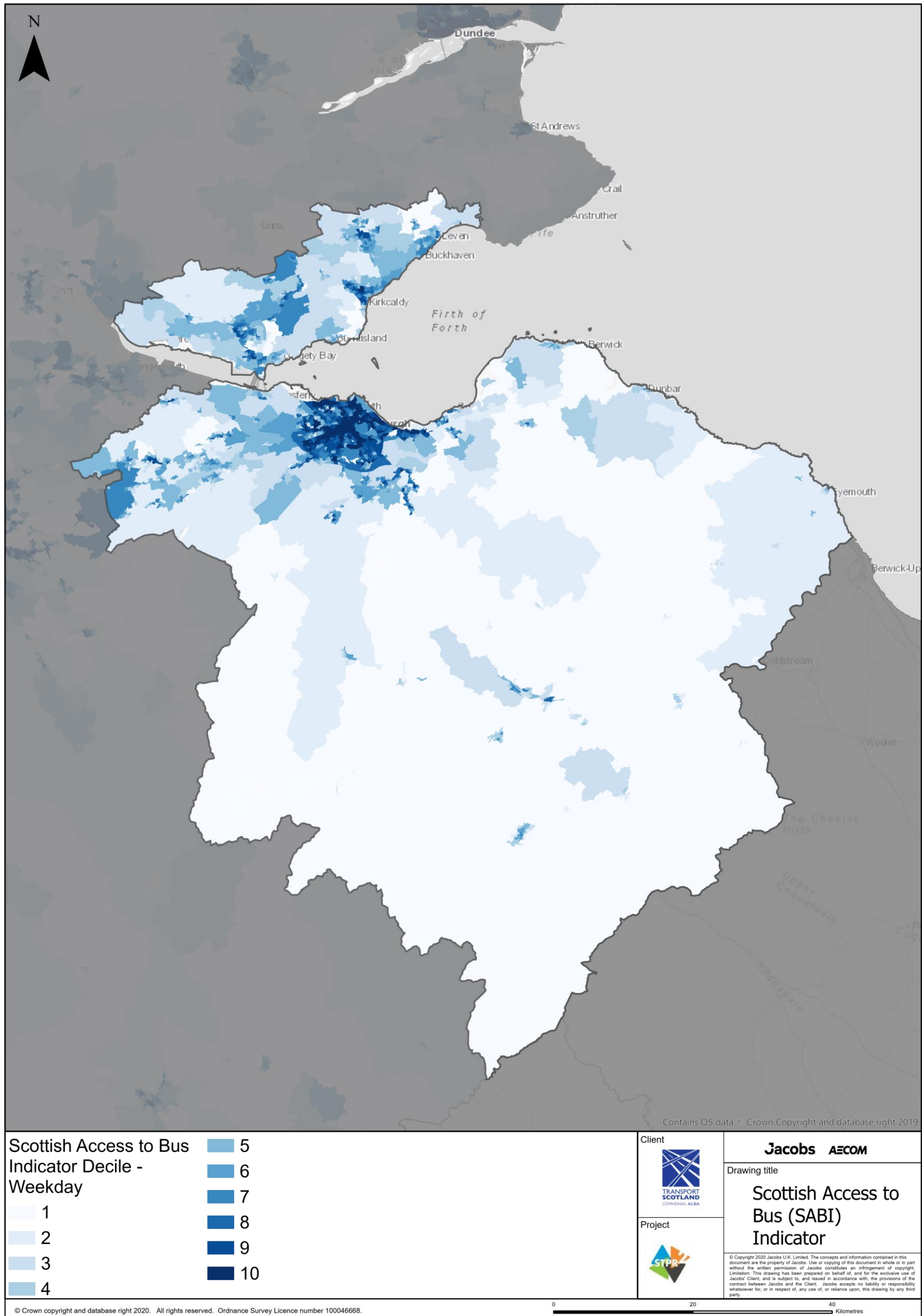


Figure 31: Scottish Access to Bus Indicator Decile (Weekday) (Click image to go back to main report)

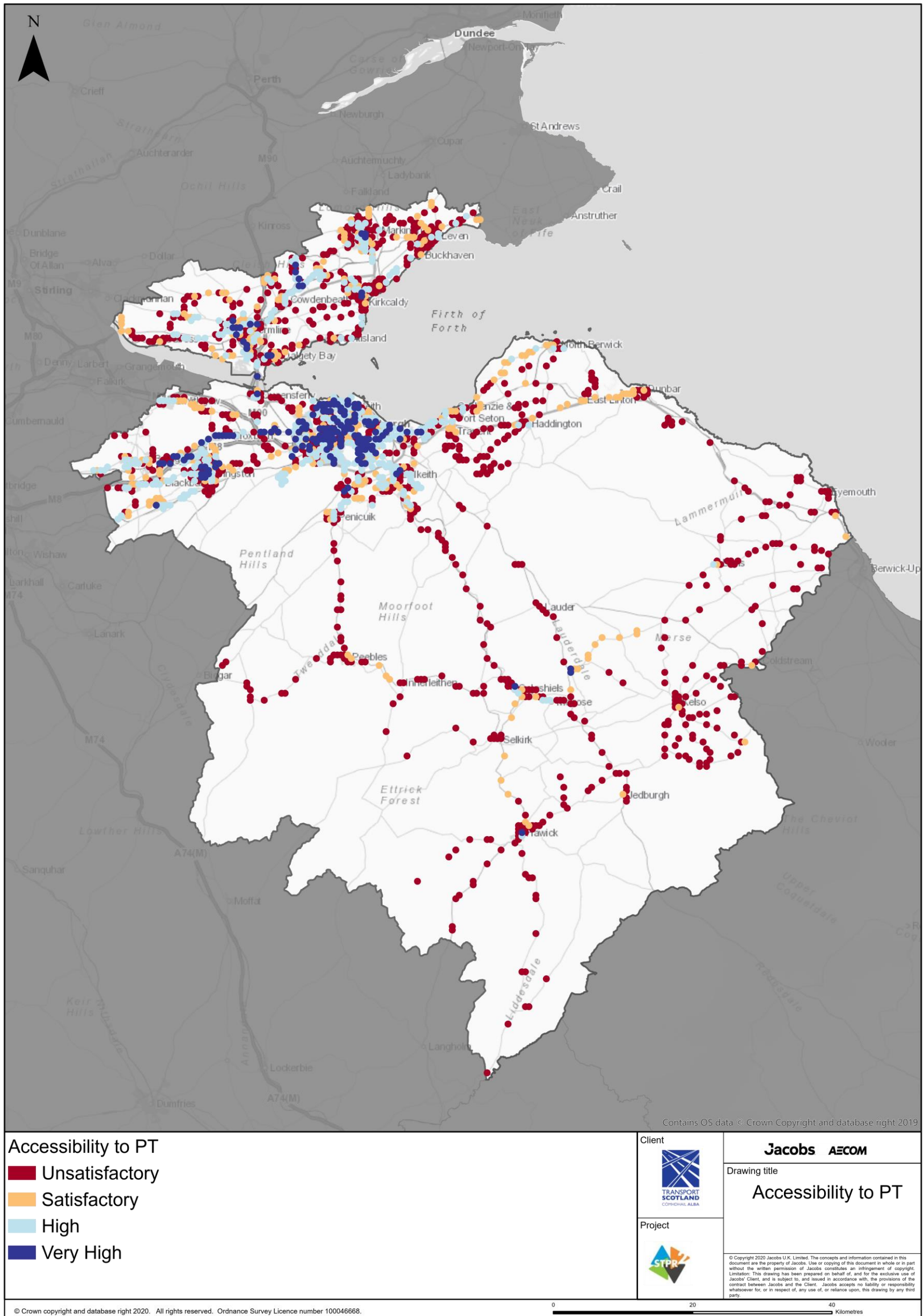


Figure 32: Access to bus/rail based on service frequency (Click image to go back to main report)



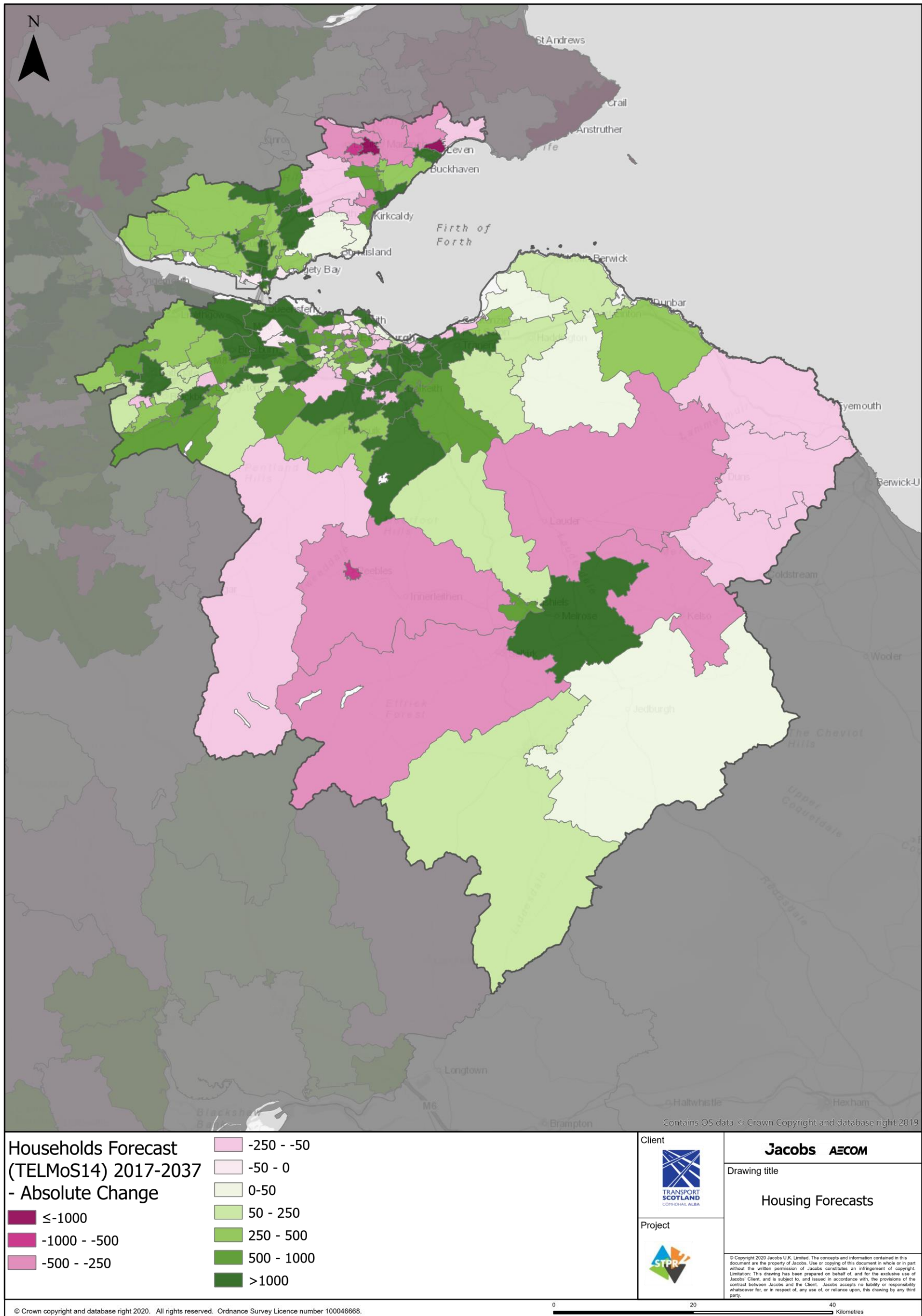


Figure 33: Housing Forecasts (TELMoS14) 2017-2037 (Click image to go back to main report)

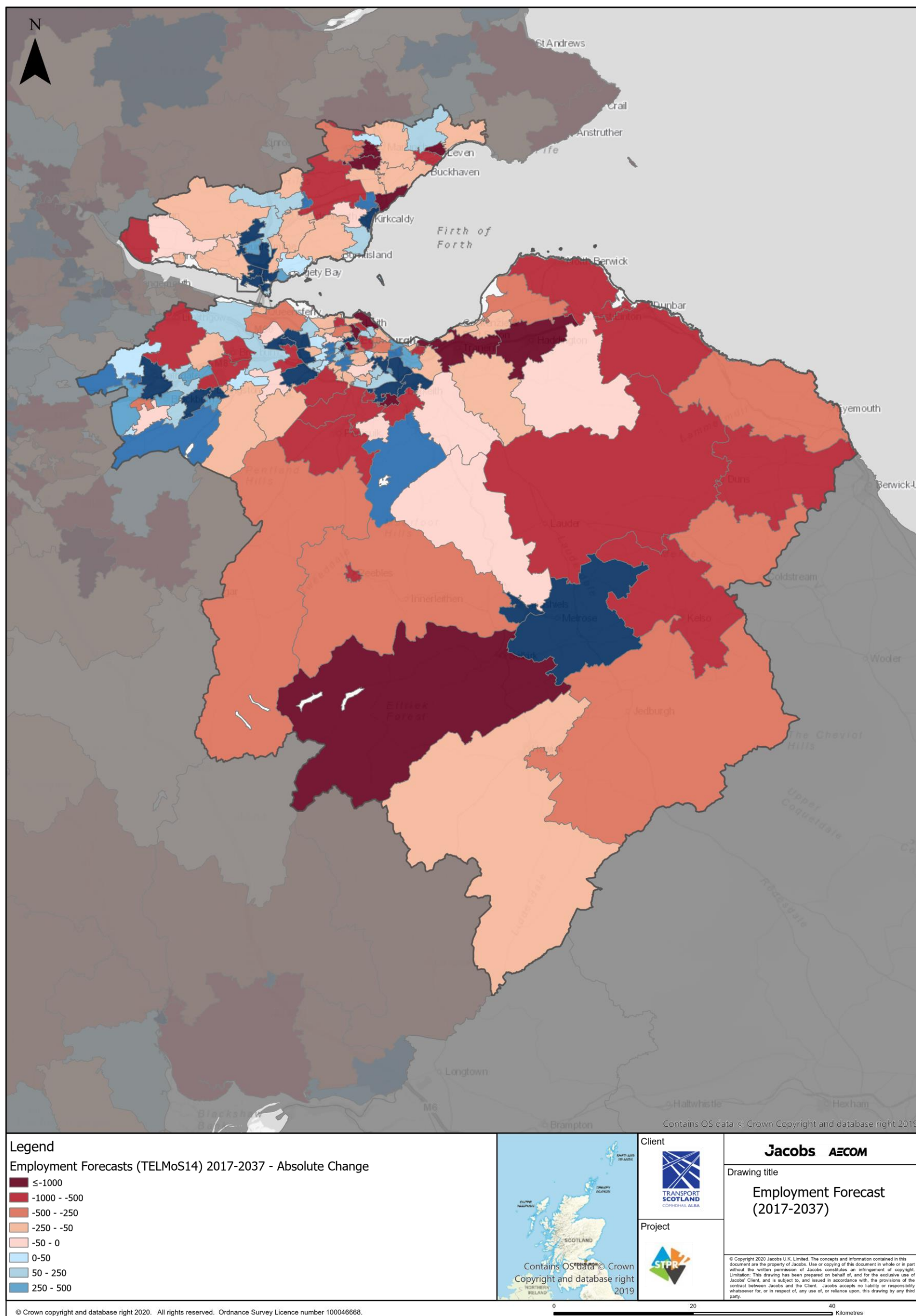


Figure 34: Employment Forecasts (TELMoS14) 2017-2037 (Click image to go back to main report)



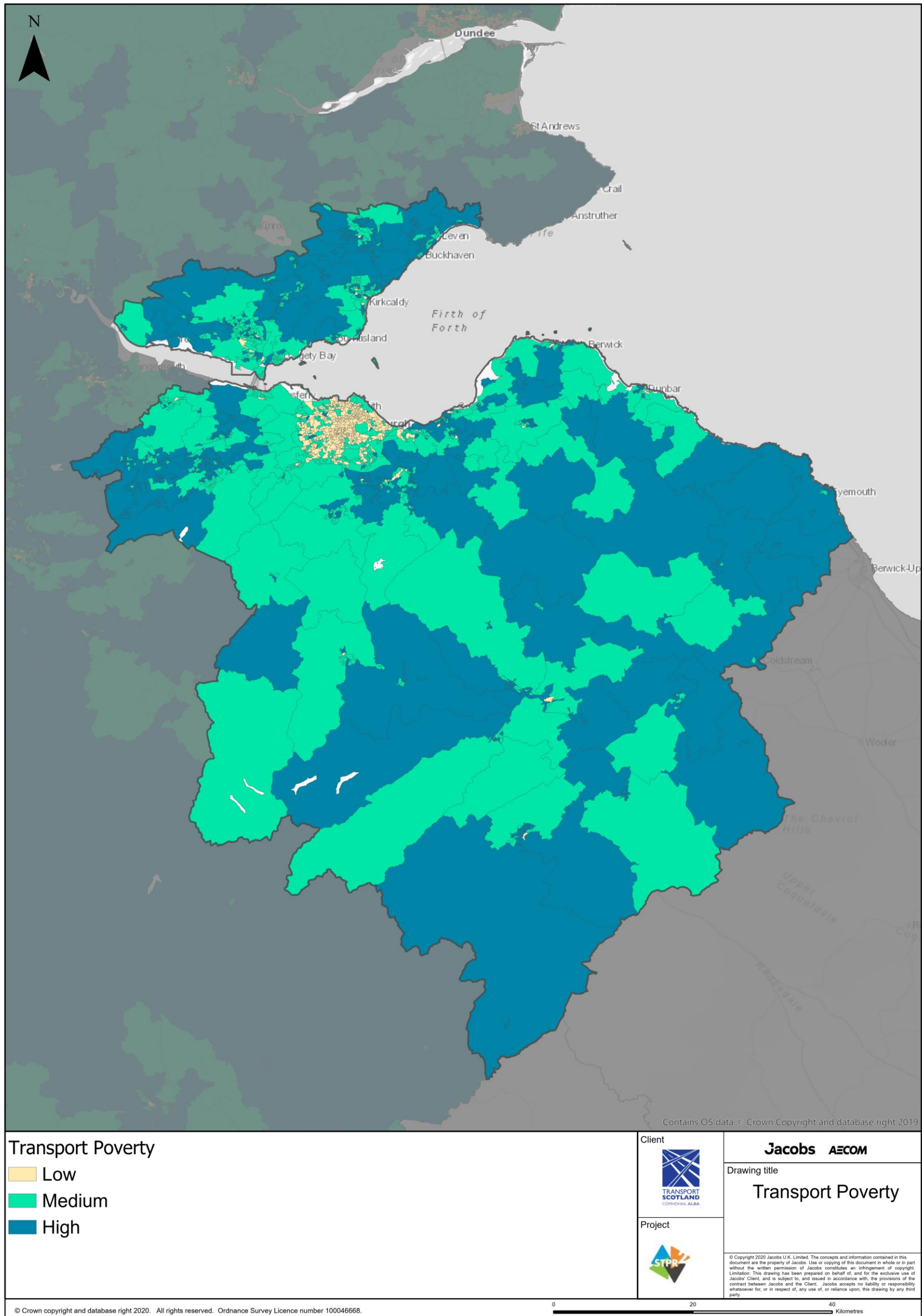


Figure 35: Transport Poverty (Click image to go back to main report)

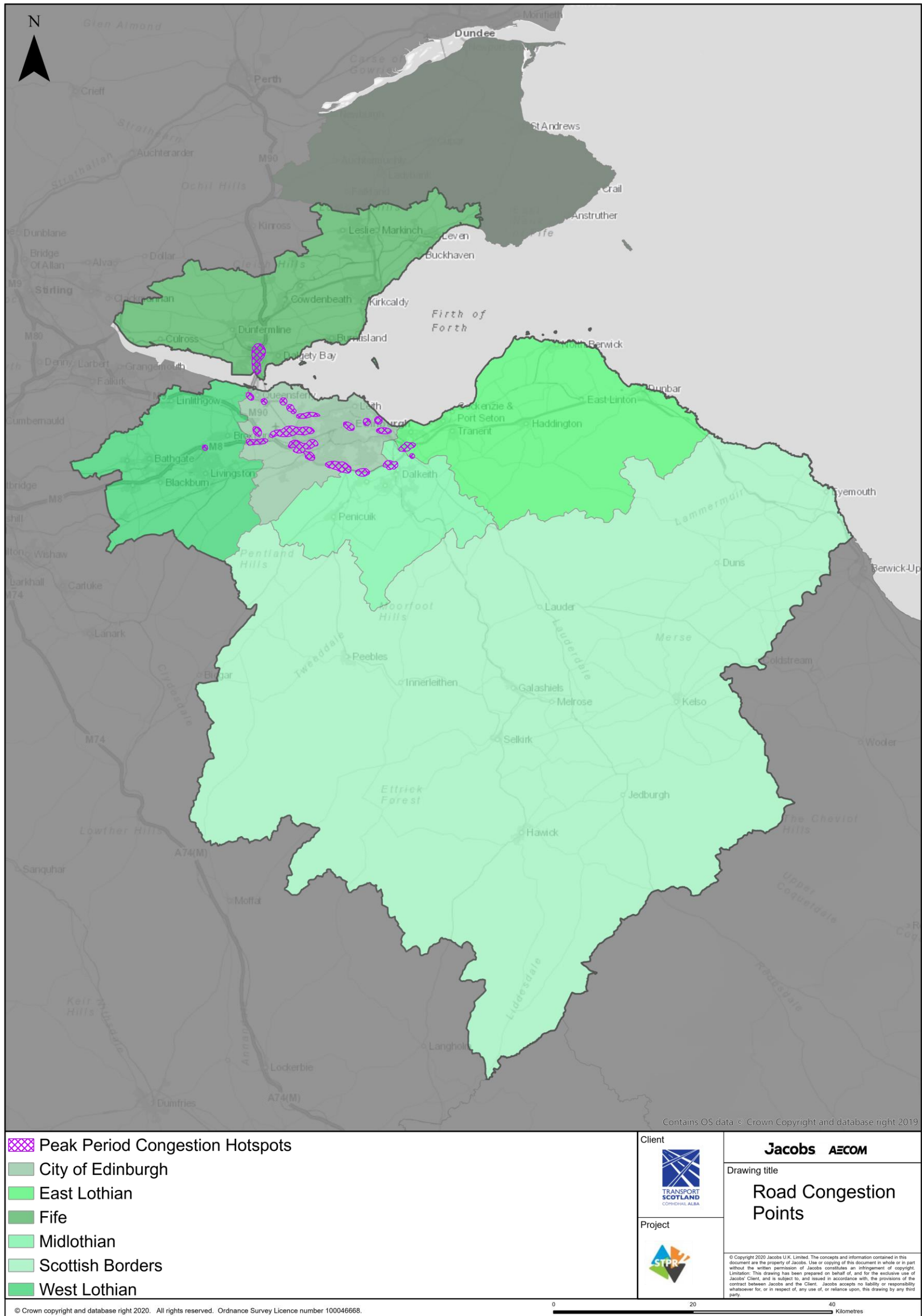


Figure 36: Road Congestion Points (Volume to capacity ratio>1) (Click image to go back to main report)



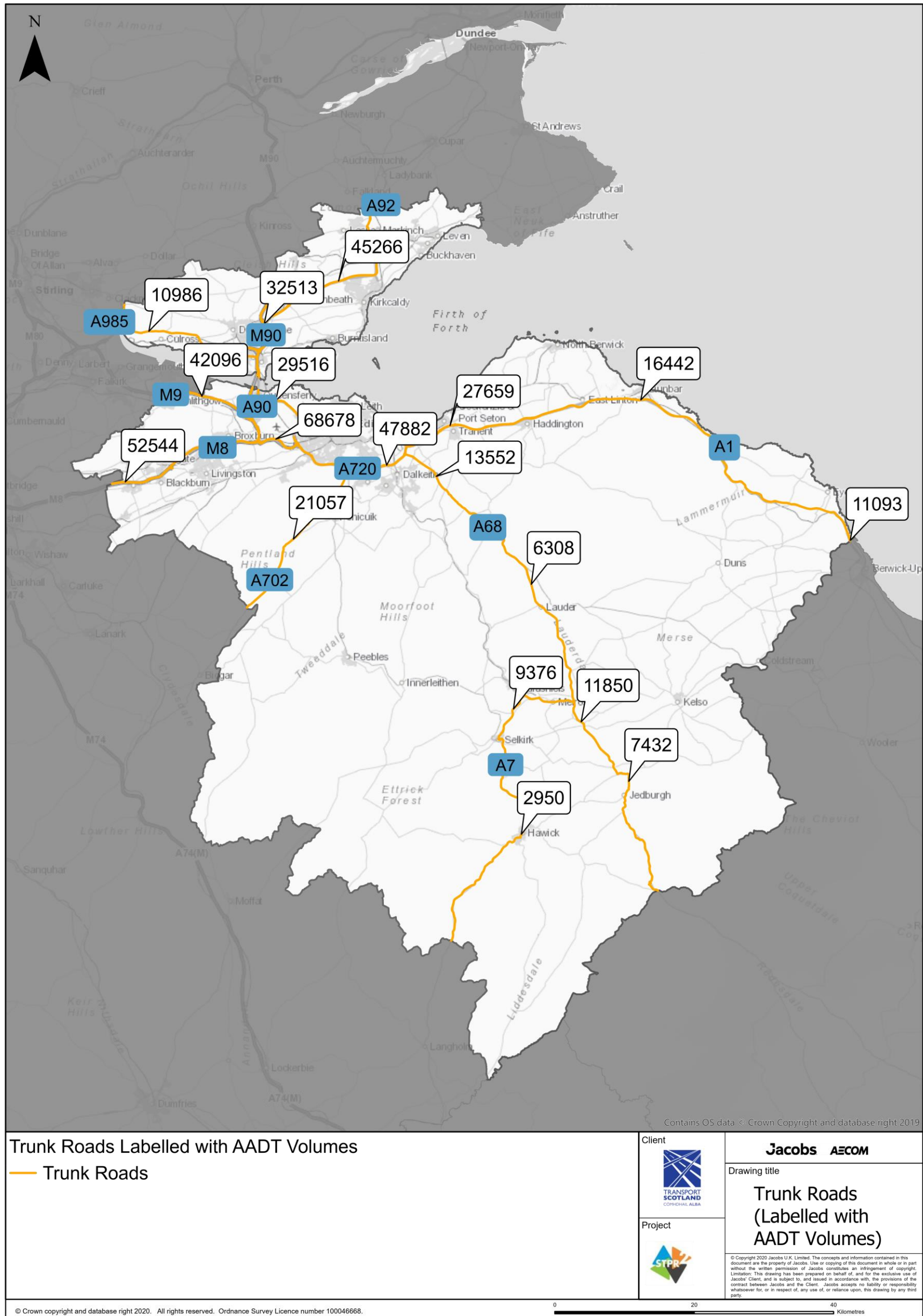


Figure 37: Trunk Road AADT Volumes (Click image to go back to main report)

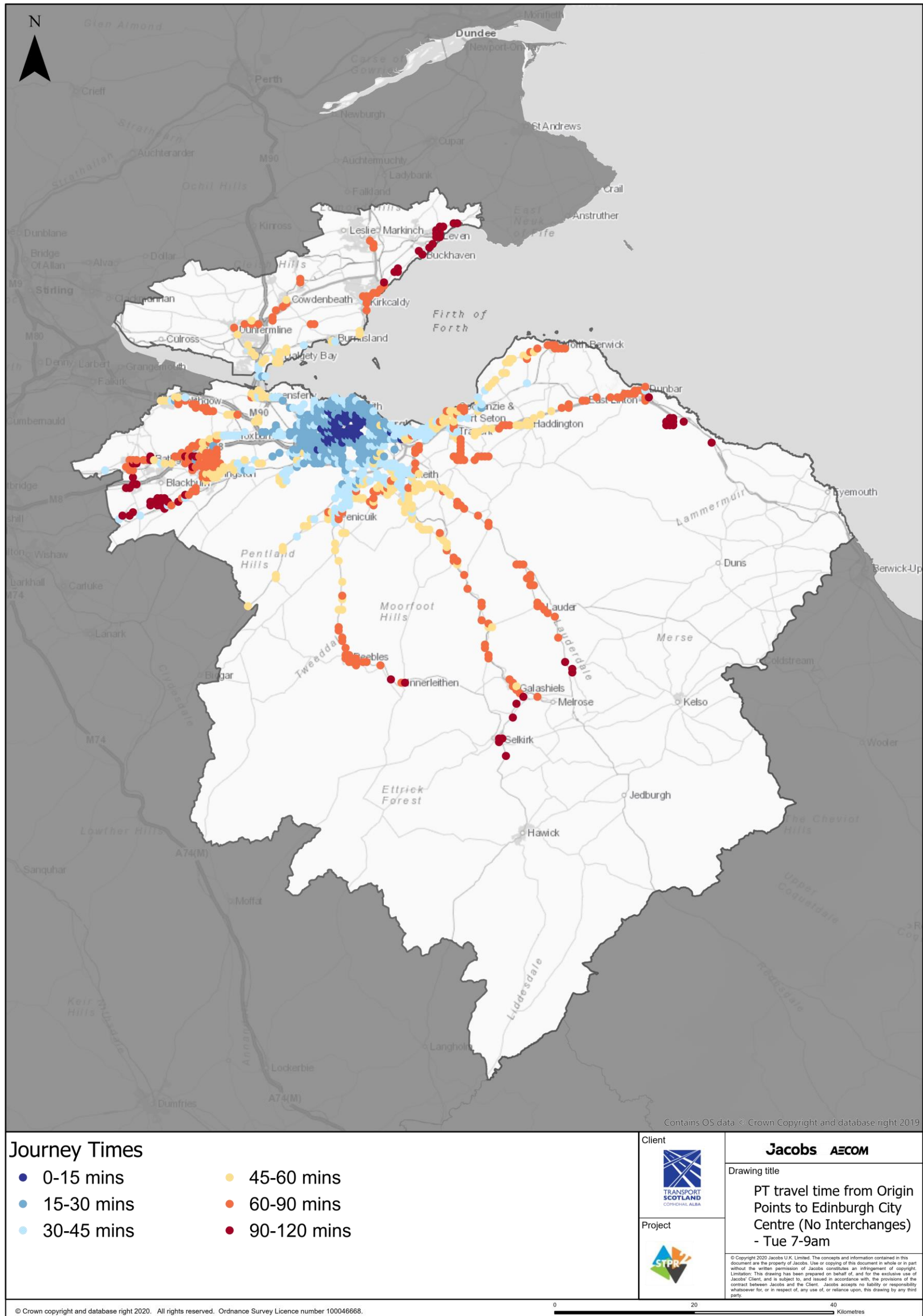


Figure 40: Public Transport Access to Edinburgh City Centre with No Interchanges (Click image to go back to main report)



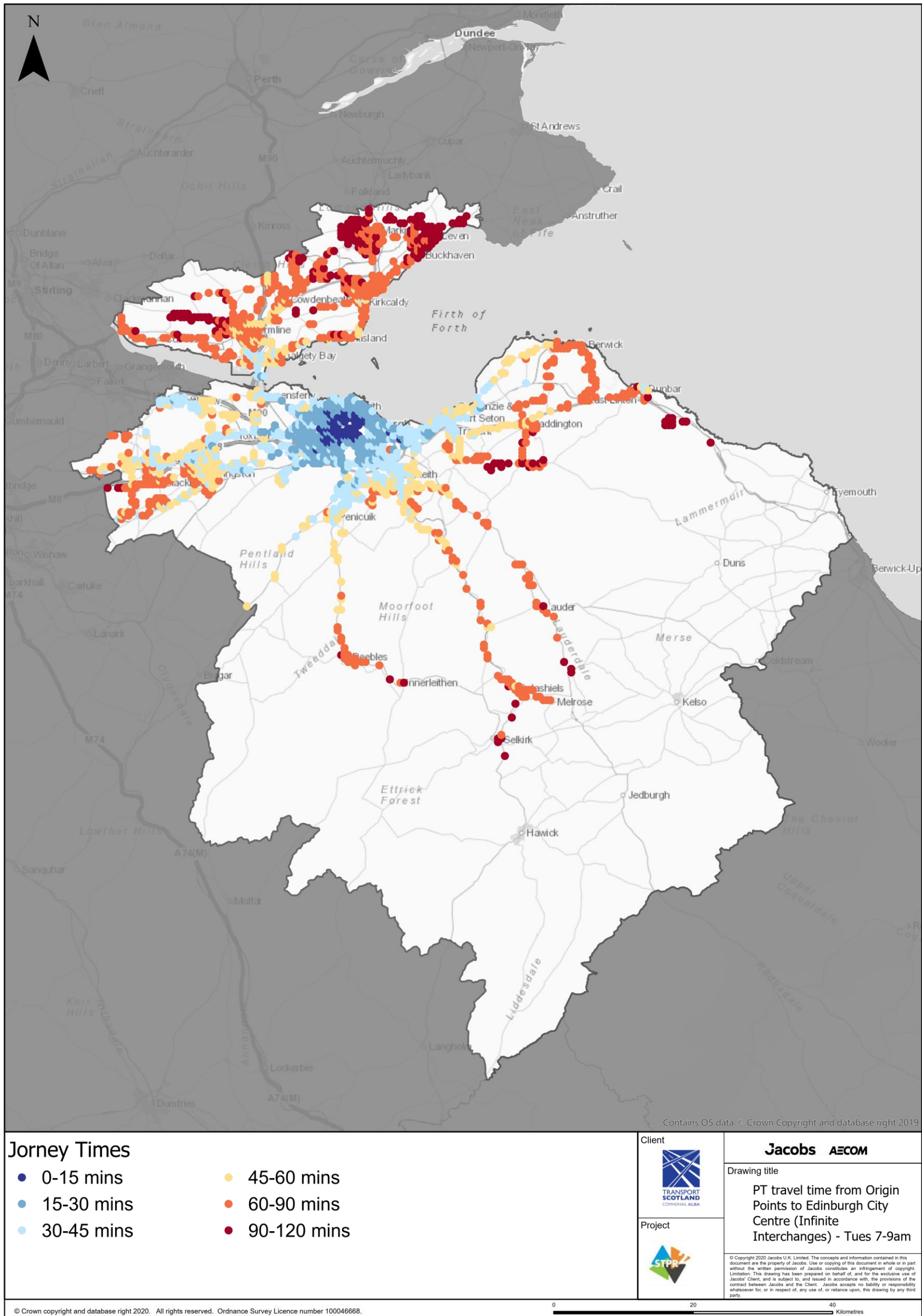


Figure 41: Public Transport Access to Edinburgh City Centre with Multiple Interchanges (Click image to go back to main report)



## Appendix B – List of Reviewed Policy Documents and Studies



This list provides a list of policies which are relevant to this Study and which have been included in the policy review process undertaken as part of the development of the Edinburgh and South East Case for Change.

The documents reviewed are:

### **National**

- Strategic Transport Projects Review (Transport Scotland, 2009)
- National Planning Framework 3 (Scottish Government, 2014)
- Scotlands Economic Strategy (Scottish Government, 2015)

### **Regional**

- A71 Cycle & Active Travel Corridor Feasibility Study (SEStran, West Lothian Council, 2016)
- SEStran Regional Transport Strategy 2015 – 2025 Refresh (SEStran, 2015)
- SEStran Freight Study & Action Plan (SEStran, 2010)
- SESplan Strategic Development Plan (SESplan, 2013)
- City Region Deal, Accelerating Growth Edinburgh and South East Scotland City Region

### **Local**

- City of Edinburgh Local Transport Strategy 2014 – 2019 (City of Edinburgh Council, 2014)
- East Lothian Local Transport Strategy 2018 – 2024 Draft (East Lothian Council, 2018)
- Midlothian Transport Strategy 2007-2010 (Midlothian Council, 2007)
- Local Access and Transport Strategy Main Issues Report (Scottish Borders Council, 2015)
- East Lothian Access Study STAG Appraisal (East Lothian Council, 2019)
- Edinburgh – Dunbar – Berwick-upon-Tweed Study (East Lothian Council, Scottish Borders Council and SEStran, 2013)
- Local Transport Strategy for Fife 2006 – 2026 (Fife Council)
- Transport 2030 Vision (City of Edinburgh Council)
- Road Safety Plan for Edinburgh to 2020 (City of Edinburgh Council, 2010)
- Road Safety Plan for West Lothian 2012 – 2015 (West Lothian Council)
- East Lothian Partnership Road Safety Plan 2016 – 2020 Draft (East Lothian Partnership)
- Fife Road Safety Engineering Action Plan 2016 – 2020 (Fife Council)
- Scottish Borders Road safety plan 2010-2020 (Scottish Borders Council)
- Edinburgh Local Development Plan (City of Edinburgh Council, 2016)
- West Lothian Local Development Plan (West Lothian Council, 2018)
- East Lothian Local Development Plan (East Lothian Council, 2018)
- Midlothian Local Development Plan 2017 (Midlothian Council, 2017)
- Scottish Borders Council Local Development Plan (Scottish Borders Council, 2016)
- FIFEplan (Fife Council, 2017)
- Edinburgh Economic Strategy, Enabling Good Growth (City of Edinburgh Council, 2018)
- East Lothian Economic Development Strategy: State of Play Report for East Lothian Council (2018)
- East Lothian Economic Development Strategy Review and Refresh (East Lothian Council on behalf of East Lothian Partnership Connected Economy Group, 2018)
- West Lothian Economic Partnership Strategy and Action Plan 2014-17 (West Lothian Council)
- Fife's Economic Strategy 2017 – 2027 (Fife Council, Fife Economy Partnership, Opportunities Fife)
- Scottish Borders Economic Strategy 2023 (Scottish Borders Council, 2013)
- Edinburgh 2020: The Edinburgh Tourism Strategy (2012)
- East Lothian Tourism Action Plan 2016-18 (East Lothian Council, Visit Scotland)
- Midlothian Tourism Action Plan 2016-20 (Midlothian Council, Visit Midlothian)
- Fife Tourism Strategy 2014 – 2024 (Fife Council, Fife Tourism Partnership)
- Scottish Borders Tourism Action Plan 2017
- Edinburgh Partnership Community Plan 2018 – 2028 (The Edinburgh Partnership)
- Local Outcomes Improvement Plan 2013 – 2023 (West Lothian Community Planning Partnership, Updated 2017)
- East Lothian Plan 2017-27 (East Lothian Partnership)
- Single Midlothian Plan 2018-19
- Scottish Borders Community Plan (Scottish Borders Community Planning Partnership, May 2018)
- Plan for Fife Local Outcome Improvement Plan 2017-2027 (Fife Partnership)
- Edinburgh Airport Masterplan 2016 – 2040 (Edinburgh Airport)



- West Edinburgh Transport Appraisal Refresh
- SESplan Cross Boundary and Land Use Appraisal (Final)
- Case for Change - Pre-Appraisal and Initial Appraisal Study 2018 - A92 Freuchie Balfarg Cadham

**Other**

- Summary Case for a New Cross-Border Rail Link (Campaign for Borders Rail)
- Borders Railway Maximising the Impact: A Blueprint for the Future (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 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 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 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 various venues	Interviews with senior officers across the local authorities and other organisations in the region.	9
Interventions Workshop	19 November 2019	City Chambers, 253 High St, Edinburgh, EH1 1YJ	Workshop with stakeholders including representatives from local authorities, transport operators, tertiary education bodies, public sector and private sector organisations, business community and representative bodies	19
Interventions Workshop	20 September 2019	DoubleTree by Hilton, St Margaret's Head, North Queensferry, KY11 1HP	Workshop with stakeholders including representatives from local authorities, transport operators, tertiary education bodies, public sector and private sector organisations, business community and representative bodies	13
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)