STRATEGIC TRANSPORT PROJECTS REVIEW

PROTECTING OUR CLIMATE AND IMPROVING LIVES

Initial Appraisal: Case for Change

Glasgow City Region

February 2021

Jacobs AECOM

STRATEGIC TRANSPORT PROJECTS REVIEW 2

Project No:	B2356701
Document Title:	STPR2: Initial Appraisal: Case for Change – Glasgow City Region
Revision:	Final
Date:	03/02/21

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List of Acronyms

ACRONYM	
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
ORR	Office of Rail and Road
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 Mainline

1. Introduction

1.1. Background and Report Purpose

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

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

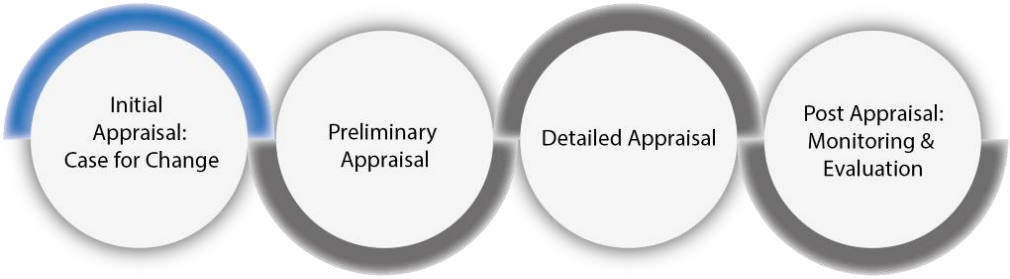

Figure 1: The 4 Key Stages to the Scottish Transport Appraisal Guidance (STAG)

This report sets out the Initial Appraisal: Case for Change for the Glasgow City Region as shown in Figure 2 and forms 1 of 11 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. The report set outs a robust method, aligned with the principles of the NTS2, to generate, clean and sift options; ensuring a broad range of options across all modes are considered that address the problems and opportunities in the region. This report is supported by a National Case for Change 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 the NTS2.

It is recognised that the vision set out in NTS2 will only come to fruition through working in partnership with others, including Local Authorities and Regional Transport Partnerships. This is particularly in areas of transport for which local authorities are responsible and which are not within the scope of this national strategic transport review.

STPR2 specifically focuses 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;

[1] Transport Scotland, National Transport Strategy (NTS2), February 2020, www.transport.gov.scot/media/47052/national-transport-strategy.pdf
[2] Transport Scotland Scottish Transport Appraisal Guidance (STAG), 2008, www.transport.gov.scot/media/41507/j9760.pdf

- Transport access to major ports[3] and airports; and
- The inter-urban bus and active travel network and principal routes within the City Region areas.

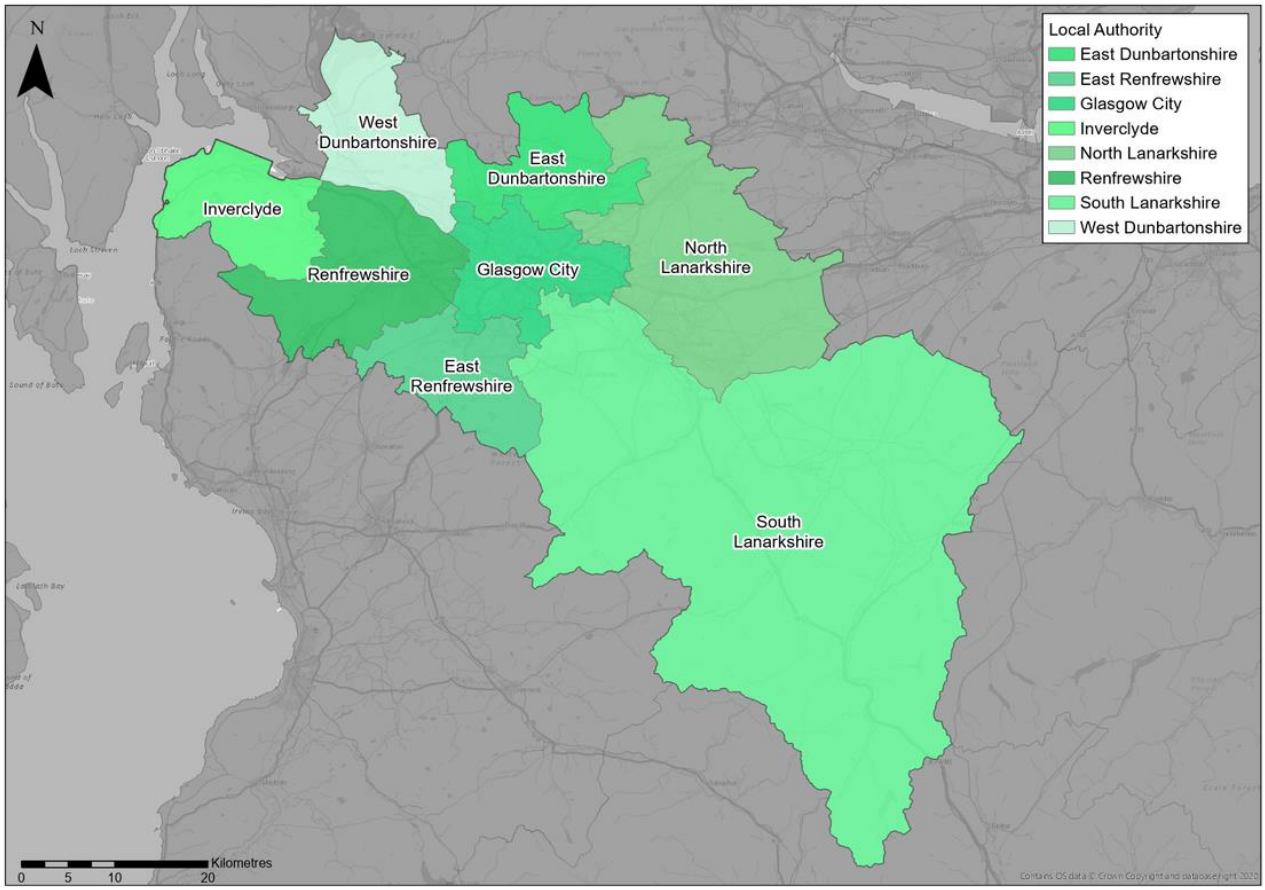

Figure 2: Glasgow City Region Study Area

(Click on image to enlarge figure)[4]

The Glasgow City Region comprises the 8 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, park and ride facilities, 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 8 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 final set of Transport Planning Objectives

[3] List of major ports is still under review

[4] Large scale figures can be found in Appendix A of this document or by following the link below the figure title where provided.

(TPOs), aligned with the national STPR2 objectives. The TPOs express the outcomes sought for the region. Additionally, the TPOs provide the basis for the appraisal of alternative options and, during post appraisal, will be central to monitoring and evaluation.

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

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

The following chapter sets out the socio-economic, environmental and transport context for the Glasgow City Region.

1.2. COVID-19 impacts

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

2. Context

2.1. Policy Context

At the national, regional and local levels, relevant transport, planning and economic strategies and policies have been reviewed to provide background context against which this Case for Change 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**[5]; sets out the Scottish Government's ambitions and aims to make Scotland a more successful country with opportunities and increased wellbeing for all.
- **National Transport Strategy (NTS2)**[6]**;** The NTS2 provides the national transport policy framework, setting out a clear vision of a sustainable, inclusive, safe and accessible transport system which helps deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. It sets out key priorities to support that vision: reduces inequalities; takes climate action; helps deliver inclusive economic growth; and improves our health & wellbeing. The NTS2 Delivery Plan was published on 17 December 2020 detailing the actions being taken by the Scottish Government between 2020 and 2022 to achieve the vision of the NTS2.
- **Climate Emergency**[7]**;** declared by the Scottish and UK Governments and multiple local authorities, including some in the Glasgow City Region. As part of this, the Climate Change Bill commits the Scottish Government to a target of Net Zero emissions of all greenhouse gases by 2045. The Climate Change Plan update was published on 16 December 2020, and details Scottish Government's plans to meet new ambitious targets to end our contribution to climate change by 2045.
- At the regional level transport related problems, objectives and policies/measures are set out in SPT's regional transport strategy[8], (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 4 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.

[5] Scottish Government, Programme for Government, annual publication most recently published September 2020, https://www.gov.scot/programme-for-government/

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

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

[8] SPT, A Catalyst for Change, The Regional Transport Strategy for the west of Scotland 2008 – 21, http://www.spt.co.uk/wmslib/Documents_RTS/catalyst_for_change.pdf

- The Glasgow City Region City Deal was signed in 2014[9]. 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.
- Other national, regional and local policy documents: these include the emerging National Planning Framework 4 (NPF4[10]), the Strategic Development Plan 'Clydeplan'[11], the SPT's Freight Strategy[12], as well as non-transport specific plans, such as Glasgow City Region Economic Strategy[13] and Action Plan[14], the Glasgow City Region Tourism Strategy 2018-2023[15], in 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 4 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.

To support and inform the development of STPR2, Strategic Environmental Assessment (SEA) and Equality Impact Assessment (EqIA) processes are being developed. Alongside these, assessments 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 document.

[9] Glasgow City Region, City Deal, http://www.glasgowcityregion.co.uk/
[10] National Planning Framework 4 (NPF4), Transport Scotland, 2020, https://www.gov.scot/publications/scotlands-fourth-national-planning-framework-position-statement/
[11] Glasgow and the Clyde Valley Strategic Development Planning Authority (Clydeplan), Strategic Development Plan, July 2017, https://www.clydeplan-sdpa.gov.uk/strategic-development-plan/current-plan/current-strategic-development-plan-july-2017
[12] Strathclyde Partnership for Transport, Freight Strategy for Strathclyde, February 2018, http://www.spt.co.uk/wmslib/Documents_RTS/Action_Plans/Freight-Strategy.pdf
[13] Glasgow City Region, Economic Strategy 2017 – 2035, December 2016, http://www.glasgowcityregion.co.uk/CHttpHandler.ashx?id=19520&p=0
[14] Glasgow City Region, Economic Action Plan, February 2017, http://www.glasgowcityregion.co.uk/CHttpHandler.ashx?id=19521&p=0
[15] Glasgow City Region, Tourism Strategy 2018 – 2023, http://www.glasgowcityregion.co.uk/CHttpHandler.ashx?id=22898&p=0

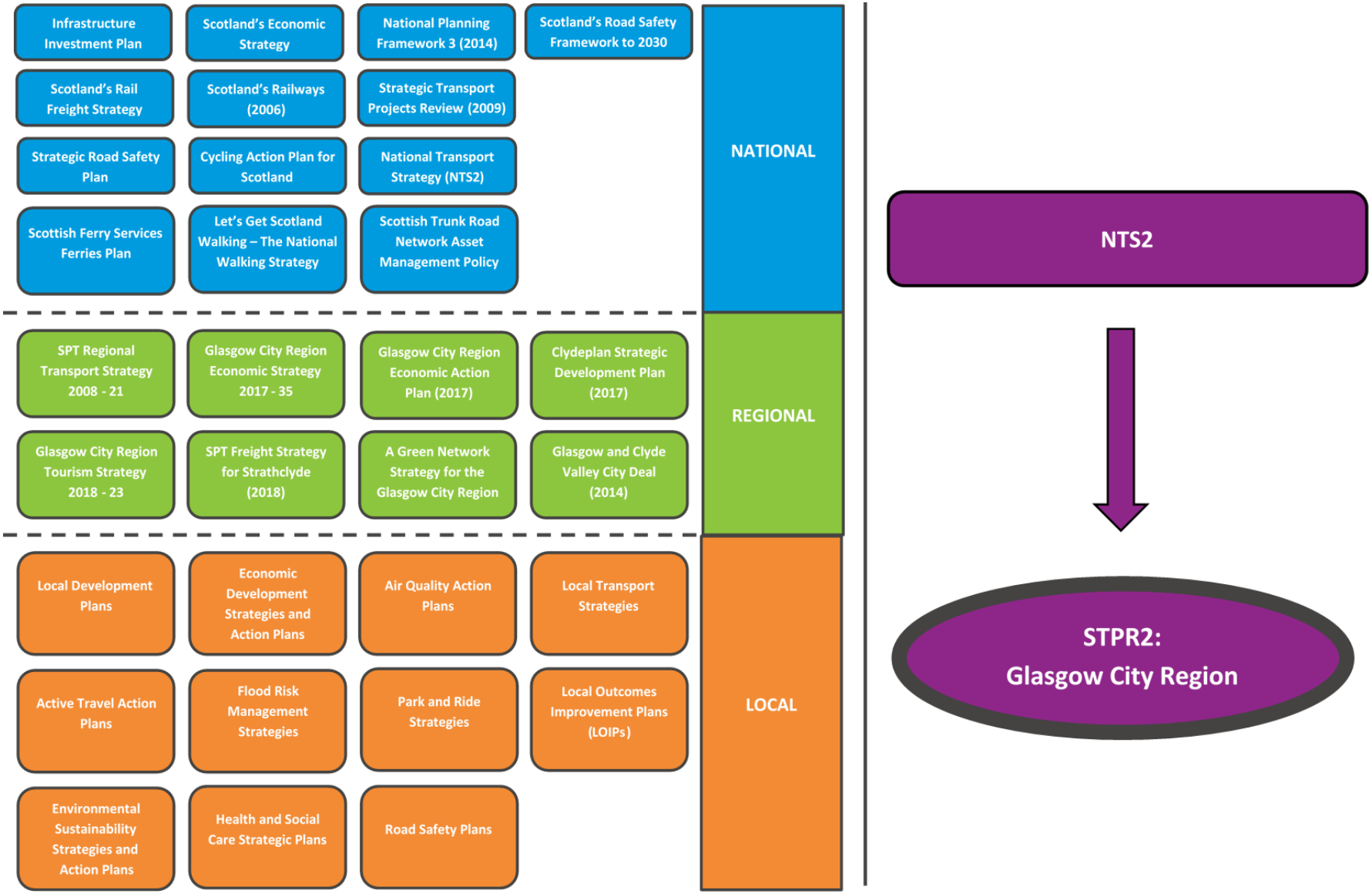

Figure 3: Policy Review

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[16], which distinguishes between urban, rural, and remote areas through 6 categories, is shown for the region in Figure 4. The proportion of the regional population residing in each category is presented in brackets[17]:

- Large Urban Areas (54.7%)
- Other Urban Areas (35.0%)
- Accessible Small Towns (5.7%)
- Remote Small Towns (0%)
- Accessible Rural (4.3%)
- Remote Rural (0.3%)

This demonstrates that whilst the region is dominated by the 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.

[16] Scottish Government, Urban Rural Classification, 2016, https://www.gov.scot/publications/scottish-government-urban-rural-classification-2016/pages/2/

[17] Based on NRS, Mid-Year Population Estimates, 2019, https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates

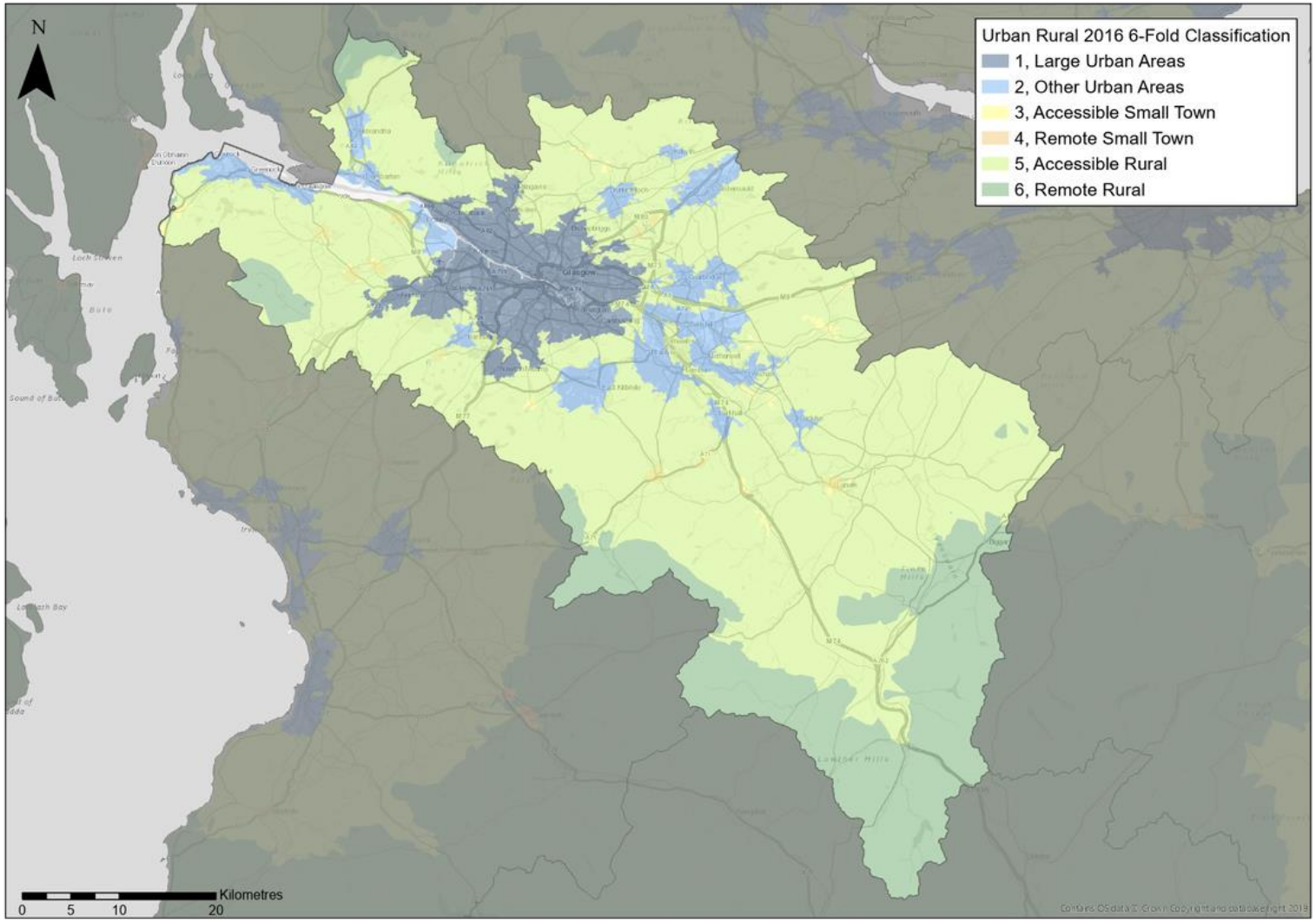

Figure 4: Urban Rural 6-Fold 2016 Scottish Government Classification

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 2 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 5 or 6 local authorities within that related category.

The 4 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)

Where the Glasgow Wider Area is discussed, this includes all local authorities within the Glasgow City Region study area with the exception of Glasgow City. The Glasgow Wider Area is compared against the urban benchmark above, whereas Glasgow City is compared against the Scottish Cities benchmark.

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

2.3.1. Population

The total population in the Glasgow City Region was 1,845,020 in 2019[18], which comprises approximately one third of the Scottish population. The Glasgow City Region population has increased by 3.2% since 2011. Based on 2019 figures from National Records of Scotland, Glasgow City Council had the highest local authority population in the region, with 633,120 people, followed by North Lanarkshire at 341,370 people, and South Lanarkshire at 320,530 people. The population density in the region was 552 persons per square kilometre. Glasgow City had the highest local authority population density at 3,618 persons per square kilometre, almost 5 times denser than the next most densely populated local authority, North Lanarkshire with 726 persons per square kilometre. The local authority with the lowest population density was South Lanarkshire, with 181 persons per square kilometre; 20 times less densely populated than Glasgow City.

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

Glasgow City observed the highest level of inward migration[19] (6.0%) within the region, followed by East Renfrewshire (3.6%). Inward migration for the remaining local authorities in the region ranged between 1.9% and 3.0%. 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[20], 17.2% of regional residents were children (15 and under), 65.6% were of working age (aged 16 to 64), and 17.2% were 65 and over. Glasgow City had a higher proportion of working age people, at 70.6% compared to an average of 63.0% across the other local authorities in the region. East Renfrewshire had the lowest proportion of working age people at 59.5%. The proportion of people aged 65 and over within the region was 1.9 percentage points lower than the national benchmark, whilst the proportion of people within working age was 1.6 percentage points higher than the national benchmark.

Settlement sizes are presented in Figure 5[21], demonstrating that Glasgow is the largest settlement with approximately one third of the region's population but also that there are a number of other sizeable settlements across the region.

[19] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

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

[21] NRS, Mid-Year Population Estimates for Settlements and Localities in Scotland, 2016, https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/settlements-and-localities
NRS, Mid-Year Population Estimates, 2019, https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates
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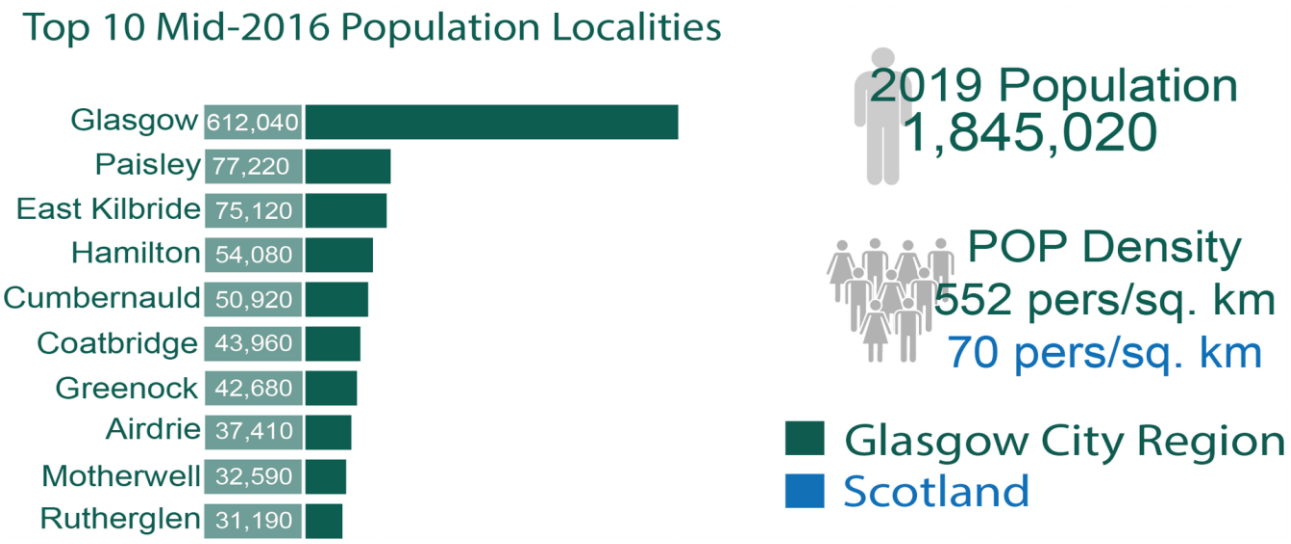


Figure 5: Glasgow City Region Largest Settlements by Population 2016 and Population and Density 2019

Figure 5[22] shows that the majority of those settlements have recorded a slight increase in population between 2012 and 2016 with Glasgow City having seen the largest increase at 3%. Exceptions to this are Cumbernauld and Greenock with decreases between 1% and 2%. Overall, between 2011 and 2019 the population of the region increased by 3.2%, which is in line with the Scotland average of 3.2%[23].

[22] NRS, Mid-Year Population Estimates for Settlements and Localities in Scotland, 2012 & 2016, https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/settlements-and-localities

[23] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/
NRS, Mid-Year Population Estimates, 2019, https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates

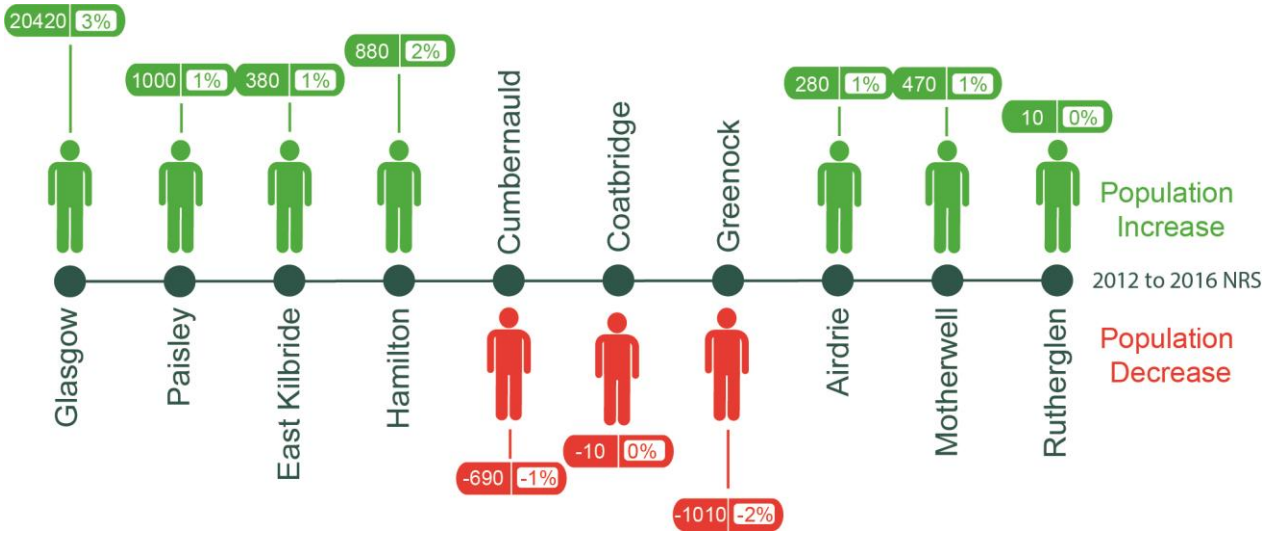


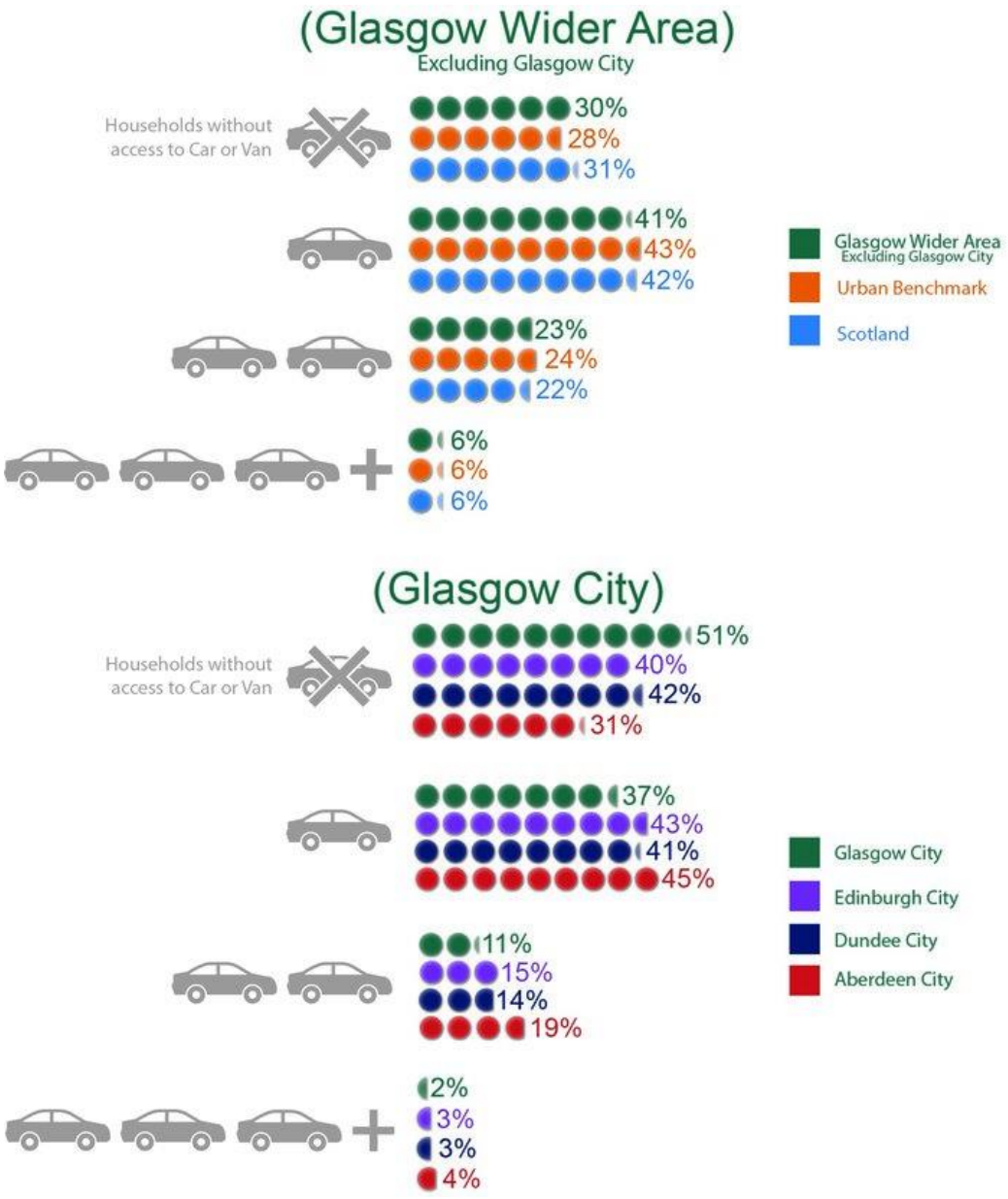
Figure 6: Population Change by Settlement 2012 – 2016

2.3.2. Travel to Work – Car Availability

The proportion of households with access to a car is lower in Glasgow City Region compared to Scotland as a whole (62.5% as opposed to 69.5% based on data from 2011 Census[24]). As shown in Figure 7 whilst the Glasgow Wider Area excluding Glasgow City has similar figures of car/van access to comparable areas, Glasgow City recorded the highest proportion of households with no access to a car for private use (50.8%) compared to other Scottish Cities.

[24] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

Figure 7: Glasgow City Region – Car or Van Availability 2011



2.3.3. Travel to Work – Mode Share

Despite the lower levels of car ownership in the region, car is the most popular mode of travel to work in the region at 60.8%, which is comparable with the Scottish average (61.8%). In Glasgow City, the travel to work by car mode share is 46.9%, which is lower than the Scottish Cities benchmark (51.1%) but higher than Edinburgh (39.9%). Public transport mode share in the Glasgow City Region is higher than the Scotland-wide figures. However, regional walking, cycling and working at home have a slightly lower uptake than Scotland-wide figures.

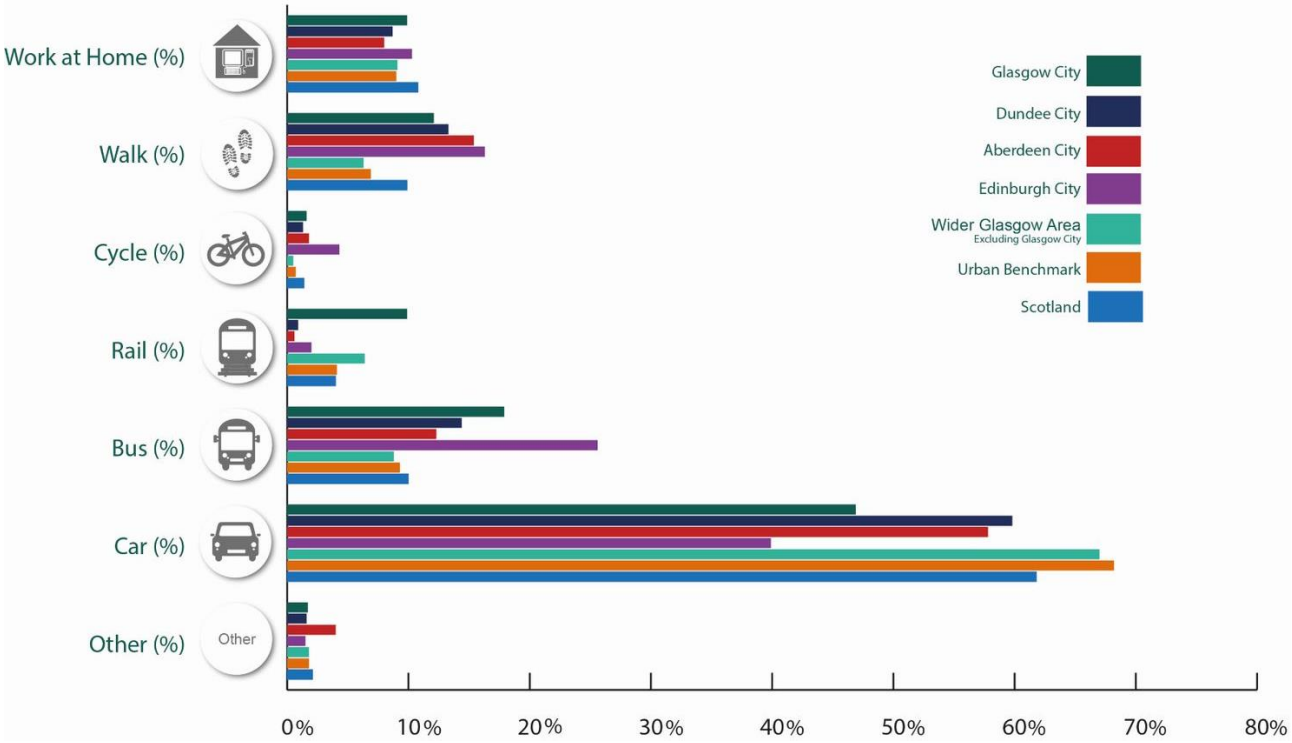


Figure 8: Glasgow City Region Mode of Travel to Work 2011[25]

(Click on image to enlarge figure)

2.3.4. Travel to Work – Distance Travelled

A higher proportion of Glasgow City Region residents travel less than 10km to work relative to Scottish average figure (53.0% compared to 49.5%). As shown in Figure 9, the Glasgow City figure stands at 64.9%, which is slightly lower than the Scottish Cities average. Conversely, a lower proportion of the region's residents travel between 10km and 60km relative to Scottish average figures (25.4% compared to 26.7%). The comparative figure for Glasgow City is only 12.5%; this is reflective of the stronger trend for travel to work into Glasgow by residents living in other parts of the Region.

[25] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

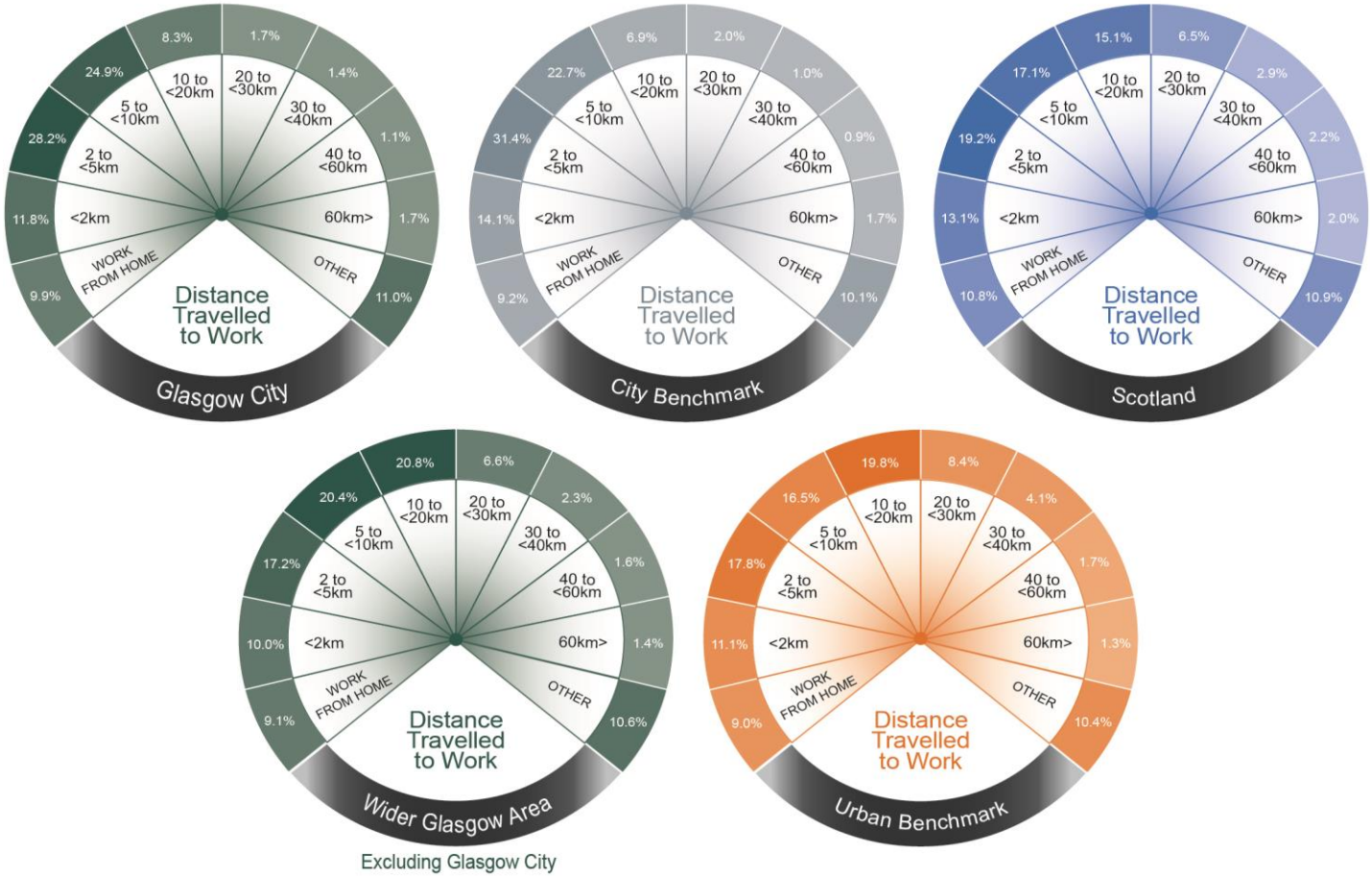


Figure 9: Distance Travelled to Work 2011[26] within the Glasgow City Region

[26] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

Figure 10 provides the mode share breakdown for travel to work and distance of travel across the region based on Census 2011 information (excluding working from home data). 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; particularly walking and cycling) to 68% of all trips between 10km and 20km.

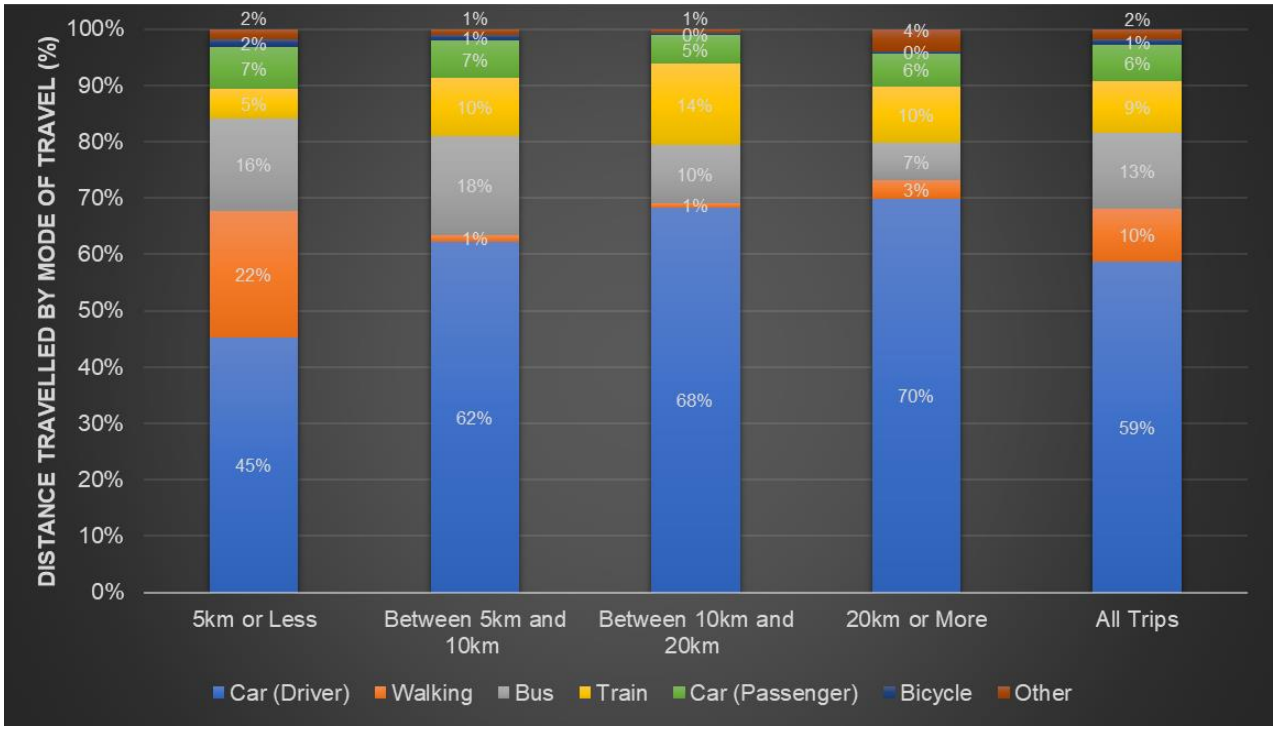


Figure 10: Distance Travelled to Work by Mode of Travel (excludes working from home)[27]

Train (including subway) 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 14% of all trips between 10km and 20km. For travel distances between 5km and 10km, and 20km or more, train travel made up 10% of all trips.

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 5km and 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 travel comprise 11.6% across the region and 17.9% in Glasgow 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 between 1% and 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.

[27] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

2.3.5. Economic Activity

Economic activity refers to an estimation of whether usual residents aged 16 to 64 were in work or actively looking for work. In the Glasgow City Region, economic activity[28] was 75.3% in 2019, compared to 77.5% nationally. Glasgow City economic activity levels were slightly lower at 70.7% compared to Scottish Cities benchmark which is 75.6%.

The Glasgow City Region has a slightly higher rate of unemployment[29] (4.0% compared to 3.5% nationally) with mean unemployment in Glasgow City at 4.7%, which is 0.6 percentage points higher than the Scottish Cities benchmark. Between 2014 and 2019, unemployment in the region decreased by 3.6 percentage points, compared to a 2.8 percentage point decrease nationally, while Glasgow City unemployment decreased by 5.1 percentage points, compared to a 3.0 percentage point decrease for the Scottish Cities benchmark. The mean unemployment rate for the rest of the region excluding Glasgow City was 3.7%. Figure 11 illustrates the industry sector disaggregation for employed residents in the Glasgow City Region. The graph on the left side of Figure 11 indicates the sector breakdown of Glasgow City, as well as the Scottish Cities benchmark and national benchmark; the graph on the right of Figure 11 highlights the performance of the wider region, excluding Glasgow City, against the regional and national benchmarks.

[28] ONS, NOMIS Official Labour Market Statistics, 2019, https://www.nomisweb.co.uk/

[29] ONS, NOMIS Official Labour Market Statistics, 2019, https://www.nomisweb.co.uk/

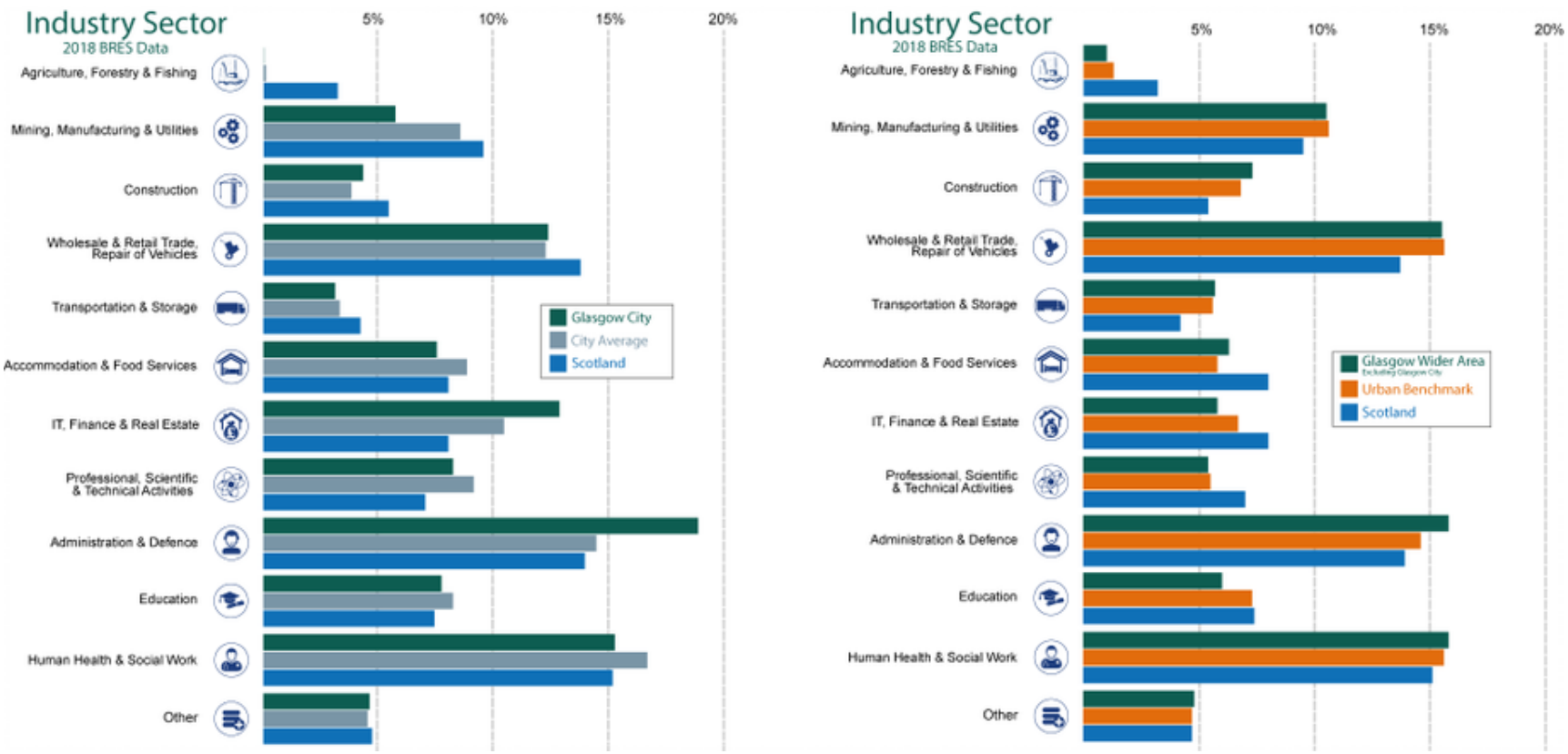


Figure 11 Percentage of people working in each industry sector for Glasgow City Region[30]

[30] ONS, NOMIS Business Register and Employment Survey (BRES), 2018, https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/businessregisterandemploymentsurvey

Within the Glasgow City Region, the largest industry employer (in 2018) was the Administration & Defence which employed 17.2% of the regional working population, followed by Human Health & Social Work, which employed 15.5%.

This was reflected in Glasgow City, with 18.8% of people employed by the Administration & Defence sector and 15.2% in Human Health & Social Work. In the wider area excluding Glasgow City, Administration & Defence and Human Health & Social Work made up the highest proportion of employment with both making up 15.8%, followed by Wholesale and Retail trade with 15.5%. Mining and Quarrying employed the lowest percentage of the working population (0.1%) within the region.

Overall within the Glasgow City Region the sector that has experienced significant growth over the last 5 years (2013-2018) was Water Supply, Sewage Waste Management with an increase of 36.6%. The industry with the most significant decline was Mining and Quarrying with a decrease of 31%. The Glasgow City Region accounted for 40.5% of Scotland's total benefits claimants[31] despite making up 33.7% of the country's population. Glasgow City accounted for 16.4% of Scotland's total claimants but made up 11.5% of Scotland's population; the rest of the region (excluding Glasgow) which accounts for 22.2% of Scotland's population accounted for 24.1% of Scotland's benefit claimants. Compared to the other Scottish Cities (3.3% for Aberdeen; 5.6% for Edinburgh; and 4.3% 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 Renfrewshire accounted for the joint lowest proportion in the region and second lowest in Scotland, at 0.8%. This demonstrates the diverse nature of the region.

The Glasgow City Region contributed nearly a third or £42.9 billion of the Scottish Gross Value Added (GVA), £20.4 billion of which is solely from Glasgow City[32]. This is the third highest regional contribution per head in Scotland.

2.3.6. Education

Within the Glasgow City Region 13.2% of people had no qualifications[33]; which was 3.3 percentage points higher than the national benchmark. Between 2014 and 2019 there was an increase of 0.5 percentage points in the proportion of people with no qualifications in the region. The highest level of people with no qualifications was in Glasgow City with 16.4% and the lowest was in East Dunbartonshire with just 5.7%.

[31] ONS, NOMIS Official Labour Market Statistics, 2019, https://www.nomisweb.co.uk/

[32] ONS, Regional gross value added (balanced) by industry: local authorities by NUTS1 region: UKM Scotland current prices, 2018, https://www.ons.gov.uk/economy/grossvalueaddedgva/datasets/regionalgrossvalueaddedbalancedlocalauthoritiesbynuts1region

[33] ONS, Nomis Annual Population Survey, 2019, https://www.nomisweb.co.uk/datasets/apsnew

2.3.7. 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[34] are mostly located in Glasgow City followed by North and South Lanarkshire.

Access by public transport in the Glasgow City area ranges up to 30-40 minutes by public transport. A large proportion of the built-up areas in the region can be accessed by public transport within 50-60 minutes, although travel times toward the outer boundaries of the region can reach up to 90 minutes or longer. South Lanarkshire (but not exclusively), has some of the less well-served areas in terms of public transport access to key employment locations on a typical weekday morning peak. The most common average travel time is between 1.5 and 2 hours, but people living in the southernmost areas can expect to travel more than 2 hours with some areas not served directly by public transport.

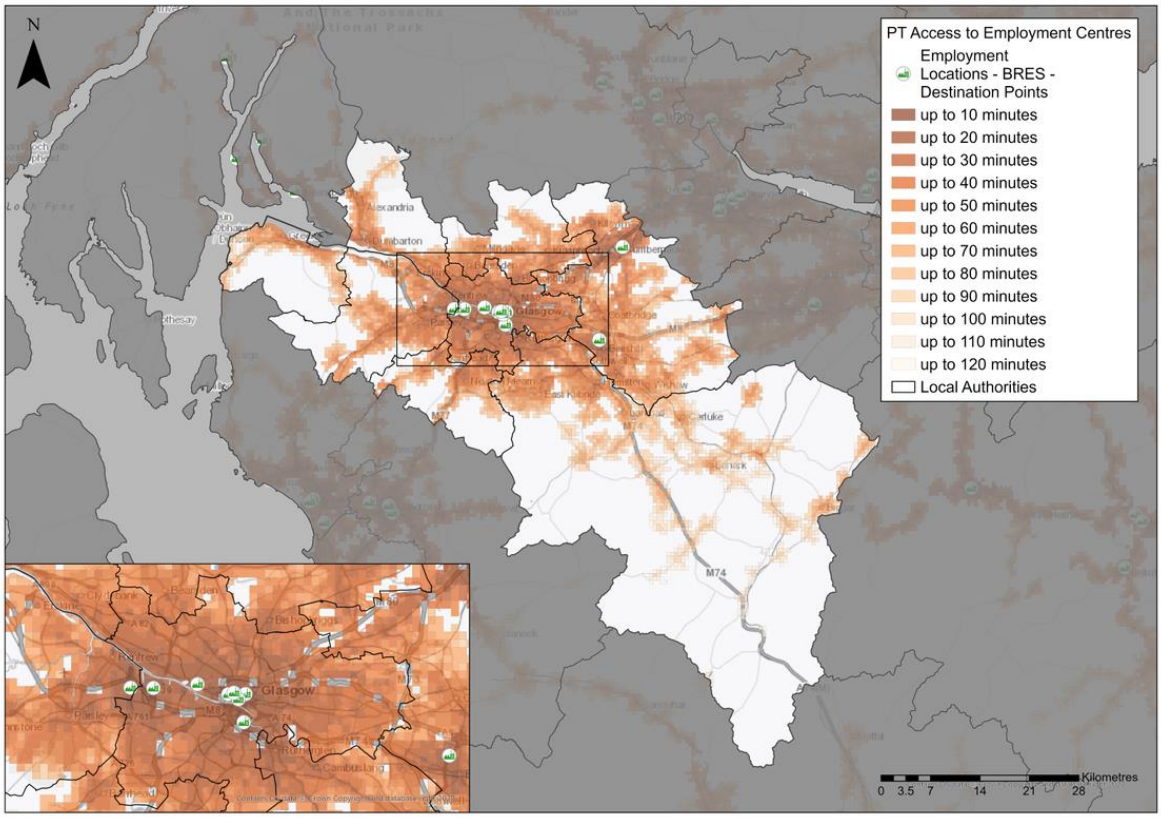


Figure 12: Public Transport to Employment Centres in the Glasgow City Region, (on a typical Tue 06:00-10:00) (TRACC)[35]

(Click on image to enlarge figure)

[34] Identification of top 10 employment locations across the region by number of employees was based on employment data from the ONS NOMIS, Business Register and Employment Survey (BRES), https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/businessregisterandemploymentsurveybresprovisionalresults/previousReleases

[35] TRACC: Transport Accessibility is a tool provided by Basemap and used to calculate public transport travel times between points.

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.

Higher and further education institutions are mostly concentrated in or near Glasgow City. Most notable is the fact that the more rural areas of South Lanarkshire consistently have no public transport under 2 hours.

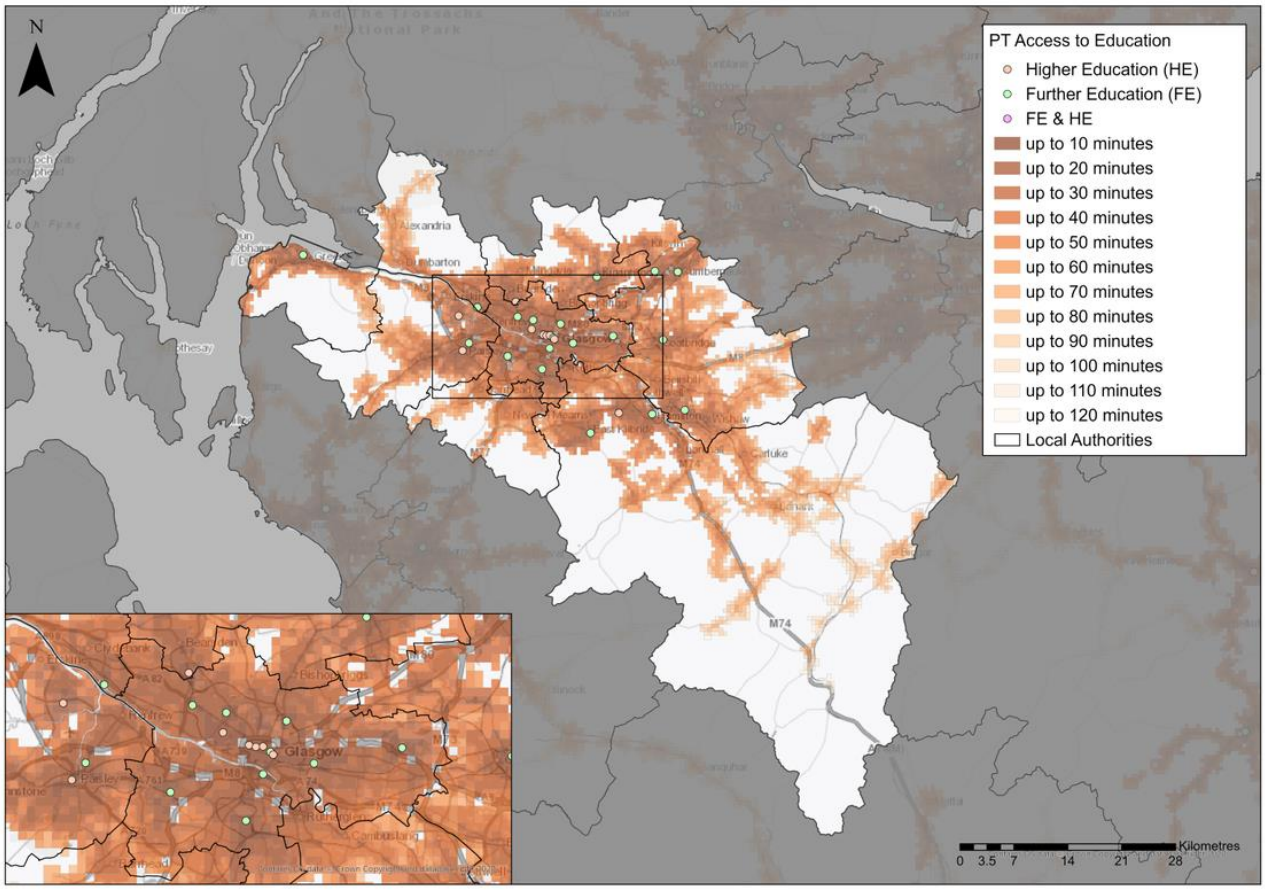


Figure 13: Public Transport to Higher & Further Education in the Glasgow City Region (on a typical Tue 06:00-10:00am) (TRACC)

(Click on image to enlarge figure)

Based on 2011[36] Census data, 42.6% of Glasgow City Region residents travel less than 2km to study and 65% travel less than 5km. These figures compare similarly with the national average, showing the great potential to promote sustainable modes of travel (e.g. walking, wheeling and cycling) to access education.

[36] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

2.3.8. Deprivation

The Scottish Index of Multiple Deprivation[37] (SIMD 2020) is a tool to identify areas of multiple deprivation in Scotland. In the region, Glasgow City is the local authority with the highest percentage of datazones that are most deprived, with 45% of its datazones in the 20% most deprived nationally (followed closely by Inverclyde); these are shown in red colours in Figure 14. On the other hand, East Dunbartonshire had the lowest percentage with 3.8%. Within the whole Glasgow City Region, 32.0% (747) of data zones were within the 20% most deprived and 18.2% (425) were within the 10% most deprived.

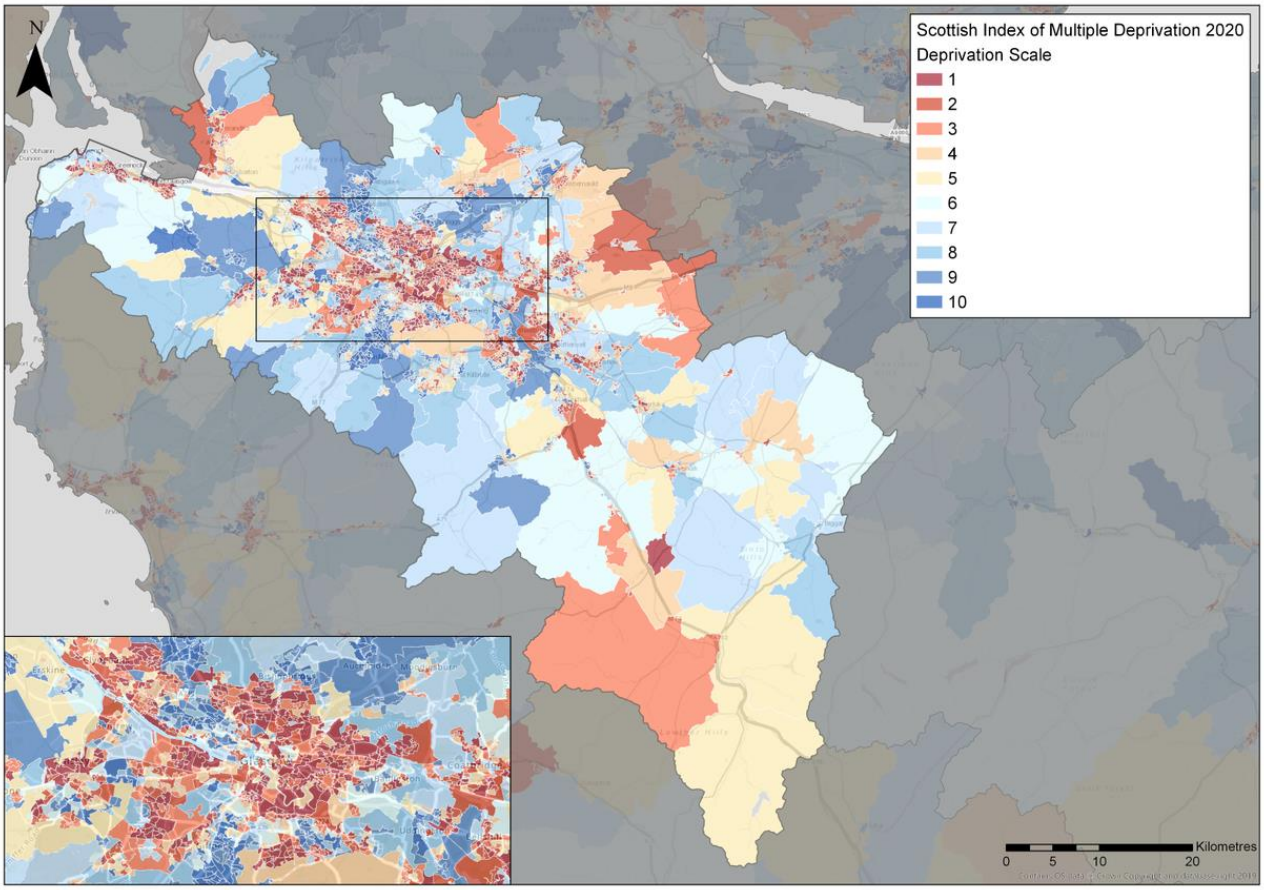


Figure 14: Glasgow City Region Scottish Index of Multiple Deprivation (SIMD) overall SIMD Rank[38]

(click on image to enlarge figure)

[37] 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 datazones) 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://simd.scot/

[38] The SIMD Deprivation Scale is measured from 1 (Most Deprived) to 10 (Least Deprived)

The Office for National Statistics collects information on average weekly expenditure on goods and services in the UK[39], 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 1 of the 12 categories.

Based on the information available for the financial year ending 2018, the average household in Scotland spends £492.70 per week, with £68.30 or approximately 14% of this spent on transport. Of the 12 specified categories, transport is the category that has the highest level of expenditure. UK wide data shows that as income increases, the percentage of spending on overall travel 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. Glasgow City Region has a higher proportion of datazones within the most deprived quintile than any other region (32% within the 20% most deprived). As such, 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.

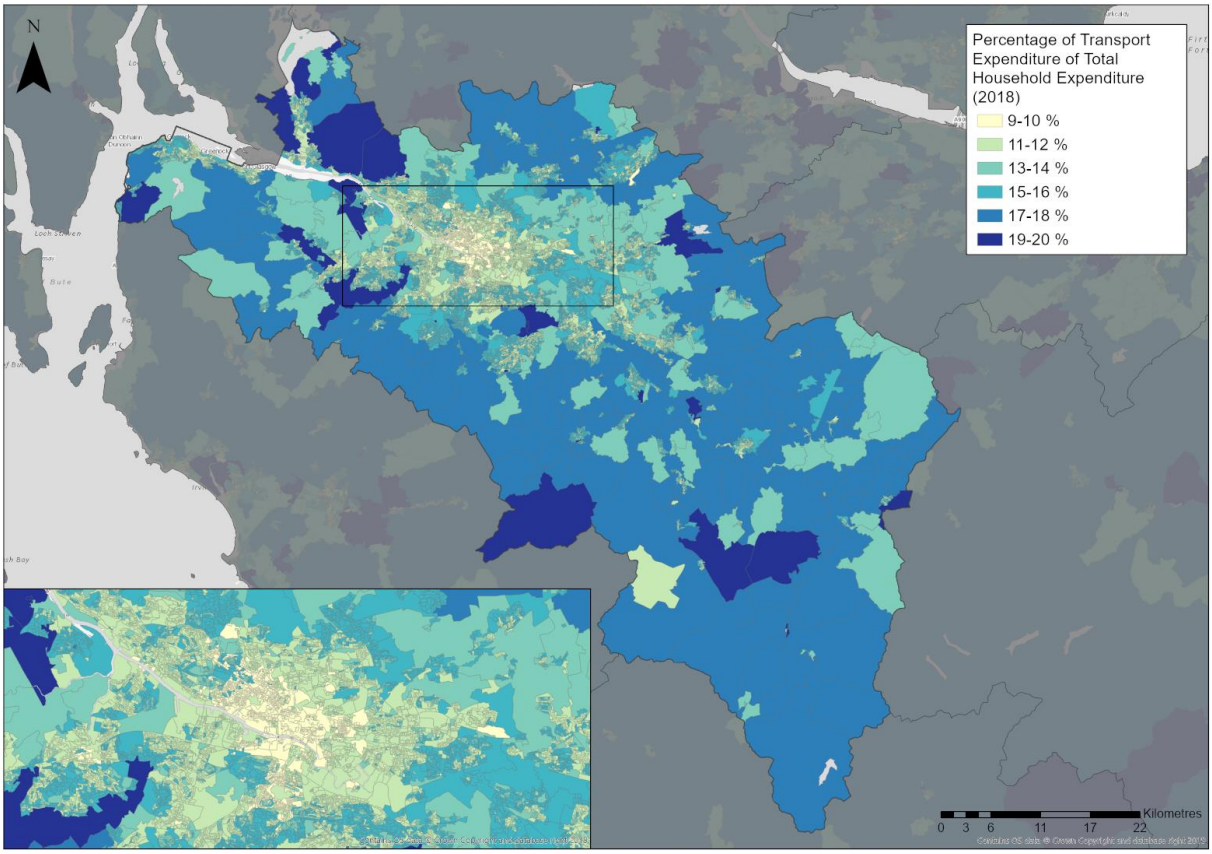


Figure 15: Percentage of Transport Expenditure of Total Household Expenditure (2018)

(Click on image to enlarge figure)

[39] ONS, Expenditure, FYE 2018, https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure

2.3.9. Health

SIMD Health rankings, as shown in Figure 16 indicate that health quality throughout the Glasgow City Region is varied.

In Glasgow City, 48% 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 have 7% and 8% of data zones within the lowest quintile. Between 32% and 36% 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 have 10%, 4% and 5% respectively.

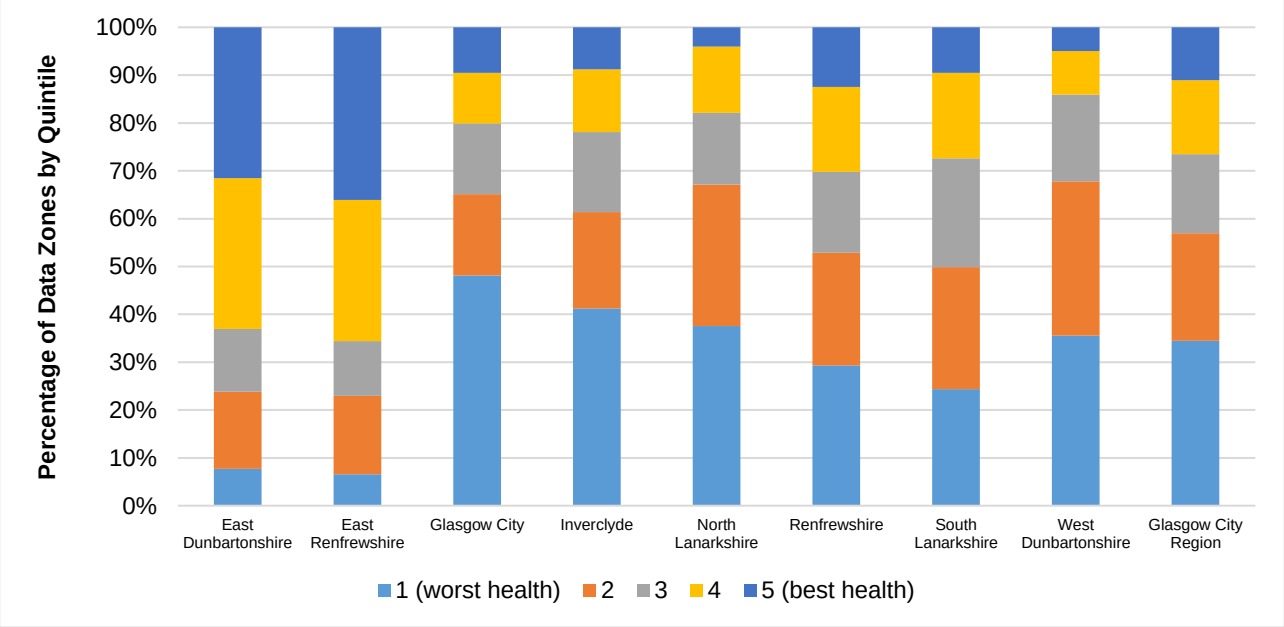


Figure 16: SIMD (2020) Health Indicator Distribution by Local Authority

Figure 17 illustrates journey times to key hospitals within the region by public transport. Accessibility analysis shows that the majority of Glasgow City Region residents can access healthcare within 60 minutes by public transport, but there are areas, particularly the more rural parts of South Lanarkshire, Renfrewshire and East Dunbartonshire that are unable to access key hospitals within 60 minutes. Further details are provided in Chapter 3.

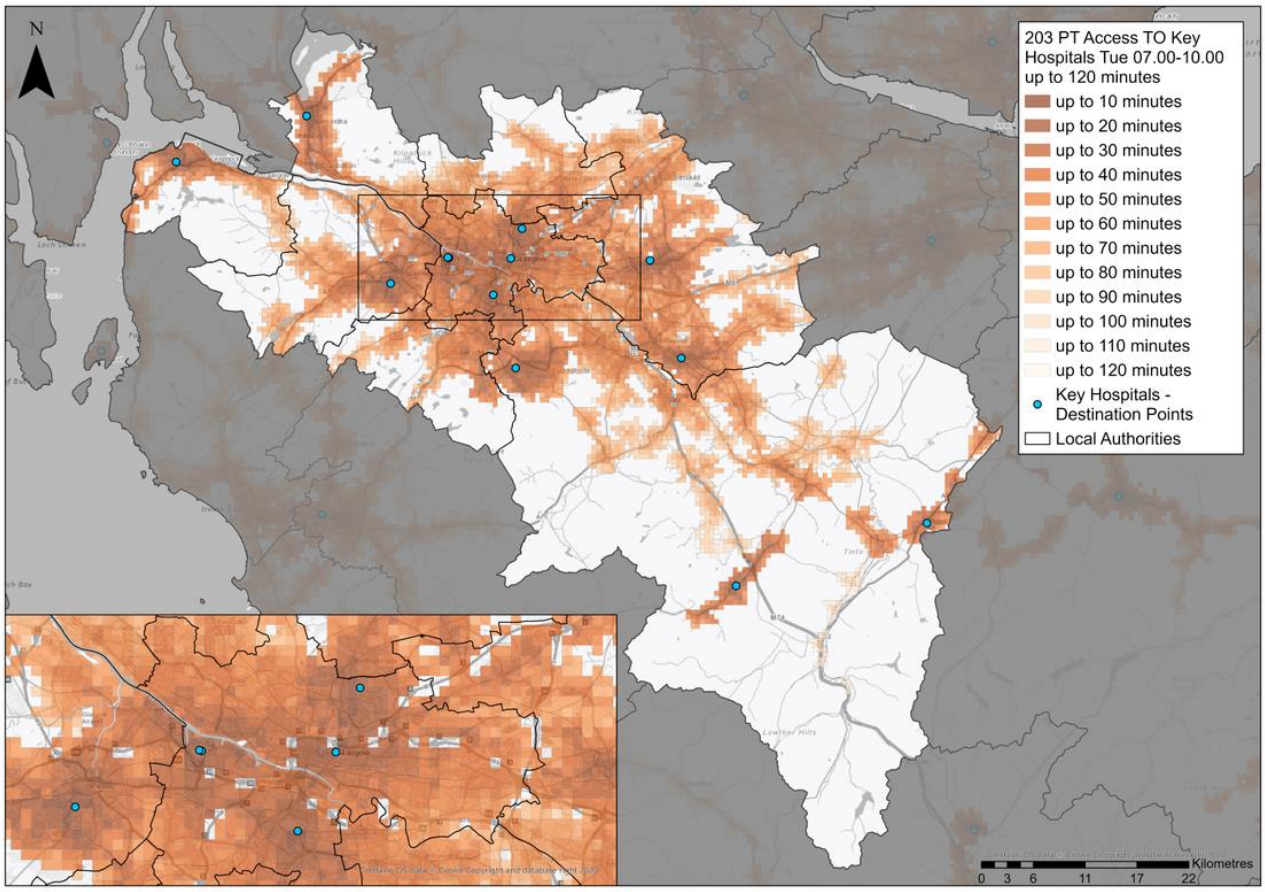


Figure 17: Public Transport to Key Hospitals in the Glasgow City Region, (on a typical Tue 07:00-10:00) (TRACC)

(Click on image to enlarge figure)

2.4. Environmental Context

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

- 101 Sites of Special Scientific Interest (SSSI)
- 6 Special Protection Areas (SPA)
- 12 Special Areas of Conservation (SAC)
- 2 Ramsar sites
- 2 National Nature Reserves (NNR)
- 31 Local Nature Reserves (LNR)
- 5 Royal Society for the Protection of Birds (RSPB) Reserves
- 1 National Scenic Area (NSA) – Loch Lomond, located within the regional boundary at the northern extent
- 1 National Park (Loch Lomond and Trossachs National Park)
- 22 Gardens and designed landscapes
- 103 Conservation Areas
- 2 World Heritage Sites
- 5 Battlefield Sites
- 371 Scheduled Monuments
- 1 Heritage Marine Protected Area (MPA).

As presented in Figure 18[40], an environmental constraints mapping exercise has been undertaken. As shown in Figure 18, there is a low concentration of designated biodiversity sites around the periphery of the urban area of Greater Glasgow; with further such sites located throughout the less urbanised areas of the region beyond. There are no Nature Conservation MPAs or Regional Parks within the region.

In addition, the region contains a significant number of historic assets, including two designated World Heritage Sites (the Antonine Wall World Heritage Site located at the northern extent of the region and the village of New Lanark in South Lanarkshire) as well as 8,209 Category A-C Listed buildings. The city of Glasgow has a high concentration of designated cultural heritage assets as expected in a large urban area.

[40] Contains SNH information licensed under the Open Government Licence v3.0.

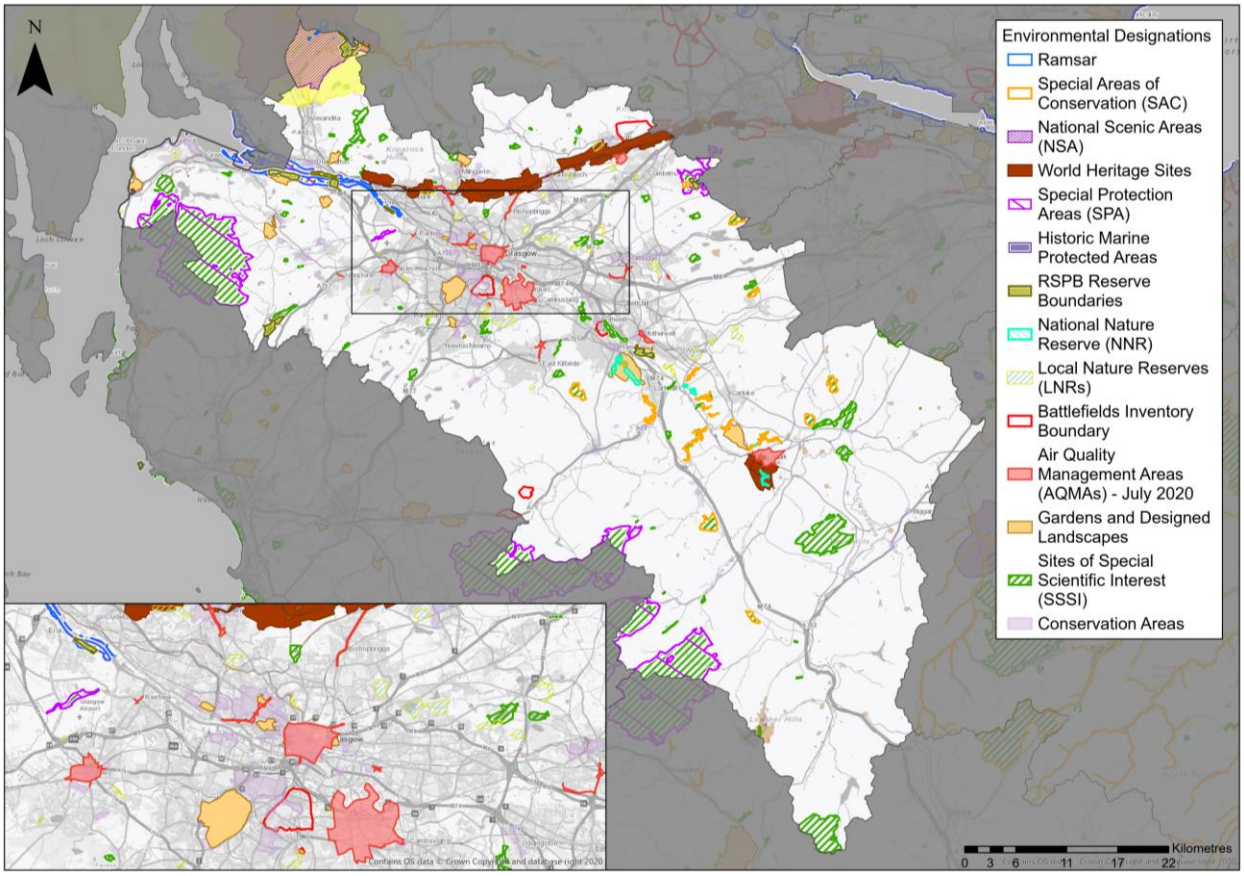


Figure 18: Environmental Designations for Glasgow City Region

(Click on image to enlarge figure)

Scotland's noise map illustrates noise exposure from rail, road, air traffic and industry sources in response to the European Parliament and Council Directive for Assessment and Management of Environmental Noise 2002/49/EC. Scotland's strategic noise mapping represents step one in the process for managing environmental noise; with step two requiring competent authorities to prepare noise action plans in response. The latest mapping (Round 3 data[41]) mapped the following noise sources throughout Scotland: *"roads with more than 3,000,000 (three million) vehicle passages per year; major railways with more than 30,000 (thirty thousand) train passages a year; major airports with more than 50,000 (fifty thousand) movements; and transport sources and industry in qualifying agglomerations (urban areas with populations in excess of 100,000 (two hundred and fifty thousand): Aberdeen, Dundee, Edinburgh and Glasgow)"*[42].

[41] The noise mapping data is reviewed on a five year rolling programme. Round 3 is the latest 5 year update.

[42] Scottish Government, Scotland's Noise, 2017, https://noise.environment.gov.scot/index.html

Figure 19 illustrates the noise levels above 55 decibels (dB)[43] at specific points from modelled noise sources for the region, based on consolidated noise sources for the day (Lday), evening (Levening) and night (Lnight) metric (referred to as Lden). 55 dB Lden is the EU indicator threshold for noise exposure defined in the Environmental Noise Directive (Directive 2002/49/EC)[44]. Figure 19 shows the greatest modelled noise levels to be located around Glasgow City, primarily associated with the strategic road corridors and Glasgow Airport; together with the rail routes through this area.

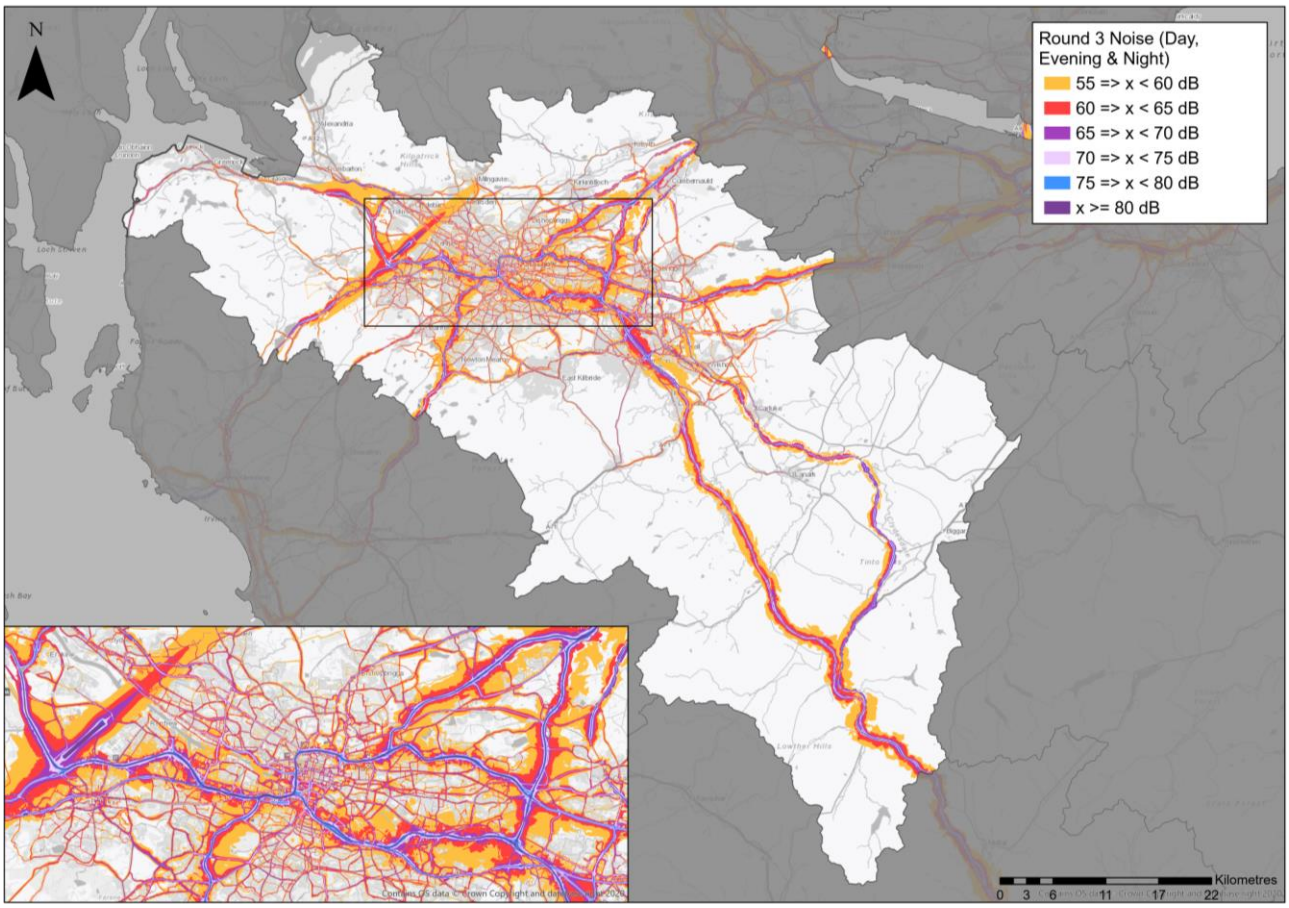


Figure 19: Noise Mapping for Glasgow City Region[45]

(Click on image to enlarge figure)

Figure 20 shows flood areas and likelihood for river, coastal and surface flooding at medium and high extents. This mapping identifies flood risk from surface water, river and coastal flooding at medium (1 in 200 year) and high (1 in 10 year) likelihood of flooding within the region.

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

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

[45] Scottish Government, Scotland's Noise, 2017, https://noise.environment.gov.scot/index.html

Settlements at greatest risk of coastal flooding are located along the Firth of Clyde, River Level and River Clyde. These include Greenock, Port Glasgow, Dumbarton and Clydebank.

Areas at medium and high risk of river flooding are predominantly located in the vicinity of River Endrick, River Kelvin, North Calder Water, River Clyde, White Cart Water, Black Cart Water and Gryfe, Water. This region is highly populated and there are a number of settlements at risk, including Balfron, Kirkintilloch, Coatbridge, Hamilton, Paisley, Pollokshields. Kilmacolm, Clydebank and Dumbarton.

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

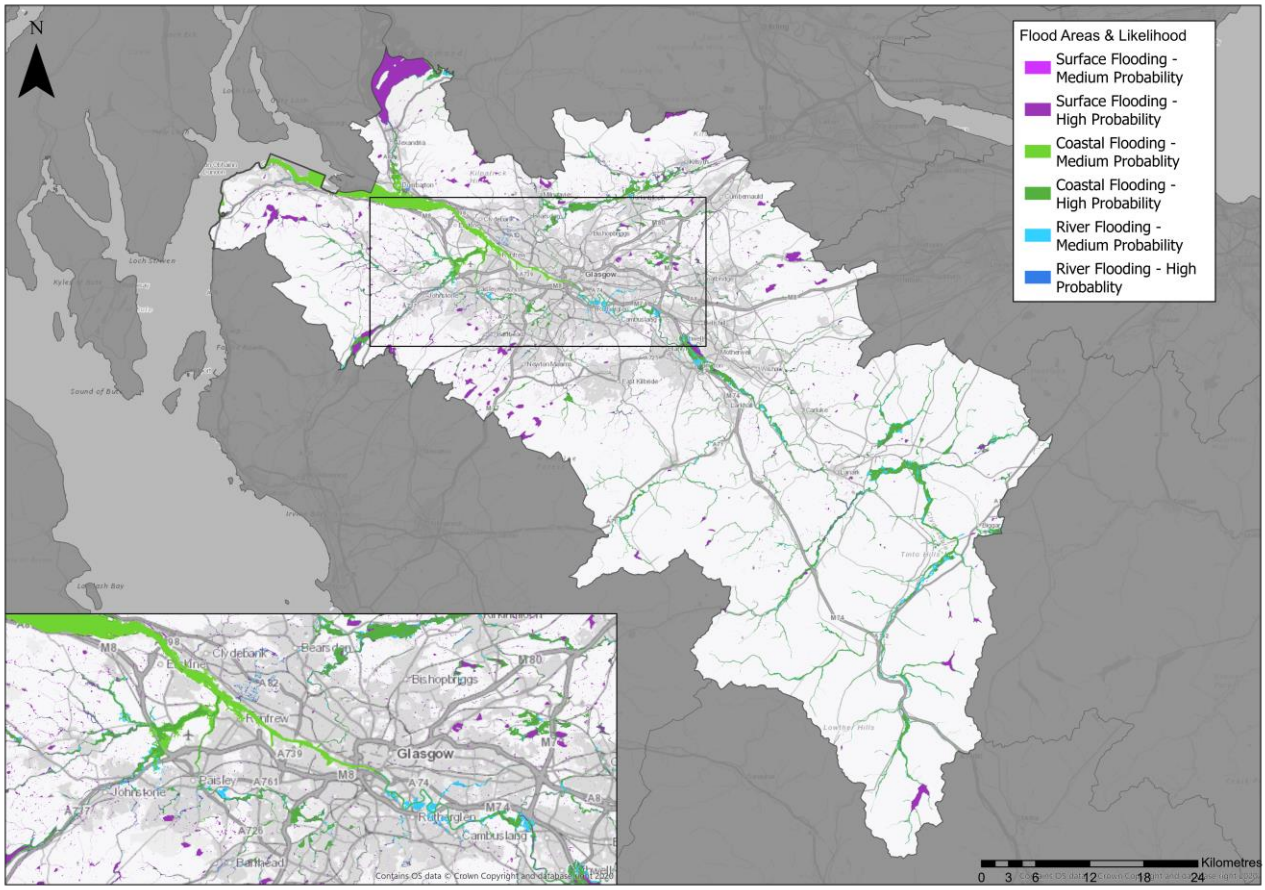


Figure 20: Flood Mapping for Glasgow City Region[46]

(Click on image to enlarge figure)

Buried peats are an important carbon sink. More than 20% of Scotland is covered by peat soil; with soils representing over half of Scotland's terrestrial store of carbon.[47] The soil

[46] SEPA (2021) https://map.sepa.org.uk/floodmap/map.htm, accessed 20/01/21.

[47] NatureScot, Managing nature for carbon capture, 2020, https://www.nature.scot/professional-advice/land-and-sea-management/carbon-management/managing-nature-carbon-capture

type classification for the Glasgow City is not provided on the national soil map due to its urban setting. Mineral gleys and peat lands are however recorded in South Lanarkshire, within the region. Figure 21 illustrates the distribution of carbon and peatland classes across the region with Classes 1 and 2 representing nationally important carbon-rich soils, deep peat and priority peatland habitat; Class 3 representing occasional peatland habitats with carbon-rich soils and some areas of deep peat; Class 4 representing predominantly mineral soils, unlikely to include carbon-rich soils; and Class 5 representing areas where no peatland habitat is recorded however soils are carbon rich and deep peat.[48]

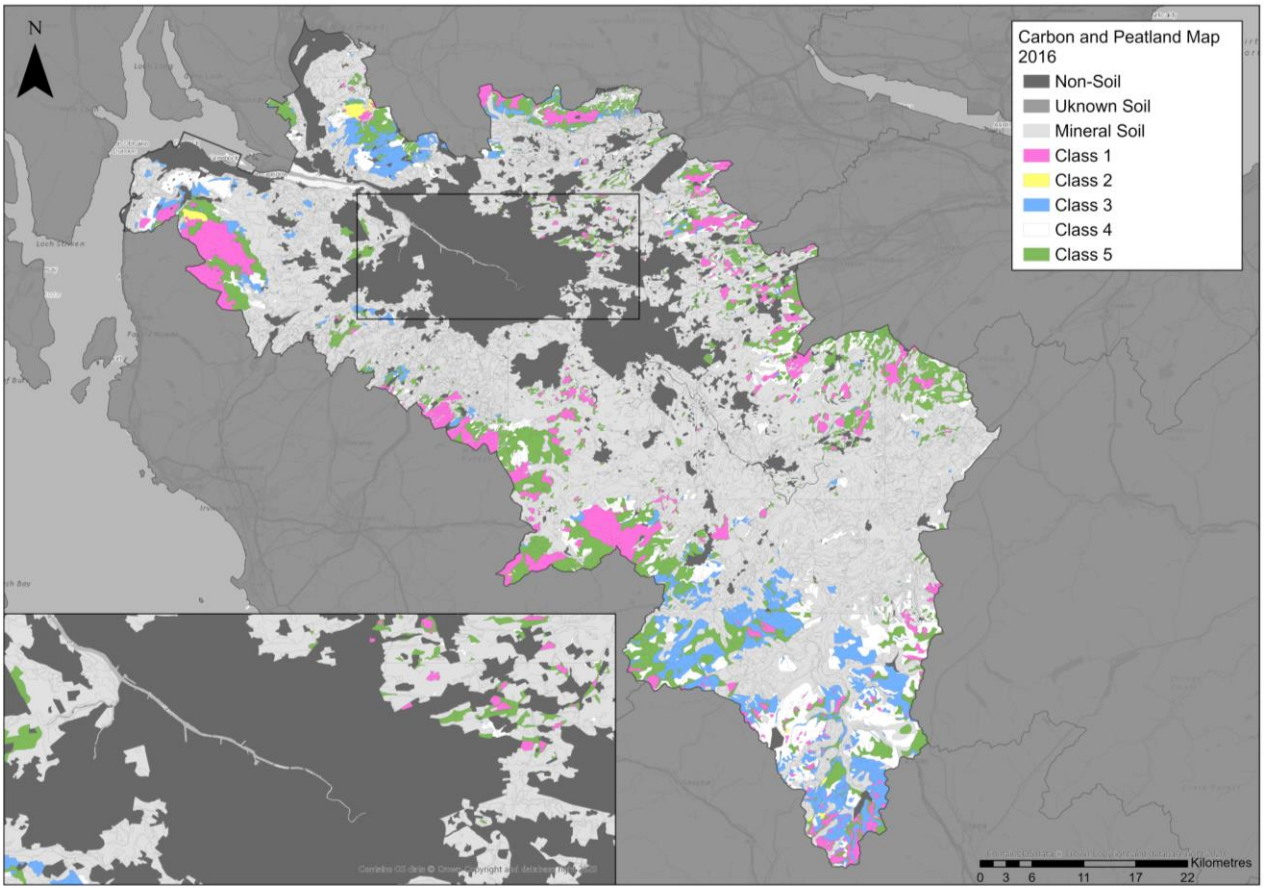


Figure 21: Carbon and Peatland Map for Glasgow City Region[49]

(Click on image to enlarge figure)

There are 15 Air Quality Management Areas (AQMAs) within the Glasgow City Region. Due to the urban nature of the Glasgow City, air quality is a prevalent issue. There are 3 Air Quality Management Areas (AQMAs)[50] in the Glasgow City authority area, including:

[48] Scottish Government, Scotland's Soils, 2016, https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/
[49] Scottish Government, Scotland's Soils, 2016, https://soils.environment.gov.scot/maps/thematic-maps/carbon-and-peatland-2016-map/
[50] DEFRA, All AQMAs boundaries in Scotland, 2019, https://uk-air.defra.gov.uk/aqma/maps/

- Glasgow City Centre AQMA encompassing Glasgow City Centre
- Parkhead Cross AQMA encompassing Parkhead Cross junction and parts of the streets leading into it and the properties fronting on to the streets
- Byres Road/Dumbarton Road AQMA encompassing properties along either side of Byres Road and Dumbarton Road, and some adjacent streets.

It is worth noting that Scotland's first Low Emission Zone[51] (LEZ) came into effect in Glasgow City Centre on 31st December 2018 in order to help bring about a significant improvement in air quality, particularly around the Glasgow City Centre AQMA.

In 2018[52], North Lanarkshire recorded higher CO_2 emissions per capita relative to the other authority areas within the region, whilst East Dunbartonshire recorded the lowest per capita in the region as shown in Table 1 . Within the region, the highest proportion of Scotland's total CO_2 emissions from transport were from the Glasgow City and North Lanarkshire authority areas in 2018. The Inverclyde authority area recorded the lowest proportion of emissions from transport in the region.

Table 1 shows that the total CO_2 emissions from transport within the Glasgow City Region equated to 31.1% of Scotland's total transport emissions overall; a notably higher proportion than any of the other regions.

[51] Glasgow City Council, Glasgow's Low Emission Zone - LEZ, 2020, https://glasgowgis.maps.arcgis.com/apps/MapSeries/index.html?appid=a1cca42f50834e9ab30bec4769af1a09

[52] UK Government, UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018, 2020, https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018

Table 1: CO_2 Emissions Per Capita and Percentage of Transport-Related Emissions[53]

Area	Per Capita Transport Emissions, 2018 (t) CO_2	% of Scotland Total Transport Emissions
East Dunbartonshire	1.3	1.3%
East Renfrewshire	1.9	1.6%
Glasgow City	1.4	7.9%
Inverclyde	1.4	1.0%
North Lanarkshire	2.6	7.9%
Renfrewshire	2.1	3.4%
South Lanarkshire	2.3	6.6%
West Dunbartonshire	1.7	1.3%
Glasgow City Region	1.9	31.1%
Scotland average	2.0	-

2.5. Transport Context

Figure 22 shows the key transport network in the region, including the National Cycle Network (NCN), rail stations, Park and Rides, 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 the second largest Scottish airport. The region benefits from strong connections to the surrounding regions and onwards to Northern Ireland, the Republic of Ireland and England.

[53] UK Government, UK local authority and regional carbon dioxide emissions national statistics: 2005 to 2018, 2020, https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018

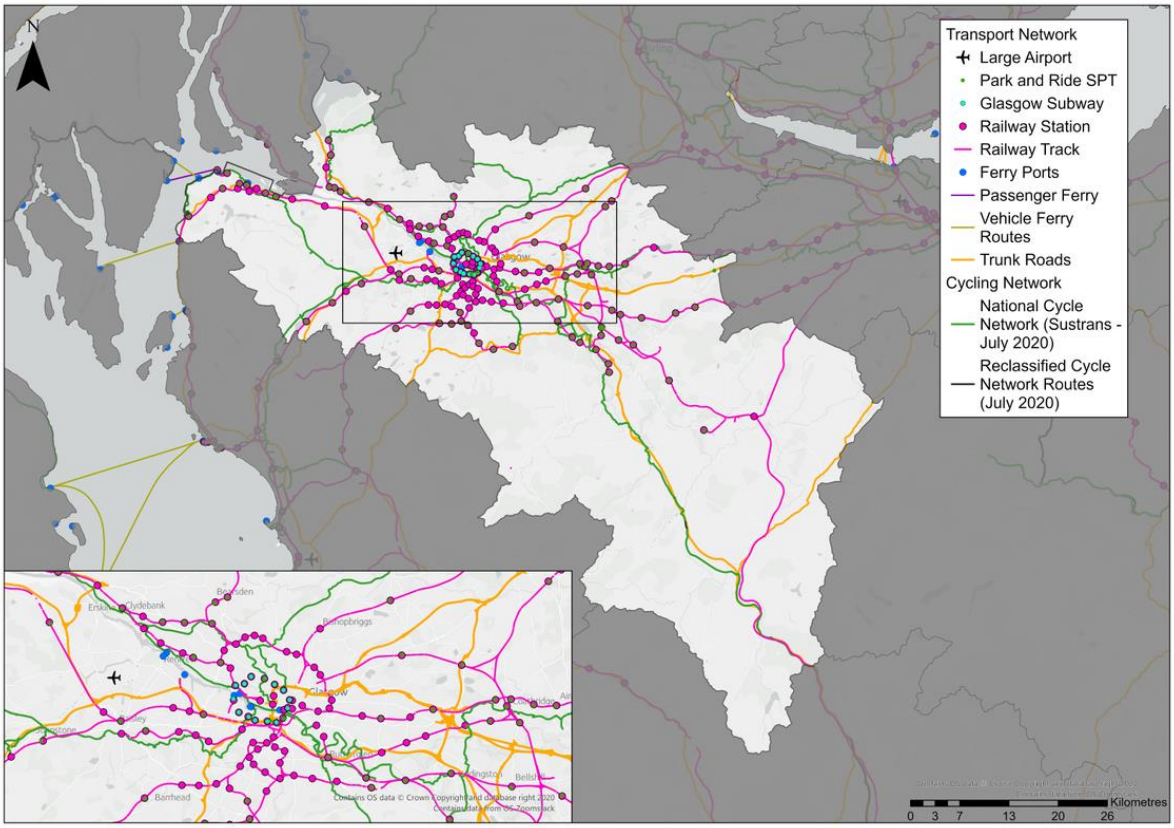


Figure 22: Glasgow City Region Transport Network

(Click on image to enlarge figure)

2.5.1. Active Travel

Several off-road and on-road cycle routes make up the National Cycle Network[54] in the region, which include:

- NCN Route 7 Sunderland to Inverness (passing through Johnstone, Paisley, Glasgow and Balloch);
- NCN Route 74 Greater Glasgow to Gretna;
- 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; and
- NCN Route 756 (East Kilbride to the Clyde at Rutherglen).

[54] Ordnance Survey, National Cycle Network, 2020, https://osmaps.ordnancesurvey.co.uk/55.80170,-4.16742,10

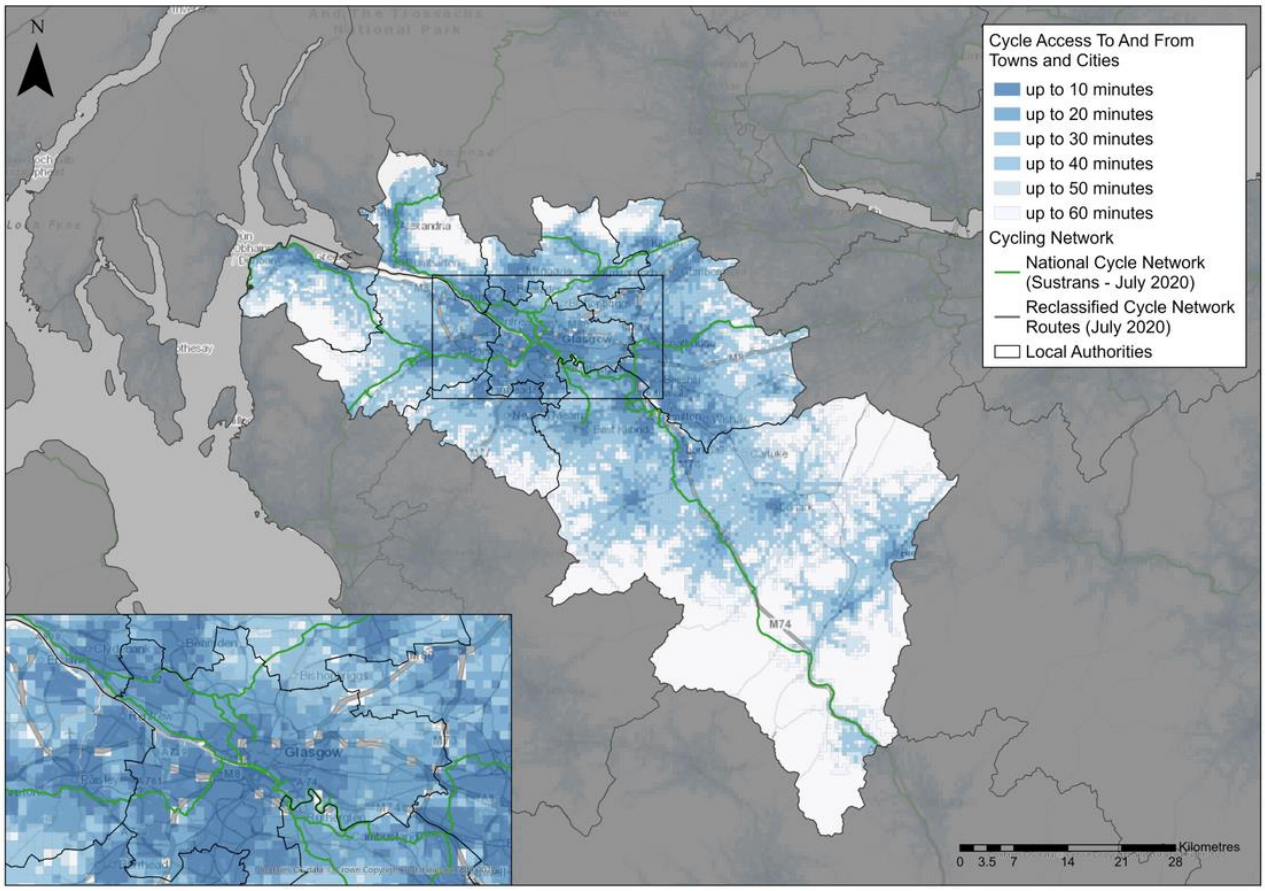


Figure 23: National Cycle Route access in the Glasgow City Region (TRACC)

(Click on image to enlarge figure)

The National Cycle Route in the region is shown in Figure 23. The figure suggests that large areas are accessible by bicycle to/from the various towns and cities within the region.

Based on the 2018[55] Hands Up Scotland Survey, active travel to school mode share within the Glasgow City Region ranges between 36% (Inverclyde) and 54% (Glasgow City), compared to the national average of 49%. All local authorities in the region except Glasgow City have lower rates than the national average, showing the potential to further promote walking and cycling to access education in the region.

[55] Scottish Public Health Observatory (ScotPHO), Hands Up Scotland Survey 2018 - Sustrans Official Statistic, https://scotland.shinyapps.io/ScotPHO_profiles_tool/

The region also possesses an extensive local, regional and Core Paths network[56] across all local authorities (as shown in Figure 24), although there is more sparse coverage in some areas within South Lanarkshire and Inverclyde.

A public cycle hire scheme operates in Glasgow City with 800 bikes across 79 locations, including 63 e-bikes and 21 electric stations.[57][58]

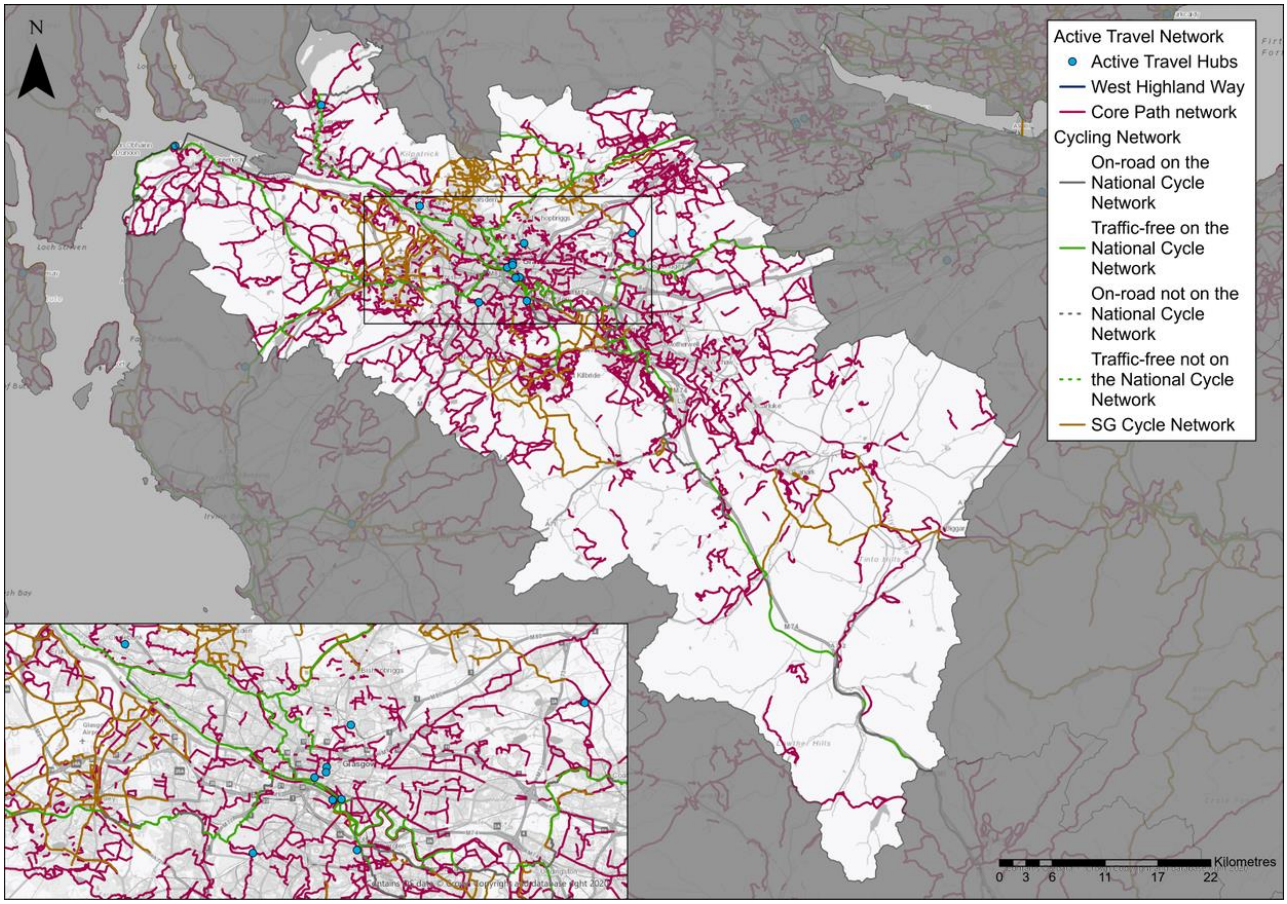


Figure 24: Glasgow City Region Active Travel Network

(Click on image to enlarge figure)

2.5.2. Bus Network

The largest bus operators in the region are Citybus, First, McGill's and Stagecoach although a number of smaller operators also provide services. Schools services, community transport and demand responsive transport is also provided. Although there is

[56] *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

[57] People Make Glasgow, Cycling in Glasgow, https://peoplemakeglasgow.com/cycling-in-glasgow

[58] Glasgow City Council, Cycling Information Map, 2020, https://glasgowgis.maps.arcgis.com/apps/webappviewer/index.html?id=8eb9f600ed154ae58b09c2c5902ce7f0

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 SPT. The bus network map is shown in Figure 25.

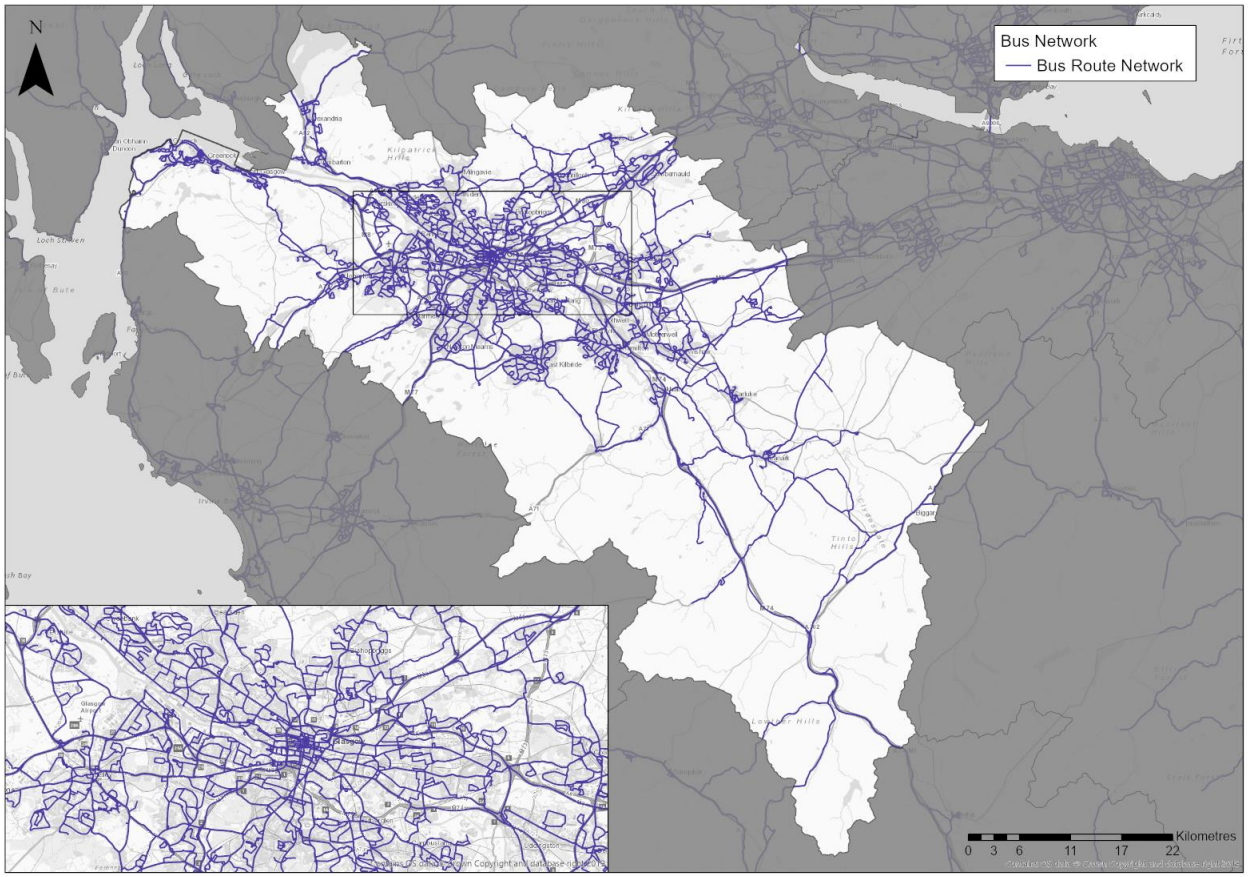


Figure 25: Glasgow City Region Bus Network[59]

(Click on image to enlarge figure)

[59] Traveline National Dataset (TNDS), Third Quarter, 2019, https://www.travelinedata.org.uk/traveline-open-data/data-reporting/

There has been a general trend of decline in bus use nationally and this is particularly noticeable in the Glasgow City Region with all 8 local authority areas suffering noticeable decline as shown in Figure 26.

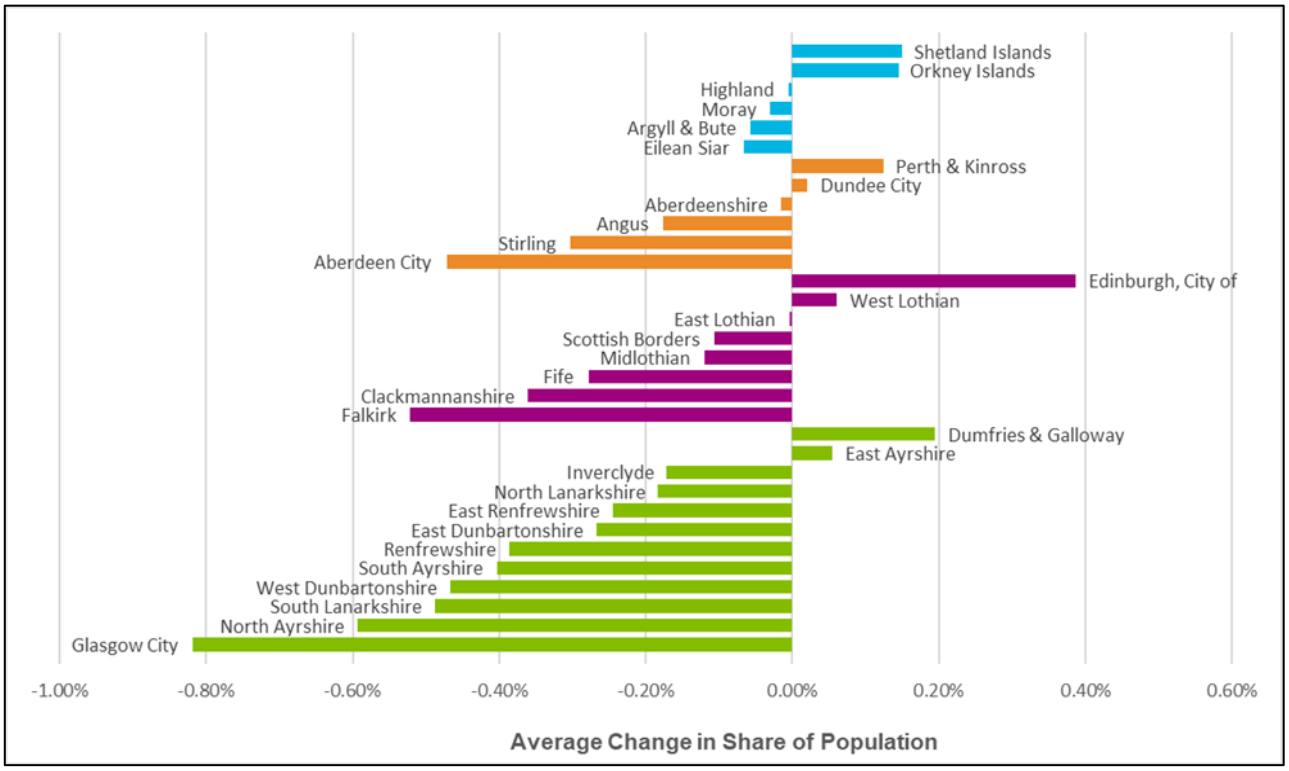


Figure 26: Average Yearly Change in Share of Population Using the Bus Four or More Days a Week, 2003/04 – 2017[60]

Analysis of socio-economic trends in relation to bus use in Scotland[61] 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 to 19 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 for those aged 70 to 79, with 50% having taken the bus in the last month.
- 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

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

[61] Transport Scotland, Transport and Travel in Scotland, 2019, https://www.transport.gov.scot/our-approach/statistics/#42764

group that has shown the greatest decline in bus use between 2007 and 2017, with decline lowest in the 20% least deprived areas.

Whilst these factors apply across Scotland, factors relating to urban areas and deprivation have a particular relevance to the Glasgow City Region as do the trends on access to further and higher education given the number of these institutions in Glasgow.

2.5.3. Rail Network

Glasgow has one of the densest heavy rail networks in the United Kingdom outside London, with a total of 155 rail stations through the Glasgow City Region: 6 in East Dunbartonshire, 9 in East Renfrewshire, 59 in Glasgow[62], 14 in Inverclyde, 25 in North Lanarkshire, 10 in Renfrewshire, 19 in South Lanarkshire, and 13 in West Dunbartonshire. Many have recorded large increases in rail patronage numbers in recent years.

Based on the Office of Rail and Road (ORR) total passenger numbers (estimates of station usage), Glasgow Central station (32,797,088) ranked the busiest in Scotland and 11th busiest in the UK. Glasgow Queen Street station (17,207,208) and Paisley Gilmour Street station (4,027,962) were the third and fourth busiest stations in Scotland[63], respectively. Glasgow to London is the core route of the West Coast Mainline (WCML) branching to Northampton, Birmingham, Manchester and Liverpool.

Station usage figures over the last decade demonstrate, that rail patronage has grown significantly across the region, with growth ranging between 1% and 30% across the various local authorities.

[62] Including Robroyston railway station; opened in December 2019

[63] ORR, Annual estimates of the number of entries/exits and interchanges at each station in Great Britain Table 1415, 2018/2019, https://dataportal.orr.gov.uk/statistics/usage/estimates-of-station-usage

Table 2: ORR Estimates of Station Usage by Local Authority (08-09 to 18-19)

Local Authority	2008-09	2018-19	Absolute Change	Percentage Change
Inverclyde	2,728,552	2,838,286	109,734	4%
West Dunbartonshire	4,832,112	4,865,002	32,890	1%
South Lanarkshire*	7,598,512	9,110,976	1,512,464	20%
Glasgow City**	60,374,172	78,329,954	17,955,782	30%
North Lanarkshire	7,825,364	9,275,328	1,449,964	19%
East Renfrewshire	3,085,006	3,688,890	603,884	20%
Renfrewshire	6,132,458	7,474,830	1,342,372	22%
East Dunbartonshire	3,863,394	4,306,678	443,284	11%

*Including Croftfoot railway station
**Including Hillington West railway station

2.5.4. Glasgow Subway

Glasgow Subway is a 10.5km metro system running in a circular loop serving 15 stations and providing 2 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 Glasgow City's travel to work or study journeys are made by Subway[64], although a large proportion of trips made by Subway are for commuting (58% for work and education; 40% for leisure) purpose.[65] 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. Patronage increased by 3% between 2017/18 and 2018/19.[66]

2.5.5. Park and Ride

The development of Park and Ride facilities throughout the Glasgow City Region has been promoted and funded to help support public transport connectivity in the region. Based on SPT's website, a total of 89 Park and Ride facilities (including 3 at subway stations within Glasgow City) are available throughout the region, accounting for over 10,700 parking spaces. The location of Park and Ride facilities are shown in Figure 27.

[64] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

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

[66] SPT, Operations committee reports, Public Transport Monitoring reports, http://www.spt.co.uk/corporate/

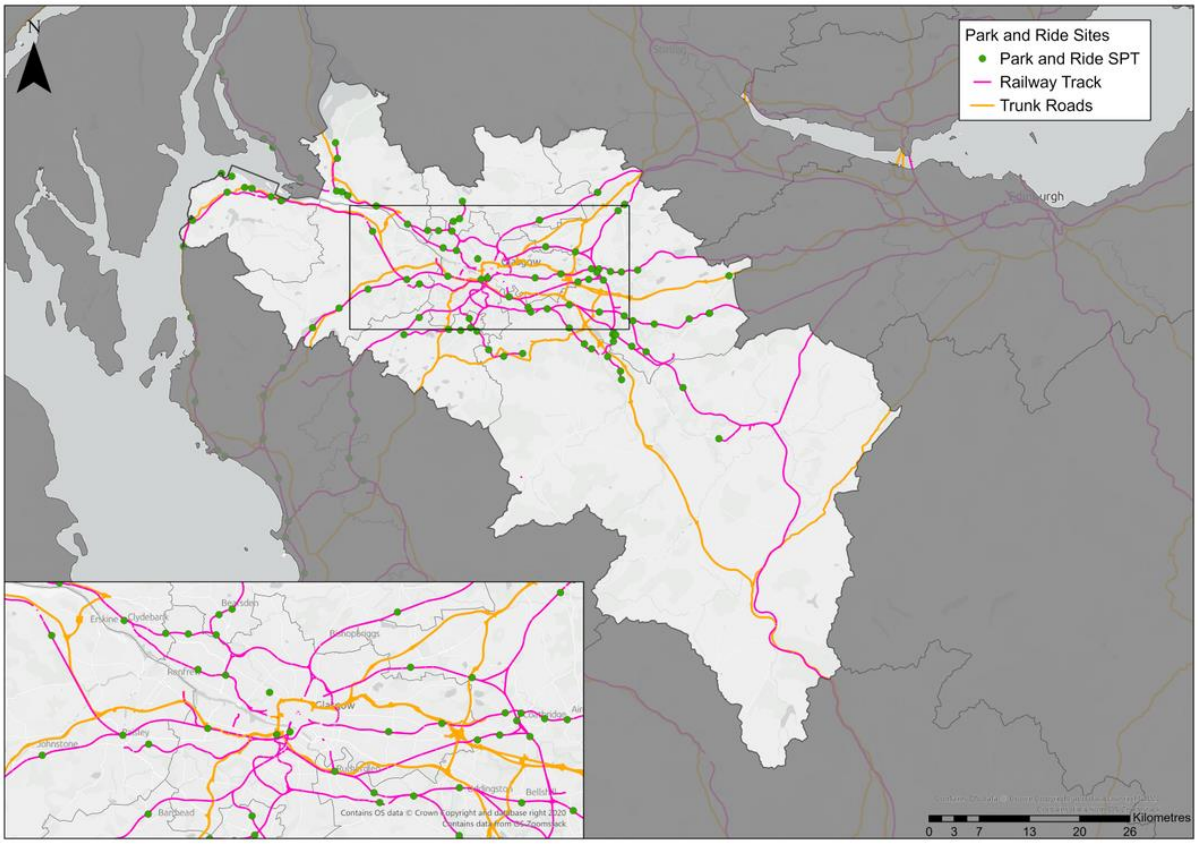


Figure 27: Park and Ride sites within the Glasgow City Region

(Click on image to enlarge figure)

Table 3 shows the number of Park and Ride facilities and parking spaces available for each local authority within the Glasgow City Region as well as for the region as a whole.

Table 3: Park and Ride facilities by Local Authority[67]

Local Authority	Sites	Spaces
Inverclyde	9	597
West Dunbartonshire	8	587
South Lanarkshire	17	2,393
Glasgow City	10	1,443
North Lanarkshire	27	3,750
East Renfrewshire	7	656
Renfrewshire	6	795
East Dunbartonshire	5	517
Totals	89	10,738

[67] SPT, Park and Ride Facilities, http://www.spt.co.uk/park-ride/

2.5.6. 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
- 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. 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. It provides links via the centre of Glasgow to Glasgow Airport, Paisley, Airdrie, Coatbridge and Livingston.

2.5.7. Maritime

There are 4 passenger ferry routes which operate in the region:

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

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 River Clyde.

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.

All four sea ports can be accessed via the strategic road network, with the M8 motorway providing access to King George V Dock, the A8 providing access to Port Glasgow and A78 providing access to both Greenock and Gourock.

Port Glasgow, Greenock and Gourock ports are also in close proximity to rail stations – Port Glasgow Station, Greenock Central Station and Gourock Station.

2.5.8. 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[68]. With regards to air freight, Glasgow Airport handled 15,466 tonnes of cargo in 2018[69], ranking second 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 Glasgow 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 Glasgow areas to the west, whilst also connecting to the north of the River Clyde via the Erskine Bridge. In addition, the A737 provides connections to the southern parts of Renfrewshire and Ayrshire. Local road access is also provided by the A761 (non-trunk road) 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[70], 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 Glasgow 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[71]).
- Rail services - There are no direct rail links to the airport, the nearest station is Paisley Gilmour Street which is linked by the 757 bus service to the airport. Over 300 rail services go through Paisley Gilmour Street station each day, with services linking Paisley with Glasgow Central, Ayrshire and Inverclyde.
- Active travel options[72] 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 provides free cycle-parking facilities and bike services to their staff.

[68] Glasgow Airport, https://www.glasgowairport.com/about-us/
[69] Transport Scotland, Scottish Transport Statistics No. 38, 2019, https://www.transport.gov.scot/publication/scottish-transport-statistics-no-38-2019-edition/

[70] Glasgow Airport, To & From Glasgow Airport, https://www.glasgowairport.com/to-and-from/bus/

[71] Glasgow Airport Stakeholder Engagement.
[72] Glasgow Airport, To & From Glasgow Airport, https://www.glasgowairport.com/to-and-from/cycling-or-walking/

2.5.9. Ultra Low Emission Vehicles

Glasgow City Region has the largest number of licenced Ultra Low Emissions Vehicles (ULEVs)[73] as of 2020 (Q1). This equates to just over a third of all ULEVs in the country (6,783 out of 17,873). 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 (21% of all ULEVs in Scotland). Glasgow City ranks fifth, accounting for 5% of the total. The ChargePlace Scotland network has grown from 55 public charge points in 2013 to over 1,500 in 2020. All publicly available charge points are displayed on our live map, which provides details about the location, type, status and availability of each unit.[74]

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 relative to other regions 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 over 60% of people commuting by car. Driving to work made up 45% of trips less than 5km. Bus travel makes up 11.6% (17.9% in Glasgow City), rail carries 6.7% of commuting trips, whilst 8.1% of people walk and less than 1% of people cycle.
- Travel for work within the region tends to be within the local authority area or into Glasgow City from the surrounding areas. Movements between the other 7 local authorities is also noted.
- The region suffers from high levels of deprivation with 32% of datazones 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 (SIMD 2020).
- The policy framework applicable to the region has a strong emphasis on improved connectivity, addressing inequality, addressing barriers to employment, to help deliver 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.

[73] UK Government, VEH0132, Licensed ultra-low emission vehicles by local authority: United Kingdom, 2020 Q1, 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 (CO_2) 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.

[74] ChargePlace Scotland Electric Vehicle Scotland https://chargeplacescotland.org/ ChargePlace Scotland is Scotland's national Electric Vehicle (EV) charging network. Owned and developed by the Scottish Government, and funded in partnership through a public grant from Local Authorities and other organisations.

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 in the Glasgow City Region and details the approach to their identification. Note that local problems and opportunities have been considered in analysis to gain a full understanding of the regional issues, but options to address these may not be within the scope of this strategic study.

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 as Scottish Household Survey[75], Transport and Travel in Scotland[76], journey time data[77], 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:

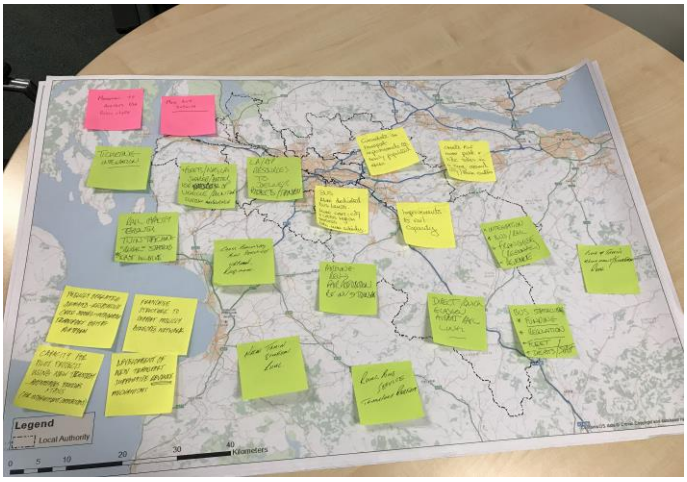


Figure 28: Stakeholder Engagement

- Problems and Opportunities workshops – 2 held in Glasgow with regional stakeholders in June 2019. Over 150 stakeholders were invited with attendance from 50 across the 2 events.
- Intervention Workshops – 2 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 2 events.
- Structured Interviews were undertaken with 10 stakeholders, comprising senior officers across the 8 local authorities in the region, Strathclyde Partnership for

[75] Scottish Government, Scottish Household Survey, 2018, https://www.gov.scot/publications/scottish-household-survey-key-findings-2018/

[76] Transport Scotland, Transport and Travel in Scotland, 2019, https://www.transport.gov.scot/our-approach/statistics/#42764

[77] Data supplied by INRIX via Transport Scotland.

Transport and Glasgow Airport.

- 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 8 local authority areas, Clydeplan and SPT; and
- Schools Engagement has been undertaken across the country, with 1 primary school in North Lanarkshire, 2 primary and 1 secondary schools in Glasgow City and 1 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

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

3.2.1. Problems

SOCIAL EXCLUSION

There is a wide variation in inclusiveness[78] across the Glasgow City Region. The region has the highest level of deprivation in Scotland; 32% of datazones in the region were in the 20% most deprived in Scotland and 18.2% were in the 10% most deprived. This is a particular problem in Glasgow City where 45.4% of datazones are in the 20% most deprived, and 30.4% are in the 10% most deprived. Inverclyde has 44.7% 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 (JRF).[79] In their report considering tackling transport-related barriers to employment in low-income neighbourhoods, 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*.', with greater coordination and collaboration between the different authorities and transport bodies being required to ensure transport and employment policy are better integrated. This report used 6 case studies, 2 of which are in the Glasgow City Region (Castlemilk and Inverclyde).

Figure 29 shows the estimated percentage of children living in poverty in 2018-19 at a local authority level.

[78] 'The practice or policy of providing equal access to opportunities and resources for people who might otherwise be excluded or marginalized, such as those having physical or mental disabilities or belonging to other minority groups '. Available at: https://www.lexico.com/definition/inclusiveness

[79] Joseph Rowntree Foundation, Press release: Families in the Glasgow locked out of jobs market by 'unaffordable and unreliable' local transport, 2018, https://www.jrf.org.uk/press/families-glasgow-locked-out-jobs-market

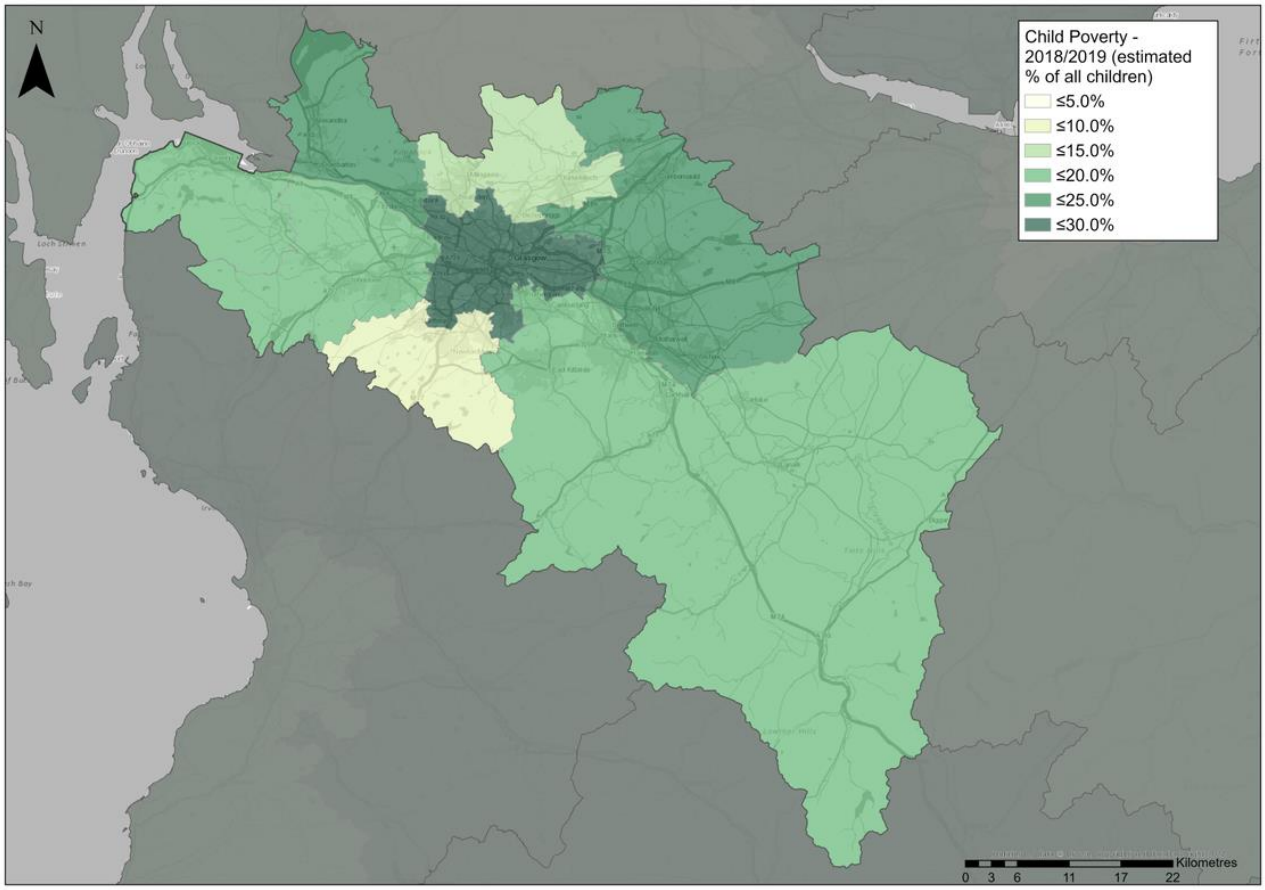


Figure 29: Estimated % of children living in poverty 2018-19[80]

(Click on 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 30 shows the assessment for the Glasgow City Region. Areas in and around Glasgow City generally have a lower risk of transport poverty with surrounding areas having medium or high risk of transport poverty.

In the Glasgow City Region, 31% of datazones were classified as high risk for transport poverty compared to 36% in Scotland; 42% were classified as medium risk compared to 43% in Scotland; and 27% were classified as low risk compared to 21% in Scotland.

South Lanarkshire had the highest proportion of high risk datazones in the region (51%), followed by North Lanarkshire (50%), suggesting that these parts of the region are more likely to suffer from transport poverty than other parts of the country. Glasgow City had the lowest proportion of high risk datazones in the region (13%).

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.

[80] Community Planning Outcomes Profile, https://scotland.shinyapps.io/is-community-planning-outcomes-profile/

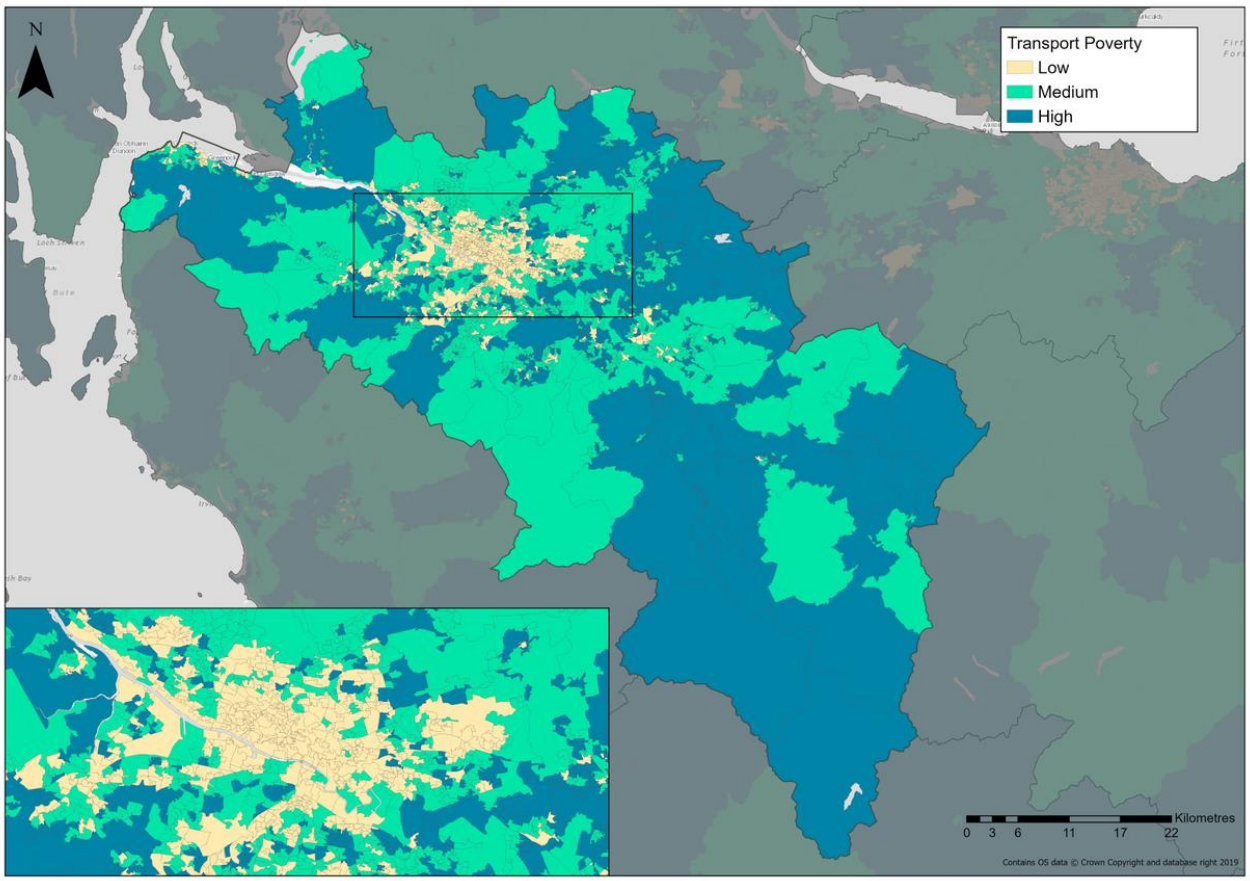


Figure 30: Transport Poverty in the Glasgow City Region[81]

(Click on 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 is borne out through a review of the fares offered by the major operators in each region although it is noted that there are 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 both within the region and inter-regional, Glasgow City Region ranks around the median based on average fare price per mile compared to the other regions in Scotland. Note that all fares in the Strathclyde region are regulated fares.

The Scottish Government's, Rural Scotland Key Facts, (2018)[82]. "*shows that residents in*

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

[82] Scottish Government, Rural Scotland Key Facts, 2018, https://www.gov.scot/binaries/content/documents/govscot/publications/statistics/2018/10/ru

rural Scotland are more likely than those in the rest of Scotland to spend over £100 per month on fuel for their cars. The proportion of residents of remote rural and accessible rural areas that report that they spend over £100 per month of fuel is around half, compared to 38% in the rest of Scotland. A higher level of expenditure on fuel for cars is likely to be, in part, due to longer driving distances to key services"

PHYSICAL ACTIVITY AND HEALTH

SIMD Health indicators were presented by local authority in the Glasgow City Region in Chapter 2. Figure 31 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)[83]. It is also noted that those living in the most deprived areas are least likely to meet these recommended targets, and that poor mental health and wellbeing is consistently associated with the lack of physical activity, amongst other factors.

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."[84]

On average 34.6% of people across the region's local authorities did not walk at least 30 minutes in the past 4 weeks.[85]

ral-scotland-key-facts-2018/documents/rural-scotland-key-facts-2018-pdf/rural-scotland-key-facts-2018-pdf/govscot%3Adocument/00541327.pdf

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

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

[85] Scottish Government, Scottish Household Survey, 2018, https://www.gov.scot/publications/scottish-household-survey-key-findings-2018/

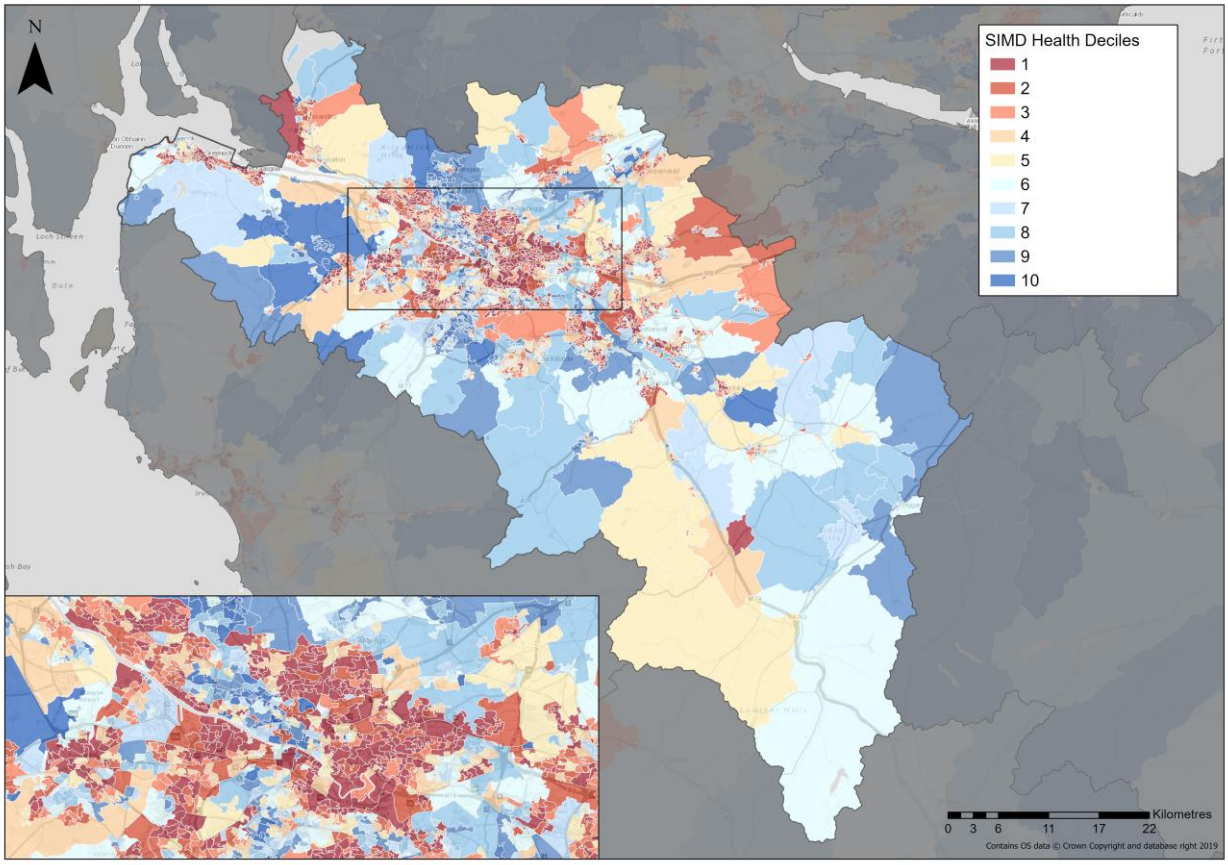


Figure 31: SIMD 2020 Health Indicators[86]

(Click on 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 Scotland's total PM_{10}[87] (particulate matter). 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 concentrations along key road links (M8 and M74) and the surrounding area. Similar to other Scottish large urban areas, motorised transport results in poor air quality in parts of Glasgow, as nitrogen dioxide and PM_{10} 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

86 Scottish Government, Scottish Index of Multiple Deprivation (SIMD), 2020, https://simd.scot/

87 Scottish Government, Cleaner air for Scotland: the road to a healthier future, November 2015, https://www.gov.scot/publications/cleaner-air-scotland-road-healthier-future/pages/9/

improving over the city area, but the city centre is still showing levels of exceedance in NO_2 and PM_{10}.

ACCESSIBILITY

As reported during extensive stakeholder engagement, there are concerns 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 Hospitals was also considered to be poor with the many Glasgow City Region residents unable to access healthcare within 60 minutes by public transport as illustrated in Section 2.3.9. Access to employment and education is discussed in Chapter 2. Figure 32 shows the SIMD Geographic access indicator[88] deciles for the region. Again, this demonstrates the diverse nature of the region with large areas in the lowest decile for access, particularly South Lanarkshire and areas of East Renfrewshire, Renfrewshire and North Lanarkshire.

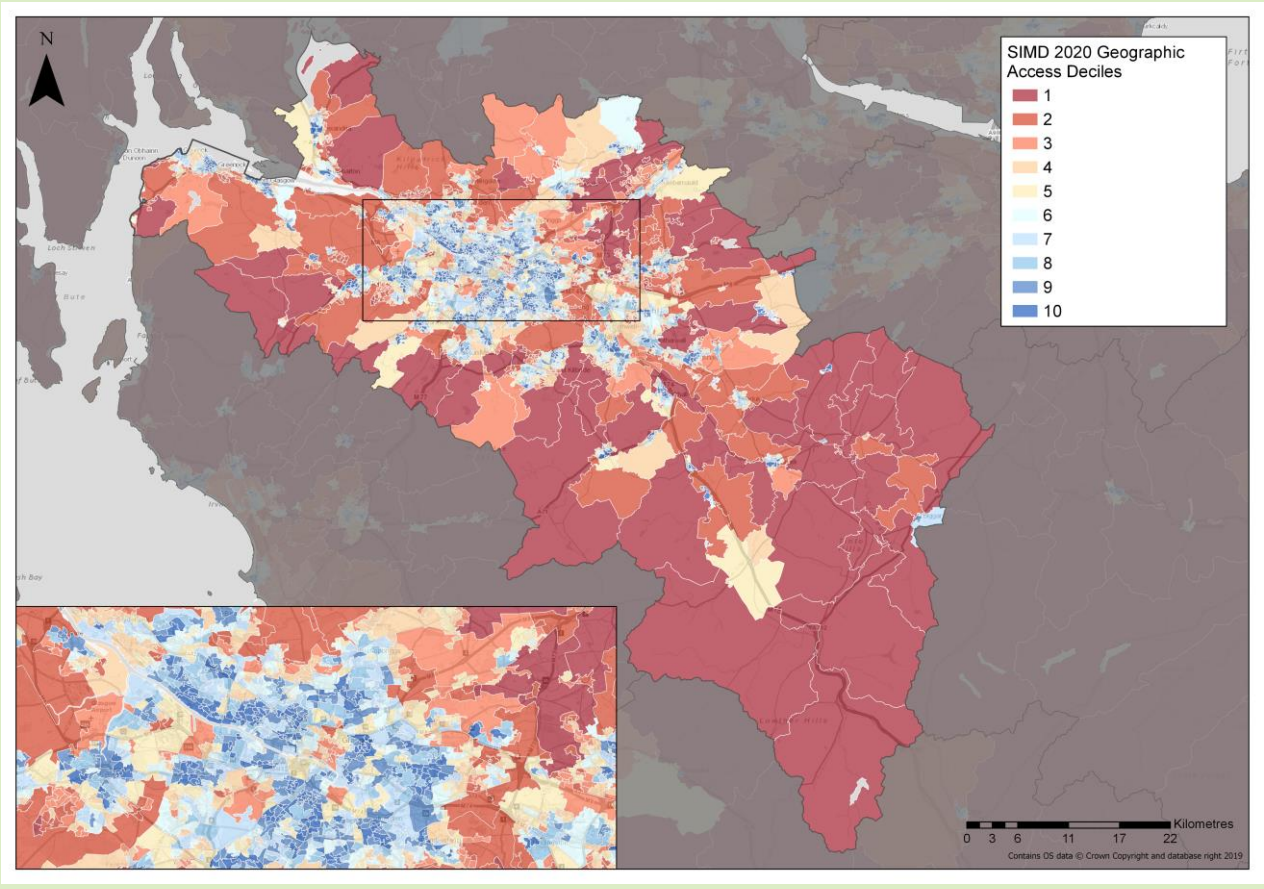


Figure 32: SIMD 2020 Geographic Access

(Click on image to enlarge figure)

[88] The SIMD 2020 Geographic Access domain models the ability of Scottish citizens to reach a number of key services. The geographic access indicator is based on the average drive time by car or public transport, to a petrol station, a GP surgery, a post office, a primary school, a secondary school and a retail centre. This is combined with public transport travel time to a GP surgery, a post office and a retail centre to give an overall access score

Public transport access time to key employment centres was presented in Chapter 2, Figure 12, which demonstrated the variance across the region. Access by public transport to key employment centres in the Glasgow City area can be up to 30-45 minutes. Some areas of North and South Lanarkshire experience similar levels of access. South Lanarkshire also has some of the less well-served areas in terms of public transport access to key employment locations on a typical weekday morning peak. The most common average travel time is between 1.5 and 2 hours, but people living in the southernmost areas can expect to travel over 2 hours.

Accessibility analysis shows that the majority of Glasgow City Region residents can access certain key services within defined time parameters, as exemplified below:

- 93% of the region's population can access an employment centre by public transport within 60 minutes of travel time (06:00-10:00 departure time) and 43% can access an employment centre by public transport within 30 minutes of travel time;
- 98% of the region's population can access a school by public transport within 30 minutes of travel time (07:00-09:00 departure time); and
- 95% of the region's population can access a hospital by public transport within 60 minutes of travel time (07:00-10:00 departure time); 48% can access a hospital by public transport within 30 minutes of travel time.

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 more rural areas of South Lanarkshire consistently have no convenient public transport under 2 hours.

As revealed through consultation, there was a perceived feeling of disconnect for people in isolated or deprived communities that do not own a car and those in the urban fringe. The latter are often areas of dense housing that often fall within the more deprived on the SIMD rating scale. Affordability, availability and service coverage of public transport were highlighted also. Additionally, the 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[89] 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% (3,080 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.

[89] Glasgow and the Clyde Valley Strategic Development Planning Authority (Clydeplan), Strategic Development Plan Proposed Plan – Background Report Vacant and Derelict Land 2014, January 2016, https://www.clydeplan-sdpa.gov.uk/docman/current-plan-july-2017-background-reports/75-background-report-4-vacant-and-derelict-land-2014/file

A 2017 monitoring report[90] showed that the situation had improved with the 'take up' of some of this vacant and derelict land and that 30% (3,524 hectares) of Scotland's total area of vacant and derelict land, including rural derelict land, lies within the Glasgow City Region area.

This improvement is the result of 'take up' of land and the 'fall out' of land 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. 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[91] of footpaths and lack of dropped kerbs. Generally, public transport was considered to be accessible.

For infrequent or occasional users of public transport, there were concerns that it was difficult for these users to understand, for example, information about routes, services and fares. There was also a lack of awareness around websites offering multi modal public transport information. These concerns would also apply to national and international visitors to the Glasgow City Region. Visitors who are not regular users of the Region's transport systems are prone to be overlooked in transport planning. They are, however, vital contributors to the economy, and the quality of their experience when using the Region's transport systems has a significant effect on the reputation of the region and its ability to attract repeat visitors or major events.

It is also worth noting that a significant proportion of tourist trips to the Greater Glasgow and Clyde Valley region, are likely to rely on non-private modes to get around during their visit[92]. This highlights an opportunity to provide high quality public transport information, services and ticketing suitable for residents and tourists.

Glasgow has an aspiration to be recognised as an accessible destination by 2023 as highlighted in the Glasgow Tourism and Visitor Plan[93]. In addition to promoting social inclusion, there are potential economic benefits to an accessible city: disabled travellers and senior travellers spend significantly more when they go on holiday than other market groups and this market is set to increase as the UK's population ages.

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

[90] Glasgow and the Clyde Valley Strategic Development Planning Authority (Clydeplan), Vacant and Derelict Land Monitoring Report, 2017, https://www.clydeplan-sdpa.gov.uk/files/docs/vacant-and-derelict-land-monitoring-report-2017.pdf

[91] Transport Scotland, Active Travel Task Force Report, June 2018, https://www.transport.gov.scot/publication/active-travel-task-force-report/

[92] https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers-2/insights---tourism-in-scotlands-regions-2016_update-may-18.pdf

[93] Glasgow Tourism and Visitor Plan, Accessible Glasgow, https://glasgowtourismandvisitorplan.com/accessible-glasgow/

has been undertaken and demonstrated that Glasgow City Region is in the bottom 2 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 33 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.

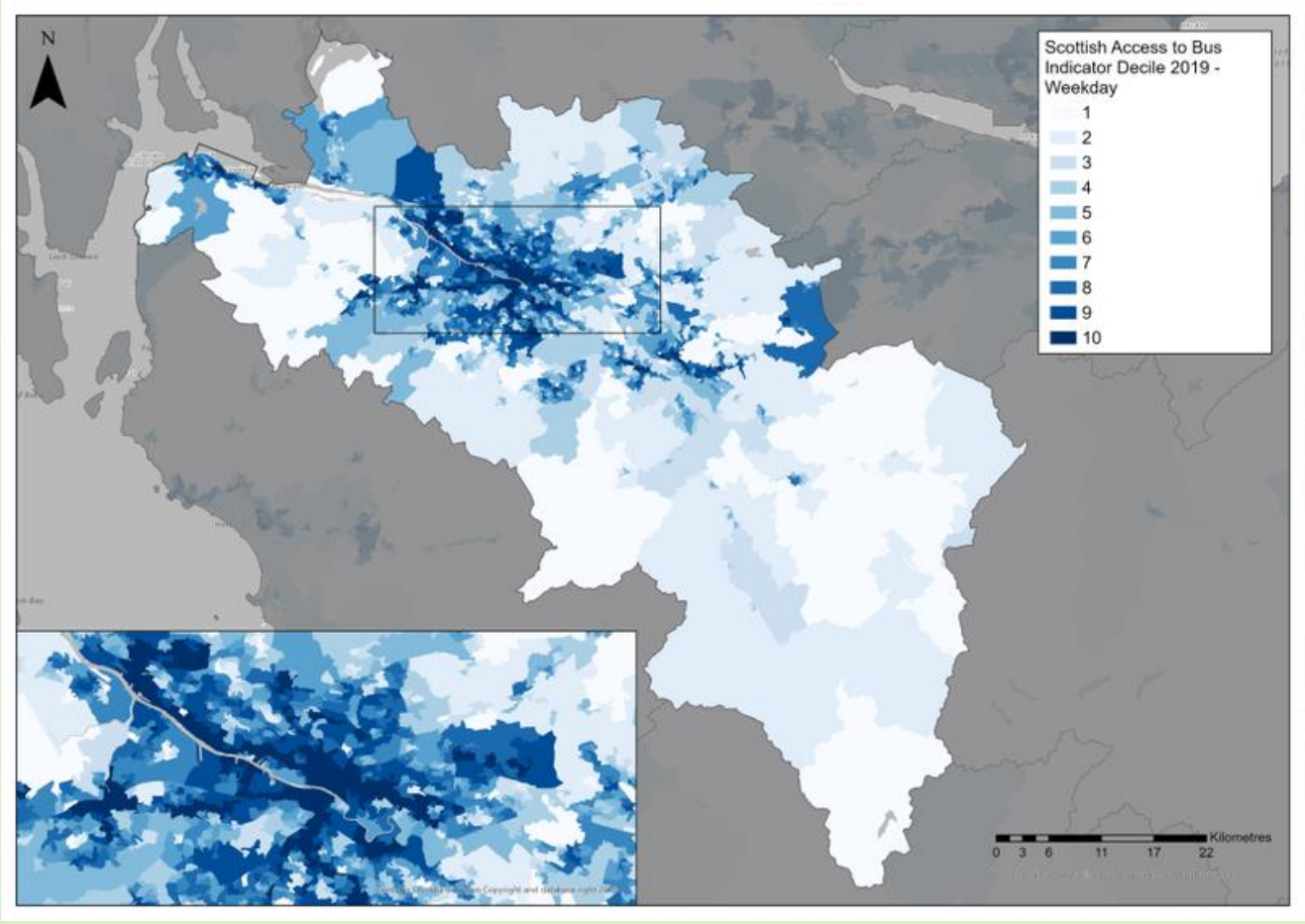


Figure 33: Scottish Access to Bus Indicator[94]

(Click on image to enlarge figure)

Problems exist around congestion hampering bus journey times, bus quality being 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

94 Scottish Government, Scottish Access to Bus Indicator, 2019, https://statistics.gov.scot/data/bus-accessibility

be important to the attractiveness of services and the provision of real time information is mixed across the region.

In the report 'The Factors Behind Scotland's Decline in Patronage'[95] 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 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.

Competing requirements of the bus service were highlighted, particularly relating to number of bus stops and the need to balance convenience, bus coverage and bus stop accessibility with efficiency and short journey times between major centres.

CONNECTIVITY

Connections across the region are important for economic and social activity. Figure 34 shows the travel to work patterns within the region.

[95] David Begg, The Factors Behind Scotland's Decline in Patronage, 2017, https://www.transporttimes.co.uk/Admin/uploads/the-factors-behind-scotlands-decline-in-bus-patronage.pdf

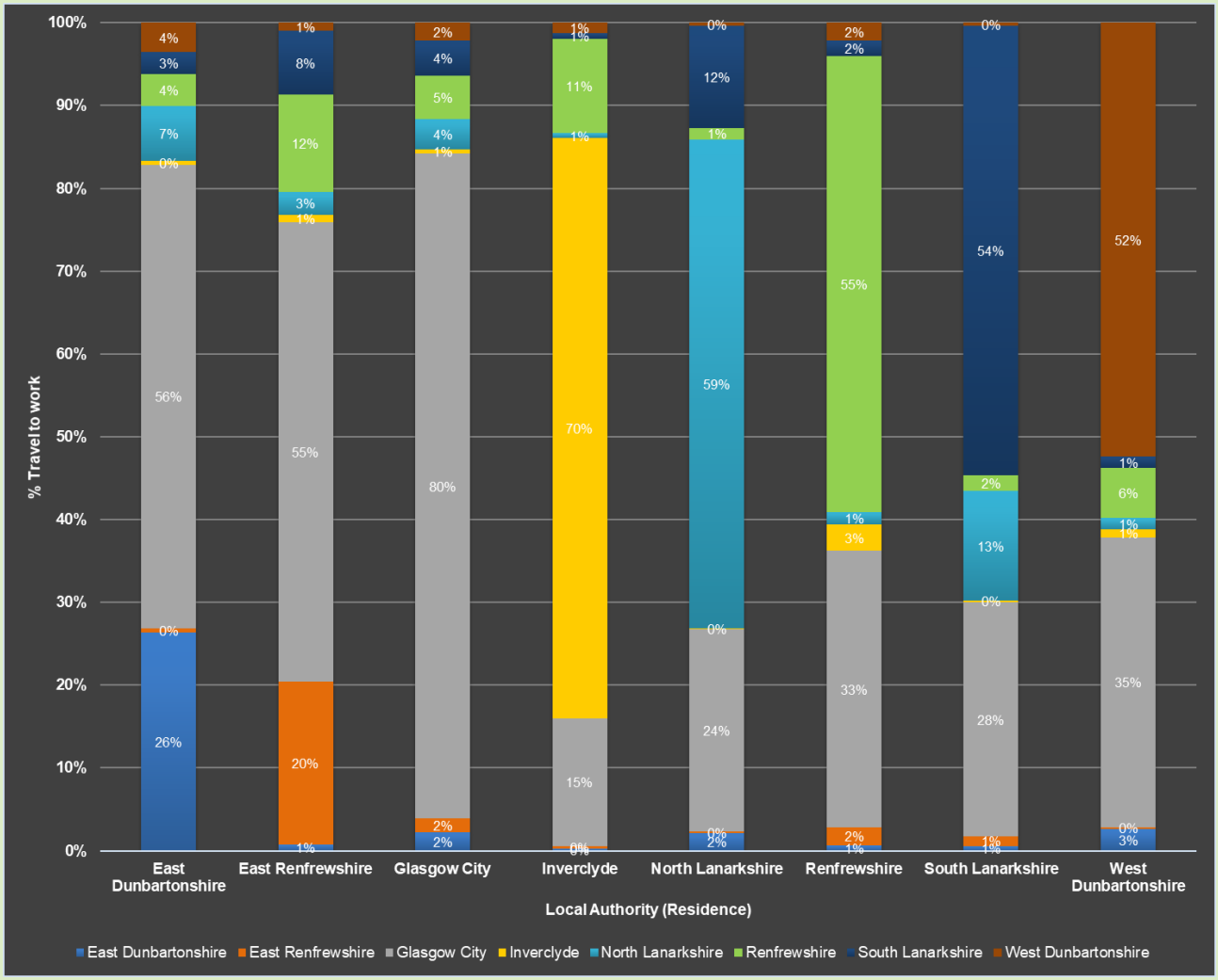


Figure 34: Sub-regional Travel to Work Journeys[96]

(Click on image to enlarge figure)

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

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 with other key areas. Cross region connections were often cited as a problem that resulted in higher mode share for private cars

96 NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

and subsequent congestion of routes such as the M8 Kingston Bridge and also as a problem for some people trying to get into employment.

Lack of connectivity between rail lines north and south of the River Clyde was also raised requiring passengers to transfer between Queen Street station and Central station for some journeys. It is considered that the gap between the 2 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 2 main stations which in turn exacerbates capacity issues.

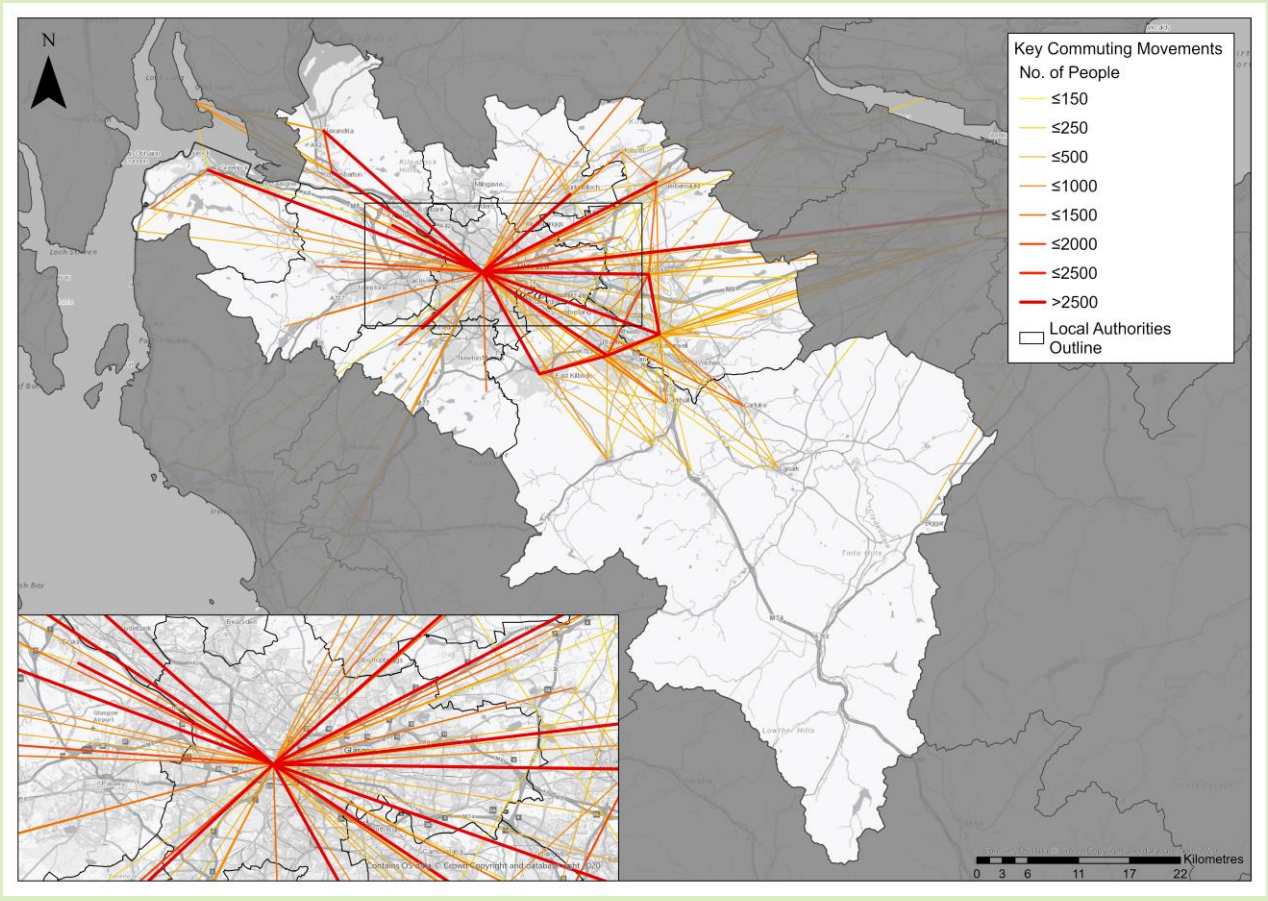


Figure 35: Glasgow City Region Key Commuting Movements

(Click on image to enlarge figure)

Whilst the majority of people work within the local authority in which they reside or in Glasgow City (as shown in Figure 34), Figure 35 illustrates that major commuting movements in the Glasgow City Region have Glasgow City as a key workplace destination. Commuting trips into the Glasgow City area account for approximately 66% of all cross-boundary trips from the rest of the region (excluding Glasgow City), of which over 60% are undertaken by car (22% by train and 15% by bus). Other cross boundary commuting movements of note include East Kilbride/Hamilton to Motherwell and Coatbridge/Airdrie to Hamilton with cross regional links by public transport lacking leading to higher levels of private car use.

LOW LEVEL OF ACTIVE TRAVEL UPTAKE

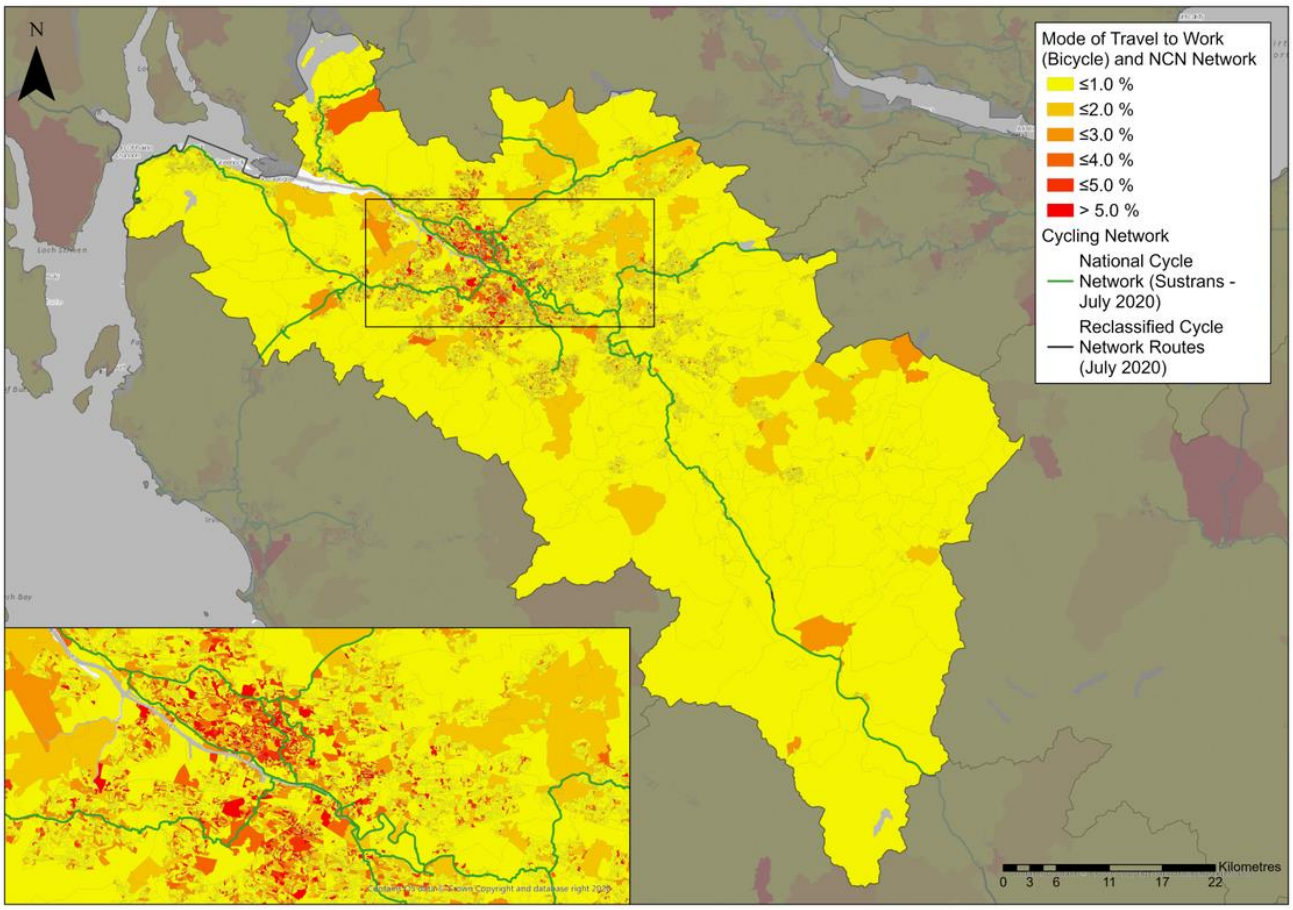


Figure 36: Mode of Travel to Work (Bicycle)[97] and NCN Network

(Click on 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 trip purposes other than work is not readily available and anecdotally, stakeholders consider that active travel uptake (particularly by bicycle) has increased. However, travel to work by cycling and walking lags behind comparable Scottish benchmarks. Based on Census 2011, travel to work by cycle is particularly low in the region and 2 of the local authorities in this region (Inverclyde and North Lanarkshire) report the lowest uptake of travel to work by bicycle across all 32 Scottish Local Authorities. These figures are similar to the values reported in the latest Annual Cycling Monitoring Report[98], with Inverclyde and North Lanarkshire respectively reporting 1.1% and 1.5% of employees cycling to work usually or regularly, which sits within the bottom 5 local authorities in Scotland in terms of cycle uptake.

[97] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

[98] Cycling Scotland, Annual Cycling Monitoring Report, 2019, https://www.cycling.scot/mediaLibrary/other/english/6353.pdf

Stakeholder engagement noted that safety is a key concern for cycling particularly where people are cycling with children. This is backed up with the survey findings from the Cycling Scotland bi-annual survey[99] which shows a high number of respondents (28%) believe that cycling on roads is very unsafe for children. On the score on 1 to 10 with 1 being very unsafe, 59% of respondents scored safety for children cycling on the road as 5 or less showing a high level of concern. Other barriers to cycling presented in the survey included concerns for their own personal safety (with 62% agreeing that the 'roads near where I live are too busy to be safe for people cycling'), 48% just did not see themselves as someone who would cycle and 51% considered that cycling was not practical to get around. Access to a bicycle in the region is approx. 30%.[100] Figure 37 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 however, barriers to uptake are limiting the number of people who choose to travel by bicycle. This could include lack of dedicated/segregated lanes, safe storage facilities for bicycles, signs or information on route, shower and changing facilities, as well as safety.

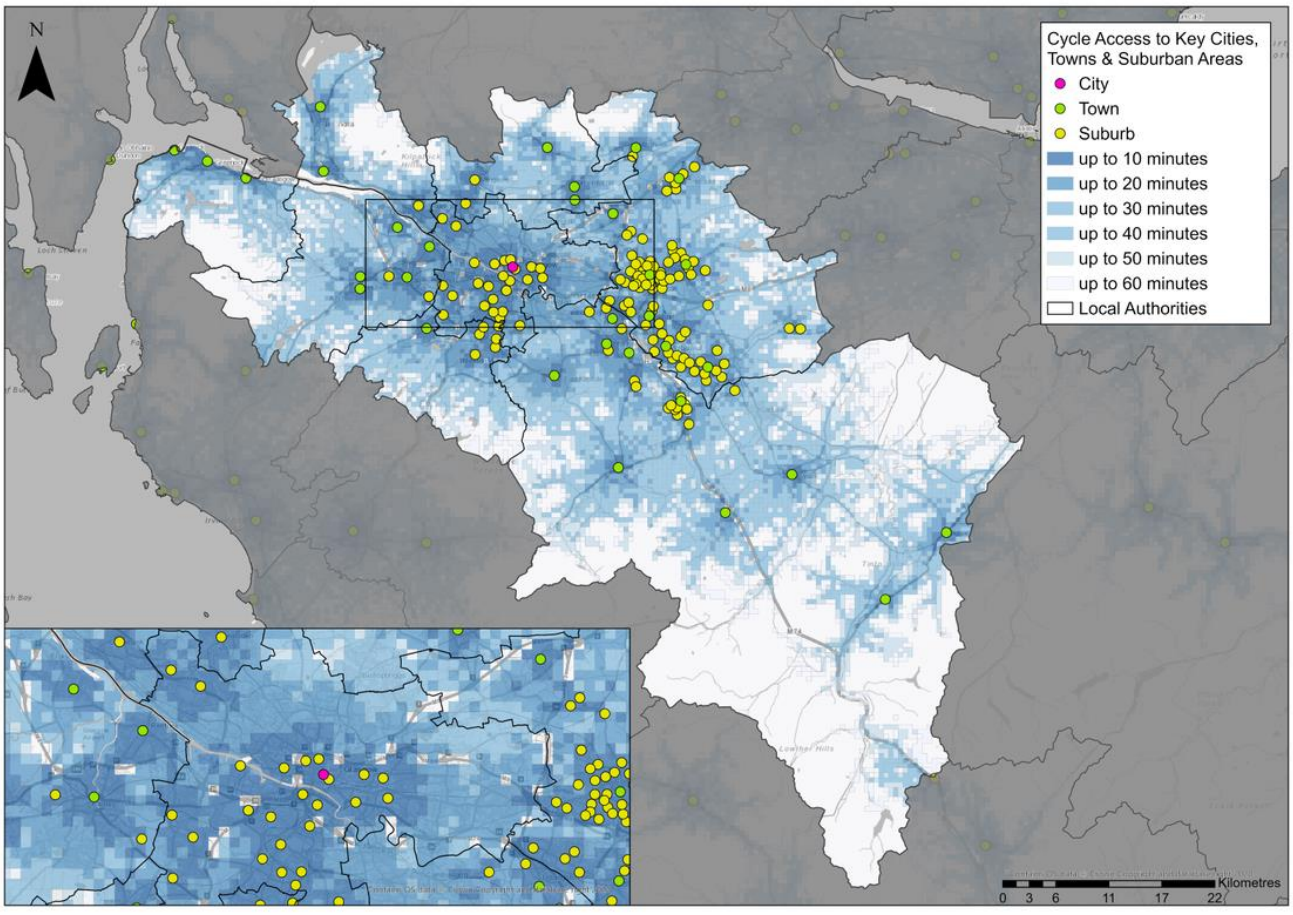


Figure 37: Cycle access around key settlements

(Click on image to enlarge figure)

Accessibility analysis shows that high percentages of population in the Glasgow City Region

[99] Cycling Scotland, Attitudes and Behaviours Towards Cycling in Scotland 9th October 2019 https://www.cycling.scot/mediaLibrary/other/english/7268.pdf

[100] Transport Scotland, Transport and Travel in Scotland, 2019, https://www.transport.gov.scot/our-approach/statistics/#42764

could access some of the key services by active travel:

- 92% of the region's population can access a rail station by bike within 20 minutes. 50% of the region's population can access a rail station on foot within 20 minutes;
- 55% of the region's population aged over 16, can access an employment centre by bicycle within 30 minutes.
- 10% of the region's population aged over 16, can access an employment centre on foot within 30 minutes;
- 99% of the region's population aged under 18, can access a school by bicycle within 20 minutes. 86% of the region's population aged under 18, can access a school on foot within 20 minutes; and
- 71% of the region's population aged 16 to 74 years, can access a university by bicycle within 20 minutes. 15% of the region's population aged 16 to 74 years, can access a university on foot within 20 minutes.

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 percentage points lower than the national average.[101]

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, STPR2 online survey respondents were generally dissatisfied with all aspects (such as availability, accessibility, attractiveness of 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 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.

Increasing sustainable travel options to / from, and within, the region provides an opportunity to continue growing visitor numbers while minimising the associated impact of transport-based emissions on local communities and the environment.

SAFETY

Road accident figures (STATS 19) for the region and all local authorities within it have decreased. The average number of road accidents per year between 2014 and 2018 was 40% lower than the figure between the years 2004 and 2008. The corresponding drop in serious accidents was 38% and for fatal accidents the figure is 45%. Casualty reduction for fatal accidents exceeded the Scottish Road Safety Reduction 2020 targets establish by the

[101] NRS, Census 2011 (Scotland), 2011, https://scotlandscensus.gov.uk/

Road Safety Framework. Despite these reductions, the region failed to meet the casualty reduction targets for serious accidents across all ages.

Table 4 shows the average number of casualties per year between 2014 and 2018 by mode for each local authority within the Glasgow City Region as well as for the region as a whole. Table 5 shows the percentage change in these figures between the periods 2004 to 2008 and 2014 to 2018. With the exception of bicycle, casualties across all road-based modes are falling.

Table 4: Average Yearly Casualties (2014-2018) by Mode – Glasgow City Region (by LA)

LOCAL AUTHORITY	BICYCLE	BUS	CAR	HGV	LGV	MOTOR-CYCLE	PED	OTHER*
East Dunbartonshire	11	1	72	0	1	4	19	0
East Renfrewshire	12	1	68	0	2	6	21	0
Glasgow City	141	45	817	5	31	52	324	7
Inverclyde	5	1	97	0	2	8	24	1
North Lanarkshire	22	17	408	3	20	19	96	5
Renfrewshire	22	13	205	1	6	15	54	2
South Lanarkshire	25	10	397	8	19	28	86	4
West Dunbartonshire	7	9	90	0	4	7	27	1
Glasgow City Region	**245**	**98**	**2,154**	**18**	**85**	**138**	**650**	**20**

*Includes agricultural vehicles, goods vehicles, horse, minibus, mobility scooter, tram and other.

Table 5: Change in Average Yearly Casualties (2004-2008 to 2014-2018) by Mode – Glasgow City Region (by LA)

LOCAL AUTHORITY	BICYCLE	BUS	CAR	HGV	LGV	MOTOR-CYCLE	PED	OTHER*
East Dunbartonshire	57%	-83%	-51%	-75%	-33%	-58%	-53%	-85%
East Renfrewshire	31%	-82%	-36%	-83%	-15%	-9%	-27%	-100%
Glasgow City	32%	-77%	-34%	-57%	11%	-33%	-48%	-71%
Inverclyde	-37%	-83%	-41%	-83%	-53%	-37%	-56%	-73%
North Lanarkshire	10%	-9%	-42%	-80%	5%	-38%	-48%	-49%
Renfrewshire	8%	-67%	-43%	-67%	11%	-45%	-45%	-59%
South Lanarkshire	-5%	-62%	-40%	-46%	-13%	-18%	-40%	-80%
West Dunbartonshire	-26%	-37%	-47%	-75%	0%	-38%	-54%	-63%
Glasgow City Region	**18%**	**-69%**	**-39%**	**-63%**	**-2%**	**-34%**	**-47%**	**-70%**

*Includes agricultural vehicles, goods vehicles, horse, minibus, mobility scooter, tram and other.

From Table 5 it is evident that the percentage of bicycle casualties has increased between

the period 2004-2008 and 2014-2018, except in Inverclyde, South Lanarkshire and West Dunbartonshire. Most safety concerns raised through engagement were related to active travel. There was an 18% yearly average increase in casualties involving a bicycle between 2004 to 2008 and 2014 to 2018 (STATS19). There is evidence that the number of bicycle casualties increases with increased levels of cycling, although this can actually result in a lower risk for each individual[102]. As such, increased cycling uptake could explain the increase in bicycle casualties and may not necessarily represent an increased risk from cycling. However, Scottish Transport Statistics indicate that mode share uptake has not changed over recent years, suggesting that the increased cycling casualties may not be explained by increased cycling uptake. However, it is important to note that the statistics on mode share focus on a person's 'main mode' of travel, and this may mask an increase in cycling[103].

In addition, the average number of casualties per year between 2014 and 2018 show that overall, casualties on 30mph roads accounted for over 71% of all casualties in the Glasgow City Region. Of these casualties, 25% were pedestrians and 9% were cyclists. Furthermore, pedestrians and cyclists account for over 65% of all serious or fatal casualties on 30mph roads in the Glasgow City Region.[104] These figures suggest the need for better provision of safe, attractive routes to ensure that people can commute and travel by active modes across the region in the same way they would do with other modes.

Figure 38 shows the locations of accidents involving a bicycle reported in the region over the period 2014 – 2018. The figure shows that accidents are spread across all routes in the area.

[102] The Royal Society for the Prevention of Accidents (ROSPA), Road Safety Factsheet: Do higher cycling rates mean more cycling fatalities, 2018, https://www.rospa.com/rospaweb/docs/advice-services/road-safety/cyclists/safety-in-numbers-factsheet.pdf

[103] Transport Scotland, Transport and Travel in Scotland, 2019, https://www.transport.gov.scot/our-approach/statistics/#42764

[104] Glasgow Centre for Population for Health, The potential impact of a 20mph speed limit on urban roads in Scotland, September 2018, https://www.gcph.co.uk/assets/0000/6964/Policy_briefing_20mph.pdf

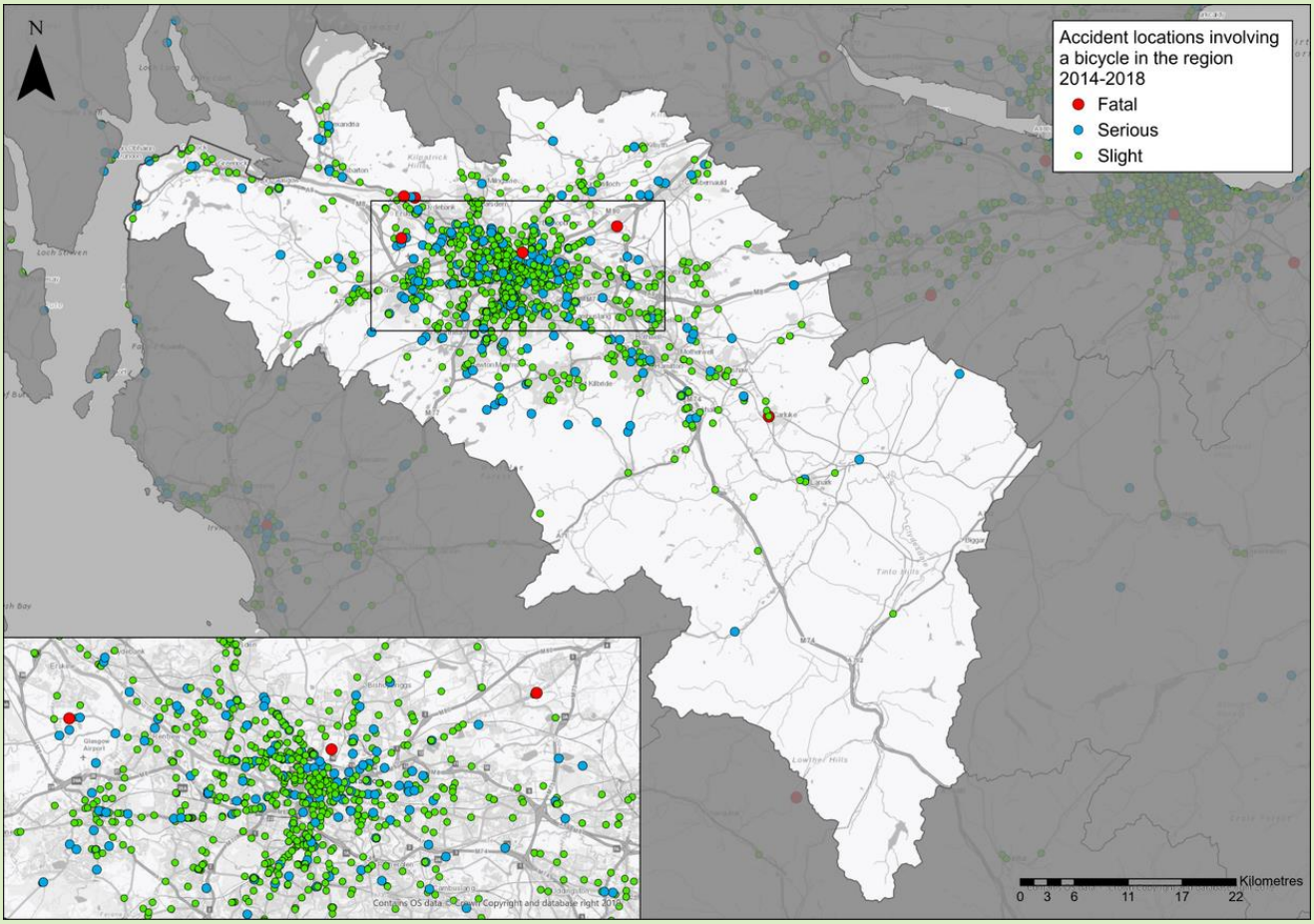


Figure 38: Accident locations involving a bicycle in the region 2014-18

(Click on image to enlarge figure)

Reported perceptions[105] 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 (95% feel safe and secure during day time and 74% feel so in the evening).

During the engagement process, women, 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 some 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 journey time reliability, and therefore bus use is less attractive. 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

[105] Transport Scotland, Transport and Travel in Scotland, 2019, https://www.transport.gov.scot/our-approach/statistics/#42764

with Edinburgh. A contributory factor could be that parking in Glasgow is cheaper than in Edinburgh. High levels of city car park availability and some shortfalls in capacity for Park and Ride car parks have also been highlighted as issues in the region.

Figure 39 and Figure 40 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 where 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.

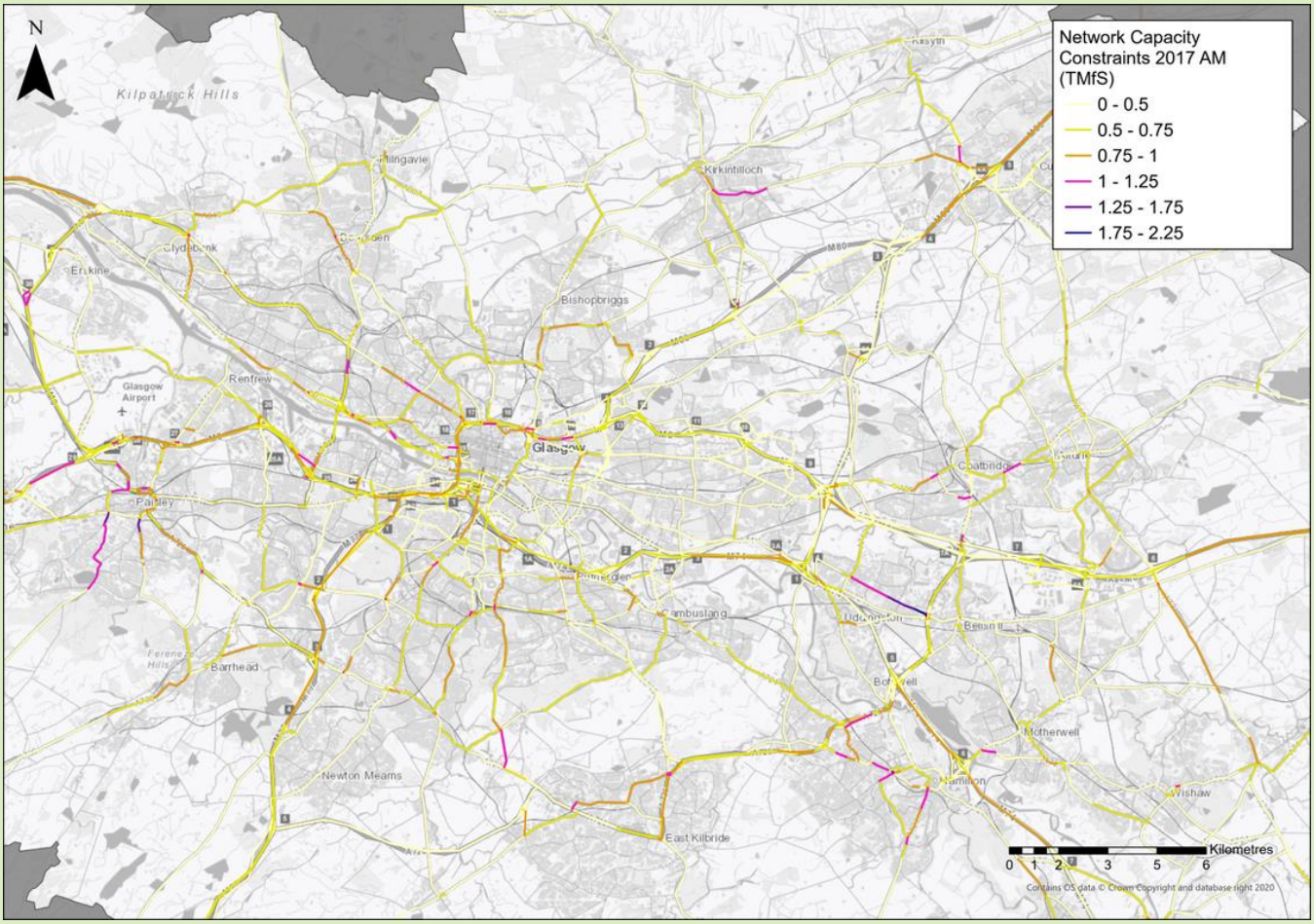


Figure 39: Network Capacity Constraints 2017 AM (TMfS)

(Click on image to enlarge figure)

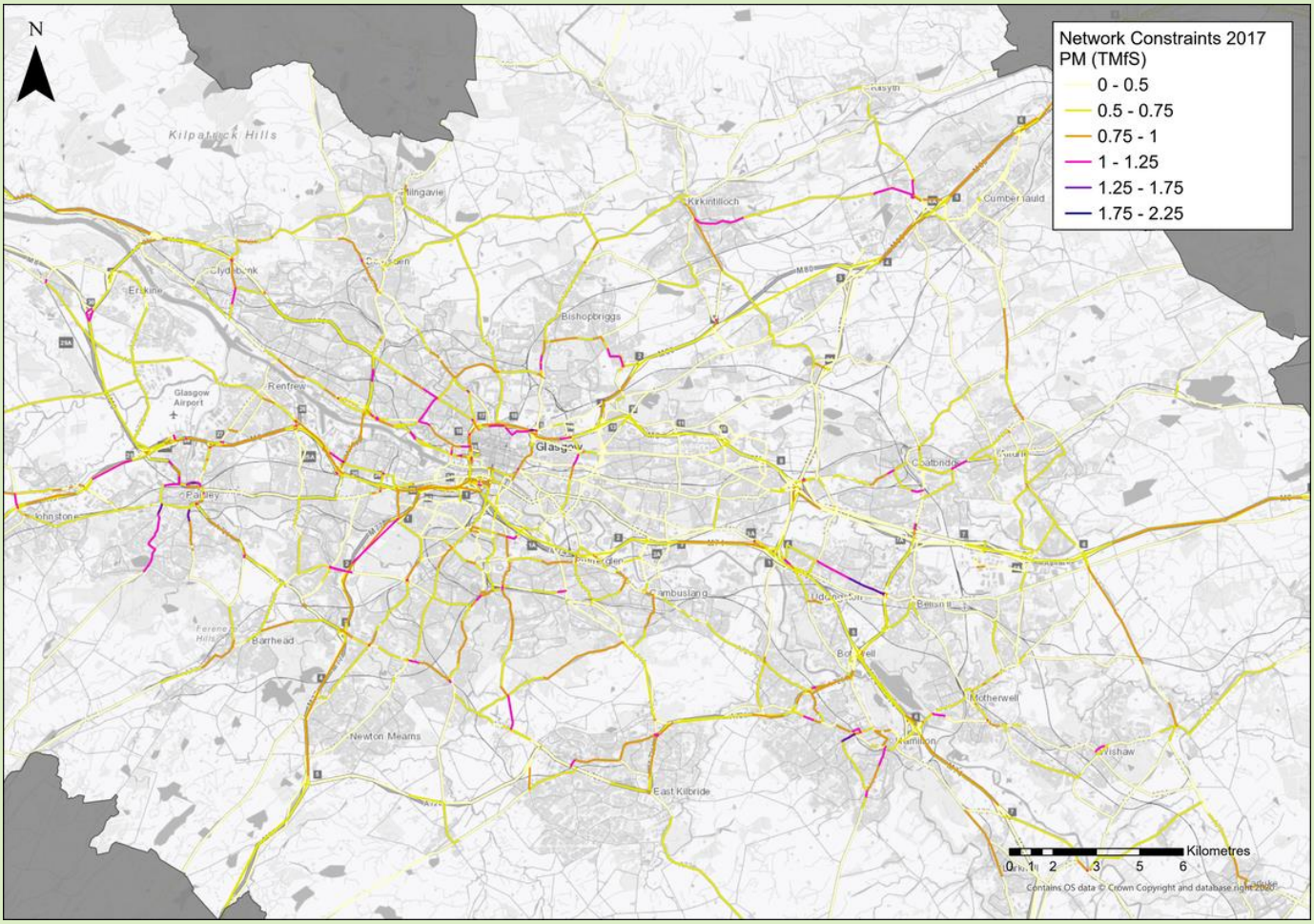


Figure 40: Network Capacity Constraints 2017 PM (TMfS)

(Click on image to enlarge figure)

This affects a number of routes in the region and all major access points to key centres in the region with Paisley, Hamilton, East Kilbride, Clydebank, Cumbernauld, Coatbridge and Glasgow City Centre in particular showing volume of traffic to be close to or above capacity. A number of bus services make use of these routes and through engagement, 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 considered 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 M8 Junction 28 at Glasgow Airport and M8 Junction 19 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 can exceed 50 minutes on some occasions. 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 evidenced with data analysis. While it is considered that Glasgow has a generally good system, the rail network is

congested at peak times with overcrowding on some services. A number of routes during 2018/19 have overcrowding at peak times and this is forecast to worsen.[106] Travel demand analysis results from Network Rail's Scotland Route Study[107] suggest that the Glasgow morning peak market is forecast to change by between -0.9% and 2.5% from 2023 to 2043 (subject to forecast scenarios). Passenger 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 station 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 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 3 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.

[106] Network Rail, Scotland Route Study 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), 2016, https://cdn.networkrail.co.uk/wp-content/uploads/2016/11/Scotland-Route-Study-1.pdf

[107] Network Rail, Scotland Route Study, 2016, 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.

Transport is a key factor in attracting international investment and influencing on the resilience of other sectors due to infrastructure networks. Climate change adaptation measures for the transport network is seen as an opportunity to ensure that Glasgow City Region[108] is fit for the future.

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[109].

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 surrounding health, access to education and access to employment can be addressed.

TECHNOLOGY

Technology was viewed by stakeholders as a potential aid to address 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 and ferries.
- 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 was not 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.

[108] Climate Ready Clyde, http://climatereadyclyde.org.uk/
[109] Glasgow City Council, Glasgow Economic Strategy 2016 – 2023, https://www.glasgow.gov.uk/CHttpHandler.ashx?id=36137&p=0

- 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 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. It was noted the culture and attitudes towards home working is shifting (particularly in light of the COVID-19 restrictions), and it is viewed as more acceptable.

NIGHT TIME ECONOMY

Glasgow City's night-time economy (18:00 to 06:00) is estimated to generate £2.16 billion per annum for the city, supporting 16,600 full-time jobs.[110] This attracts residents and visitors and concerns were raised that public transport access is lacking to service this. (Timetables back this up with a drop in service levels across many routes occurring from 18:00 onwards.[111]) It was also noted that perceptions of security drop at night using public transport. The 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.

THE TRANSPORT (SCOTLAND) ACT 2019

In November 2019, The Transport (Scotland) Act came into effect. The Act was designed to help make Scotland's transport network cleaner, smarter and more accessible, aiming to empower local authorities and establish consistent standards in order to tackle current and future challenges, while delivering a more responsive and sustainable transport system for everyone in Scotland. Consultation with Local Authorities confirmed a mixed view of how practical some of the measures in the Act would be for implementation but there was recognition that the Act does present opportunities to put measures in place that would address some of the problems identified in this Case for Change. Of particular note to the problems identified in the Glasgow City Region include:

- Updating the powers available to Local Authorities to support bus provision in their area;
- Updating powers available to Local Authorities in the setting up and operation of Low emission zones; and
- Powers to put in place Workplace Parking Levies.

CLYDE MISSION

The Scottish Government Economic Action Plan 2019-20 identifies 'Clyde Mission' under the theme of 'Place'. It notes that "To deliver our economic, social and environmental ambitions, we will develop and deliver a national, place based mission to maximise the full potential of the Clyde and surrounding land and assets."

The Plan identifies that from South Lanarkshire through to Inverclyde, nearly 115,000

[110] Glasgow Caledonian University, Moffat Centre for travel and tourism business development, https://www.moffatcentre.com/whatwedo/currentprojects/glasgowsnight-timeeconomy/

[111] Various bus operator timetables taken from late 2018

people live in the area just 500 metres either side of the river and there are over 30,000 companies supporting around 160,000 jobs. However, around 1 in 4 of the local population live in areas within the 15% most deprived in Scotland and there are also over 250 sites of vacant and derelict land covering over 400 hectares, with a number of these and other sites at risk of flooding.

The Plan recognises that with the support of City Region Deal funding, investments such as those in the Barclays Glasgow Campus, the expansion of the Scottish Events Campus (SEC), the Glasgow Riverfront Innovation Campus, along with the Advanced Manufacturing Innovation District and Queens Quay, are bringing new economic life and vibrancy to the Clyde corridor. The Plan sets out to work across the public and private sectors to ensure the collective impact of those investments are optimised and to attract further investment. It also sets out to develop further opportunities, for example, building on industries such as shipbuilding and marine engineering and bringing vacant and derelict land back into productive use. Additionally, it seeks to look at how the river can be improved and opened up for visitors, local people and communities and ensure it is climate ready - adaptable and resilient to climate change.

A £10 million Clyde Mission Fund opened in September 2020 to applications for capital funding projects that aims to create green jobs and benefit communities along the Clyde. This money is to be spent before 31 March 2021.

It will support economic and infrastructure developments, and improvements to buildings, facilities and the environment.

3.2.4. Future Conditions

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

TELMoS (Transport and Economic Land-use Model of Scotland)[112] identifies that the largest increases of housing developments between 2017 and 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 to 2027 period are expected to occur in North Lanarkshire (16,000 jobs), followed by Glasgow City (13,000 300 jobs). The largest employment decreases are expected in South Lanarkshire (12,000 less jobs) and Renfrewshire (6,200 less jobs). Overall, employment within the region is

[112] Transport Scotland, Transport and Economic Land-use Model of Scotland (TELMoS 14), 2014, https://www.transport.gov.scot/our-approach/industry-guidance/land-use-and-transport-integrations-in-scotland-latis#42984

expected to increase by 16,000 jobs.

Table 6: TELMoS Household and Employment Forecasts

Local Authority	Households Change		Employment Change	
	2017-2027	2017-2037	2017-2027	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

Notwithstanding the above, for the Glasgow City Region, a review of the national transport model, the Transport Model for Scotland (TMfS), has been undertaken. Assuming current policies remain in place and no interventions beyond those already committed will be undertaken, the model suggests that between 2014 and 2037 the following may occur:

- 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 41 shows the forecast change in vehicle-kilometres from the Transport Model for Scotland[113] (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.

[113] Transport Scotland, Transport Model for Scotland (TMfS 14), 2014, https://www.transport.gov.scot/our-approach/industry-guidance/land-use-and-transport-integrations-in-scotland-latis#42984
The current version is TMfS14 which was calibrated and validated using available data for 2014. Note that modelling does not consider any impacts of the COVID-19 pandemic

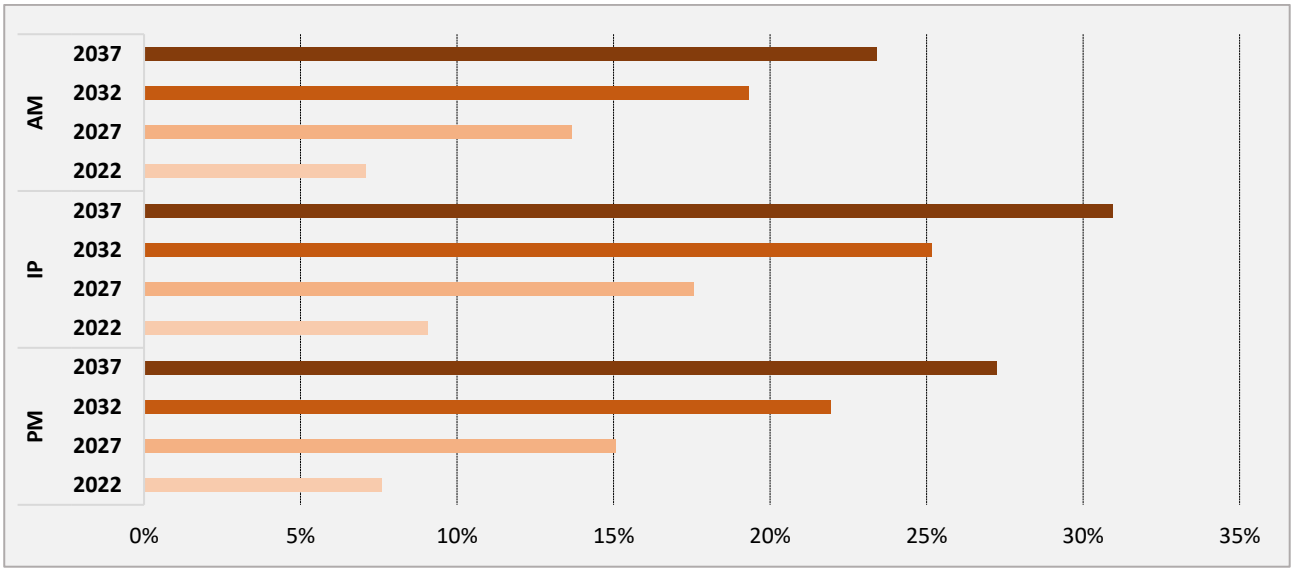


Figure 41: Forecast Change in Vehicle Kilometres in the Glasgow City Region during peak periods (TMfS)

Figure 41 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 impacts of the Glasgow City Region City Deal infrastructure developments on the transport network in the region. STPR2 will capture all committed interventions within the City Deal in the future assessment of options 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 arising in the socio economic, geographic, transport and environmental context inform the objectives which any interventions should look to address.

Of note are:

- Social Exclusion: the region has the highest levels of deprivation across the regions in Scotland, and a wide variance in deprivation levels with the highest level across the regions of deprivation in Scotland. Overall the region has 32.0% of data zones in the most deprived quintile and this is particularly acute in Glasgow City with 45.4% in the most deprived quintile and 30.4% in the most deprived decile. Inverclyde has 44.7% 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 areas and a low emission zone 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 when compared to the rest of 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 gap exists between Queen Street and Glasgow Central rail stations that acts a barrier to integrated travel.
- Active Travel: Despite relatively good levels of possible penetration of the region by bike, cycling is 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 when compared to other relevant benchmarks which is backed up by the physical activity data.
- Safety: With the exception of bicycle, safety across all road-based modes is improving in the region although targets for the reduction in serious casualties was missed. Safety for cyclists is getting worse according to accident statistics with an 18% increase in average accidents in the 2014 to 2018 period compared to the 2004 to 2008 period.
- 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 identified within Network Rail's Scotland Route Study and echoed 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 offers the potential for better ways to work, connect and inform people of transport choices as well as advances around lower emission fuels;
- The Glasgow City Region night time economy offers a good base of economic activity that could benefit from improved access; and
- The Transport (Scotland) Act 2019 which alters the powers available to Local Authorities allowing them the opportunity to address some transport problems in their area.

- Clyde Mission, which is a Government, supported aspect of the 2019-20 Economic Action Plan to encourage investment in the Clyde area which has the potential to have an impact on large numbers of people and businesses within the region.

4. Transport Planning Objectives

4.1. National and Regional Objectives

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

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

A series of regional sub-objectives sit within the overall direction of the national TPOs but with a particular focus on the specific evidence-based problems and opportunities for the Glasgow City Region. The national TPOs and regional sub-objectives are presented in Table 7 detailed below.

Table 7: National TPOs and the Regional Sub-Objectives

STPR2 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 mode 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 mode 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.*

STPR2 Objectives	Glasgow City Region Sub-Objectives
An inclusive strategic transport system that improves the affordability and accessibility of public transport.	▪ *Increase public transport mode share by improving the interchange opportunities for active travel and public transport modes to facilitate integrated journeys across the region.* ▪ *Improve mobility and inclusion, with a particular focus on improving inclusion in locations identified as being in the 15% most deprived zones (according to SIMD).* ▪ *Reduce transport poverty in relation to the level of household income spent on transport, particularly in more deprived areas of the region.* ▪ *Reduce the reliance on private car, by improving public transport as a viable alternative for a greater proportion of the region's population to access 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 mode 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.*
An integrated strategic transport system that contributes towards sustainable inclusive growth in Scotland	▪ *Increase sustainable access between labour markets and 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 major ports, and Glasgow airport* ▪ *Increase resilience of access to key domestic and international markets, including via cross border road and rail, and to major ports, and Glasgow airport to encourage people to live, work, study, visit and invest in the Glasgow City Region.* ▪ *Increase the mode share of freight by sustainable modes*

STPR2 Objectives	Glasgow City Region Sub-Objectives
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 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 and connectivity of the transport system. With a particular focus on public transport, active travel networks and vulnerable road users.*

Table 8 demonstrates the alignment of the objectives and sub-objectives developed for the Glasgow City Region with the identified problems and opportunity themes in the region.

Table 8: 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	The Transport (Scotland) Act 2019	Clyde Mission
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 mode 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 mode share by improving the interchange opportunities for active travel and public transport modes to facilitate integrated journeys across the region.	■	■	■	■	■	■	■		■	■	■	■	■	■	
	Improve mobility and inclusion, with a particular focus on improving inclusion in locations identified as being in the 15% most deprived zones (according to SIMD).	■	■	■		■	■	■				■	■	■	■	■
	Reduce transport poverty in relation to the level of household income spent on transport, particularly in more deprived areas of the region.	■	■	■		■		■				■	■	■		■
	Reduce the reliance on private car, by improving public transport as a viable alternative for a greater proportion of the region's population to access 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 local development plans and the emerging NPF4.	■		■	■	■	■	■			■	■		■		■
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					■	■			■		■				■

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	The Transport (Scotland) Act 2019	Clyde Mission
	Increase resilience of access 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.					■	■			■		■				■
	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 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, active travel networks and vulnerable road users.	■		■		■	■	■	■			■	■	■		

5. Option Generation and Sifting

5.1. Strategic Options

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

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

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

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

5.2. Approach

In keeping with the principles of STAG, the Initial Appraisal: Case for Change has been developed to provide a robust method to generate, clean and sift options; ensuring a broad range of options across all modes are considered. The STPR2 option generation, cleaning and sifting approach is summarised in Figure 42

alongside the number of options generated at the various key stages that are specific to the Glasgow City Region.

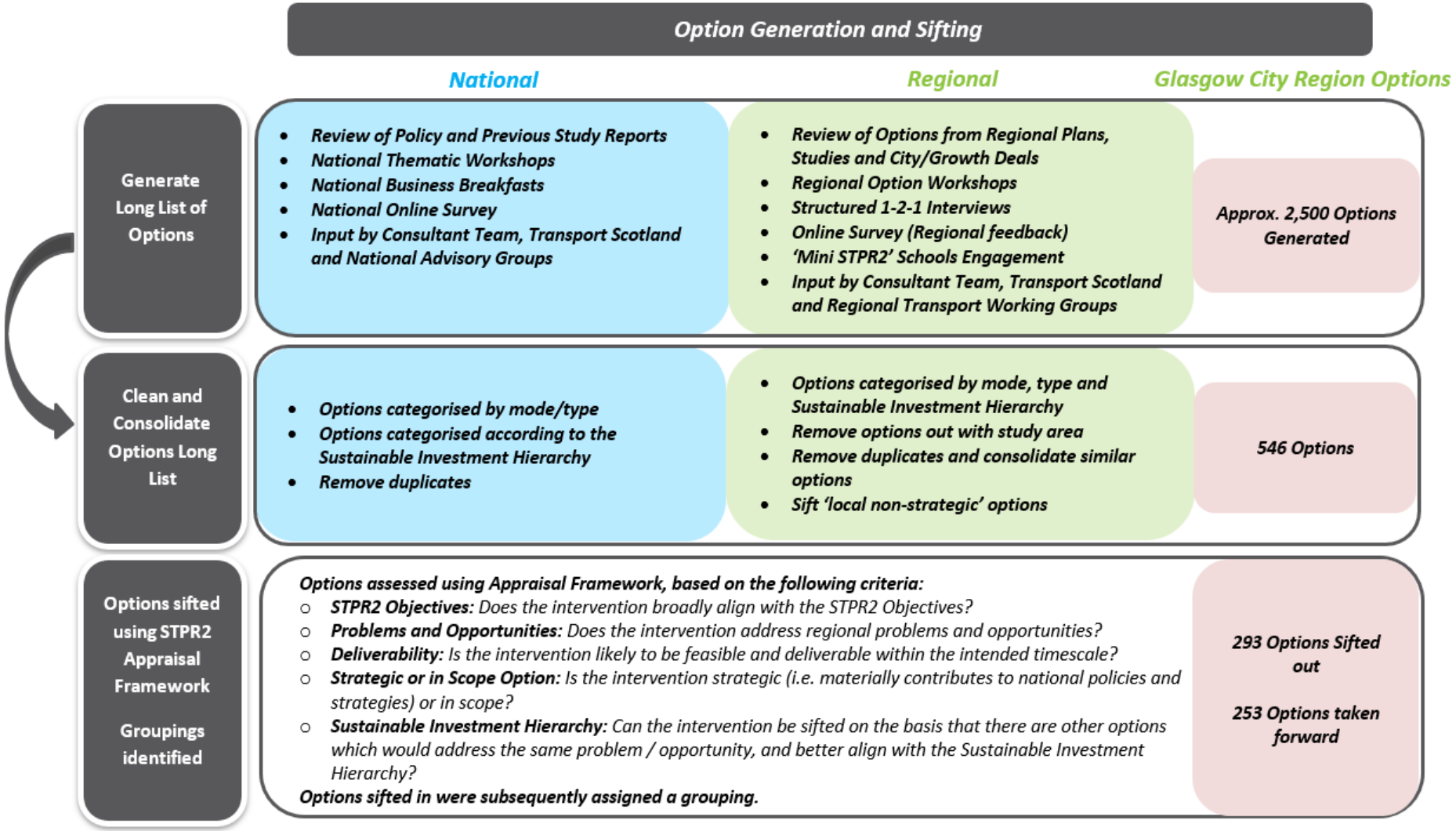


Figure 42: Approach to Option Generation and Sifting

5.2.1. Generation of Long List of Initial 'Options'

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

Specific to the Glasgow City Region, there were approximately 2,500 options generated.

5.2.2. Option Cleaning

Although 2,500 individual ideas/suggestions/options were identified, this included a number that required further definition, duplicated options and options which were broadly similar. As such, an exercise was undertaken to clean this 'long list'. Options were reviewed at a regional level or a national level depending on the initial source of the information. Options that required further definition were developed, and similar options were consolidated.

Following the option cleaning exercise, 546 options were retained in the long list of interventions to be sifted specific to the Glasgow City Region.

5.2.3. Option Sifting

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

Options will be assessed against the range of criteria shown in Figure 43 to ensure that any options removed from this stage of the process are done so on a robust and transparent basis. Importantly, this included consideration of the Sustainable Investment Hierarchy. Figure 43 provides more detail of the sifting process.

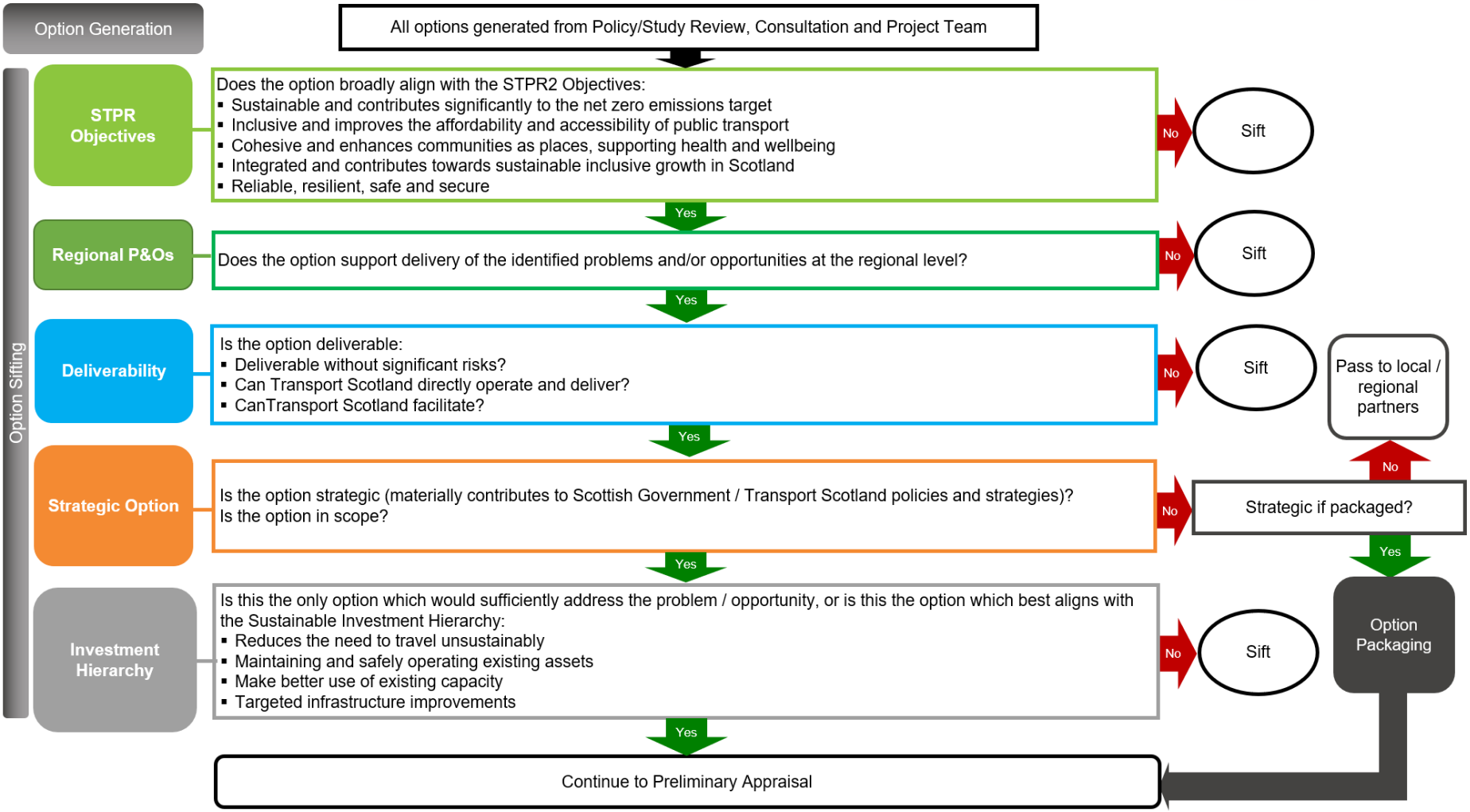


Figure 43: Option sifting process

Based on the methodology above, options were either:

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

5.2.4. Options sifted out

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

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

A full list of options that were sifted out across all regions and at a national level is provided as an Appendix to the National Case for Change. In the Glasgow City Region, 293 options were sifted out at this stage.

5.2.5. Options sifted in

Following the sifting exercise, 253 options specific to the Glasgow City Region remain in the process. There are many of these options that share common traits across the regions and many options which in isolation would not deliver the strategic improvements STPR2 is seeking to deliver. Recognising the strategic and national dimension, options that have been sifted in for further appraisal have been allocated to Groupings. Groupings have been established to:

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

These Groupings will be appraised in the next stages of STPR2. The Groupings represent the range of interventions that STPR2 will consider in the appraisal stages. The list of Groupings along with a short description is provided in Table 9 and a full list

of options sifted in for further consideration alongside their allocated Grouping is provided in an Appendix to the National Case for Change.

Table 9 – Groupings proposed to progress to STPR2 Appraisal

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

Category	Grouping Name	Grouping Description
Active Travel	Liveable Neighbourhoods	Options to make urban and suburban neighbourhoods in Scotland's cities and towns more conducive for active travel by improving conditions for walking, wheeling and cycling and reducing traffic dominance
Active Travel	Strategic Road Severance	Options to improve facilities and crossings for pedestrians and cyclists in locations where strategic roads have a significant severance effect in communities
Active Travel	Public Bike Hire Schemes	Options to facilitate the roll out of public bike hire schemes to enable their use by more people in more locations across Scotland
Active Travel	Quiet Roads	Options to implement quiet roads, potentially including measures such as traffic calming measures and speed limit reductions that form parts of strategic active travel networks, where appropriate
Active Travel	School Active Travel	Options to provide opportunities for safe and high quality active travel routes that enables school pupils resident in Scotland's cities and towns to walk, wheel or cycle to school
Active Travel	Strategic Expansions of the National Cycle Network	Options to expand the NCN to reach more settlements and complete strategic gaps in the network.

Category	Grouping Name	Grouping Description
Active Travel	Footway Enhancements on Strategic Routes	Options to upgrade existing footways on trunk roads and principal routes in our towns and cities, such as width, surfacing, drainage and drop kerbs at crossings. In addition, safe crossing facilities on major desire lines and adequate security (such as sightlines, lighting) where feasible.
Active Travel	Strategic Active Travel Corridors within and between Urban Areas (Active Freeways)	Options to provide high quality, segregated active travel routes on major distributor routes in Scotland's towns and cities, with connections to major trip attractors
Active Travel	Thriving Centres	Options to make town and neighbourhood centres more conducive for active travel by improving the urban realm and reducing the dominance of vehicular traffic and car parking
Active Travel	Transport Node Connectivity	Options to provide high quality active travel routes between public transport nodes (rail stations, bus stations, interchange facilities) and their catchments (such as residential and key trip attractors), along with high quality cycle parking at the nodes
Active Travel	Village – Town Active Travel Connections	Options to provide active travel routes from villages to a nearby town or regional centre.
Active Travel	Former Rail Route Re-use for active travel	Options to create more active travel routes on former rail lines
Active Travel	Urban Placemaking	Options to facilitate placemaking schemes to improve the quality and ambiance of street spaces in Scotland's cities, towns and villages

Category	Grouping Name	Grouping Description
Behaviour Change	School Streets	Options to facilitate traffic exclusion zones on streets where it is appropriate to do so near schools at school start/end times
Behaviour Change	National Behaviour Change Programme	Options to implement a national, long-term campaign to promote the benefits of active and sustainable travel and give information on appropriate-opportunities to do so
Behaviour Change	Regional Behaviour Change Programmes	Options to support regional, long-term campaigns to promote the benefits of active and sustainable travel and give information on appropriate local opportunities to do so
Behaviour Change	Expansion of Car Clubs	Options to expand car club availability and use across Scotland
Behaviour Change	Improved Information on Sustainable Travel Modes	Options to improve information (such as printed, real time and on-vehicle announcements) about active and sustainable travel routes and services
Behaviour Change	Sustainable Travel towns/Cities	City/Town-wide initiatives to give a holistic programme of promotion on active and sustainable travel choices
Behaviour Change	Road Safety Campaigns	Options that consider a national, long-term campaign (and/or support local/regional campaigns) to promote better driver behaviour and reduce road safety fears including people travelling actively
Behaviour Change	Travel Demand Management	Measures to effectively manage travel demand and encourage more sustainable travel options.

Category	Grouping Name	Grouping Description
Behaviour Change	Low Emission Zones (LEZ)	Options related to Low Emission Zones (LEZ), i.e. where only certain vehicles are allowed to enter, based on their emissions standards.
Bus	Bus Priority Infrastructure	Options to increase the roll out of bus priority measures, and where already available, improve existing measures
Bus	Decarbonisation of the Bus Network	Options related to decarbonisation of the bus network (incl. fleet).
Bus	Demand Responsive Transport (DRT) / Community Transport	Measures to support Demand Responsive (DRT) and Community Transport, excluding revenue funding
Rail	Central & North East Scotland Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements
Rail	Glasgow, West Coast and South West Scotland Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements
Rail	Edinburgh, East Coast and Borders Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements
Rail	Highland and Far North Rail Improvements	Options to improve capacity, frequency and reliability of train services, such as, train lengthening and linespeed improvements

Category	Grouping Name	Grouping Description
Rail	Decarbonisation of the Rail Network	Options related to decarbonisation of the rail network (incl. rolling stock).
Rail	High Speed Rail	Development of High Speed Rail north of HS2 to Scotland and / or within Scotland
Rail	New Rail Lines, Including Re-Opening of Disused Lines for rail services	Options related to re-opening of disused rail corridors for rail and opening new rail lines including associated new stations
Rail	New Rail Stations	Options related to opening new rail stations on the existing rail network
Rail	New Sleeper Routes	Option related to the introduction of new or extensions to existing rail sleeper routes
Rail	Rolling Stock Quality	Improvements to the quality of heavy rail rolling stock not already committed to within the relevant ScotRail and Caledonian Sleeper franchise. This does not include decarbonisation options which are covered under RL5.
Public Transport	Public Transport Network Coverage, Frequency and Service Integration	Options to improve the network coverage, frequency and service integration of bus and rail, excluding revenue funding. Particularly access to key services such as healthcare, education, leisure and retail**.**
Public Transport	Mobility Hubs and Multi-modal Interchanges	Implement new / upgrade existing strategically important mobility hubs, Park & Ride sites and other multi-modal interchanges.

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

Category	Grouping Name	Grouping Description
Road	North West Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	North East Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	South West Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	South East Scotland Trunk Road Network Improvements	Package of measures to improve the capacity, reliability and resilience of routes, such as overtaking opportunities, partial dualling, junction improvements and route realignment.
Road	Low Emission/Ultra Low Emission/Electric Vehicle National Action Plan	A National Action Plan to support the shift to Low Emission/Ultra Low Emission/Electric Vehicles and help deliver Scottish Governments Net Zero targets.
Road	Road Safety (Vision Zero) Measures	A national package of road safety measures, such as road safety campaigns and technology to target casualty reduction.
Road	Trunk Road Space Reallocation	Package of measures to reallocate road space on the trunk road network, such as reduction of on-street parking, high occupancy vehicle lanes and no parking zones.

Category	Grouping Name	Grouping Description
Road	Review of speed limits (national)	Review of speed limits across the road network, including the potential to implement 20mph zones
Freight	Decarbonisation of Freight Deliveries	Measures to encourage low carbon fuels (including electric, hydrogen, CNG/LNG) that will decarbonise the freight transport sector in line with the Scottish Government targets and commitments.
Freight	Freight Consolidation Measures	Measures related to Freight Consolidation and Multimodal Hubs to help facilitate sustainable freight deliveries.
Freight	Freight Rest Stops	Measures to help facilitate the introduction of freight rest stops for HGV drivers to take breaks and rest periods as required by regulation.
Freight	Freight Reliability and Efficiency Improvements	Measures aimed at improving the reliability and efficiency of freight journeys.
Freight	Last-Mile Logistics	Moving freight deliveries to low/zero carbon forms of transport, by encouraging the use of active travel measures and electric vehicles to service last-mile logistics
Freight	Sustainable Modal Shift of Freight	Transferring the delivery of freight from road vehicles to more sustainable modes, such as rail and water freight.

Category	Grouping Name	Grouping Description
Freight	Rail Freight Enhancements	Measures to facilitate the growth of rail freight in Scotland, such as Gauge, Route Availability, Trailing Length, Terminals and Pathing
Technology	Connected Autonomous Vehicles (CAV)	Measures related to Connected Autonomous Vehicles (CAV), i.e. the operation of vehicles without direct driver input to control. This grouping relates to all modes of transport.
Technology	Co-operative Intelligent Transport Systems (C-ITS)	Measures related to C-ITS, which are a group of technologies and applications that allow effective data exchange through wireless technologies between vehicles and infrastructure which can also be applied to vulnerable road users such as pedestrians, cyclists or motorcyclists.
Technology	Transport Scotland Operational Communications	Options related to both wireless and fibre communications to support the management and operation of Transport Scotland services
Technology	Nationwide Open Data, Passenger Information and Communications	Options related to transport data and the provision of public transport information and passenger communications for journey planning.
Technology	Adaptive Traffic Control on the Trunk Road	Options that allow optimisation of the performance of the Trunk Road Network through adaptive control.
Technology	Incident Management System Upgrade	Measures to improve the system software or architecture of Incident Management Systems.

Category	Grouping Name	Grouping Description
Technology	Control Centre of the Future	Development of operation functions and procedures within the Traffic Scotland National Control Centre to adapt to changing requirements
Technology	Intelligent Transport Systems (ITS) Roadside Infrastructure on Motorways and Trunk Road Network	Options to improve transport outcomes such as transport safety, transport productivity, travel reliability, informed travel choices, social equity, environmental performance and network operation resilience
Multimodal	Improve Routes to Major Ports and Airports	Options related to improving surface access to Major Ports and Airports, by all modes.
Multimodal	Improved Resilience of the trunk road and rail networks	Options to improve the resilience of the trunk road and rail network including the impacts from climate change.
Multimodal	Mobility as a Service (MaaS) Digital Platform	Options which assist in the development and adoption of a MaaS digital platform for Scotland across a wide range of existing public, shared and demand-responsive transport services.
Mass Transit	Glasgow Metro	Development of the public transport network within the Glasgow city region, with consideration of bus rapid transport, rail conversion, light rail and underground elements

Category	Grouping Name	Grouping Description
Mass Transit	Edinburgh Mass Transit Options	Development of the public transport network within the Edinburgh City Region with consideration of bus rapid transit, rail conversion, and tram network extension
Mass Transit	Aberdeen Mass Transit Options	Development of the public transport network within the Aberdeen City Region, with consideration of bus rapid transit, and light rail

5.3. Next Steps

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

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

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

Commenting on this Report

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

APPENDICES

Appendix A: Figures

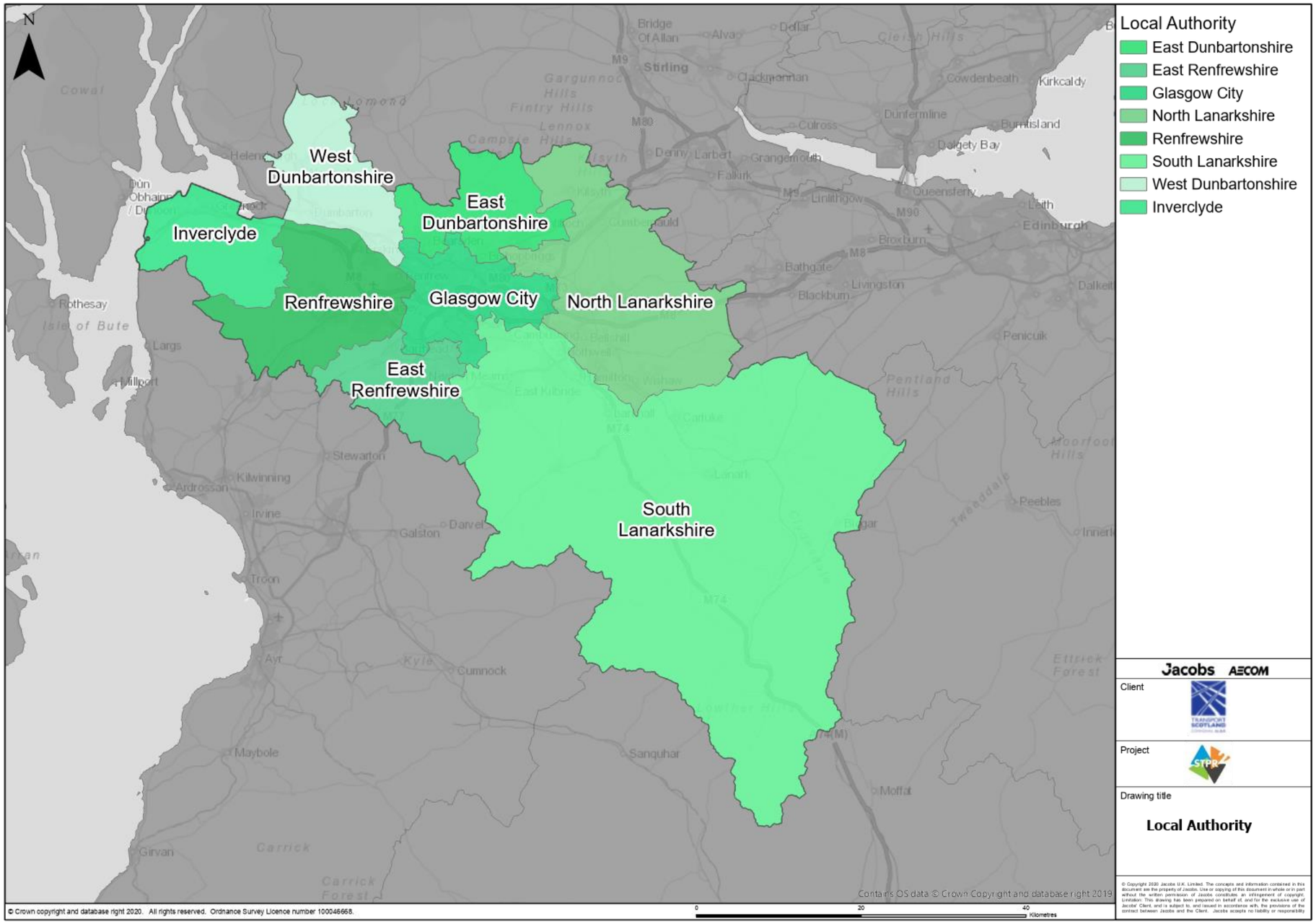


Figure A. 1: Glasgow City Region Study Area (Click on image to go back to main report)

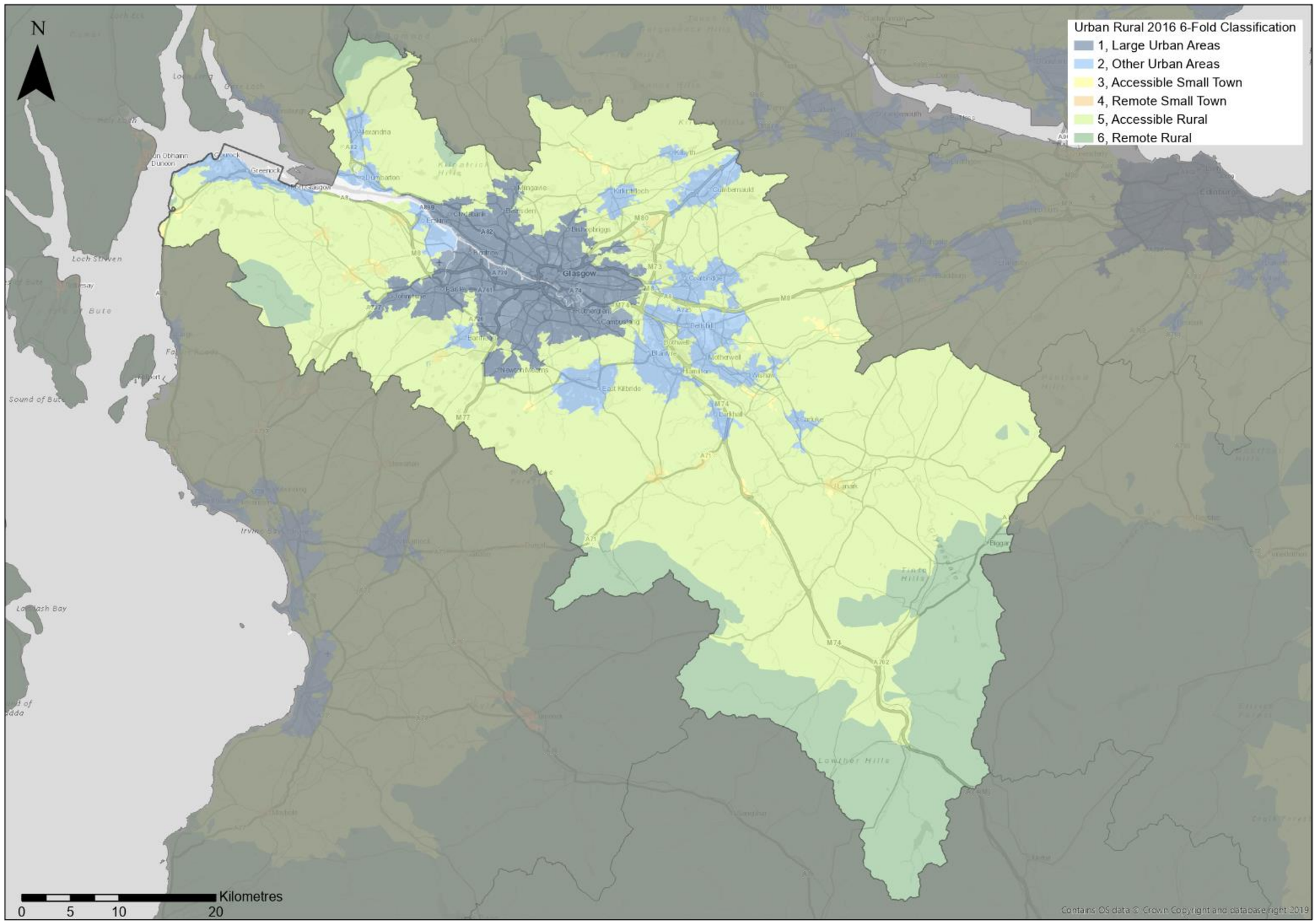


Figure A. 2: Urban Rural 6-Fold 2016 Scottish Government Classification (Click on image to go back to main report)

Travel to Work Mode Share 2011

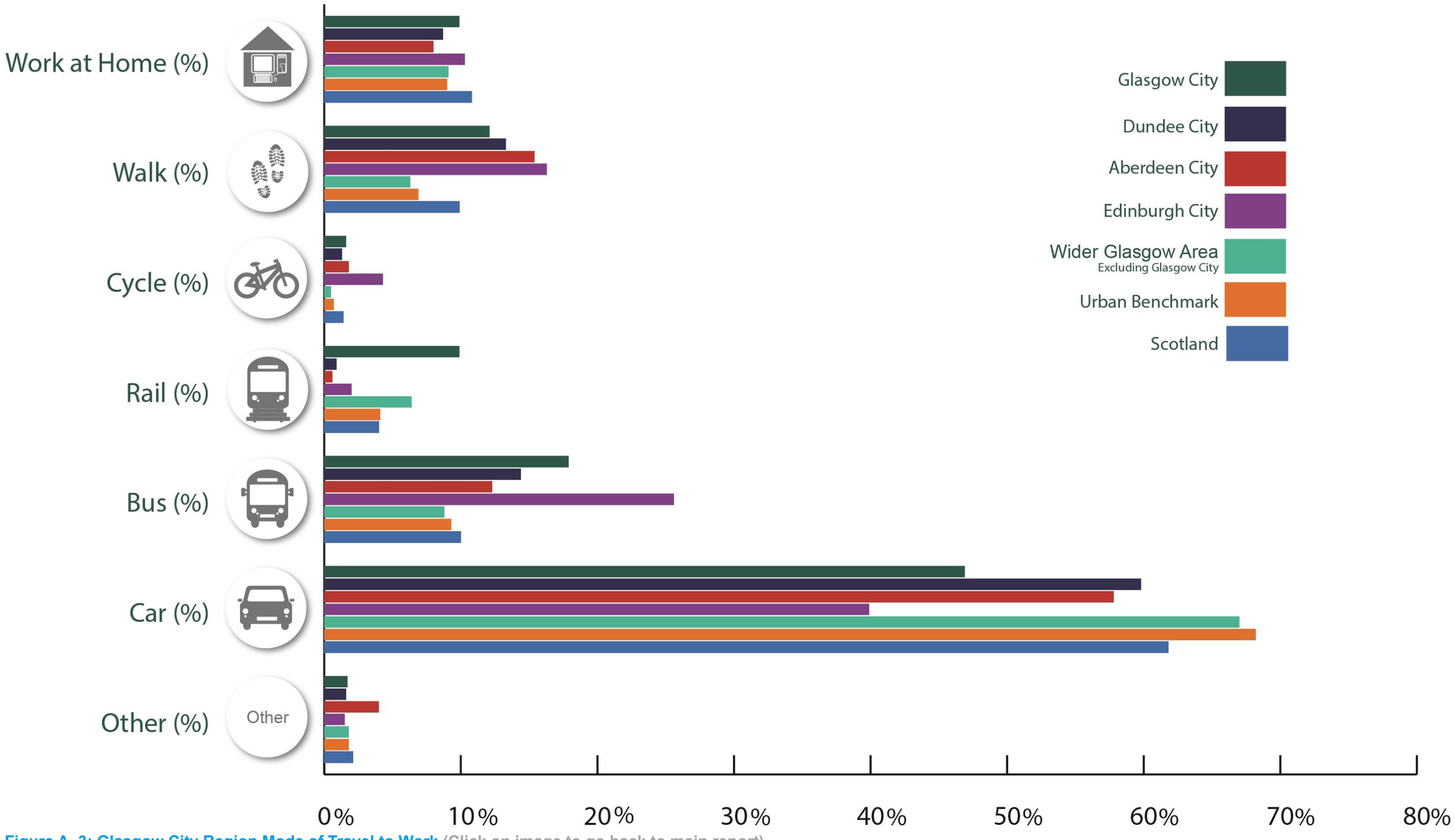


Figure A. 3: Glasgow City Region Mode of Travel to Work (Click on image to go back to main report)

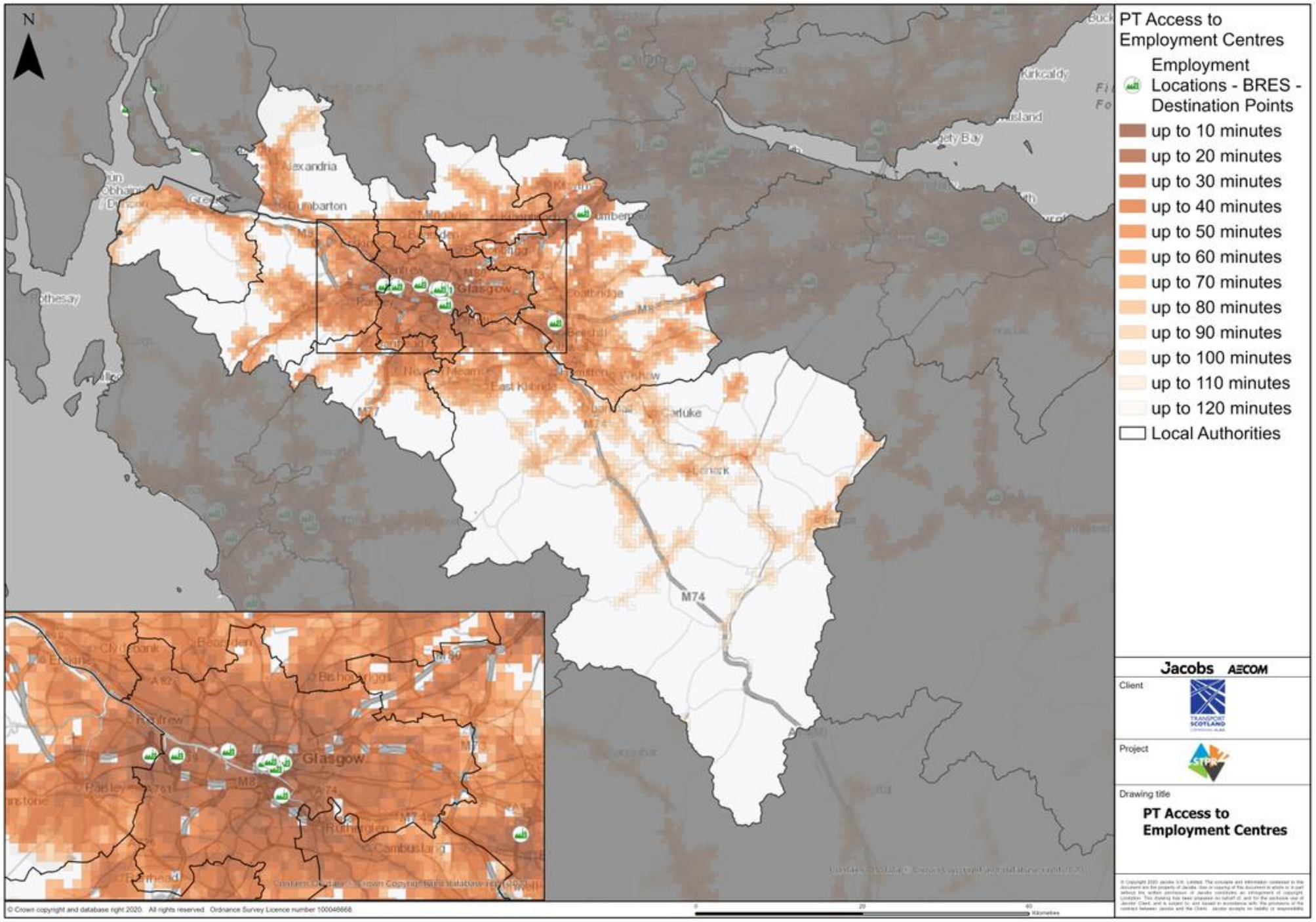


Figure A. 4: Public Transport To Employment Centres (on a typical Tue 06:00-10:00) (Click on image to go back to main report)

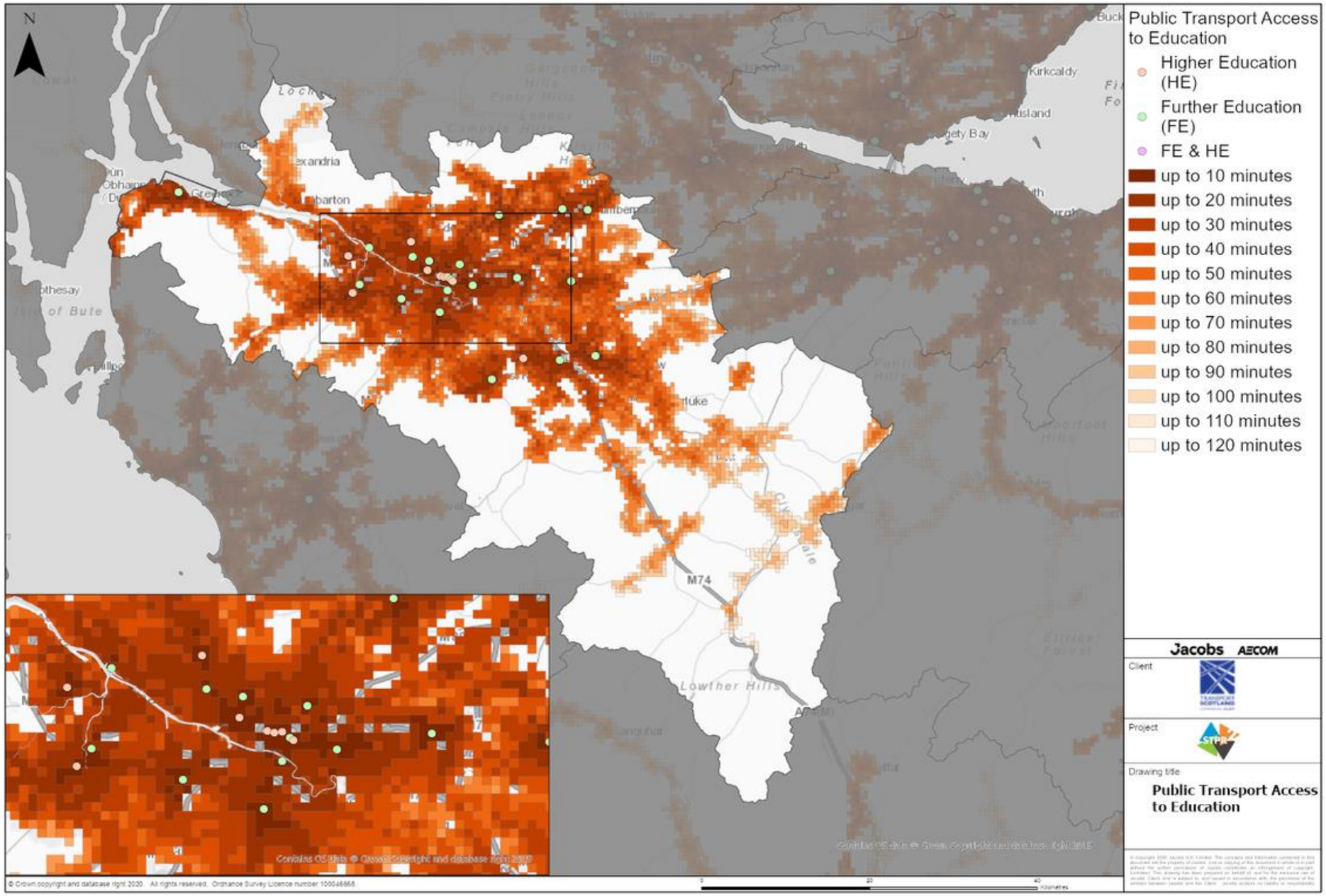


Figure A. 5: Public Transport To Higher & Further Education (on a typical Tue 06:00-10:00) (Click on image to go back to main report)

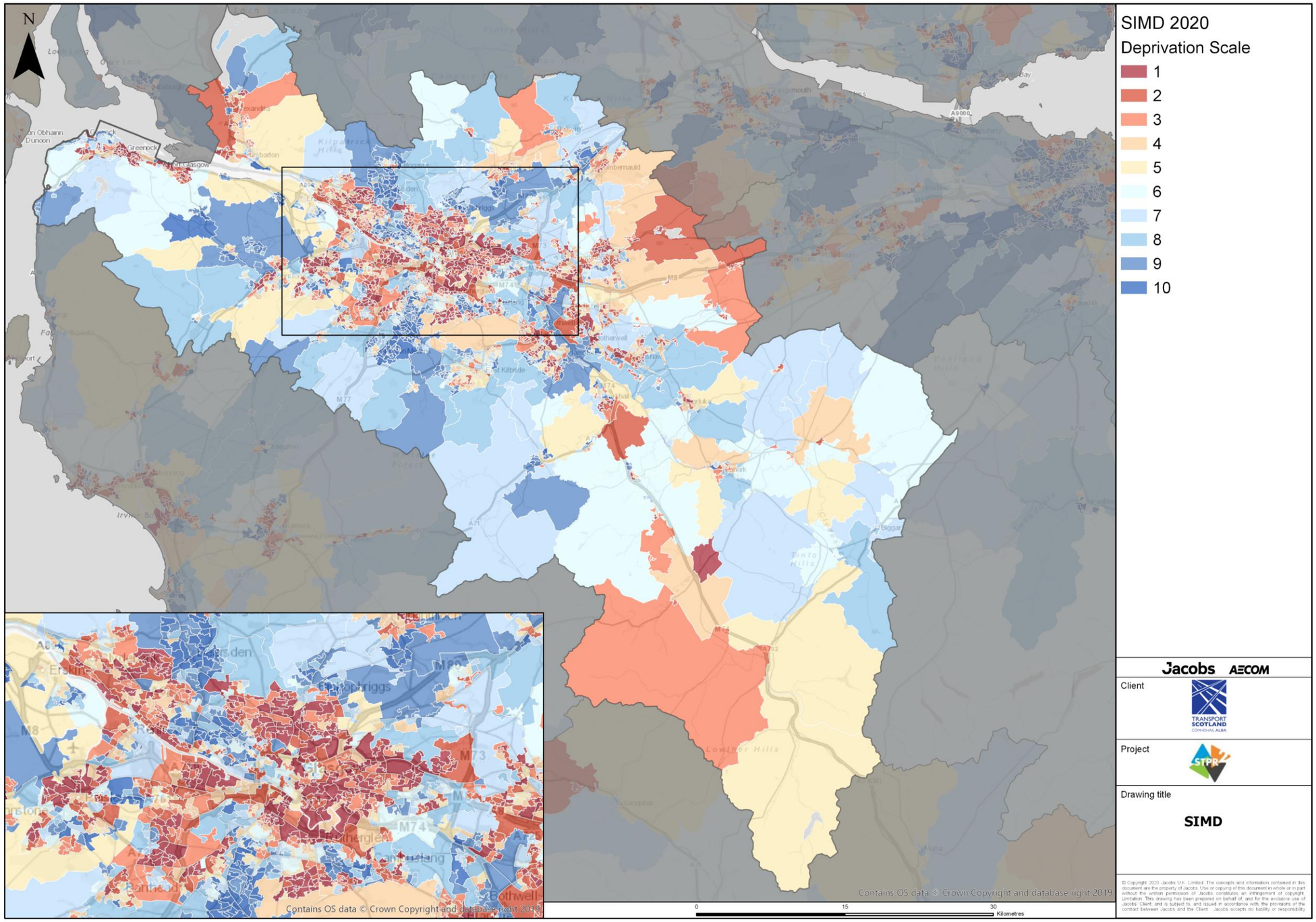


Figure A. 6: SIMD 2020– Overall SIMD Rank (Click on image to go back to main report)

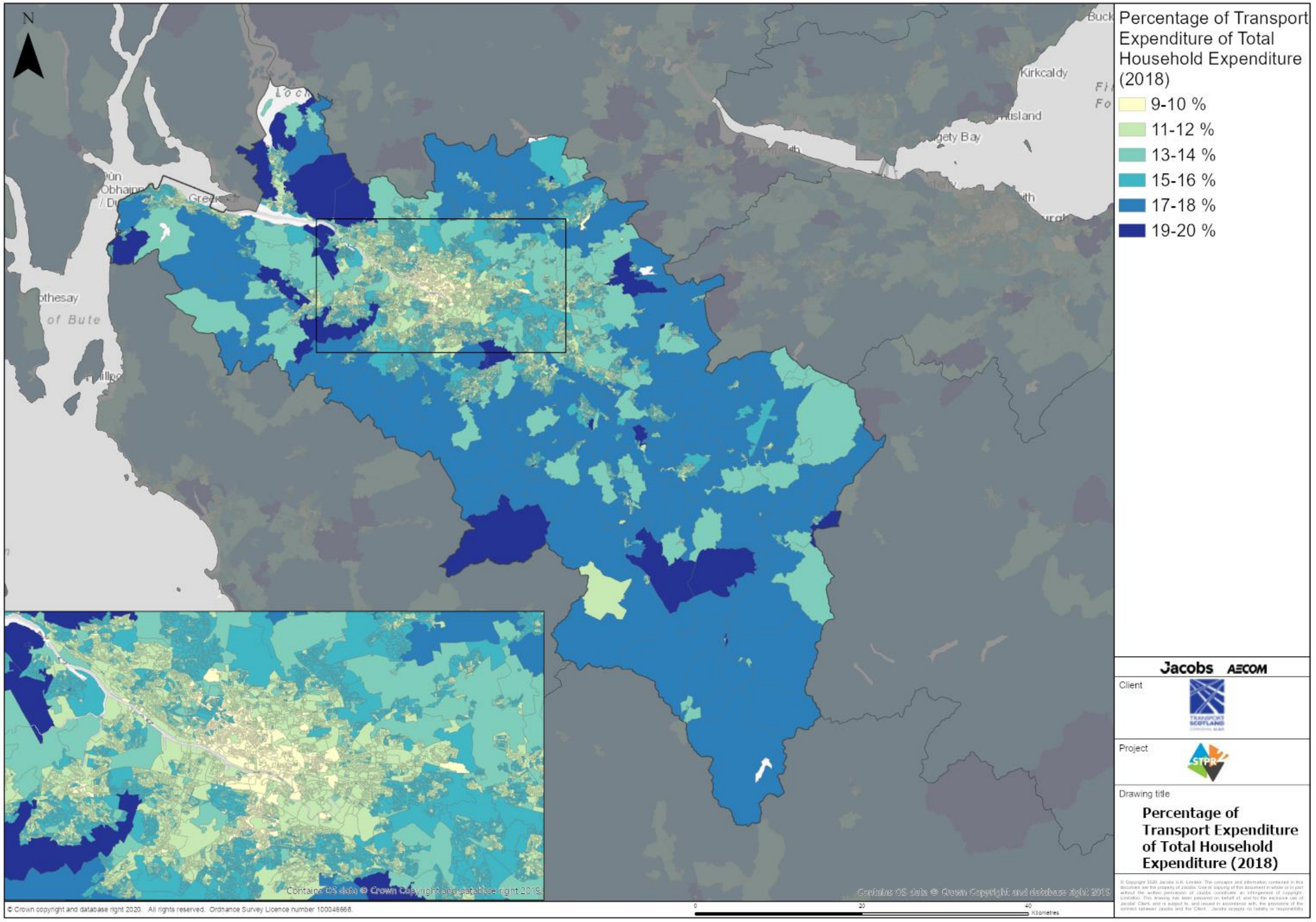


Figure A. 7: Percentage of Transport Expenditure of Total Household Expenditure (2018) (Click on image to go back to main report)

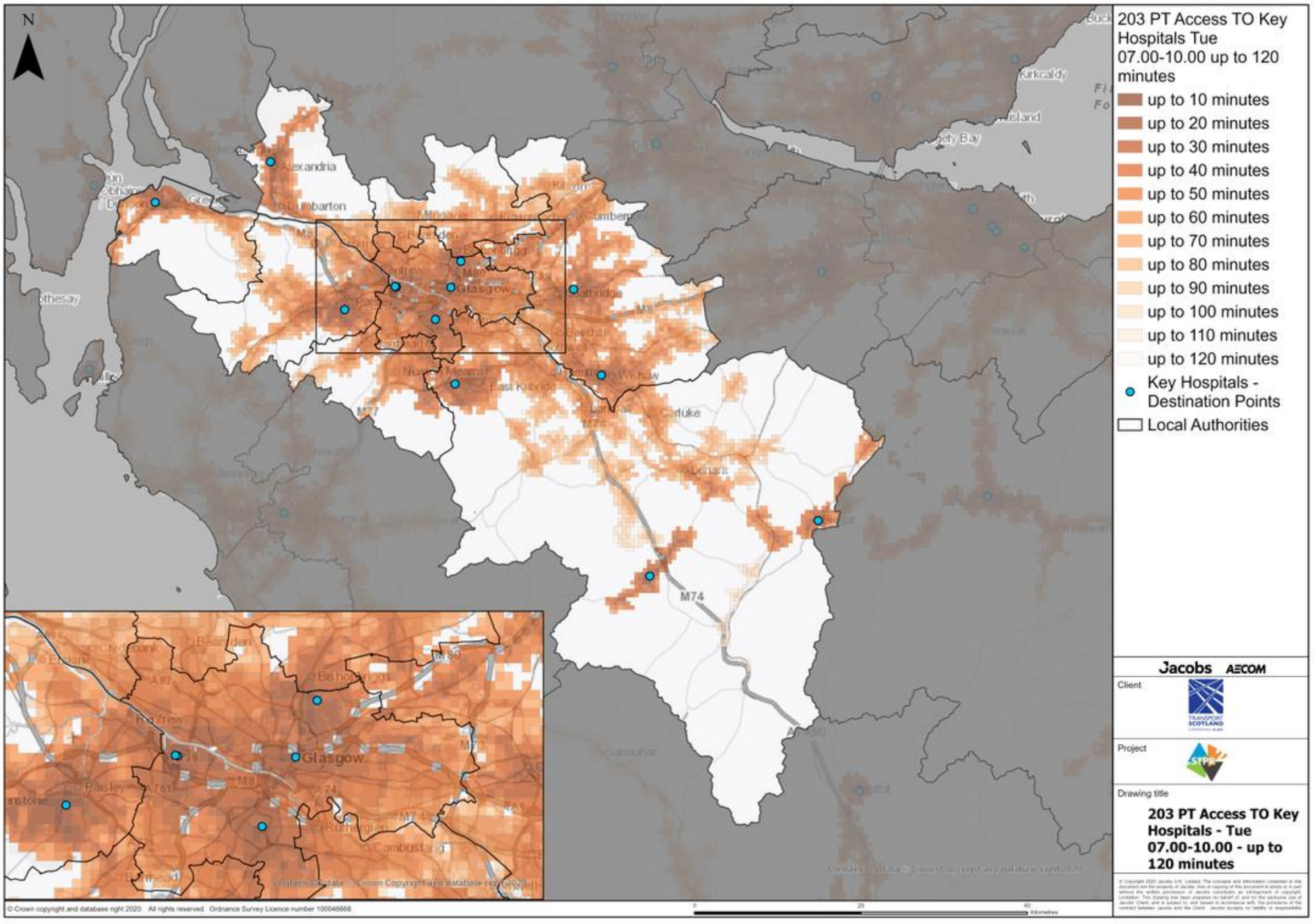


Figure A. 8: Public Transport To Key Hospitals in the Glasgow City Region, (on a typical Tue 07:00-10:00) (Click on image to go back to main report)

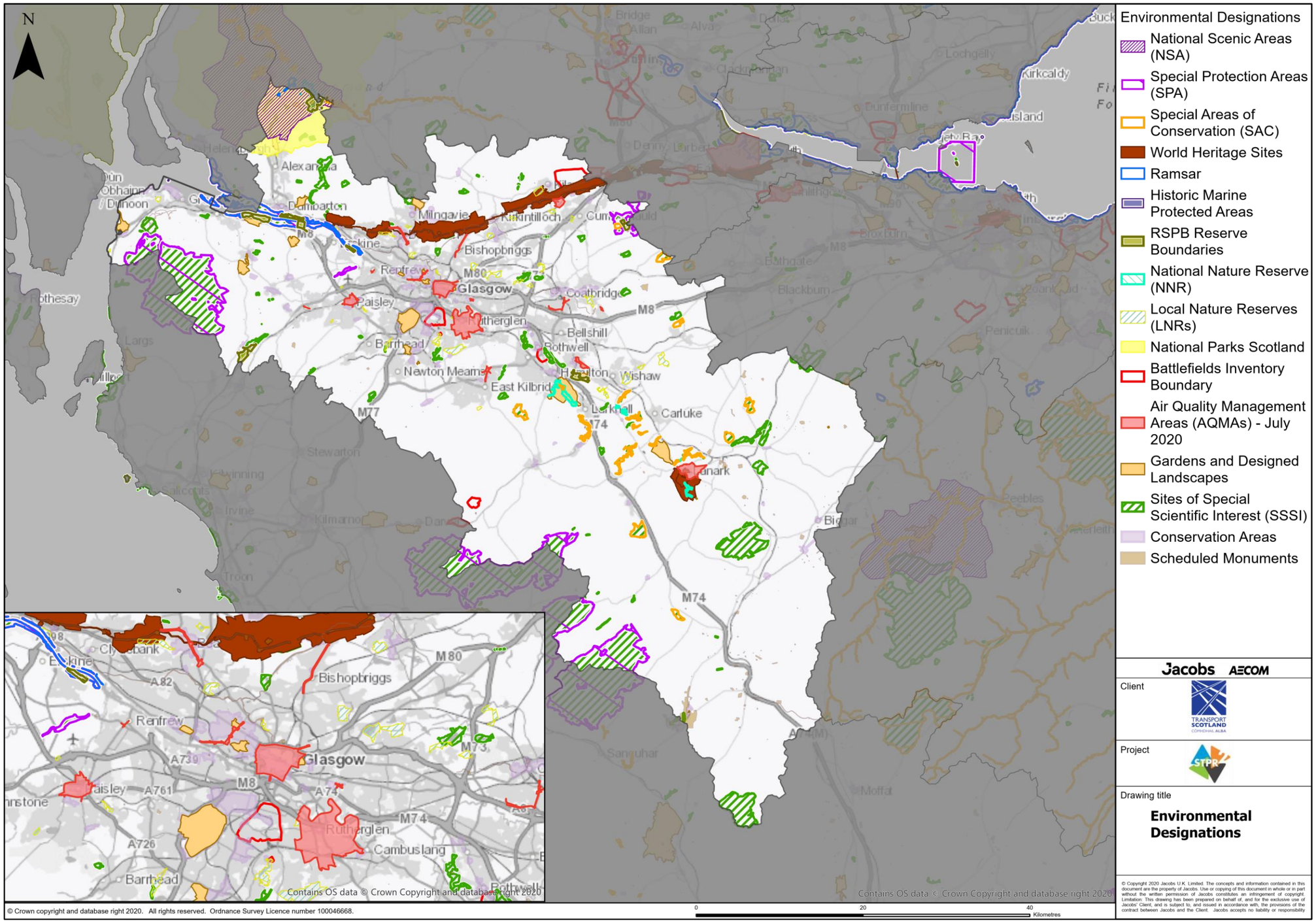


Figure A. 9: Environmental Designations for Glasgow City Region (Click on image to go back to main report)

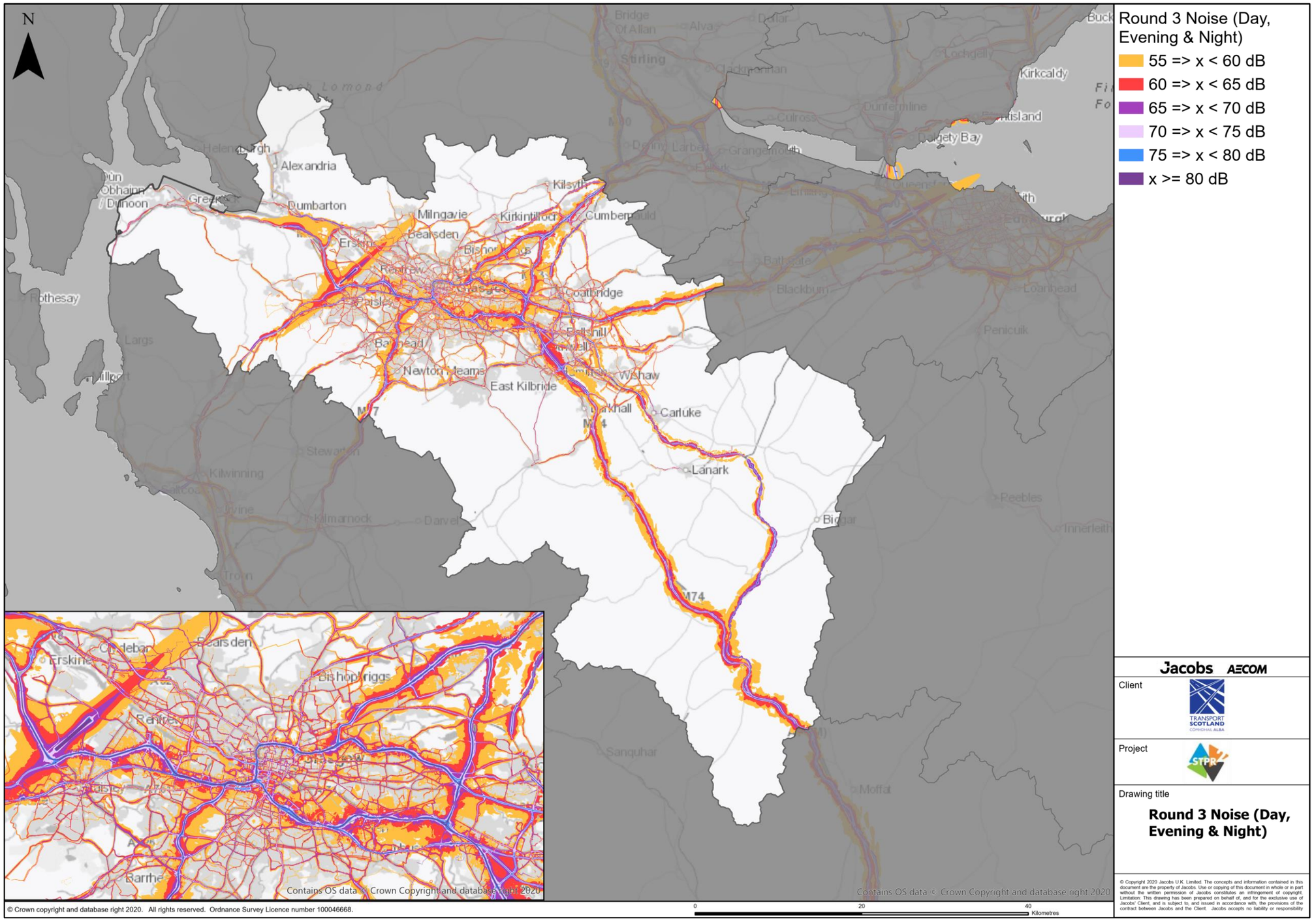


Figure A. 10: Noise Mapping for Glasgow City Region (Click on image to go back to main report)

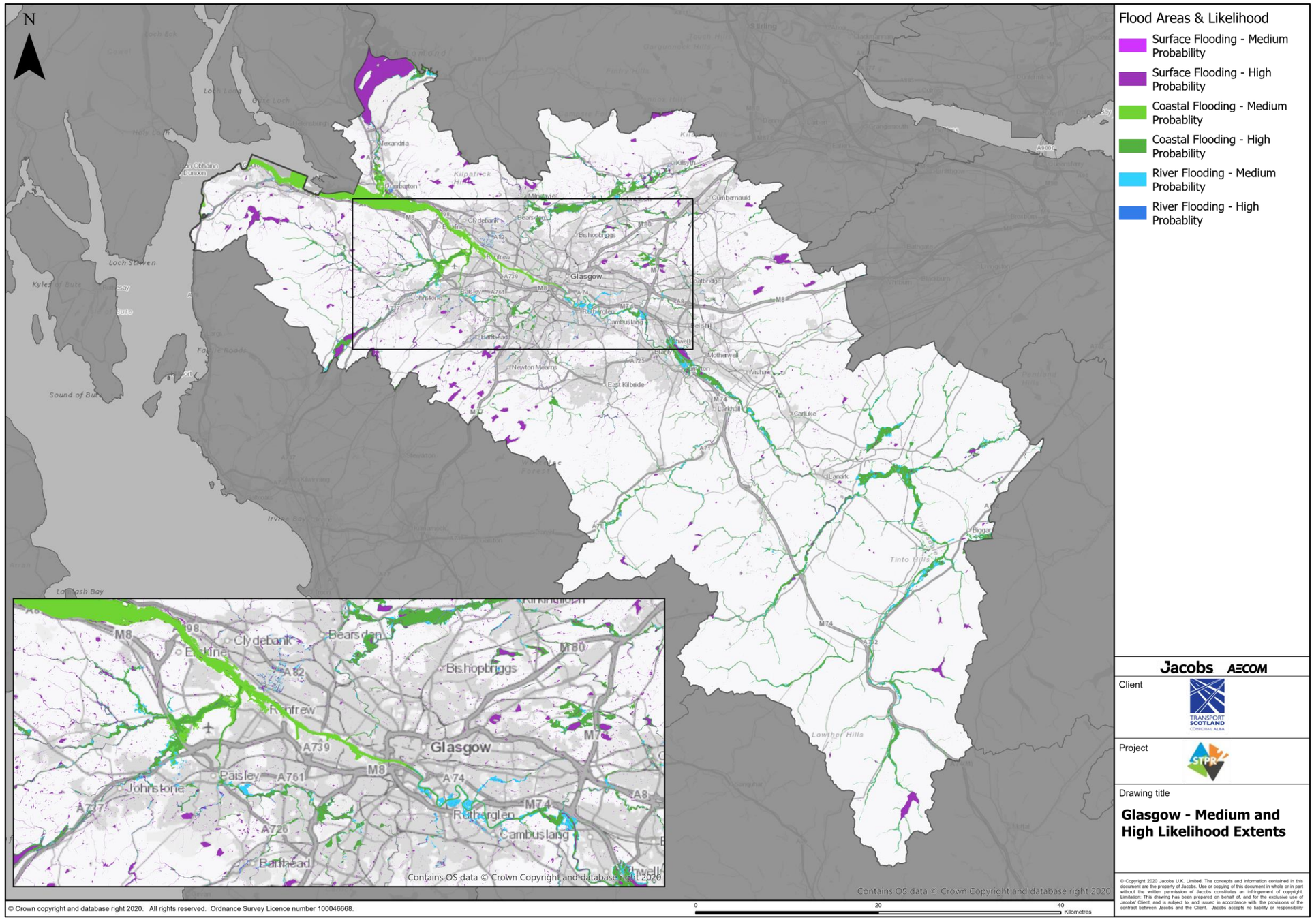


Figure A. 11: Flood Mapping for Glasgow City Region (Click on image to go back to main report)

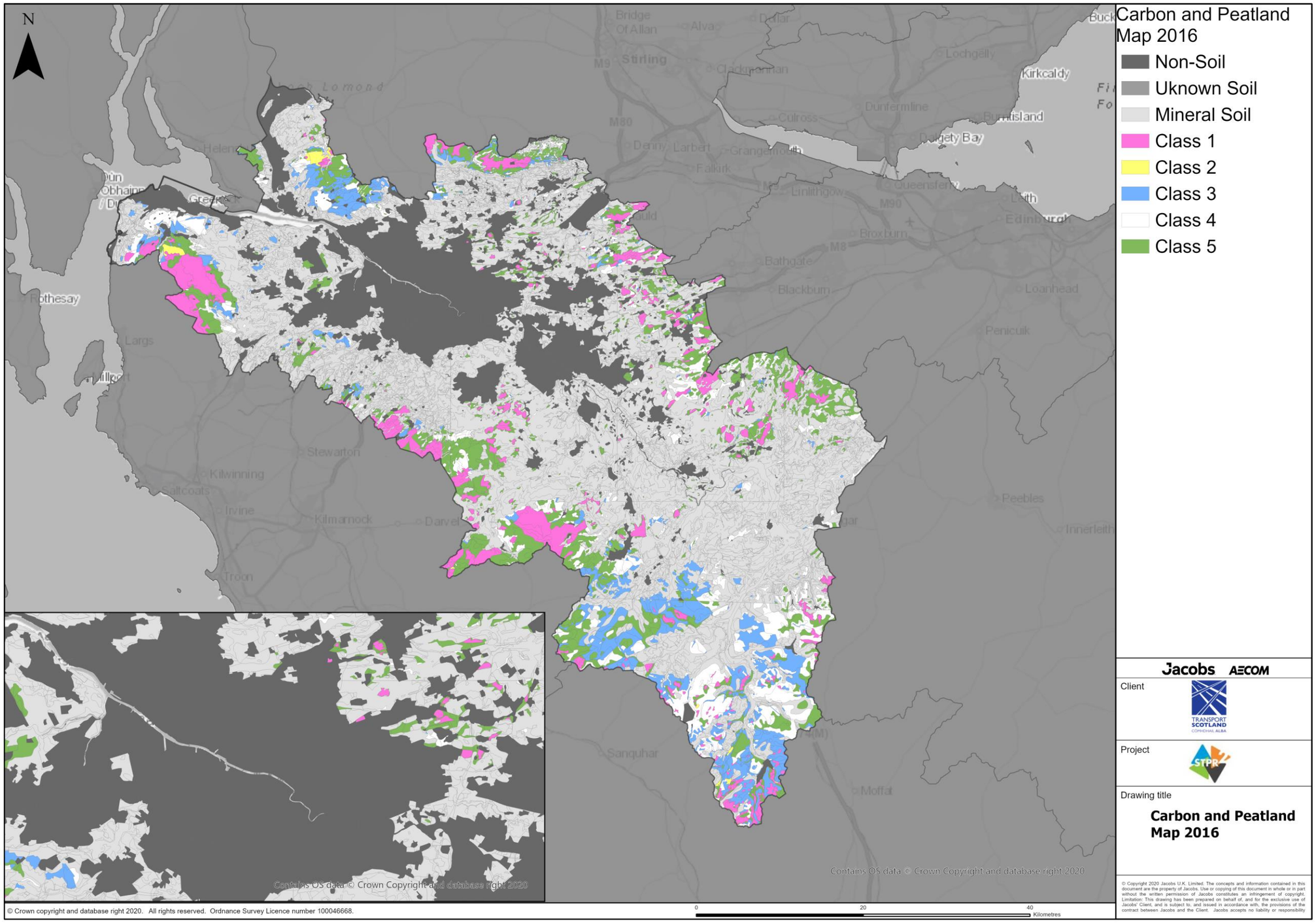


Figure A. 12: Carbon and Peatland Map for Glasgow City Region (Click on image to go back to main report)

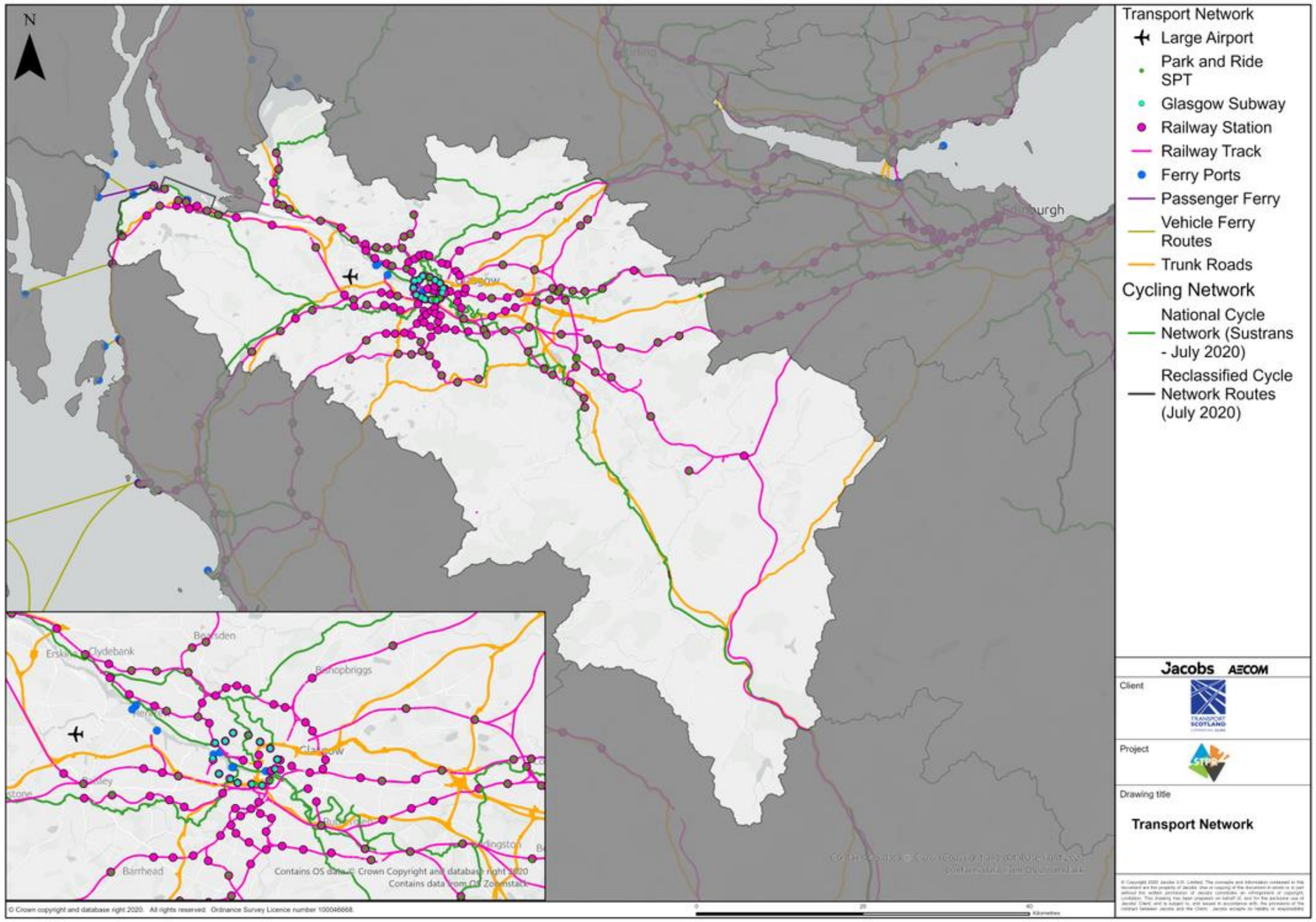


Figure A. 13: Glasgow City Region Transport Network (Click on image to go back to main report)

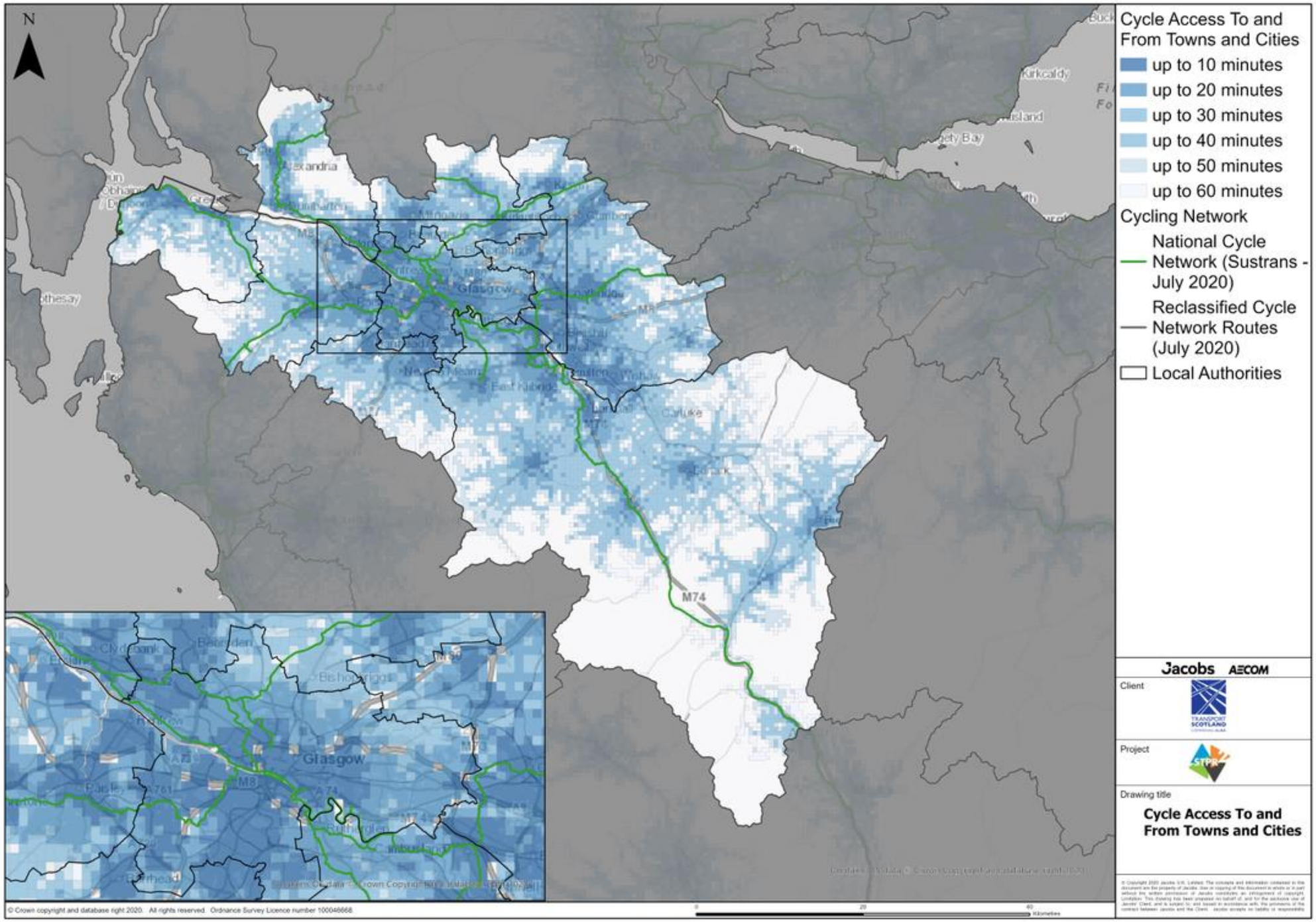


Figure A. 14: National Cycle Route access in the Glasgow City Region (Click on image to go back to main report)

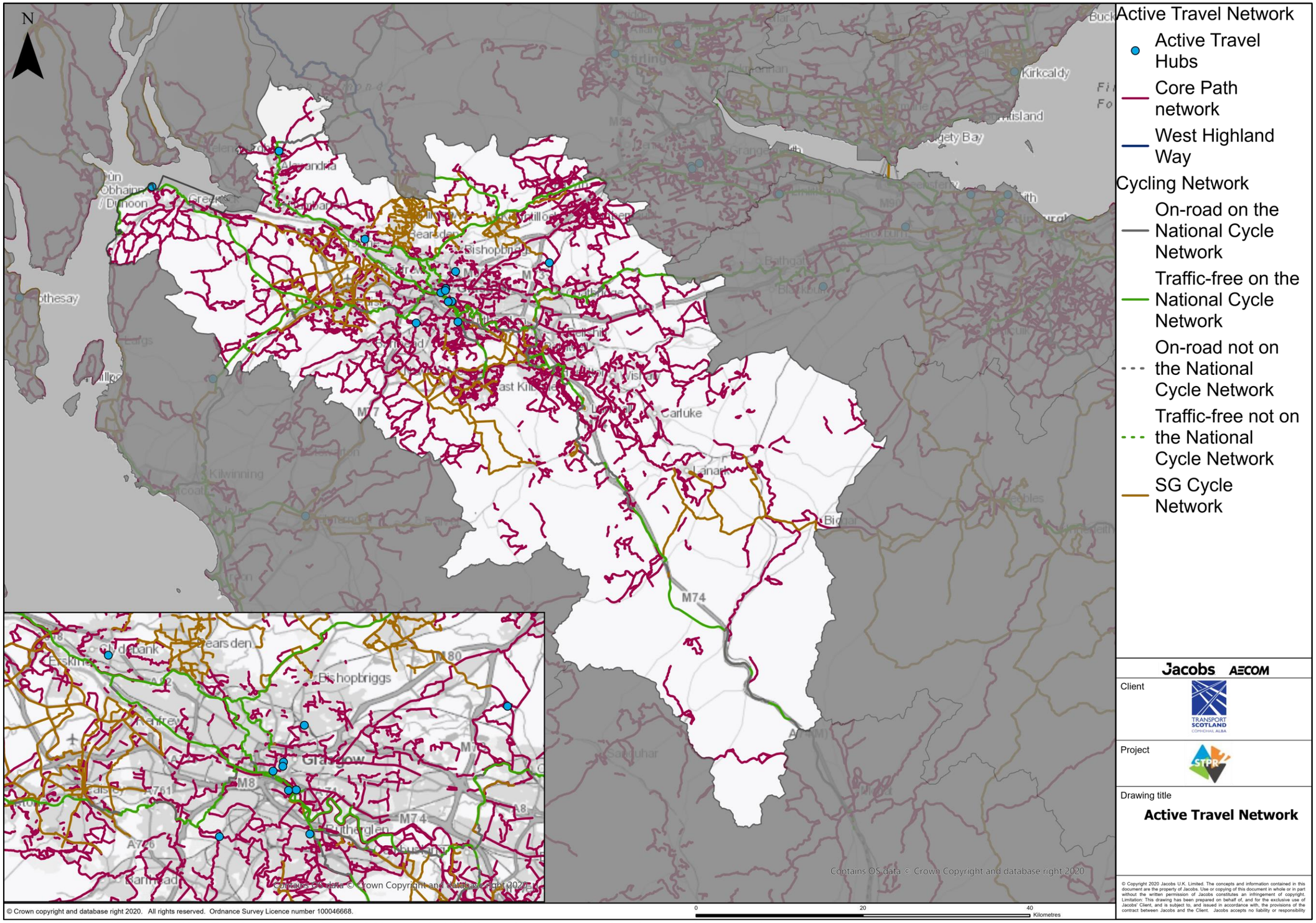


Figure A. 15: Glasgow City Region Active Travel Network (Click on image to go back to main report)

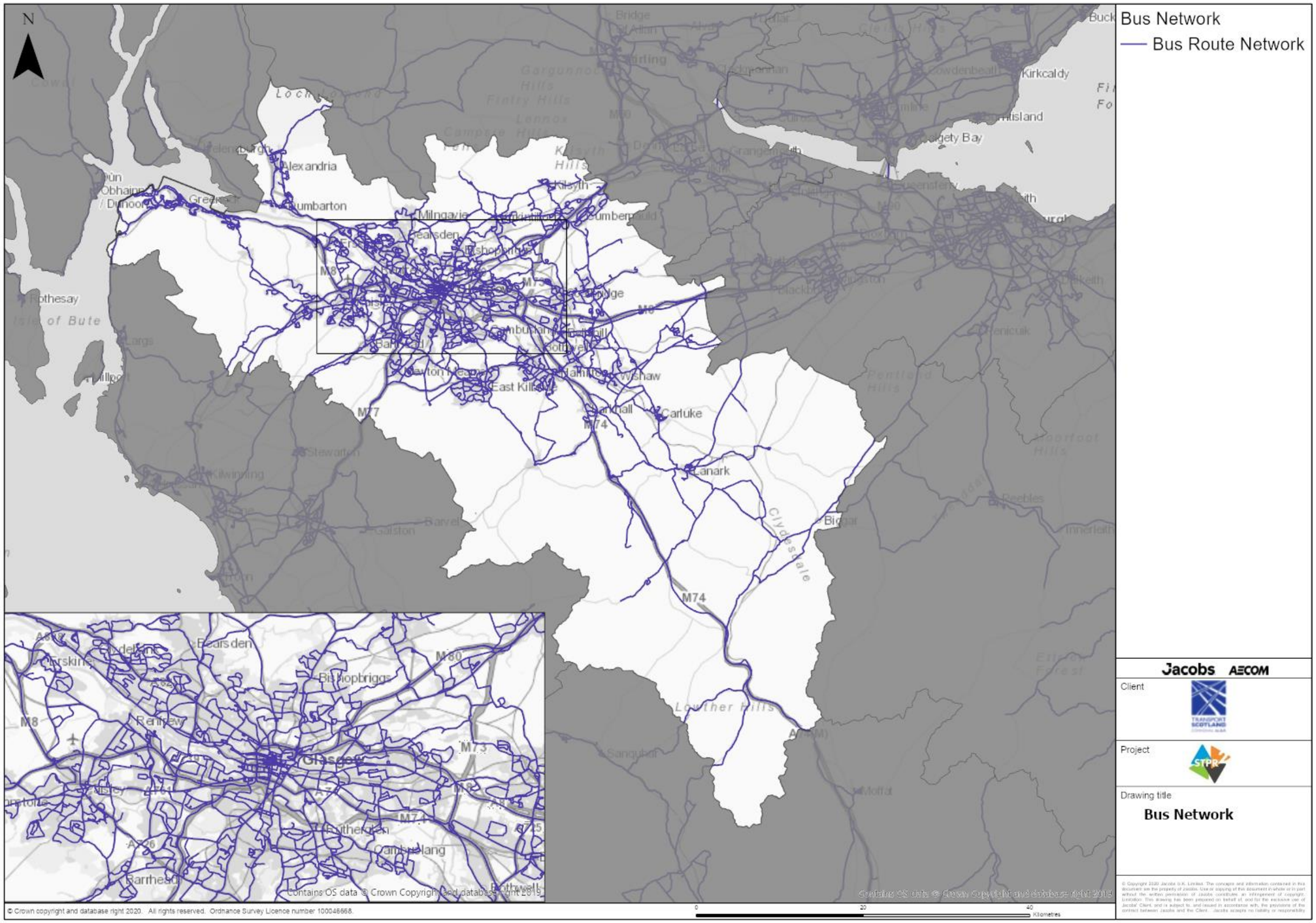


Figure A. 16: Glasgow City Region Bus Network (Click on image to go back to main report)

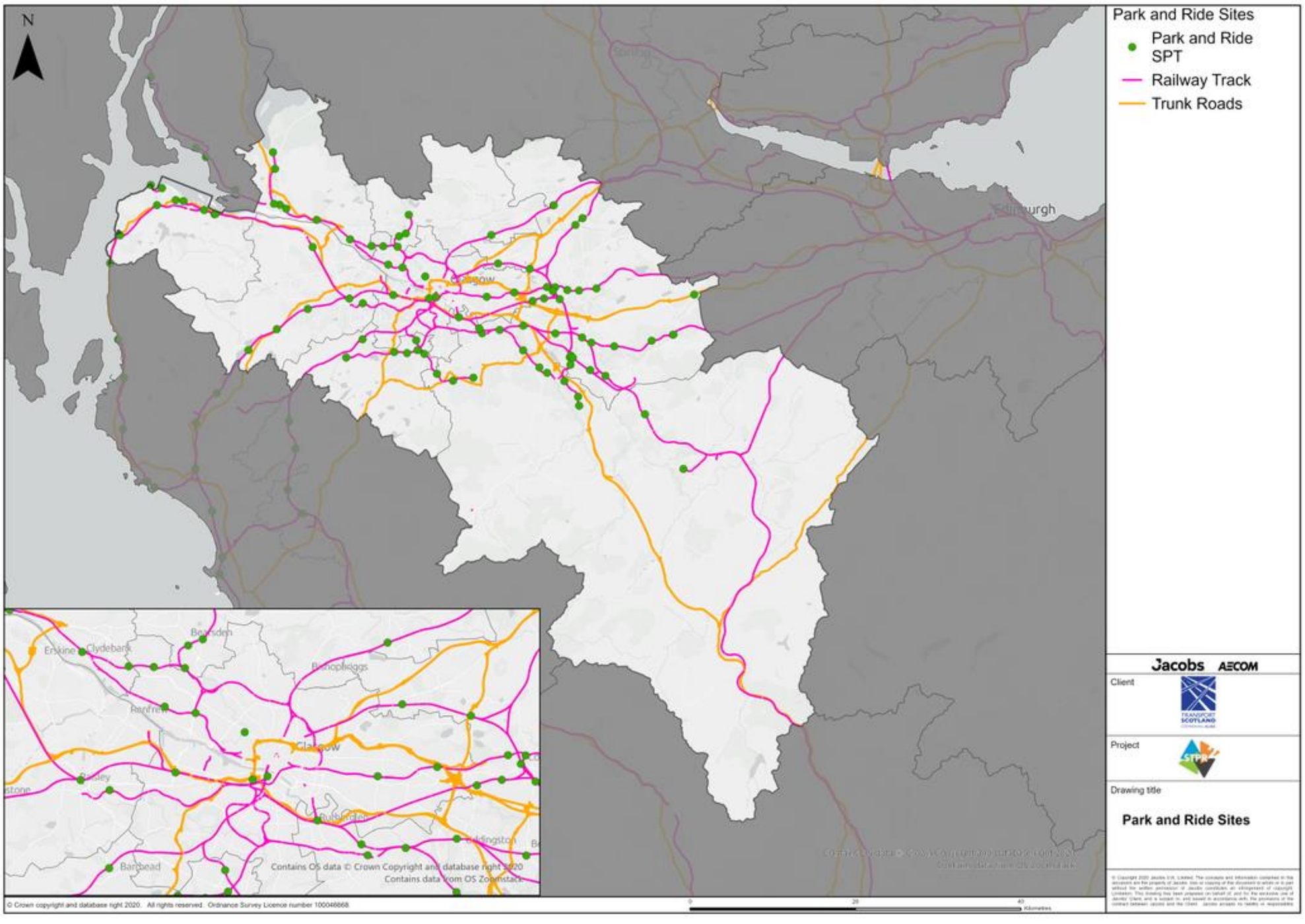


Figure A. 17: Park and Ride sites within the Glasgow City Region (Click on image to go back to main report)

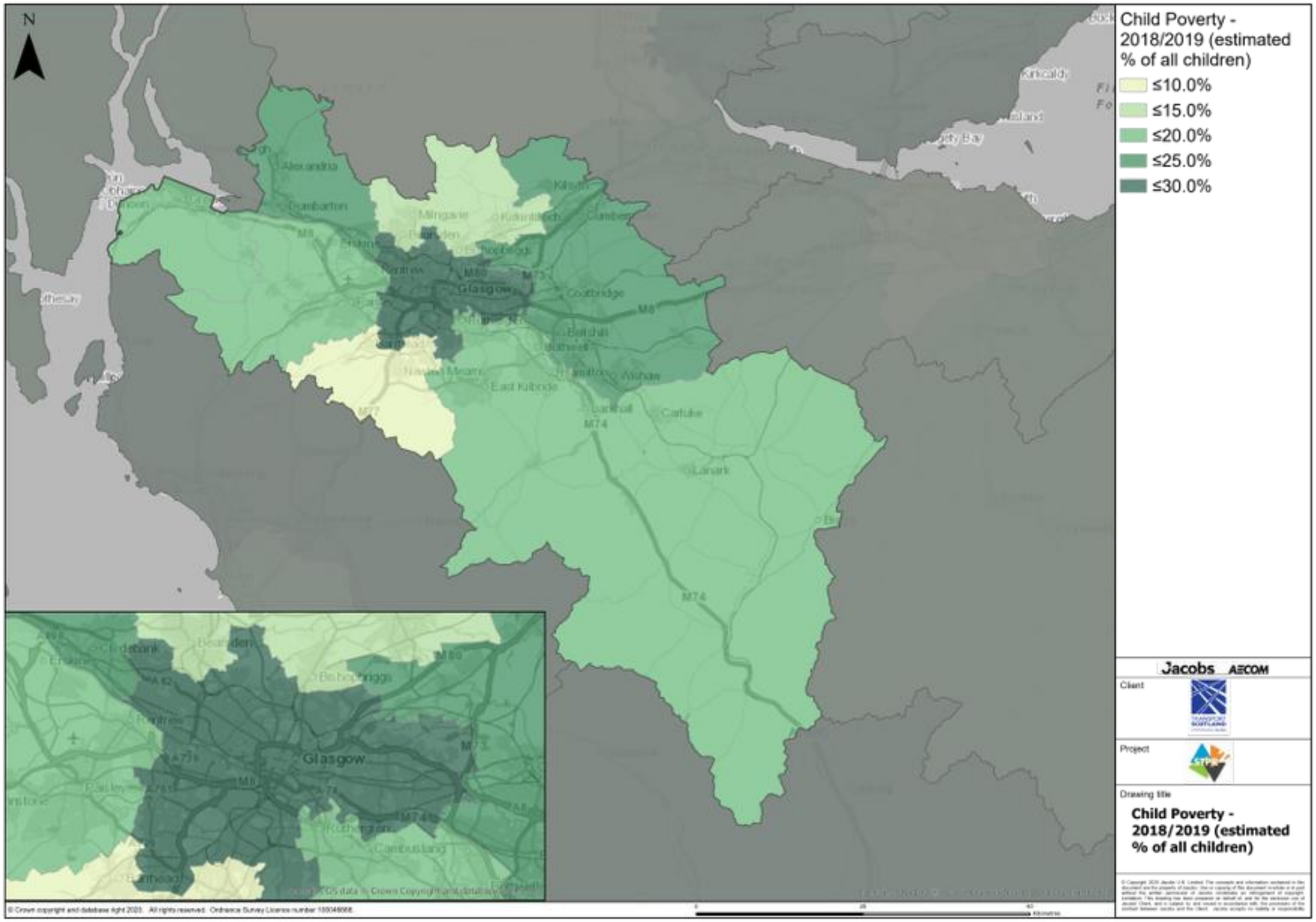


Figure A. 18: Estimated % of children living in poverty 2018-19 (Click on image to go back to main report)

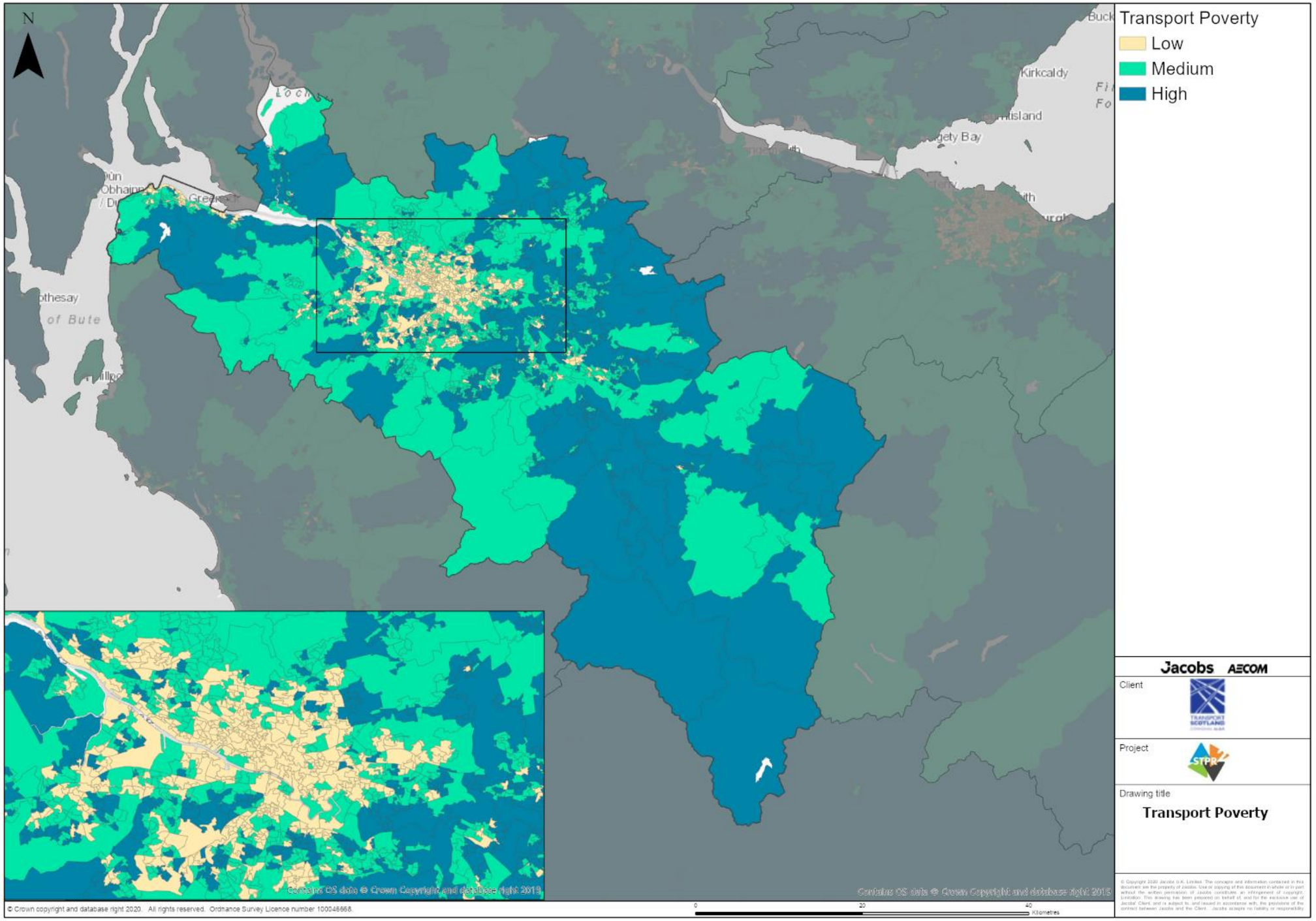


Figure A. 19: Transport Poverty in the Glasgow City Region (Click on image to go back to main report)

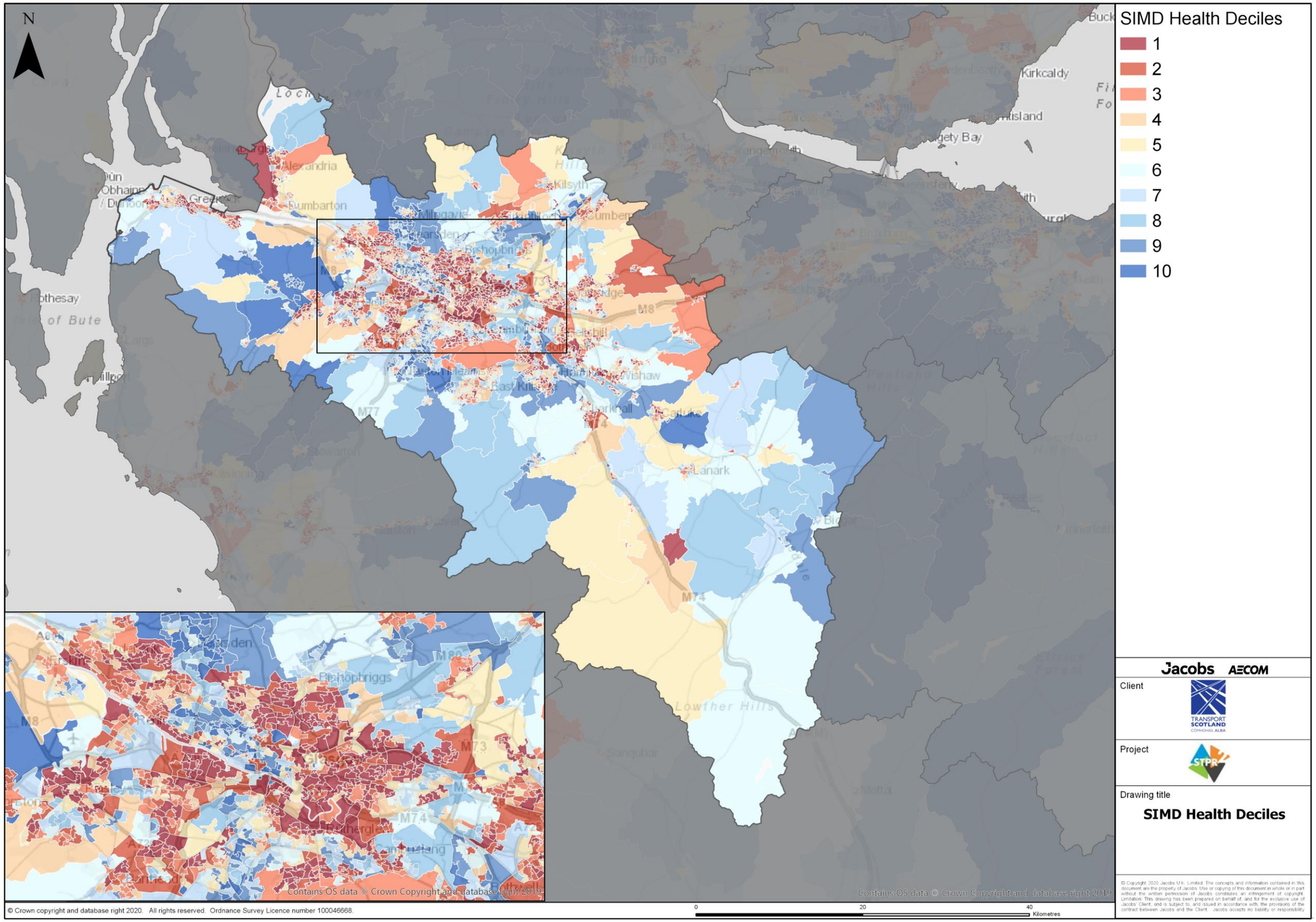


Figure A. 20: SIMD Health Indicators (2020) (Click on image to go back to main report)

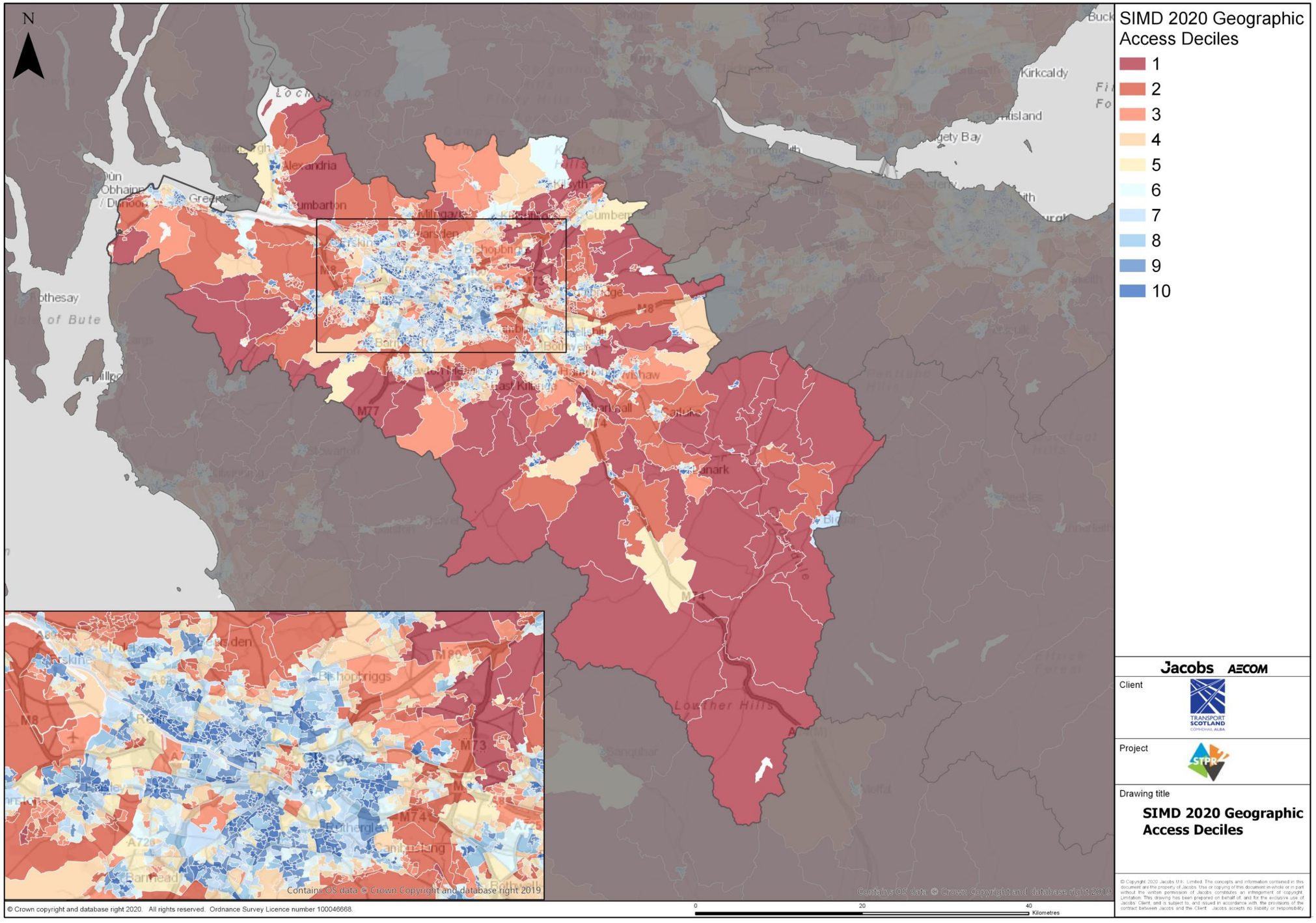


Figure A. 21: SIMD 2020 Geographic Access (Click on image to go back to main report)

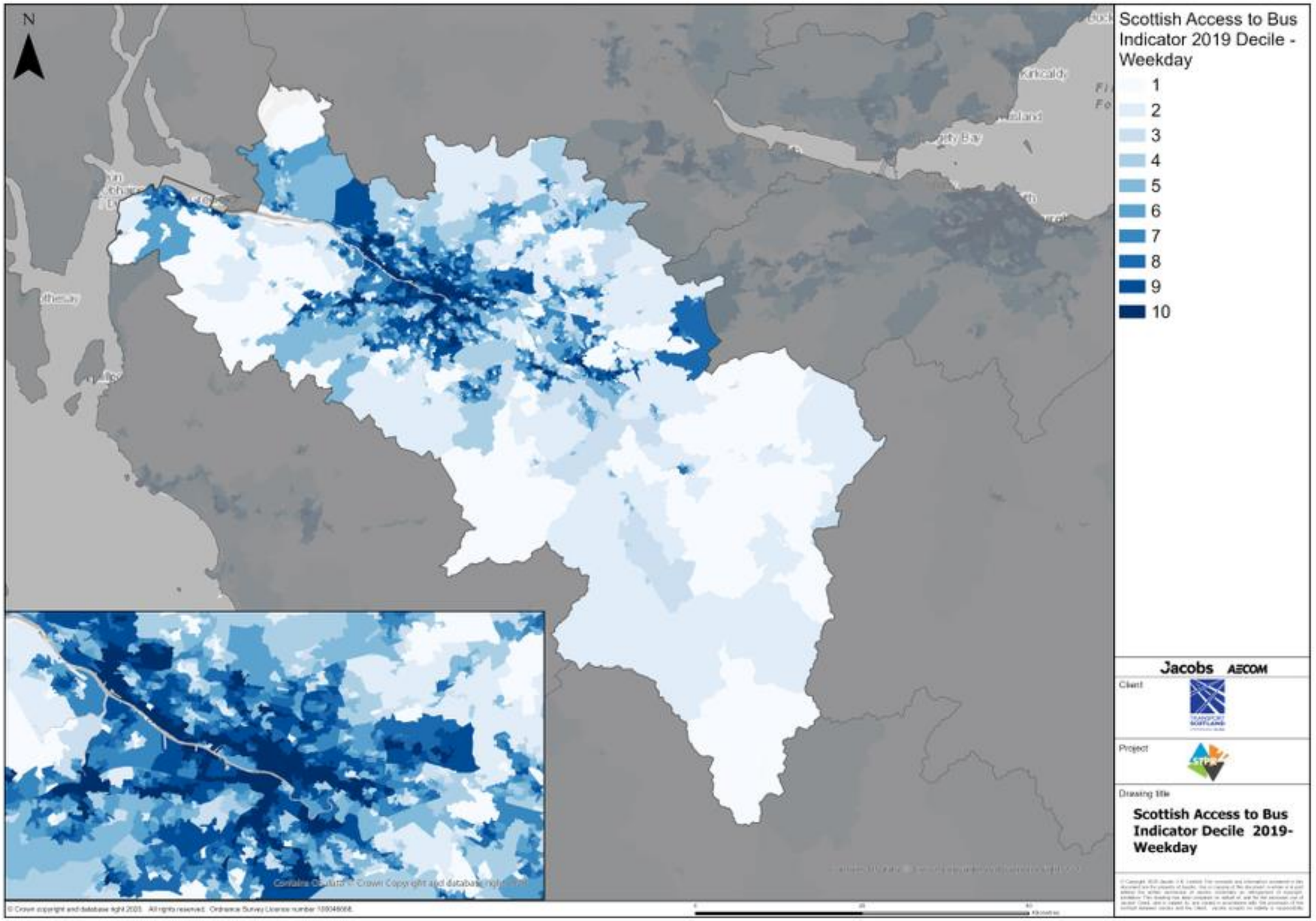


Figure A. 22: Scottish Access to Bus Indicator (Click on image to go back to main report)

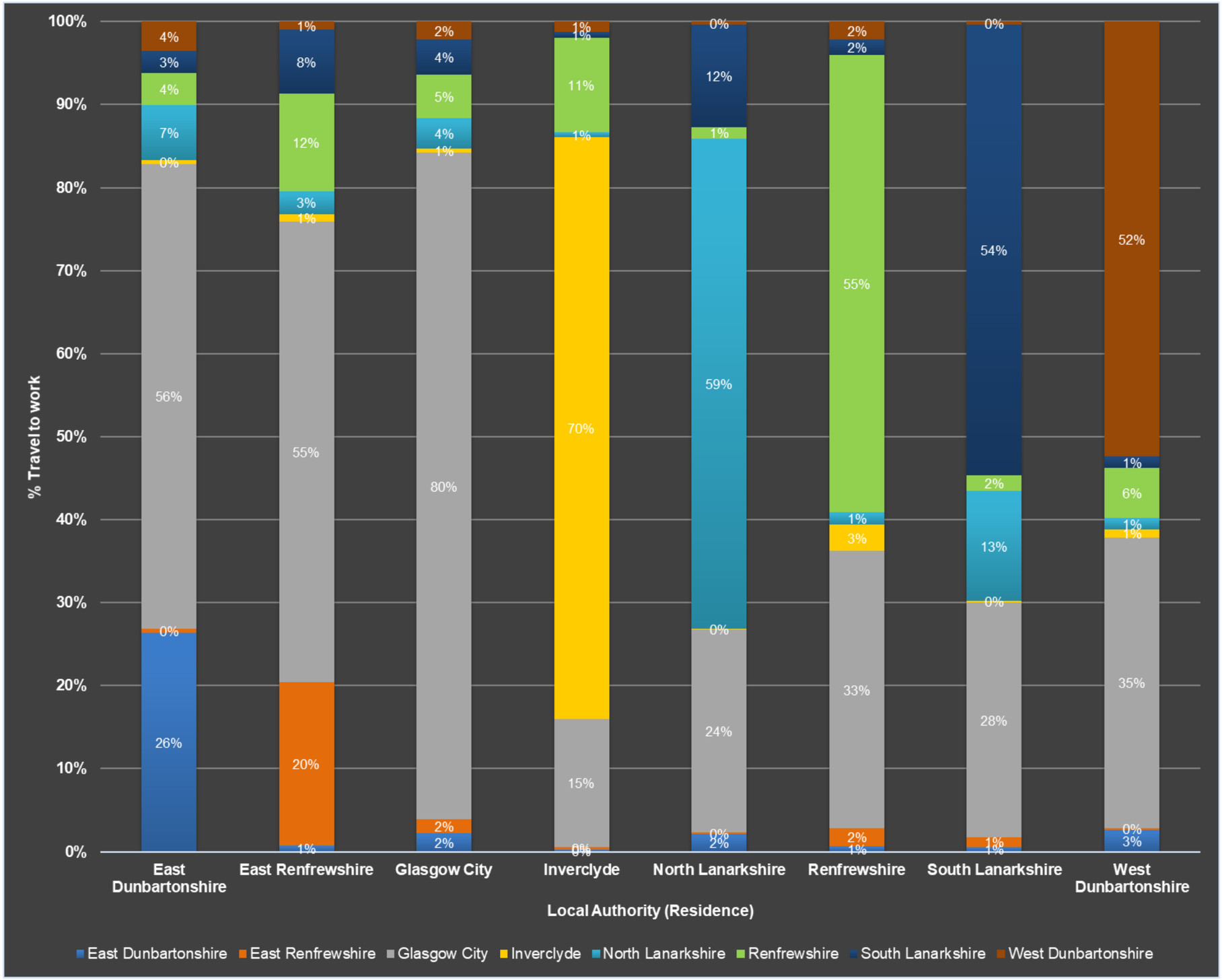


Figure A. 23: Sub-regional Travel to Work Journeys (Click on image to go back to main report)

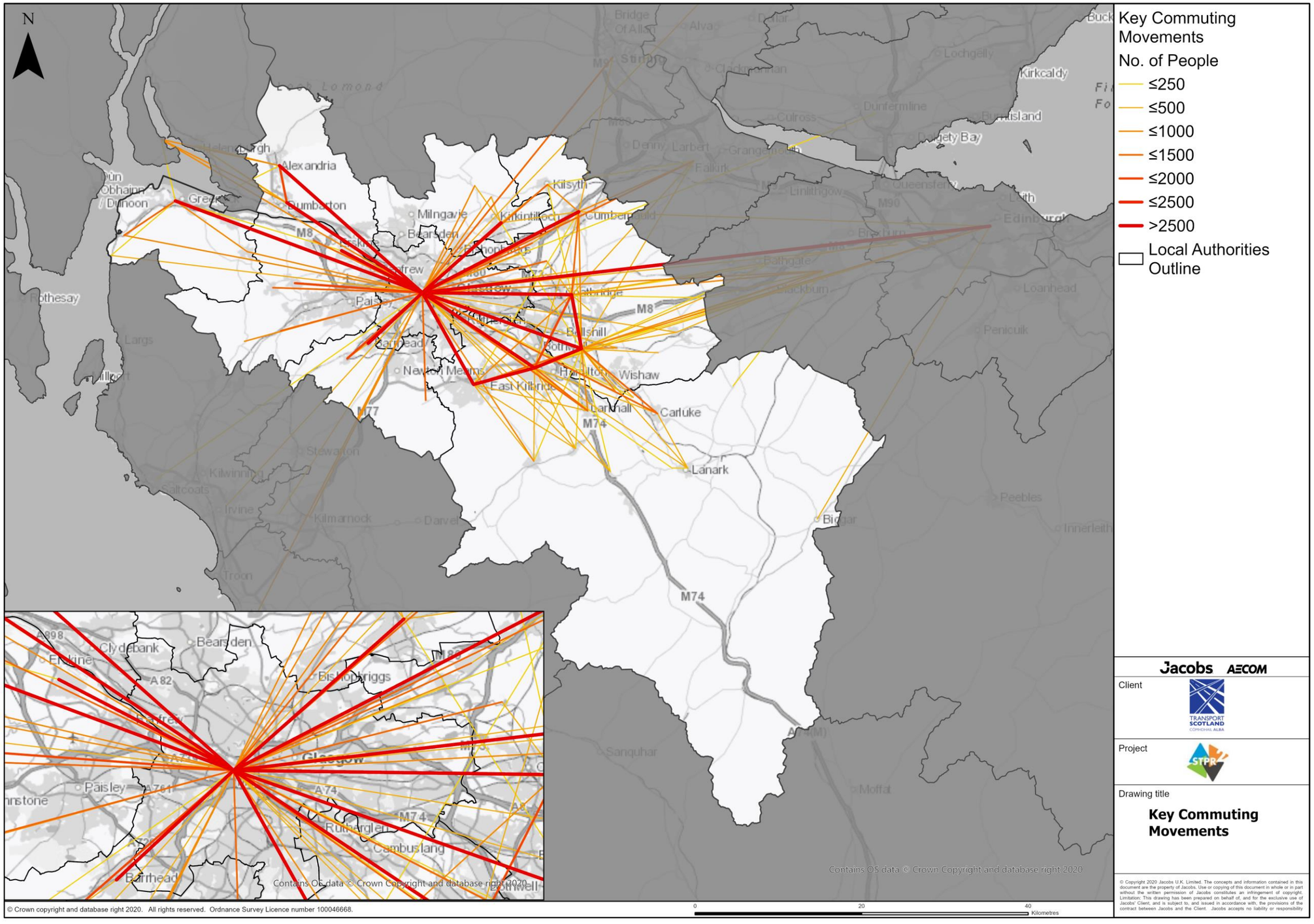


Figure A. 24: Glasgow City Region Key Commuting Movements (Click on image to go back to main report)

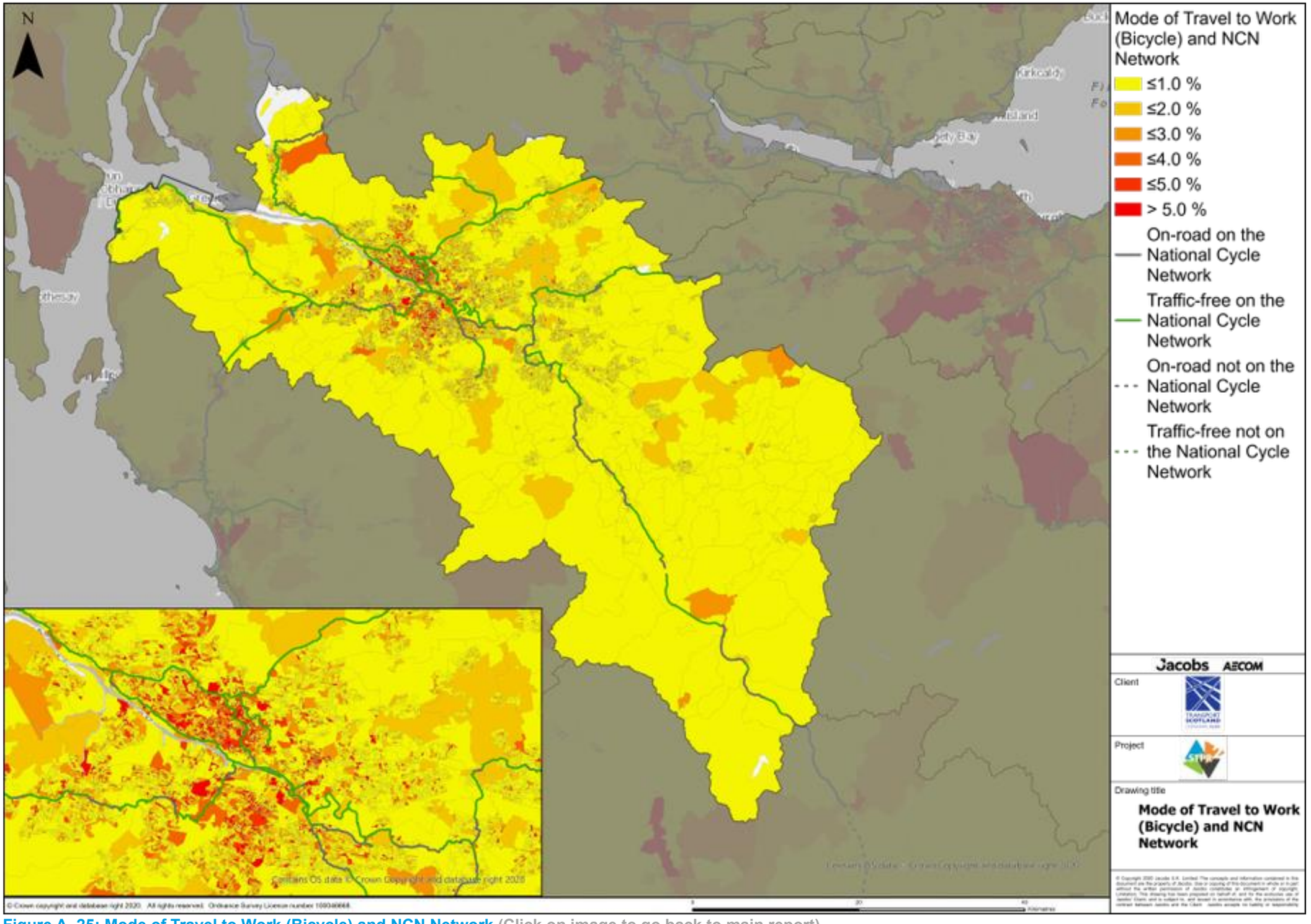


Figure A. 25: Mode of Travel to Work (Bicycle) and NCN Network (Click on image to go back to main report)

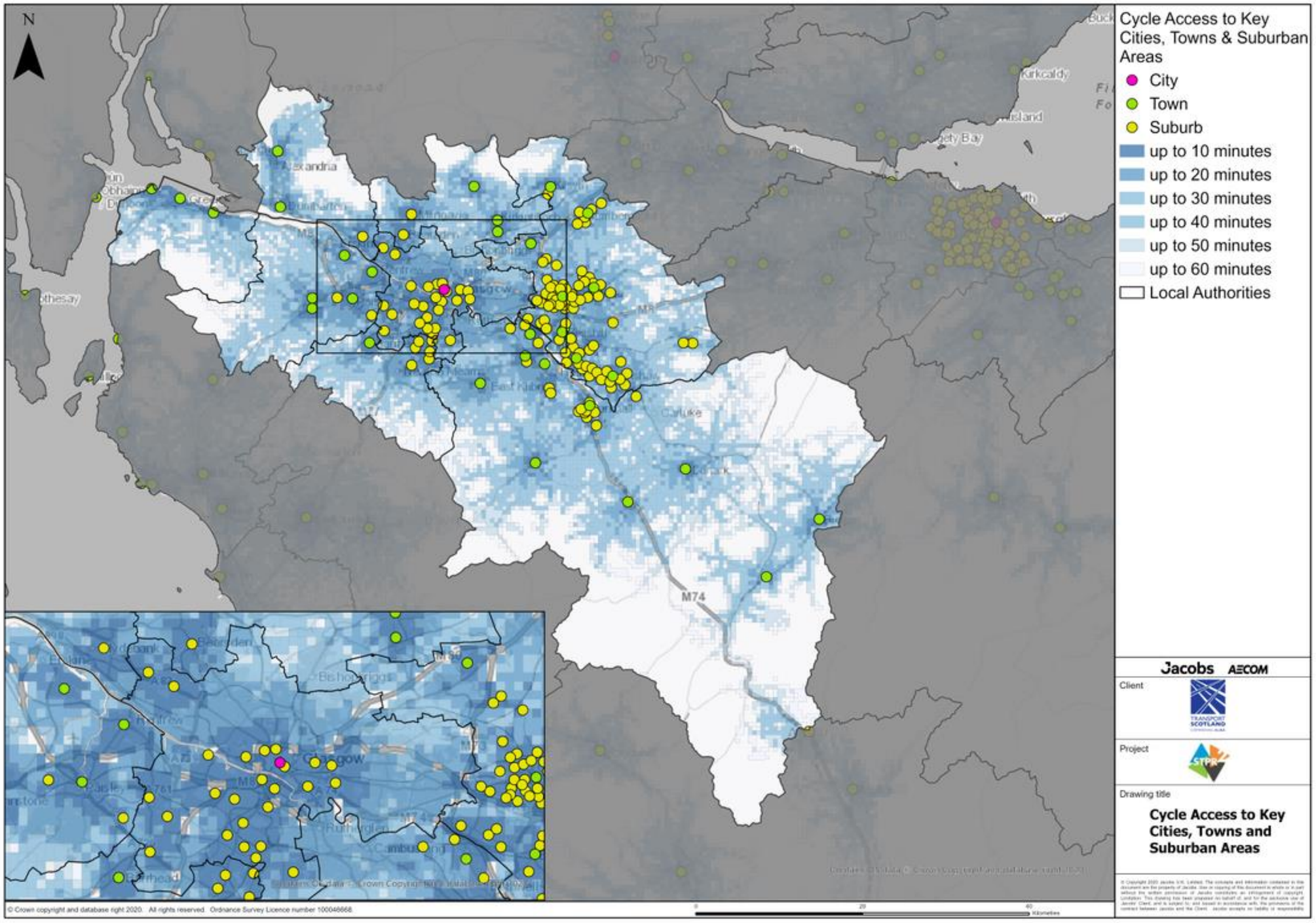


Figure A. 26: Cycle access around key settlements (Click on image to go back to main report)

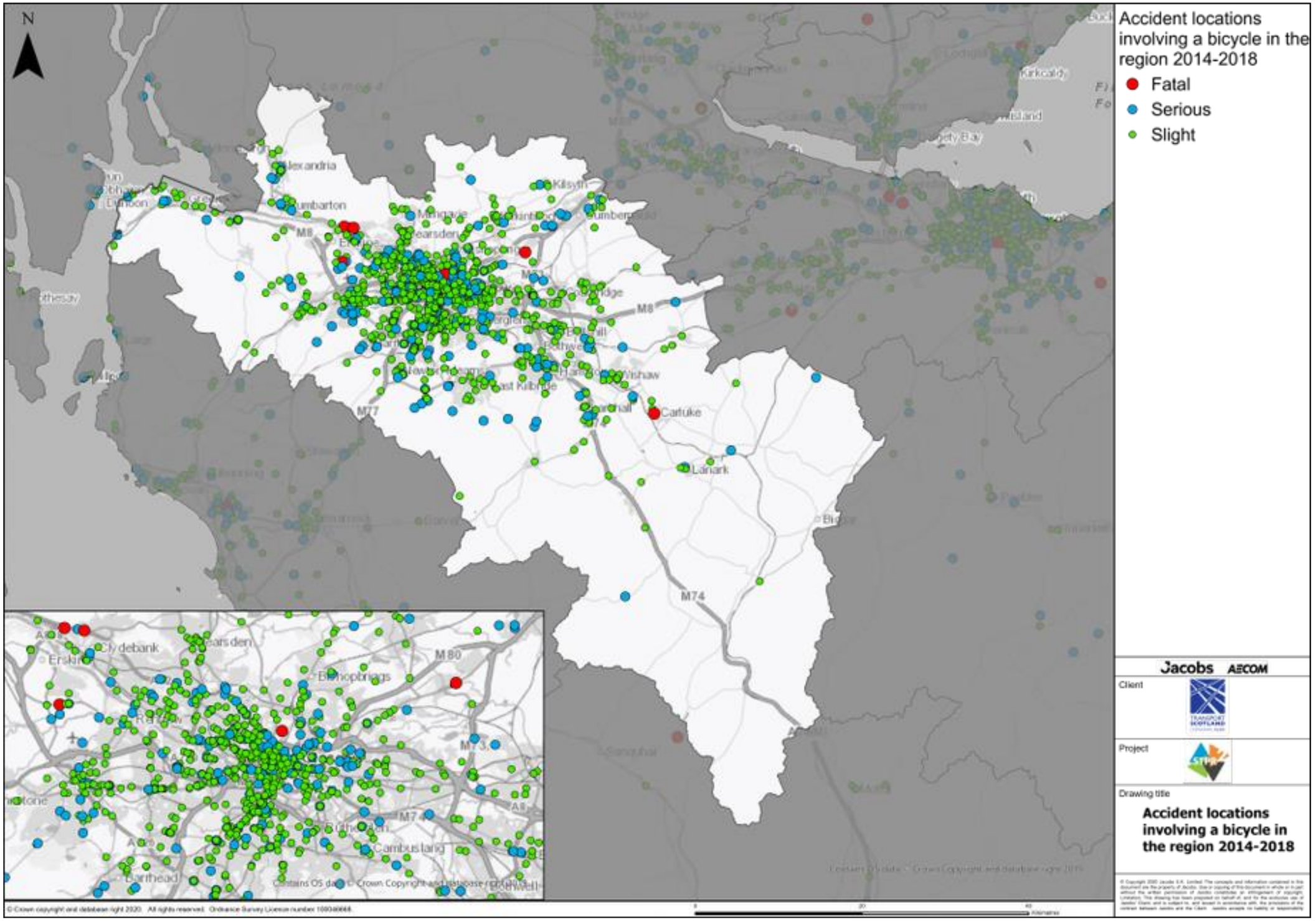


Figure A. 27: Accident locations involving a bicycle in the region 2014-18 (Click on image to go back to main report)

Figure A. 28: Network Capacity Constraints 2017 AM (TMfS) (Click on image to go back to main report)

Figure A. 29: Network Capacity Constraints 2017 PM (TMfS) (Click on image to go back to main report)

Appendix B: List of Policy Documents

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

Theme	Title	Author	Year
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
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

Theme	Title	Author	Year
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

Theme	Title	Author	Year
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
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

Theme	Title	Author	Year
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
Transport	Glasgow Road Asset Management Plan	Glasgow City Council	2012

Theme	Title	Author	Year
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

Theme	Title	Author	Year
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

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 8 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