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Consultancy Support Services Contract

Initial Appraisal: Case for Change
Glasgow City Region

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Jacobs UK Ltd.

95 Bothwell Street
Glasgow, Scotland G2 7HX
United Kingdom

T +44.(0)141 243 8000
F +44 (0)141 226 3109

www.jacobs.com

Contents

1. Introduction 1
1.1. Background and Report Purpose 1
2. Context 4
2.1. Policy Context 4
2.2. Geographic Context 7
2.3. Socio-Economic Context 9
2.4. Environmental Context 22
2.5. Transport Context 25
2.6. Context Summary 34
3. Problems & Opportunities 35
3.1. Approach to Problem & Opportunity Identification 35
3.2. Problems & Opportunities 36
4. Transport Planning Objectives 58
4.1. National and Regional Objectives 58
5. Approach to Option Generation and Sifting 62
5.1. Strategic Options 62
5.2. Approach 63
5.3. Next Steps 64

Appendices

Appendix A: Figures
Appendix B: List of Policy Documents
Appendix C: Stakeholder Engagement

Figures

Figure 1: The Four Key Stages to the Scottish Transport Appraisal Guidance (STAG).....1
Figure 2: Glasgow City Region Study Area.....2
Figure 3: Policy Review 6
Figure 4: Scottish Government Urban Rural 6-Fold Classification.....8
Figure 5: Glasgow City Region Largest Settlements by Population 2016; 2018 Population and Density.....10
Figure 6: Population Change by Settlement 2012 - 2016 10
Figure 7: Glasgow City Region – Car or Van Availability 11
Figure 8: Glasgow City Region Mode of Travel to Work 12
Figure 9: Distance Travelled to Work within the Glasgow City Region 13
Figure 10: Distance Travelled to Work by Mode of Travel 14
Figure 11: Percentage of people working in each industry sector for Glasgow City Region 16
Figure 12: Public Transport To Employment Centres (on a typical Tue 6-10am) 18
Figure 13: Public Transport To Higher & Further Education (on a typical Tue 6-10am) 19
Figure 14: SIMD 2016 – Overall SIMD Rank 20
Figure 15: Percentage of Transport Expenditure of Total Household Expenditure (2018).21
Figure 16: SIMD (2016) Health Indicator Distribution by Local Authority 22
Figure 17: Environmental Designations Map for Glasgow City Region.....23
Figure 18: Regional and National Carbon Emissions by Year (2005-2017).....25
Figure 19: Glasgow City Region Transport Network.....26
Figure 20: National Cycle Route in the Glasgow City Region 27
Figure 21: Glasgow City Region Active Travel Network.....28
Figure 22: Glasgow City Region Bus Network 29
Figure 23: Change in share of population using the Bus Four or More Days a Week, 2003/04 – 2017.....30
Figure 24: Stakeholder Engagement 35
Figure 25: 2017/18 estimated % of children living in poverty 37
Figure 26: Transport Poverty 38
Figure 27: SIMD Health Indicators.....40
Figure 28: SIMD 2016 Geographic Access.....41
Figure 29: Scottish Access to Bus Indicator.....43
Figure 30: Sub-regional Travel to Work Journeys.....44
Figure 31: Mode of Travel to Work (Bicycle) and NCN Network 45
Figure 32: Cycle access around key settlements.....46
Figure 33: Accident locations involving a bicycle in the region 2013-17 49
Figure 34: Network Capacity Constraints 2017 AM (TMfS) 50
Figure 35: Network Capacity Constraints 2017 PM (TMfS) 51
Figure 36: Forecast Change in Vehicle Kilometres in the Glasgow City Region during peak periods (TMfS).....56
Figure 37: Approach to Option Generation and Sifting 63
Figure 38: The Sustainable Investment Hierarchy 64

Tables

Table 1: CO2 Emissions Per Capita and Percentage of Transport-Related Emissions 24
Table 2: Average Yearly Casualties (2013-2017) by Mode – Glasgow City Region (by LA) 47
Table 3: Change in Average Yearly Casualties (2004-2008 to 2013-2017) by Mode – Glasgow City Region (by LA) 48
Table 4: TELMoS Household and Employment Forecasts 55
Table 5: National TPOs and the Regional Sub-Objectives 58
Table 6: Mapping of Problem and Opportunity Themes to Transport Planning Objectives 60

List of Acronyms

ABBREVIATION	
AQMA	Air Quality Management Area
CO_2	Carbon Dioxide
CRWIA	Children's Rights and Wellbeing Impact Assessment
EqIA	Equality Impact Assessment
FSDA	Fairer Scotland Duty Assessment
GVA	Gross Value Added
ICIA	Island Communities Impact Assessment
LEZ	Low Emission Zone
NCN	National Cycle Network
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
NSA	National Scenic Area
NTS	National Transport Strategy
PM_{10}	Particulate Matter 10 microns and less
RET	Road Equivalent Tariff
RTS	Regional Transport Strategy
SABI	Scottish Access to Bus Indicator
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SIMD	Scottish Index of Multiple Deprivation
SO_2	Sulphur Dioxide
SPA	Special Protection Area
SPT	Strathclyde Partnership for Transport
SSSI	Site of Special Scientific Interest

STAG	Scottish Transport Appraisal Guidance
STPR	Strategic Transport Projects Review
TELMoS	Transport and Economic Land-Use Model of Scotland
TMfS	Transport Model for Scotland
TPO	Transport Planning Objective
ULEV	Ultra Low Emission Vehicle
WCML	West Coast Main Line

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)[1].

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

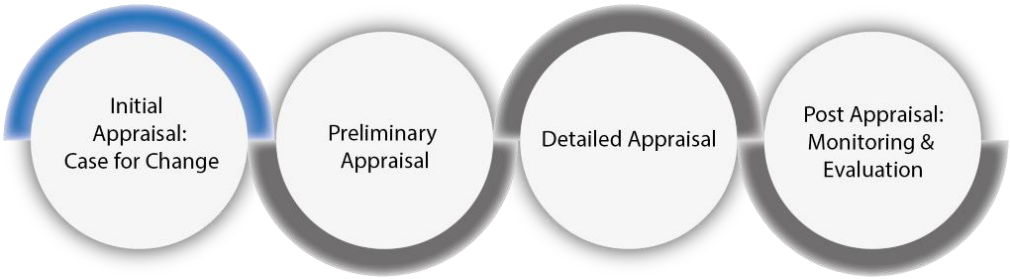

Figure 1: The Four Key Stages to the Scottish Transport Appraisal Guidance (STAG)

This report sets out the Initial Appraisal: Case for Change for the Glasgow City Region as shown in Figure 2 and forms one of eleven STPR2 regions. 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 Glasgow City 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.

[1] New National Transport Strategy (NTS2) (Transport Scotland, Feb 2020) www.transport.gov.scot/media/47052/national-transport-strategy.pdf
[2] Scottish Transport Appraisal Guidance (STAG) (Transport Scotland) www.transport.gov.scot/media/41507/j9760.pdf

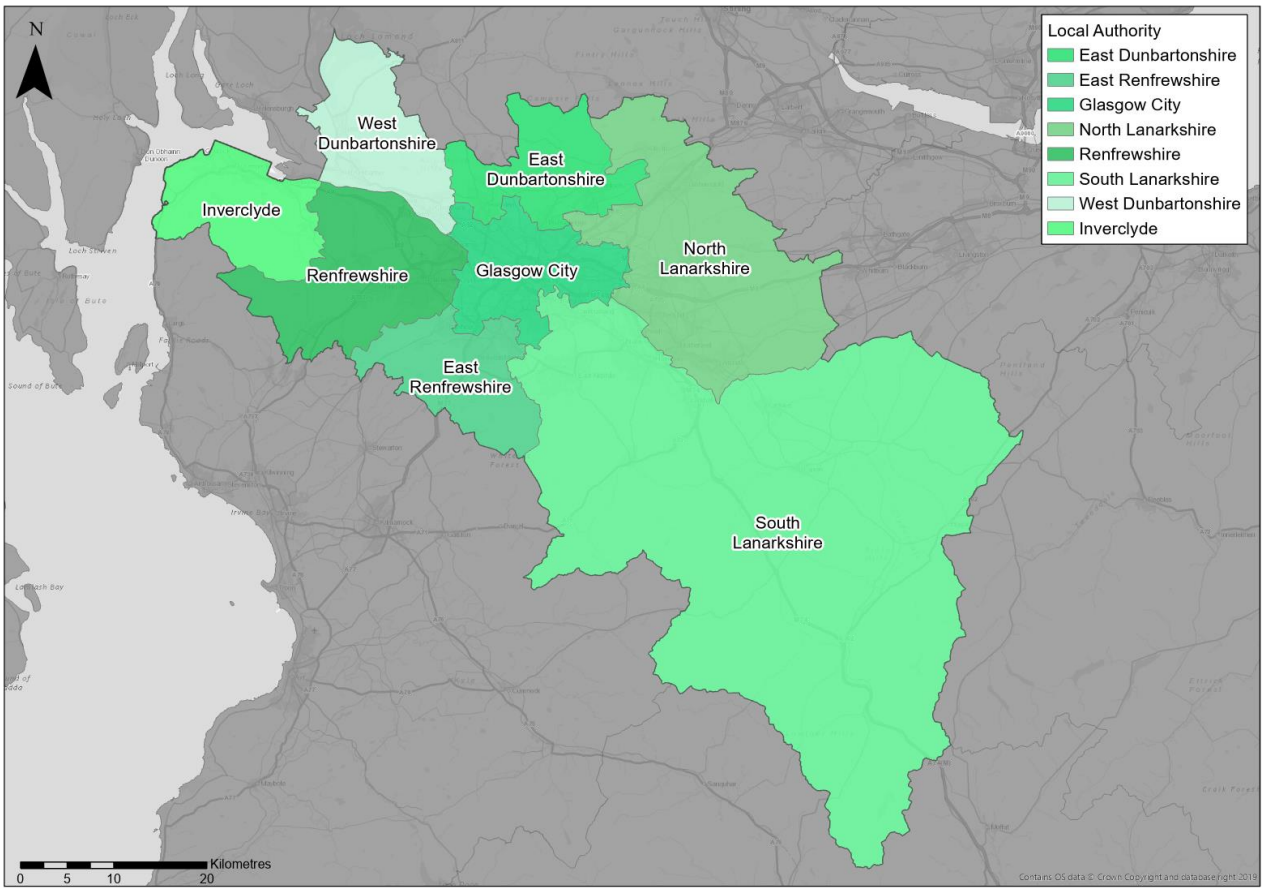

Figure 2: Glasgow City Region Study Area (click image to enlarge figure)

The Glasgow City Region comprises the eight local authorities of East Dunbartonshire, East Renfrewshire, Glasgow City, Inverclyde, North Lanarkshire, Renfrewshire, South Lanarkshire and West Dunbartonshire. The region has an extensive transport network, including active travel, rail, subway, bus and road networks, ferry links to Dunoon, Bute, Kilcreggan and the internal ferry route between Renfrew and Yoker, as well as Glasgow International Airport.

To reflect the regional approach of STPR2 a Regional Transport Working Group (RTWG) has been established with representatives from the Glasgow City Region Transport and Connectivity Portfolio Group representing the eight local authority areas (East Dunbartonshire, East Renfrewshire, Glasgow City, Inverclyde, North Lanarkshire, Renfrewshire, South Lanarkshire and West Dunbartonshire), Clydeplan, Strathclyde Partnership for Transport (SPT), Transport Scotland and the STPR2 consultant team.

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 Glasgow City Region.

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 study is being undertaken. Figure 3 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.
- New National Transport Strategy (NTS2); 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 Governments and multiple local authorities, including Glasgow City Council, 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 while Glasgow's Climate Emergency Working Group[3] has set Glasgow a target of carbon neutrality by the year 2030.
- At the regional level transport related problems, objectives and policies/measures are set out in SPT's Regional Transport Strategy[4], (which is also in the process of being updated and due for publication in 2021). SPT's Regional Transport Strategy 'A Catalyst for Change' published in 2008 covering the period to 2021 sets out four outcomes: Improved connectivity, Access for all, Reduced emissions, and Attractive, seamless, reliable travel. At a local level, transport objectives are set out in the Local Authorities' respective Local Transport Strategies.
- The Glasgow City Region City Deal was signed in 2014[5]. It acknowledges that the Glasgow City Region benefits from numerous economic assets such as having strong financial services, life sciences, engineering, manufacturing, skilled workforce and also having successful universities and research facilities. However, it also acknowledges that the region faces numerous challenges that can become barriers such as: high rates of long-term unemployment; poor survival rates for business start-ups (when compared to similar UK cities); stalled development sites in key locations; and weaknesses in the area's transport infrastructure.

[3] Climate Emergency, Glasgow City Council: https://www.glasgow.gov.uk/article/24899/Climate-Emergency-Group-Sets-Out-a-Path-to-Carbon-Neutral-Glasgow

[4] Strathclyde Partnership for Transport, A Catalyst for Change, The Regional Transport Strategy for the west of Scotland, 2008 – 202. Available at: http://www.spt.co.uk/wmslib/Documents_RTS/catalyst_for_change.pdf

[5] Glasgow City Region City Deal. Available at: http://www.glasgowcityregion.co.uk/#home

- Other Regional and Local Policy Documents: This includes Strategic Development Plan 'Clydeplan'[6], the SPT's Freight Strategy[7], as well as non-transport specific plans, such as Glasgow City Region Economic Strategy[8] and Action Plan[9], the Glasgow City Region Tourism Strategy 2018-2013[10], which transport improvements play a key role in both the enabling and delivery of their outcomes.

The full list of documents reviewed is presented in Appendix B.

In addition to the four Priorities presented above, the NTS2 supports the adoption of a Sustainable Travel 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, maintaining and safely operating existing assets and making better use of existing capacity ahead of new infrastructure investment.

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

[6] Glasgow and the Clyde Valley Strategic Development Planning Authority, Strategic Development Plan, July 2017.Available at: https://www.clydeplan-sdpa.gov.uk/strategic-development-plan/current-plan/current-strategic-development-plan-july-2017

[7] Strathclyde Partnership for Transport, Freight Strategy for Strathclyde, February 2018.Available at: http://www.spt.co.uk/wmslib/Documents_RTS/Action_Plans/Freight-Strategy.pdf

[8] Glasgow City Region Economic Strategy 2017 – 2035, December 2016. Available at: http://www.glasgowcityregion.co.uk/CHttpHandler.ashx?id=19520&p=0

[9] Glasgow City Region Economic Action Plan, February 2017.Available at: http://www.glasgowcityregion.co.uk/CHttpHandler.ashx?id=19521&p=0

[10] Glasgow City Region Tourism Strategy 2018 – 2013. Available at: http://www.glasgowcityregion.co.uk/CHttpHandler.ashx?id=22898&p=0

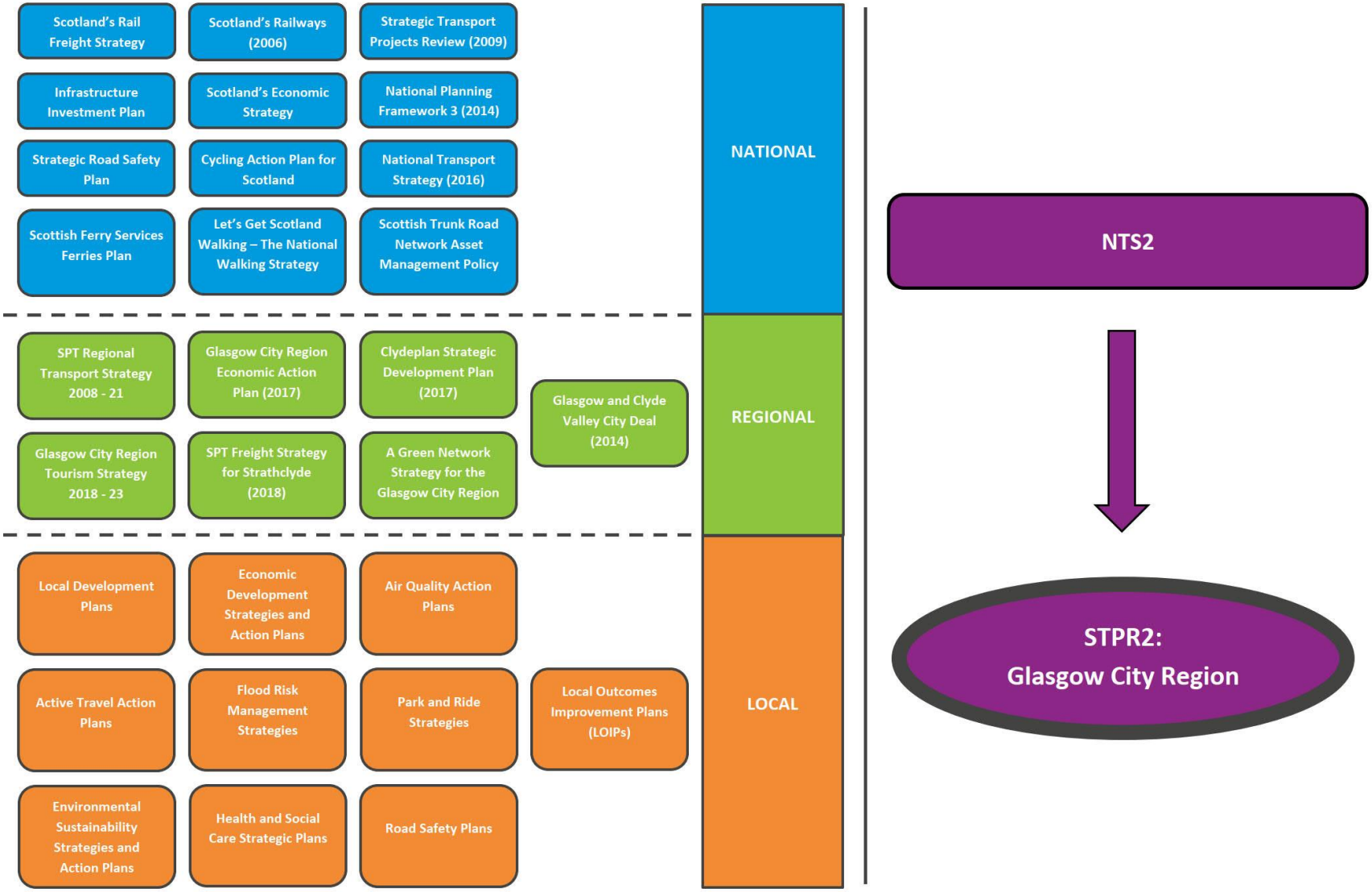

Figure 3: Policy Review

2.2. Geographic Context

The Glasgow City Region is a mix of urban and rural settlements and areas. The Scottish Government Urban Rural 6-fold Classification[11] which distinguishes between urban, rural, and remote areas through six categories is shown in Figure 4. The proportion of the regional population residing in each category is presented in brackets:

- Large Urban Areas (53.6%)
- Oher Urban Areas (35.9%)
- Accessible Small Towns (5.9%)
- Remote Small Towns (0%)
- Accessible Rural (4.4%)
- Remote Rural (0.3%)

This demonstrates that whilst the region is dominated by a large densely populated urban area of Glasgow City and the immediate adjacent areas, there are also areas of geographical remoteness and rural nature within the Region. This includes the southern reaches of South Lanarkshire Council's area, and areas in Renfrewshire, Inverclyde, and West Dunbartonshire. A number of 'accessible small towns' are present in the area spread across the region. These include settlements such as Lanark, Strathaven, Moodiesburn, Bridge of Weir, Kilmalcolm, Bishopton and Lennoxtown.

[11] Scottish Government Urban Rural Classification, 2016. Available at: https://www2.gov.scot/Topics/Statistics/About/Methodology/UrbanRuralClassification

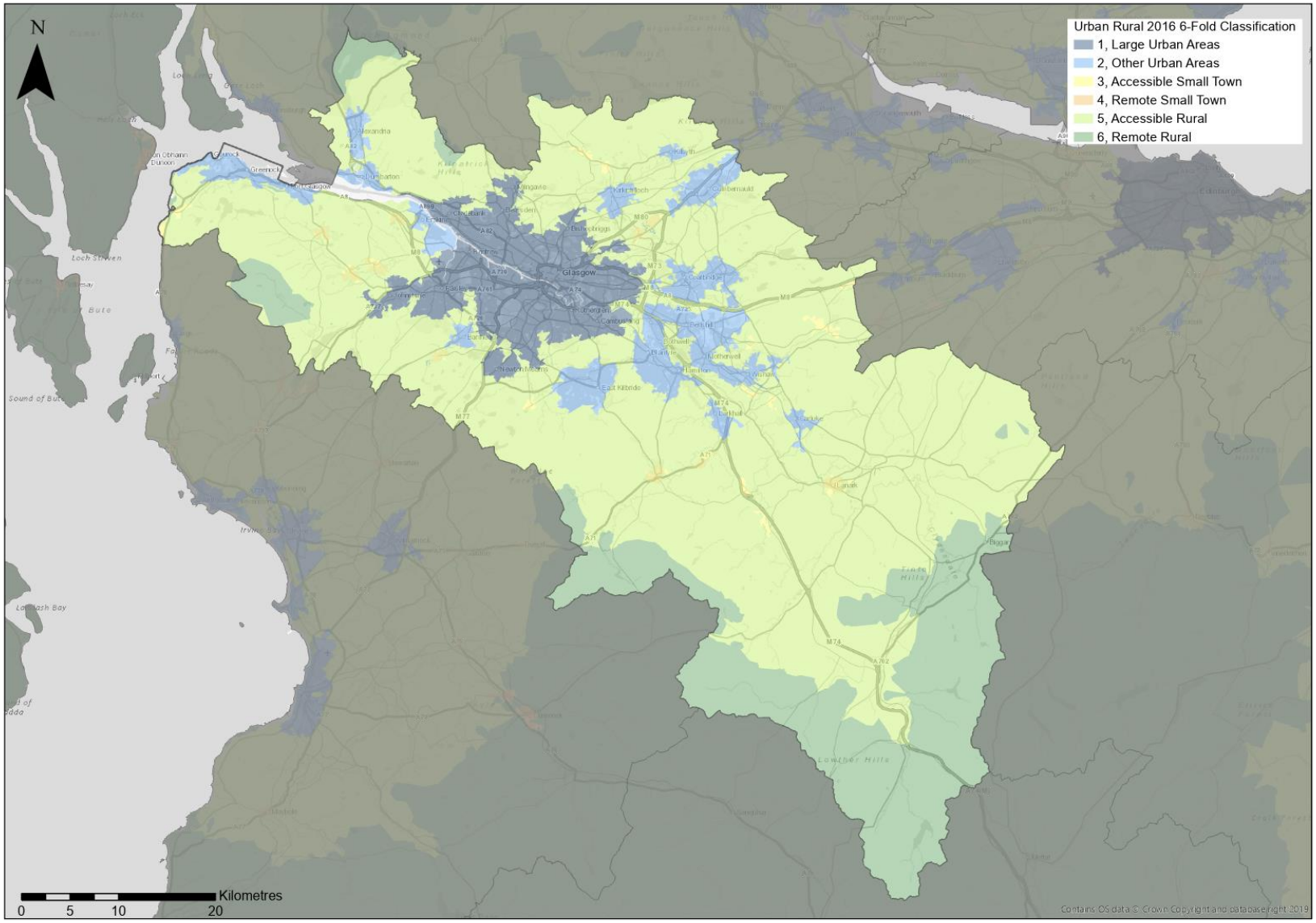

Figure 4: Scottish Government Urban Rural 6-Fold Classification

2.3. Socio-Economic Context

To compare the performance of socio-economic indicators for the region, benchmark categories were created using the Scottish Government 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 split and 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 selected are considered the most representative for each of the benchmark categories, generally being the top five or six local authorities within that related category.

The four benchmark categories are:

- Scottish Cities (Dundee, Aberdeen, Edinburgh and Glasgow);
- Urban (including Fife, Falkirk, Inverclyde, Midlothian, North Lanarkshire and West Lothian);
- Rural (including Perth & Kinross, Aberdeenshire, Highland, Scottish Borders, Dumfries & Galloway and Moray);
- Islands (including Na h-Eileanan Siar, Orkney and Shetland Islands)

2.3.1. Population

The total population in the Glasgow City Region was 1,834,180 in 2018[12], which comprises approximately one third of the Scottish population. The Glasgow City Region population has increased by 2.1% since 2011. Based on 2018 figures from National Records of Scotland, Glasgow City Council had the highest local authority population in the region, with 626,400 people, followed by North Lanarkshire at 340,200 people, and South Lanarkshire at 319,000 people. The population density in the region was 548 persons per square kilometre. Glasgow City had the highest local authority population density at 3,586 persons per square kilometre, almost five times denser than the next most densely populated local authority, North Lanarkshire with 723.9 persons per square kilometre. The local authority with the lowest population density was South Lanarkshire, with 180 persons per square kilometre; 20 times less densely populated than Glasgow City.

Glasgow City observed the highest level of inward migration[13] (6%) within the region, followed by East Renfrewshire (3.6%). Inward migration for the remaining local authorities in the region ranged between 1.9% and 3%. Similarly, Glasgow City observed the highest level of outward migration (3.6%) within the region, followed by East Renfrewshire (3.4%). Outward migration for the remaining local authorities in the region ranged between 1.9% and 3.3%.

In terms of age structure, 17.2% of regional residents were children (15 and under), 65.8% were of working age (aged 16 to 64), and 17% were 65 and over. Glasgow City had a higher proportion of working age people, at 70.6% compared to 63.3% across the other

[12] National Records of Scotland, Mid-Year Population Estimates, 2018
[13] Migration data is based on Census 2011 data. Available at: https://www.nomisweb.co.uk/census/2011/ukmig008

local authorities in the region. The proportion of people aged 65 and over within the region was 1.8 percent lower than the national benchmark, whilst the proportion of people within working age was 1.5 percent higher than the national benchmark.

Settlement sizes are presented in Figure 5[14], demonstrating that Glasgow is the largest settlement with approximately one third of the region's population but also that there a number of other sizeable settlements across the region.

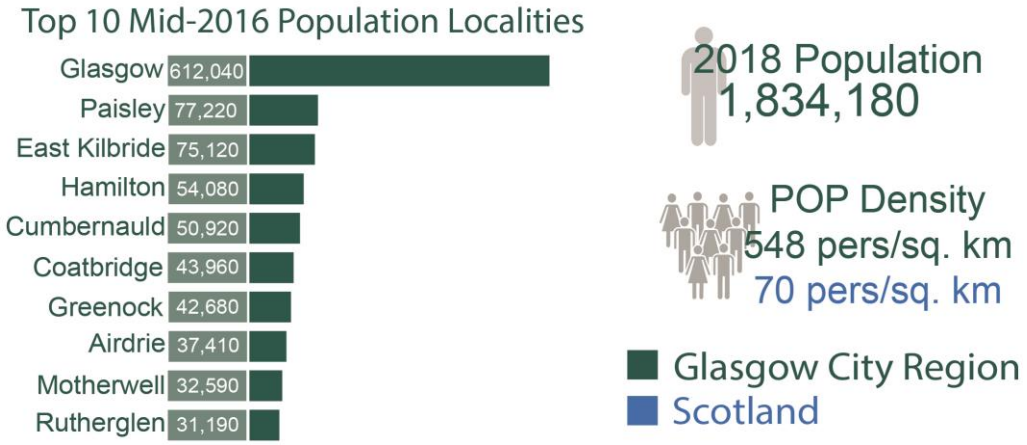

Figure 5: Glasgow City Region Largest Settlements by Population 2016; 2018 Population and Density

Figure 6[15] shows that the majority of those settlements have recorded a slight increase in population between 2011 and 2016 with Glasgow City having seen the largest increase at 4%. Exceptions to this are Cumbernauld, Greenock, Coatbridge and Rutherglen with decreases between 1% and 3%. Overall, between 2011-2018 the population of the Region increased by 2%, which is slightly below the Scotland average of 2.6%[16].

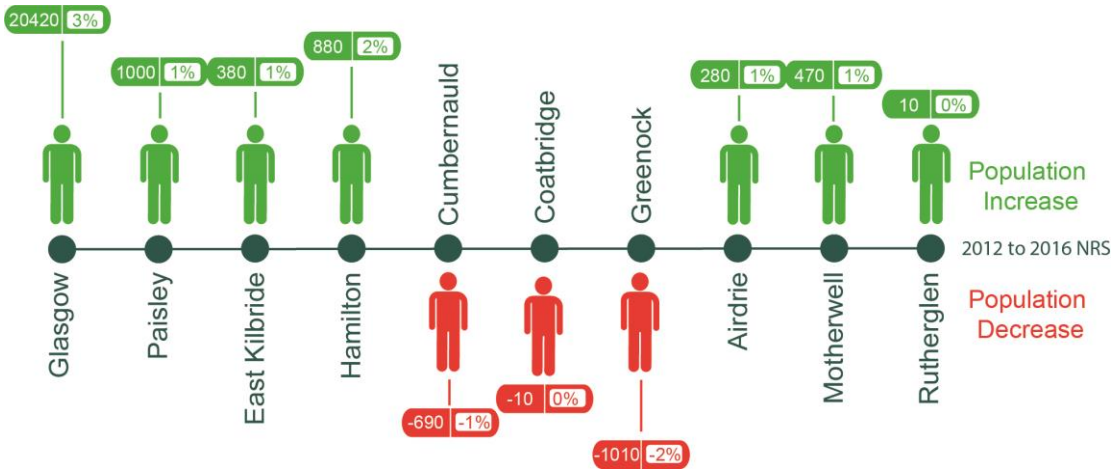

Figure 6: Population Change by Settlement 2012 - 2016

[14] Mid-Year Population Estimates by Settlement, National Records of Scotland 2016; Mid-Year Population Estimates Scotland, National Records of Scotland 2018; Mid-Year Population Density Scotland, National Records of Scotland 2018.
[15] Mid-Year Population Estimates by Settlement National Records of Scotland 2012 and 2016.
[16] Population Estimates for Scotland 2011 Census and Mid-Year Population Estimates Scotland, National Records of Scotland 2018.

2.3.2. Travel to Work – Mode Share

As shown in Figure 7, the proportion of households that own a car is lower in Glasgow City Region compared to Scotland as a whole (62.5% as opposed to 69% based on data from 2011 Census). However, car is also the most popular mode of travel to work in the region at 60.8%, which is comparable with the Scottish Average (62%). Glasgow City recorded the highest proportion of households with no access to a car for private use (50.8%) compared to other Scottish cities. In Glasgow City, the travel to work by car mode share is 46.9%, which is lower than the Scottish Cities benchmark (51.9%).

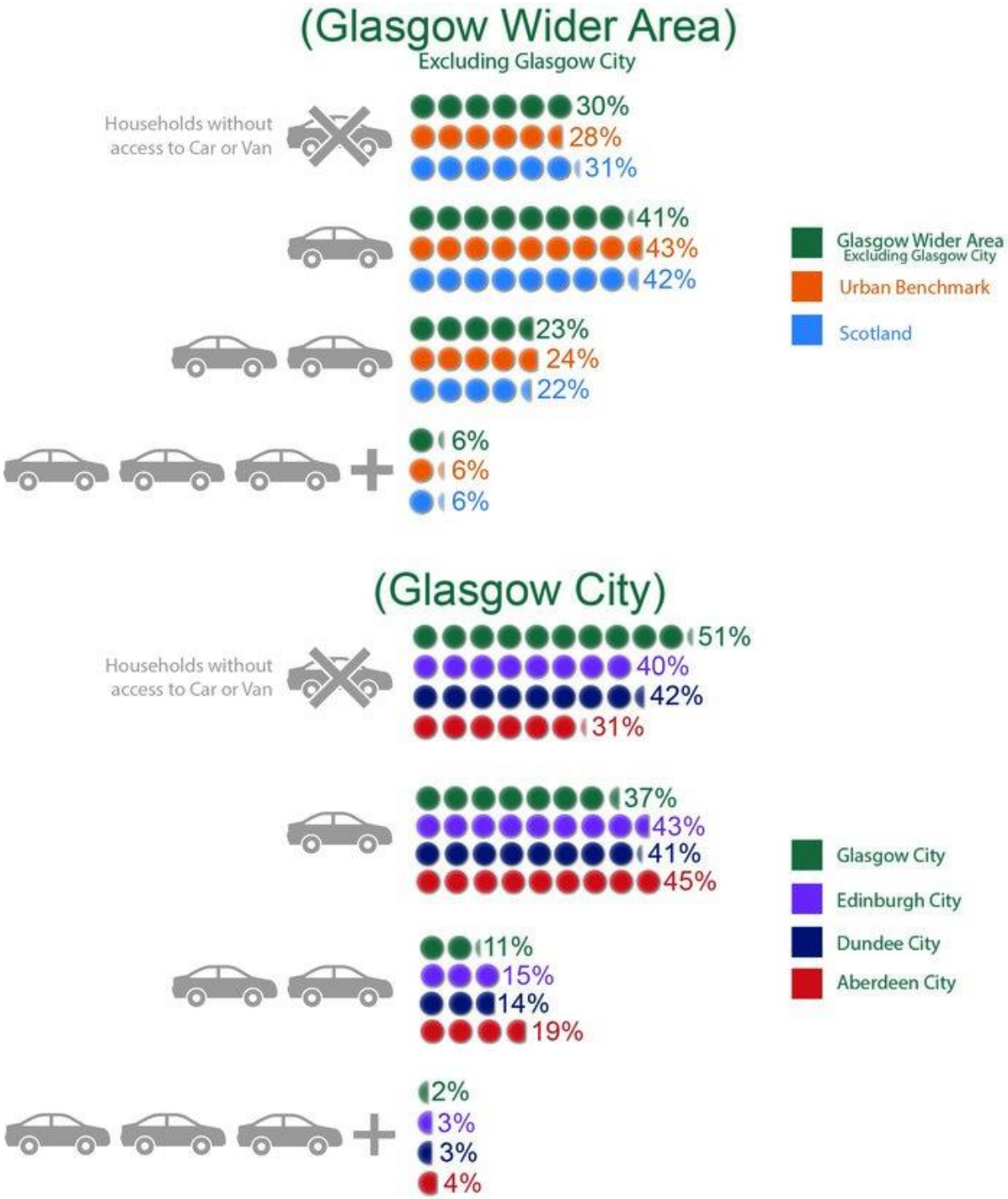

Figure 7: Glasgow City Region – Car or Van Availability

Public transport mode share in the Glasgow City Region compares higher that the Scotland-wide figures. However, regional walking, cycling and working at home have a slightly lower uptake than Scotland-wide figures.

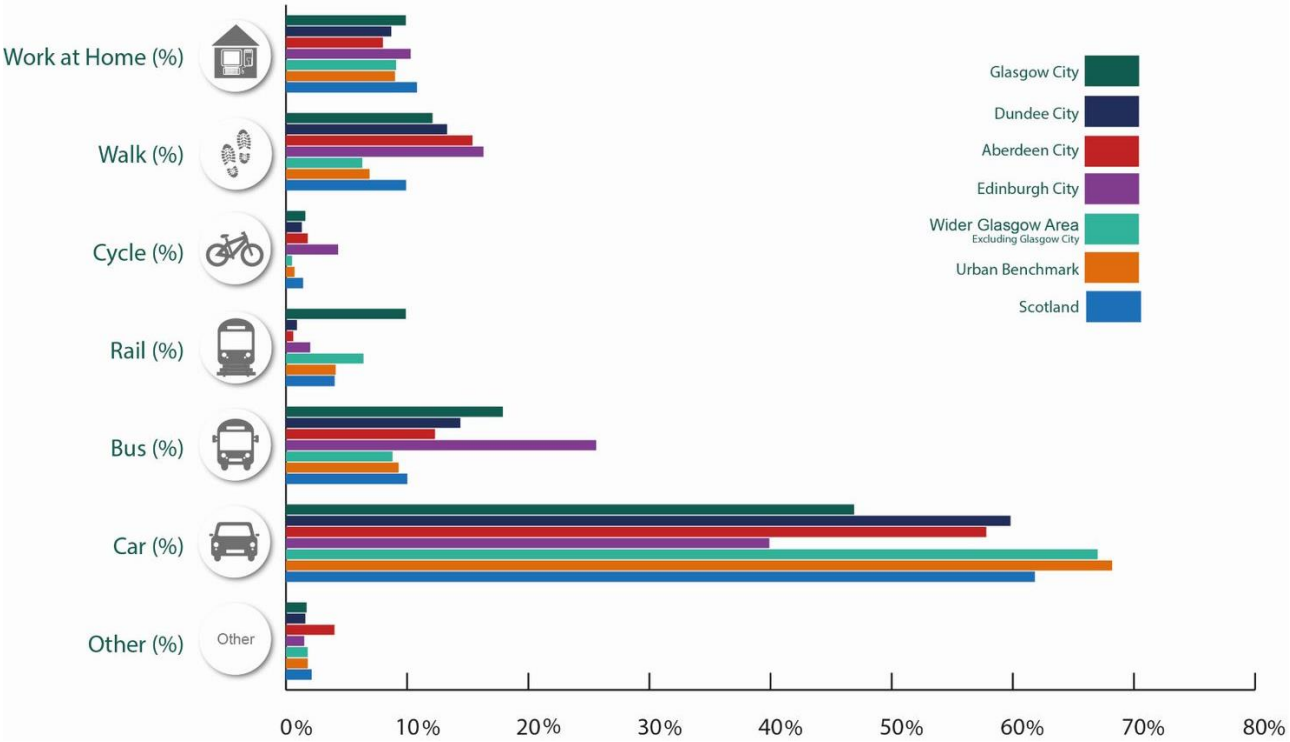

Figure 8: Glasgow City Region Mode of Travel to Work[17] (click image to enlarge figure)

2.3.3. Travel to Work – Distance Travelled

As shown in Figure 9, a lower proportion of Glasgow City Region residents travel less than 10km to work compared to across Scotland (51% compared to 57%). However, the Glasgow City figure stands at 73%, which is slightly lower than the Scottish City average. Conversely, a considerably higher proportion of the Region's residents travel between 10km and 60km compared to across Scotland (37% v. 28%). This is reflective of the strong trend for travel to work in Glasgow by residents living in more suburban locations. The comparative figure for Glasgow City is only 13%.

[17] National Records of Scotland, Census 2011. Table QS701SC - Method of travel to work. All people aged 16 to 74 in employment the week before the census (excluding full-time students)

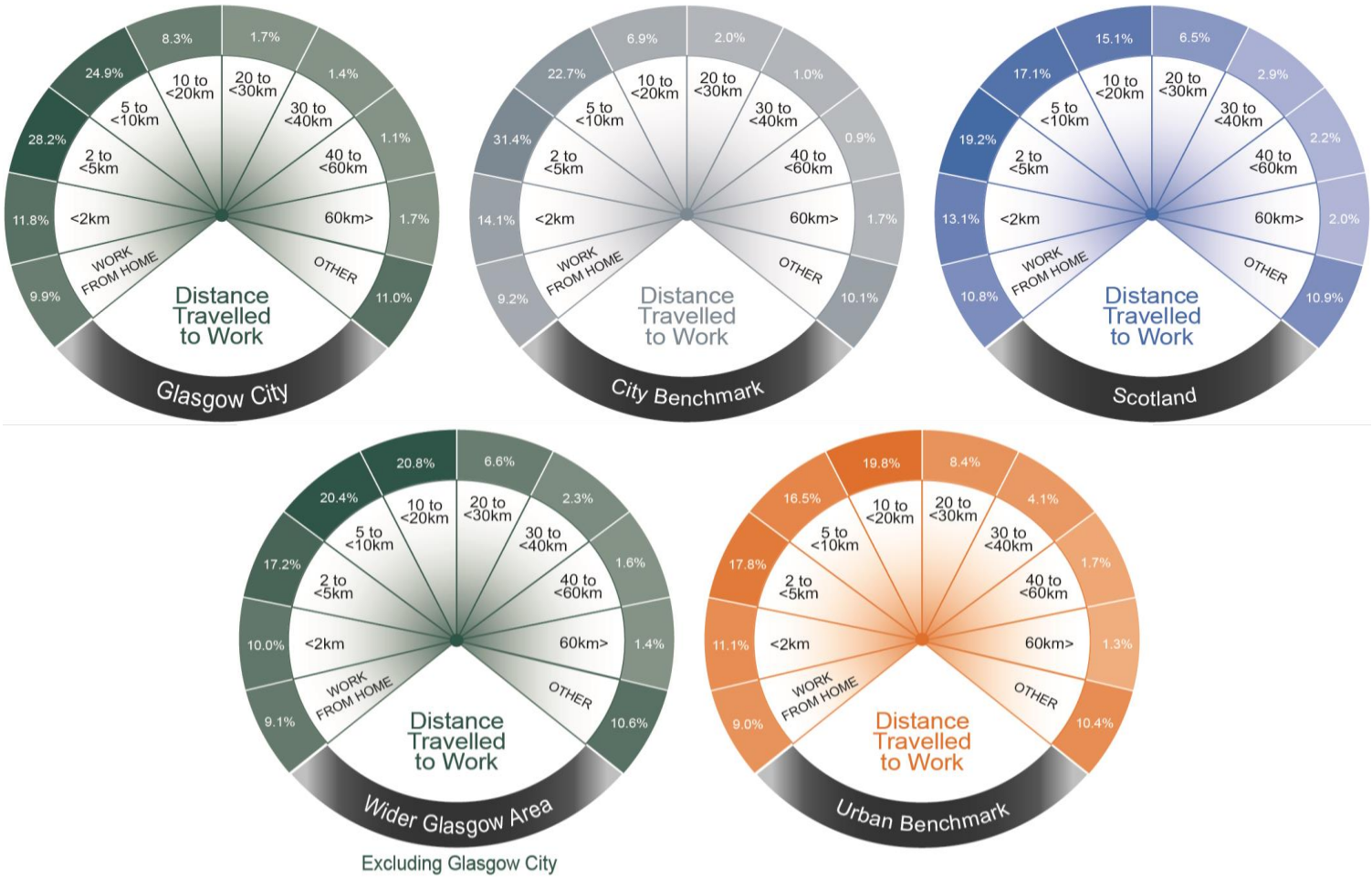

Figure 9: Distance Travelled to Work[18] within the Glasgow City Region

Figure 10 provides the mode share breakdown for travel to work across the region based on Census 2011 information. Driving to work accounted for 59% of all commuting trips within the region, with levels increasing with distance, ranging from 45% of all trips under 5km (which demonstrates the potential for modal shift to more sustainable modes) to 68% of all trips between 10km and 20km.

18 National Records of Scotland, Census 2011. Table QS703SC - Distance travelled to work. All people aged 16 to 74 in employment the week before the census (excluding full-time students)

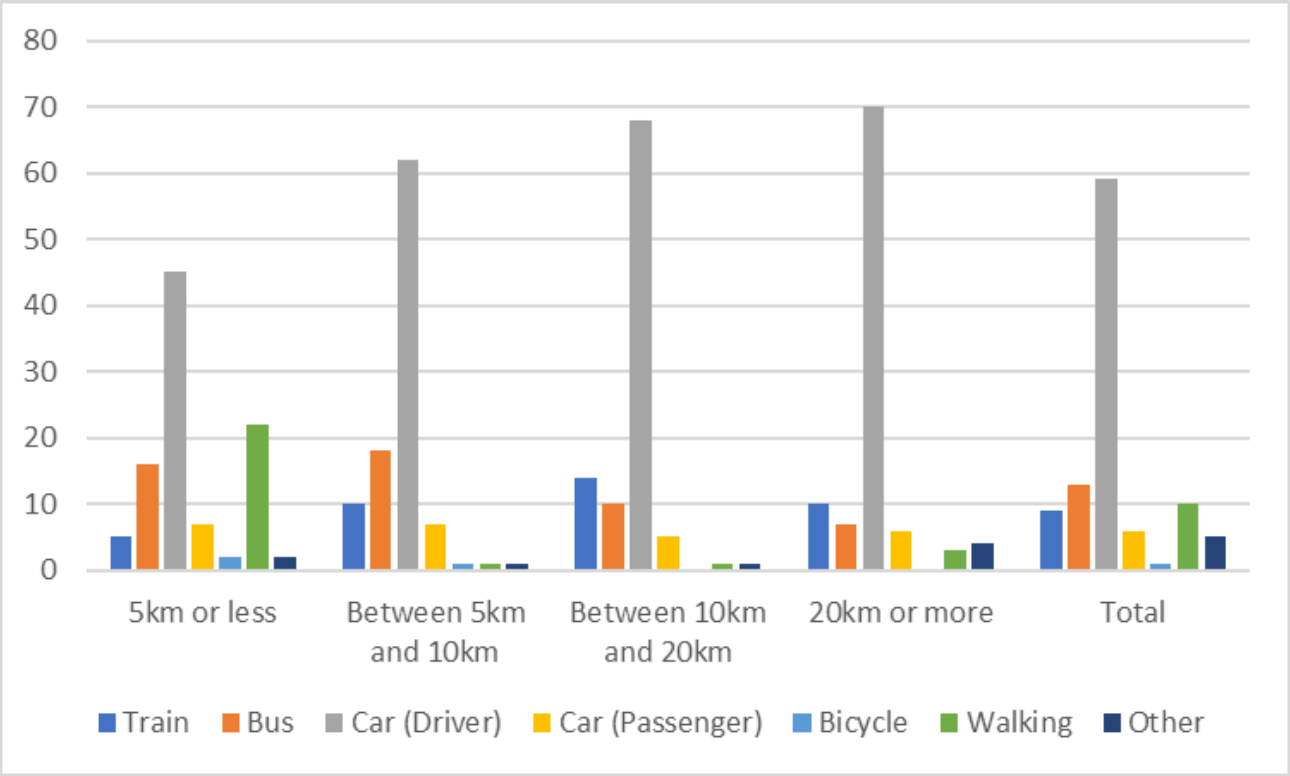

Figure 10: Distance Travelled to Work by Mode of Travel[19]

Train travel made up 9% of all commuting trips within the Glasgow City Region. There is a less clear link between distance and modal share for train, ranging from 5% of all trips under 5km to 10%,14% and10% of trips within 5-10km, 10-20km and 20km or more respectively.

Bus was more commonly used for shorter travel distances compared to train, accounting for 16% for all trips under 5km and 18% of trips between 5-10km. Overall, levels of bus and rail travel to work (based on Census 2011) are slightly higher than the Scottish average. Bus, minibus or coach travels comprise 11.6% across the Region and 17.9% in the City – both are higher than the respective National and Scottish Cities benchmarks.

As expected, walking was more common for travel to work under 5km distances (22% mode share), dropping to 1-3% for trips over 5km. Commuting on foot within the Glasgow City region accounted for 10% of all trips, whereas cycling to work only accounted for 1% of commuting trips.

[19] National Records of Scotland, Census 2011, Table WU03BSC_IZ2011_Scotland - Location of usual residence and place of work by method of transport. For all usual residents aged 16 and over in employment the week before the census.

2.3.4. Economic Activity

Economic activity refers to an estimation from Census 2011 data whether usual residents aged 16 to 74 were in work or actively looking for work. In the Glasgow City Region, economic activity was 74.7% in 2018, compared to 77.7% nationally. Glasgow City economic activity levels were slightly lower at 68.6% compared to Scottish Cities benchmark which is at 75.2%.

The Glasgow City Region has a slightly higher rate of unemployment (4.7% compared to 4.4% nationally[20]) with mean unemployment in Glasgow City at 6.4%, which is 0.1 percentage higher than the Scottish Cities benchmark. Between 2014 and 2018, unemployment in the region increased by 3%, which was 1% higher than the national benchmark while Glasgow City unemployment increased by 3.5%, noticeably higher than the Scottish city benchmark. The mean unemployment rate for the rest of the region excluding Glasgow City was 3.9%.

Figure 11 illustrates the industry sector disaggregation for employed residents in the Glasgow City Region. The graph on the left indicates the sector breakdown of Glasgow City, as well as the Scottish Cities benchmark and national benchmark; the graph on the right highlights the performance of the wider region, excluding Glasgow City, against the regional and national benchmarks.

[20] Nomis, Office Labour Market Statistics, Office for National Statistics 2018

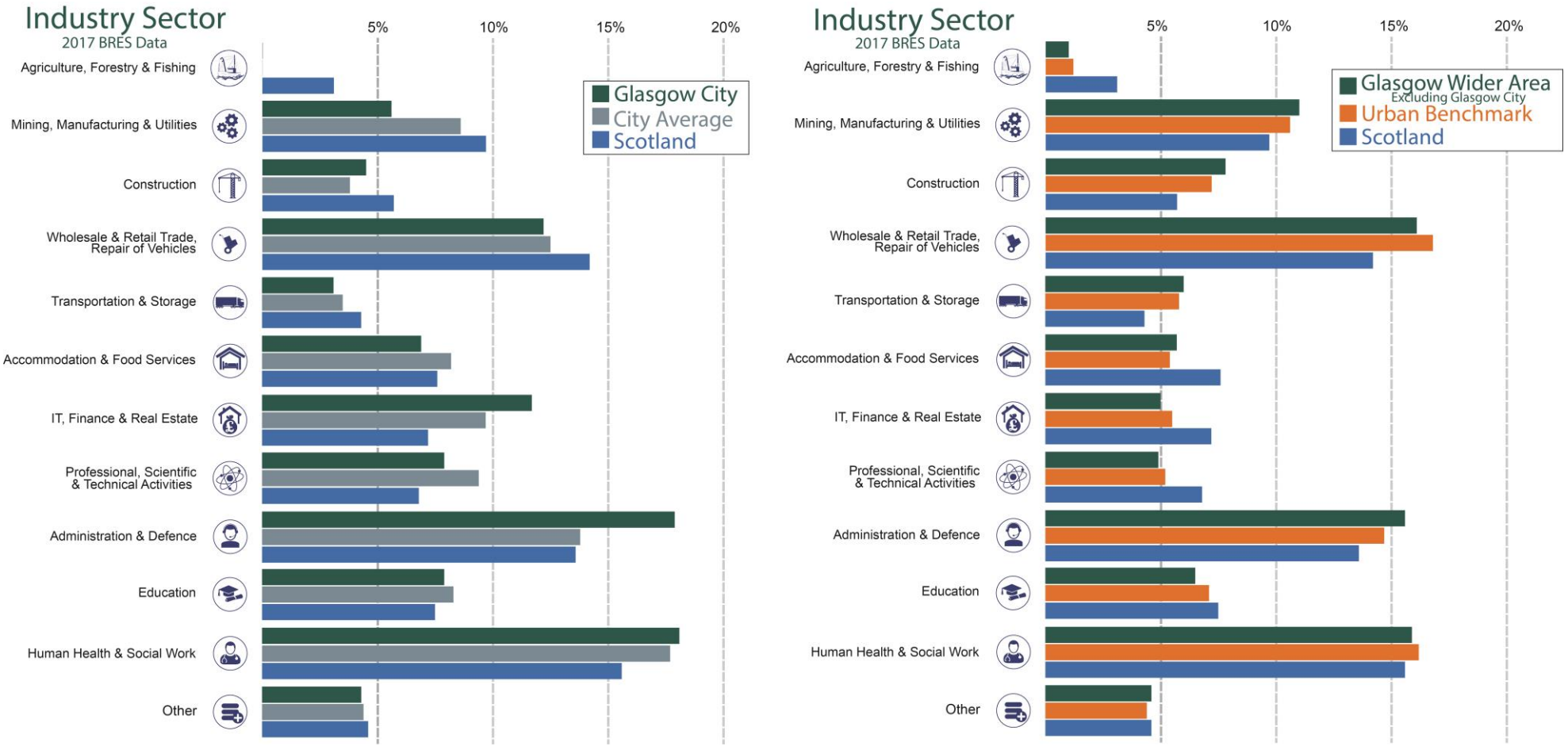

Figure 11: Percentage of people working in each industry sector for Glasgow City Region[21]

[21] Business Register and Employment Survey (BRES), Office for National Statistics 2017

Within the Glasgow City Region, the largest industry employer (in 2017) was Human Health & Social Work, which employed 17% of the regional working population, followed by Administration & Defence, at 16.7%. This was reflected in Glasgow City, with 18% of people employed in Human Health & Social Work and 18% in Administration & Defence. In the wider area excluding Glasgow City, Wholesale & Retail Trade made up the highest proportion of employment, with 16%, followed by Human Health & Social Work and Administration & Defence with 16% and 15.6% of the working population respectively. Agriculture, Forestry & Fishing employed the lowest percentage of the working population (0.5%) within the region.

Overall, within the Glasgow City Region the sector that has experienced significant growth over the 4-year period (2013-2017) was Professional, Scientific and Technical Activities, with an increase of 17%. The industry with the most significant decline was Accommodation and Food Services, which decreased by 1.4%.

The Glasgow City Region accounted for 40% of Scotland's total benefits claimants[22] despite making up 34% of the country's population. Glasgow City accounted for 15% of Scotland's total claimants but made up 12% of Scotland's population; the rest of the region (excluding Glasgow) accounted for 25% of Scotland's benefit claimants which made up 22% of Scotland's population. Compared to the other Scottish cities (3.5% for Aberdeen; 5.2% for Edinburgh; and 4.5% for Dundee), Glasgow City made up the highest proportion of Scotland's benefit claimants as well as the highest local authority proportion of Scotland's claimants in the region, and East Dunbartonshire and East Renfrewshire accounted for the joint lowest proportion at 1%. This demonstrates the diverse nature of the region.

The Glasgow City Region contributed nearly a third or £43 billion of the Scottish Gross Value Added (GVA), 15% (or £20 billion) of which is solely from Glasgow City[23]. This is the third highest regional contribution per head in Scotland.

2.3.5. Education

Within the Glasgow City Region 12.6% of people had no qualifications[24]; which was 2.9 percent higher than the national benchmark. Between 2014 and 2018 there was a decrease of 0.2 percent in people with no qualifications in the region.

The highest level of people with no qualifications was in North Lanarkshire with 15.4% and the lowest was in East Dunbartonshire with just 4.5%.

[22] Nomis, Office Labour Market Statistics, Office for National Statistics 2018
[23] Regional gross value added (balanced) by local authority in the UK, Office for National Statistics 2011 and 2016
[24] Nomis, Office Labour Market Statistics, Office for National Statistics 2014 and 2018

2.3.6. Access to Employment and Education

Figure 12 illustrates the accessibility in the region to key employment centres by public transport on a typical weekday morning. Key employment locations[25] are mostly located in Glasgow City followed by North and South Lanarkshire.

Access by public transport in the Glasgow City area ranges up to 30-45 minutes by public transport. Some areas of North and South Lanarkshire enjoy similar levels of access. South Lanarkshire also has some of the less well-off areas in terms of public transport access to key employment locations on a typical weekday morning peak. Not only is the most common average travel time between 1.5-2 hours, but people living in the southernmost areas can expect to travel more than two hours if public transport is available at all.

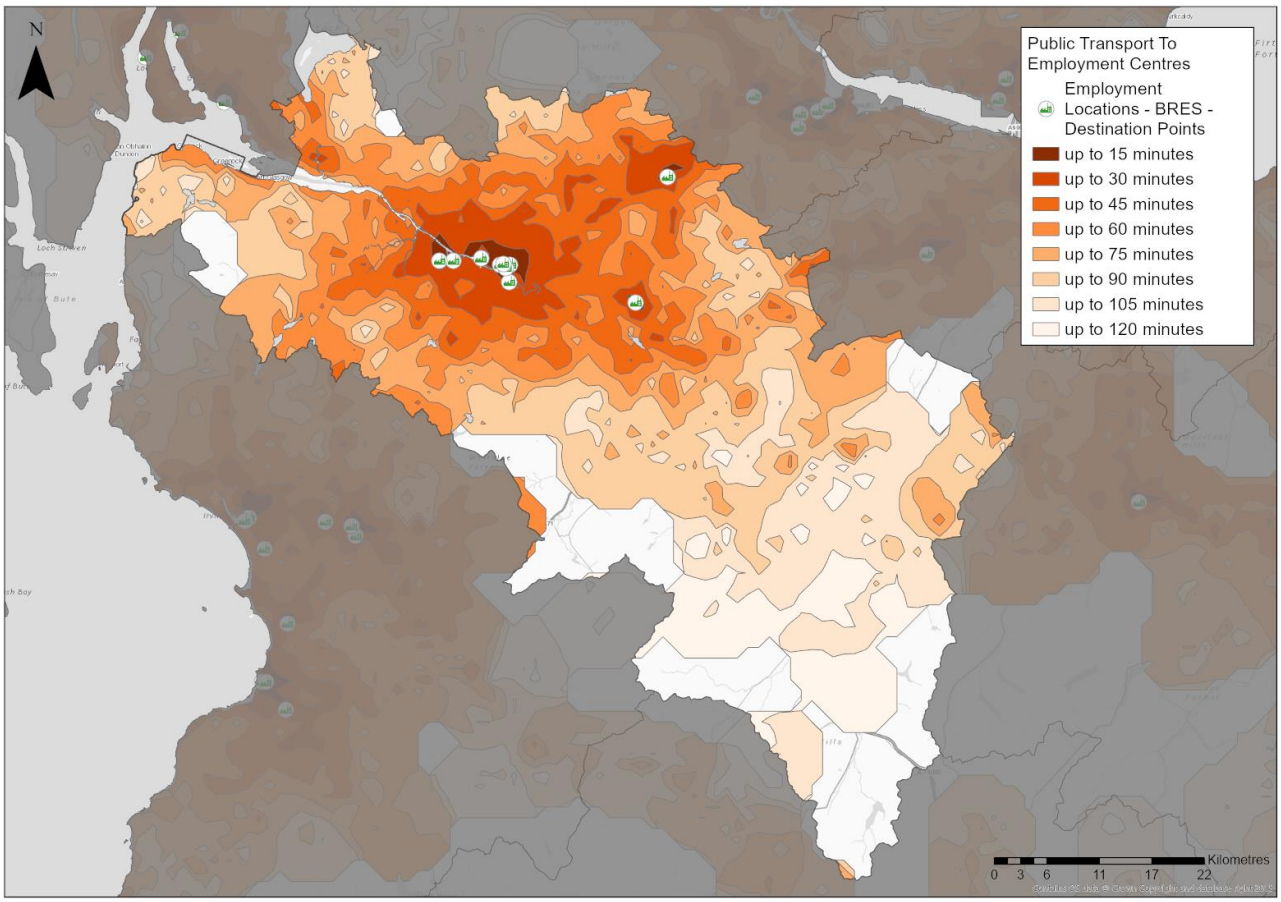

Figure 12: Public Transport To Employment Centres (on a typical Tue 6-10am) (click image to enlarge figure)

Figure 13 illustrates journey times to higher and further education centres by public transport. Public transport access to and from Universities and Colleges is broadly similar to the patterns for access to employment.

[25] Identification of top ten employment locations across the region by number of employees was based on employment data from the Business Register and Employment Survey (BRES), Office for National Statistics

Higher and Further Education institutions are mostly concentrated in or near Glasgow City. Most notable is the fact that the fringe parts of South Lanarkshire consistently have no convenient public transport under two hours.

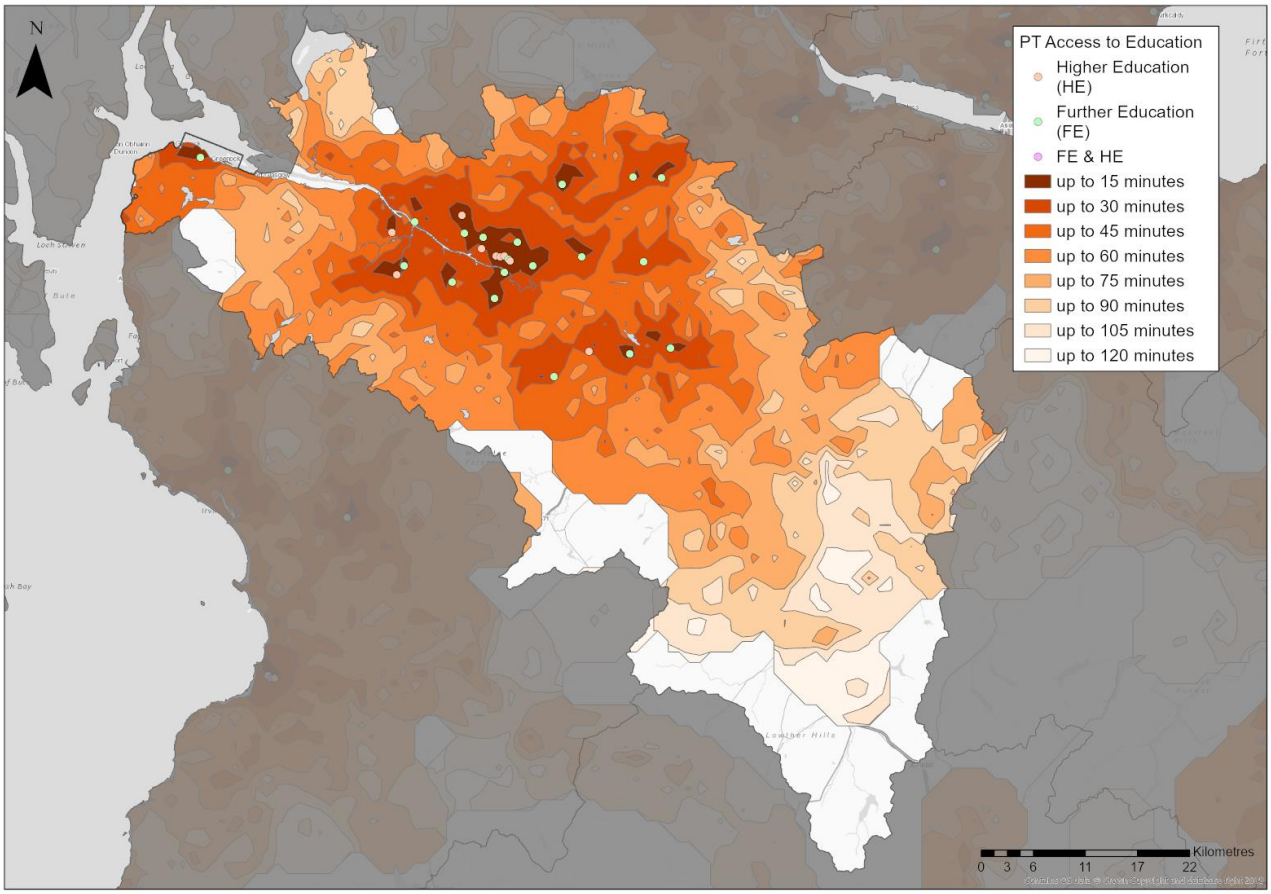

Figure 13: Public Transport To Higher & Further Education (on a typical Tue 6-10am)
(click image to enlarge figure)

2.3.7. Deprivation

The Scottish Index of Multiple Deprivation[26] (SIMD) demonstrates the socio-economic issues experienced in the region. In the region, Glasgow City is the local authority with the highest percentage of data zones that are most deprived, with 48% of its datazones in the 20% most deprived nationally; these are shown in red colours in Figure 14. On the other hand, East Dunbartonshire had the lowest percentage with 4.6%. Within the whole Glasgow City Region, 32.8% (766) of data zones were within the 20% most deprived and 19% (443) were within the 10% most deprived.

[26] *The Scottish Index of Multiple Deprivation (SIMD) identifies small area concentrations of multiple deprivation across all of Scotland in a consistent way. It allows effective targeting of policies and funding where the aim is to wholly or partly tackle or take account of area concentrations of multiple deprivation. SIMD ranks small areas (called data zones) from most deprived (ranked 1) to least deprived (ranked 6,976). People using SIMD will often focus on the data zones below a certain rank, for example, the 5%, 10%, 15% or 20% most deprived data zones in Scotland*. Available at: https://www2.gov.scot/Topics/Statistics/SIMD

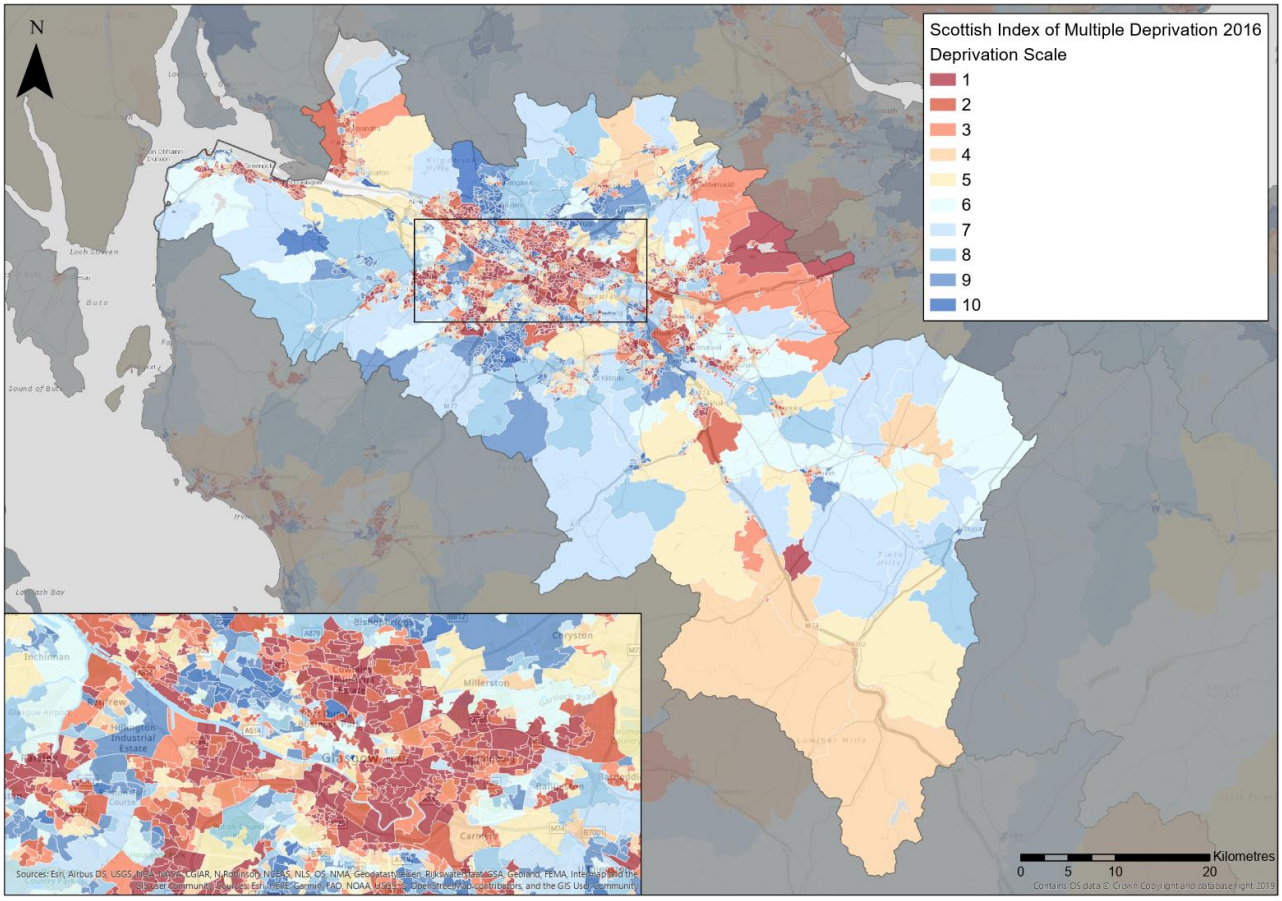

Figure 14: SIMD 2016 – Overall SIMD Rank (click image to enlarge figure)

The Office for National Statistics collects information on average weekly expenditure on goods and services in the UK[27], which is analysed by region, age and income group. Twelve categories of spending are included in the information involving Transport, Food and Drink, Clothing, Household Goods and Education. Transport is included as one of the 12 categories.

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. As income increases, the percentage of spending of overall expenditure also increases, ranging from 8% at the lowest income decile to 17% at the highest income decile.

The lack of affordable and accessible transport is an important factor in poverty and social exclusion. With Glasgow City Region accounting for the highest proportion of deprived data zones (32.8% within the 20% most deprived) in Scotland, more acute transport expenditure and affordability issues may be expected throughout the Glasgow City Region compared to other urban areas in Scotland. Figure 15 shows the analysis of transport expenditure across the region.

[27] Office for National Statistics, Financial Year ending 2018. Available at: https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure/datasets/detailedhouseholdexpenditurebygrossincomedecilegroupuktablea6

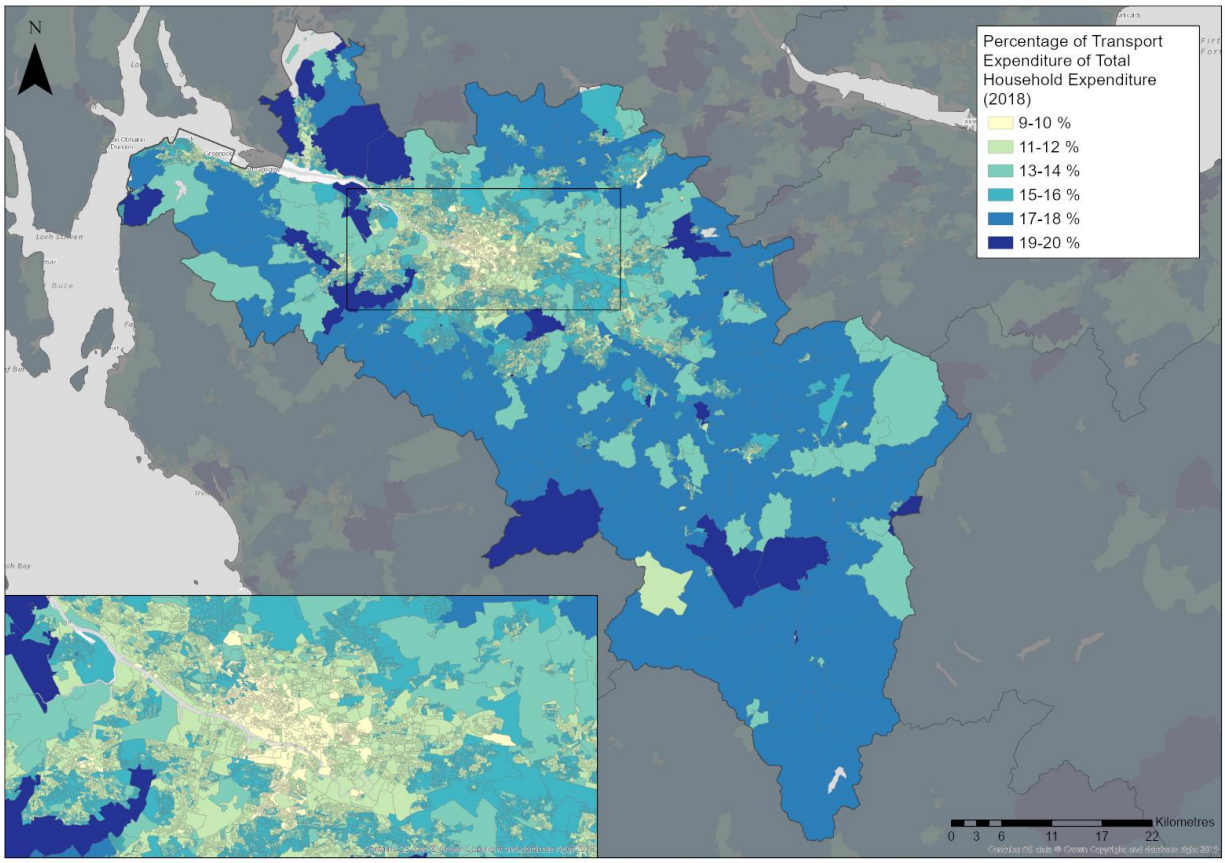

Figure 15: Percentage of Transport Expenditure of Total Household Expenditure (2018) (click image to enlarge figure)

2.3.8. Health

SIMD Health rankings, as shown in Figure 16 indicate that health quality throughout the Glasgow City Region is varied. In Glasgow City, 50% of data zones are ranked within the lowest quintile (20% most deprived) for health in Scotland, while in contrast East Renfrewshire and East Dunbartonshire respectively account for 7% and 8% of data zones within the lowest quintile. Between 30% and 40% of data zones within East Renfrewshire and East Dunbartonshire fall within the top quintile in Scotland, while Glasgow City, North Lanarkshire and West Dunbartonshire only account for 8%, 6% and 5% respectively.

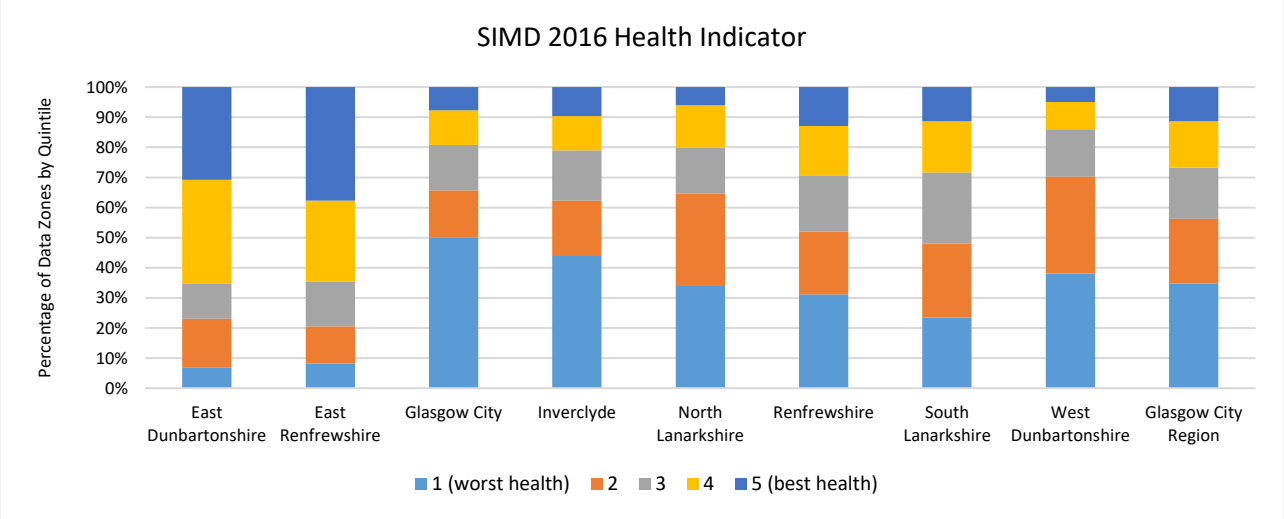

Figure 16: SIMD (2016) Health Indicator Distribution by Local Authority

2.4. Environmental Context

The Glasgow City Region has several Environmental Designations as shown in Figure 17 and include:

- 38 Sites of Special Scientific Interest (SSSIs);
- Six Special Protection Areas (SPAs);
- 10 Special Areas of Conservation (SACs); and
- 21 surface water features.

In addition, the Glasgow City Region includes a National Scenic Area (NSA) - Loch Lomond, located within the regional boundary at the northern extent and the Antonine Wall World Heritage Site located at the northern extent of the region.

Given the urban nature of the study area, there are a significant number of listed buildings and scheduled monuments in the city. The village of New Lanark in South Lanarkshire is a designated World Heritage Site.

There are number of Air Quality Management Areas (AQMAs)[28] in the Glasgow City Region, including Glasgow City Centre, Parkhead Cross, Byres Road, Paisley, Rutherglen, Motherwell and Lanark.

[28] All AQMAs boundaries in Scotland are available at: https://uk-air.defra.gov.uk/aqma/maps/

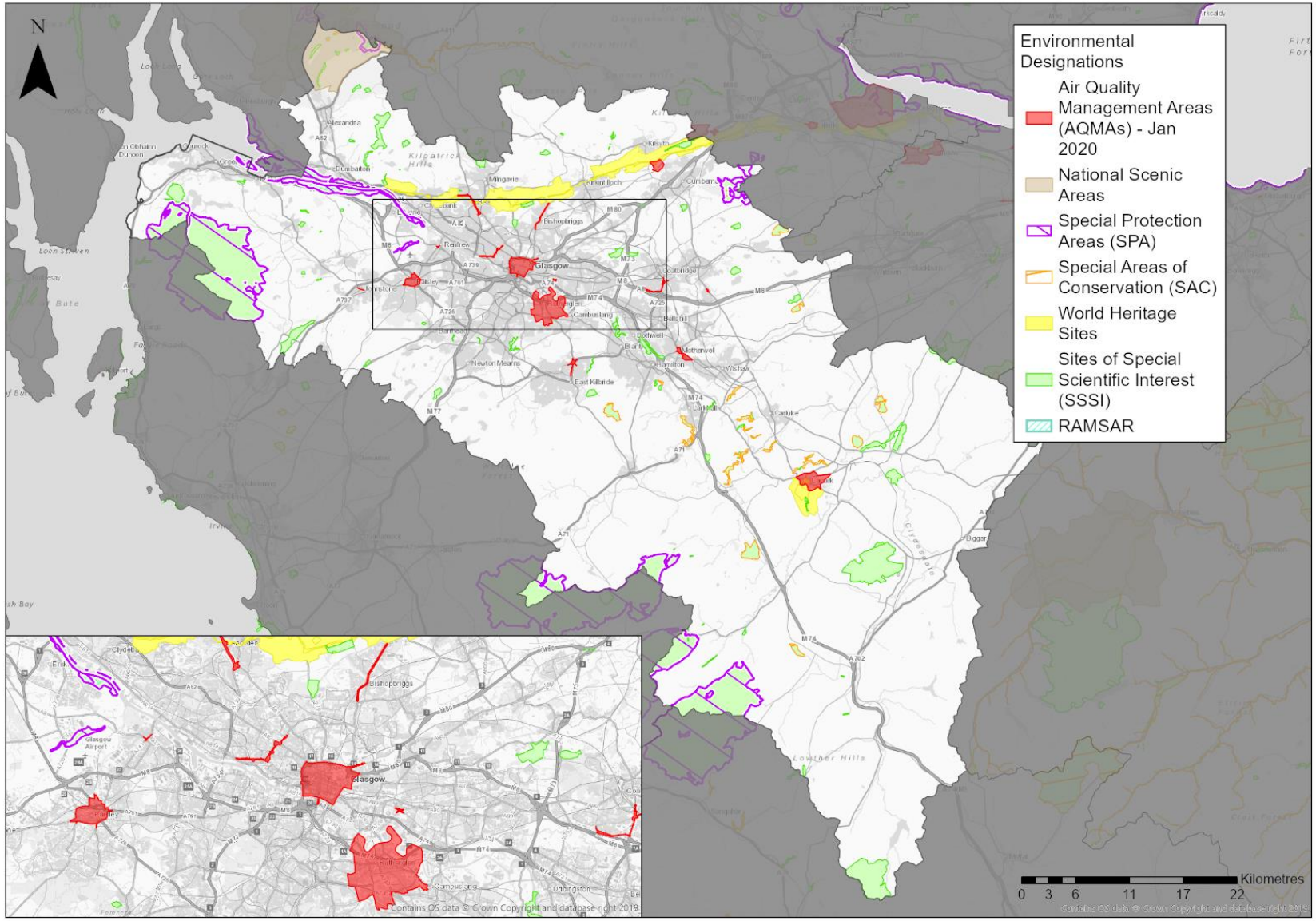

Figure 17: Environmental Designations Map for Glasgow City Region

Within the region, the highest proportion of total emissions from transport are in South Lanarkshire at 47%, followed by East Renfrewshire and North Lanarkshire, both at 45%. The lowest proportion is in East Dunbartonshire at 34%. Overall emissions have dropped by a third between 2005-2017 which is line with the Scotland-wide reduction. However, the proportion of transport-related CO_2 has increased by around 13 percentage points for both the Region and Scotland over the same period.[29]

Table 1: CO_2 Emissions Per Capita and Percentage of Transport-Related Emissions[30]

AREA	PER CAPITA EMISSIONS, 2017 (T) CO_2	% OF TOTAL EMISSIONS FROM TRANSPORT
East Dunbartonshire	4.0	34%
East Renfrewshire	4.2	45%
Glasgow City	4.2	34%
Inverclyde	4.2	34%
North Lanarkshire	5.4	45%
Renfrewshire	5.1	42%
South Lanarkshire	5.0	47%
West Dunbartonshire	4.2	39%
Glasgow City Region	4.6	40%
Scotland	5.3	39%

Figure 18 shows that total carbon emissions within the Glasgow City Region (from all sources) have fallen broadly in line with the Scottish average in recent years, showing approximately 33% decrease between 2005 and 2017. In line with the national average, the proportion of CO_2 emissions from the transport sector in the Glasgow City Region has increased from 27% in 2005 to 40% in 2017.

It is worth noting that Scotland's first Low Emission Zone[31] (LEZ) came into effect in Glasgow City Centre on 31 December 2018 in order to help bring about a significant improvement in air quality.

[29] UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2017. Available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017

[30] UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2017. Available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017

[31] Glasgow's Low Emission Zone. Available at: https://glasgowgis.maps.arcgis.com/apps/MapSeries/index.html?appid=a1cca42f50834e9ab30bec4769af1a09

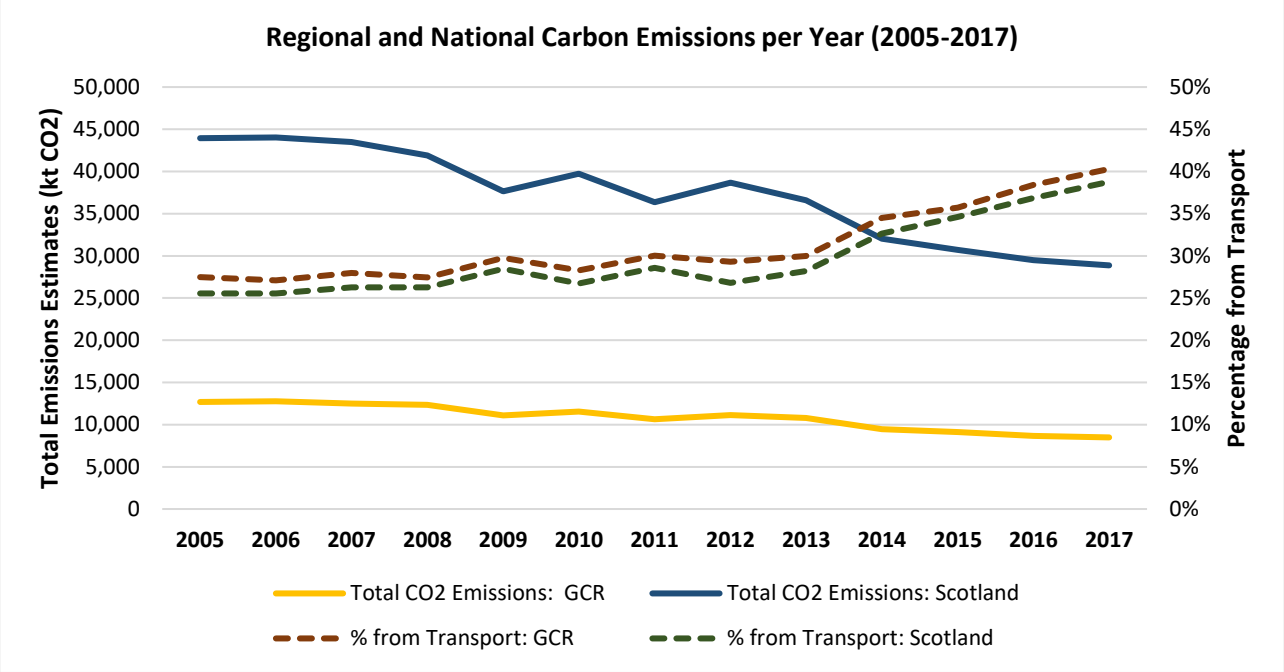

Figure 18: Regional and National Carbon Emissions by Year (2005-2017)[32]

2.5. Transport Context

Figure 19 shows the key transport network in the region, including the National Cycle Network (NCN), rail stations, ferry links to Dunoon, Bute, Kilcreggan and the internal ferry route between Renfrew and Yoker, and the trunk road network. It demonstrates that Glasgow City region has a wide-ranging transport network including an extensive rail and bus network, the Glasgow Subway, and one of the major Scottish Airports. The region benefits from strong connections to the surrounding regions and onwards to Northern Ireland, the Republic of Ireland and England.

[32] UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2017. Available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2017

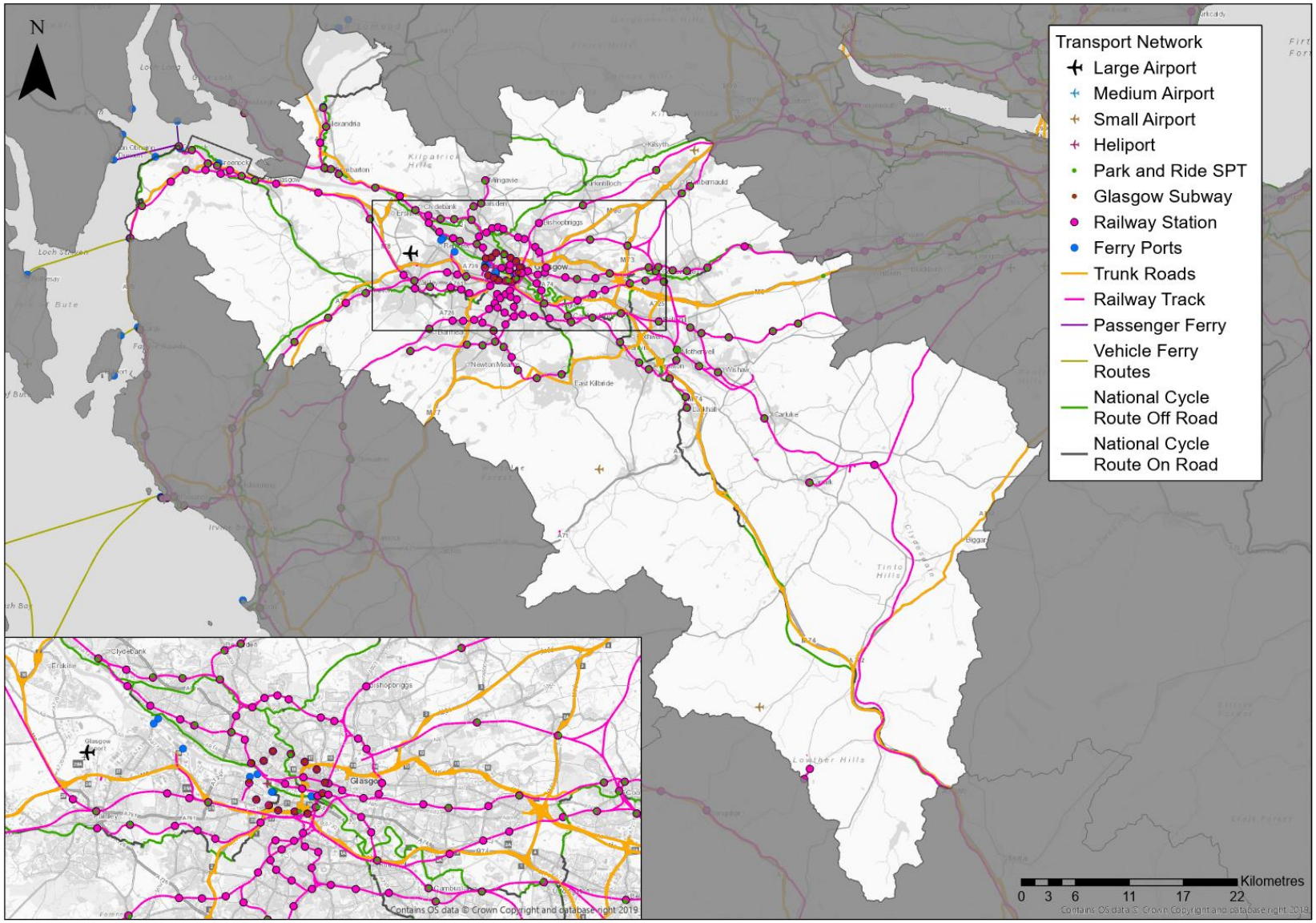

Figure 19: Glasgow City Region Transport Network

2.5.1. Active Travel

Several off-road and on-road cycle routes make up the National Cycle Network[33] in the region, which includes:

- NCN Route 7 Sunderland to Inverness (passing through Johnstone, Paisley, Glasgow and Balloch),
- NCN Route 75 Leith to Portavadie (passing through Greenock, Johnstone, Glasgow, Cambuslang, Coatbridge and Airdrie),
- NCN Route 754 (traffic free) Edinburgh to Glasgow (passing through Kirkintilloch);
- NCN Route 755 Kirkintilloch to Strathblane,
- NCN Route 756 (East Kilbride to the Clyde at Rutherglen); and
- NCN Route 74 Greater Glasgow to Gretna.

The National Cycle Route in the region is shown in Figure 20.

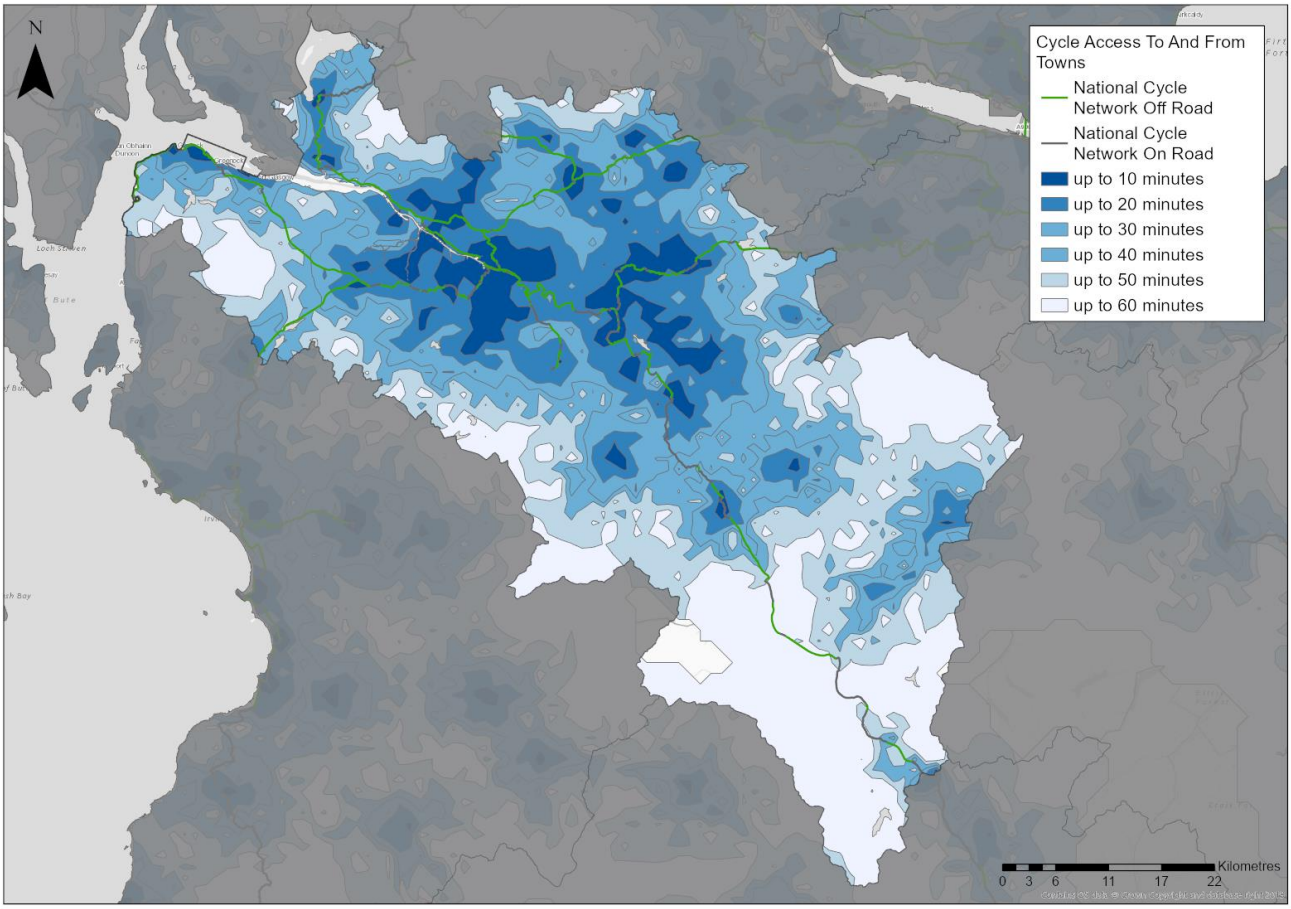

Figure 20: National Cycle Route in the Glasgow City Region (click image to enlarge figure)

[33] Ordnance Survey. Available at: https://osmaps.ordnancesurvey.co.uk/55.80170,-4.16742,10

In addition, the region has an extensive local, regional and Core Paths network[34] across all local authorities (as shown in

Figure 21), although the network is relatively poorly in some areas within South Lanarkshire and Inverclyde. The Core Paths Network is a system of paths sufficient for the purpose of giving the public reasonable 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.

A public cycle hire scheme operates in Glasgow City with 700 bikes across 70 locations.[35]

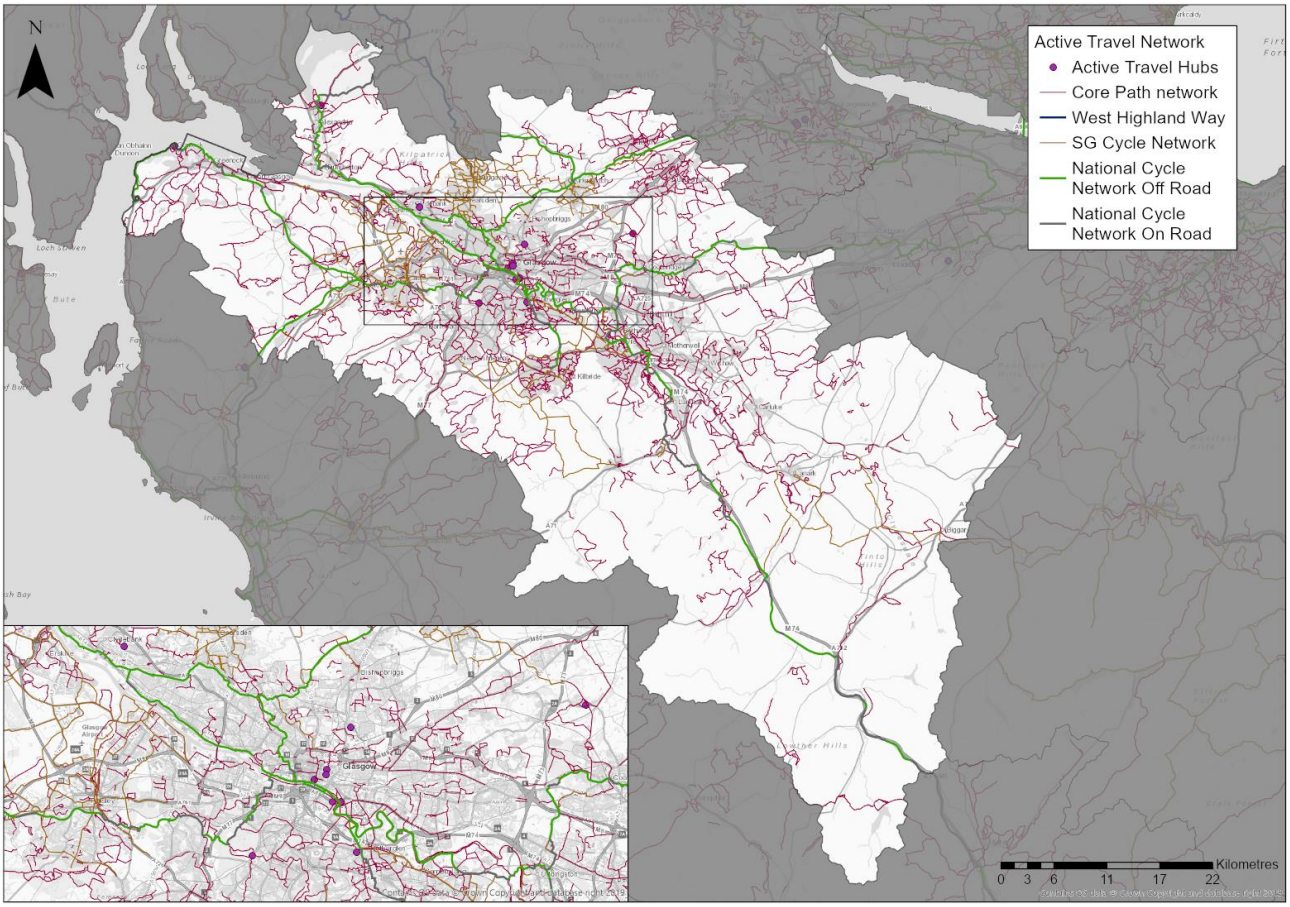

Figure 21: Glasgow City Region Active Travel Network

[34] *The Core Paths Network is a system of paths sufficient for the purpose of giving the public reasonable 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.* Available at: https://data.gov.uk/dataset/f69babe5-6ac7-4292-92ab-012fe82906b8/core-paths-scotland

[35] Glasgow City Council, Cycling Information Map. Available at: https://glasgowgis.maps.arcgis.com/apps/webappviewer/index.html?id=8eb9f600ed154ae58b09c2c5902ce7f0

2.5.2. Bus Network

The largest bus operators in the region are First, McGill's, Stagecoach and Citybus, though smaller operators also provide services. Schools services, Community Transport and Demand Responsive Transport is also provided. Although there is reasonable coverage, the frequency of services differs widely depending on the time of day and location. Buchanan bus station in Glasgow city centre is the biggest in Scotland and is owned and operated by Strathclyde Partnership for Transport (SPT). The bus network map is shown in Figure 22.

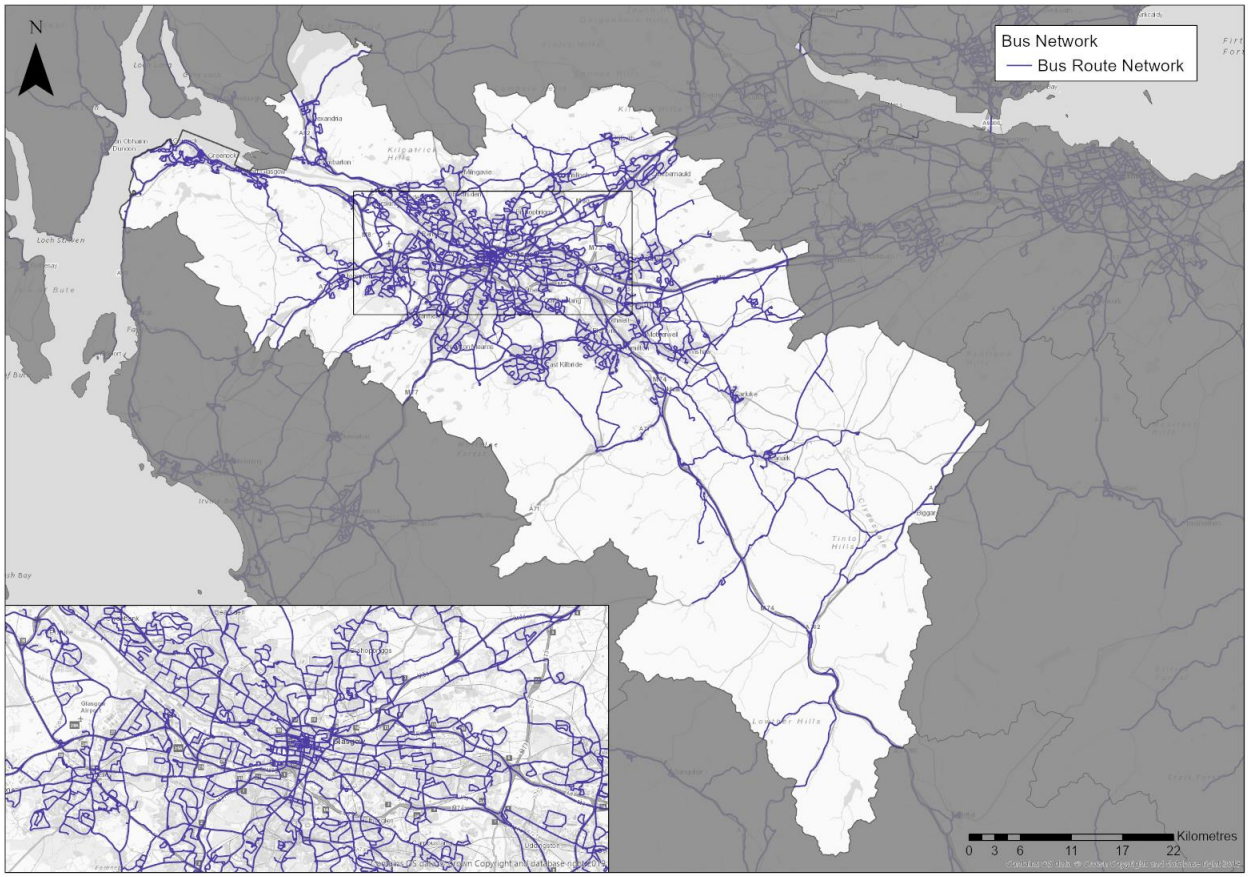

Figure 22: Glasgow City Region Bus Network[36] (click image to enlarge figure)

There has been a general trend of decline on bus use and this is particularly noticeable in the Glasgow City Region with all eight Local Authority areas suffering noticeable decline as shown in Figure 23.

[36] Traveline National Dataset (TNDS), Third Quarter 2019

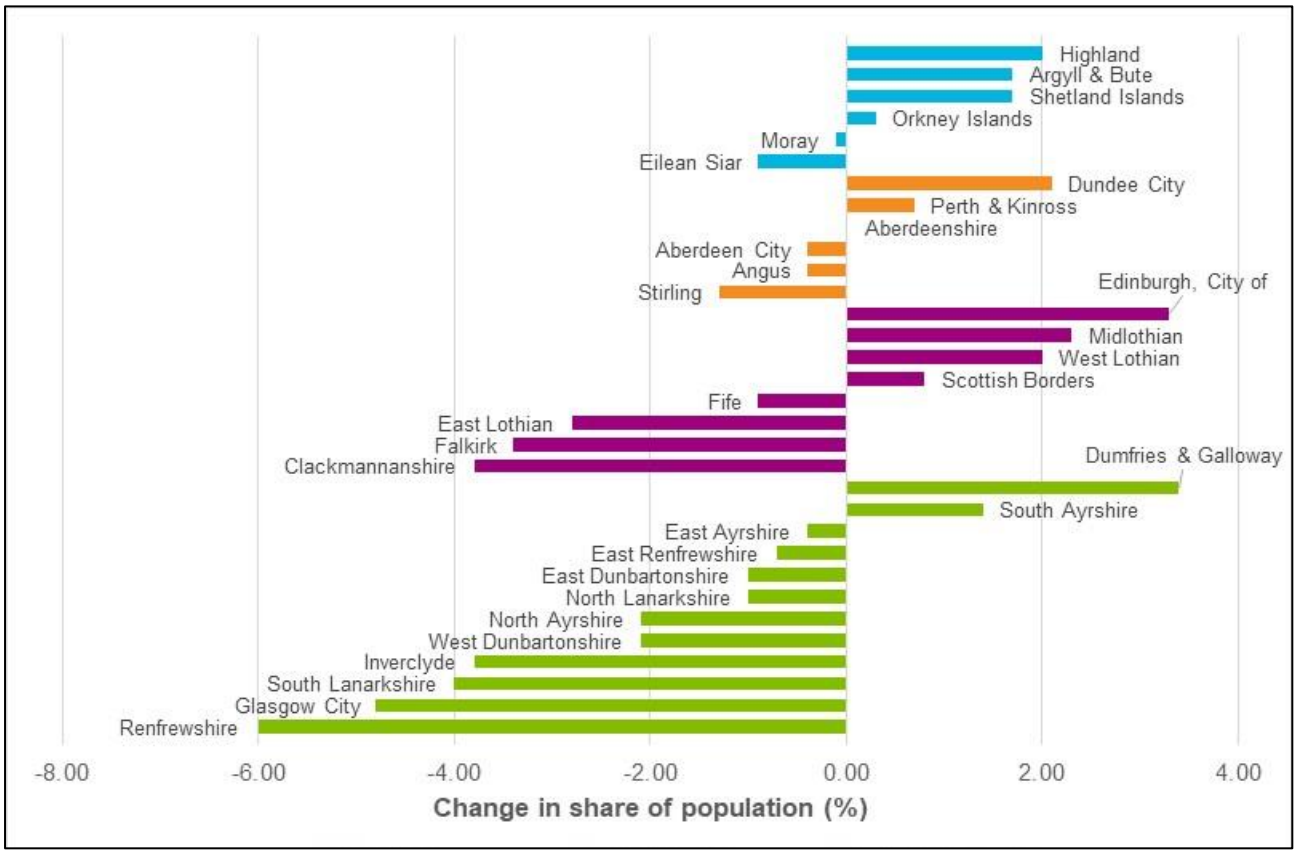

Figure 23: Change in share of population using the Bus Four or More Days a Week, 2003/04 – 2017[37]

Analysis of socio-economic trends in relation to bus use in Scotland[38] shows:

- Women tended to use buses more frequently than men (31% of women used the bus at least once a week compared to 25% of men).
- Bus use is highest amongst younger people (61% of 16 to19 year olds had used the bus in the last month). It was lowest for people aged 50 to 59 (35% having used the bus in the last month), but higher at older ages, with fifty per cent of those aged 70 to 79 having taken the bus.
- Frequency of bus use was also higher in urban areas (58% of people in large urban areas used the bus at least once a month compared to 19% in remote rural areas).
- Bus use is highest amongst those in further or higher education, with usage lowest amongst those who are self-employed. The greatest level of decline between 2007 and 2017 has been for those in further or higher education and for those who are permanently sick or disabled.
- Bus use is highest in the 20% most deprived areas in the country, and it is this group that has shown the greatest decline in bus use between 2007 and 2017, with decline lowest in the 20% least deprived areas.

[37] Adults (16+) - use of local bus services, and train services, in the previous month. Transport and Travel in Scotland 2003/04 and 2017

[38] Transport and Travel in Scotland

Whilst these factors apply across Scotland, factors relating to urban areas and deprivation have a particular relevance to the Glasgow City Region.

2.5.3. Rail Network

There are 155 rail stations in the Glasgow Region, with six in East Dunbartonshire, nine in East Renfrewshire, fifty-nine in Glasgow, fourteen in Inverclyde, twenty-five in North Lanarkshire, ten in Renfrewshire, nineteen in South Lanarkshire, and thirteen in West Dunbartonshire and many have recorded large increases in rail patronage numbers in recent years. Based on total passenger numbers (entries and exits), Glasgow Central (32,915,936, ranked the busiest in Scotland and 11th busiest in the UK), Glasgow Queen Street (16,398,242) and Paisley Gilmour Street (4,151,566) were the region's busiest stations in 2017/18[39]. These were also the 1st, 3rd and 4th busiest stations in Scotland, respectively. Glasgow to London is the core route of the West Coast Main Line (WCML) branching to Northampton, Birmingham, Manchester and Liverpool.

2.5.4. Glasgow Subway

Glasgow Subway is a 10.5km metro system running in a circular loop serving 15 stations and providing two crossings under the River Clyde. The entire system is underground, contained in twin-bore tunnels, the outer circle runs clockwise in operation and the inner circle runs anti-clockwise in operation. About 2% of the region's travel to work journeys are made by Subway[40], although a large proportion of trips made by Subway are for commuting (58% for work and education; 40% for leisure) purpose.[41] The Subway is currently undergoing a £300 million modernisation programme.

Over the past 10 years, patronage has been at or just below 13 million per annum following a drop after the economic downturn in 2008/09. More recently, patronage increased by 3% between 2017/18 and 2018/19.[42]

2.5.5. Trunk Road Network

There is an extensive trunk road network in the Glasgow City Region, providing connectivity within the region and to other regions. Glasgow can be regarded as a focal point of the country's trunk road network with the convergence of several major trunk roads and motorways. The trunk road network in the region consists of the following routes:

- M74/A74(M) Glasgow - Carlisle
- M77/A77 Glasgow - Stranraer
- A78 Greenock - Prestwick

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[39] Annual estimates of the number of entries/exits and interchanges at each station in Great Britain. Office of Rain and Road, 2017/2018

[40] National Records of Scotland, Census 2011, Table QS702SC - Method of travel to work or study. All people aged 4 and over who are studying or aged 16 to 74 in employment in the week before the census

[41] Glasgow Subway Passenger Survey, Autumn 2017, Transport Focus. Available at : https://d3cez36w5wymxj.cloudfront.net/wp-content/uploads/2018/04/27120458/Glasgow-Subway-Passenger-Survey.pdf

[42] SPT operations committee reports, Public Transport Monitoring reports available at www.spt.co.uk

- A725/A726 Shawhead – East Kilbride – Phillipshill Roundabout
- A737 St James Interchange – Kilwinning
- M8/A8 Edinburgh - Greenock
- M80 Glasgow - Stirling
- A82 Dallnottar - Inverness

The A8/M8 is the main east-west corridor which links Glasgow to Edinburgh. In addition, during 2018, the average annual daily flow on the M8 at the Kingston Bridge was in excess of 70,000 vehicles making it the busiest motorway in Scotland and provides links via the centre of Glasgow to Glasgow Airport, Paisley, Airdrie, Coatbridge and Livingston.

2.5.6. Maritime

There are four key passenger ferry routes which operate in the Region:

- Gourock to Dunoon (passenger only)
- Hunters Quay to McInroy Point (vehicles and passengers)
- Gourock to Kilcreggan (passenger only)
- Wemyss Bay to Rothesay (vehicles and passengers)

The region also has the Renfrew Ferry which links Renfrew and Yoker across the River Clyde and operates on demand. A number of pleasure / tourist services operate along the Clyde River.

Four sea ports are located in the Glasgow City Region: Gourock, Greenock, Port Glasgow and King George V Dock which act as freight hubs accommodating a range of commodities including timber, agricultural materials and coal as well as providing passenger / freight services.

2.5.7. Aviation

Glasgow Airport is served by over 30 airlines travelling to over 100 destinations worldwide, including Canada, the US, the Caribbean, Europe and the Middle East. Airport passenger figures are approx. 9.9 million per annum. It is Scotland's principal long-haul airport as well as Scotland's largest charter hub[43]. With regards to air freight, Glasgow Airport handled 16,000 tonnes of cargo in 2017[44], ranking 2nd after Edinburgh airport.

Glasgow Airport is well connected to the strategic road network, with the M8 motorway providing road access by car, taxi, and bus services. More specifically access to the airport is

- Road - The primary access point to the airport and to the Glasgow Airport Investment Area is via Junctions 28 and 29 of the M8. The M8 connects with Glasgow to the east and with Greenock and Port of Glasgow areas to the west, whilst also connecting to the north of the River Clyde area through the Erskine Bridge link. In addition, the A737

[43] Glasgow Airport. Available at: https://www.glasgowairport.com/about-us/
[44] Scottish Transport Statistics, No 37 2018. Available at: https://www.transport.gov.scot/publication/scottish-transport-statistics-no-37-2018-edition/chapter-8-air-transport/#tb813

provides connections with the southern regions of Renfrewshire and Ayrshire. Local road access is also provided by the A761 linking to Paisley and Glasgow Southside, and by the A726 linking to Paisley, Erskine and Inchinnan, respectively. The airport can also be accessed via Inchinnan Road to the south of the M8, and via Abbotsinch Road to the north of the M8.

- Bus services - The airport is currently served by a number of bus services[45], including the Glasgow Airport Express service 500 bus from Glasgow city centre to the airport. Other services, including the 77 and 757 which respectively link the airport to Glasgow City Centre and Paisley Gilmour Street station have more of a local service role and are deemed less attractive by the airport passenger users. These services have frequent, local stopping patterns and long journey times compared to a trip by private vehicle or taxi, making it less attractive for users. With limited coverage across the City Region, bus services are not the most attractive option of the majority of people using Glasgow Airport. The current shuttle service, the First 500, accounts for the majority of passengers and bus mode share (carrying approx. 1 million passengers/year[46]).
- Rail services - There are no direct rail links to the airport, with the nearest station at Paisley Gilmour Street. Over 300 rail services go through Paisley Gilmour Street station each day, with main services linking Paisley with Glasgow Central, Ayrshire and Inverclyde.
- Active travel options[47] to and from the airport are also available via a series of cycle routes across the airport campus linking Abbotsinch Road in the east to Paisley and Renfrew, and Barnsford Road in the west which provides access to Houston, Erskine, and Bishopton. Glasgow Airport also provides with free cycle-parking facilities and bike services.

2.5.8. Ultra Low Emission Vehicles

Glasgow City Region has the largest number of licenced Ultra Low Emissions Vehicles (ULEVs)[48] as at 2019 (Q3). This equates to just over a third of all ULEVs in the country (5,682 out of 14,785). Analysed by number of vehicles per 1,000 habitants, the region ranks second after Forth Valley. At a local authority level, Renfrewshire accounts for the largest number of ULEVs within Scotland (22% of all ULEVs in Scotland). Glasgow City ranks 5th, accounting for 5% of the total.

[45] To & From Glasgow Airport. Available at: https://www.glasgowairport.com/to-and-from/bus/

[46] Glasgow Airport Stakeholder Engagement

[47] To & From Glasgow Airport. Available at: https://www.glasgowairport.com/to-and-from/cycling-or-walking/

[48] VEH0132, Licensed ultra low emission vehicles by local authority: United Kingdom. Available at : https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01
Ultra low emission vehicles (ULEVs) are vehicles that emit less than 75g of carbon dioxide (CO2) from the tailpipe for every kilometre travelled. In practice, the term typically refers to battery electric, plug-in hybrid electric and fuel cell electric vehicles.

2.6. Context Summary

Key points to note from the context review are:

- The region has approximately one third of the Scottish population and contributes approximately one third of the Scottish GVA but also suffers from high levels of deprivation including transport poverty, higher number of benefit claimants, lower educational attainment and high levels of economic inactivity.
- The economy has a wide spread of activity with high levels of employment in human health and social work, and administration and defence.
- Despite car ownership being relatively low in the region compared with other regions, travel to work by car is the dominant mode with 59% of people driving to work. Driving to work made up 45% of trips less than 5km. Bus travel makes up 11.6% (17.9% in Glasgow City), rail carries 9% of commuting trips, whilst 10% of people walk and less than 1% of people cycle.
- Travel for work within the region tends to be within one local authority area or into Glasgow City from the surrounding areas. Movements between the other seven local authorities is also noted.
- Air quality issues are particularly notable in the Glasgow City Region with high levels of PM_{10} pollution.
- The region suffers from high levels of deprivation with 33% of zones in the worst 20% and poor levels of health with 35% in the worst 20%. Glasgow City has the highest levels of deprivation in Scotland.
- The policy framework applicable to the region has a strong emphasis on improved connectivity, addressing inequality, addressing barriers to employment, the importance of placemaking and aspirations to bring vacant and derelict land back into use to help deliver a well-connected, sustainable communities, promotion of modal shift away from private car, increasing walking and cycling opportunities, and the need to provide an attractive place for visitors and for businesses to invest and grow.

3. Problems & Opportunities

3.1. Approach to Problem & Opportunity Identification

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

3.1.1. 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 primary data such Scottish Household Survey[49], Transport and Travel in Scotland[50], journey time data[51], accident data, public transport provision, as well as data gathered from recent reports and studies in the region. Key findings from the data analysis are presented below, to evidence the problem and opportunity themes set out.

3.1.2. Stakeholder Engagement

Stakeholder engagement is an important element in the identification of problems and opportunities. For the Glasgow City Region this has consisted of:

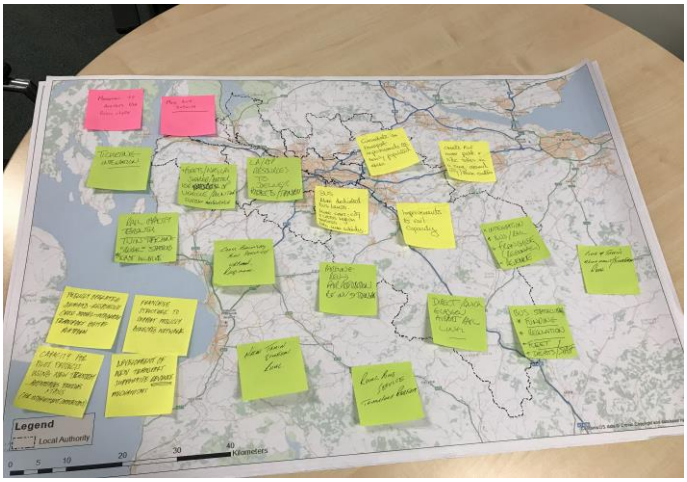

Figure 24: Stakeholder Engagement

- Problems and Opportunities workshops – two held in Glasgow with regional stakeholders in June 2019. Over 150 stakeholders were invited with attendance from 50 across the two events.
- Intervention Workshops – two events were held in November 2019 to generate potential interventions which may address the identified problems and opportunities. Over 150 stakeholders were invited with attendance from 40 across the two events.
- Structured Interviews were undertaken with ten stakeholders, comprising senior officers across the eight local authorities in the region, Strathclyde Partnership for Transport and Glasgow Airport.

[49] Scottish Household Survey. Available at: https://www2.gov.scot/Topics/Statistics/16002
[50] Transport and Travel in Scotland results from the Scottish household Survey, 2018. Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-results-from-the-scottish-household-survey-1/
[51] Data supplied by INRIX via Transport Scotland

- An Elected Members Briefing Workshop was held in January 2020. The members of the SPT Partnership Board were invited providing a cross section from all Local Authorities that make up the region. This was an opportunity for them to hear first-hand about the project and its programme, problems and opportunities gathered, the interventions generated, as well as putting forward their views for interventions to be considered;
- An online survey which was promoted widely in December 2019 and January 2020, with a total of 645 responses (of the 3,025 received nationally) directly from Glasgow City Region residents, representatives and / or businesses;
- Regional Transport Working Group Meetings, comprising members of the Glasgow City Region Transport and Connectivity Portfolio Group representing the eight local authority areas, Clydeplan and SPT; and
- Schools Engagement is underway across the country, with one primary school in North Lanarkshire, two primary and one secondary schools in Glasgow City and one primary school in East Dunbartonshire 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.

Further details of stakeholder engagement activities are available in Appendix C.

3.2. Problems & Opportunities

Based on the evidence described in the previous section, the following transport-related problems and opportunities have been identified for the Glasgow City Region. Evidence to support the themes listed below is provided in this section.

- Social Exclusion
- Transport Poverty and Affordability
- Physical Activity and Health
- Transport Emissions
- Accessibility
- Connectivity
- Low Level of Active Travel Uptake
- Safety
- Capacity Constraints

3.2.1. Problems

SOCIAL EXCLUSION

There is a wide variation in inclusiveness across the Glasgow City Region. Glasgow City Region was the region with the highest level of deprivation in Scotland; 32.8% of data zones in the region were in the 20% most deprived in Scotland and 19.0% were in the 10% most deprived. This was a particular problem in Glasgow City where 48.3% of data zones were in the 20% most deprived, and 32.8% were in the 10% most deprived. Inverclyde has 43.9% and West Dunbartonshire has 39.7% of zones in the most deprived quintile.

Unaffordable and unreliable local public transport is limiting access to job opportunities for residents of low-income neighbourhoods in the Glasgow City Region, according to the

independent Joseph Rowntree Foundation.[52] In their Tackling transport-related barriers to employment in low-income neighbourhoods report, the JRF note that 'Transport is a key barrier to employment for many residents living in low-income neighbourhoods. All too often, public transport is seen as something that constrains rather than enables a return to work.' This report used six Case studies, two of which are in the Glasgow City Region (Castlemilk and Inverclyde). A recent Joseph Rowntree Foundation report notes for the region that one in four children are in poverty as families in the Glasgow region[53].

Figure 25 shows the estimated percentage of children living in poverty in 2017/18.

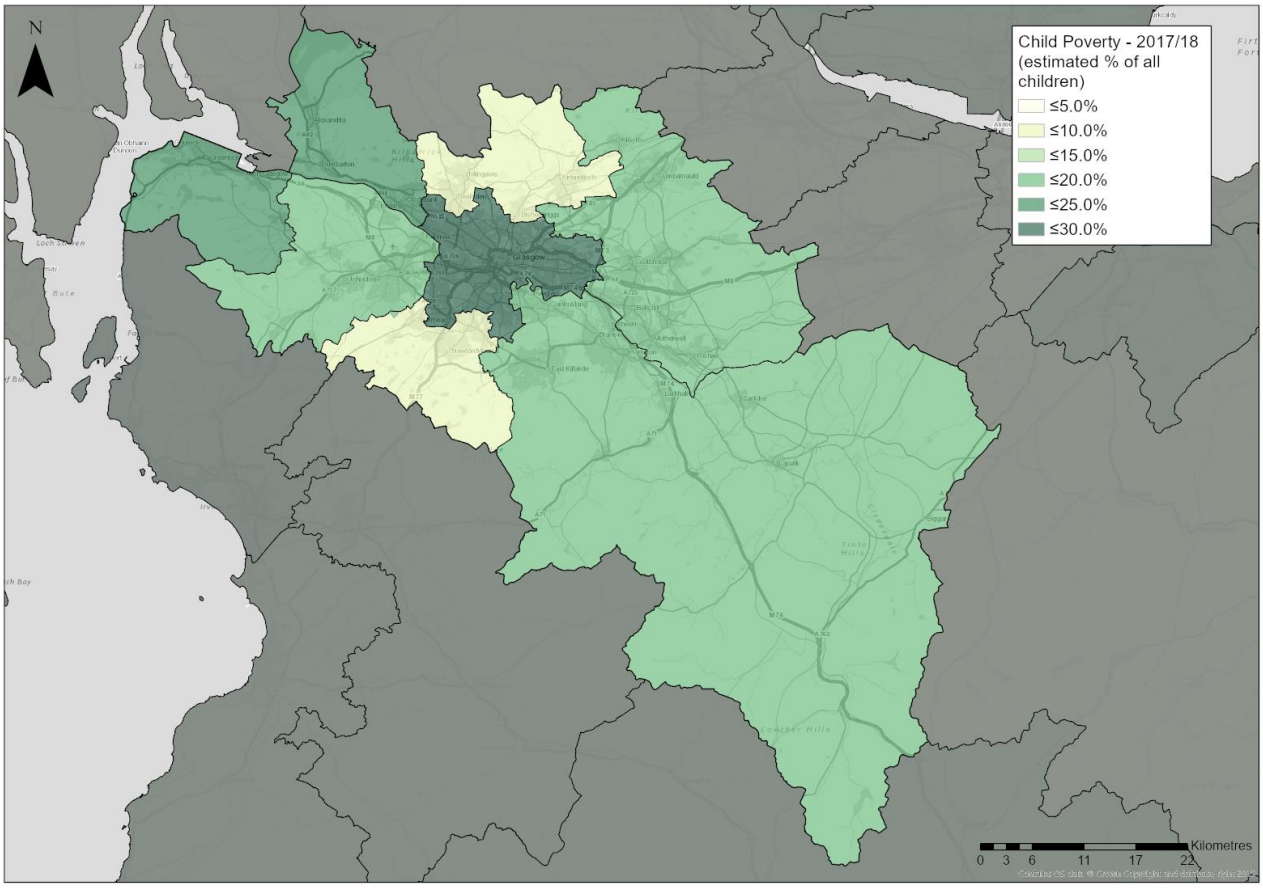

Figure 25: 2017/18 estimated % of children living in poverty[54] (click image to enlarge figure)

TRANSPORT POVERTY AND AFFORDABILITY

Transport poverty considers availability of a car, accessibility to bus services and income levels and assigns a low, medium or high risk of transport poverty accordingly. Figure 26 shows the assessment for the Glasgow City Region. Areas in and around Glasgow City

[52] Joseph Rowntree Foundation. Available at: https://www.jrf.org.uk/press/families-glasgow-locked-out-jobs-market
[53] Joseph Rowntree Foundation. Available at: https://www.jrf.org.uk/press/one-four-scottish-children-poverty-parents-locked-out-jobs-market
[54] Community Planning Outcomes Profile. Available at: https://scotland.shinyapps.io/is-community-planning-outcomes-profile/

generally have a lower risk of transport poverty with surrounding areas having medium risk and some areas high risk of transport poverty.

In the Glasgow City region, 31% of datazones were classified as high risk for transport poverty compared to 38% in Scotland; 42% were classified as medium risk compared to 41% in Scotland; and 27% were classified as low risk compared to 21% in Scotland. This suggests that the region is more likely to suffer from transport poverty than other parts of the country.

South Lanarkshire had the highest proportion of high risk datazones, with 51%, followed by North Lanarkshire, with 49%. Glasgow City had the lowest proportion of high risk datazones with 13%, followed by Inverclyde at 22%.

Chapter 2 showed that transport expenditure varies across the region with those in higher risk areas typically spending more on transport relative to other expenditure.

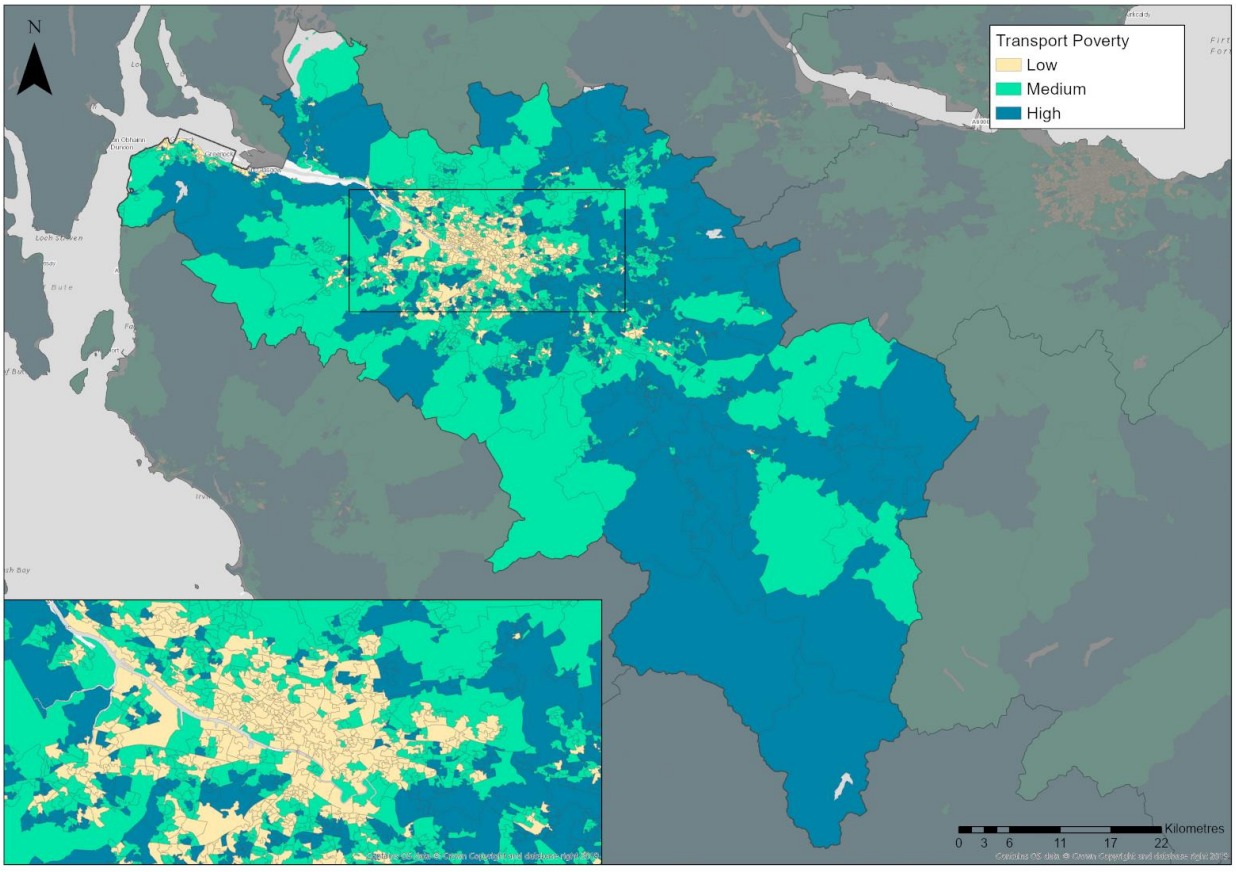

Figure 26: Transport Poverty[55] (click image to enlarge figure)

The perceived high cost of bus was raised through consultation and in particular comparisons were made with the cost of travel in Edinburgh where bus fares are cheaper. This in borne out through a review of the fares offered by the major operators in each region

[55] Transport Poverty analysis is based on research which uses household income, car availability and access to the public transport network data. Based on Transport Poverty in Scotland, Sustrans 2016. Available at: https://www.sustrans.org.uk/media/2880/transport_poverty_in_scotland_2016.pdf

although it is noted that there many multiple ticket types on offer. Whilst season tickets can offer cost savings, some stakeholders noted that with the option to work more flexibly these tickets may not present value for money for all. Lack of affordable integrated ticketing was frequently raised with some confusion regarding the best way to get the cheapest ticket.

Looking at Advance, Full price, Reduced and Seasonal tickets for rail journeys within the region, i.e. Origin AND Destination within the region and inter-regional, i.e. Origin OR Destination within the region rail journeys, Glasgow City Region ranks roughly in the middle based on average fare price per mile compared to the other regions in Scotland.

PHYSICAL ACTIVITY AND HEALTH

SIMD Health indicators were presented by local authority in the Glasgow City Region in Chapter 2. Figure 27 shows the SIMD health indicators mapped across the region. There are many areas that fall into the highest level of deprivation with a wide variation across the region.

Physical activity levels of much of the region's population fall below recommended guidelines with 35% of adults living in the NHS Greater Glasgow and Clyde area (which excludes North and South Lanarkshire) not achieving recommended amounts of physical activity (i.e. do not get at least 150 minutes of moderately intensive physical activity or 75 minutes vigorous activity per week or an equivalent combination of both)[56]. It is also noted that those living is the most deprived areas are least likely to meet these recommended targets.

Transport choices have the potential to improve health outcomes: "For most people, the easiest and most acceptable forms of physical activity are those that can be incorporated into everyday life. Examples include walking or cycling instead of travelling by car."[57]

[56] NHS Greater Glasgow and Clyde 2017/18 Adult Health and Wellbeing Survey Glasgow City HSCP Final Report. Available at http://www.glasgow.gov.uk/CouncillorsandcommitteesviewSelectedDocument.asp?c=P62AFQDN0G2UNT81Z3

[57] Department of Health, 2011 Start Active, Stay Active. A report on physical activity for health from the four home countries' Chief Medical Officers. Available at https://www.gov.uk/government/publications/start-active-stay-active-a-report-on-physical-activity-from-the-four-home-countries-chief-medical-officers

Approximately 11 – 12 % of people did not walk anywhere (for either a specific purpose or for pleasure) in the past week.[58]

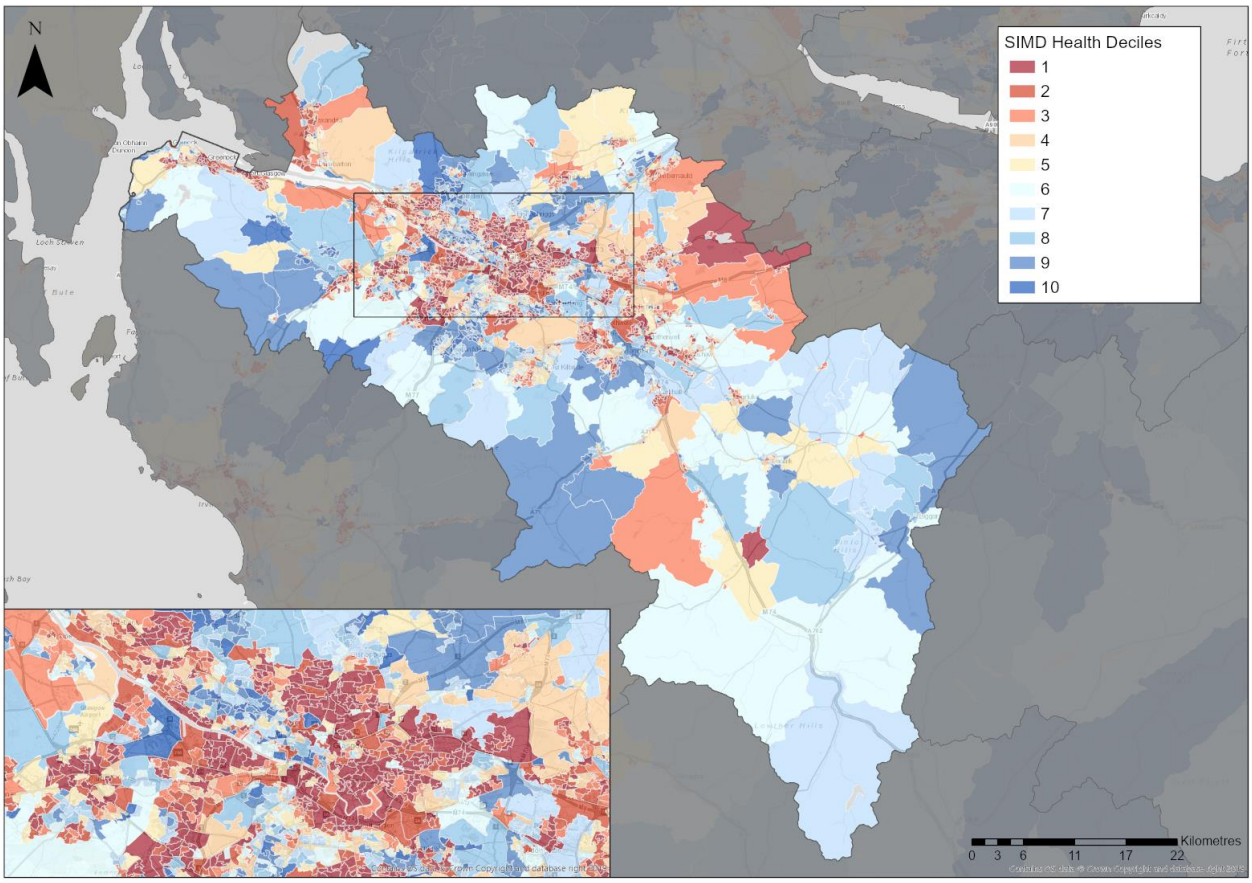

Figure 27: SIMD Health Indicators[59] (click image to enlarge figure)

TRANSPORT EMISSIONS

Transport is a significant contributor to carbon dioxide emissions both nationally and regionally. In addition to CO_2 emissions, transport generates just over one-third of the total emissions of nitrogen oxides (NO_x) and just over one-sixth of the Scotland's total PM_{10}[60]). Similar to other Scottish urban areas (i.e. Edinburgh), motorised transport results in poor air quality in parts of Glasgow, as nitrogen dioxide and PM originate principally from road traffic. Transport has a number of negative impacts on human health, in terms of air quality, emissions of key air pollutants and noise. A transport system that is not conducive to walking and cycling reduces opportunities for people to undertake physical activity and can lead to an increase in obesity and other conditions arising from inactivity.

Glasgow City Council operate an extensive monitoring network across the city to measure ambient levels of air pollutants (NO_2, SO_2 and Particulate matter). Overall, air quality is improving over the city area, but the city centre is still showing levels of exceedance in NO_2

[58] Transport and Travel in Scotland 2018. Based on 2016 data as this question was asked in survey every other year until 2016. It was not asked in 2018.
[59] Scottish Index of Multiple Deprivation, 2016. Available at: https://www2.gov.scot/Topics/Statistics/SIMD
[60] Cleaner air for Scotland: the road to a healthier future, November 2015. Available at: https://www.gov.scot/publications/cleaner-air-scotland-road-healthier-future/pages/9/

and PM_{10}. Particulate matter of less than 10 microns in diameter (PM_{10}) is particularly damaging to human health. Particulate concentration varies across the region with highest concentration along key road links and high levels of concentration in the Glasgow City area itself.

ACCESSIBILITY

During the extensive stakeholder engagement concerns were raised about access to employment, education and healthcare, including night time services to the City. It was considered that cross region connections were poor and public transport options for shift workers and night time events were limited. Transport to acute NHS sites including the Queen Elizabeth Hospital, Hairmyres and Monklands was also considered to be poor. Access to employment and education is discussed in Chapter 2. Figure 28 shows the SIMD Geographic access indicator61 figure across the region. Again, this demonstrates the diverse nature of the region with large areas in the lowest decile for access.

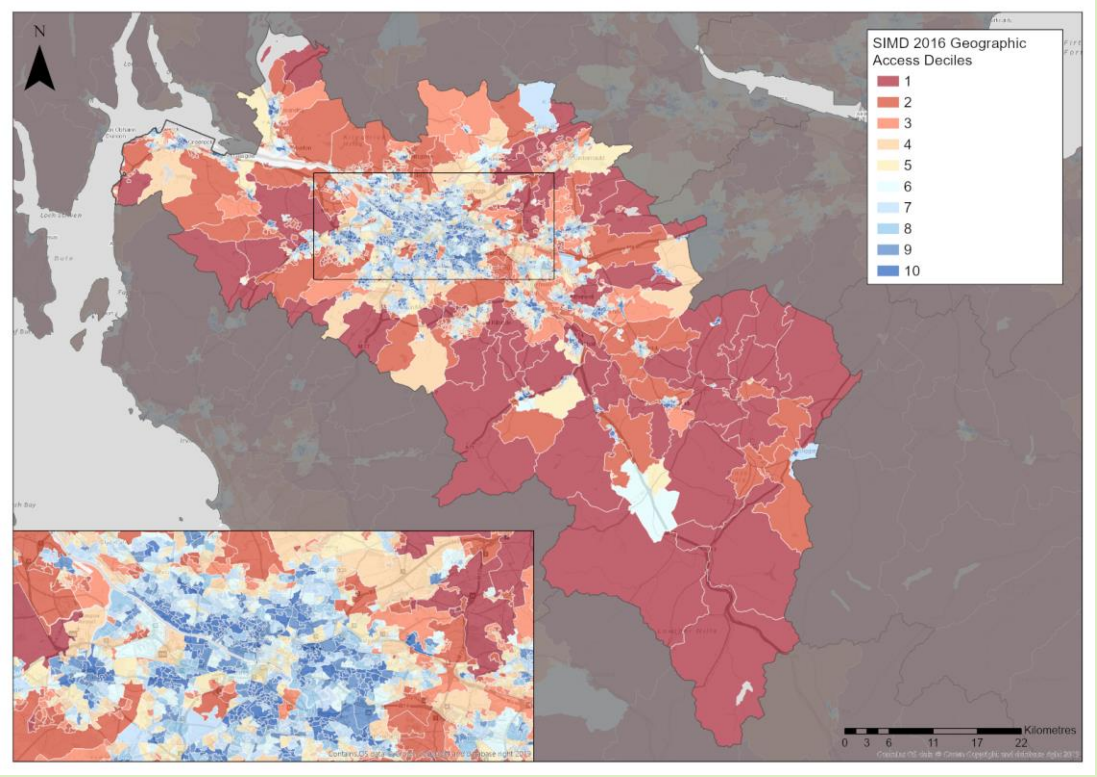

Figure 28: SIMD 2016 Geographic Access (click image to enlarge figure)

Figure 12 in Chapter 2 presented public transport access time to key employment centres and demonstrated the variance across the region. Access by public transport in the Glasgow City area ranges up to 30-45 minutes by public transport. Some areas of North and South Lanarkshire enjoy similar levels of access. South Lanarkshire also has some of the less well-off areas in terms of public transport access to key employment locations on a typical weekday morning peak. Not only is the most common average travel time between 1.5-2 hours, but people living in the southernmost areas can expect to travel over two hours if a public transport option is available at all.

[61] The SIMD 2016 Geographic Access domain models the ability of Scottish citizens to reach a number of key services. The Geographic Access domain consists of two sub-domains; public transport time (to GP, retail centre and post office) and drive time (to GP, retail centre, petrol station, primary and secondary schools and post office).

Figure 13 in Chapter 2 presented public transport access time to Higher and Further Education institutions. These are mostly concentrated in or near Glasgow City. Most notable in the analysis is the fact that the fringe parts of South Lanarkshire consistently have no convenient public transport under two hours.

Through consultation, there was a reported feel of disconnect for people in isolated or deprived communities that do not own a car and those in the urban fringe. The latter are areas of dense housing that often fall within the lower half on the SIMD rating scale. Affordability, availability and service coverage of public transport were highlighted too. need to improve severance caused by, for example, the motorway and vacant/derelict land was raised with consultees noting it can lead to poor quality disconnected places that discourage walking and cycling.

As part of the background reports for Clydeplan, a 2014[62] survey of vacant and derelict land revealed that 40% (4,410 hectares) of Scotland's total area of vacant and derelict land including rural derelict land, lay within the Glasgow City Region and that 5.8% (3080 hectares) of the total urban area of the region is vacant or derelict. This land can act as a severance to a number of local communities and can be located in areas near to existing transport infrastructure.

A 2017 monitoring report[63] showed that the situation had improved with the take up of some of this vacant and derelict land and that 30% (3524 hectares) of Scotland's total area of vacant and derelict land (11,649 hectares), including rural derelict land, lies within the Glasgow City Region area.

These changes are the result of take up of land and the fall out of land from the survey and it is noted that if the current rate of change continues it will take approximately 30 years to remove the current levels of urban vacant and derelict land from the Glasgow City Region city region. The region also has a problem with long term dereliction of land with around one third of the vacant and derelict land included in the figures having been vacant since before 1985.

Poor public transport accessibility for mobility impaired and disabled people was also raised although some disability groups suggested that the real obstacle was getting to the services as opposed to actually using them. With problems mentioned relating to poor maintenance of footpaths and lack of dropped kerbs. Generally, vehicles were considered to be accessible.

There were concerns that public transport is difficult to understand for non-users. For example, it was difficult to find the right stop, service or fare information for some people. There also seemed to be a lack of knowledge about online portals with good multi modal public transport information.

Glasgow City Region has suffered the highest level of bus decline across Scotland (and the UK) which can impact on connectivity. Analysis regarding the factors affecting bus decline has been undertaken and demonstrated that Glasgow City Region is in the bottom two

[62] Strategic Development Plan, Proposed Plan – Background report. January 2016, Vacant and Derelict Land 2014. Available at: https://www.clydeplan-sdpa.gov.uk/docman/current-plan-july-2017-background-reports/75-background-report-4-vacant-and-derelict-land-2014/file

[63] Clydeplan, Vacant and Derelict Land Monitoring Report, 2017. Available at: https://www.clydeplan-sdpa.gov.uk/files/docs/vacant-and-derelict-land-monitoring-report-2017.pdf

quintiles for a number of the factors, namely:

- Online Services
- Congestion
- Bus Mileage
- Bus Quality
- Demographic Structure
- Employment
- Economy
- Flexible Working

Despite these factors above contributing to bus use decline, this is balanced to some extent with lower levels of car ownership and high population. Figure 29 shows access levels to bus services across the region. It shows that the further away from Glasgow City an area is the lower access to bus they will have.

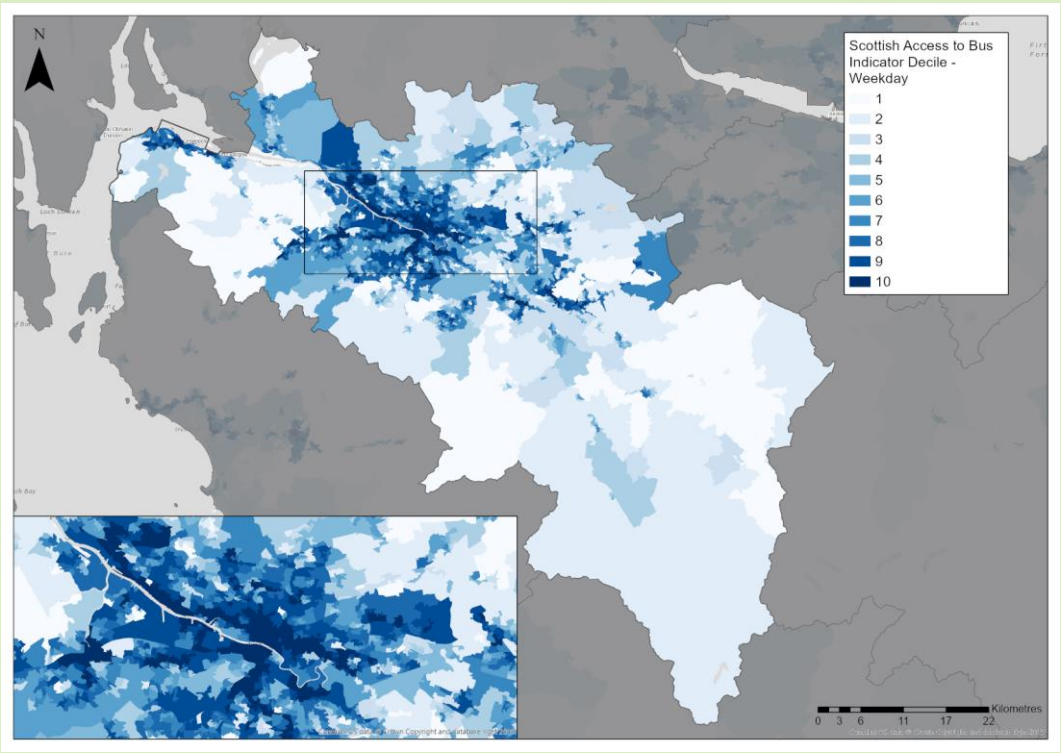

Figure 29: Scottish Access to Bus Indicator[64] (click image to enlarge figure)

Problems exist around congestion hampering bus journey times, bus quality is perceived to be poor and reduced bus mileage indicating withdrawal and / or reduction in services. Passengers also consider the provision of real time information and quality of bus stops to be important to the attractiveness of services and this is mixed across the region.

In the report 'The Factors behind Scotland's Decline in Patronage'[65] it is noted that Glasgow has suffered more from slower bus speeds (15% decline over a decade) than anywhere else in Scotland, resulting in patronage decline, whereas Edinburgh has only seen a 5% decline

[64] Scottish Access to Bus Indicator, 2017. Available at: https://statistics.gov.scot/data/bus-accessibility

[65] The Factors behind Scotland's Decline in Patronage, David Begg (2017); Available to download: https://www.transporttimes.co.uk/Admin/uploads/the-factors-behind-scotlands-decline-in-bus-patronage.pdf

in bus speeds over the same period, in part due to the existence of bus priority measures. This has been reported to result in some bus services being cut or reduced leading to poorer service levels in some areas.

CONNECTIVITY

Connections across the region are important for economic and social activity. Figure 30 shows the travel to work patterns within the region.

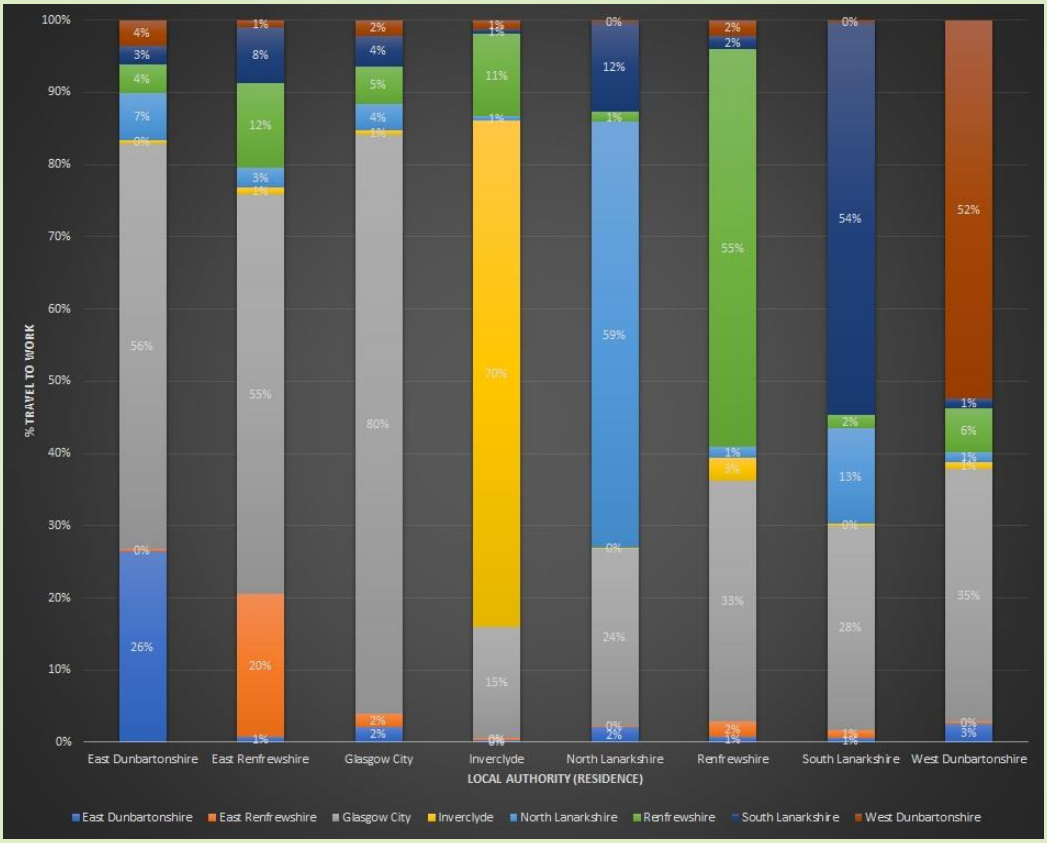

Figure 30: Sub-regional Travel to Work Journeys[66] (click image to enlarge figure)

Within the Glasgow City Region, the majority of people work within the local authority in which they reside, with the exception of East Dunbartonshire and East Renfrewshire, where just over half of residents worked in Glasgow. For all local authorities where working in the same local authority was most common, working in Glasgow was the next most common.

Other notable travel to work patterns included 13% of people living in South Lanarkshire working in North Lanarkshire; 12% of people living in North Lanarkshire working in South Lanarkshire; 12% of people living in East Renfrewshire working in Renfrewshire; 11% of people living in Inverclyde working in Renfrewshire. All other cross authority movements are less than 10%.

In the stakeholder engagement, good connections to Glasgow City Centre were generally acknowledged with a more mixed view of connectivity into other key areas. Cross region connections were often cited as a problem that resulted in higher mode share for private cars and subsequent congestion of routes such as the M8 Kingston Bridge and also as a

66 National Records of Scotland, Census 2011, Table WU03BSC_IZ2011_Scotland - Location of usual residence and place of work by method of transport. For all usual residents aged 16 and over in employment the week before the census.

problem for some people trying to get into employment.

Lack of connectivity between rail lines north and south of the River Clyde were also raised requiring passengers to transfer between Queen Street and Central Station for some journeys. This has been raised numerous times over previous years with a number of options considered to plug this gap. It is considered that the gap between the two stations limits travel as interchange involving a 10-minute walk or a shuttle bus is viewed as a barrier and that the lack of connection limits flexibility at the two main stations which in turns exacerbates capacity issues.

LOW LEVEL OF ACTIVE TRAVEL UPTAKE

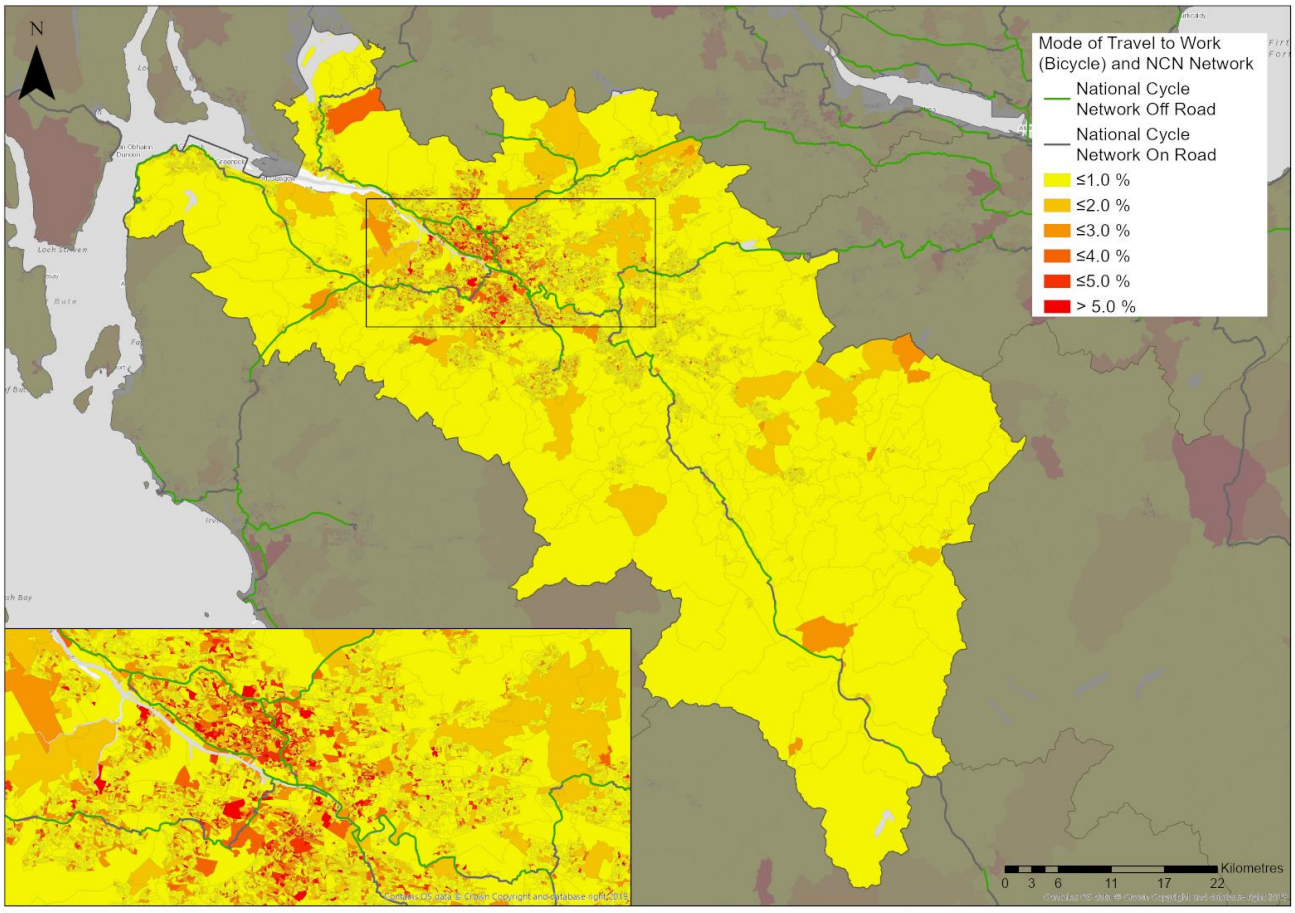

Figure 31: Mode of Travel to Work (Bicycle)[67] and NCN Network (click image to enlarge figure)

While the Glasgow City Region is relatively well served by NCN infrastructure, the uptake of cycling is lower than for other regions.

Robust data for travel for purposes other than work is not readily available and anecdotally, stakeholders consider that active travel uptake (particularly by bike) has increased. However, travel to work by cycling and walking lags behind the benchmarks. Travel to work by cycle is particularly low in the region and two of the local authorities in this region (Inverclyde and

[67] National Records of Scotland, Census 2011, Table QS701SC - Method of travel to work. All people aged 16 to 74 in employment the week before the census (excluding full-time students)

North Lanarkshire) reporting the lowest uptake of travel to work by bicycle across all 32 Scottish Local Authorities.

Stakeholder engagement noted that safety is a key concern for cycling particularly where people are. Access to a bicycle in the region is approx. 30%.[68] Figure 32 shows the levels of access by bicycle for towns and settlements in the region. It shows that large areas of the region are accessible by bicycle suggesting there are other barriers to uptake than simple provision of infrastructure.

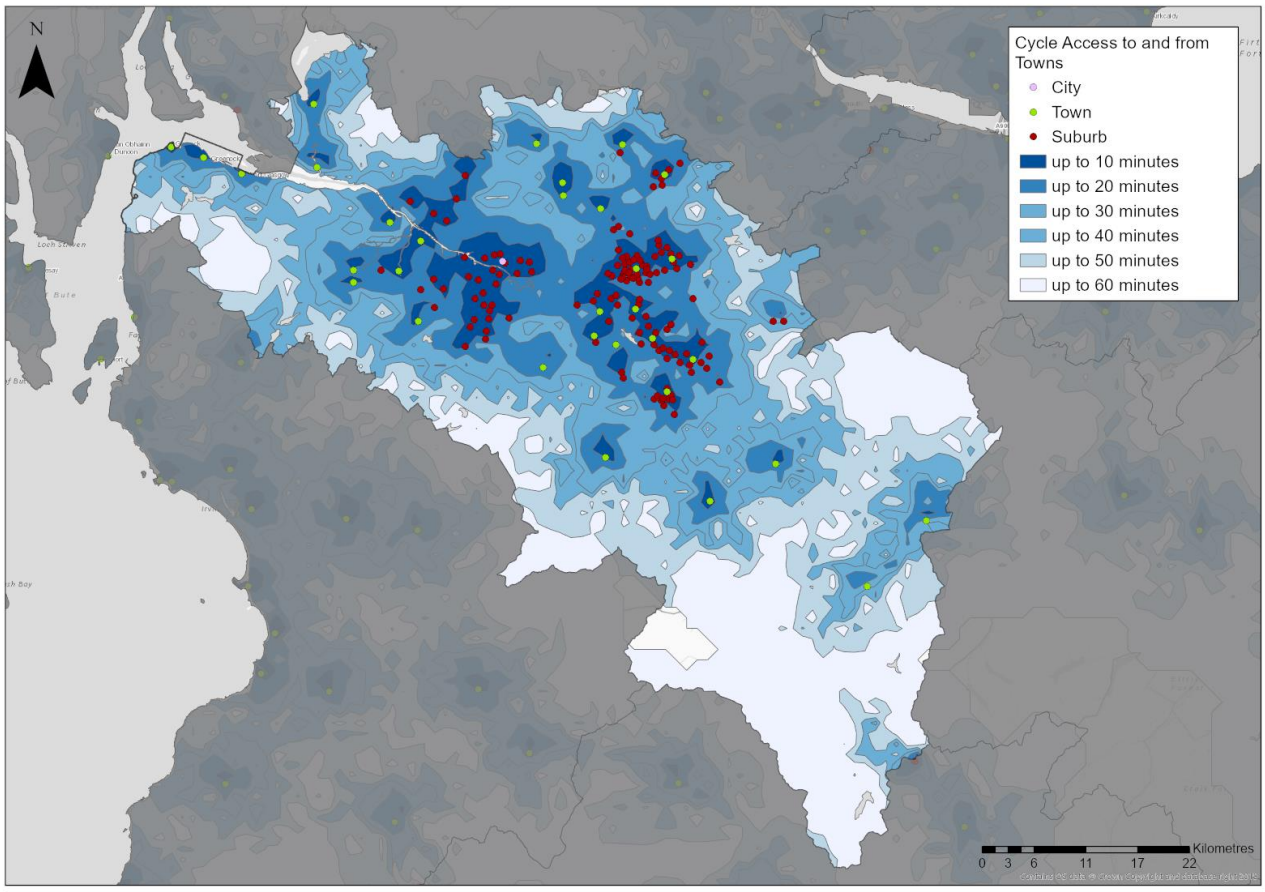

Figure 32: Cycle access around key settlements (click image to enlarge figure)

Walking uptake was lower in the Glasgow City Region than the benchmarks with 8.1% of people walking to work (or 10% if home workers are excluded). This is 1.8% lower than the national average[69].
Condition of footpaths was cited as a problem through engagement in terms of poor access to and from public transport services and community facilities (e.g. poorly maintained footpaths, lack of dropped kerbs) and also by Local Authorities who say maintaining their assets can be challenge with available funding.

In relation to walking and wheeling in Glasgow City Region, online survey respondents were generally dissatisfied with all aspects (such as availability, accessibility, attractiveness of

[68] Transport and Travel in Scotland 2018 - Scottish Household Survey Local Authority results, Table 8-Number of bicycles available for private use by households: 2018
[69] National Records of Scotland, Census 2011. Table QS701SC - Method of travel to work. All people aged 16 to 74 in employment the week before the census (excluding full-time students)

infrastructure, etc.), with between 45% and 58% of all respondents dissatisfied or very dissatisfied with each aspect, compared to only 21% to 34% who were very satisfied or satisfied. Just over a third (34%) were very satisfied or satisfied with availability of safe walking / wheeling infrastructure and ability to safely walk / wheel for leisure purposes.

Dissatisfaction with cycling in the region was very high, with between 61% and 73% of all respondents were very dissatisfied or dissatisfied with each aspect of cycling, compared to only 11% to 19% who were very satisfied or satisfied. Ability to take bikes on public transport was the aspect which had the lowest level of satisfaction, with only 11% of all respondents very satisfied or satisfied while availability of safe cycling infrastructure (e.g. cycleways) had the highest level of dissatisfaction with 73% very dissatisfied or dissatisfied.

SAFETY

Road accident figures for the region and all local authorities within it have decreased. The average number of road accidents per year between 2013 – 2017 was 37% lower than the figure in the years 2004 – 2008. The corresponding drop in serious accidents was 39% and for fatal accidents the figure is 49%. Casualty reduction for fatal accidents exceeded the Scottish Road Safety Reduction 2020 targets establish by the Road Safety Framework. Despite these reductions, the region failed to meet the casualty reduction targets for serious accidents across all ages.

Table 2 shows the average number of casualties per year between 2013-2017 by Mode for each local authority within the Glasgow City Region as well as for the Region as a whole. Table 3 shows the percentage change in these figures between the periods 2004-2008 and 2013-2017. With the exception of bike, casualties across all road-based modes are falling.

Table 2: Average Yearly Casualties (2013-2017) by Mode – Glasgow City Region (by LA)

LOCAL AUTHORITY	BIKE	BUS	CAR	HGV	LGV	MOTOR-CYCLE	PED	OTHER
East Dunbartonshire	10	2	81	0	1	5	20	0
East Renfrewshire	12	1	70	0	3	5	23	0
Glasgow City	138	44	843	4	31	52	341	7
Inverclyde	6	2	103	0	2	8	26	1
North Lanarkshire	24	18	430	4	20	19	103	7
Renfrewshire	22	13	216	1	7	13	56	3
South Lanarkshire	27	14	410	8	20	28	86	4
West Dunbartonshire	7	10	98	0	4	6	31	1
Glasgow City Region	247	104	2,251	18	87	135	687	22

Table 3: Change in Average Yearly Casualties (2004-2008 to 2013-2017) by Mode – Glasgow City Region (by LA)

LOCAL AUTHORITY	BIKE	BUS	CAR	HGV	LGV	MOTOR-CYCLE	PED	OTHER
East Dunbartonshire	46%	-80%	-44%	-88%	-33%	-52%	-49%	-85%
East Renfrewshire	36%	-73%	-34%	-83%	0%	-24%	-19%	-93%
Glasgow City	28%	-77%	-32%	-65%	9%	-34%	-46%	-71%
Inverclyde	-24%	-76%	-37%	-83%	-37%	-34%	-51%	-86%
North Lanarkshire	18%	-2%	-39%	-73%	7%	-38%	-44%	-36%
Renfrewshire	9%	-68%	-40%	-60%	22%	-52%	-43%	-41%
South Lanarkshire	3%	-47%	-38%	-49%	-12%	-17%	-40%	-75%
West Dunbartonshire	-20%	-32%	-42%	-75%	-5%	-47%	-47%	-50%
Glasgow City Region	19%	-67%	-37%	-64%	0%	-35%	-44%	-66%

From Table 3 it is evident that the percentage of bicycle casualties has increased between the period 2004-2008 and 2013 - 2017, except in Inverclyde and West Dunbartonshire. Most safety concerns raised through engagement were related to active travel. There was a 19% yearly average increase in casualties involving a bicycle between 2004-2008 and 2013-2017 (STATS19). Based on Census 2011, cycling contributed to 0.9% of the travel to work in the region, which was 0.5% lower than the national benchmark and walking accounted for 8.1%, 1.8% lower than the national benchmark. Cycle uptake in the region is very low with the census figures suggesting less than one percent of people use a bike to travel to work. Scottish Transport Statistics suggest this has not changed in the intervening period. It is important to note that only 30% of households in the region have access to a bike (slightly below national figures, at 34.4%) and that the statistics on mode share focus on a person's 'main mode' of travel[70].

Figure 33 shows the locations of accidents reported in the region over the period 2013 – 2017. The figure shows that accidents are spread across all routes in the area.

[70] Transport and Travel in Scotland results from the Scottish household Survey, 2018. Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-results-from-the-scottish-household-survey-1/

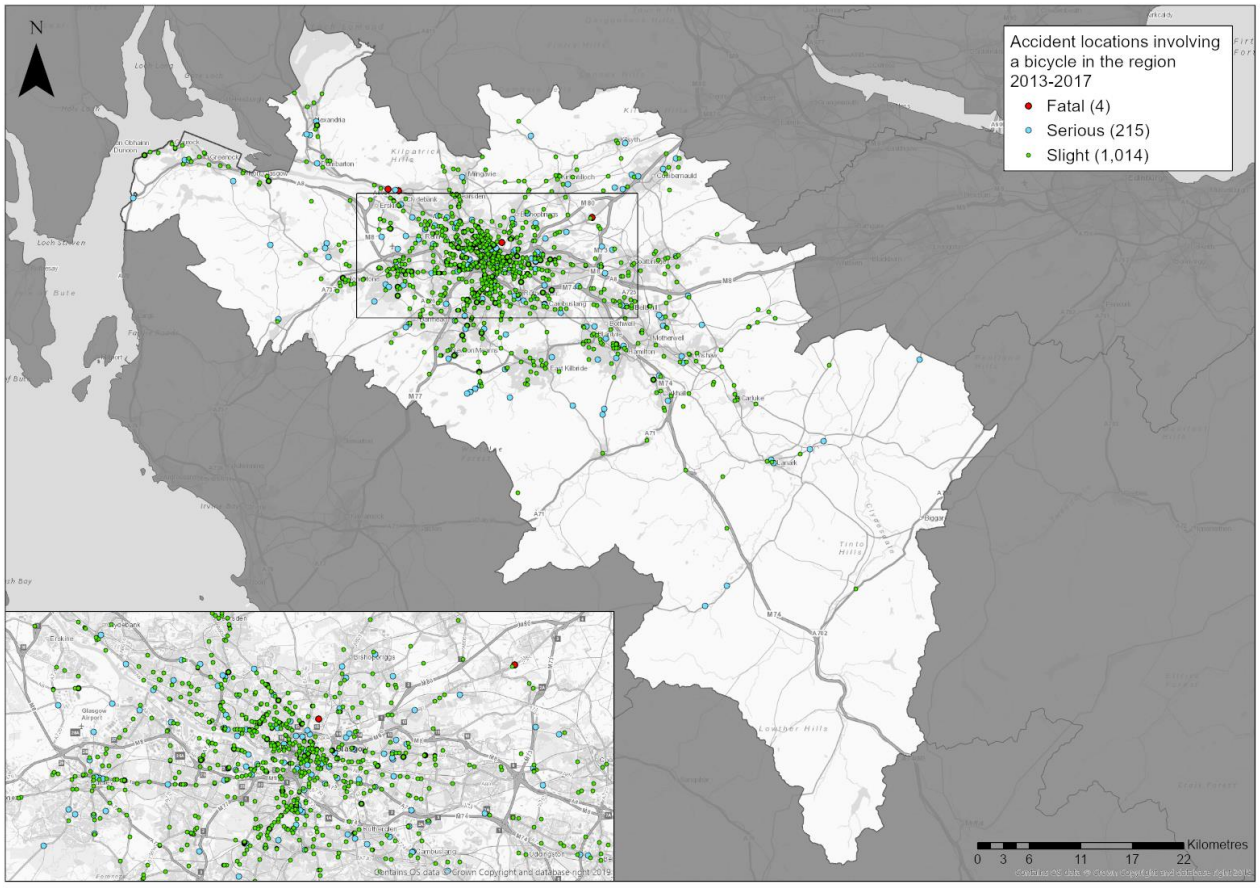

Figure 33: Accident locations involving a bicycle in the region 2013-17 (click image to enlarge figure)

Reported perceptions[71] of safety on buses decreased from 90% feeling safe and secure in the day time to 62% feeling the same way in the evening. This is in line with national trends. The statistic is similar on trains but with a slightly higher number feeling safe and secure in evenings (95% feel safe and secure during day time and 74% feel so in the evening).

During the engagement process, women, minority, black, Asian and minority ethnic, and disabled groups were recognised as having perceived lack of safety and accessibility.

CAPACITY CONSTRAINTS

Modelling and data analysis using the Transport Model for Scotland (TMfS) show that areas on the road infrastructure operate at capacity and result in increased journey times and uncertain journey time reliability. This is reflected in stakeholder consultation. Most severely affected are the arterial Trunk Road routes M80, M8, M77, M74 which in turn affect travel into Glasgow City at peak times. This causes delays and driver frustration and impacts on bus journey times, and therefore bus use is discouraged. Additionally, this congestion is affecting journey time reliability to Glasgow Airport which is viewed as a barrier for the airport. Glasgow has a higher percentage of people driving to the city centre compared with Edinburgh. A contributory factor could be that parking in Glasgow is cheaper than in

[71] Transport and Travel in Scotland, 2018. Available at: https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-results-from-the-scottish-household-survey-1/

Edinburgh. City car park availability and capacity issues for Park & Ride car parks have also been highlighted as issues in the region.

Figure 34 and Figure 35 show the levels of traffic relative to the capacity of the key road network in the region for the 2017 morning (AM) and evening (PM) peaks respectively. Routes highlighted in orange are where the volume of traffic relative to the capacity is between 75 and 100%. In these conditions, a route would be considered to be busy and approaching congestion. Routes highlighted in pink, purple and blue show routes were traffic flow exceeds capacity with increased journey times and uncertainty over journey time reliability. This is forecast to get worse if current traffic trends continue.

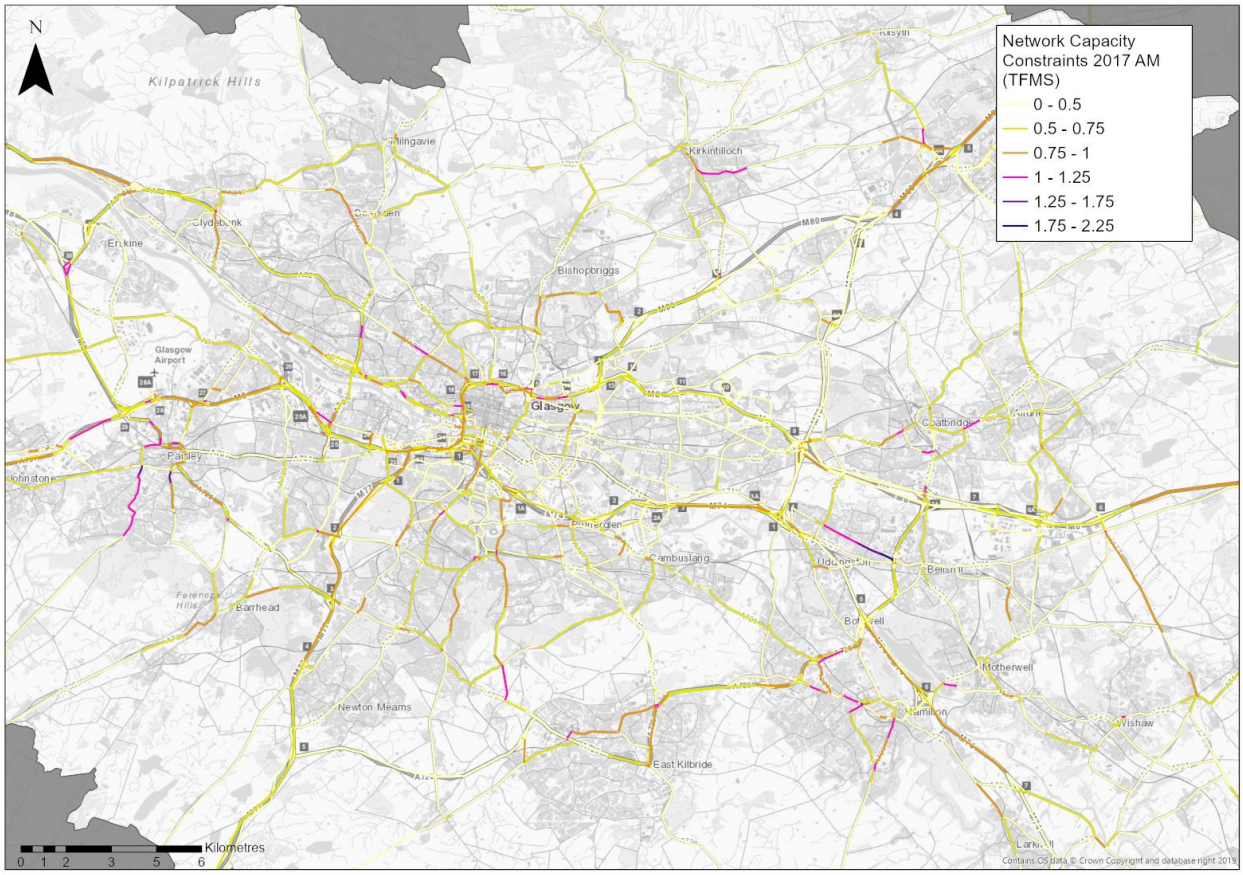

Figure 34: Network Capacity Constraints 2017 AM (TMfS) (click image to enlarge figure)

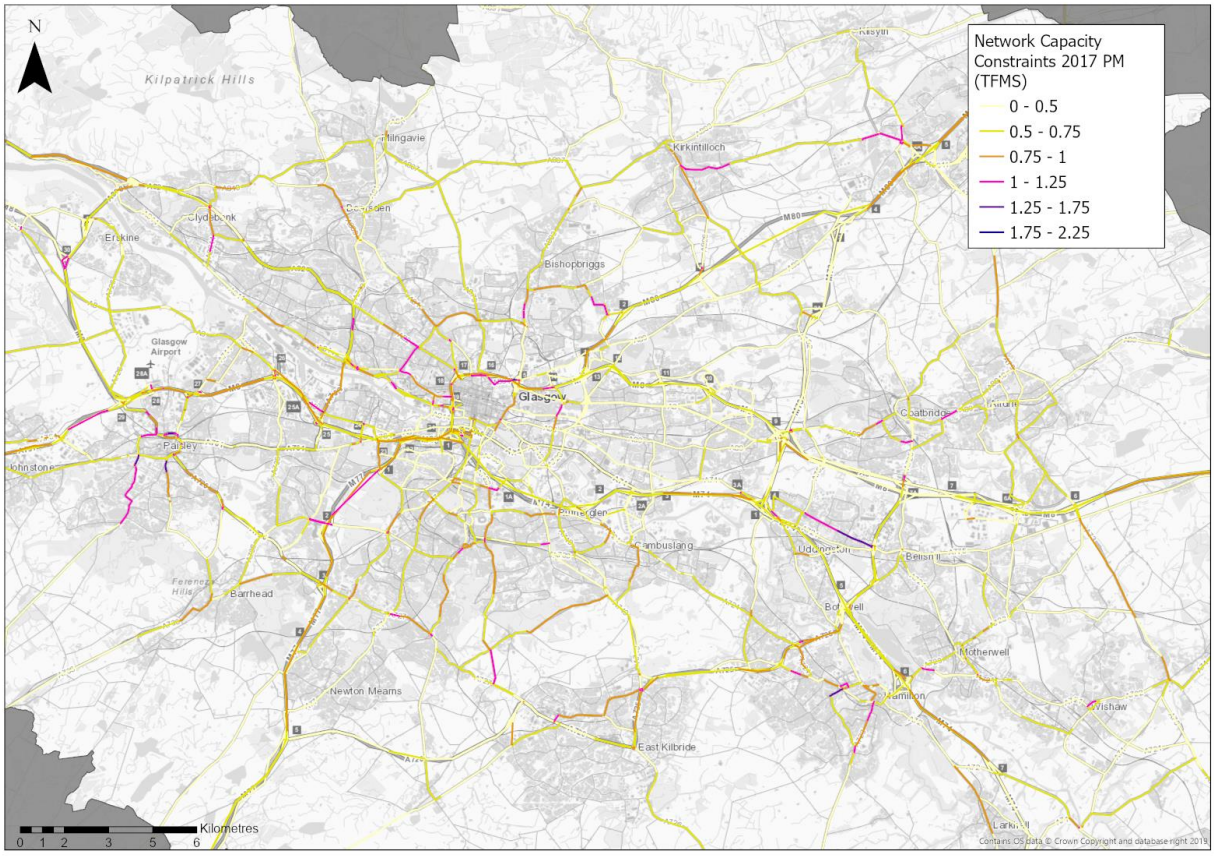

Figure 35: Network Capacity Constraints 2017 PM (TMfS) (click image to enlarge figure)

Bus operators note that congestion impacts on bus running speeds making it difficult to maintain their timetables without additional services which in turn affects the viability of their routes.

Reliable access to Glasgow Airport was raised through engagement with many respondents considering that the current access by road is unreliable and not fit for an airport of Glasgow Airport's size. Congestion does affect the route to and from the airport with journey times varying by time of day. Journey time variations occur on weekdays between Junction 28, M8 at Glasgow Airport and Junction 19, M8 in Glasgow City Centre. Journey time analysis shows that journey times in the westbound direction (heading towards the airport) average between 8 and 16 minutes depending on the time of day but that journey times in excess of 50 minutes can occasionally occur. Similarly, journey times in the eastbound direction average between 8 and 20 minutes depending on the time of day but on occasion can be in excess of 1 hour.

Capacity constraints on rail have also been raised through consultation and backed up with data analysis. While it is considered that Glasgow has a generally good system, the rail network is at peak times congested with overcrowding on some services. A number of routes currently have overcrowding at peak times and this is forecast to worsen.[72] Network Rail

[72] Scotland Route Study, Network Rail, July 2016. *Fig 3.11: Forecast passenger demand in 2043 compared to baseline capacity without infrastructure or service enhancements at Glasgow Central High-Level Station (08:00 – 09:00). Available at :* https://cdn.networkrail.co.uk/wp-content/uploads/2016/11/Scotland-Route-Study-1.pdf

Scotland Route Study demand analysis results suggest that the Glasgow Morning Peak market is forecast to grow by the order of 1.2%-3% per year up to 2023 and between -0.9% and 2.5% from 2023 to 2043 (subject to forecast scenarios). Demand is forecast to exceed capacity for the following routes & stations:

- Aberdeen/Dundee/Perth to Glasgow service: Queen Street and nearby stations
- Cumbernauld to Glasgow: Queen Street and nearby stations
- Ayr / Largs / Ardrossan to Glasgow: Glasgow Central and nearby stations
- Gourock to Wemyss Bay to Glasgow: Glasgow Central and nearby stations
- East Kilbride to Glasgow: Glasgow Central and nearby stations
- Larkhall / Motherwell to Glasgow: Glasgow Central and nearby stations
- Motherwell / Whifflet / Cumbernauld to Glasgow: Glasgow Central and nearby stations

A lack of platform capacity at Glasgow Central limits the opportunity to operate additional and longer train services which may present challenges in growing the rail passenger numbers during peak times and hence make rail less attractive. Network Rail's Scotland Route Study[73] forecasts passenger demand in 2043 at Glasgow Central High Level will be higher than capacity.

3.2.2. Online Survey: Reported Problems in the Glasgow City Region

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 21% (645) submitted for Glasgow City Region. As part of the survey, respondents were asked to rank their top three priority problems.

The commonly raised problems for the region included:

- Cycling - Availability of safe cycling infrastructure
- Bus – Cost of travel
- Bus - Frequency and reliability of bus services
- Rail – Cost of rail travel
- Roads – Quality of roads infrastructure
- Lack of Integrated ticketing

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.

[73] Scotland Route Study, Network Rail, July 2016. *Available at :* https://cdn.networkrail.co.uk/wp-content/uploads/2016/11/Scotland-Route-Study-1.pdf

3.2.3. Opportunities

This section provides a summary of key opportunity themes identified for the Glasgow City Region.

CLIMATE EMERGENCY

The Climate Emergency was often cited in the stakeholder consultation as offering an opportunity to make transport investment decisions that encourage people out of private vehicles through better active travel provision and better public transport. Re-densification of urban areas and bringing vacant land back into use particularly where near to existing transport infrastructure was viewed as an opportunity that the climate emergency may encourage the Glasgow City Region to capitalise on. It was considered by stakeholders that there may be more of a public appetite for interventions that shift the focus away from private car use.

ECONOMIC ACTIVITY

The Glasgow City Region has a buoyant economy which has proven resilient. Its economic base broadened following previous recessions and Glasgow performed relatively well after the 2008 recession being the fastest growing major city economy in the UK, with 7% GVA growth in 2014[74].

The region has an economic action plan which prioritises getting people into employment. The broad base of economic activity is an opportunity in this regard for the region providing issues surround health, access to education and access to employment can be addressed.

TECHNOLOGY

- Technology was viewed by stakeholders as a potential aid to a number of the problems raised. This is across a number of aspects:
- Alternative fuels – there was a lot of discussion through the engagement process about the potential for alternative fuel and the region has a relatively high uptake of ULEVs. However, concern was expressed about the lack of clarity on the 'best' option, I.e. is conversion towards electric vehicles achievable, would lower emission fuels be more appropriate, does hydrogen offer an option? It was noted that alternative fuels applied to road based and rail-based vehicles.
- Ticketing – comparisons were drawn with Edinburgh where it was considered that ticketing was simpler and that there were systems in place to make sure people did not pay too much on bus travel. It was often felt that ticketing technology wasn't as interchangeable in Glasgow nor well known about however it is considered that the technologies exist and that this could remove some of the barriers around access to public transport
- Online information about travel options – this was raised repeatedly through the consultation with stakeholders noting it would be helpful if there was a 'one-stop-shop' online for all information about travel choices including details of which bus stops to use in busy areas and fare information. There are already a range of multi modal portals

[74] Glasgow Economic Strategy 2016 – 2023. Available at: https://www.glasgow.gov.uk/CHttpHandler.ashx?id=36137&p=0

that offer this information so there is an opportunity to better promote and potentially enhance these services.

- Working at home – stakeholders acknowledge that better options around working at home could reduce the need to travel. The Glasgow City Region has good levels of digital connectivity which should facilitate this although it was noted by some stakeholders that there is a stigma around working from home but that the culture is shifting, and it seen as more acceptable.

NIGHT TIME ECONOMY

Glasgow City's night-time economy (6pm to 6am) is estimated to generate £2.16 billion per annum for the city, supporting 16,600 full-time jobs".[75] This attracts residents and visitors and concerns were raised that public transport access is lacking to service this. It was also noted that perceptions of security drop at night using public transport. This night time economy offers opportunities for the region to increase its economic activity and attract visitors if the appropriate access options can be put in place.

3.2.4. 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.

TELMoS (Transport and Economic Land-use Model of Scotland)[76] identifies that the largest increases of housing developments between 2017 - 2027 are expected to occur in North Lanarkshire (19,200 households) and East Dunbartonshire (9,400 households). In total, the number of households within the Glasgow City Region is forecast to increase by over 44,000 between the 2017 to 2027 period.

In terms of employment, the largest increases between the 2017-2027 period are expected to occur in North Lanarkshire (16,000 jobs), followed by Glasgow City (13,342 jobs). Largest employment decreases are expected in South Lanarkshire (-12,000 jobs) and Renfrewshire (-6,200 jobs). Overall, employment within the region is expected to increase in 16,000 jobs.

[75] https://www.moffatcentre.com/whatwedo/currentprojects/glasgowsnight-timeeconomy/
[76] Transport and Economic Land-use Model of Scotland (TELMoS). Available at : https://www.transport.gov.scot/our-approach/industry-guidance/land-use-and-transport-integrations-in-scotland-latis#42984

Table 4: TELMoS Household and Employment Forecasts

LOCAL AUTHORITY	HOUSEHOLDS CHANGE		EMPLOYMENT CHANGE	
	2017-2017	2017-2037	2017-2017	2017-2037
South Lanarkshire	-561	1,984	-12,182	-18,357
East Renfrewshire	2,307	1,816	-1,032	-2,408
Glasgow City	5,335	24,639	13,342	46,289
North Lanarkshire	19,168	26,899	16,016	20,054
East Dunbartonshire	9,392	8,914	4,066	658
Renfrewshire	886	-116	-6,227	-11,426
Inverclyde	1,743	3,596	-537	-1,538
West Dunbartonshire	5916	8,221	2,553	2,946
Glasgow City Region	44,185	75,951	16,000	36,219

For Glasgow City Region, a review of the national transport model, the Transport Model for Scotland (TMfS), has suggested that between 2014 and 2037, the following trends have been projected[77]; this assumes that current policies remain in place and no interventions beyond those already committed will be undertaken

- Road Traffic (billion vehicle miles p.a.): a 39% increase in the region, higher than the national growth of 37%.
- Road Congestion (PM Peak Delay seconds/mile): 41% increase in the region, higher than 37% rise across Scotland
- Bus Passenger mileage forecasts: 11% decrease, higher than the national decline of 5%
- Rail Passenger mileage forecast 42% increase – the same as average rise across Scotland

Figure 36 shows the forecast change in vehicle-kilometres from the Transport Model for Scotland[78] (TMfS) 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 compared to the 2017 Do-Minimum scenario.

[77] Transport Forecasts 2018, Transport Scotland. Available at : https://www.transport.gov.scot/media/43316/transport-forecasts-2018.pdf

[78] Transport Model for Scotland, 2014 (TMfS 14). Available at : https://www.transport.gov.scot/our-approach/industry-guidance/land-use-and-transport-integrations-in-scotland-latis#42984

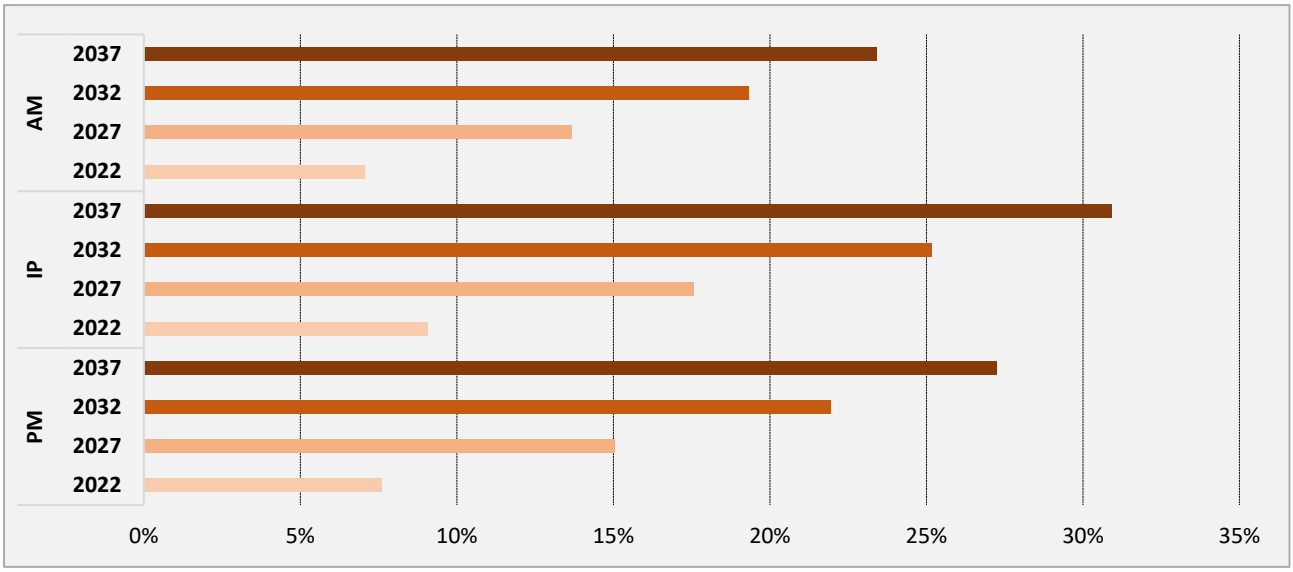

Figure 36: Forecast Change in Vehicle Kilometres in the Glasgow City Region during peak periods (TMfS)

Figure 36 shows that vehicle-kilometres are forecast to increase during all peak periods, for each of the forecast years. At a local authority level, vehicle-kilometres are forecast to increase across all local authorities, with largest increases forecast within East Dunbartonshire, Glasgow City, North Lanarkshire and West Dunbartonshire, in line with the expected growth in employment and population.

Based on these projections, it is clear that there are major challenges ahead which STPR2 must respond to if the transport sector is to play its role in supporting the Scottish Government commitment to meet its net zero emission target.

Other uncertainties in the region concern the future of Prestwick Airport, which is currently under state ownership while work is ongoing to return the airport to the private sector, the future impacts of the RET, and the impacts of the GI Deal on the transport network in the region. With regards to the Growth Deal, a Regional Transport Appraisal is currently being undertaken to assess the regional and local impact of Growth Deal projects on the strategic and local transport networks. STPR2 will ensure all committed interventions within the Growth Deal are captured in the future assessment of interventions identified for the region through STPR2.

3.3. Summary

This chapter has discussed problems and opportunities highlighted through data analysis, the stakeholder engagement and informed by the policy review. This in addition to the key points arsing in the socio economic, geographic, transport and environmental content inform the themes and objectives which any interventions should look to address.

Of note are:

- Social Exclusion: the region has a wide variance in deprivation levels with the highest level across the regions of deprivation in Scotland. Overall the region has 32.8% of data zones in the most deprived quintile and this is particularly acute in Glasgow City with 48.3% in the most deprived quintile and 32.8% in the most deprived decile. Inverclyde has 43.9% and West Dunbartonshire has 39.7% of zones in the most deprived quintile. This is contributed to by transport provision which can act as a barrier

for people getting into employment. Child poverty is notable in the region with around 1 in 4 children living in poverty in the region.

- Transport Poverty: the region demonstrates wide variance in terms of both transport poverty and levels of expenditure spent on transport. Those further away from Glasgow City are most at risk of transport poverty.
- Physical Activity and Health: the SIMD health indicators show that the region also suffers from relatively poor health with a mixed picture across the area.
- Air pollution: Air pollution is a problem in the Glasgow region and there are a number of air quality management zones in place to tackle this. Particulate concentration is particularly prevalent in the Glasgow City and immediately surrounding areas.
- Accessibility: Levels of access vary considerably across the region with many parts in the lowest decile of SIMD Geographic Access. Physical access issues were reported by some groups relating mostly to the walking environment due to maintenance of footpaths and lack of dropped kerb provision. Bus decline is of concern in the region with the highest levels of decline experienced in this region across the UK.
- Connectivity: Whilst connectivity into Glasgow City is generally good cross regional connections are considered by stakeholders to be poor. This is reported to limit options for people resulting in car being the mode of choice which in turn leads to higher levels of congestion. A connectivity gap exists between Queen Street and Glasgow Central rail stations.
- Active Travel: Despite relatively good levels of possible penetration of the region by bike, cycling is very poorly represented in the mode share for the region. Reasons given for this in the consultation were largely down to safety concerns. Walking is also slightly lower in this region than others which is backed up the physical activity data.
- Safety: Safety for most road travel is improving in the region although targets for reduction in serious casualties was missed. Safety for cyclists is getting worse according to accident statistics with a 19% increase in average accidents in the period 2013-1017 compared to 2004 - 208
- Capacity constraints: A number of key points on the strategic road network have capacity issues which leads to congestion particularly at peak times. This is reported to cause problems for bus operators and make bus travel less attractive. Overcrowding on peak time rail services is reported through Network Rail Scotland Route Study and backed up through consultation. Again, this serves to deter mode shift to public transport.

Opportunities exist around:

- The Climate Emergency which is considered to provide a base upon which sustainable interventions that do not favour private car use would be more publicly acceptable;
- A strong economic base that Glasgow City Region currently has offering a solid asset to build upon;
- Technology offering better means to work, connect people and inform people of transport choices as well as technology around lower emission fuels; and
- The Glasgow City Region Night time economy offering a good base of economic activity that could benefit from improved access.

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 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 programme-level TPOs have been established which are closely aligned with the four priorities, twelve outcomes and 24 policies contained within the New National Transport Strategy (NTS2).

A series of regional transport planning objectives sits within the overall direction of the national objectives but with a particular focus on the specific evidence-based problems and opportunities for the Glasgow City Region area. The national TPOs and draft emerging regional focused sub-objectives are presented in Table 5 detailed below.

Table 5: National TPOs and the Regional Sub-Objectives

NATIONAL OBJECTIVES	GLASGOW CITY REGION SUB-OBJECTIVES
A sustainable strategic transport system that contributes significantly to the Scottish government's net zero emissions target.	▪ *Reduce the consumption of fossil fuels through managing travel demand and enable a shift to more sustainable modes of transport in the Glasgow City Region.* ▪ *Increase the share of active travel, particularly for shorter everyday 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 generated by the strategic transport system.*
An inclusive strategic transport system that improves the affordability and accessibility of public transport.	▪ *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.
A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing	▪ *Reduce demand for unsustainable travel and the adverse impacts of transport on people and places/communities by supporting and embedding place principles in the strategic transport system across the region.* ▪ *Increase the share of active travel, particularly for shorter everyday journeys within the region and as part of longer multi-modal end-to-end journeys.* ▪ *Reduce demand for unsustainable travel arising from nationally significant growth areas, taking cognisance of the emerging NPF4, and local development plans*
An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland	▪ *Increase sustainable labour market accessibility to key centres for employment, education and training particularly focused on those areas not well served by public transport and recognising demand for cross regional movements.* ▪ *Increase competitive transport access to key domestic and international markets, by reducing costs and improving journey time reliability for commercial transport, including via cross border road and rail, and to Clyde Ports, and Glasgow airport* ▪ *Increase resilience of accesses to key domestic and international markets, including via cross border road and rail, and to Clyde Ports, and Glasgow airport to encourage people to live, study, visit and invest in the Glasgow City Region.* ▪ *Make better use of existing transport infrastructure through the adoption of beneficial transport innovations* ▪ *Increase the mode share of freight by sustainable modes*
A reliable and resilient strategic transport system that is safe and secure for users.	▪ *Increase resilience from 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 resilience through climate change adaptation within the management and maintenance of Glasgow City Region's strategic road, rail and ferry infrastructure* ▪ *Improve perceived and actual security of the transport system. With a particular focus on public transport and active travel networks.*

Table 6 demonstrates the alignment of the objectives/outcomes developed for the Glasgow City Region with the identified problems and opportunity themes in the region.

Table 6: Mapping of Problem and Opportunity Themes to Transport Planning Objectives

NATIONAL OBJECTIVE	REGIONAL SUB-OBJECTIVE	PROBLEM THEMES									OPPORTUNITY THEMES			
		Social Exclusion	Transport Poverty & Affordability	Physical Activity & Health	Transport Emissions	Accessibility	Connectivity	Low Level of Active Travel Uptake	Safety	Capacity Constraints	Climate Emergency	Economic Activity	Technology	Night Time Economy
A sustainable strategic transport system that contributes significantly to the Scottish Government's net zero emissions target	Reduce the consumption of fossil fuels through managing travel demand and enable a shift to more sustainable modes of transport in the Glasgow City Region.			■	■	■		■			■		■	
	Increase the share of active travel, particularly for shorter everyday 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 generated by the strategic transport system.			■	■						■		■	
An inclusive strategic transport system that improves the affordability and accessibility of public transport	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.	■			■	■	■			■	■			
A cohesive strategic transport system that enhances communities as places, supporting health and wellbeing	Reduce demand for unsustainable travel and the adverse impacts of transport on people and places/communities by supporting and embedding place principles in the strategic transport system across the region.	■		■		■								■
	Increase the share of active travel, particularly for shorter everyday journeys within the region and as part of longer multi-modal end-to-end journeys.	■		■										
	Reduce demand for unsustainable travel arising from nationally significant growth areas, taking cognisance of the emerging NPF4, and Local Development Plans	■			■	■	■					■		■
An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland	Increase sustainable labour market accessibility to key centres for employment, education and training particularly focused on those areas not well served by public transport and recognising demand for cross regional movements.	■	■					■	■					
	Increase competitive transport access to key domestic and international markets, by reducing costs and improving journey time reliability for commercial transport, including via cross border road and rail, and to Clyde Ports, and Glasgow Airport						■					■		
	Increase resilience of accesses to key domestic and international markets, including via cross border road and rail, and to Clyde Ports, and Glasgow Airport to encourage people to live, study, visit and invest in the Glasgow City Region.					■	■					■		■

NATIONAL OBJECTIVE	REGIONAL SUB-OBJECTIVE	PROBLEM THEMES									OPPORTUNITY THEMES			
		Social Exclusion	Transport Poverty & Affordability	Physical Activity & Health	Transport Emissions	Accessibility	Connectivity	Low Level of Active Travel Uptake	Safety	Capacity Constraints	Climate Emergency	Economic Activity	Technology	Night Time Economy
	Make better use of existing transport infrastructure through the adoption of beneficial transport innovations	■			■		■			■	■		■	
	Increase the mode share of freight by sustainable modes				■					■	■			
A reliable and resilient strategic transport system that is safe and secure for users	Increase resilience from 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 resilience through climate change adaptation within the management and maintenance of Glasgow City Region's strategic road, rail and ferry infrastructure					■					■	■		
	Improve perceived and actual security of the transport system. with a particular focus on public transport and active travel networks.	■		■		■		■						■

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, with the strategic transport network defined as follows:

- 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.

In the context of STPR2, a strategic transport project 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

Going forward, a long list of options will be developed and sifted in line with the approach set out Figure 37 below.

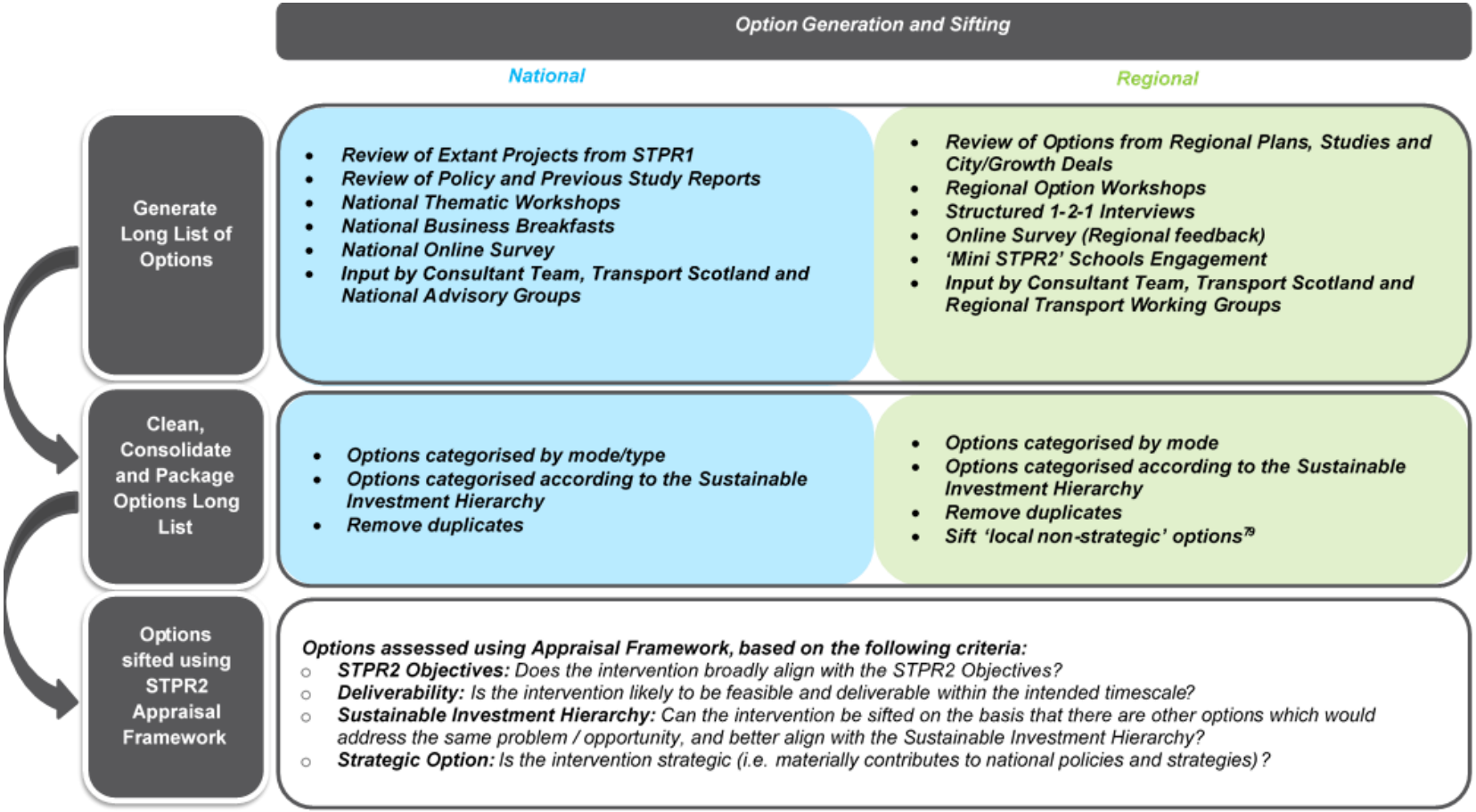

Figure 37: Approach to Option Generation and Sifting

[79] *Local options which could become strategic as part of a national programme of interventions, or could be packaged to become strategic would be taken forward. Other, local options specific to an issue in a region would be sifted from STPR2 and the evidence shared with the respective regional/local transport organisation for further consideration.*

The resulting short list of interventions will be appraised in line with the STAG-based Appraisal Framework developed for STPR2.

A long list of interventions for consideration through STPR2 will be generated from a range of national and regional option generation exercises.

The process of option generation for STPR2 is being informed and structured around the sustainable investment hierarchy which is outlined within the NTS2, shown in Figure 38.

Figure 38: 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 8th April 2020.

APPENDICES

Appendix A: Figures

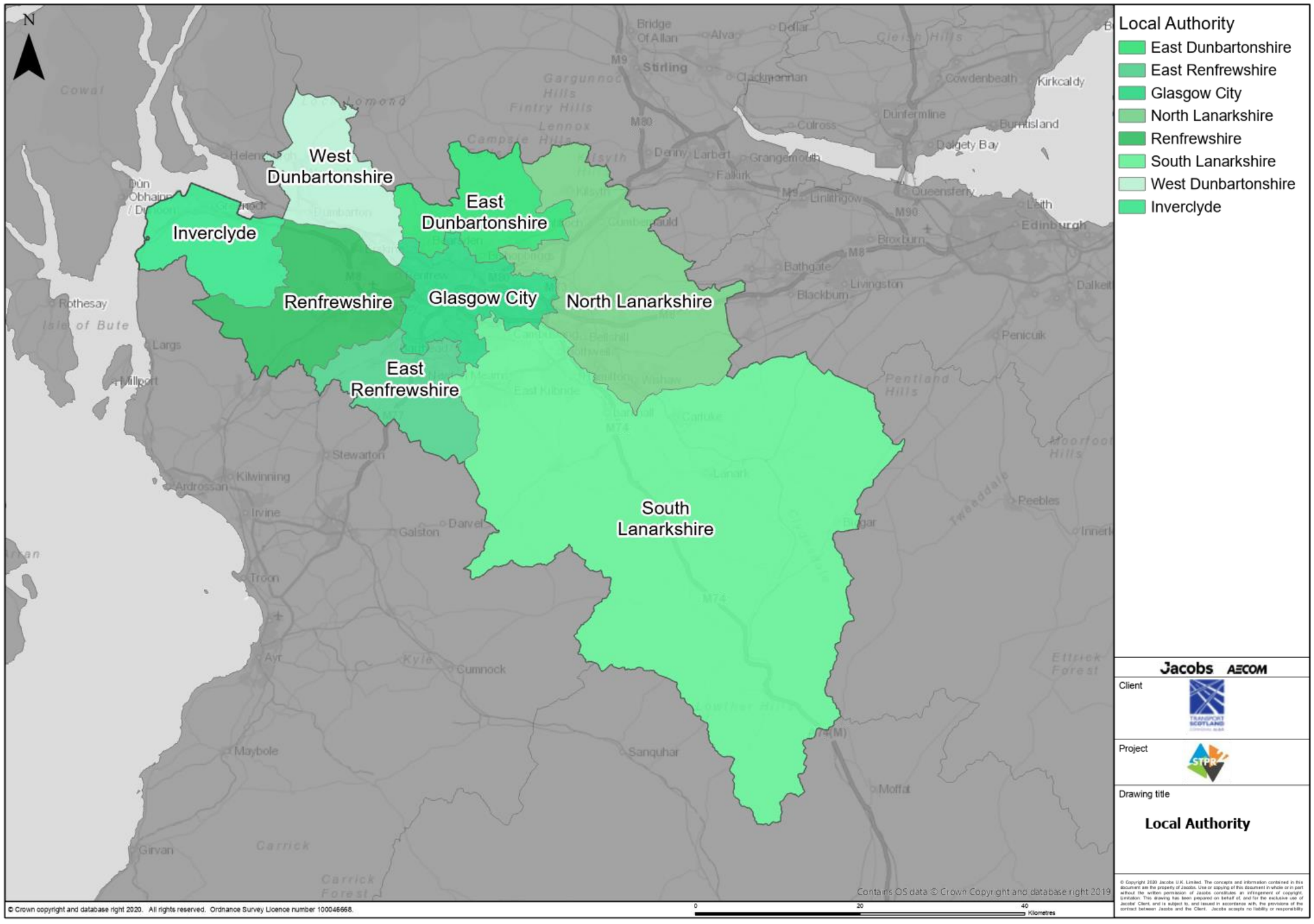

Figure A. 1: Glasgow City Region Study Area (click image to go back to main report)

Travel to Work Mode Share 2011

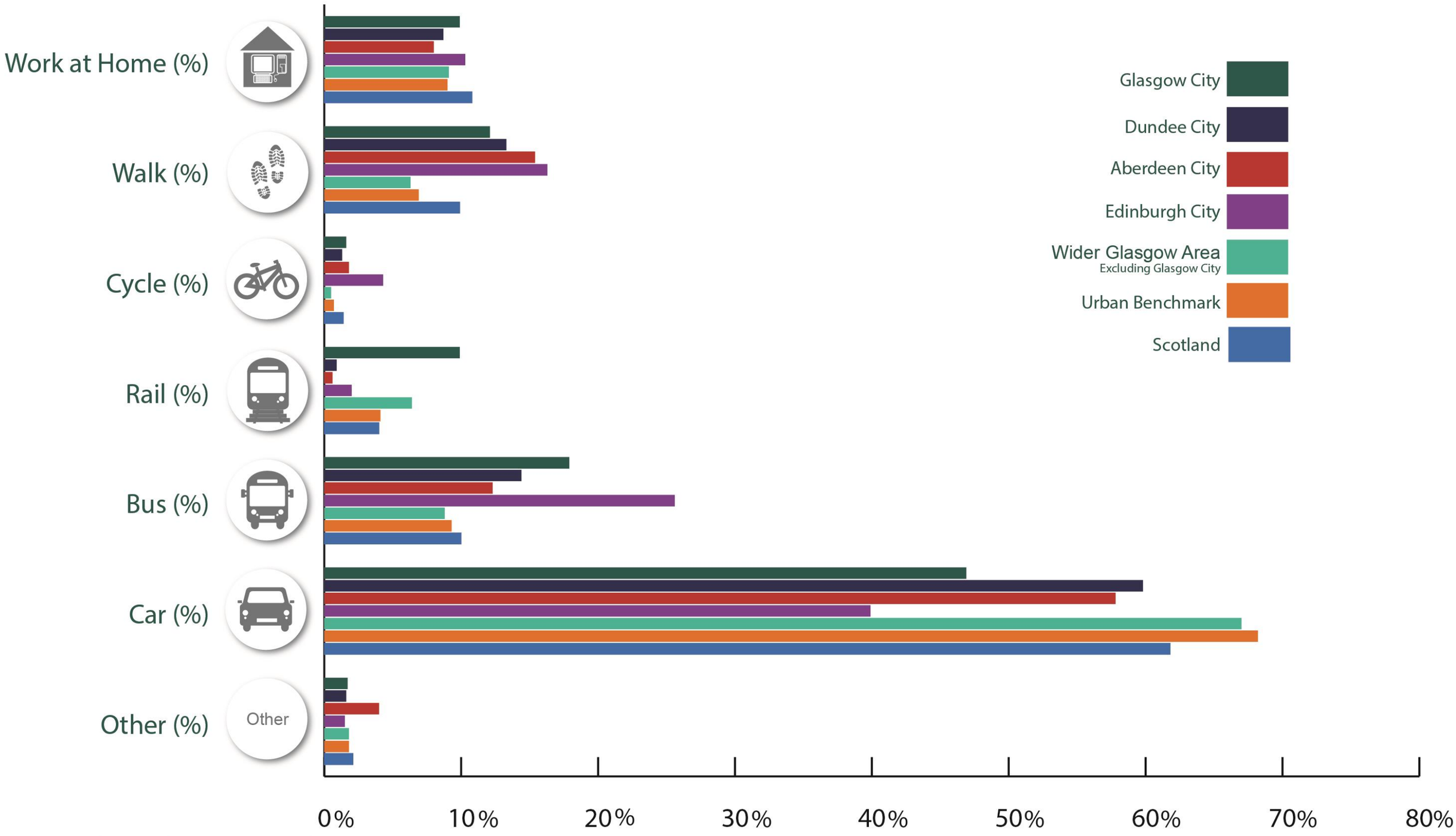

Figure A. 2: Glasgow City Region Mode of Travel to Work (click image to go back to main report)

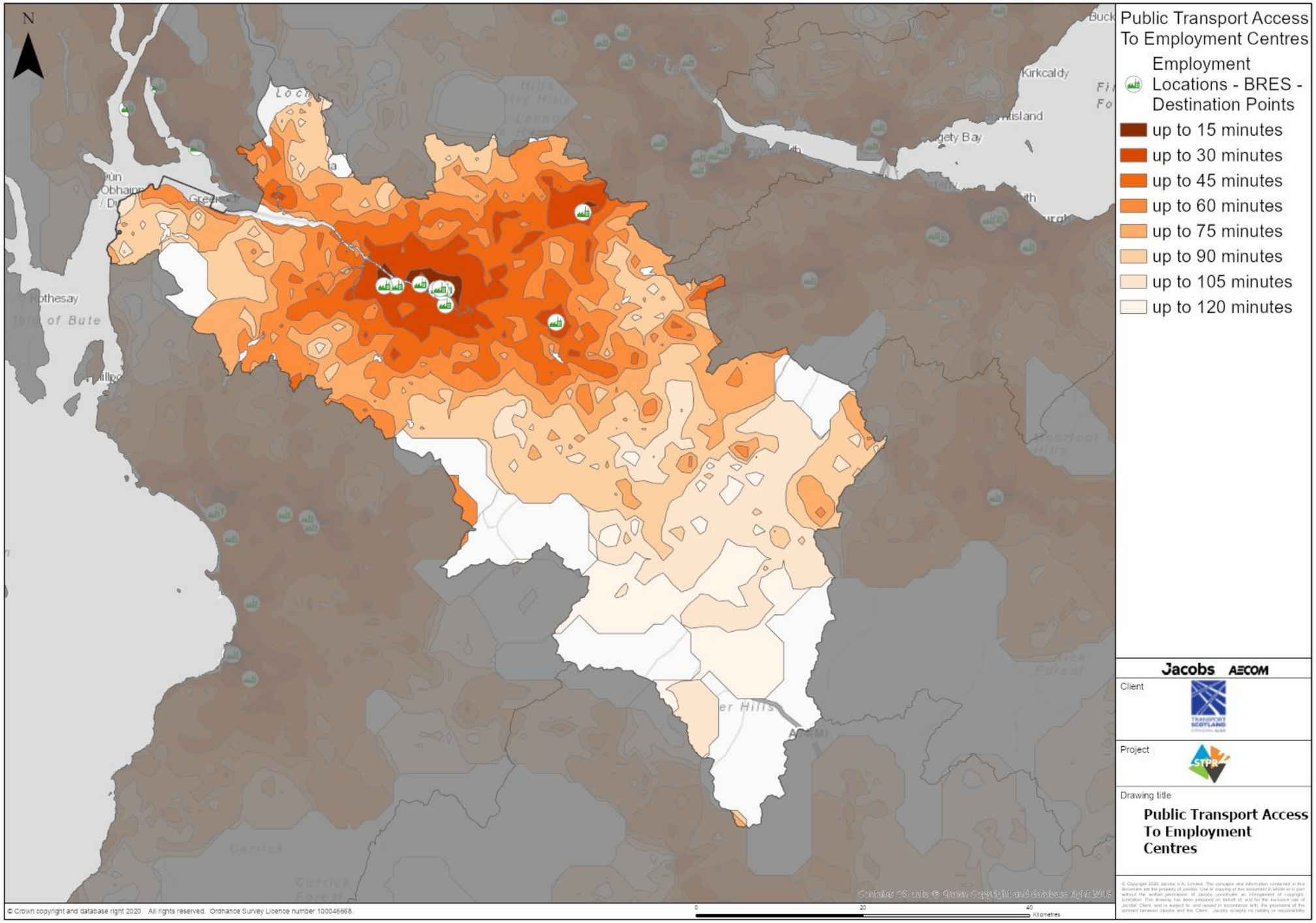

Figure A. 3: Public Transport To Employment Centres (on a typical Tue 6-10am) (click image to go back to main report)

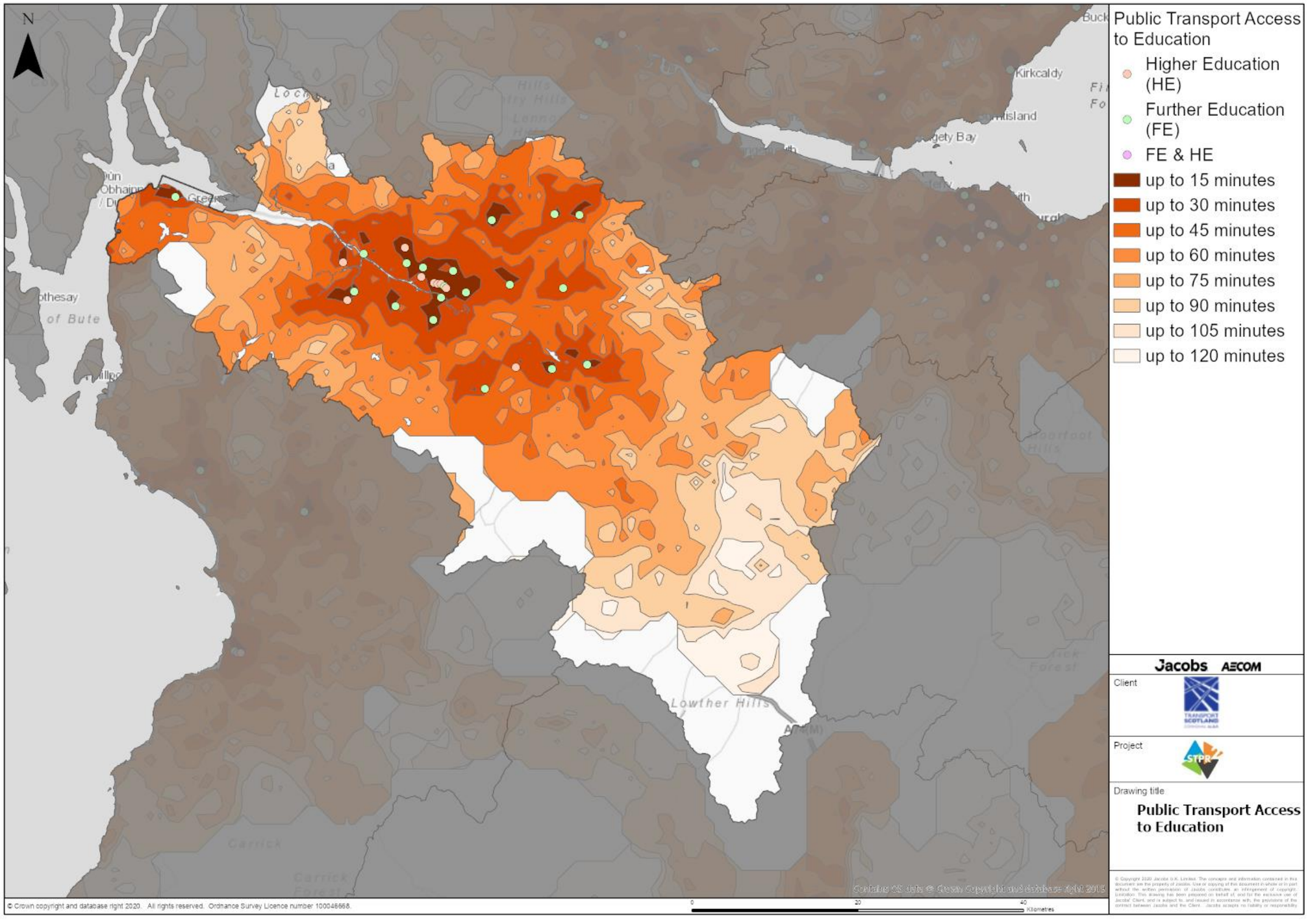

Figure A. 4: Public Transport To Higher & Further Education (on a typical Tue 6-10am) **(click image to go back to main report)**

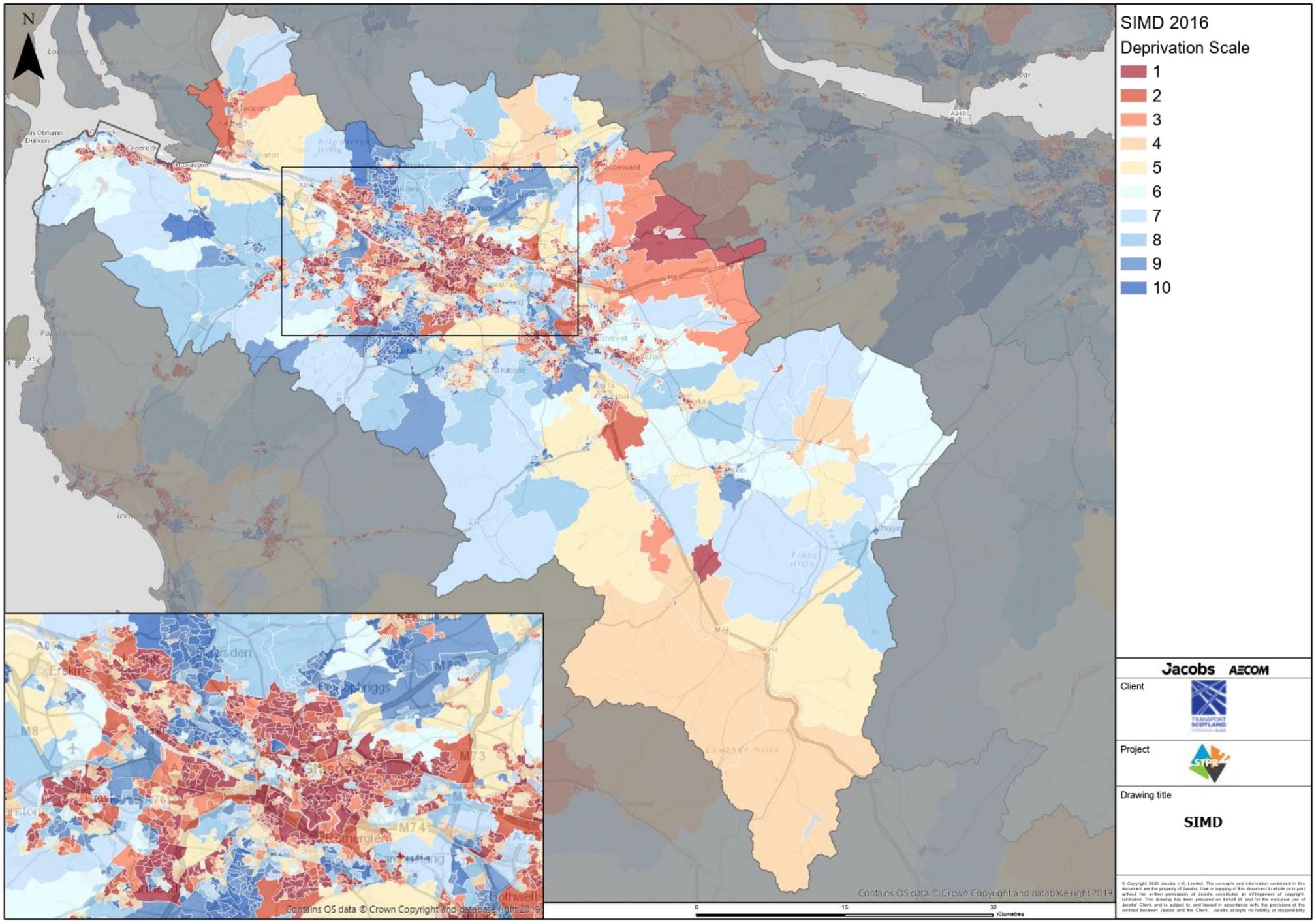

Figure A. 5: SIMD 2016 – Overall SIMD Rank (click image to go back to main report)

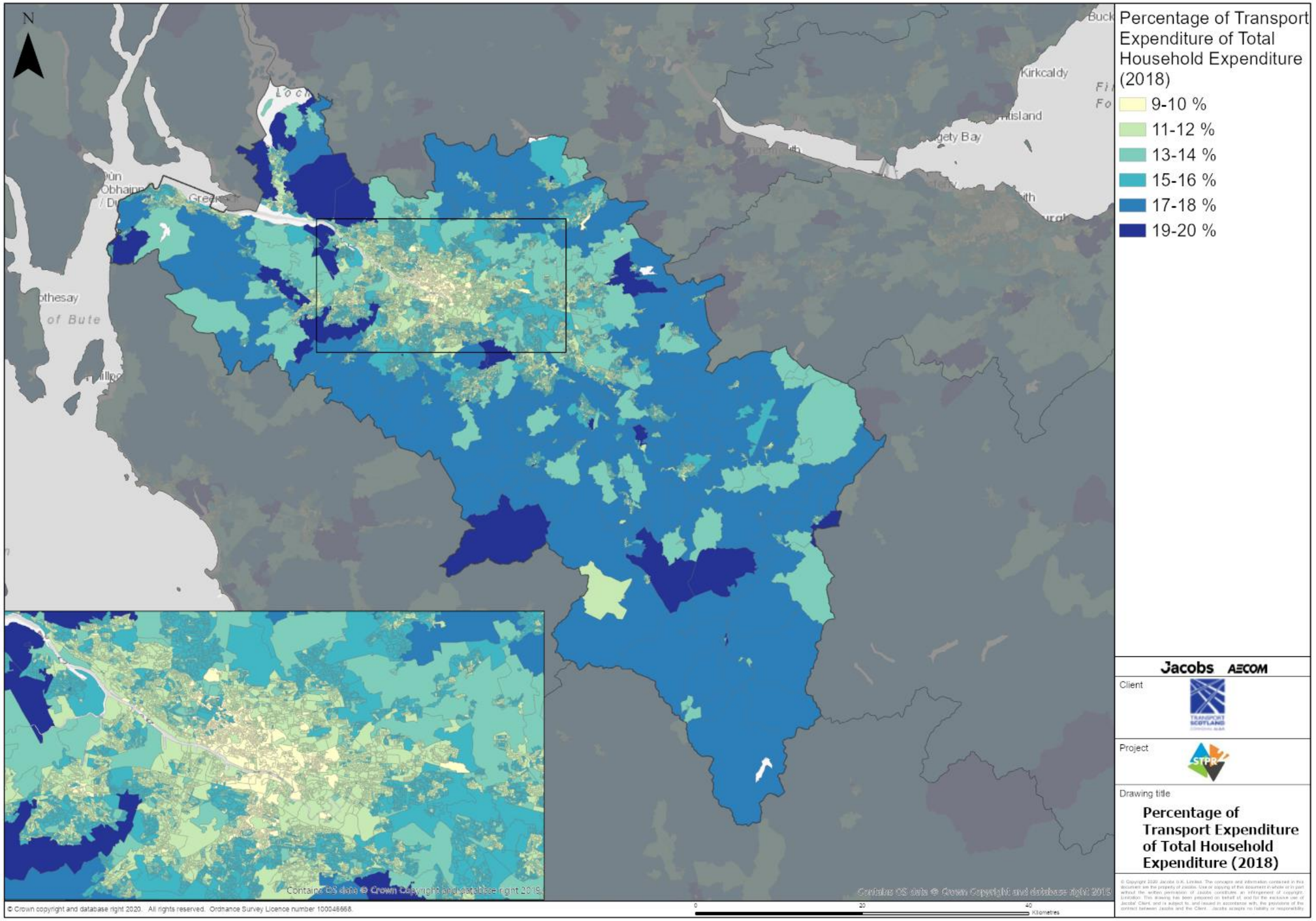

Figure A. 6: Percentage of Transport Expenditure of Total Household Expenditure (2018) (click image to go back to main report)

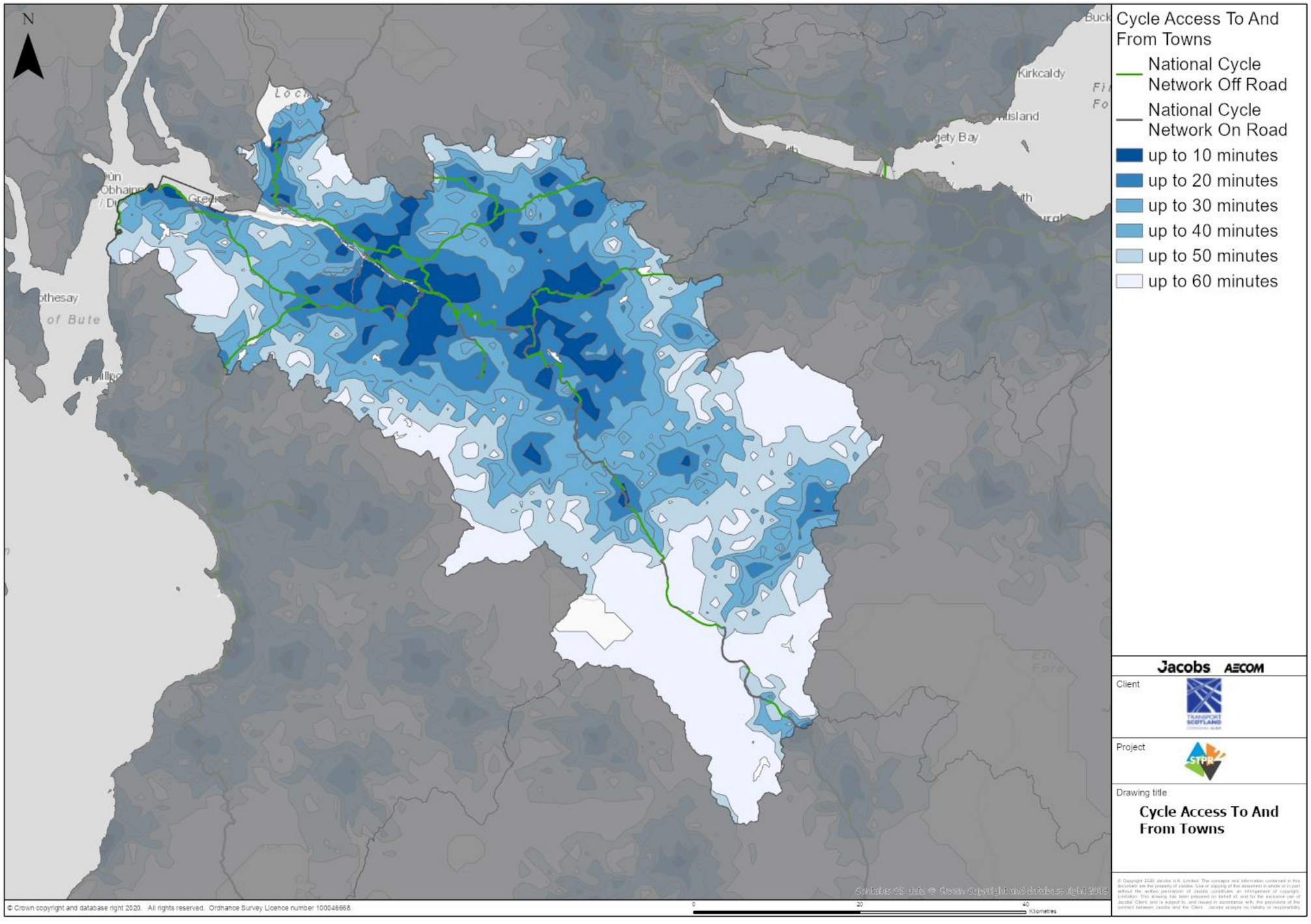

Figure A. 7: National Cycle Route in the Glasgow City Region (click image to go back to main report)

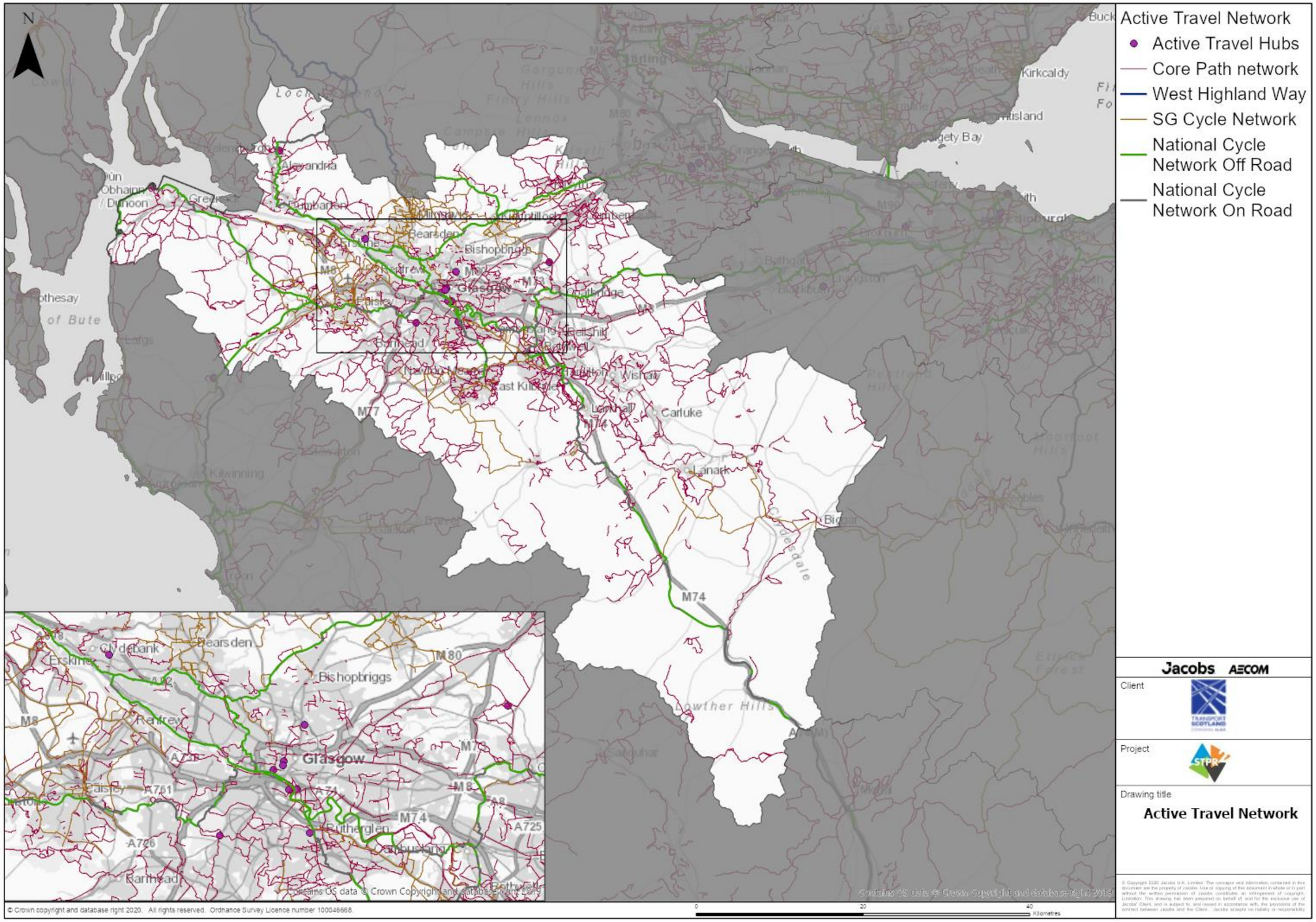

Figure A. 8: **Glasgow City Region Active Travel Network** (click image to go back to main report)

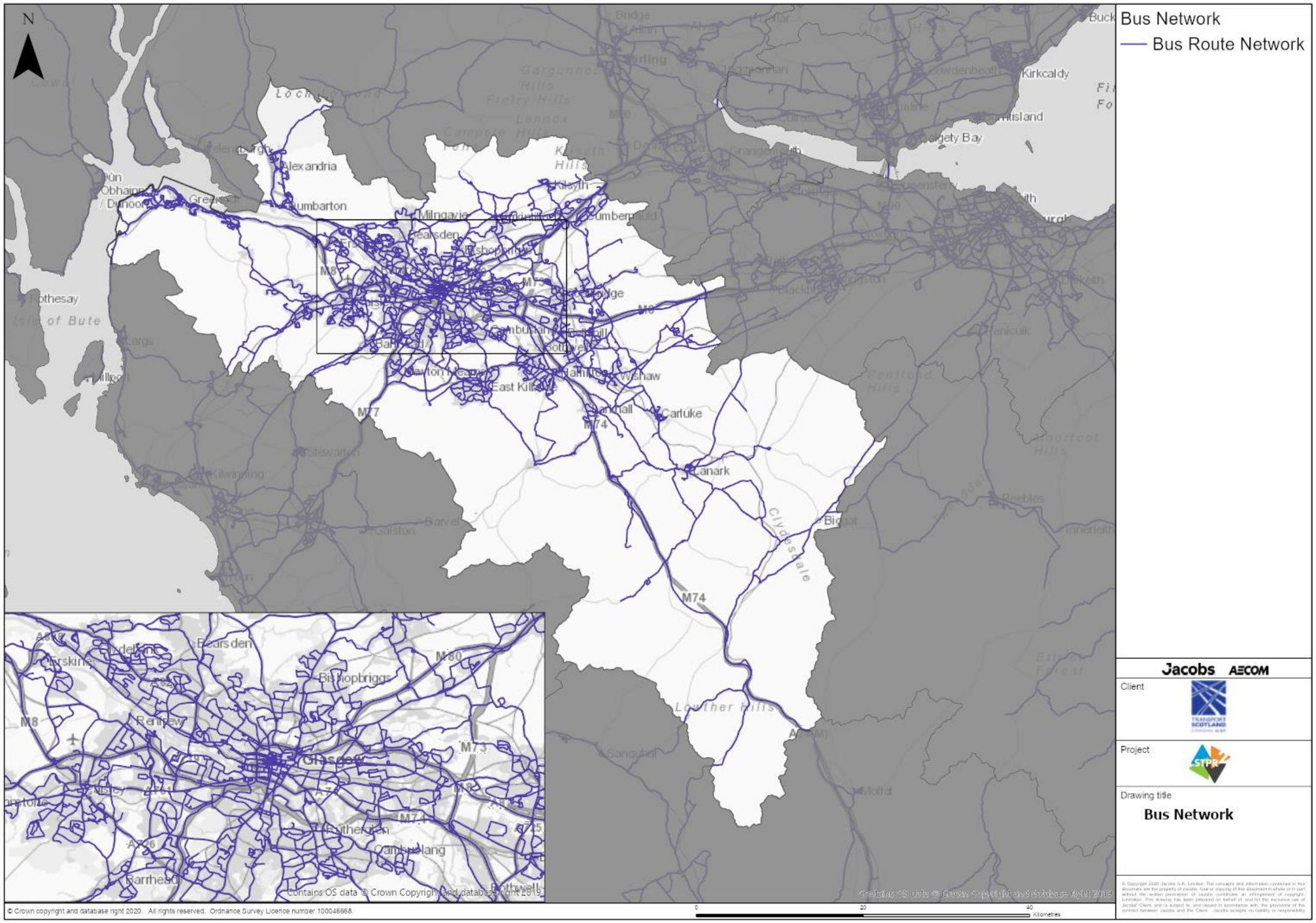

Figure A. 9: Glasgow City Region Bus Network (click image to go back to main report)

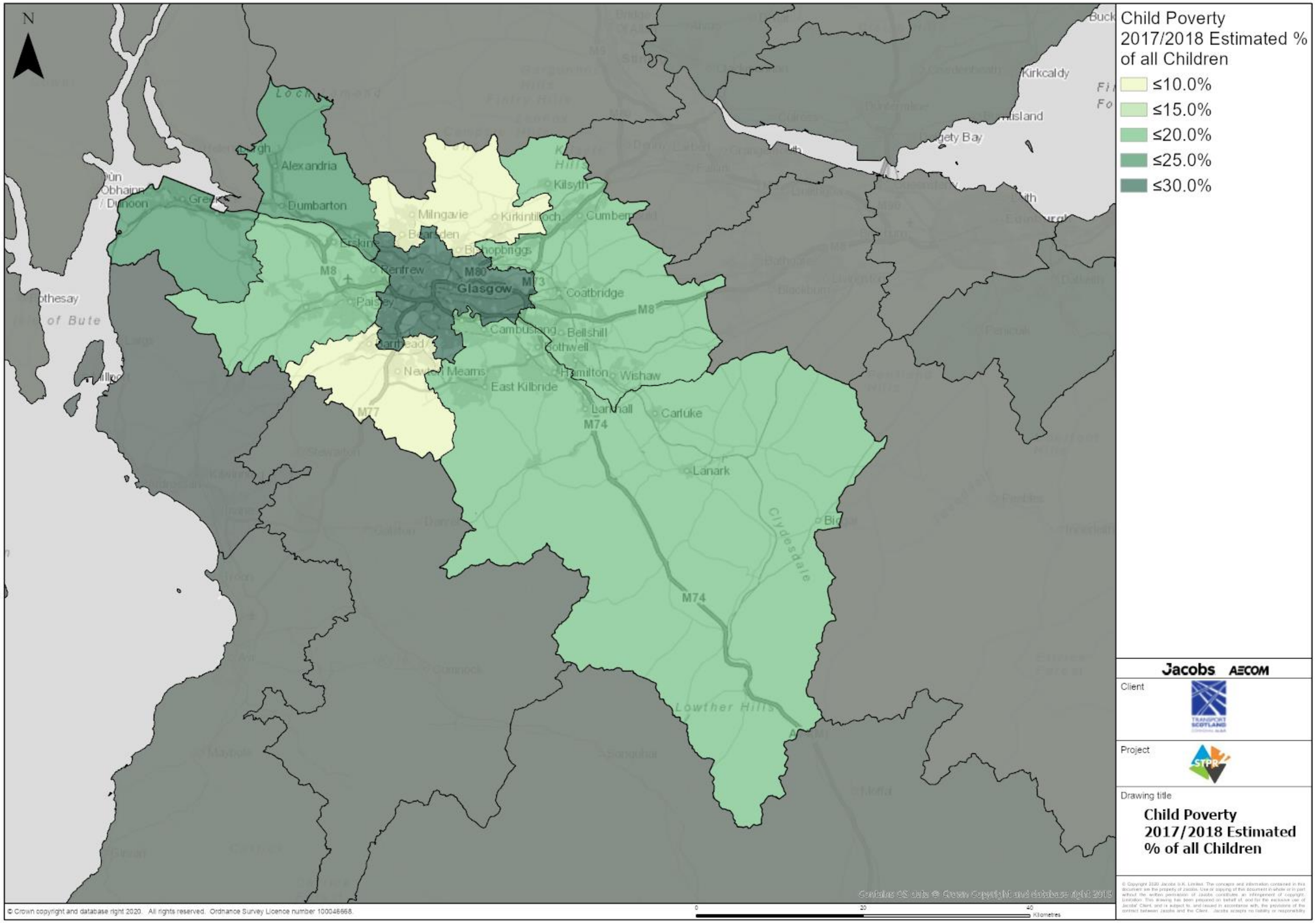

Figure A. 10: 2017/18 estimated % of children living in poverty (click image to go back to main report)

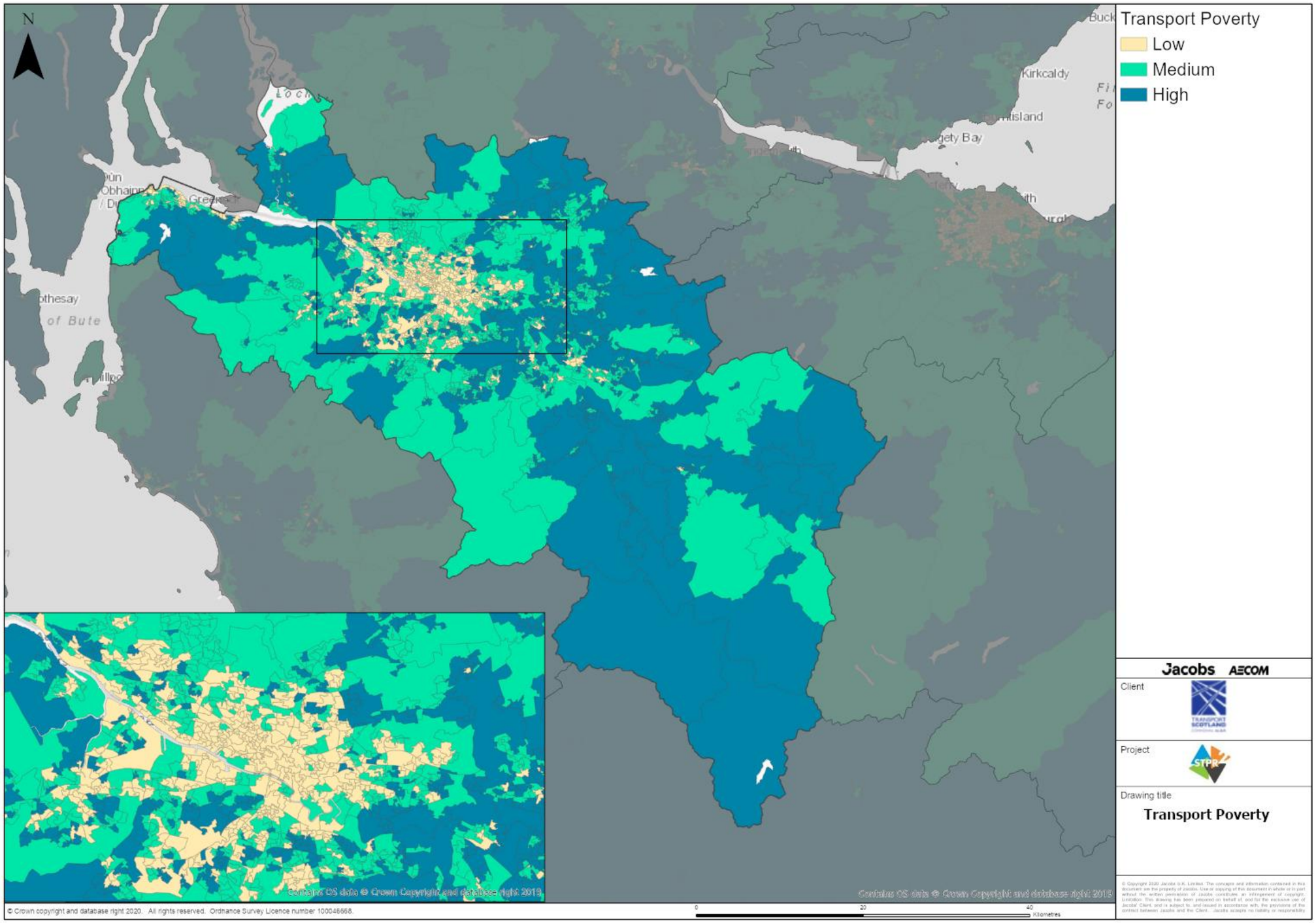

Figure A. 11: Transport Poverty (click image to go back to main report)

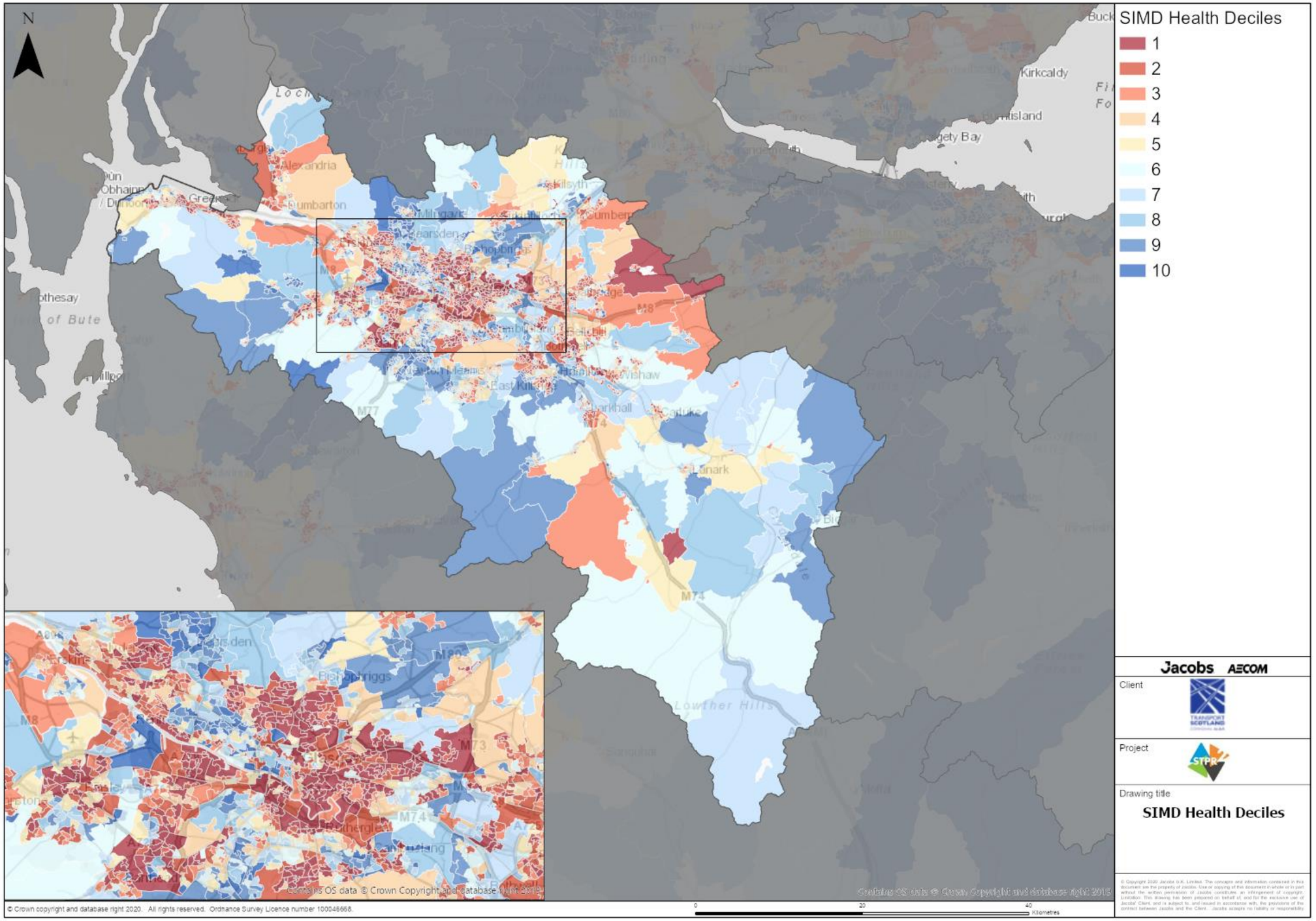

Figure A. 12: SIMD Health Indicators (click image to go back to main report)

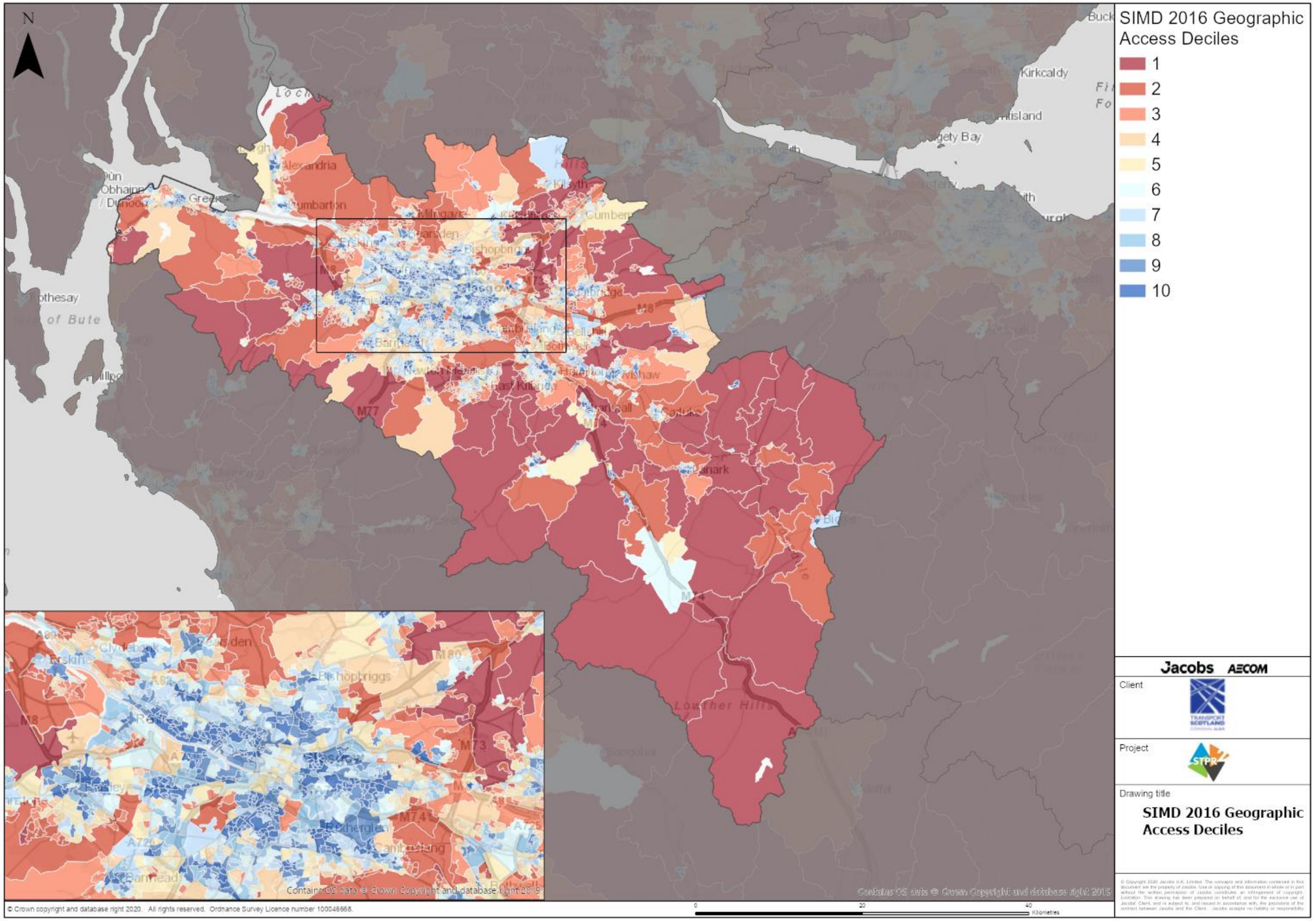

Figure A. 13: SIMD 2016 Geographic Access (click image to go back to main report)

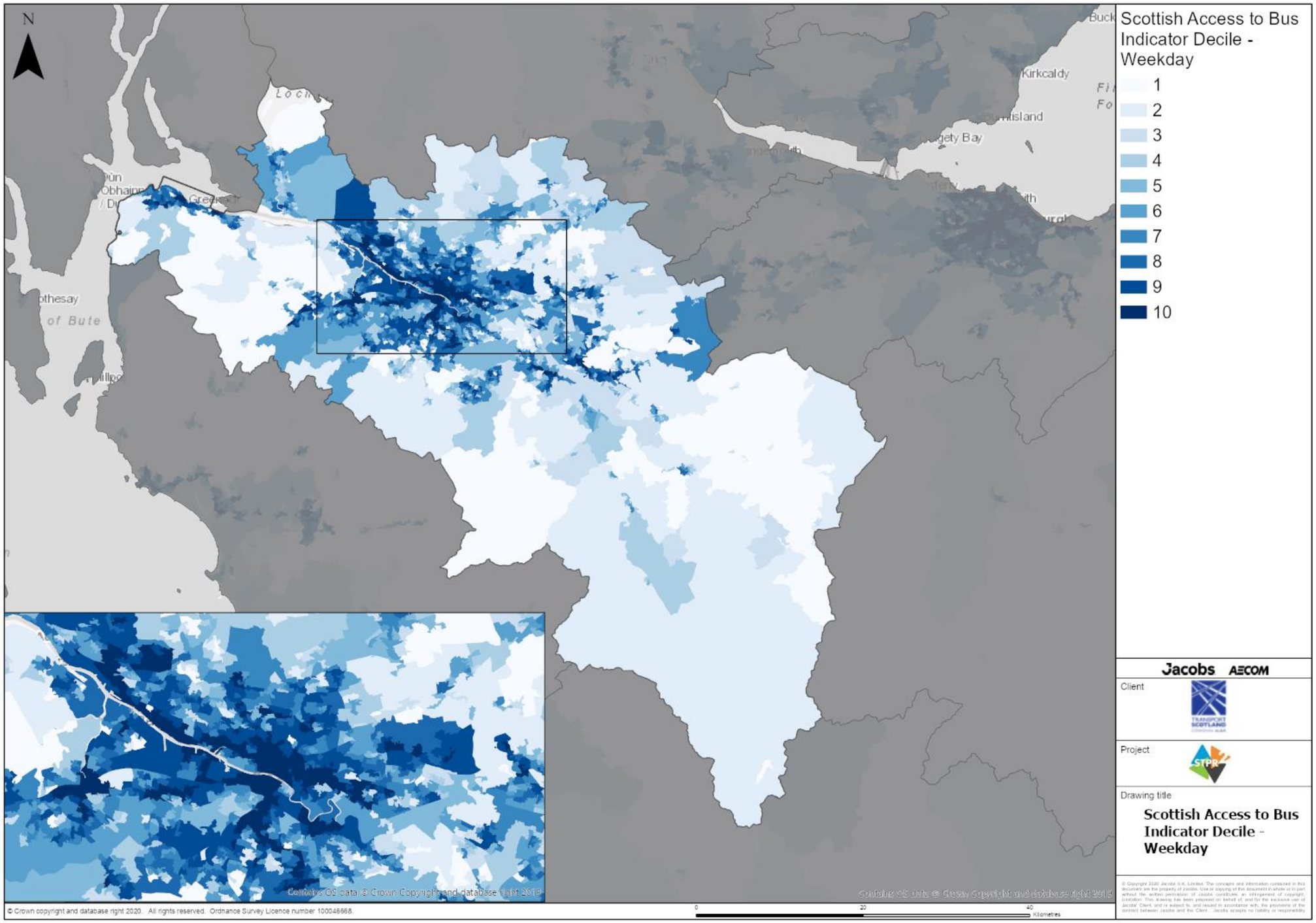

Figure A. 14: Scottish Access to Bus Indicator (click image to go back to main report)

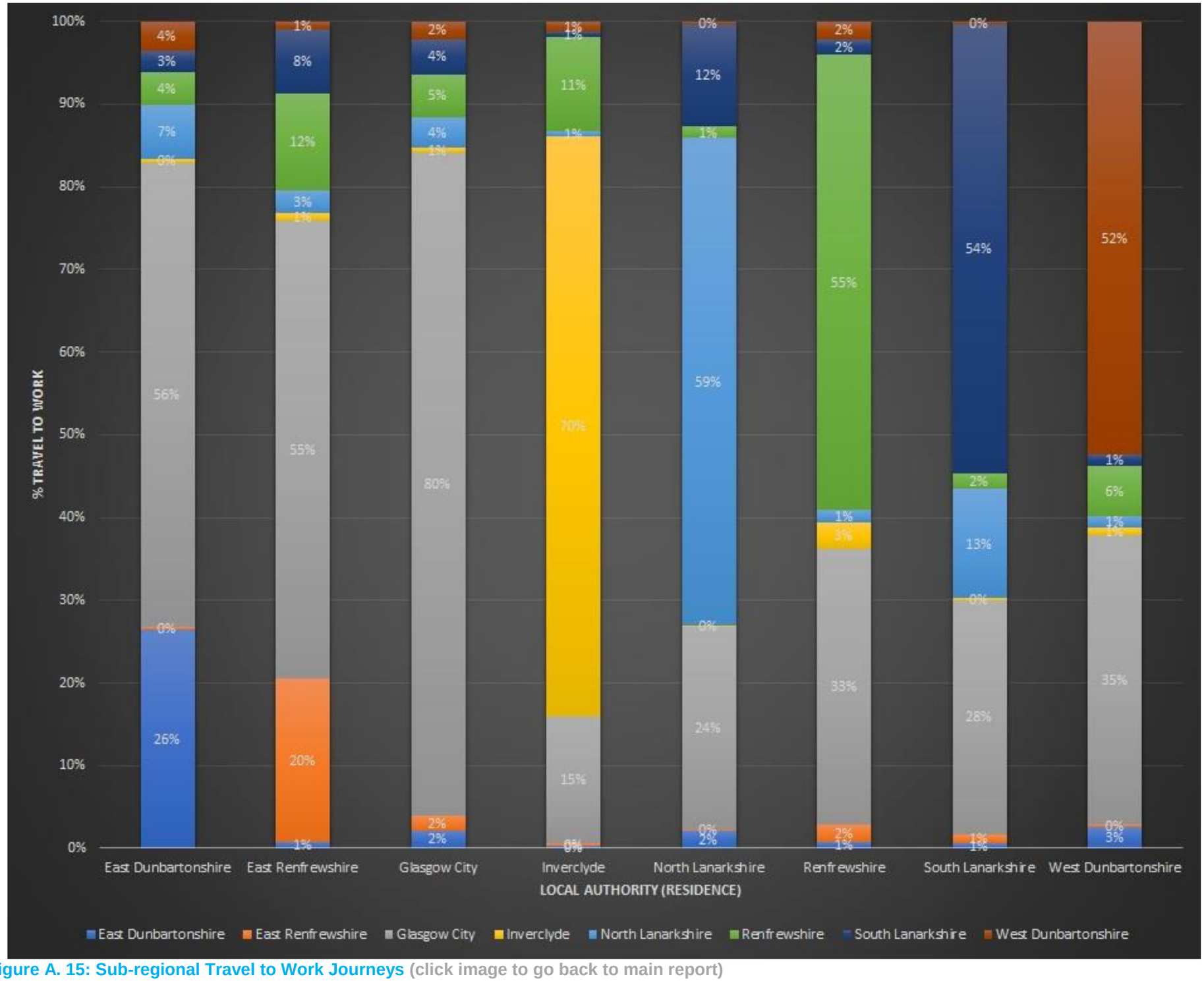

Figure A. 15: Sub-regional Travel to Work Journeys (click image to go back to main report)

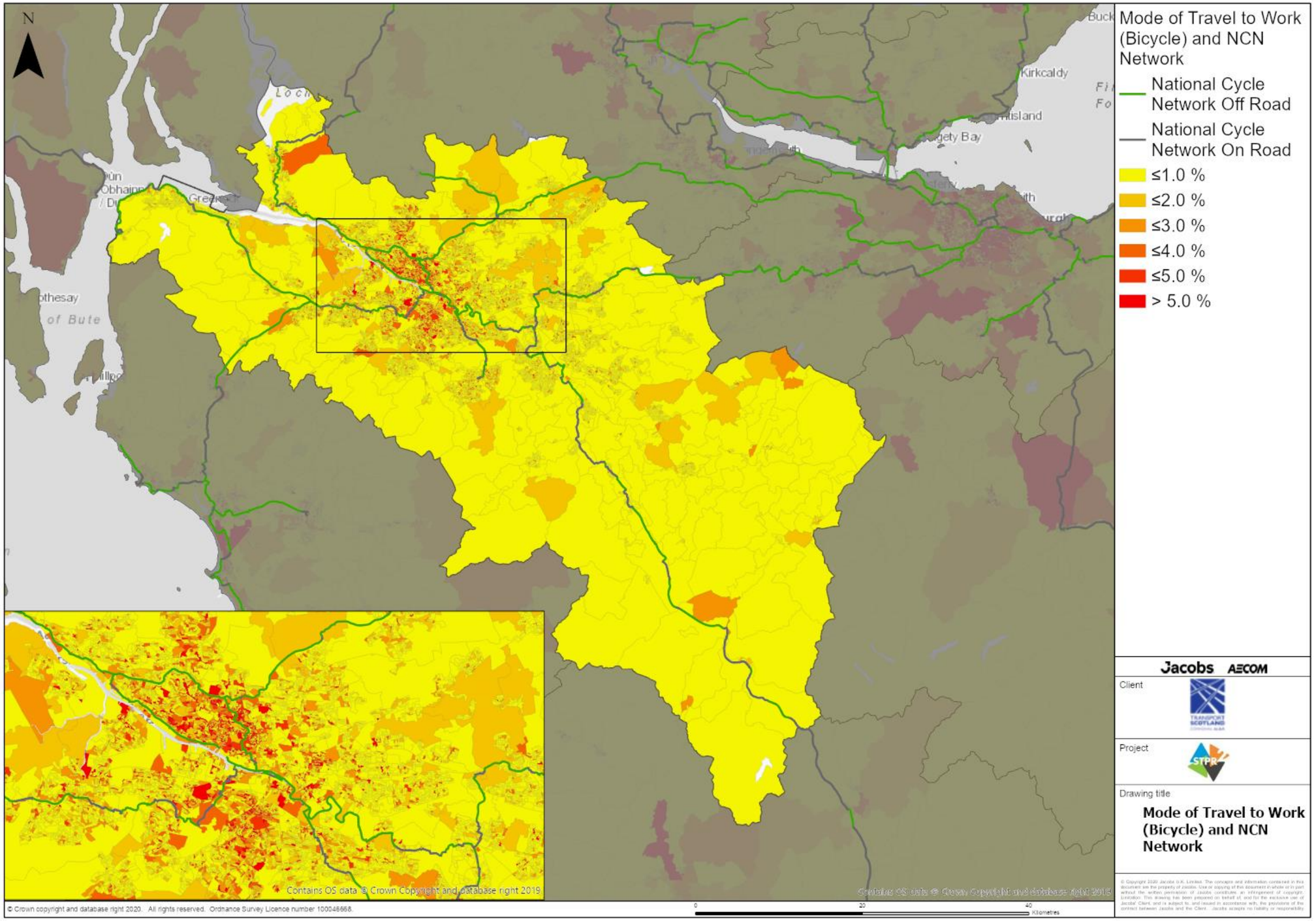

Figure A. 16: Mode of Travel to Work (Bicycle) and NCN Network (click image to go back to main report)

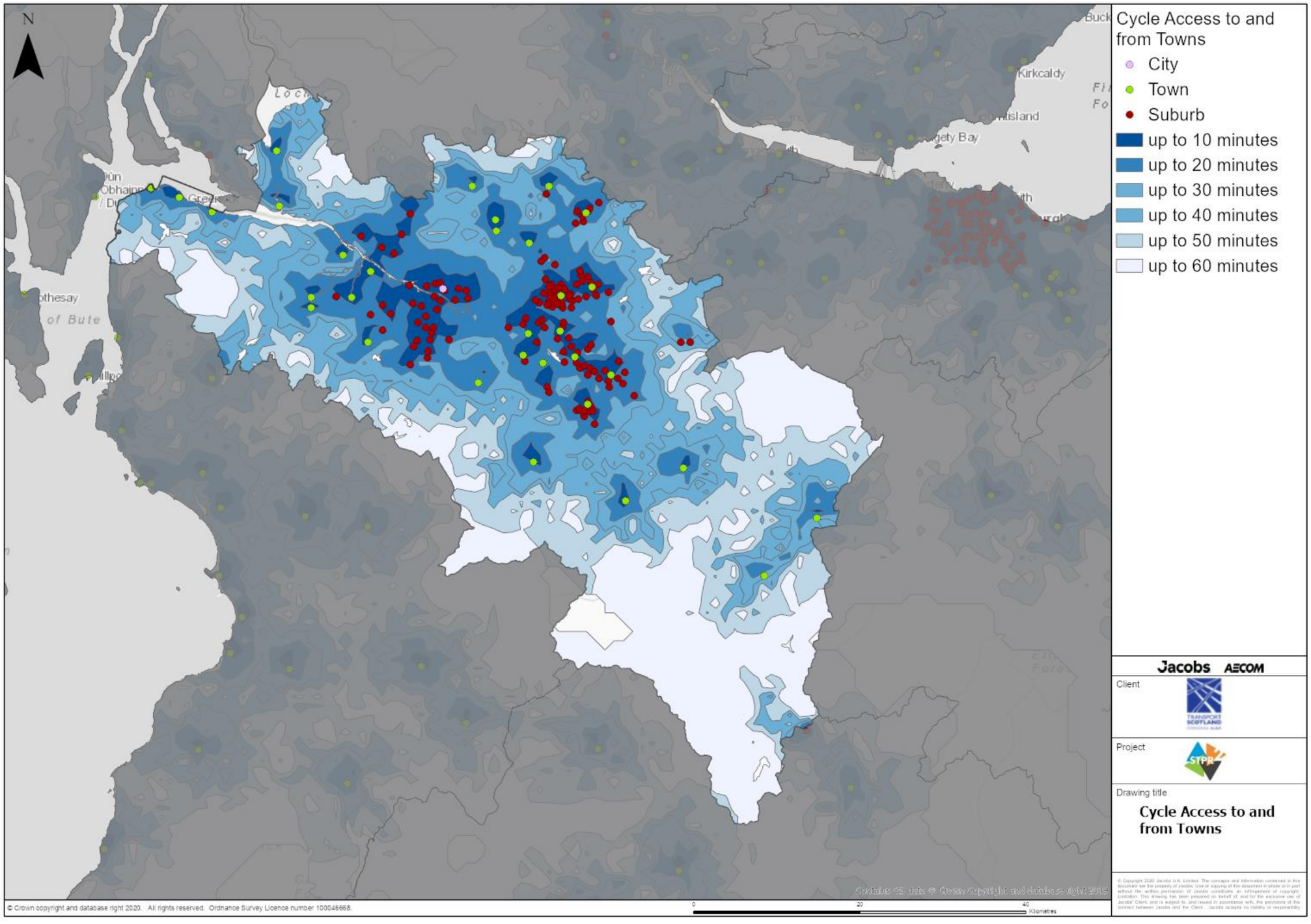

Figure A. 17: Cycle access around key settlements (click image to go back to main report)

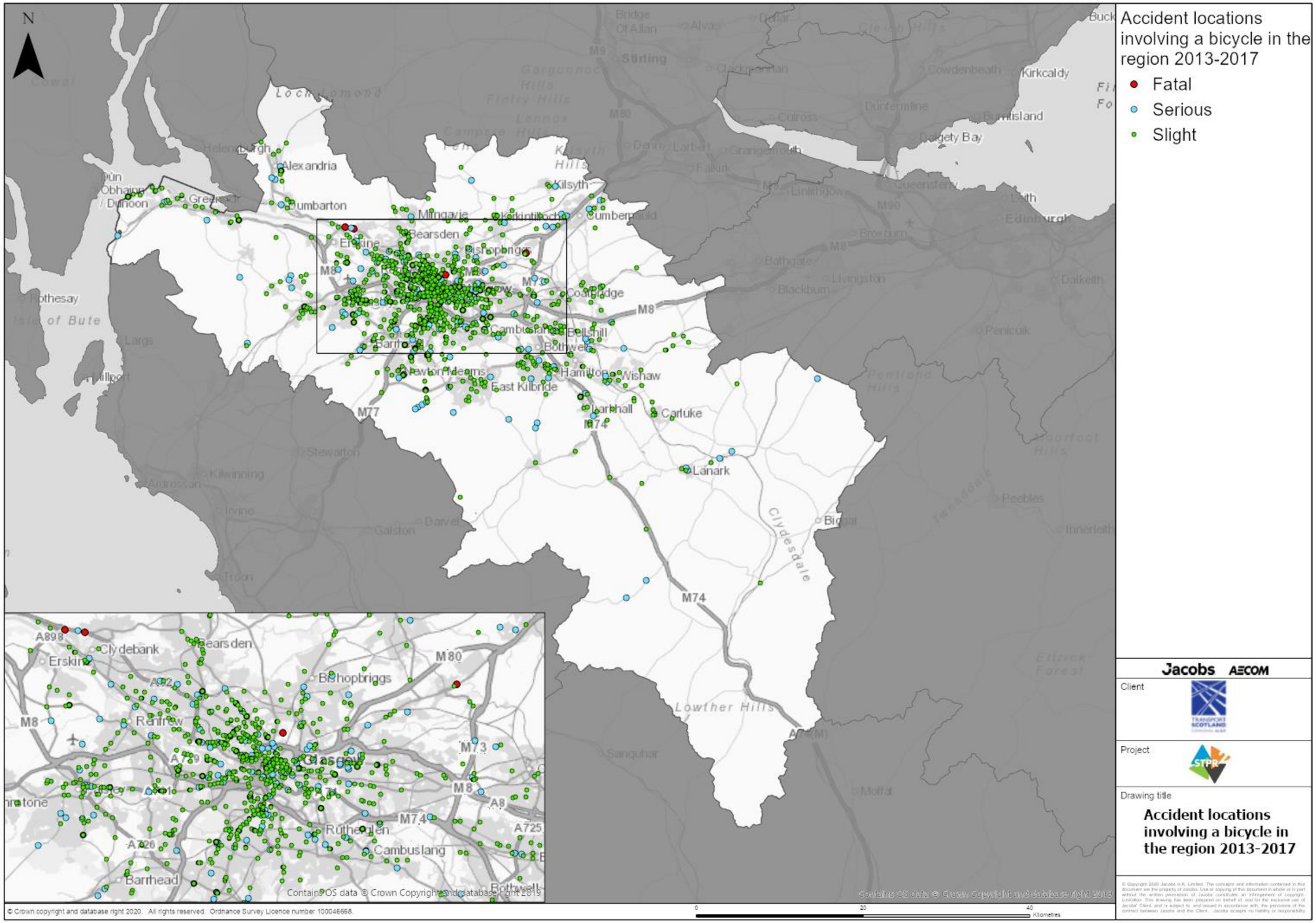

Figure A. 18: Accident locations involving a bicycle in the region 2013-17 (click image to go back to main report)

Figure A. 19: Network Capacity Constraints 2017 AM (TMfS) (click image to go back to main report)

Figure A. 20: Network Capacity Constraints 2017 PM (TMfS) (click image to go back to main report)

Appendix B: List of Policy Documents

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Theme	Title	Author	Year
Development	Clydeplan Strategic Development Plan Delivering Growth in the Glasgow City Region & Clydeplan Action Programme	Clydeplan	2017
Development	East Dunbartonshire Local Development Plan (East Dunbartonshire Council, 2017) & East Dunbartonshire Local Development Plan Action & Delivery Programme	East Dunbartonshire Council	2017
Development	East Renfrewshire Local Development Plan (East Renfrewshire Council, 2015) & East Renfrewshire Local Development Plan Action Programme	East Renfrewshire Council	2015
Development	Glasgow City Development Plan (Glasgow City Council, 2017) & Glasgow City Development Plan Action Programme	Glasgow City COuncil	2017
Development	Inverclyde Local Development Plan	Inverclyde Council	2019
Development	Inverclyde Local Development Plan Proposed & Inverclyde Local Development Plan Action Programme Proposed	Inverclyde Council	2018
Development	Inverclyde Local Development Plan Supplementary Guidance on Renewable Energy	Inverclyde Council	2015
Development	North Lanarkshire Local Development Plan Modified Proposed	North Lanarkshire Council	2018
Development	North Lanarkshire Local Development Plan Adopted	North Lanarkshire Council	2012
Development	North Lanarkshire Local Plan	North Lanarkshire Council	
Development	Renfrewshire Local Development Plan	Renfrewshire Council	2014
Development	South Lanarkshire Local Development Plan Proposed Volume 1 & South Lanarkshire Local Development Plan Proposed Volume 2	South Lanarkshire Council	2018
Development	South Lanarkshire Sustainable Development and Climate Change Strategy 2017-2022	South Lanarkshire Council	2017
Development	South Lanarkshire Local Development Plan Adopted	South Lanarkshire Council	2015
Development	West Dunbartonshire Local Development Plan Modified Proposed & West Dunbartonshire Local Development Plan Modified Proposed Action Programme	West Dunbartonshire Council	2018
Development	West Dunbartonshire Local Development Plan Adopted	West Dunbartonshire Council	2010
Economy	East Dunbartonshire Economic Development Strategy	East Dunbartonshire Community Planning Partnership	2017
Economy	Glasgow Economic Strategy 2016-2023	Glasgow City Council	2016
Economy	Glasgow City Region Economic Action Plan	Glasgow City Region	2017
Economy	Our Plan for Growth -North Lanarkshire's Economic and Regeneration Strategy 2014-2017	North Lanarkshire Council	2014
Economy	Renfrewshire Strategic Economic Framework 2016-2018	Renfrewshire Council	2016

Theme	Title	Author	Year
Economy	Promote – An Economic Strategy for South Lanarkshire	South Lanarkshire Council	2013
Economy	Glasgow and Clyde Valley City Deal	Various	2014
Economy	Sustainable Economic Growth for All – West Dunbartonshire's Economic Development Strategy 2015-2020	West Dunbartonshire Council	2015
Energy	Energy and Carbon Masterplan Sustainable Glasgow	Glasgow City Council	
Environment	East Dunbartonshire Air Quality Planning Guidance	East Dunbartonshire Council	2018
Environment	Bearsden Air Quality Action Plan Draft	East Dunbartonshire Council	2018
Environment	East Renfrewshire Environmental Sustainability Strategy 2015/16-2017/18	East Renfrewshire Council	2015
Environment	Clyde and Loch Lomond Local Plan District Local Flood Risk Management Plan	Glasgow City Council	2016
Environment	Glasgow Air Quality Action Plan	Glasgow City Council	2009
Environment	Glasgow River Clyde Flood Management Strategy – River Corridor Supplementary Development Guide	Glasgow City Council	2006
Environment	North Lanarkshire Air Quality Action Plan	North Lanarkshire Council	2013
Environment	Paisley Air Quality Action Plan	Renfrewshire Council	2014
Environment	Clyde and Loch Lomond Flood Risk Management Strategy	SEPA	2015
Environment	South Lanarkshire Air Quality Action Plan Draft	South Lanarkshire Council	2018
Environment	West Dunbartonshire Council Climate Change Strategy – Tackling Climate Change 2012	West Dunbartonshire Council	2012
Health	East Dunbartonshire Joint Health Improvement Plan Adopted 2013-2016	East Dunbartonshire Community Planning Partnership	2013
Health	East Dunbartonshire Joint Health Improvement Plan Proposed 2018-2021	East Dunbartonshire Health & Social Care Partnership	2018
Health	Working Together – Strategic Plan for Health and Social Care 2018-2021	East Renfrewshire Health and Social Care Partnership	2018
Health	Glasgow City Integration Joint Board Strategic Plan 2016-2019	Glasgow City Health and Social Care Partnership	2016
Health	Safer Healthier Independent Lives – Integrating Health & Social Care in North Lanarkshire Strategic Plan 2016-2026	Health & Social Care North Lanarkshire	2016
Health	Inverclyde Health & Social Care Strategic Plan 2019-2024 Proposed	Inverclyde Health and Social Care Partnership	2019
Health	Renfrewshire Health and Social Care Partnership Strategic Plan 2016-2019	Renfrewshire Health and Social Care Partnership	2016
Health	South Lanarkshire Health and Social Care Partnership Strategic Commissioning Plan 2016-2019	South Lanarkshire Health and Social Care Partnership	2016

Theme	Title	Author	Year
Health	West Dunbartonshire Health & Social Care Partnership Strategic Plan 2016-2019	West Dunbartonshire Health & Social Care Partnership	2016
Other	East Dunbartonshire Local Outcome Improvements Plan 2017-2022	East Dunbartonshire Community Planning Partnership	2017
Other	East Renfrewshire Council Outcome Delivery Plan 2019-2022	East Renfrewshire Council	2019
Other	Planning for the Future of East Renfrewshire	East Renfrewshire Council	2019
Other	East Renfrewshire Council Outcome Delivery Plan 2018-2021	East Renfrewshire Council	2018
Other	Glasgow Airport Draft Master Plan	Glasgow Airport	2011
Other	Getting Ahead of Change – Glasgow City Centre Strategy and Action Plan 2014-19	Glasgow City Council	2014
Other	Inverclyde Outcomes Improvement Plan 2017-2022	Inverclyde Alliance	2017
Other	Inverclyde Council Corporate Plan 2018/22	Inverclyde Council	2018
Tourism	Inverclyde Tourism Strategy 2009-2016 Mid Term Review	Inverclyde Council	2018
Tourism	Glasgow City Region Tourism Strategy (2018-23)	Glasgow City Council	
Tourism	Lanarkshire Area Tourism Strategy 2016-2020	Lanarkshire Area Tourism Partnership	2016
Tourism	Loch Lomond & The Trossachs National Park Tourism Strategy (2012-2017)	Loch Lomond & the Trossachs National Park Authority	
Tourism	Glasgow's Tourism and Visitor Plan to 2023	People Make Glasgow	2017
Tourism	Renfrewshire Visitor Plan 2018-2021	Renfrewshire Council	2016
Transport	Glasgow Airport Surface Access Strategy	BAA Glasgow	2009
Transport	East Dunbartonshire Local Transport Strategy Transport Options Report	East Dunbartonshire Council	2018
Transport	East Dunbartonshire Active Travel Strategy 2015-2020	East Dunbartonshire Council	2015
Transport	East Dunbartonshire Local Transport Strategy 2013-2017	East Dunbartonshire Council	2013
Transport	East Dunbartonshire Council Active Travel Strategy (2015-2020)	East Dunbartonshire Council	
Transport	East Renfrewshire Road Asset Management Plan	East Renfrewshire Council	2012
Transport	East Renfrewshire Local Transport Strategy 2008-2011	East Renfrewshire Council	2008
Transport	East Renfrewshire Council Active Travel Action Plan	East Renfrewshire Council	
Transport	Glasgow's Strategic Plan for Cycling 2016-2025	Glasgow City Council	2016
Transport	Glasgow City Centre Transport Strategy 2014-2024	Glasgow City Council	2015
Transport	Glasgow City Council Traffic and Road Safety Plan to 2020	Glasgow City Council	2015

Theme	Title	Author	Year
Transport	Glasgow Road Asset Management Plan	Glasgow City COuncil	2012
Transport	A Green Network Strategy for the Glasgow City Region	Glasgow City Region	
Transport	Connecting Glasgow	Glasgow Connectivity Commission	2019
Transport	Inverclyde Council Active Travel Strategy	Inverclyde Council	2018
Transport	Inverclyde Road Asset Management Strategy	Inverclyde Council	2018
Transport	North Lanarkshire Road Asset Management Plan & North Lanarkshire Road Asset Management Plan – Appendix I Action Plan	North Lanarkshire Council	2013
Transport	North Lanarkshire Local Transport Strategy - Adopted	North Lanarkshire Council	2010
Transport	North Lanarkshire Walking and Cycling Strategy	North Lanarkshire Council	
Transport	Renfrewshire Local Transport Strategy Refresh	Renfrewshire Council	2017
Transport	South Lanarkshire Roads Asset Management Plan	South Lanarkshire Council	2018
Transport	South Lanarkshire Cycling Strategy 2015-2020	South Lanarkshire Council	2015
Transport	South Lanarkshire Local Transport Strategy 2013-2023	South Lanarkshire Council	2013
Transport	South Lanarkshire Council Park and Ride Strategy Consultative Draft	South Lanarkshire Council	
Transport	SPT Freight Strategy for Strathclyde	Strathclyde Partnership for Transport	2018
Transport	East Dunbartonshire SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	East Renfrewshire SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	Glasgow SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	Inverclyde SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	North Lanarkshire SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	Renfrewshire SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	South Lanarkshire SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	West Dunbartonshire SPT Transport Outcomes Report	Strathclyde Partnership for Transport	2018
Transport	Strathclyde Partnership for Transport Regional Transport Strategy – A Catalyst for Change 2008-21	Strathclyde Partnership for Transport	2008
Transport	Designing the Future West Dunbartonshire Local Transport Strategy	West Dunbartonshire Council	2013
Transport	Road Safety Plan	West Dunbartonshire Council	2011
Transport	West Dunbartonshire Asset Management Plan 2010-2020: Roads	West Dunbartonshire Council	2010

Appendix C: Stakeholder Engagement

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Engagement Type	Date	Venue	Purpose and Details	No. of Attendees
Problems & Opportunities Workshop	Wednesday 19th June 2019	SPT Offices, 131 St Vincent Street, Glasgow	Workshop with stakeholders including representatives from transportation, education, health and environmental sectors, in addition to local authority officers, to identify transport-related problems and opportunities in the region.	24
	Tuesday 25th June 2019			26
Structured Interviews	July – October 2019	Various	Interviews with key stakeholders, including Senior Officers within the eight Glasgow City Region local authorities, Strathclyde Partnership for Transport and Glasgow Airport.	10 organisations
Interventions Workshop	Thursday 14th November 2019	SPT Offices, 131 St Vincent Street, Glasgow	Workshop with stakeholders including representatives from transportation, education, health and environmental sectors, in addition to local authority officers, to identify potential interventions to address problems and opportunities previously identified.	19
	Wednesday 20th November 2019			21
Elected Members Briefing / Workshop	Friday 24th January 2020	SPT Offices, 131 St Vincent Street, Glasgow	Elected Members from across the region attended a briefing session on emerging findings from STPR2 and to provide feedback on potential interventions that should be considered as the study moves forward.	6
Online Survey	Monday 2nd December 2019 – Friday 10th January 2020	Online	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 to improve the strategic transport network, across all modes, in the future.	645 responses from Glasgow City Region