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Case for Change Report (Final)– Glasgow’s Transport Strategy 2021-31

**First stage of Glasgow’s Transport Strategy development – the
evidence for the case for change in Glasgow’s transport systems**

**Final version as updated with evidence from the Public
Conversation on Glasgow’s Transport Future**

June 2021

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1 Introduction

Glasgow City Council is developing a new transport strategy for the City in 2020/21. This Plan will update the existing Local Transport Strategy (2007-09) and provide an overarching framework for transport decision-making and investment in the city. It will cover 10 years, and offer commentary on longer term trends and issues to be monitored in a rapidly changing environment.

Alongside the overarching transport strategy, three further transport plans are being developed in 2020/21 which tackle specific areas and topics in Glasgow:

- A Liveable Neighbourhoods Plan.
- A City Centre Transformation Plan.
- An Active Travel Plan, updating the existing Strategic Plan for Cycling.

1.1 About this report

Making the Case for Change

This report forms one of the first formal outputs of the development of the Glasgow Transport Strategy. An Equality Impact Assessment (EqIA) Screening Assessment, Strategic Environmental Assessment (SEA) Screening Assessment and Scoping Report have informed the Case for Change report.

The purpose of this Case for Change report is to:

- Present an evidence-led approach to the development of the Strategy. Evidence of problems and opportunities are presented from a wide range of sources.
- Propose outcomes for the Glasgow Transport Strategy and a set of sub-objectives, which will guide the development and assessment of solutions in the next stages.
- Start to build a picture of what we know about the future, and what we don't know – and what the key drivers of change may be with implications for travel demand, which is at the heart of the Glasgow Transport Strategy.
- Generate a long list of possible solutions for further sifting, assessment and discussion in the next stages of the work.

The Case for Change report has largely focused on the city of Glasgow as opposed to the wider city-region. SPT's Regional Transport Strategy has the role of looking at transport issues and policy across the wider region, alongside Clydeplan's strategic planning function in the region. The Glasgow City Region City Deal also has a region-wide focus. That said, Glasgow is truly at the heart of a city-region in terms of travel flows, and working with partners across the region continues to be important for the city to achieve goals and to tackle transport issues.

A Draft report to stimulate discussion and support public engagement

A Draft Case for Change report was produced in 2020 to support the public engagement exercise on transport problems, opportunities, outcomes and solutions in September/October 2020 – "A Public Conversation on Glasgow's Transport Future". A Public Conversation document (available at www.glasgow.gov.uk/connectingcommunities) acted as a high level summary of the issues in that Draft Case for Change report. It acted as a technical background report to support the information presented during the Public Conversation on problems and issues in particular.

This final Case for Change report

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This Final Case for Change report has been updated with findings from the Public Conversation and some further analysis of issues in 2021, in particular:

- Problems and opportunities as informed by public and stakeholder engagement, and some further data analysis.
- Objectives which support the four overarching outcomes as informed by public and stakeholder engagement, and an initial set of indicators to help quantify these objectives.
- A long list of options as informed by public and stakeholder engagement and desktop review work.

The draft policy focus statements contained in this report were tested through the Public Conversation and will continue to evolve during the development of the Glasgow Transport Strategy.

A **Summary Case for Change report** is available at www.glasgo.gov.uk/transportstrategy as an easier to read version of this full technical report.

1.2 Key insights

This report is punctuated with a series of “key insights” sections. The aim of these sections is to pause and consider insights and implications for future policy from the material and evidence presented. These sections aim to succinctly identify the key issues from each section that need to inform the development of the Glasgow Transport Strategy.

1.3 Approach being taken

The development of the Glasgow Transport Strategy is broadly following a Scottish Transport Appraisal Guidance (STAG) approach¹. STAG offers a systematic approach to developing strategies or project solutions, through multi-criteria analysis and an evidence-led approach. The key elements of a STAG-based approach being utilised include:

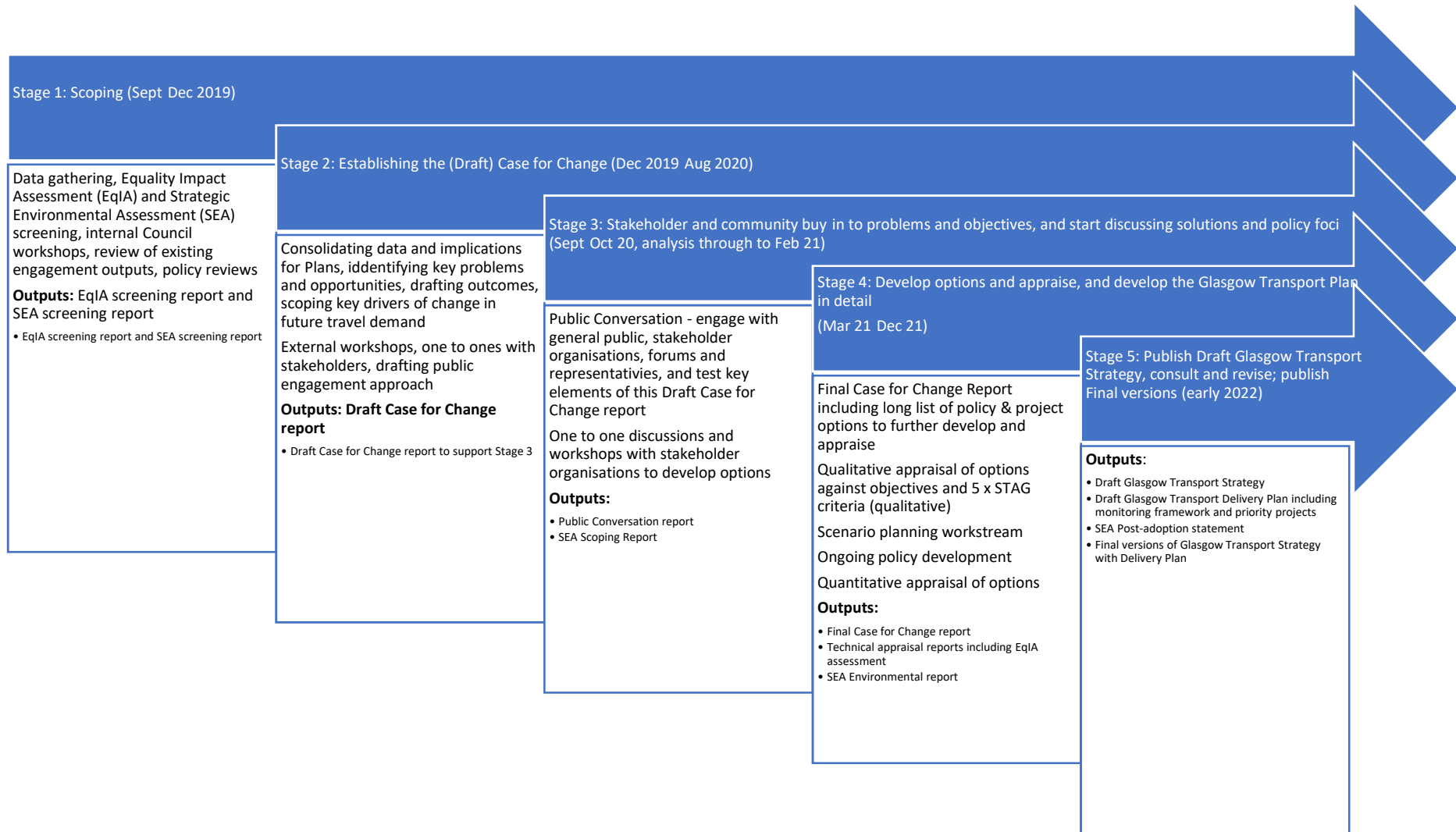
- Gathering evidence of problems to be tackled through research, analysis of data, engagement with stakeholders and the public;
 - Gaining consensus on the problems to be tackled in a new transport plan, and the opportunities that can be built upon.
- Developing outcomes for the transport strategy, and a set of transport planning objectives, responding directly to the problems we have identified;
- Identifying alternative solutions to tackling the problems and meeting objectives; and
- Appraising those solutions against our objectives and common criteria to ensure we select the best ones.

In addition, this Case for Change report starts the process of recognising uncertainty around travel demand in the future. A light-touch scenario planning approach is being applied to the development of the transport strategy. This aims to manage uncertainty, identify key drivers of change, consider what we know and what we don't know; and crucially, proactively think about a desired future and what steps we need to take now to achieve that.

A summary diagram of the approach taken for the Glasgow Transport Strategy is shown below.

¹ <https://www.transport.gov.scot/our-approach/industry-guidance/scottish-transport-analysis-guide-scot-tag/#42948>

Figure 1 Approach to developing Glasgow's new transport strategy



2 Policy review and identification of key policy drivers

2.1 Policy review and linkages

Transport is mainly a means to an end and a demand derived from other activities; such as the need to get to work or education; to healthcare services; to purchase or transport goods; to visit friends and family. Occasionally it can be an activity in itself, such as leisure cycling, and the social value of public transport can be important for older people in particular. On the whole however, journeys with a purpose have the greatest impacts on society and the environment as these tend to occur in peaks in high volumes when they exert pressure on the capacity of transport infrastructure and services.

Transport can be an **enabler** – it helps activity to happen by providing access and connections —and it can be a **barrier**. Therefore transport policy cannot be developed in isolation – it must connect to many other policy areas in society. The Glasgow Transport Strategy will be firmly embedded in a connected hierarchy and suite of plans by Glasgow City Council. The Strategy will also help to deliver regional and national objectives and outcomes.

Figure 2 National, regional and local policy documents of relevance to transport

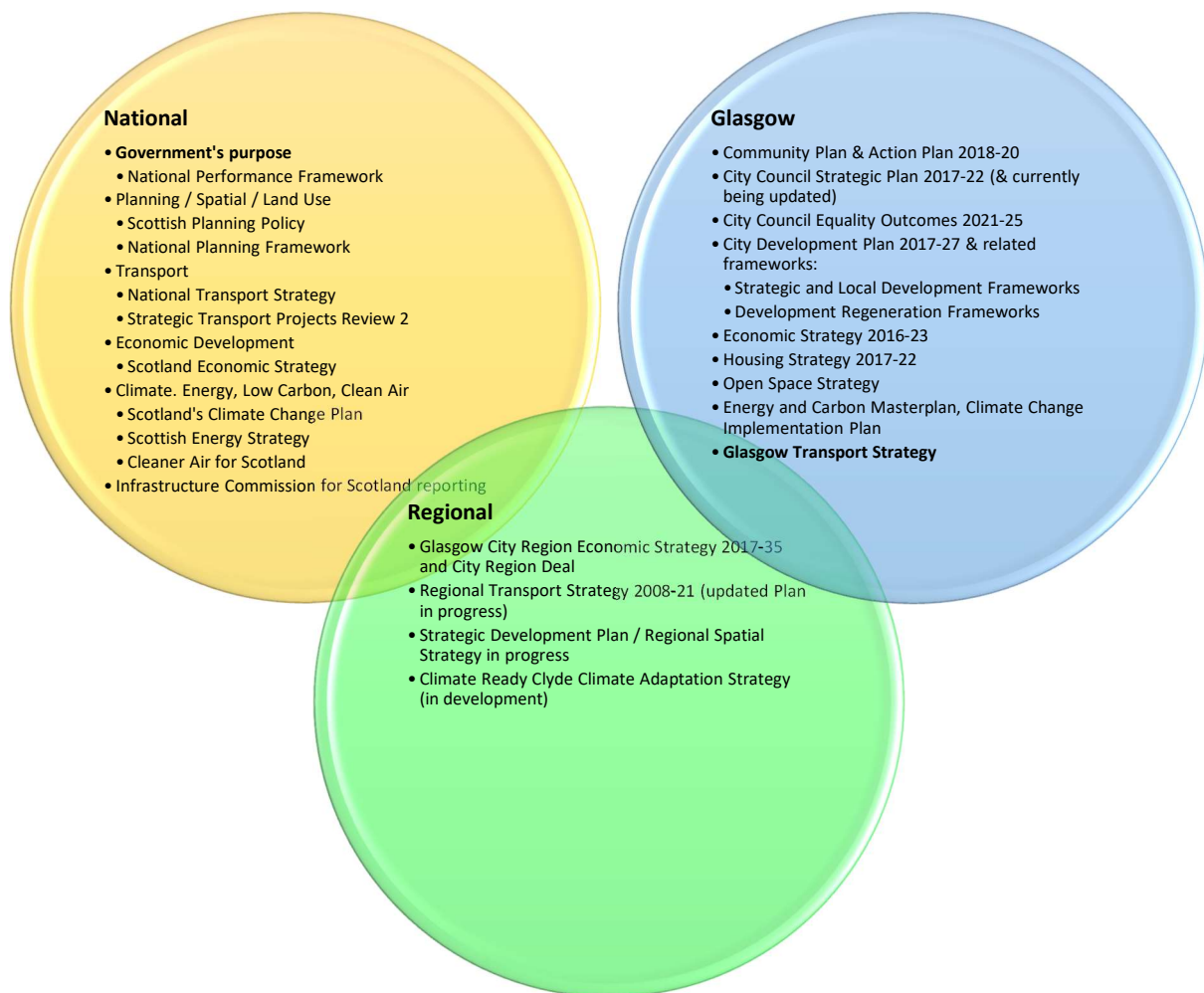


Figure 3 Glasgow Transport Strategy – role and linkages



2.2 National policy drivers

2.2.1 National Transport Strategy

The document of prime relevance to the Council’s new transport strategy is the updated **National Transport Strategy** by Transport Scotland (February 2020)². The Vision, Priorities and Outcomes set out in this document will be the basis upon which the Scottish Government takes decisions and evaluates the success of Scotland’s transport policies going forward.

Figure 4 Scotland’s National Transport Strategy vision and outcomes (Transport Scotland)



² <https://www.transport.gov.scot/media/47052/national-transport-strategy.pdf>

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There are a number of key elements in the National Transport Strategy that will influence transport policy in Scotland:

- The confirmation of a sustainable travel hierarchy, which is currently enshrined in land use planning policy and is now within transport policy.
- The sustainable investment hierarchy which aims to make best use of existing transport network capacity before investing in new capacity.

Furthermore, a new transport target has been set by the Scottish Government in the update to the Scotland's Climate Change Plan, to reduce car kilometres by 20% by 2030 (see Figure 5 below)³.

2.2.2 National Performance Framework

Scotland Performs: National Performance Framework, sets out the Government's Purpose and a suite of key outcomes for Scotland⁴. The **Purpose of the Scottish Government** is to focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.

There are **11 national outcomes**, each of which has their own vision and indicators, and are linked to the United Nations Sustainable Development Goals. The national outcomes are:

- Children and young people: we grow up loved, safe and respected so that we realise our full potential
- Communities - we live in communities that are inclusive, empowered, resilient and safe
- Culture – we are creative and our vibrant and diverse cultures are expressed and enjoyed widely
- Economy – we have a globally competitive, entrepreneurial, inclusive and sustainable economy
- Education – we are well educated, skilled and able to contribute to society
- Environment – we value, enjoy, protect and enhance our environment
- Fair work and business – we have thriving and innovative businesses, with quality jobs and fair work for everyone
- Health – we are healthy and active
- Human rights – we respect, protect and fulfil human rights and live free from discrimination
- International – we are open, connected and make a positive contribution internationally
- Poverty – we tackle poverty by sharing opportunities, wealth and power more equally

2.2.3 Non-transport national policy drivers of relevance and importance to transport
Other key national policy drivers of relevance to transport in Glasgow are shown below.

³ <https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/>

⁴ <https://nationalperformance.gov.scot/>

Figure 5 Non-transport national policy drivers of relevance and importance to transport

Scotland Economic Strategy (2015)

- Two mutually supportive **goals** of increasing competitiveness and tackling inequality

Scotland Energy Strategy: The future of energy in Scotland (2017)

- **2050 vision** for energy in Scotland: A flourishing, competitive local and national energy sector, delivering secure, affordable, clean energy for Scotland's households, communities and businesses.
- Guided by three core principles:
 - a whole-system view
 - an inclusive energy transition
 - a smarter local energy model

Scotland's Accessible Travel Framework (2016)

- **Vision:** All disabled people can travel with the same freedom, choice, dignity and opportunity as other citizens.
- **Outcome 1:** more disabled people make successful door-to-door journeys, more often
- **Outcome 2:** disabled people are more involved in the design, development and improvement of transport policies, services and infrastructure.
- **Outcome 3:** everyone involved in delivering transport information, services and infrastructure will help to enable disabled people to travel.
- **Outcome 4:** disabled people feel comfortable and safe using public transport – this includes being free from hate crime, bullying and harassment when travelling.

Infrastructure Commission for Scotland, Phase 1 Key Findings Report & Phase 2 Delivery Findings Report (2020)

- 8 recommendations on how infrastructure investment can contribute to national outcomes in Scotland
- Prioritise investment decisions on the basis of their contribution to inclusive net zero carbon economy outcomes
- Enshrining the Place Principle within planning practice

Equality Act Scotland, Fairer Duty Scotland, Child Rights and Wellbeing Impact Assessment, Human Rights

- The public sector equality duty requires public bodies to have due regard to the need to eliminate discrimination, advance equality of opportunity and foster good relations between different people when carrying out their activities.

Climate Change (Scotland) Act 2009, and Scottish Government Climate Change Plan Update (2020)

- Duty on public authorities to act on climate change - "A public body must, in exercising its functions, act.. in a way that it considers is most sustainable" - in addition to meeting targets and helping deliver Scottish Government programmes on climate change adaptation
- A new target to reduce car kilometres by 20% by 2032

Whilst not policy or legislative documents as such, there are a number of other areas the Scottish Government is working on that should influence transport policy in Glasgow. Amongst these are the collaborative Just Transition Commission⁵. This Commission was set up to provide Scottish Ministers with recommendations on how to:

- maximise the economic and social opportunities that the move to a net-zero economy by 2045 offers
- build on Scotland's existing strengths and assets
- understand and mitigate risks that could arise in relation to regional cohesion, equalities, poverty (including fuel poverty), and a sustainable and inclusive labour market

The Interim report published in February 2020 identifies some areas of action that could be acted upon by Government, and full recommendations were published in 2021. Of relevance to Glasgow's transport policies are the following interim themes discussed in the report:

⁵ <https://www.gov.scot/publications/transition-commission-interim-report/page1>

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- Clear transition plans are needed for each sector to outline how Scotland will capture economic and social opportunities on offer in a move towards a net-zero economy – forward planning is key to ensuring opportunities are not lost as has been the case in some areas already.
- Engagement with all sections of society is needed to gain buy-in to the scale of change required and to understand people’s expectations, and ensure everyone understands the role they have to play in in reaching net-zero through changing behaviour.

Equity must be placed at the heart of policy – policies must be designed in a way that “ensures the benefits of climate change action are shared widely, while the costs do not unfairly burden those least able to pay, or whose livelihoods are directly or indirectly at risk as the economy shifts and changes.” The report states these issues are particularly relevant to transport and housing, noting the potential for inequitable impacts of Low Emission Zones and investment in electric vehicles.

The Just Transition Commission’s final [report on recommendations](#) includes reference to free public transport pilots and 20 minute neighbourhoods.

2.2.4 National targets of relevance

There are a number of national targets of relevance to Glasgow’s new transport strategy, as set out in the figure below.

Figure 6 National targets of relevance



2.3 Regional policy drivers

2.3.1 Regional Transport Strategy

The **Regional Transport Strategy (RTS)** is currently being updated (at the time of writing in 2020/21), and Glasgow City Council are staying in close contact with SPT throughout this process to achieve consistency of goals⁶.

The existing RTS covers the period 2008-2021. Key elements include:

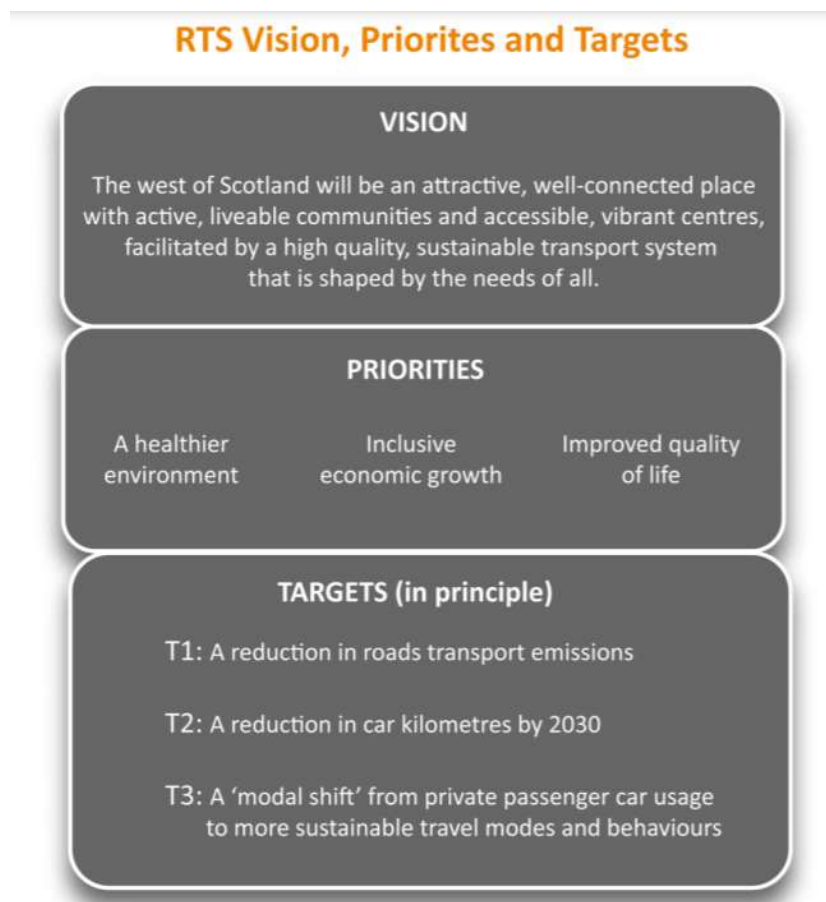
- **Vision:** A world-class sustainable transport system that acts as a catalyst for an improved quality of life for all
- **Objectives:**
 - Safety and Security: To improve safety and personal security on the transport system
 - Modal Shift: To increase the proportion of trips undertaken by walking, cycling and public transport.
 - Excellent Transport System: To enhance the attractiveness, reliability and integration of the transport network
 - Effectiveness and Efficiency: To ensure the provision of effective and efficient transport infrastructure and services to improve connectivity for people and freight.
 - Access for All: To promote and facilitate access that recognises the transport requirements of all.
 - Environment and Health: To improve health and protect the environment by minimising emissions and consumption of resources and energy by the transport system.
 - Economy, Transport and Land-use Planning: To support land-use planning strategies, regeneration and development by integrating transport provision.

The Draft Case for Change for the SPT Regional Transport Strategy (RTS), published in April 2021, sets out a vision, three priorities and three targets for the new RTS as shown in the following figure⁷.

⁶ <http://www.spt.co.uk/corporate/about/strategy/regional-transport-strategy/>

⁷ <http://www.spt.co.uk/vision/spt-regional-transport-strategy-case-for-change-report-for-consultation-april-2021.pdf>

Figure 7 SPT Draft RTS Vision, Priorities & Targets (SPT)



2.3.2 Strategic Development Plan

Spatially, the Glasgow and Clyde Valley Strategic Development Plan is the spatial strategy for the region (although new Regional Spatial Strategies are in development)⁸.

- **Vision: By 2036** Glasgow and the Clyde Valley will be a resilient, sustainable compact city region attracting and retaining investment and improving the quality of life for people and reducing inequalities through the creation of a place which maximises its economic, social and environmental assets ensuring it fulfils its potential as Scotland’s foremost city region
- It has a **core aim** of a compact city region, based upon: Centres; Economy; Low Carbon Infrastructure; Placemaking; Regeneration.

Key principles are successful and sustainable; low carbon; natural and resilient; connected; collaborative; health and wellbeing.

2.3.3 Glasgow City Region Economic Strategy and City Deal

The **Glasgow City Region Economic Strategy 2017-2035** and associated action plan presents an economic vision for the region along with 11 objectives that support this aim⁹.

- **2035 Vision** - A strong, inclusive, competitive and outward-looking economy, sustaining growth and prosperity with every person and business reaching their full potential.

⁸ <https://www.clydeplan-sdpa.gov.uk/strategic-development-plan/current-plan/current-strategic-development-plan-july-2017>

⁹ <http://www.glasgowcityregion.co.uk/CHttpHandler.ashx?id=19520&p=0>

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- The **core aim** of this Economic Strategy is sustained and inclusive economic growth through significantly improving productivity, boosting incomes; strengthening and growing the diverse business base to create more and better jobs; &Z increasing the working age population by supporting more people into work and attracting and retaining talent to the Glasgow City Region.

In 2020, the Glasgow Commission for Economic Growth published a report with recommendations across skills and the labour market, innovation system, infrastructure and governance, particularly in response to the challenges exacerbated by Covid-19 in 2020¹⁰.

The Glasgow City Region City Deal is a programme of investment from the UK Government. It is driven by largely economic goals, and has the following key foci in the region¹¹:

- Improved infrastructure
- Growth in life science
- Supporting business innovation
- Tackling unemployment

Glasgow City’s contribution to the City Deal include major investment projects have, and will continue to, enhance transport infrastructure and provision in the city. These include the Clyde Waterfront, West End Innovation Quarter (CCWEIQ), and the Collegelands, Calton and Barras (CCB) projects. These projects involve investment in associated transport provision, and will also support modal shift to sustainable modes particularly through investment in active travel infrastructure.

2.4 Local policy drivers (Glasgow level)

2.4.1 Existing Local Transport Strategy

The Council’s existing Local Transport Strategy (2007-09) contains the following Vision and Objectives.

Figure 8 Glasgow’s Local Transport Strategy Vision and Objectives (2007-09)

<p>Vision: Glasgow’s transport vision is to provide a world class transport system which is safe, reliable, integrated and accessible to all citizens and visitors: A transport system that continues to support the physical, social, economic, cultural, environmental and economic regeneration of the City while contributing to the overall well being, health and fitness of present and future generations: A system where transport serves all sections of the community equally and there are no transport barriers in terms of accessing jobs, health care, education and leisure</p>				
<p>LTS1 Support the continuing physical, social, economic, cultural and environmental regeneration of the City by maintaining and promoting efficient and effective transportation services and infrastructure within Glasgow.</p>	<p>LTS2 Promote social inclusion and tackle poverty by seeking to ensure that transport is accessible to all sections of the community and provides good links to employment, health care, education and leisure.</p>	<p>LTS3 Promote healthy and environmentally sustainable methods of transport that minimise harmful emissions and energy consumption including those that involve physical activity.</p>	<p>LTS4 Improve the safety and the actual and perceived security of travelling within the City by reducing accidents and enhancing the personal security of all users of the transport network.</p>	<p>LTS5 Promote integration of the transport system and provision of travel information within Glasgow.</p>

¹⁰ Looking Forward to the Future: The Glasgow City Region Summary Report 2020 <https://policyscotland.gla.ac.uk/glasgow-commission-economic-recovery-report/#:~:text=The%20Glasgow%20Commission%20for%20Economic%20Growth%20was%20set%20up%20in,the%20UK%20and%20Scottish%20Governments.>

¹¹ <http://www.glasgowcityregion.co.uk/>

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Whilst this document dates from development in 2005, arguably the vision and objectives are still highly relevant today. They reflect the five key elements of Scottish Transport Appraisal Guidance (STAG) appraisal criteria, and are reflected still in the NTS.

2.4.2 Connectivity Commission for Glasgow

An independent Glasgow Connectivity Commission was established in November 2017 upon the request of Glasgow City Council¹². It provided recommendations for Glasgow City Council on how to improve connectivity within the city and the city centre in particular, and wider recommendations for improving connectivity in the region. Both sets of recommendations are relevant to Glasgow's new transport plan, though not all of the recommendations are within the Council's powers to promote and deliver.

The recommendations focus on:

- Re-purposing the city's transport network to prioritise the movement of people, cyclists, public transport use and private vehicles, in that order. This includes a number of projects including Avenues, smart grid in the city centre, cycling network across the city, improving taxi standards and rank locations, improvements to bus services through partnership working, supporting the city centre economy, reducing journeys through the city centre and introducing non-residential parking charges.
- New governance arrangements with the creation of a Glasgow City Region Development Agency.
- Major projects by Transport Scotland to link Queen Street and Central rail stations, creating a rail link between Paisley Gilmour Street and Glasgow Airport and building on this to create a city-wide Metro.
- Consideration of road user charging.
- Bus priority measures on the motorway network.
- New and improved funding mechanisms.

2.4.3 Non-transport plans of relevance and importance for transport

The following figure shows other key local policy documents for Glasgow with a summary of policy direction from each of relevance to transport.

¹² <https://www.glasgow.gov.uk/connectivitycommission>

Figure 9 Non-transport plans of relevance and importance for transport

Glasgow Community Plan 2017

- Our **vision** is for Glasgow to be a world class city, with thriving and resilient communities where everyone can flourish and benefit from the city's success.
- **Objective** - Inclusive Growth.
- All of Glasgow's residents benefit from the city's success, regardless of their background or nationality.
- Greater equality, improved mental and physical health.
- Neighbourhoods with high levels of security and hygiene.
- **Focus areas:** Economic growth, resilient communities, a fairer more equal Glasgow.

Glasgow City Development Plan 2017 (10yrs)

- **Key aims:** a healthy, high quality place; a compact city form that supports sustainable development.
- **Outcomes:**
 - A vibrant place with a growing economy - by providing the right environment for businesses to develop.
 - A thriving and sustainable place to live and work - We want to achieve a City that is made up of sustainable, vibrant and distinctive places which are well-designed, accessible, safe, healthy and inclusive, and which provide for the City's growing and diverse population.
 - A connected place to move around and do business in - by improving accessibility for all citizens to employment, education, healthcare, shopping and leisure destinations, and providing more sustainable travel options and creating an integrated and efficient transport network.
 - A green place which is resilient, accessible and attractive - by helping to care for Glasgow's historic and green environments, increasing the City's resilience to climate change, and reducing energy use.
- **Overarching policies:**
 - The Placemaking Principle
 - Sustainable Spatial Strategy

Glasgow City Council Strategic Plan 2017 22 (being updated in 2021)

- Our **vision** is to have a world class city with a thriving, inclusive, economy where everyone can flourish and benefit from the city's success.
- Our **priority** is to reduce inequality across Glasgow by creating inclusive growth - a thriving economy that we can demonstrate benefits the city, its citizens and businesses. This means a growing economy that creates jobs and investment, builds on Glasgow's position as a world class city, helps us to tackle poverty, tackles poor health in the city and improves our neighbourhoods.
- A number of priorities relating to transport under the theme of A Sustainable and Low Carbon City including reviewing transport governance, promoting sustainable transport, investing in active travel, improving public transport including integrated ticketing, reducing speed limits, low carbon transport.

Glasgow City Council Equality Outcomes 2021

- 14 equality outcomes set for 2021-25 applying to Glasgow, the Council as an employer and an Education Authority

Glasgow Economic Strategy

- **Vision:** Glasgow will have the most productive major city economy in the UK by 2023.
- **Focus areas:** raising health; skills for all; a fairer Glasgow; supporting our key sectors; innovation / high value employment; smart infrastructure investment; housing mix; supporting enterprise; linking education to employment opportunities; increasing our population.

Glasgow's Housing Strategy 2017 22

- **Overarching themes:** Improving access to appropriate housing for Glasgow's people; Increasing the supply and improving the quality of housing available to Glasgow's People.
- **Strategic priorities:** promote area regeneration and enable investment in new build housing; manage, maintain and improve the existing housing stock; raise the standards in the private rented sector; tackle fuel poverty, energy inefficiency and climate change; improve access to housing across all tenures; promote health and wellbeing.

Glasgow Open Space Strategy (2019)

- **Vision:** By 2050, there will be a network of good quality, well-distributed, multi-functional open spaces, and connecting infrastructure, that contributes positively to;
- **Outcome 1:** the city's liveability, increasing its attractiveness as a place to live, work, move around, study and invest;
- **Outcome 2:** the health and wellbeing of the City's human population and of its flora and fauna, enhancing as well as protecting, biodiversity; and
- **Outcome 3:** the long term resilience of the City in relation to the threats, and potential opportunities, arising from climate change and other external factors such as reducing budgets
- (Vision continued:) Communities will have access to good quality, multi-functional open spaces, that are used by all sectors in society, within a short walk of the home and to a wider, better integrated, network of green, blue (water) and grey (civic) spaces that provide multiple benefits for people and the environment.
- The value of Glasgow's open spaces in helping address many of the critical issues facing the City will be widely understood and integral to the decisions made by the Council and its partners.

2.4.4 Glasgow Climate & Ecological Emergency response

Glasgow announced a climate and ecological emergency in 2019. To support this, a list of 61 Climate Emergency commitments was developed and published, aiming to achieve a central goal of becoming a carbon neutral city by 2030¹³. Some 52 actions were produced in a Climate Change Implementation Plan for consultation in late 2020, and are being finalised in 2021¹⁴. Several of these

¹³ <https://www.glasgow.gov.uk/article/25066/Council-Sets-Target-Of-Carbon-Neutral-Glasgow-by-2030>

¹⁴ <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=50623&p=0>

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actions relate to transport, and will be considered as interventions to be assessed within the Glasgow Transport Strategy – these are listed in section 9. Crucially, the list of commitments places transport at the heart of the city’s move towards a carbon neutral 2030 target alongside other important sectors such as heating and energy. One of the actions relates to the development of a local transport strategy for the City with ambitious modal share targets and an associated delivery plan. This Case for Change report constitutes part of this strategy development work.

2.5 Statutory duties of relevance to transport and local authorities

The following figure sets out the key statutory duties of relevance to Glasgow City Council and transport policy.

Figure 10 Statutory duties of relevance to transport



2.6 Governance of transport in the city and wider city region

Governance of transport in the city is in part linked to the statutory duties above. Glasgow City Council has a significant role to play as the roads and planning authority for the city, with a large number of statutory duties and responsibilities.

SPT have a number of statutory roles and responsibilities in relation to public transport in the city, and also operate the Glasgow Subway. Their responsibilities include:

- Preparation of a Regional Transport Strategy (as above)
- Socially necessary bus services and demand response transport
- Own and operate Buchanan bus station
- Supporting community transport
- Schools transport (agency basis)
- Bus shelter maintenance (agency basis)

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- Operation and administration of the region's Zonocard – an integrated multi-modal ticketing scheme
- Operation and administration of Strathclyde Concessionary Travel Scheme which provides discounted travel for those who are eligible on rail, subway and on ferry
- Grant funding transport infrastructure in the city

Transport Scotland is the national transport agency for Scotland. It sets the overall strategy for transport in Scotland, and is responsible to Scottish Ministers for a wide range of policy and strategy areas as well as specific maintenance and development of the trunk road network, funding of rail network, managing rail franchise and support for a number of other specific operational functions such as lifeline aviation and ferries¹⁵.

The Glasgow City Region City Deal is a partnership of eight neighbouring local authorities, with Glasgow as lead authority and overseen by a Glasgow City Region Cabinet. It is delivering a number of significant infrastructure projects including transport improvements.

There are a large number of public transport operators in the city – from ScotRail (and other cross-border rail operators) to bus operators to community transport providers. Network Rail are responsible for rail infrastructure across the UK. Taxis and private hire, car club and Nextbike, and voluntary and community groups are also part of an extensive and complex mix of transport solutions in the city.

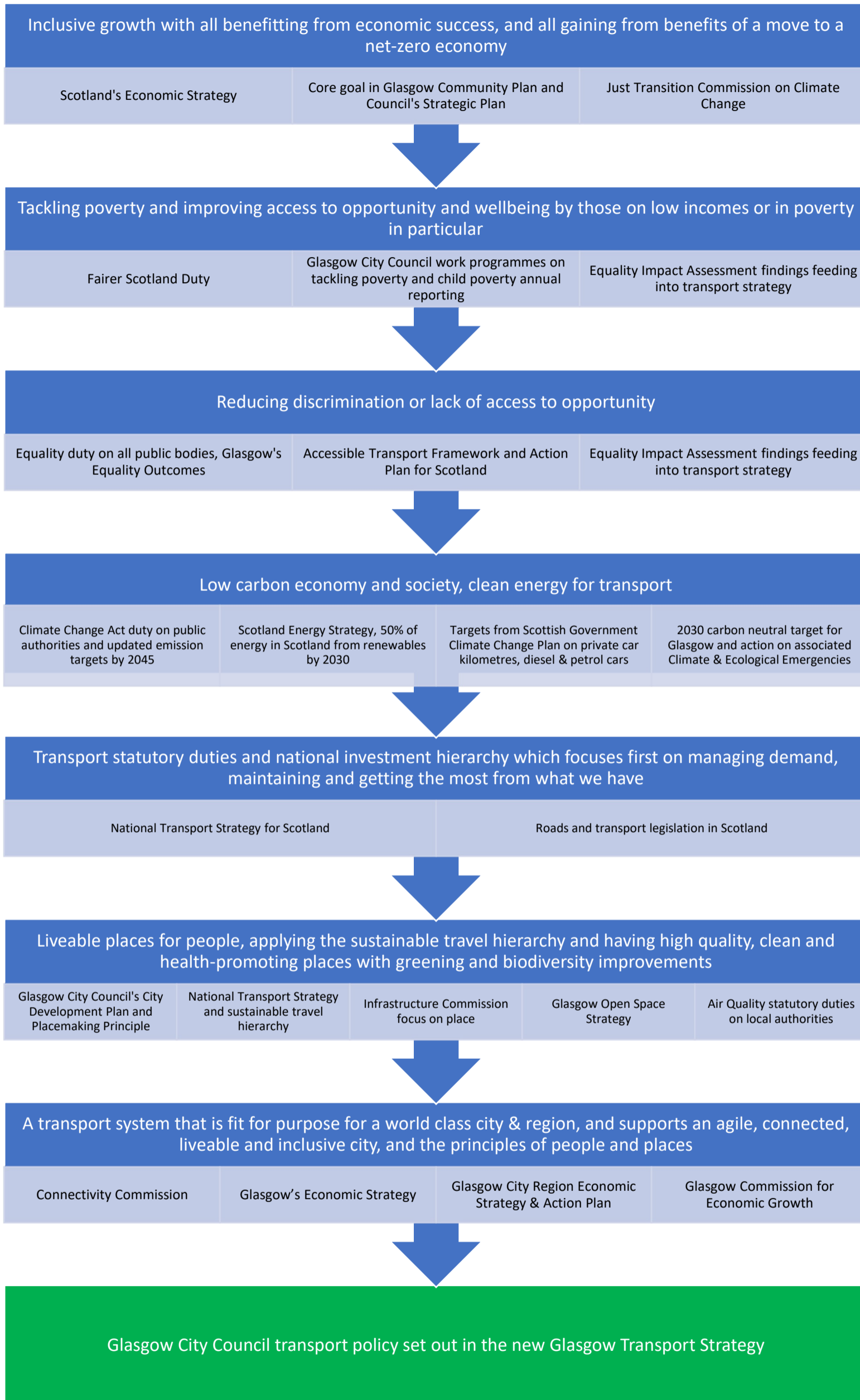
As noted above, the Connectivity Commission raised the topic of governance of transport in Glasgow, calling for a single transport authority for the city-region. The National Transport Strategy for Scotland has also been exploring the topic of governance of transport in Scotland.

2.7 Key Insights: Summary of key policy drivers

Taking all key policy drivers into account at a national, regional and local level, in addition to statutory duties and targets, we propose the following are the current key policy drivers to influence the development of Glasgow's new transport plans.

¹⁵ Transport Governance: A report by short-life working group looking at the roles and responsibilities of the bodies who run Scotland's transport network, June 2019, Transport Scotland

Figure 11 Key policy drivers for Glasgow's new transport plan



3 Problems and Opportunities - Transport

3.1 Analysis of problems and opportunities, and creating a baseline

This section sets out the outcomes of an evidence-led approach to identifying key transport problems that need to be tackled in Glasgow and subsequently should be the focus of interventions and policies in new transport plans. It also provides a baseline against which progress should be measured in the future, and informs the development of a monitoring framework for Glasgow's new transport strategy.

Problems are presented by theme. As per a STAG-based approach, problems should be evidence based. Evidence for problems is presented from both data analysis and engagement processes. The validity of focusing on these problems in the Glasgow Transport Strategy was tested through further public and stakeholder engagement in 2020.

As per a STAG based approach, an analysis of opportunities is an important aspect of the case for change in terms of investment and decision-making. These opportunities can be built upon to effect change, and can also indicate a direction or trend that can be harnessed to effect change. The key opportunities identified in relation to Glasgow's new transport strategy is also set out in the following sections.

3.2 How people currently travel in Glasgow

The journey to work and to education or training have a significant impact on transport infrastructure and services as these trips tend to be clustered in a short time-period, known as the morning and evening peaks¹⁶. It is therefore important to identify how people are currently making these journeys, and the impacts of these journeys, to assess whether this is a problem that needs to be tackled or not.

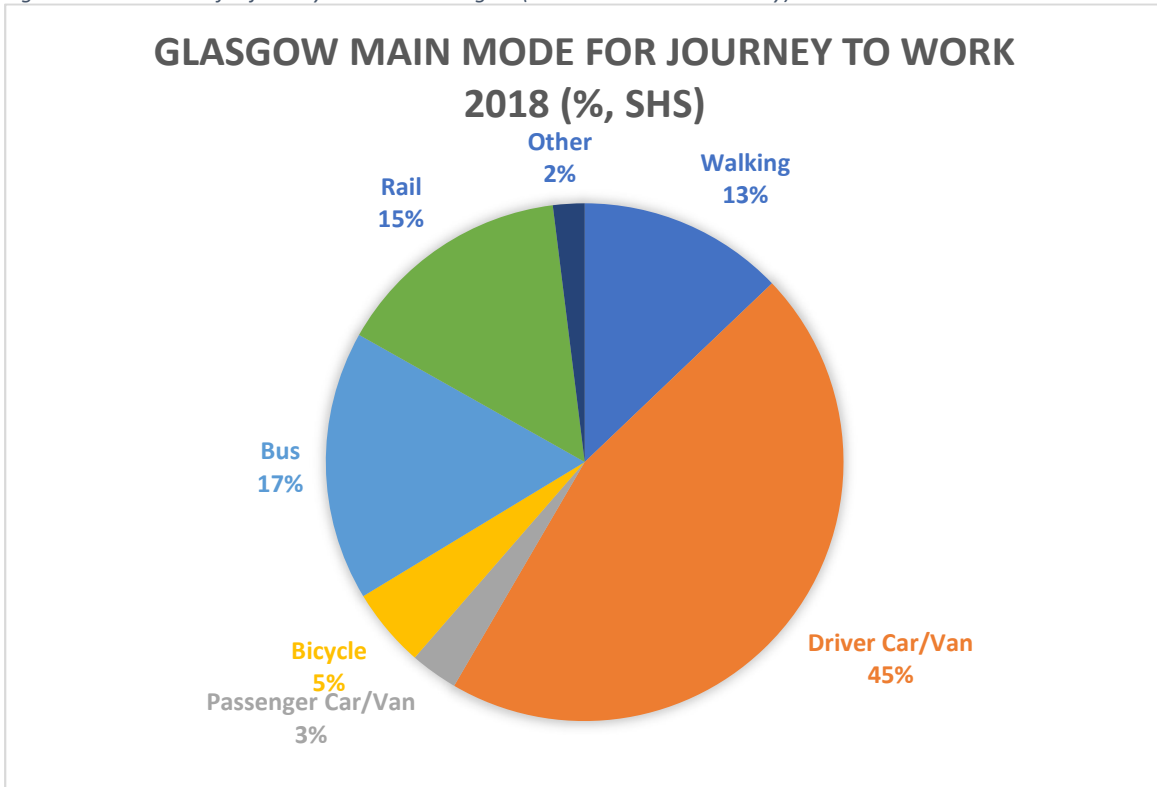
3.2.1 The journey to work

In Glasgow, as per Scotland and the UK generally, the main mode of travel for the journey to work is by car, in terms of the single highest proportion of people travelling in a specific way (data from the Scottish Household Survey 2018)¹⁷.

¹⁶ During the Covid-19 pandemic, the normal morning and evening peaks of vehicle traffic in Glasgow has changed substantially, with morning peaks being significantly reduced. This is being monitored by Glasgow City Council on an ongoing basis.

¹⁷ <https://www.gov.scot/publications/scotlands-people-annual-report-results-2018-scottish-household-survey/>

Figure 12 Main mode for journey to work in Glasgow (Scottish Household Survey)



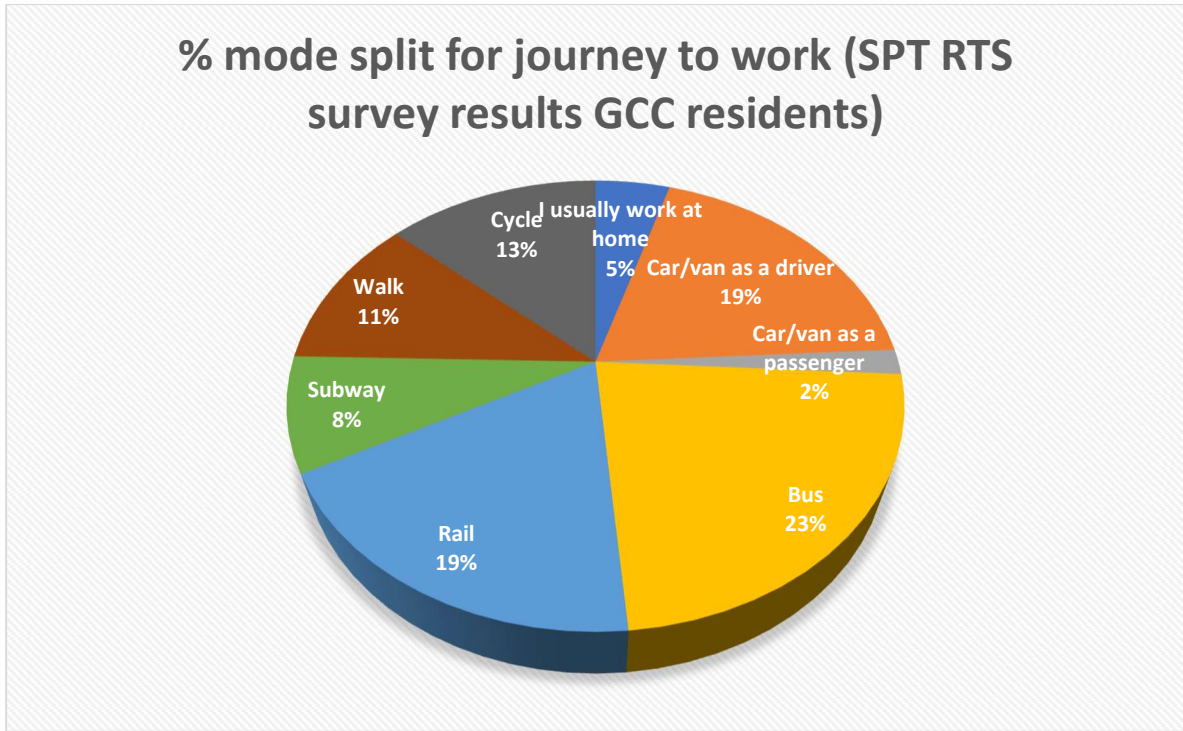
In contrast to the Scottish average however, the majority of people in Glasgow who travel for work (this excludes a sizeable proportion who are classed as working from home which can include some self-employed people) do not travel by car. Some 63% at a Scotland level drive to work by car or van compared to 45% in Glasgow. Only Edinburgh has a lower proportion of people driving to work than Glasgow, in Scotland. This is therefore an opportunity that can be built upon.

Glasgow also sees the second highest rail-based commuting figures in Scotland (after West Dunbartonshire), and the second highest bus-based commuting in Scotland (after Edinburgh). Glasgow has a higher than average proportion of commuting trips made by bike (5% compared to the Scotland average of 2.8%, and 4% for large urban areas in Scotland). Glasgow has a lower proportion walking to work than comparable large urban areas in Scotland, at 13% compared to 15% for the latter.

From the **SPT Regional Transport Strategy Public Survey** carried out in early 2019, the main ways of travelling to work by Glasgow residents are shown in the following figure. It should be stressed, as with any survey, that this is a sample of the population and all the results in the survey will reflect the sample surveyed.

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Figure 13 Modal split for journey to work from SPT Regional Transport Strategy survey (GCC residents)



From the overall SPT RTS survey population of GCC residents, 45% said they encountered issues on their journey to work (65% of the sample who answered this question specifically). The main journey to work issues identified (identified by over 10% of each question sample), in order of priority, for each type of commuter are shown below.

Table 1 Journey to work issues by commuter mode - SPT RTS survey of GCC residents

Motorcycle/Car/van driver or passenger	Bus	Rail	Subway	Walk or cycle
Traffic congestion	Reliability of bus services	Reliability of rail services	Crowded services / ability to get a seat	Availability of cycling facilities segregated from vehicular traffic
Conditions of road surfaces	Cost of bus fares	Cost of rail fares	Cost of Subway fares and Frequency of Subway services (equal numbers)	Condition of pavements/cycle lanes
Reliability of journey times by car	Frequency of bus services	Crowded services / ability to get a seat		Behaviour of other road users
	Reliability of journey times	Reliability of journey times		
		Frequency of rail services		

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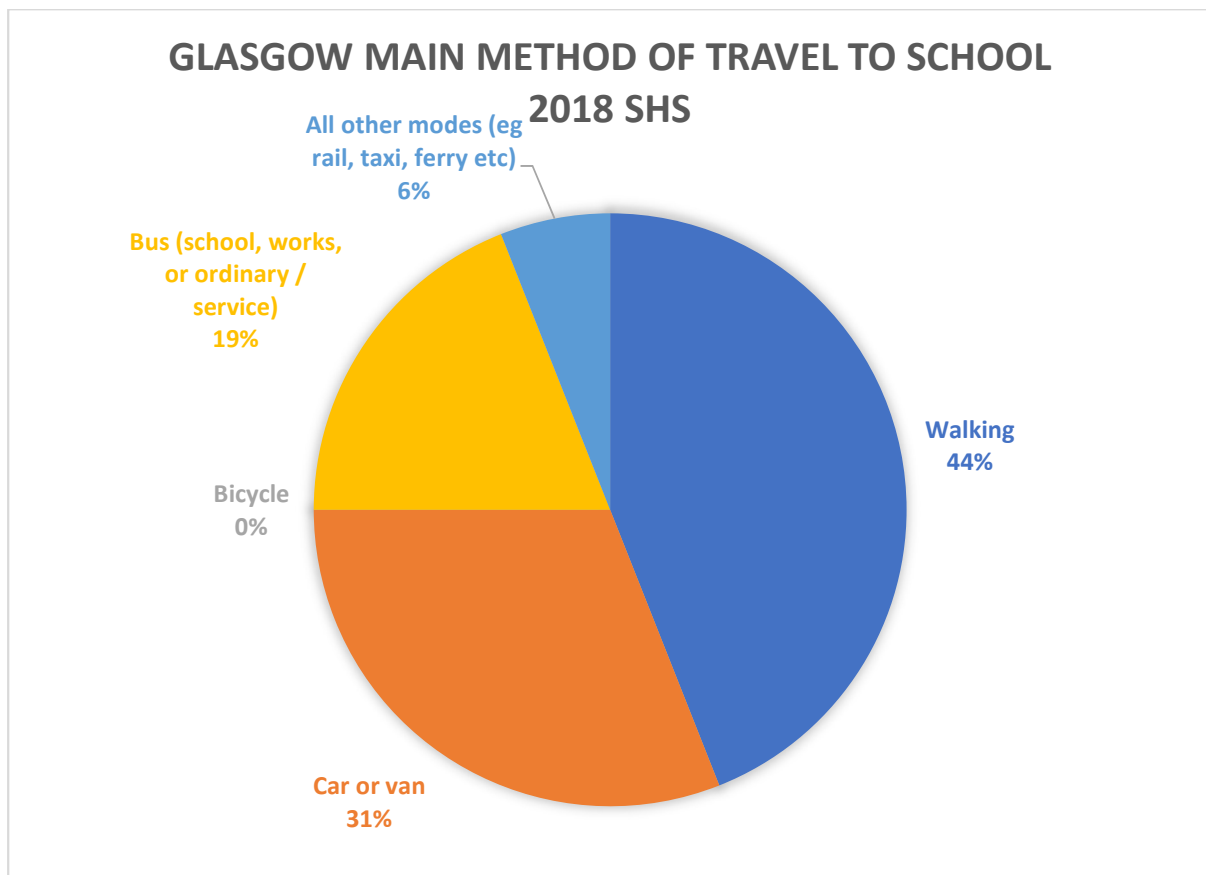
The main reason people chose this method of travel to work in order of magnitude of responses were:

- Most convenient
- Quickest method
- Lowest cost option

3.2.2 The journey to education

The single largest mode of travel for the journey to school in Glasgow is walking (44%), followed by driven (31%) then by bus (19%) (again from Scottish Household Survey). In relation to Scotland averages, less children walk to school in Glasgow and more are driven, which presents a problem.

Figure 14 Main mode for journey to school in Glasgow

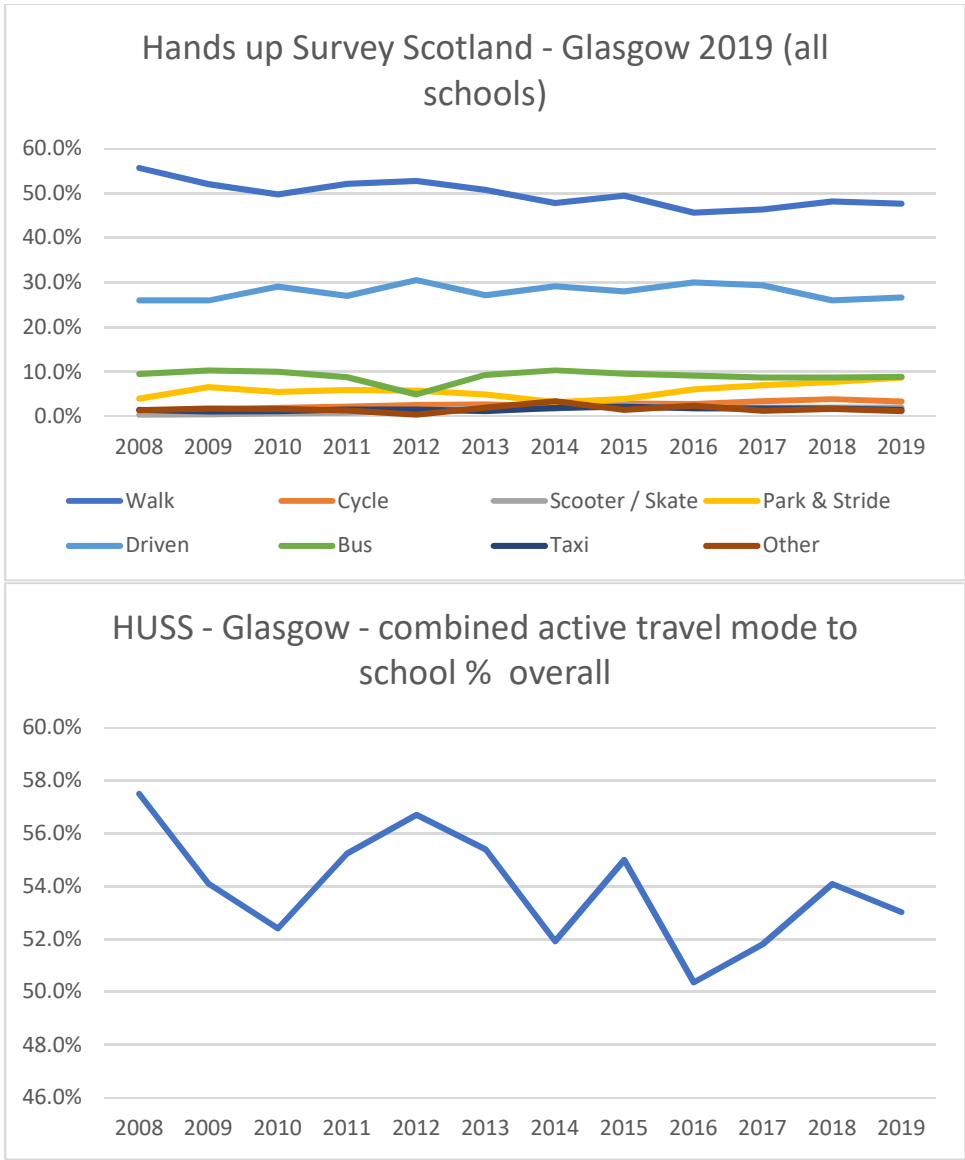


A look at Hands up Survey Scotland (HUSS) data from Sustrans suggests the proportion of children being driven to school in Glasgow has slightly increased-over the last 10 years (with a drop in 2018/2019 bringing it back to the same level as 2008)¹⁸. The overall proportion of children travelling actively to school in Glasgow (walking, cycling, scooting) has reduced over this ten year period based on HUSS data, and walking in particular has reduced whilst cycling and scooting has increased. Whilst it is positive that levels of cycling and scooting to school have increased, the overall message that more children are being driven to school suggests there is little progress being made in increasing active travel levels to school overall in Glasgow (and this is also the trend at a Scotland-wide level).

¹⁸ <https://www.sustrans.org.uk/our-blog/projects/2019/scotland/hands-up-scotland-survey>

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Figure 15 Hands up Survey Scotland journey to school mode, Glasgow (all schools)



HUSS data also differentiates between school type and mode share to school, and suggests that secondary school pupils are travelling by the most sustainable modes overall, with only 17% driven to school in 2018, compared to almost half of nursery-level children and 29% of primary school children. Bus is also a substantial mode of travel for secondary school pupils, although it should be noted around a half of secondary school pupils continue to walk to school (this may be linked to smaller urban catchments and the lack of provision of school transport due to identified thresholds).

It should be noted there is a discrepancy between SHS and Sustrans HUSS data for the journey to school, with the latter showing higher levels of cycling and lower levels of driving to school than SHS (the sample size also varies between these two sources).

The journey to school also offers an opportunity for improvement however. Analysis by GCC of anonymised pupil roll data shows the average distance from school by enrolled pupils to be 1.25km

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(0.8miles) for primary schools¹⁹. For secondary schools in Glasgow, the average distance from school for pupils is 2.35km (1.5miles). These figures vary considerably across the city, ranging from 0.3miles to just over 2 miles for primary schools (excluding one Gaelic school with a significantly larger catchment); and from 1.3miles to around 3miles for secondary schools (again excluding 2 schools with larger catchments and average distances of 5 miles).

From the SPT RTS Public Survey carried out in early 2019, the views of a sample of 186 GCC residents in full-time education was gathered. Almost half were studying at the University of Glasgow, followed by University of Strathclyde. Only 12% said they chose their location of study specifically because of transport issues, and 3% said transport made a study location impossible – so transport was not a main factor in education location choice. Over half though said they had encountered transport issues on their journeys to study location in the past year. The biggest issue was cost of transport fares followed by reliability of public transport services, causing issues around being on time to attend classes.

3.2.3 The journey to healthcare

The SPT RTS public survey in early 2019 identified 450 people in their survey sample (a third of the GCC resident sample overall) had encountered issues when travelling to hospital in the previous 12 months. The main issues people identified (in order of priority) were:

- No direct public transport services
- Frequency of public transport services
- Reliability of public transport services
- Cost of public transport fares

In terms of the impacts of these transport issues for the journey to hospital, over a third of question respondents said they had to pay for taxi services because no suitable alternative means of travelling to hospital. Just under a third said they had to arrange travel with a friend/family member because there were no suitable alternative means of travelling to hospital, whilst a similar proportion said they were late for their hospital appointment on at least one occasion.

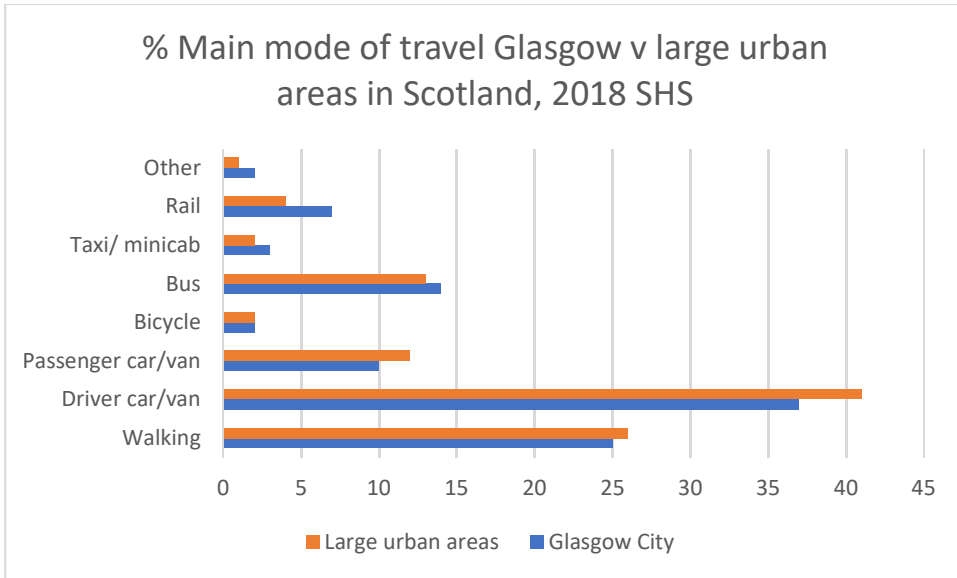
3.2.4 Main way of travelling for all journeys generally, and in-boundary v. cross-boundary

Looking at the main mode for all journeys from the Scottish Household Survey for Glasgow, this data suggests there are a number of positives for Glasgow compared to Scotland and other large urban areas in Scotland as a whole. More people walk, cycle and use public transport as their main mode in Glasgow compared to Scotland overall. Glasgow has the highest mode share for rail out of all local authorities in Scotland for this main mode dataset.

Compared to large urban area averages in Scotland, more people travel by bus, rail and taxi as their main mode in Glasgow, although less walk and drive.

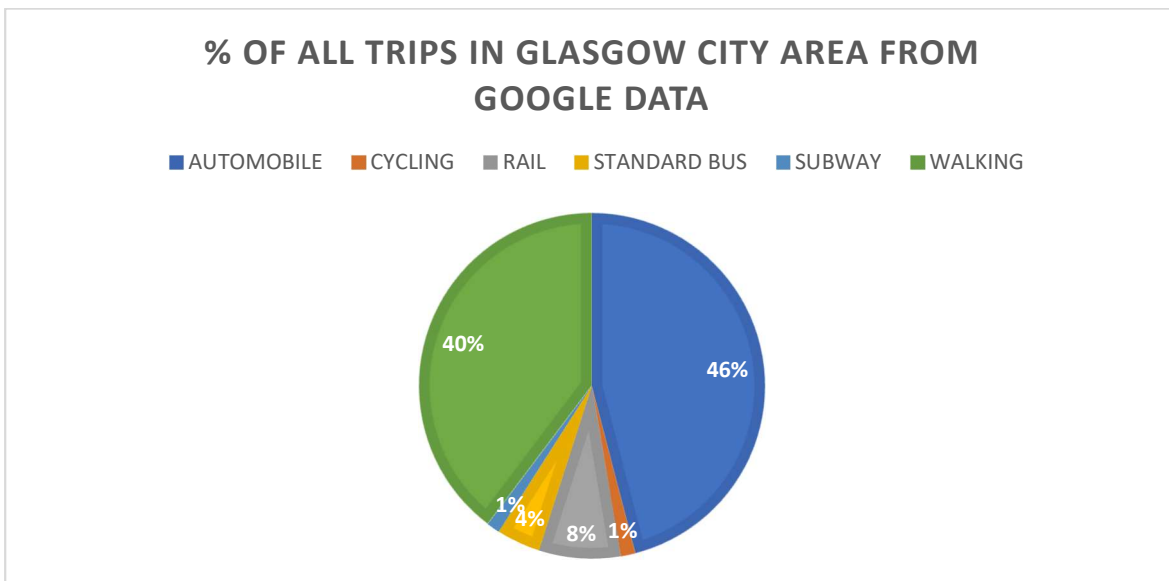
¹⁹This is average distance from each school from the postcode centroid of each pupil and therefore does not represent an accurate figure based on individual pupil addresses. It gives a reasonable approximation however. All data from Glasgow City Council.

Figure 16 Main mode of travel in Glasgow 2018 v large urban areas in Scotland



Google Environmental Insights data explorer presents aggregated and anonymised data from mobile device system use for the City of Glasgow²⁰. The breakdown of trips (as defined by Google) made in the city by mode suggests a higher use of car when all trips are considered than the modal share data above suggests.

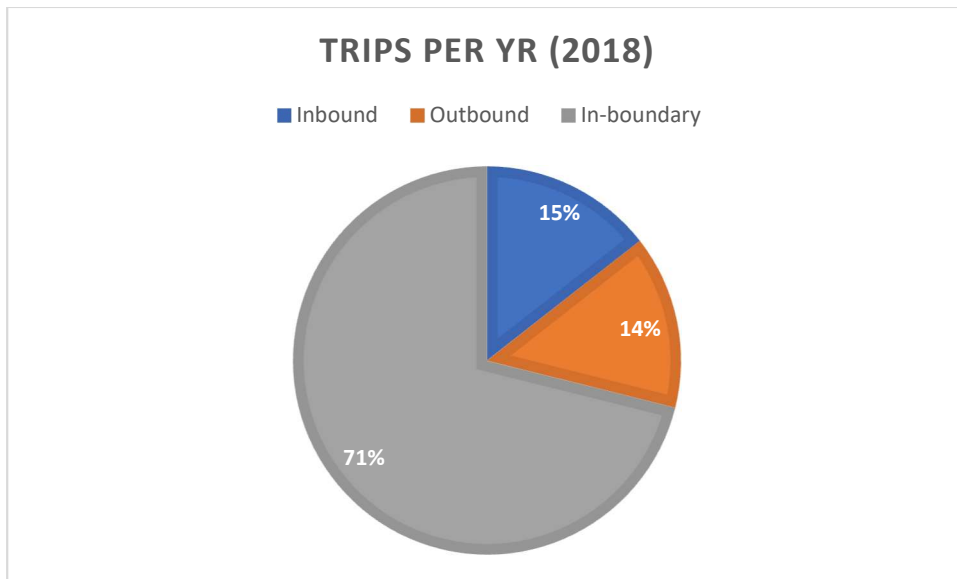
Figure 17 Proportion of all trips in Glasgow by mode (Google) 2018



When this is broken down by in boundary, inbound and outbound (the latter involving cross-boundary trips outside the Glasgow City Council area), over 70% of trips are made within Glasgow’s boundary. That still leaves just under a third of trips which involve movements across the city boundary, and this matters for what Glasgow City Council can do in relation to encouraging sustainable travel choices.

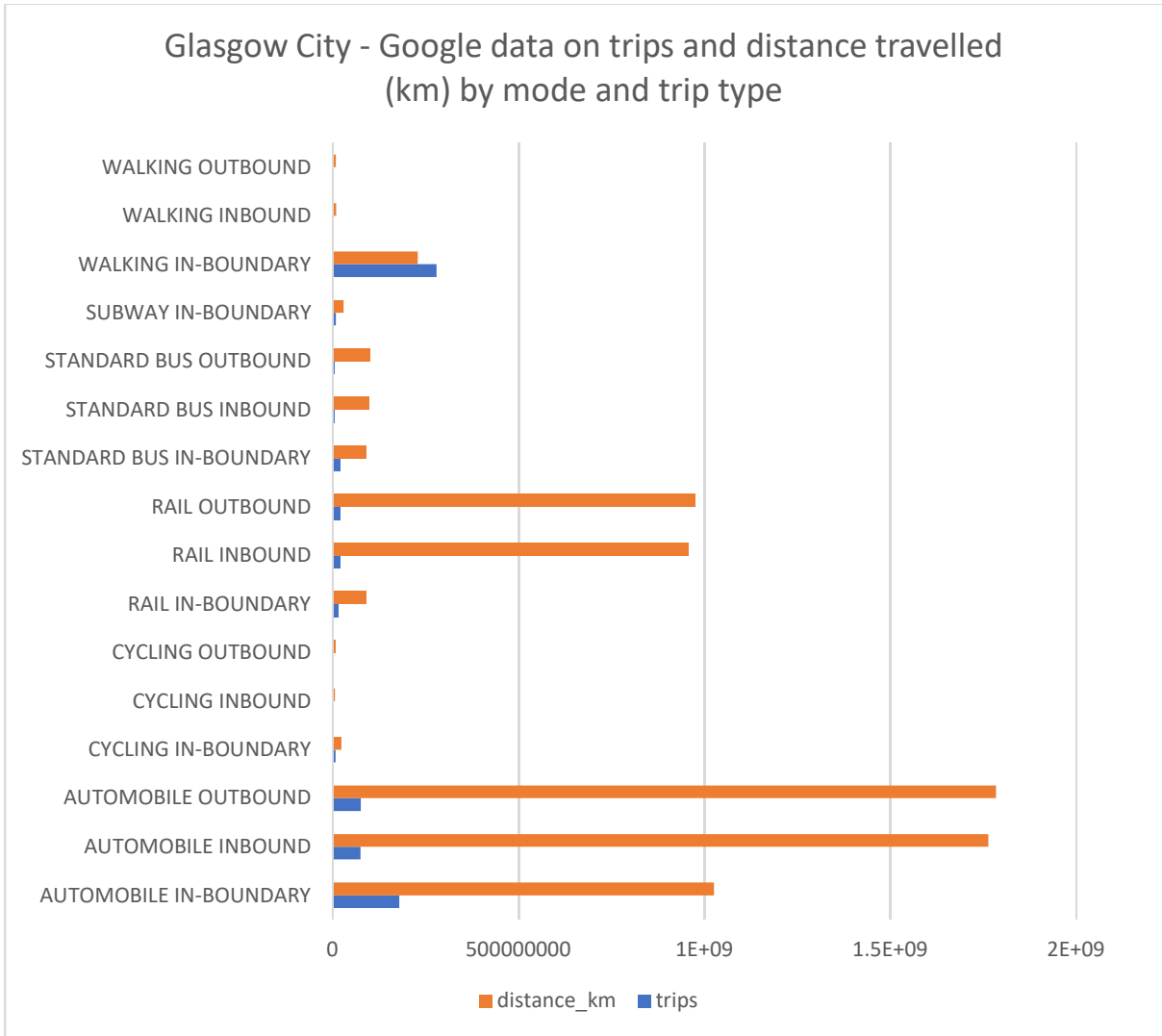
²⁰ <https://insights.sustainability.google/places/ChIJ685WIFYViEgRHlHvBbiD5nE>

Figure 18 Glasgow City - number of trips for 2018 by inbound, outbound and in-boundary



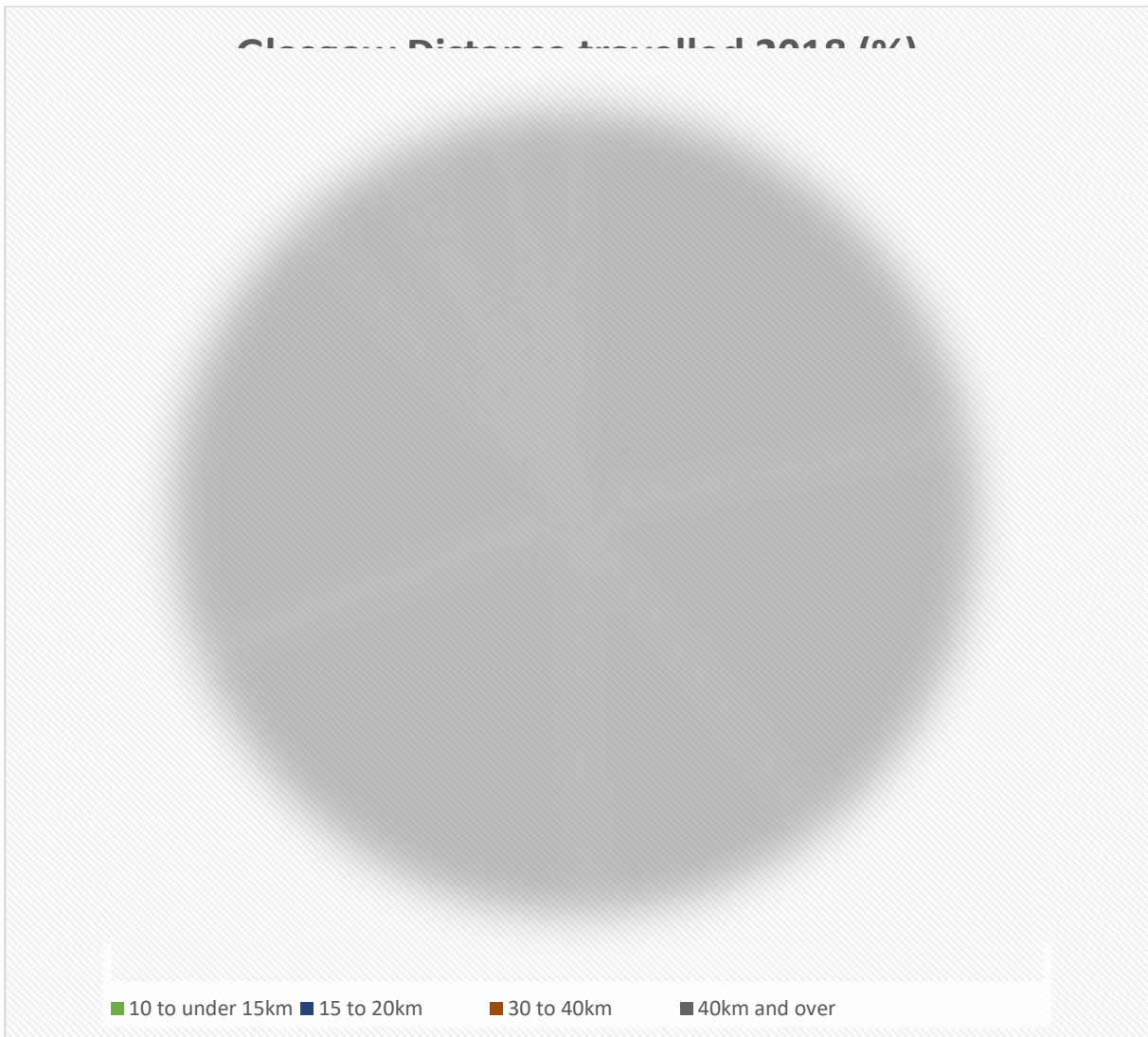
Looking at the split by mode, and by distance travelled, it is clear that whilst the majority of trips may be within the Council boundary, the largest distance covered by trips are those which are inbound and outbound in the city. This has implications for carbon neutrality as distance travelled is a key metric for the carbon footprint of transport.

Figure 19 Glasgow City – 2018 Google data on trips and distance travelled (km) by mode and trip type



3.2.5 Length of trips There is sizeable scope for modal shift for shorter journeys in Glasgow as almost 50% of journeys are under 3km in length, and 70% are less than 5km.

Figure 20 Glasgow distance travelled (Scottish Household Survey)



It should be noted that 52% of journeys in large urban areas in the Scottish Household Survey sample from 2018 were under 3km, compared to 50% for Glasgow – although the mean distance travelled in Glasgow was 6.6km compared to 9.5km in Scotland overall and 6.9 for large urban areas generally (this may be explained by Glasgow residents being more likely to travel medium-distance journeys as opposed to longer distance journeys than other large urban areas).

The average trip length made per person in the UK is 6.6 miles (10.6km)²¹. This has reduced over time, along with the number of trips made per person as shown in the following graphic.

Figure 21 UK DfT data on average trip length per person and number of trips per person in 2018

²¹ <https://www.gov.uk/government/collections/national-travel-survey-statistics>

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Year	Per person per year					Per person per year, index: 2002=100			
	All trips ¹	All trips (excluding walks of less than a mile)	Distance travelled (miles)	Time taken (hours)	Average trip length (miles)	Average trip time (minutes)	Trips	Distance	Time
2018	986	787	6,530	377	6.6	22.9	92	91	97

3.2.6 Where people are travelling

Compared to Edinburgh, Glasgow has a lower proportion of Glasgow residents working within Glasgow (60% v. 72% for Edinburgh), and has sizeable flows of commuters from Dunbartonshire/Argyll and Bute area grouping, Renfrewshire/ Inverclyde, and the Lanarkshire. This suggests there should be emphasis on trying to transfer larger proportions of these inbound journeys to public transport.

Figure 22 Council travel to work from Scottish Household Survey 2018²²

Council area of residence	Council area of workplace														Sample size (=100%)		
	Highlands / Islands	Grampian	Tayside	Central	Fife	Edinburgh	Lothians	Glasgow	Dunbartonshire / Argyll & Bute	Renfrewshire / Inverclyde	North Lanarkshire	South Lanarkshire	Ayrshire Borders / Dumfries & Galloway	Not Known			
Highlands / Islands	82.0	0.6	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	16.7	2,470	
Grampian	0.8	80.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.6	1,930
Tayside	0.1	2.7	79.0	1.7	2.6	0.9	0.2	0.6	0.0	0.1	0.3	0.1	0.2	0.2	11.3	1,380	
Central	0.1	0.2	0.8	62.5	1.2	6.0	3.4	3.9	0.8	0.1	2.7	0.7	0.1	0.1	17.5	1,540	
Fife	0.2	0.3	5.7	1.4	63.5	9.6	2.0	0.3	0.0	0.0	0.5	0.1	0.0	0.0	16.3	910	
Edinburgh	0.0	0.2	0.4	0.6	0.9	72.1	6.3	0.8	0.1	0.0	0.5	0.1	0.0	0.2	17.9	1,600	
Lothians	0.0	0.2	0.2	1.7	0.8	30.5	45.3	1.4	0.0	0.0	0.8	0.7	0.0	0.4	17.7	1,550	
Glasgow	0.0	0.0	0.1	1.0	0.1	1.1	0.4	60.8	4.5	5.7	3.0	3.6	0.9	0.1	18.5	1,800	
Dunbartonshire / Argyll & Bute	0.3	0.2	0.0	1.3	0.1	0.7	0.2	26.0	49.0	4.0	2.6	0.9	0.4	0.1	14.3	1,400	
Renfrewshire / Inverclyde	0.1	0.1	0.0	0.4	0.3	1.0	0.5	27.0	2.8	45.9	1.0	3.2	2.1	0.0	15.7	1,520	
North Lanarkshire	0.0	0.0	0.0	2.0	0.3	1.6	4.0	16.1	1.7	13	41.7	7.4	0.6	0.0	23.2	970	
South Lanarkshire	0.0	0.0	0.0	1.2	0.3	1.7	2.2	17.9	1.2	3.2	10.8	39.1	0.8	0.6	21.1	870	
Ayrshire	0.1	0.2	0.0	0.2	0.0	0.1	0.0	10.0	0.9	4.6	0.2	1.6	65.4	0.5	16.1	1,250	
Borders / Dumfries & Galloway	0.0	0.6	0.0	0.2	0.0	3.8	2.3	0.5	0.0	0.1	0.4	0.2	0.6	74.8	16.5	820	
Scotland	5.0	9.9	6.3	4.4	4.6	10.9	4.8	13.2	3.4	4.4	4.3	3.8	4.2	3.4	17.4	20,030	

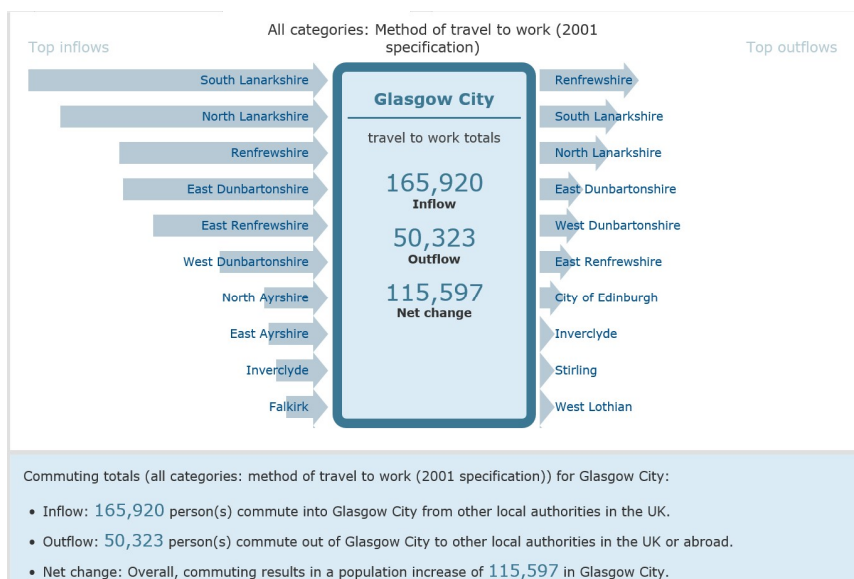
The 2011 Census is the most extensive dataset available on travel to work flows, although it is now dated. The figure below shows the scale of commuting flows into and out of Glasgow City²³.

Figure 23 2011 Census – travel to work to and from Glasgow City

²² TATIS, Table TD15 - Council travel to work – workplace - % of employed people (who do not work at home) resident in each council grouping by council grouping for workplace 2014-18 combined

<https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-results-from-the-scottish-household-survey-1/>

²³ NOMIS <https://www.nomisweb.co.uk/census/2011>



Analysis by Systra for Glasgow City Council in 2020 showed that according to the Census 2011 Journey to Work data, around 68,000 journeys to work per day were normally made by car wholly within the administrative area by local residents. In addition, 33,000 people drove to work outside Glasgow (administrative area) and there were a further 92,000 people who normally drive into Glasgow for work from outside the city boundary. Of these in-bound cross-boundary journeys, South Lanarkshire accounted for 19%, North Lanarkshire 16%, Renfrewshire 13% and East Dunbartonshire 13%. This shows the inter-connected nature of the travel to work area in the city-region. As noted in the next section, in general, there is a higher reliance on cars for journeys to work in areas further from the city centre, with overall car modal shares likely to be driven by factors including the availability and quality of public transport services (predominantly rail and bus) as well as socio-economic factors, including income and employment patterns.

3.2.7 City Centre insights

The Glasgow Household Survey in 2018 explored the topic of the city centre in Glasgow²⁴. It found that half of residents surveyed said they travelled to the centre in the daytime at least weekly – 27% did so three or more times a week, and 23% did so one or two times a week. Around one in five (18%) travelled to the centre in the daytime just two or three times a month, while almost a third did so less frequently still - indeed, almost one in ten (9%) never travelled to the centre during the day. In terms of traveling into the centre in the evening, 39% said they never did this, leaving 26% who travelled to the centre in the evening at least weekly, 14% who did so two or three times a month and 19% who did so once a month or less.

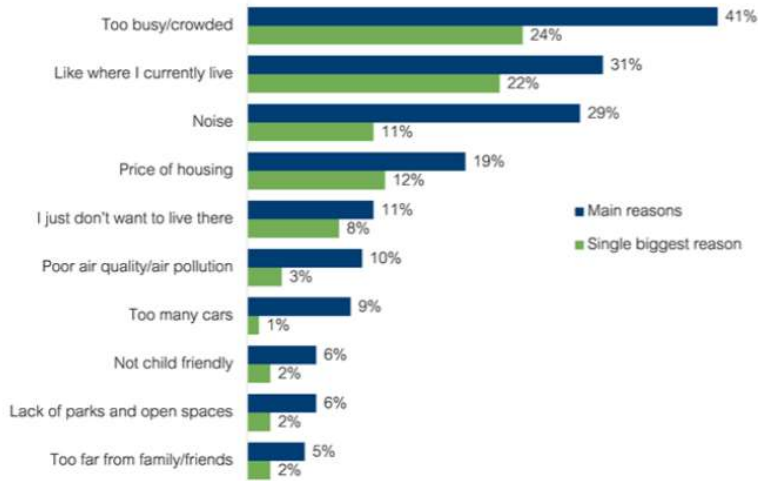
Travel into the city centre varied by both age and social class. Younger people were more likely than older people to travel into the city centre both during the day time and in the evening. Those in social classes ABC1 were more likely than C2DEs to travel into the city at both times of day. Around half of all respondents who travelled into the city centre at least once a month said they regularly did so by bus (51%), while around a third said they did so by train (34%) and a quarter said they drove (23%). One in five (20%) said they regularly walked into the city centre, while just 6% said they cycled. The single mode of transport respondents used most often was bus (39%), followed by train (22%) and driving (14%).

²⁴ <https://www.glasgow.gov.uk/article/17712/Glasgow-Household-Survey-GHS>

The survey also asked respondents if they would ever consider living in the city centre, and a quarter said they would. Younger people were more likely to say they would, as did those without a car in the household. The main reasons given by those who said they would not consider living in the city centre are shown in the following figure.

Figure 24 Reasons for not wanting to live in the city centre (Glasgow Household Survey)

Figure 3.1 - Reasons for not wanting to live in the city centre



Base: All who would not consider living in city centre (777)

For access into the Glasgow city centre, where parking opportunities are restricted and more expensive, and there is better public transport connectivity including strong radial rail and bus services, analysis by Systra in 2020 for Glasgow City Council on 2011 Census Journey to Work data showed that car mode shares for those travelling into the city centre was around 30% (excluding those working from the home), compared to around 50% for those travelling work to all destinations in the city centre and outside the city core in the West End, in outer employment areas and throughout the rest of the city.

Whilst car modal shares are lower for journeys to work in the city centre (broadly covering the area of the current LEZ), the absolute Census 2011 Journey to Work volumes were high with around 40,000 journeys made by car per day, from a total for around 160,000 travellers to work throughout the city as a whole (including drivers and passengers).

3.2.8 Up to date information on where people are travelling

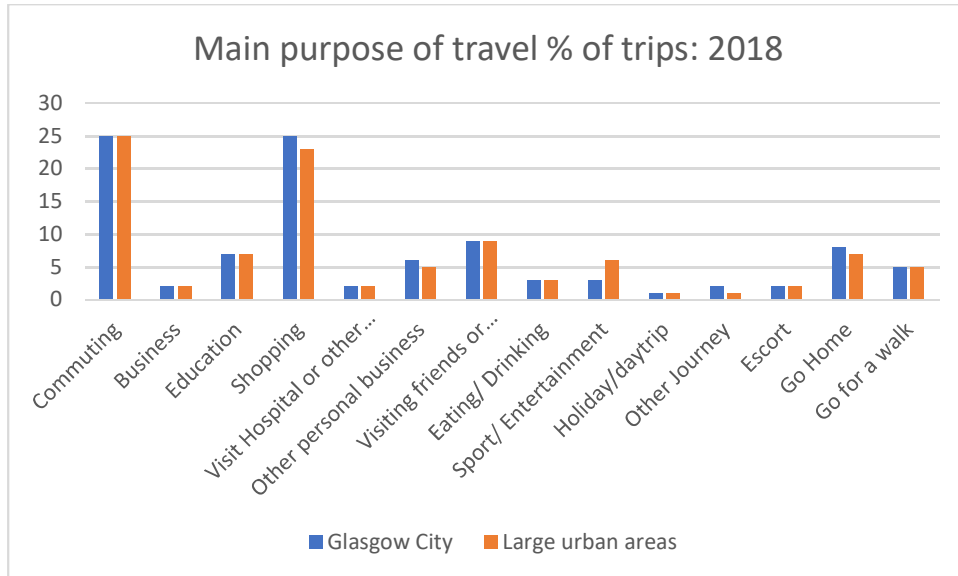
As noted above, the 2011 Census provides detailed information on how and where people are travelling to work. That said, this is now dated, and whilst it will be looked at in the next stage of the work, the Council is exploring more up to date data in collaboration with University of Glasgow on how and where people are travelling in the city to help understand movements and travel demand.

3.2.9 Why people are travelling

Drawing on data from the Scottish Household Survey, commuting and shopping are the biggest reasons for travelling in Glasgow, aligned with other large urban areas in Scotland. Travelling for shopping however is a reason for more journeys in Glasgow than comparable urban areas, whilst travelling for sport or entertainment is lower than other areas.

Understanding the reasons why people travel are important when considering how these reasons might change in the future e.g. less physical shopping trips with more online shopping in the future, though potentially accompanied by an increase in delivery miles of goods.

Figure 25 Main purpose of travel in Glasgow, Scottish Household Survey 2018



3.3 Key insights into people’s travel choices

The main mode of travel for the journey to work in Glasgow is by car, in terms of the single highest proportion of people travelling in a specific way. In contrast to the Scottish average however, the overall majority of people in Glasgow who travel for work do not travel by car.

The 2011 Census showed that in general, there is a higher reliance on cars for journeys to work in areas further from the city centre, and that journeys to work are made within a city-region spatial context.

Glasgow also sees the second highest rail-based commuting figures in Scotland (after West Dunbartonshire), and the second highest bus-based commuting in Scotland (after Edinburgh).

Glasgow has a higher than average proportion of commuting trips made by bike (5% compared to the Scotland average of 2.8%, and 7% in Edinburgh).

45% of SPT’s Regional Transport Strategy (RTS) survey respondents in Glasgow in 2019 said they had encountered issues on their journey to work, with reliability and cost being the top issues for rail and bus users.

Walking is the single biggest mode of travel to school in Glasgow – however, in relation to Scotland averages, less children walk to school in Glasgow and more are driven, which presents a problem.

The overall proportion of children travelling actively to school in Glasgow (walking, cycling, scooting) has reduced over a ten year period based on Hands Up Survey Scotland data, and walking in particular has reduced whilst cycling and scooting has increased. This points to a need to ensure the overall active travel share of the journey to school is increasing, and car journeys are reducing.

Analysis by the Council shows the average distance from school by enrolled pupils to be 1.25km (0.8miles) for primary schools. For secondary schools in Glasgow, the average distance from school

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for pupils is 2.35km (1.5miles). This represents an opportunity to build on, particularly for active travel journeys to school.

The journey to access healthcare was an issue for many Glasgow residents in the SPT RTS survey (a third of the overall Glasgow sample), with the main issues being lack of direct public transport services, followed by frequency, reliability and cost of public transport. Paying for taxis or arranging for a lift was a common response, and a third of the question respondents said they had been late for appointments.

Google data suggests over 70% of trips are made within Glasgow's boundary. That still leaves just under a third of trips which involve movements across the city boundary, and this matters for what Glasgow City Council can do in relation to encouraging sustainable travel choices. Compared to Edinburgh, Glasgow has a lower proportion of Glasgow residents working within Glasgow (60% v. 72% for Edinburgh). This suggests there should be emphasis on trying to transfer larger proportions of these inbound and outbound journeys to public transport.

There is sizeable scope for modal shift for shorter journeys in Glasgow as almost 50% of journeys are under 3km in length, and 70% are less than 5km.

Almost one in ten (9%) Glasgow Household Survey respondents said they never travelled to the city centre during the day, rising to 39% during the evening. Those in social classes ABC1 were more likely than C2DEs to travel into the city at both times of day. This should be noted for an inclusive city centre in the future.

Commuting and shopping are the biggest reasons for travelling in Glasgow, with more travelling for shopping in Glasgow than other comparable urban areas.

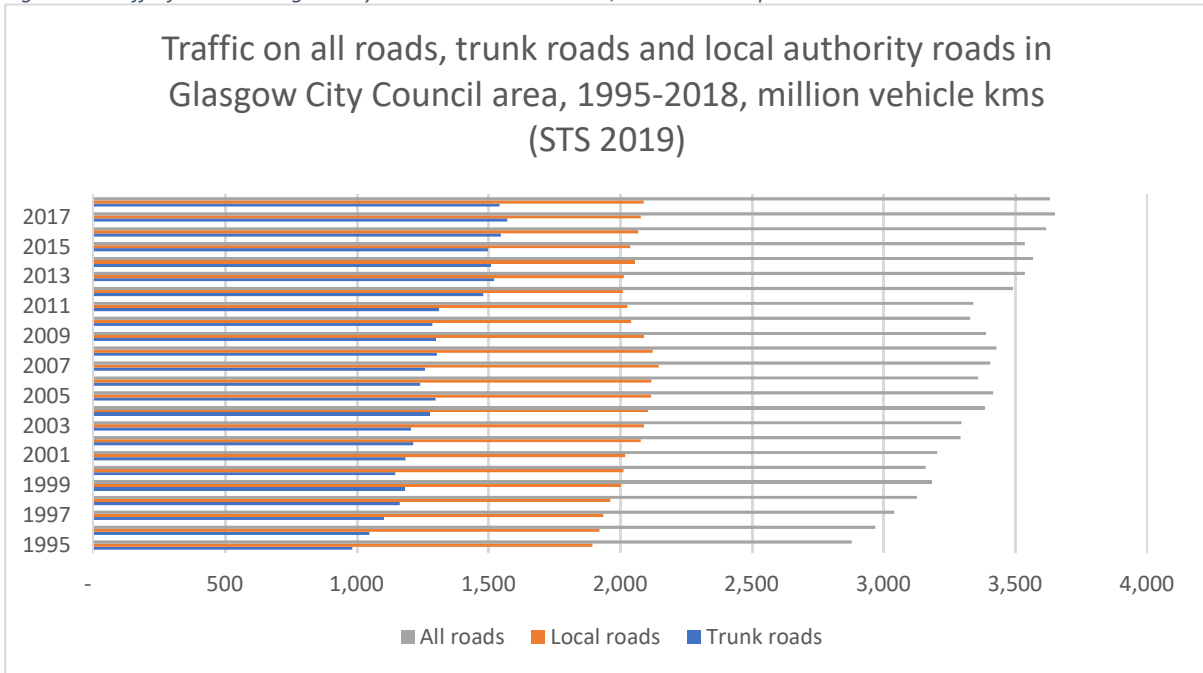
3.4 Vehicles in the city - traffic levels, distribution and classification of traffic, and personal access to vehicles

3.4.1 Traffic volumes – trends and distribution

Whilst the majority of vehicle kilometres in the Glasgow City Council area are on local authority roads, the share of vehicle kilometres on local authority roads in the Council area has reduced from 66% of vehicle kms on all roads in 1995 to 58% in 2018²⁵. Vehicle kilometres (a key metric to demonstrate traffic volumes) continues to rise in the City Council area though the largest increase is on the trunk road network, whilst the local roads network has seen little change over 20 years, and indeed peaked in 2007. There is some evidence this is rising again slowly since 2013 (pre-Covid 19 pandemic). Vehicle kilometres on the trunk road network meanwhile has been steadily increasing over time and at a higher rate than on local roads.

²⁵ <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-36-2017-edition/chapter-5-road-traffic/>

Figure 26 Traffic flows in Glasgow City Council area 1995-2018, Scottish Transport Statistics

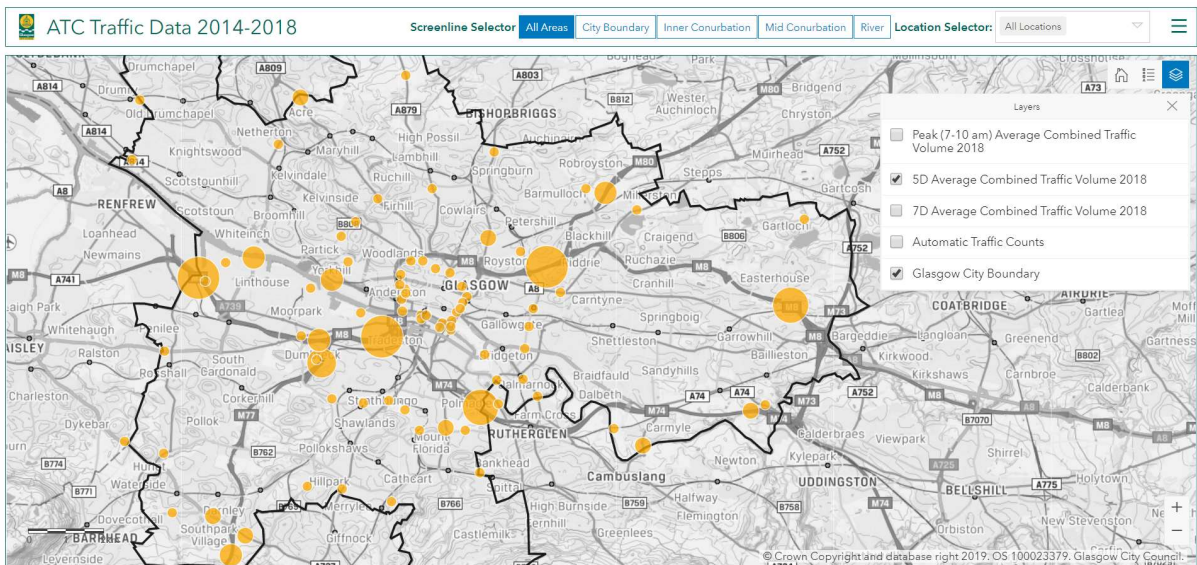


Glasgow City Council has multiple ways of gathering traffic data in the city:

- A series of automatic traffic counters (ATC) arranged in cordons.
- Data collection via SCOOT at traffic signals.
- An emerging network of Bluetooth detectors.

In terms of cordon counts, the maps below show where the heavier traffic flows occur in the city as of 2018 data. The heaviest flows are, predictably, on the motorway network and on the M8 in particular. After the motorways, the Clyde Tunnel and Clydeside Expressway see the heaviest flows.

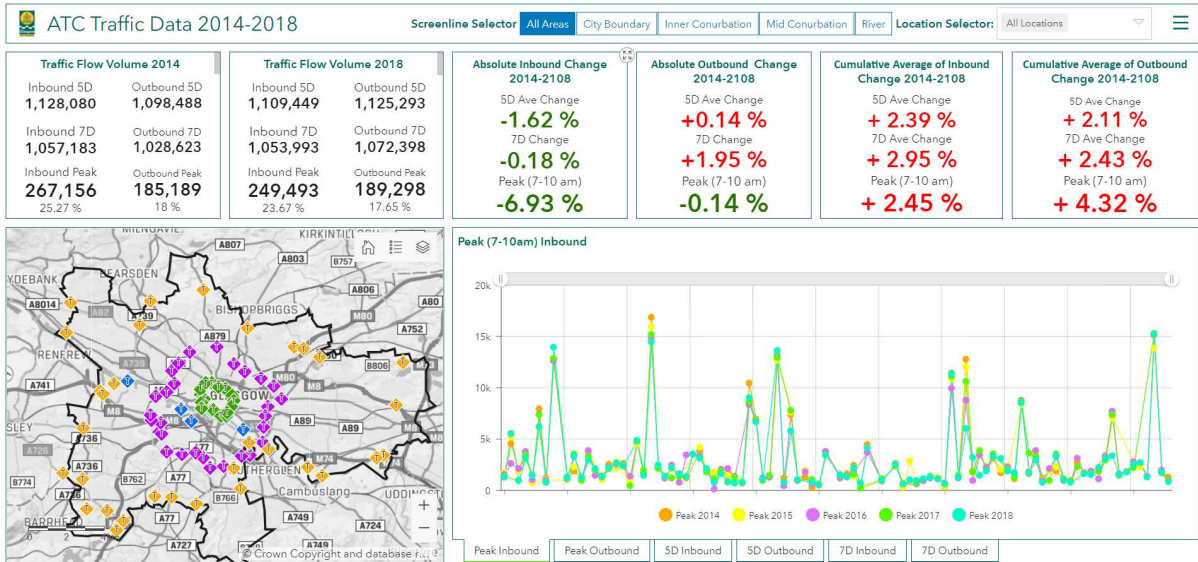
Figure 27 ATC cordon count data in 2018, 5 day average combined inbound and outbound



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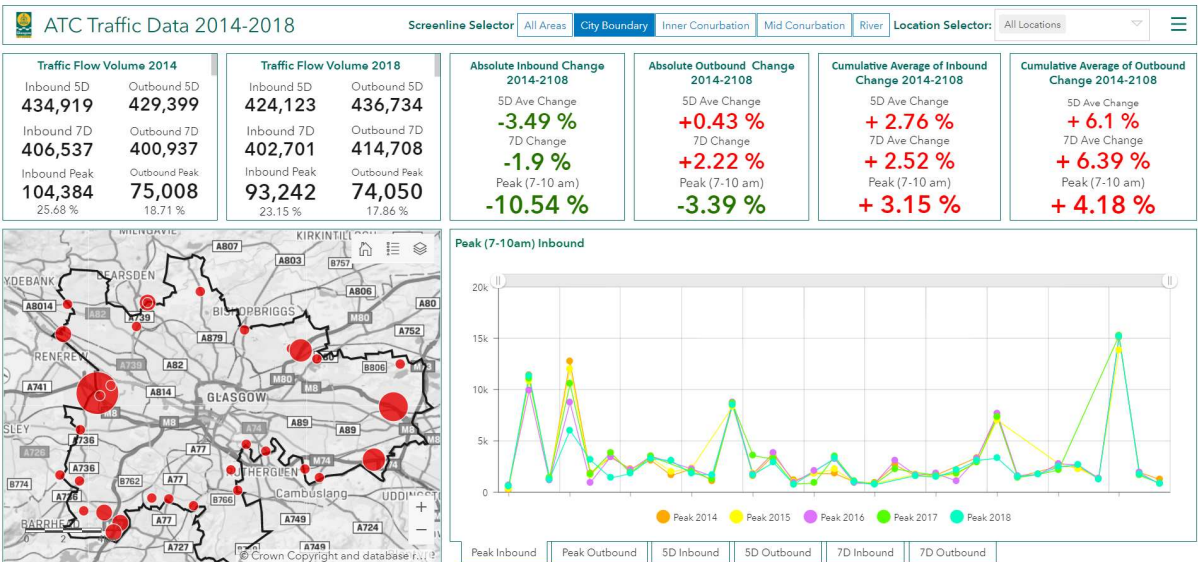
The following map shows the % change in 5 day average traffic volumes between 2014 and 2018. Overall in absolute terms, the volume of traffic in the 5 day average has slightly increased from 2014 to 2018 in this ATC dataset. Of particular note is the increase in outbound traffic overall, and decrease in inbound traffic. There is however variation in the increases and decreases by route, by direction and by time period.

Figure 28 GCC AGOL Dashboard on ATC traffic data 2014-2018 – all counters



On the city boundary cordon of traffic counters, there is a mixed picture. Overall, 5 day average flows have decreased over the period whilst 7 day average flows have increased. There is a notable decrease in inbound flows at this boundary cordon, and an increase in outbound flows.

Figure 29 GCC AGOL Dashboard on ATC traffic data 2014-2018 – city boundary cordon

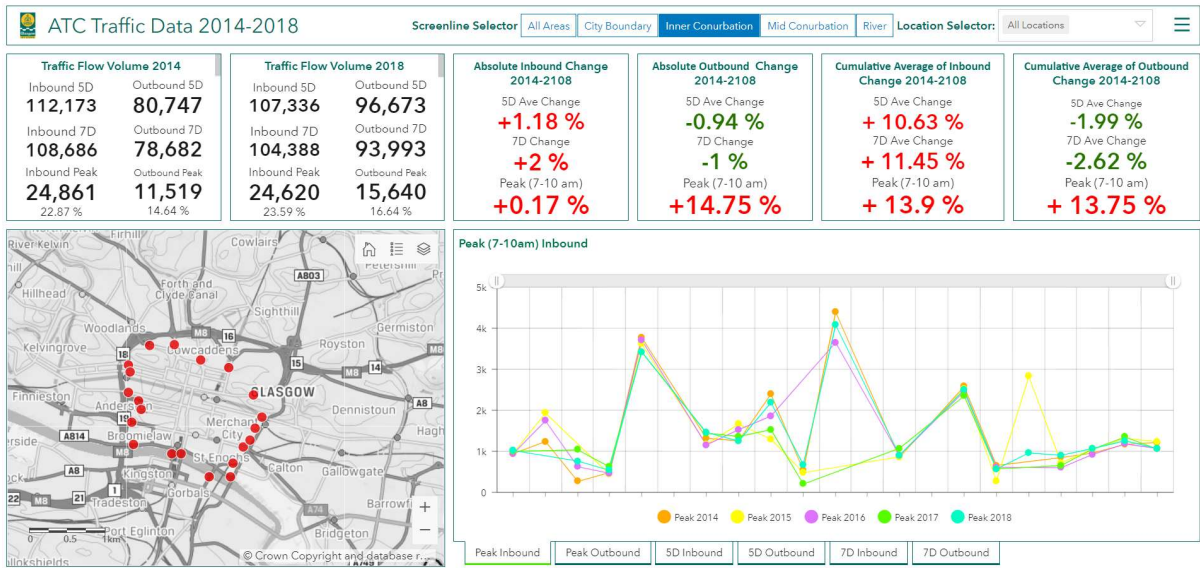


Traffic flows at the ATC counters around the city centre seem to suggest an increase in traffic between 2014 and 2018.

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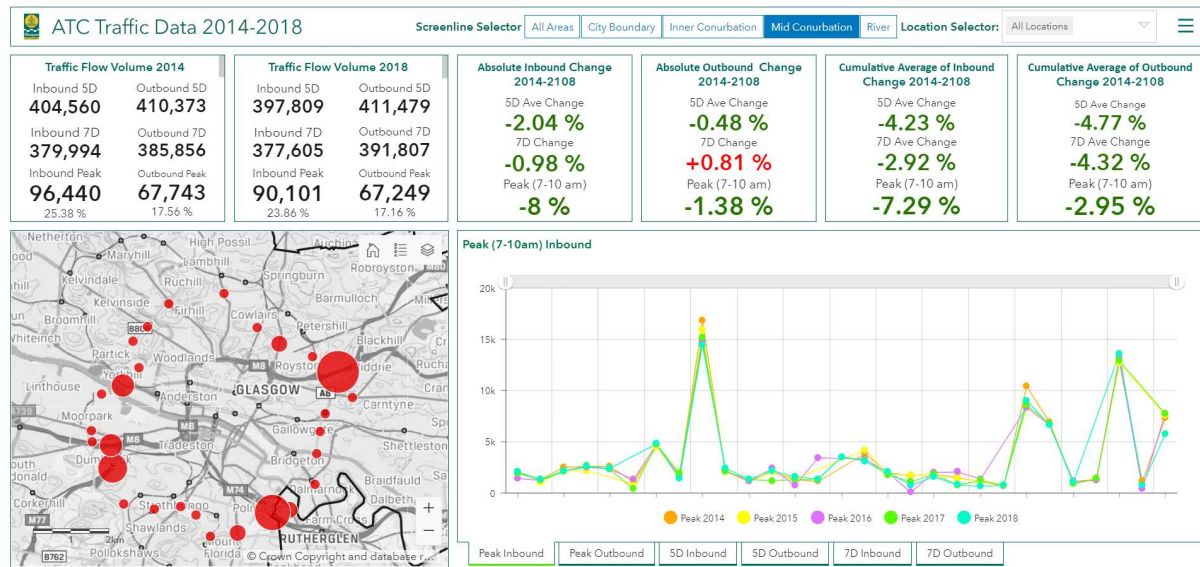
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Figure 30 GCC AGOL Dashboard on ATC traffic data 2014-2018 – city centre (inner conurbation) cordon



At the mid-conurbation cordon however, flows appear to have decreased over this time period.

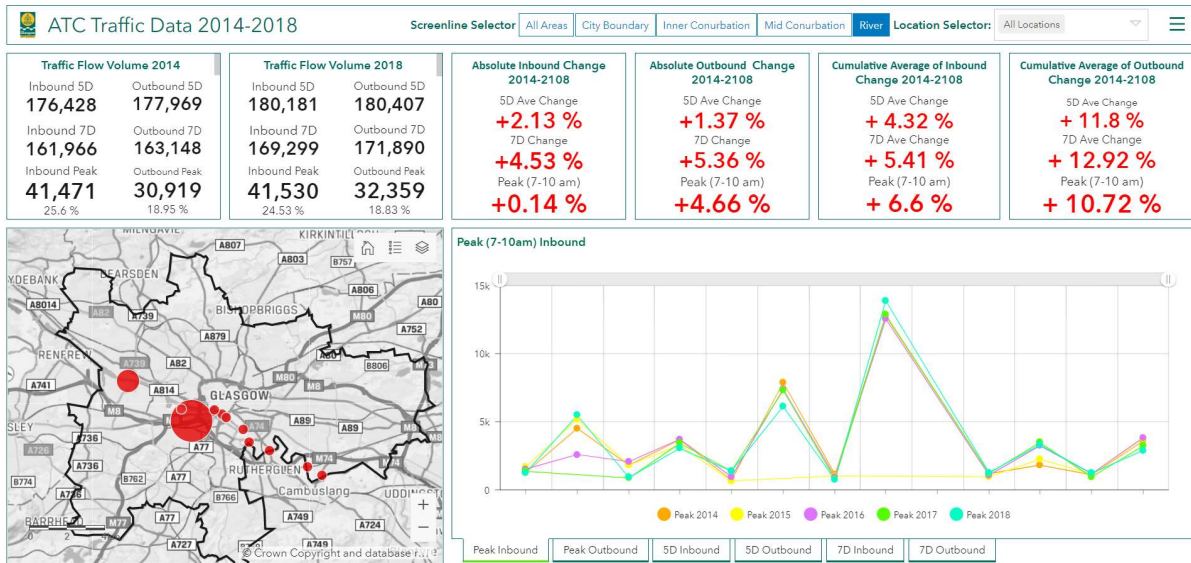
Figure 31 ATC cordon count data proportional change 2018 over 2014 – mid-cordon



Whilst on the river cordon, flows have increased and at a higher rate than other cordons and all counters as a whole in the city.

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Figure 32 GCC AGOL Dashboard on ATC traffic data 2014-2018 – river cordon



In terms of the AM peak, the data suggests around 25% of daily traffic flows are between 7am and 10am. This drops to just under 23% for the city centre inner cordon. Generally speaking, the data seems to suggest flows during the peak have been decreasing over this period for the inbound AM peak, though they seem to have increased for the outbound AM peak. Looking at the peak in isolation helps to understand where journeys are being made for the journeys to work and education in particular.

Similarly, there has been a growth in outbound flows generally in contrast to a reduction in inbound flows. This might suggest there has been a growth in residents travelling across the city boundary for work (and other) purposes.

Table 2 ATC Traffic Data - comparison between inbound and outbound

2014		2018		% change	
Inbound 5D	Outbound 5D	Inbound 7D	Outbound 7D	Inbound Peak	Outbound Peak
1,128,080	1,098,488	1,057,183	1,028,623	267,156	185,189
1,109,449	1,125,293	1,053,993	1,072,398	249,493	189,298
-2%	2%	0%	4%	-7%	2%

3.4.2 Traffic congestion

Traffic congestion is a difficult concept to define and measure, and can also be a relative concept. Some indicators of traffic-related problems presented in this Case for Change report include the analysis of traffic flows (above) and journey time issues for buses (later in the report).

The Scottish Household Survey includes a measure of congestion as perceived by residents. Figures for 2016-18 (and also for 2017-19) suggest 15% of Glasgow car driver respondents felt their journey

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had been delayed by congestion, higher than the Scottish average of 12.5%, though lower than the average for large urban areas in Scotland (16%)²⁶.

According to the INRIX 2019 Global Traffic Scorecard Report (published in March 2020) drivers in Glasgow lost 43 hours in congestion in 2019, with a decrease of 16% compared to the previous year and implied cost to £335 per driver in delays, with the 'last mile' for the commute at a speed of 13 mph²⁷. This compared to Edinburgh where there were 165 lost hours last year at a cost of £764 per driver, with this representing a 6% decrease compared to previous year.

In the analysis of the 2019 data, INRIX used commute times based on city centre and other employment centres. INRIX's earlier 2018 Global Traffic Scorecard analysis was based on the estimates calculated exclusively using the time taken to get to and from the city centre core from surrounding commuter neighbourhoods. The narrow city centre-only definition of average delay suggests congestion in Glasgow led to 99 hours being lost in traffic (a 4% increase from 2017), an estimated cost of congestion of £736 per driver and an economic cost across the city of £320m for the city.

In the 2018 INRIX analysis, Great Western Road between Kelvinside and Western Road ranked as the 9th most congested corridor in the UK outside of London, counting for 8 minutes daily delay and 31 hours yearly delay, although it did not retain this ranking in the 2019 release.

TomTom also generates estimates of congestion, with a congestion level indicator based on the additional driving time relative to a baseline of uncongested conditions. TomTom's analysis of congestion in Glasgow has remained consistent from 2017 to 2019, with a 'congestion level' indicator of ~25% throughout, but with peak period figures over 50%, suggesting delays of ~15 minutes for each 30 minute journey in the two peak periods. TomTom suggests the lost time in congestion in the city to be 119 hours. By way of comparison, the congestion level indicator for Edinburgh is higher at 41% with 172 hours lost in congestion.

Transport Scotland's STPR2 analysis of problems and issues in the Glasgow City Region suggests some areas on the road infrastructure in the city region operate at capacity and result in increased journey times and uncertain journey time reliability²⁸. Most severely affected are the arterial Trunk Road routes including the M8 and M74 which in turn affect travel into Glasgow City at peak times. This congestion also impacts on journey time reliability to Glasgow Airport. Modelling done in the STPR2 work suggested that between 2014 and 2037, road congestion (as measured by PM peak delay as seconds per mile) was forecast to increase by 41%, higher than the average 37% across Scotland. It should be noted however this modelling was on a base pre-Covid-19, with associated growth assumptions.

SPT's Regional Transport Strategy Draft Case for Change report also discusses the issue of congestion in the region and in Glasgow²⁹. It concludes that the motorway network in the SPT area has experienced the highest levels of traffic growth in the past decade, although notes that Glasgow City Council area experienced lower than the regional average growth in traffic levels over this period. Pre-Covid19 modelling suggests there could be significant future traffic growth on local roads in the

²⁶ <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/> Table 6 Congestion delays experienced by drivers and car occupancy

²⁷ Narrative on INRIX and TomTom extracted from work by Systra for Glasgow City Council on WPL.

²⁸ <https://www.transport.gov.scot/media/49124/initial-appraisal-case-for-change-glasgow-region-report.pdf> Initial Appraisal: Case for Change, Glasgow City Region, February 2021, Transport Scotland (Jacobs & AECOM)

²⁹ <http://www.spt.co.uk/vision/>

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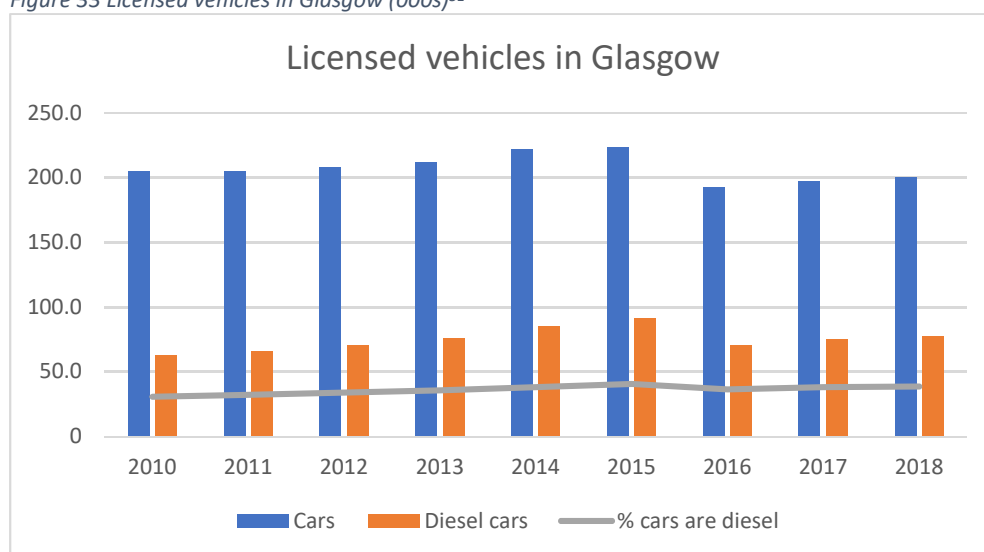
future with many parts of the road network operating at capacity by 2042, though the impacts of traffic growth on local roads is likely to be more dispersed than shown in the modelling. Notwithstanding, the greatest changes and anticipated congestion problems are still likely to be experienced on the motorway network.

Finally, congestion has substantial impacts on bus journey time reliability and this is discussed further in section 3.10 below.

3.4.3 Personal access to vehicles

The number of vehicles licensed per 1000 population in Glasgow in 2018, at 385, is the lowest in Scotland of any local authority³⁰.

Figure 33 Licensed vehicles in Glasgow (000s)³¹



Some 46% of households in Glasgow do not have access to a car (Scottish Household Survey, 2018³²). When considering the type of tenure of households in Glasgow, the proportion of owner occupied households with no access to a car is 25%, compared to 71% for social sector tenure, and 57% of households in the private rental sector. These proportions of households without access to a car are significantly higher than the comparable averages for Scotland, and clearly demonstrates a disparity in access to a car in Glasgow.

Whilst dated, the 2011 Census gives more detailed insight into the spatial variation across the City in terms of access to a car by household. There is generally a correlation between areas with lower car access by households, and Scottish Index of Multiple Deprivation (SIMD ranking), as can be seen by the maps below – paler areas on both maps are areas of lower car ownership and higher ranking in the SIMD.

³⁰ <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-38-2019-edition/>

³¹ <https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01> VEH0105

³² https://www2.gov.scot/Topics/Statistics/16002/LATables2018/2018_split_SHS_Local%20Authority_table, Table 3.3d

Figure 34 Number of cars per household (2011 Census)

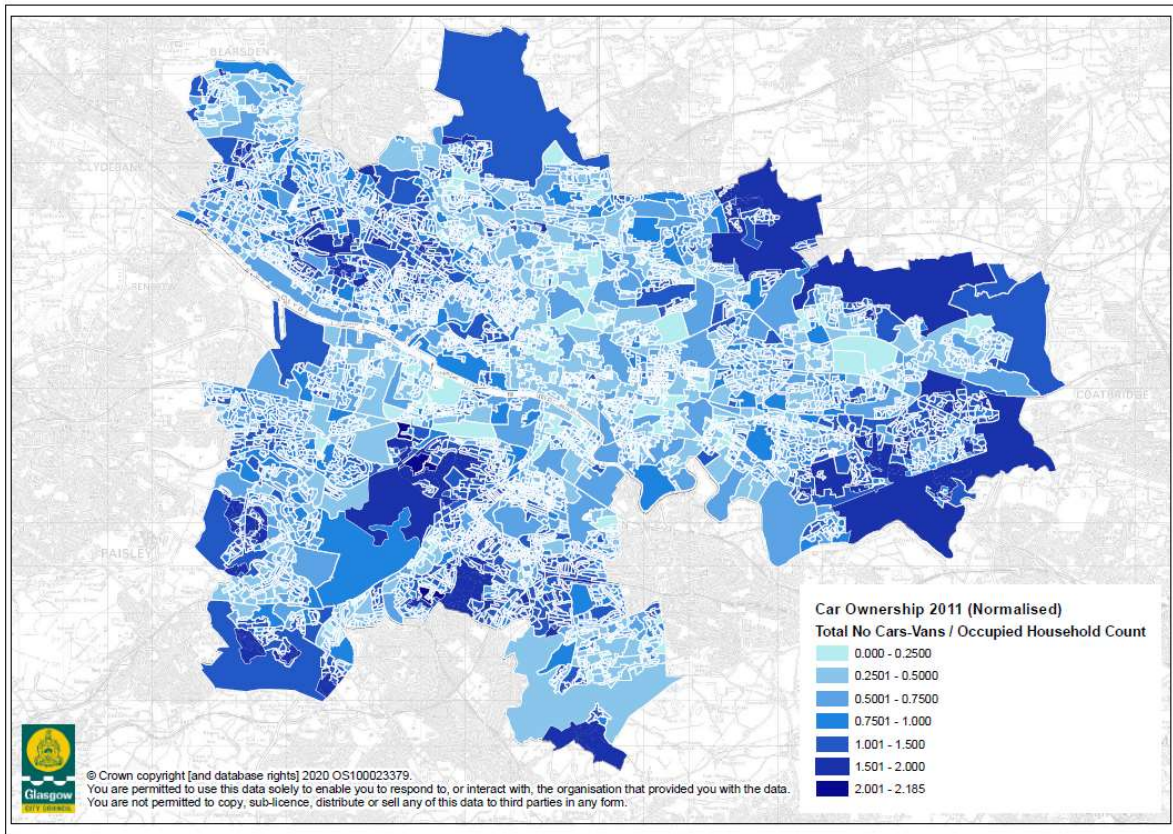
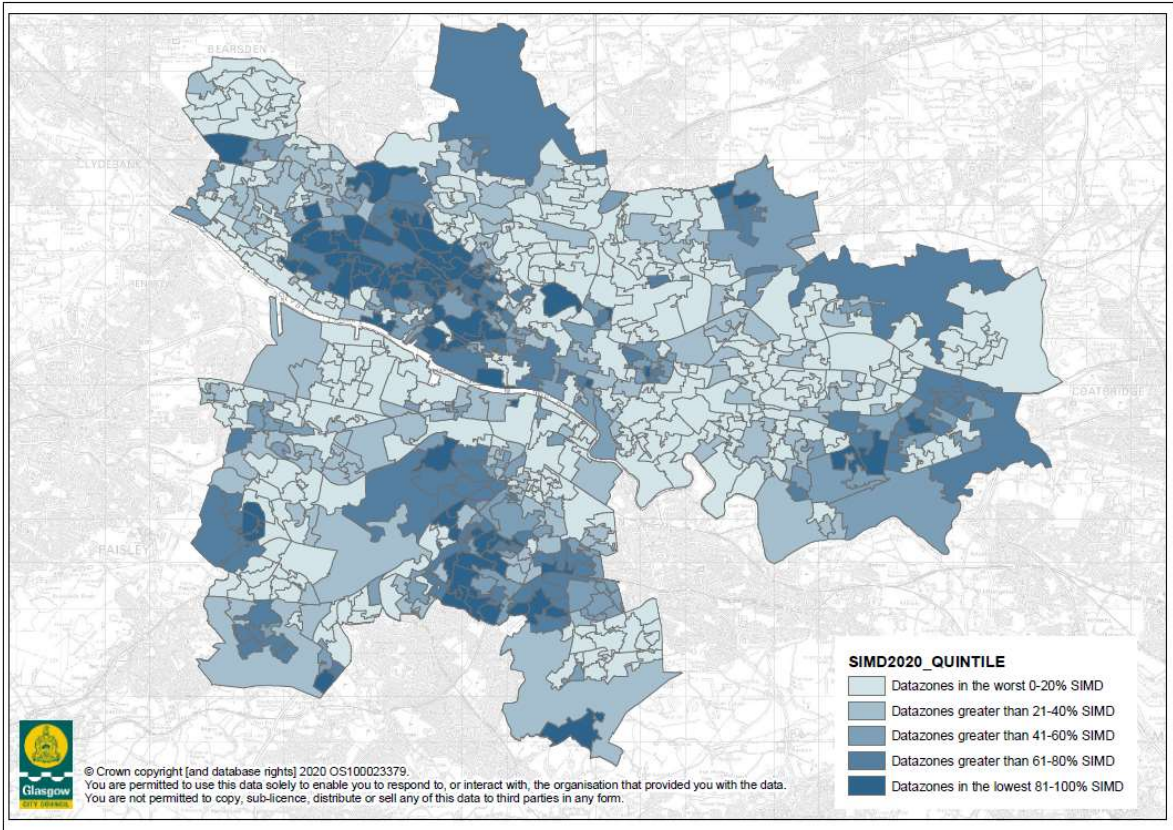
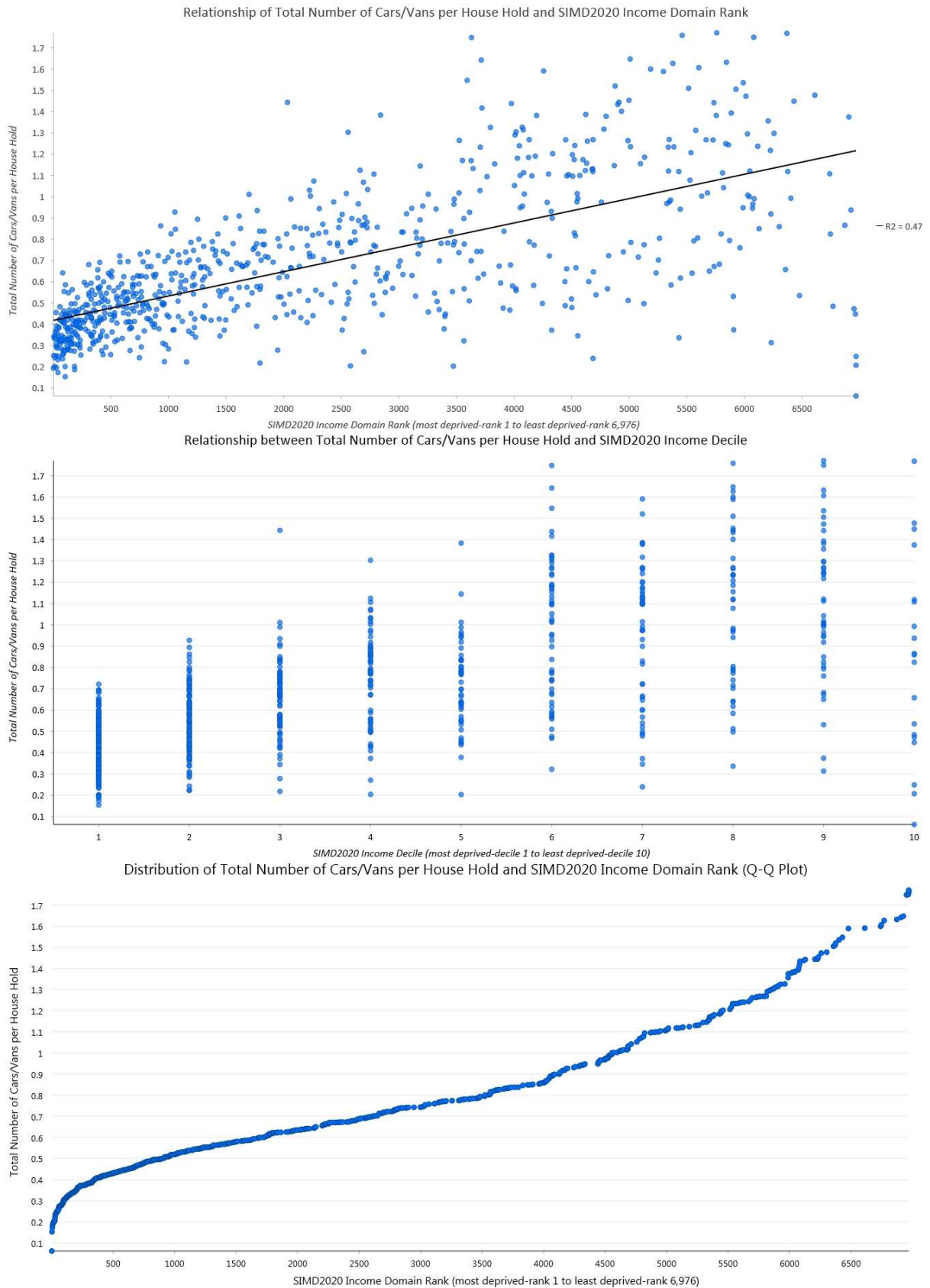


Figure 35 Scottish Index of Multiple Deprivation 2020



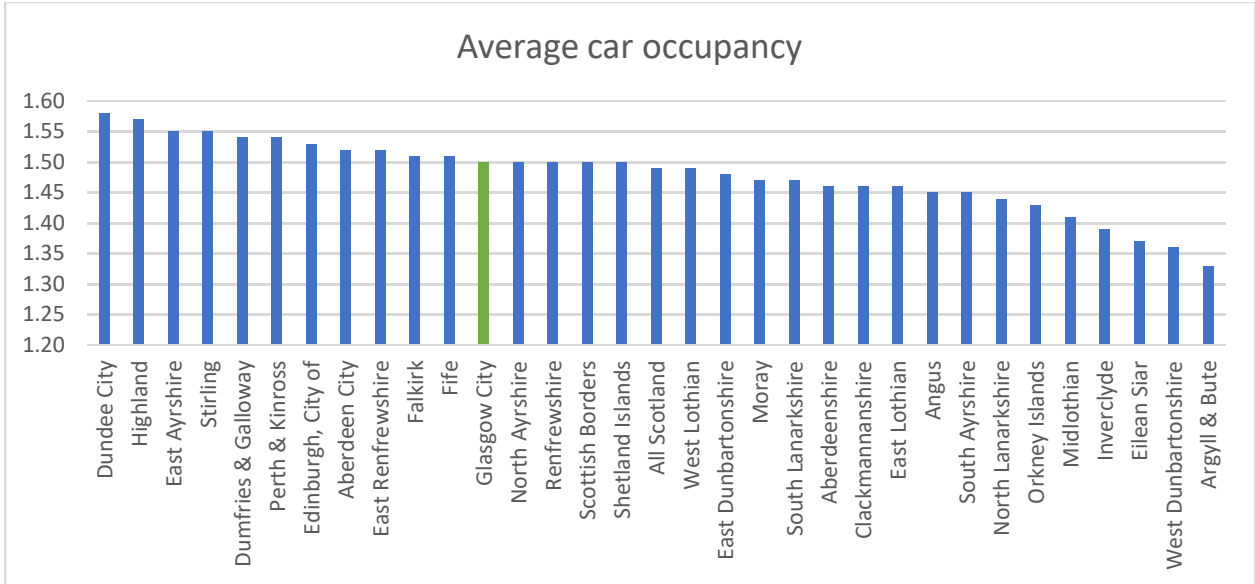
Taking this analysis further, there is a clear correlation between 2020 SIMD income domain ranking and household access to a car in Glasgow, as the following graphs shows.

Figure 36 Distribution of total cars/vans per household and SIMD income domain rank (GCC GIS/Data team)



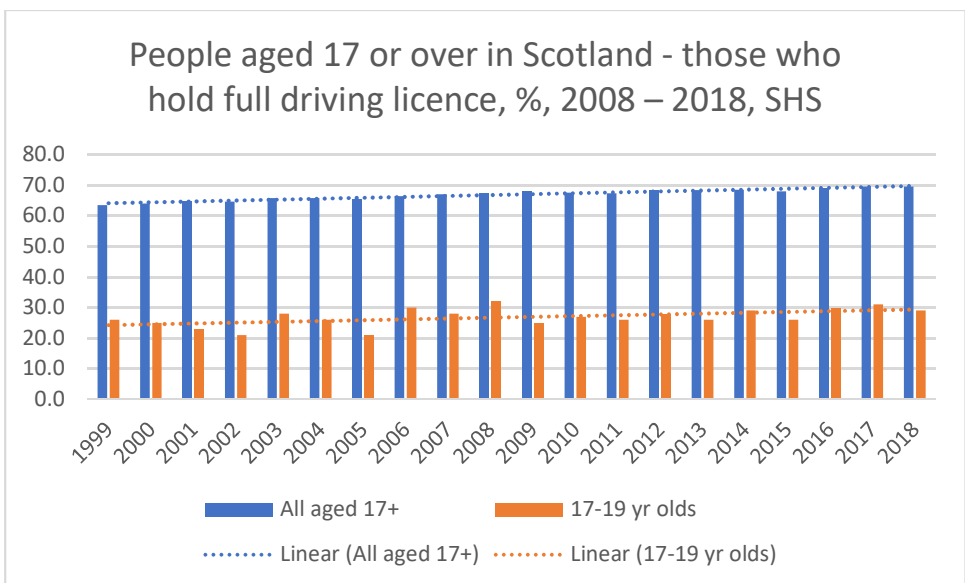
Average car occupancy in Glasgow is 1.50, slightly higher than the Scottish average of 1.49 but lower than Dundee, Edinburgh and Aberdeen³³. There is an opportunity to increase the efficiency of car travel on the road through policy measures to encourage car sharing and to discourage unnecessary journeys in general.

Figure 37 Average car occupancy in Scotland by local authority 2018



Uptake of driving licences in Scotland tends to be highest in age groups between 40 and 60, and lowest for those aged between 17 and 19³⁴. There appears little evidence yet in Scotland that a desire to have a driving licence in this youngest age group is declining, and the long-term trend has been growth, though 2018 saw a slight decrease.

Figure 38 Proportion of eligible population holding a driving licence in Scotland



³³ <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2018-pdf-version>

³⁴ <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-results-from-the-scottish-household-survey-1/>

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That said, Scottish Household Survey data shows that people in Glasgow are least likely to have a driving licence to begin with – in 2018, 46% of SHS survey respondents in Glasgow said they did not hold a driving licence compared to 30% at a Scotland wide level and 39% for large urban areas in Scotland. The Scottish Household Survey from 2018 also suggests people in Glasgow are, after Edinburgh, the least likely local authority population to drive every day. These are opportunities to build upon in Glasgow's new transport plans, provided this lack of access to and use of cars does not contribute to diminished access to opportunities for residents.

3.4.4 Why do people drive

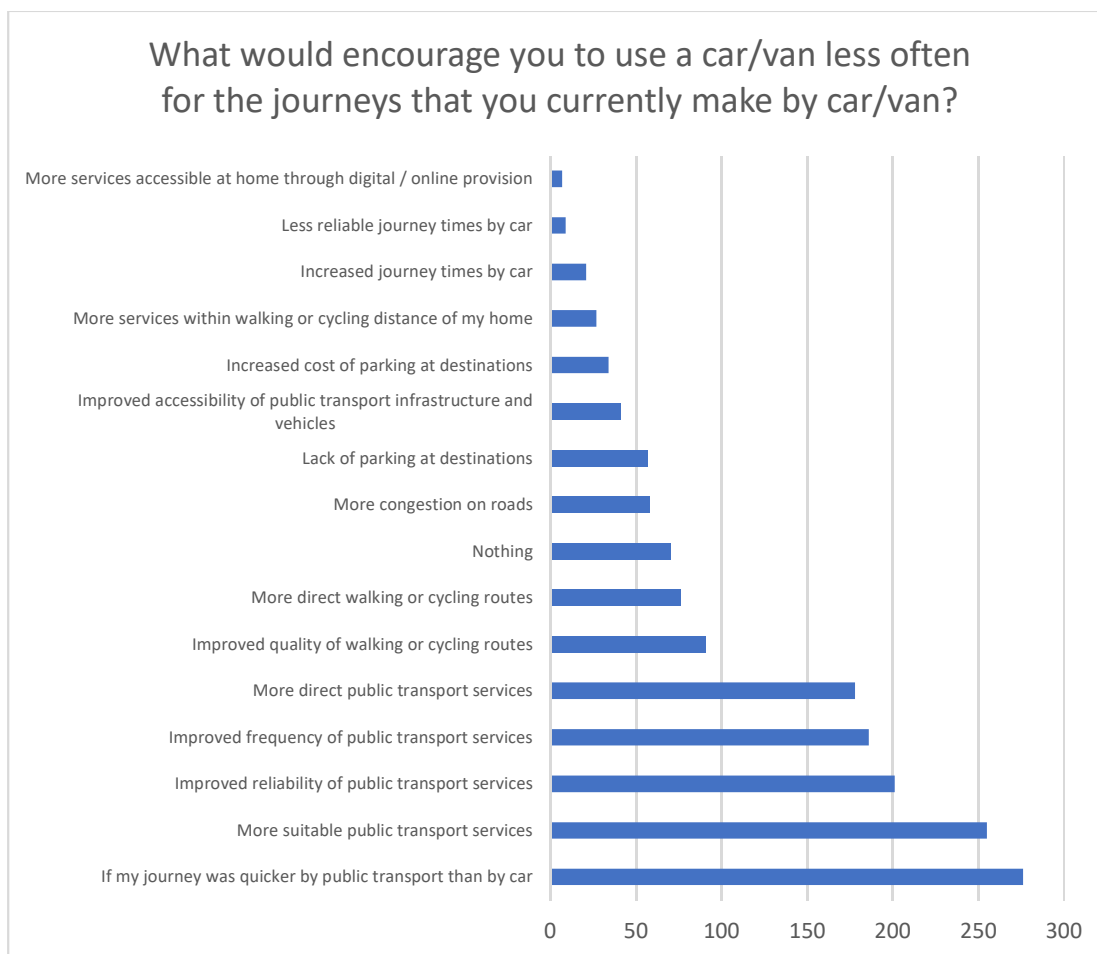
The SPT RTS survey asked respondents about car ownership and use as well as factors that might influence their use in the future.

Amongst the Glasgow residents who answered the survey, 53% of question respondents (51% of Glasgow survey respondents overall) said they either owned or had regular access to a car or van – this suggests that the survey sample was fairly representative of the proportion of people in Glasgow who do not have access to a car, c44%. A third of the question respondents said they used their car everyday or nearly everyday (though this dropped to 17% of the survey respondents overall based in Glasgow).

When asked what would encourage them to use their car or van less, the top responses referred to better public transport – quicker public transport, more suitable services, more frequent and reliable services. The following figure sets out the response to this question from Glasgow residents (note, respondents could select multiple responses).

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Figure 39 SPT RTS survey - motivations for using car less



A question also asked what the issues and challenges were that would stop the respondent from using public transport at all or more regularly. The most commonly selected responses were:

- No direct public transport services for the journeys I want to make
- Reliability of public transport
- Frequency of public transport
- Cost of public transport fares
- Longer journey times by public transport compared to using my car/van

The topic of **low carbon vehicles** is covered under transport and emissions below.

3.5 Key insights from movements of vehicles

Whilst the majority of vehicle kilometres in the Glasgow City Council area are on local authority roads, the share of vehicle kilometres on local authority roads in the Council area has reduced from 66% of vehicle kms on all roads in 1995 to 58% in 2018. Vehicle kilometres (a key metric to demonstrate traffic volumes) continue to rise in the City Council area though the largest increase is on the trunk road network, whilst the local roads network has seen less change over 20 years, and indeed peaked in 2007. There is some evidence this has been rising again slowly since 2013. Vehicle kilometres on the trunk road network meanwhile has been steadily increasing over time and at a higher rate than on local roads.

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Data from the Council's Automatic Traffic Counter network for 2014-18 suggests around 25% of daily traffic flows are between 7am and 10am. There has been a growth in outbound flows generally over this period in contrast to a reduction in inbound flows. This might suggest there has been a growth in residents travelling across the city boundary for work (and other) purposes

Traffic congestion is a difficult concept to define and measure, and can also be a relative concept. The Scottish Household Survey includes a measure of congestion as perceived by residents. Figures for 2016-18 (and also for 2017-19) suggest 15% of Glasgow car driver respondents felt their journey had been delayed by congestion, higher than the Scottish average of 12.5%, though lower than the average for large urban areas in Scotland (16%). Some measures of congestion in Glasgow are not as pronounced as in e.g. Edinburgh or some other UK cities. The focus on congestion appears to be mainly on the motorway network, though traffic levels do impact on bus journey time reliability on a number of key corridors within Glasgow City Council area such as Great Western Road, Maryhill Road, King George Bridge and Glasgow Bridge. Pre-Covid19 modelling forecasts rising traffic levels in the future across the strategic and local road network, with the impacts of congestion particularly pronounced on the motorway network though not exclusively.

In general, further analysis is required to understand the potential impact of trends accelerated by Covid-19 on previous assumptions around future traffic growth. Covid-19 in 2020 also saw a change in distribution of traffic across the day, with a decline in AM peaks.

The number of vehicles licensed per 1000 population in Glasgow, at 385, is the lowest in Scotland of any local authority. 46% of households in Glasgow do not have access to a car. This rises to over 70% when considering households in social sector tenure only. Analysis suggests there is a clear correlation between 2020 Scottish Index of Multiple Deprivation (SIMD) income domain ranking and household access to a car in Glasgow (lower income, less likely to have access to a car).

From the SPT RTS survey of Glasgow residents, when asked what would encourage them to use their car or van less, the top responses referred to better public transport.

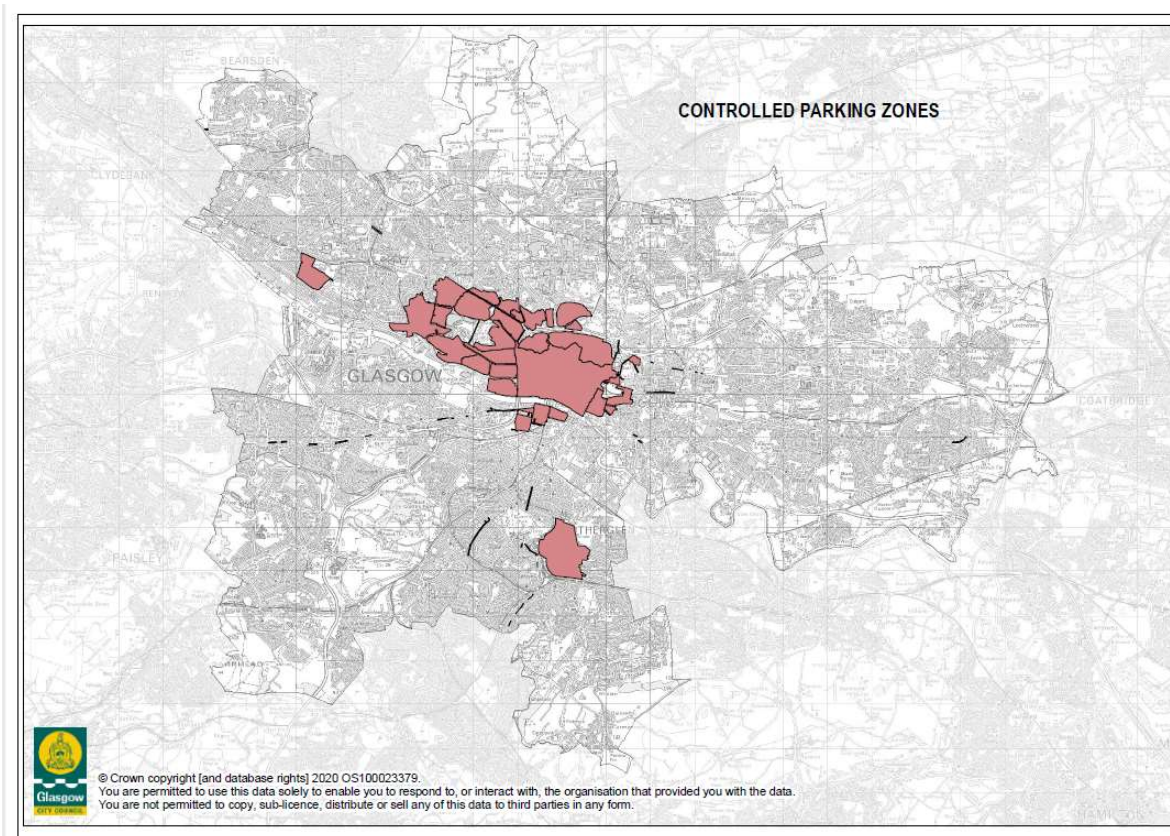
3.6 Demand management in the city

3.6.1 Parking

Glasgow has a number of parking zones across the City, shown in the figure below. As can be seen, parking controls tend to be clustered around the central area of the City towards the northwest, and generally to the north of the river. The exception to this pattern is stadia for event-day parking controls.

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Figure 40 Overview of controlled parking areas in Glasgow



These parking zones vary from Mon-Fri, Mon-Sat to Mon-Sun (city centre), and generally apply restrictions during the day as opposed to evening. Residents and businesses can purchase annual permits, whilst others have to pay by duration of parking up to a maximum stay of a few hours.

In addition, a Council workplan is in place to explore further parking zones. Council Committee approval was also given in February 2020 to explore extending chargeable hours in some parking zones to include evenings and weekends at requests of residents.

3.6.2 Parking capacity

A Glasgow City Centre Strategic Parking Review was carried out in 2015³⁵. This report presented a number of key insights into demand for car parking, discussed below.

Car parking in the city centre is provided through permanent off-street car parks; temporary off-street car parks; and on street parking. The report stated there were around 14600 off-street parking spaces (just under 12000 of which are in permanent car parks), and 2350 on-street parking spaces in the city centre, totalling just under 17,000 parking spaces.

The report noted that the most recently recommended ceiling on public off-street parking capacity in the city centre was set at a level of 12,126 in 2014 in the Proposed City Development Plan.

³⁵ Glasgow City Centre Strategic Parking Review, June 2015, GCC

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An assessment of future capacity based on committed projects at the time of writing in 2015 was a reduction to around 13,500 spaces in the city centre. The Avenues programme was forecast to involve a reduction of over 300 on-street car parking spaces.

Occupancy surveys were carried out in 2012 of off-street car parks with some 12,500 parking spaces. The work found that these car parks were 51% full at peak occupancy between 1300 and 1400 on a weekday. Car parks in **most demand** were at:

- Cadogan Square (near the M8 in the west of the city centre)
- Cambridge Street (near the M8 in the north-west of the city centre)
- Dunlop Street (near St Enoch's north of the river).
- Oswald Street and Charing Cross were 4th and 5th highest average occupancy out of the 22 car parks surveyed, again close to the M8 (west) and the river corridor.

Car parks where **commuter parking** was most observed (i.e. reached 50% occupancy by 9am) were:

- Cadogan Square
- Cambridge Street
- Charing Cross
- Oswald Street

Car parks in least demand were:

- Buchanan Galleries (one of the largest car parks in the city centre)
- Sauchiehall Street
- Waterloo Street
- Candleriggs
- Duke Street (one of the largest car parks in the city centre)

The report noted that some car parks in the city centre serve different purposes e.g. mainly commuter, or mainly retail. It concluded that car parks in the west and south of the city centre predominantly serve a business /commuting function.

An interview survey of over 1000 visitors to Glasgow city centre formed part of the 2015 review work, with half undertaken on-street with multi-modal visitors and half at off-street car parks with car park users. The report concluded from this survey work that:

- Travel by car is an important mode of access for visitors to the city centre, but the same is true for public transport;
- When choosing between car parks, cost and security are particularly important considerations;
- Stated responses suggest walking distance from car park to destination is relatively less important than other factors;
- Car park location and ease of access are considered relatively important; this indicates that more centrally located car parks (further from the peripheral routes) may be less attractive; and
- Many visitors to the city centre choose car parks which are not the closest to their main destination.

Overall, the review work made the following recommendations:

- Carry out the measures outlined in the City Centre Strategy;
- Retain current ceiling on permanent off-street parking capacity at the level established by the 2014 proposed Local Development Plan;

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- Consider the provision of additional permanent off-street parking capacity in districts which the majority of the parking capacity is made up from temporary spaces;
- Consider issues which would contribute towards optimised usage of permanent off-street parking in the city centre such as parking availability, route guidance and utilisation of peripheral routes, strengthening links between parking and key destinations, and consideration of enhancing the existing PGI systems for the city centre;
- Consider the future role of Click and Collect services, in particular around public transport hubs and retail or shopping areas;
- Ensure that permitted locations for parking in Avenues are clearly marked and other complimentary measures are carried out to prevent indiscriminate parking; and
- Ensure that all future parking provision includes suitable capacity for blue badge holders, in appropriate locations and quantities.

3.7 Road safety

Glasgow has a statutory duty under section 39 of the Road Traffic Act 1988 to provide a road safety service which must include measures to promote road safety through education, training and publicity and to undertake studies into road traffic collisions and take steps to reduce and prevent them.

Glasgow has seen a reduction in casualty figures over the past decade, demonstrating what can be achieved by working in close partnership with our communities, schools, businesses and partner agencies such as the Police, Fire and NHS.

Over the past 20 years all fatal injuries have reduced significantly from a peak of 24 in 2006 to a record low of low as 4 in 2013. Child fatalities have also reduced and for the past 3 years have remained at zero.

Serious casualties have similarly reduced over the past 20 years with a very slight flattening of the curve for child casualties towards the end of 2020.

In 2010 the Scottish Government set casualty reduction targets for local authorities to achieve based on the average casualty figured from 2004/08. Glasgow has performed well in all areas in terms of national targets for casualty reduction. In particular slight injuries reduced by 41% compared to the national target of 10%.

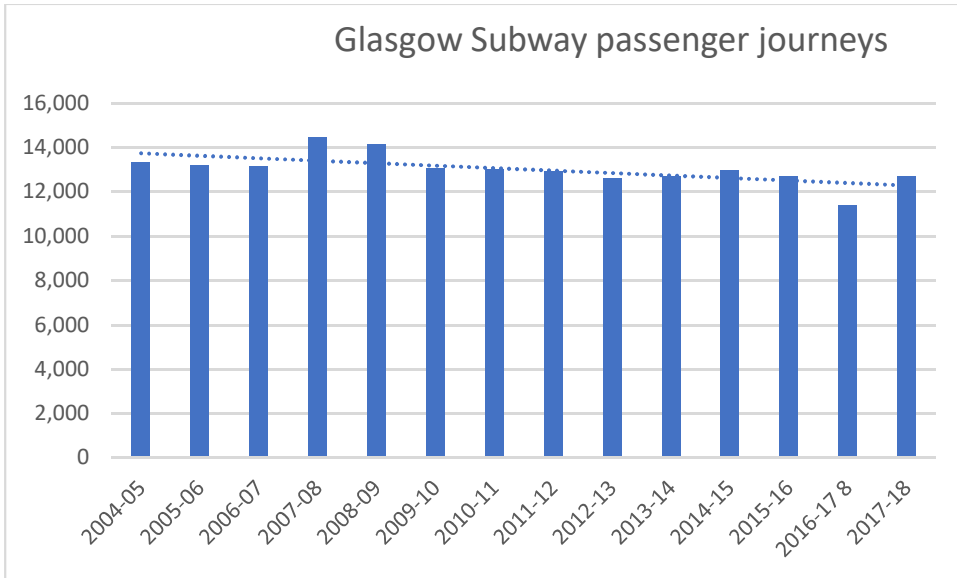
In terms of collision causations, 'Failed to Look' continues to be the most common causation in all collisions city-wide. It is of note that driver behaviour and driver error are the most common factors in the majority of collisions and that illness and disability is now listed as one of the main causations in fatal collisions in the city.

3.8 Subway

Passenger journeys on Glasgow's Subway have shown a mixed pattern in recent years, with peak usage in 2007/08, although SPT data on station gate entries suggests use of the Subway increased in 2018/19, recording the highest number of entries in 5 years⁵¹. It should be noted that 2016-17 was an unusual year as the Subway was closed for 5 weeks for engineering works.

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Figure 41 Glasgow Subway passenger journeys in '000s (Scottish Transport Statistics)



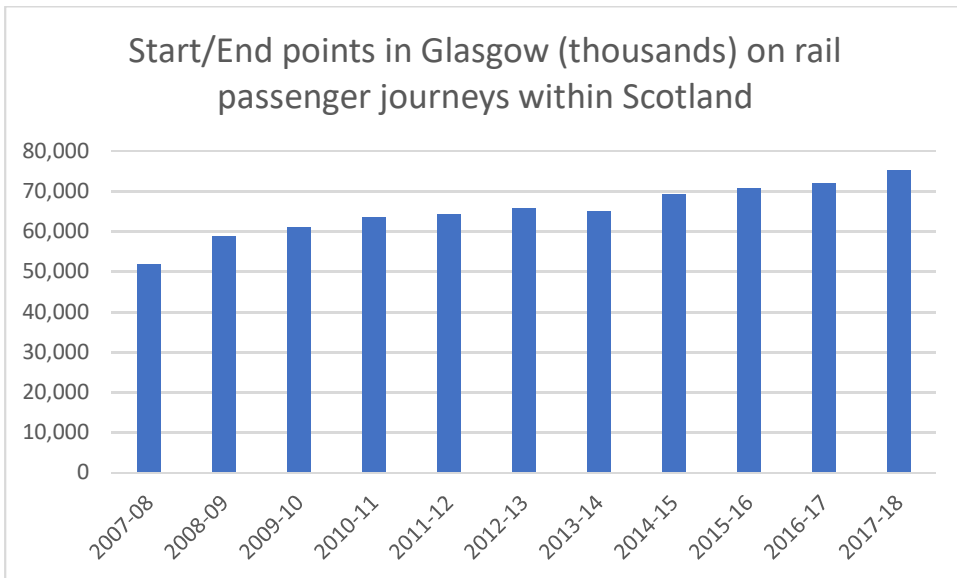
In terms of individual stations, the busiest are Buchanan Street, followed by St Enoch and Hillhead.

The heaviest flows of passengers between individual Subway stations tend to be between stations in the city centre and the West End. It should be noted that the Subway link between Partick and Govan offers a fairly unique public transport connection across the river at this point.

3.9 Rail

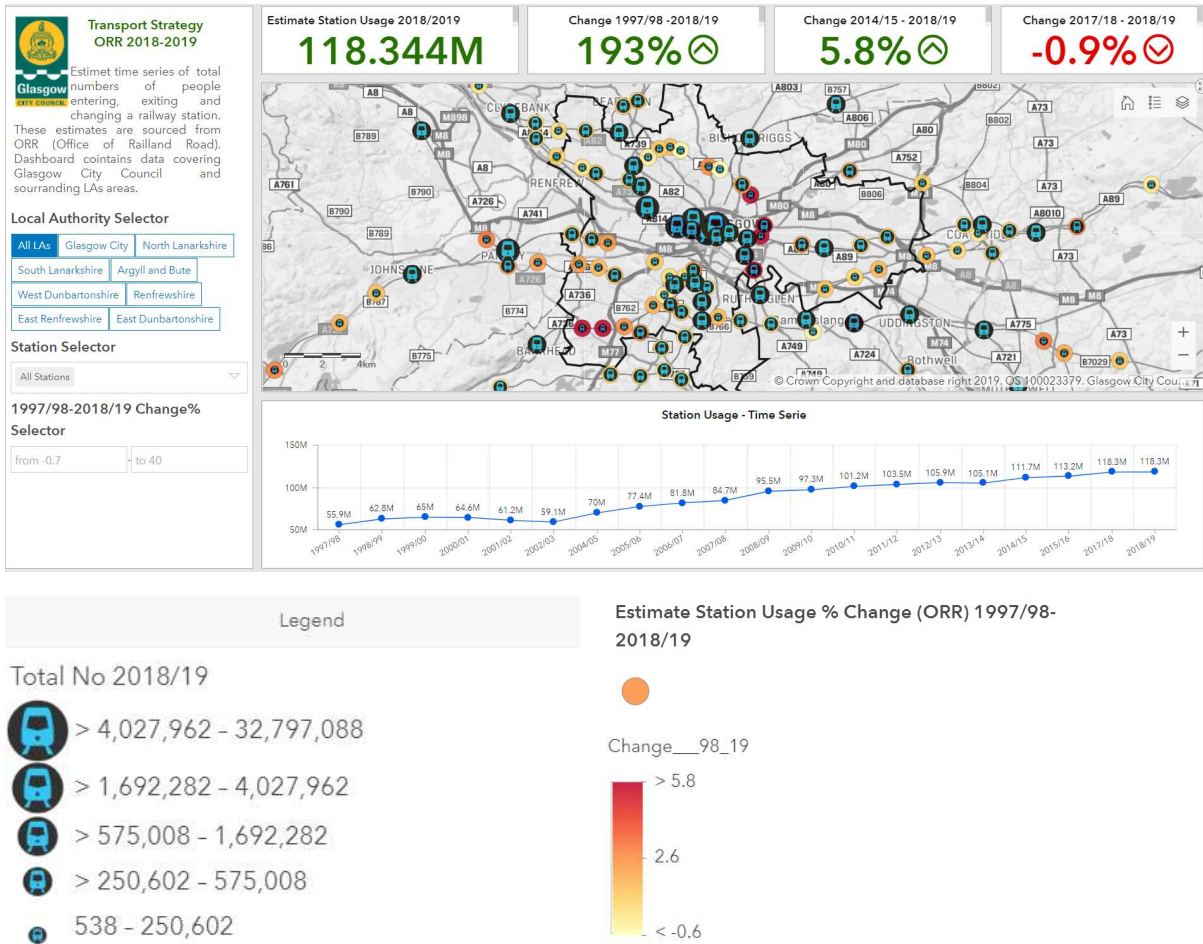
Rail passenger journeys have grown in the past decade in Scotland generally, and in Glasgow.

Figure 42 Rail passenger journeys starting and ending within Glasgow City, Scottish Transport Statistics



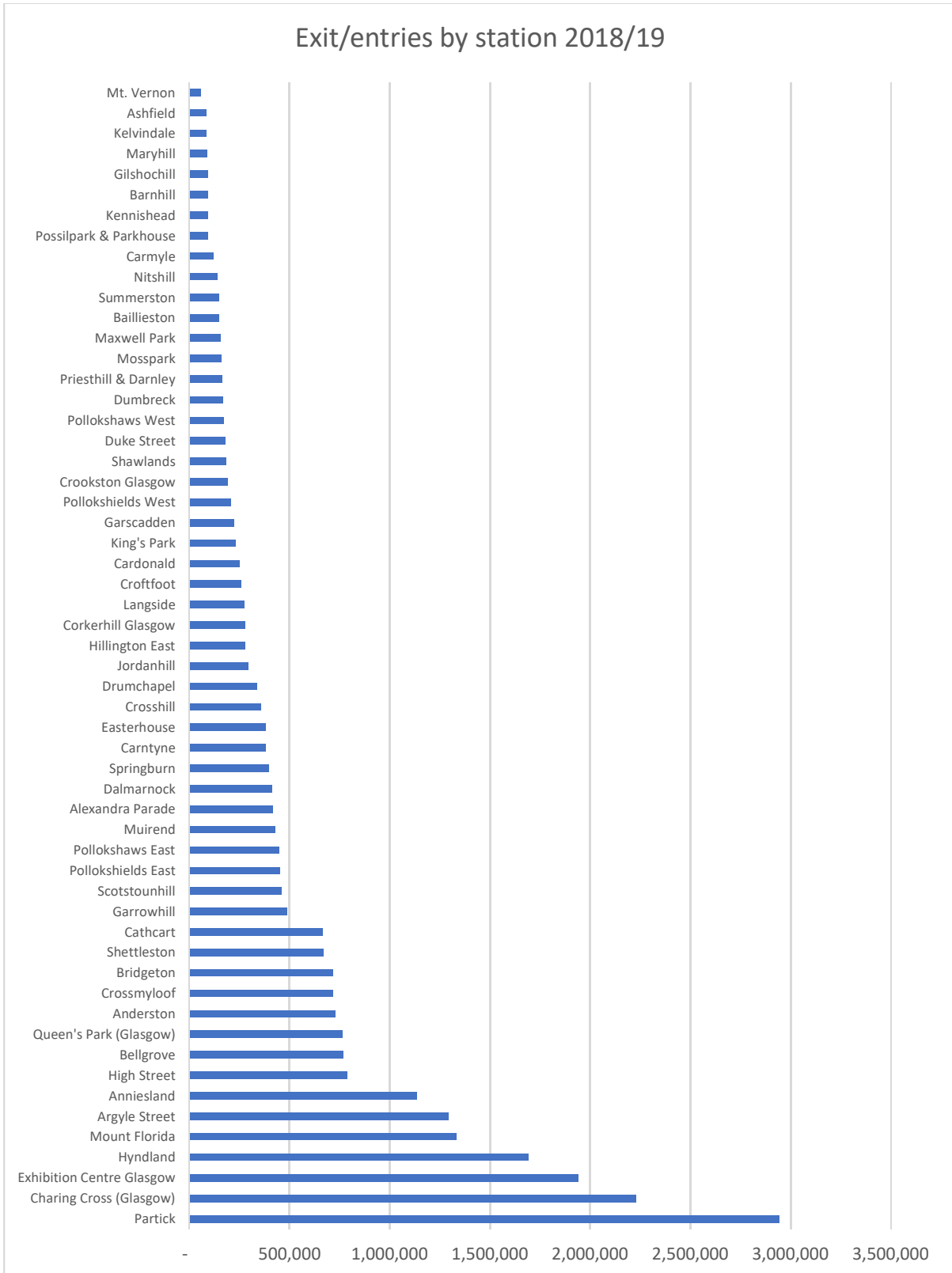
In terms of growth of patronage at stations across the region, the Glasgow City Council dashboard map below shows the busiest stations as well as those that have seen the highest % growth over the last 20 years ([here](#)).

Figure 43 Station usage estimates dashboard, Glasgow City Council



This broadly shows that the stations with the highest patronage in 2018/19 were clustered in central Glasgow, and on routes from the north-west and East Dunbartonshire. Glasgow Central had 32.8m exits and entries in 2018/19, the first ever reduction in exit/entry estimates for this station, while Queen Street saw 17.2m. Exit/entries at Glasgow Queen Street has fluctuated over the years, seeing 19.7m in 2010/11. Excluding these two stations, the graph below shows the stations with the highest number of exits and entries in 2018/19.

Figure 44 Exits/entries by rail station in Glasgow excl QS & Central 2018/19, ORR



Stations in the south of the City also see relatively high patronage levels, such as Mount Florida at 1.3m in 2018/19. In terms of rail stations that have seen the highest growth in the last 5 years (all over 30% growth), these are in order of magnitude:

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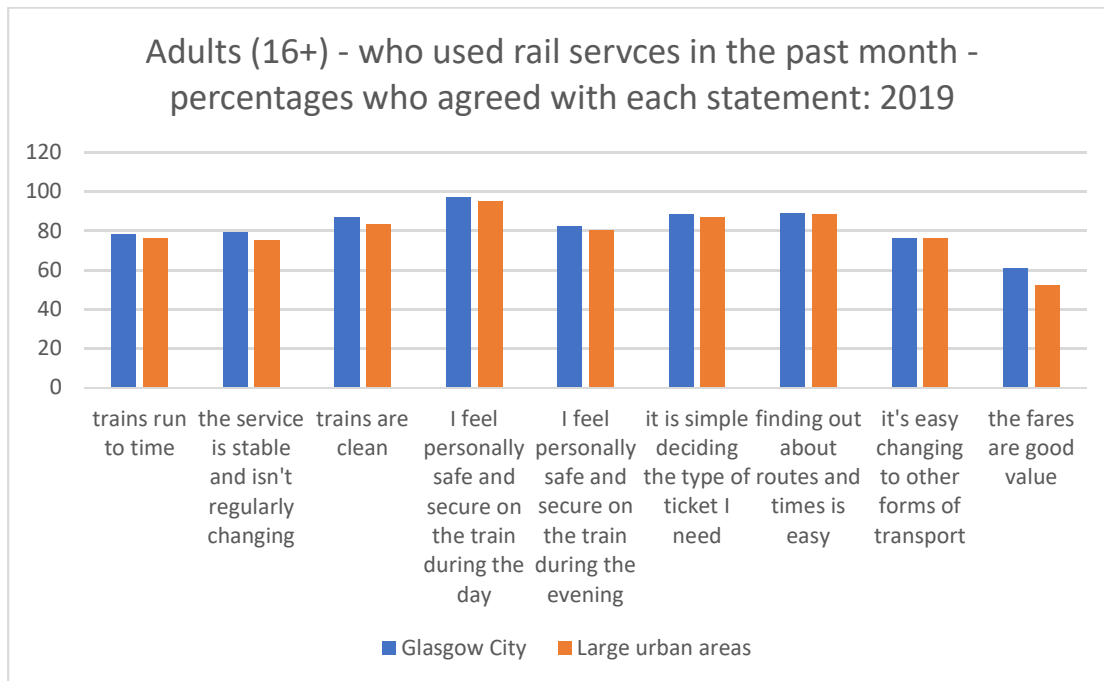
- Dalmarnock
- Alexandria Parade
- Duke Street
- Kennishead
- Mosspark
- Baillieston
- Pollokshaws East
- Nitshill
- Hillington East

It should be noted that Dalmarnock rail station was redeveloped as part of the Glasgow City Region City Deal programme. It sits at the heart of Clyde Gateway project, which has resulted in significant investment in the wider area.

Outside of Glasgow, the busiest stations (in order for 2017/18) were Paisley Gilmour Street, Motherwell, Croy, Johnstone, Airdrie. All except Airdrie have shown consistent growth in the past 10 years, whilst Motherwell usage estimates have fluctuated.

Rail users in Glasgow have a higher level of satisfaction with some aspects of the rail experience compared to the average for large urban areas in Scotland³⁶. Overall the lowest level of satisfaction in Glasgow and in large urban areas is with the cost of using trains, with 61% saying fares are good value in 2019. That said, this is still a higher level of satisfaction than the comparable figure for buses from Scottish Household Survey 2019 (41% agreed bus fares were good value).

Figure 45 Rail services satisfaction - % of respondents who agreed with each statement

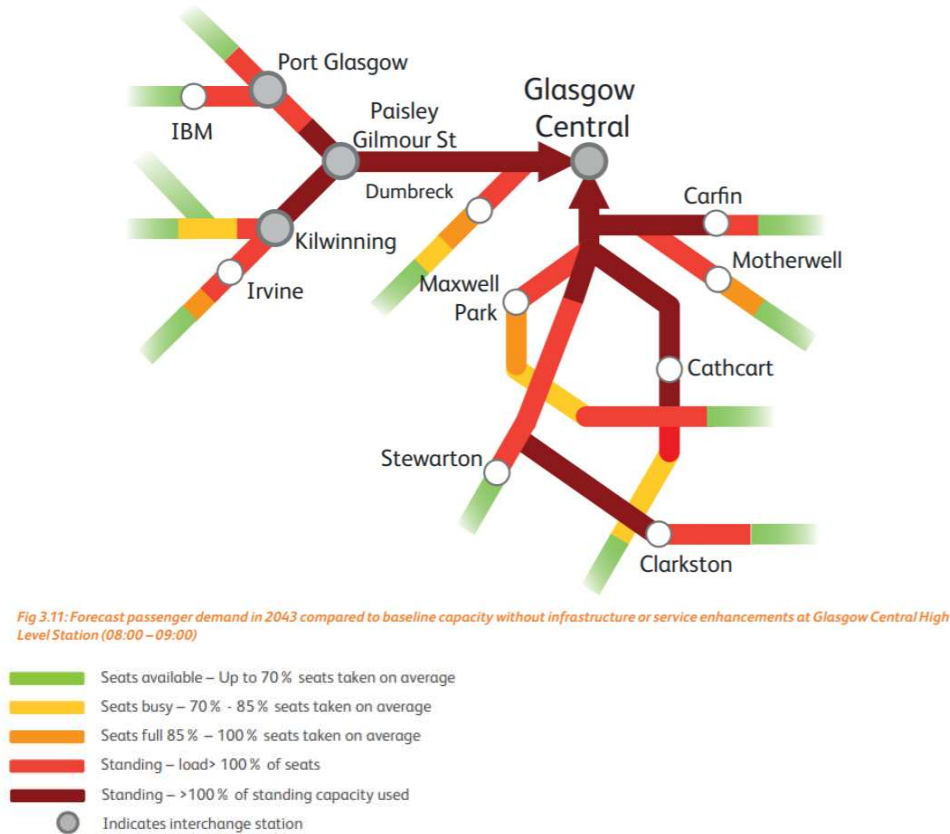


³⁶ Scottish Household Survey reported in <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/>

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In terms of rail in the future, the Scotland Route Study (2016) suggested that several parts of the network would be at capacity (including standing capacity) by 2043 should no further infrastructure or service enhancements at Glasgow Central be put in place beyond CP5 (end 2019)³⁷.

Figure 46 Scotland Route Study extract - forecast passenger demand v. baseline capacity 2043



The same study also forecasted future scenarios for the Glasgow morning peak commuter market, ranging from 2.5% growth by 2043 to a reduction of 0.9%.

³⁷ <https://www.networkrail.co.uk/wp-content/uploads/2016/11/Scotland-Route-Study.pdf>

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Figure 47 Scotland Route Study extract – 2043 growth scenarios Glasgow commuter morning peak

Glasgow Morning Peak Commuter Market

Scenario	Growth factor 2012-23	Compound Annual Growth Rate 2012-23	Growth factor 2012-43	Compound Annual Growth Rate 2023-43
Prospering in Global Stability	39%	3.0%	128%	2.5%
Prospering in Isolation	26%	2.1%	74%	1.6%
Struggling in Global Turmoil	21%	1.8%	28%	0.3%
Struggling in Isolation	15%	1.2%	-4%	-0.9%

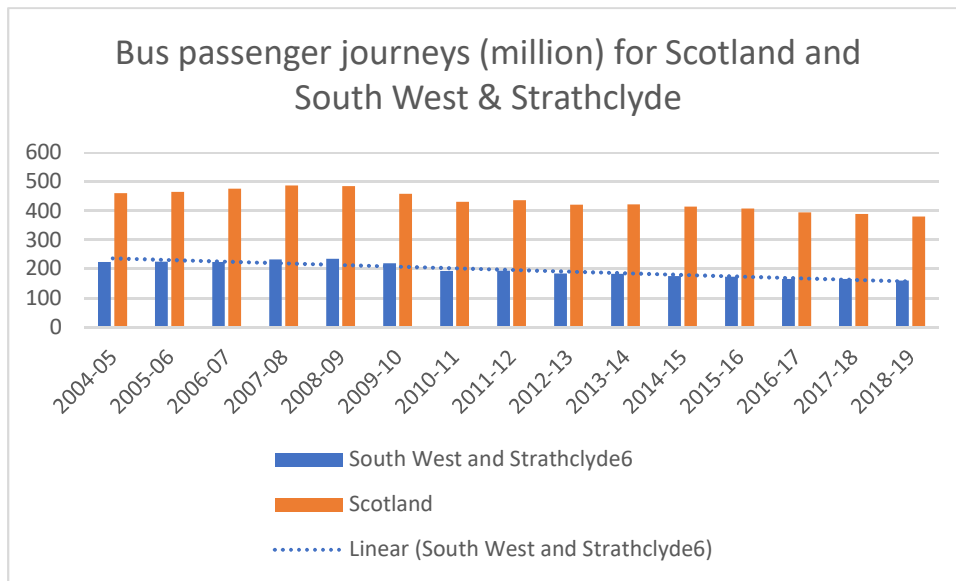
Fig 3.5 High-level summary of Scotland Market Study results for Glasgow Morning Peak Commuter Market

3.10 Bus

3.10.1 Bus usage

There has been an overall decline in bus usage in the UK, Scotland and in Glasgow. The 2017 study “Trends in Scottish Bus Patronage” by KPMG concluded this was due to rising car use, congestion, changing shopping habits and reduced public sector investment³⁸.

Figure 48 Bus passenger journeys



Data from Scottish Transport Statistics also suggests vehicle kilometres for local bus services has declined in the city region though it should be noted the published data merges the South West and Strathclyde regions and could therefore be misleading for the Glasgow conurbation specifically. Compared to 2007-08, vehicle kilometres in the South West and Strathclyde region has fallen by 25%, compared to 14% at a Scotland level and 10% drop for the South East region in Scotland. 2007-8 appears to be a year when bus vehicle kilometres peaked (in a dataset from 2004/05), and have been falling in the region since.

³⁸ <https://cbwmagazine.com/jkpmg-releases-report-scottish-bus-decline/>

3.10.2 Bus services – operations, accessibility and journey time reliability

The operating costs per vehicle kilometre for local bus services in Scotland has increased by 25% since 2005/06, whilst bus fare indices in Scotland show a 75% increase since 2005 to 2017/18. Passenger revenue from local bus services has risen since 2008-09 in Scotland as has government support³⁹. When adjusted for inflation however, passenger revenue and government support for buses in Scotland has decreased.

On specific elements of government support for local bus services, concessionary fare reimbursement has increased whilst Bus Service Operator Grant has decreased in Scotland. Local authority support for bus services in Scotland has declined over the last 10 years and this is also reflected in an overall decline in vehicle kilometres by subsidised services in this time period.

As of November 2019, Glasgow has almost 140,000 concessionary pass holders, the highest in Scotland though this also reflects population size.

In terms of bus accessibility as measured by frequency of buses per bus stop, the Scottish Government's Scottish Access to Bus (SABI) indicator analysis is shown for Glasgow - weekday and weekend - in the following maps⁴⁰. SABI is weighted by population. One (1) indicates the poorest level of bus accessibility whilst 10 shows the highest. The analysis suggests a good level of public transport accessibility within Glasgow **when measures by frequency of buses per bus stop**, particularly along key transport corridors, with little variation at the weekend from weekday services.

³⁹ Table 2.8 Scottish Transport Statistics, table 2.8, <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-38-2019-edition/>

⁴⁰ <https://statistics.gov.scot/data/bus-accessibility>

Figure 49 SABI analysis for Glasgow in 2019 (bus accessibility – frequency of buses per bus stop) - weekday

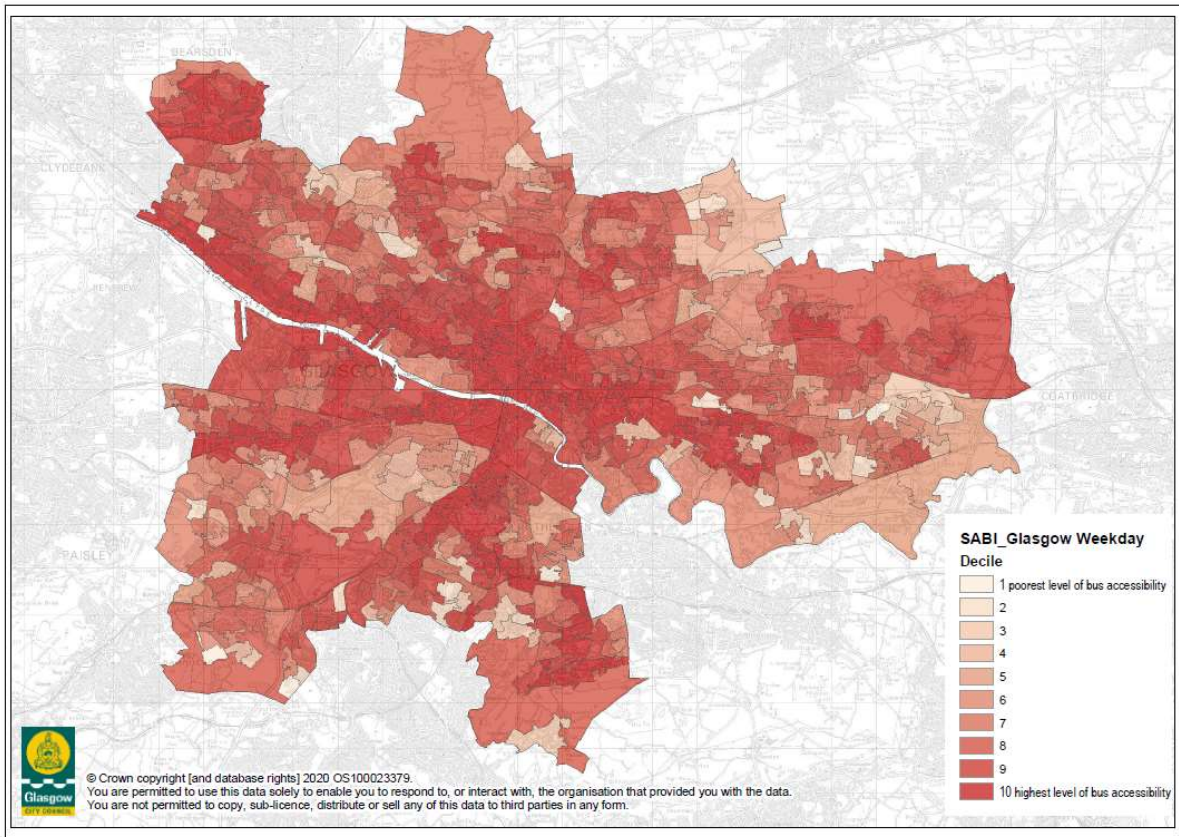
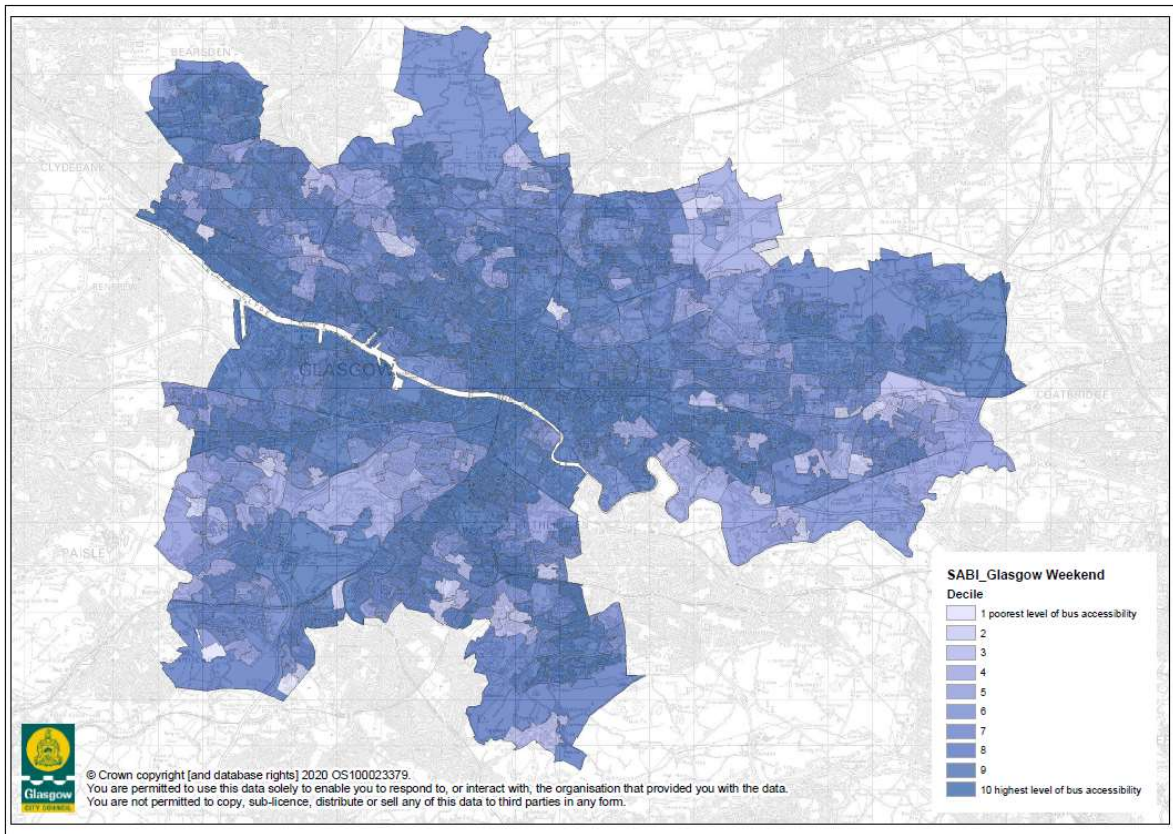
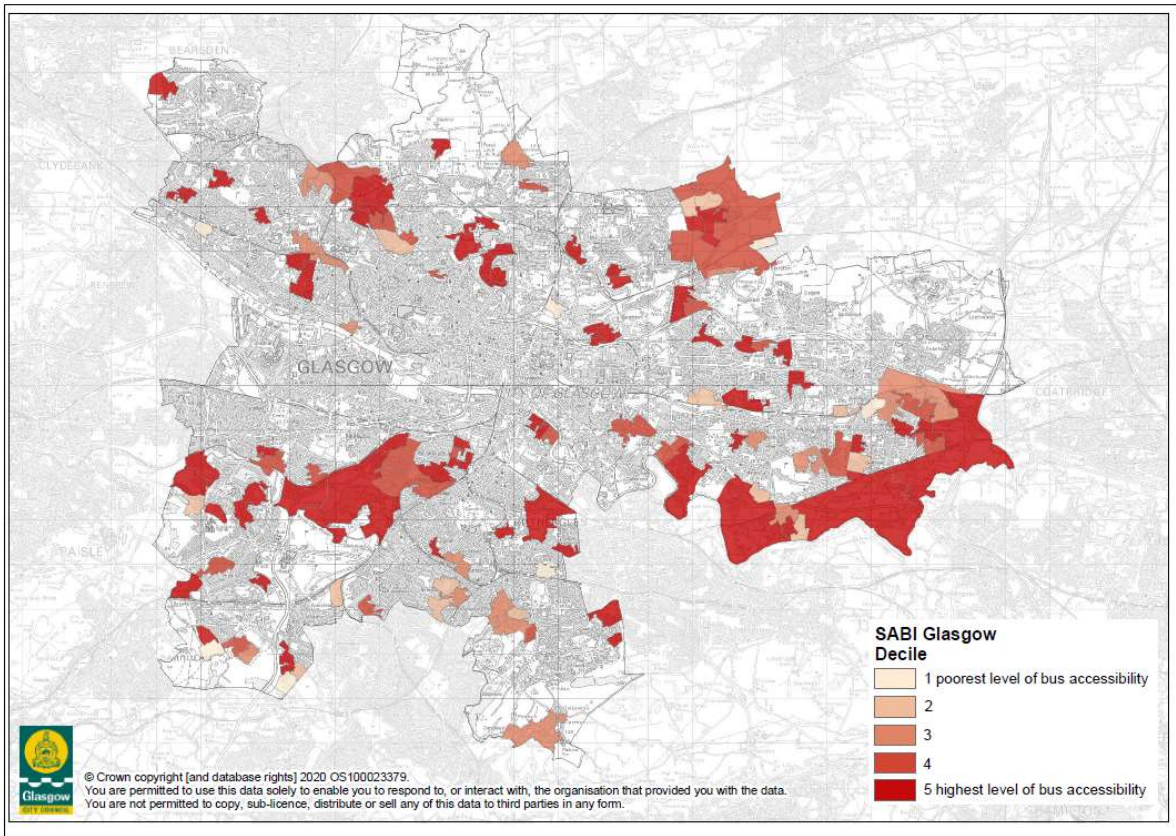


Figure 50 SABI analysis for Glasgow in 2019 (bus accessibility – frequency of buses per bus stop) - weekend



The areas of the city with poorer bus frequency per bus stop are shown in the following map (this shows all with decile of 5 and under).

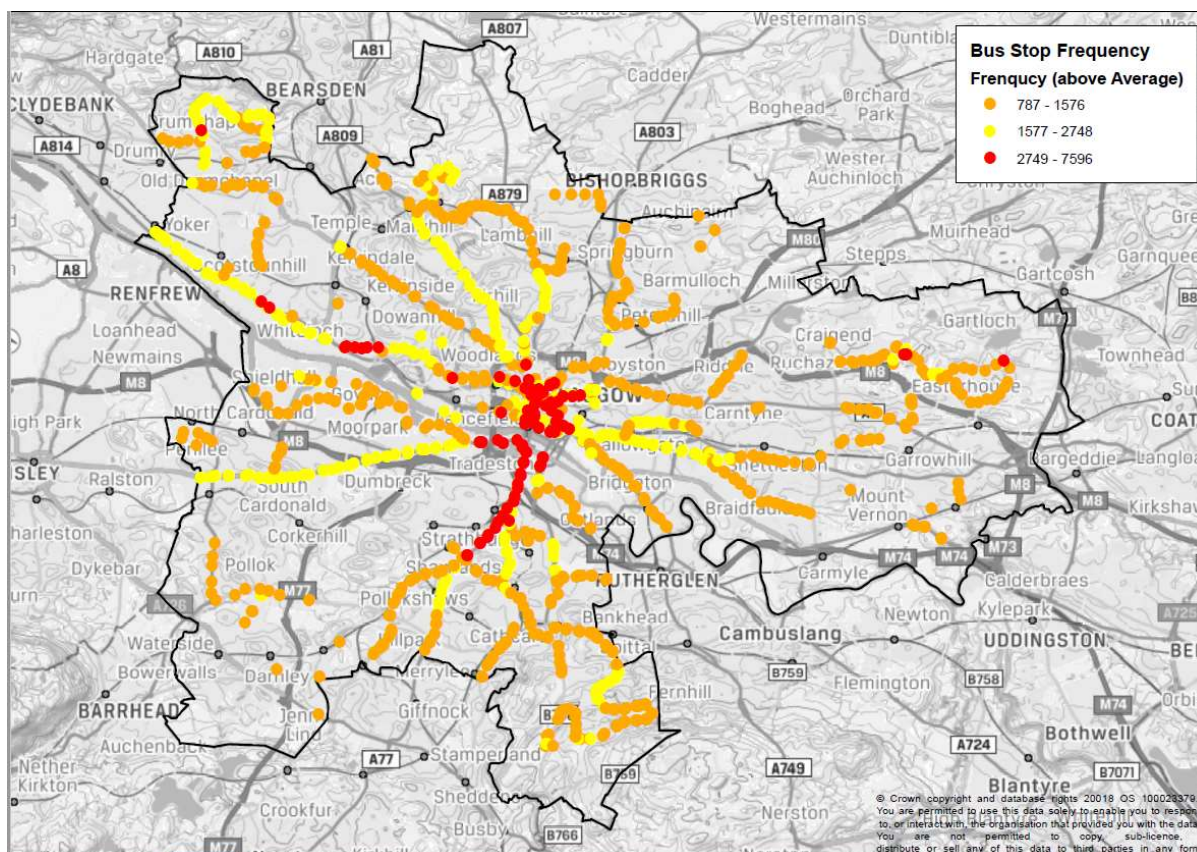
Figure 51 SABI – access to bus indicator analysis - areas with poorer accessibility under this measure



As already noted above under the “journey to work” section, the SPT RTS public survey of Glasgow residents in 2019 suggested reliability of bus services and bus journey times were the most significant problem for those travelling by bus to work, followed by cost of bus fares. Similarly, reliability of rail services and journey times was the biggest issue for those commuting by rail at that time.

The following map also shows frequency of bus services per bus stop in Glasgow (mapped by GCC data team). This is a visual representation of the busiest bus corridors in Glasgow, and could be taken as a proxy for bus patronage/demand in the absence of bus patronage data from operators.

Figure 52 Bus stop frequency by route (using SPT data)



From an operator perspective, journey time reliability is a problem in Glasgow (as with many urban areas in Scotland and the UK).

First Glasgow have carried out analysis of their services in Glasgow and this analysis by Prospective is reproduced here with permission from First Glasgow. The map below shows their analysis of traffic delays in Glasgow, calculated by segment as follows:

- Quantifying time taken for buses to travel between stops each hour.
- Measure the median pace each hour.
- Measure vehicle delay as the difference between the fastest pace value and the slowest pace value for each road segment.
- Data was used for a period of September to November 2018.

Peak delay was measured to be in the AM peak, in the hour around 0830, with the next most congested hour around 0730, then 1630 in the PM peak.

The maps from First Glasgow and Prospective below show road segments colour-coded as follows:

- Worst 25% of congested road segments are displayed in red.
- Next 25% of road segments are displayed in yellow.

Least congested 50% of road segments are displayed in green.

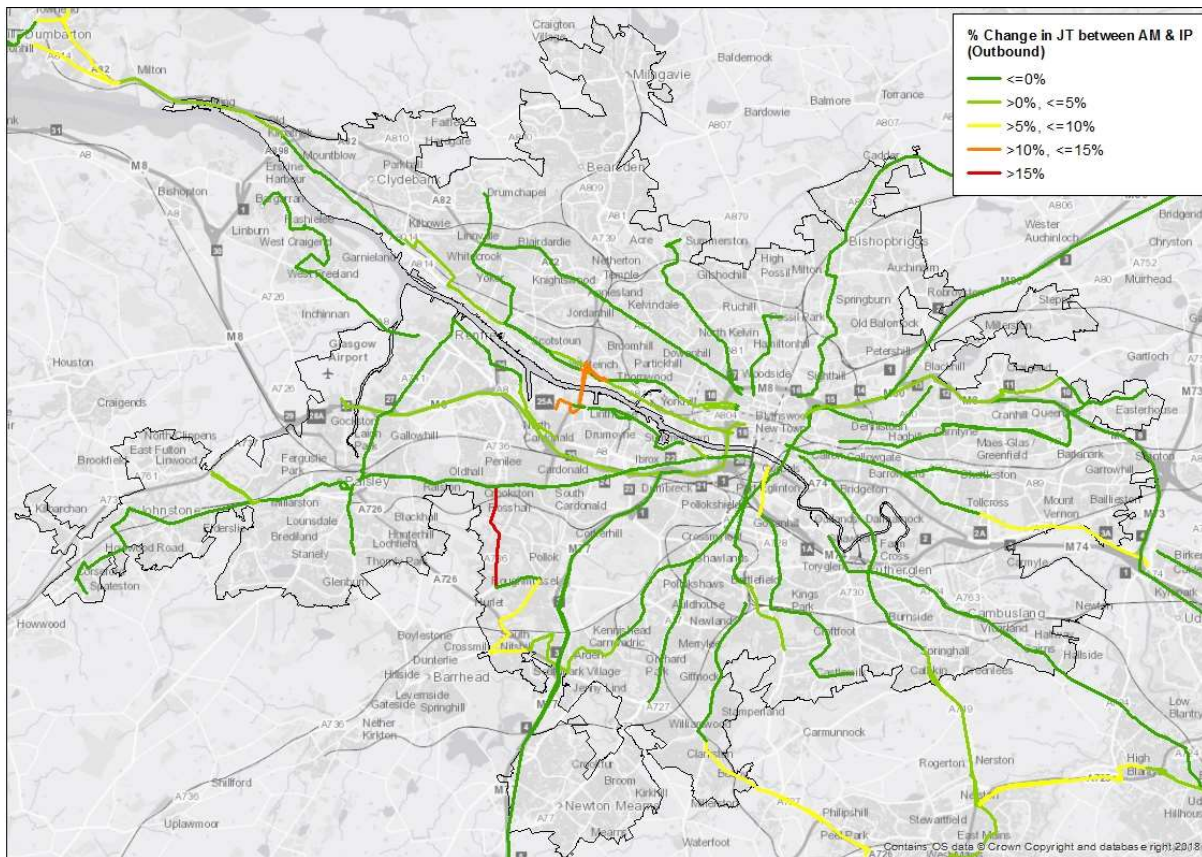
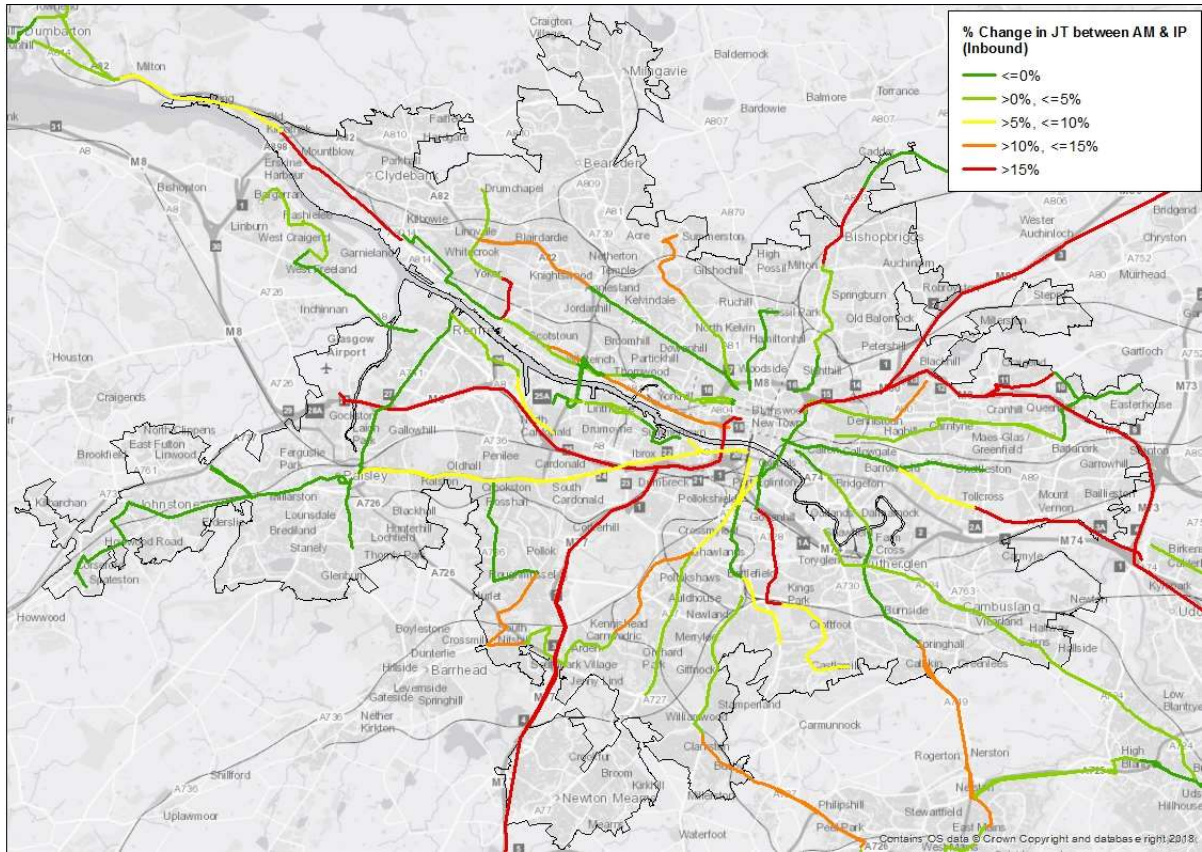
Figure 53 Traffic delays in Glasgow (2018) measured by vehicle delay to First Glasgow services



SPT have also carried out analysis of bus journey time variability in Glasgow region in 2020 for the purposes of their Regional Transport Strategy update work (analysis by Stantec). The maps below, from SPT, show the variation between AM peak and inter-peak (IP) journey times for bus services on key routes in the region, inbound and outbound.

The maps seem to suggest the largest journey time variability for buses is on the motorway network in Glasgow City Region. The Clyde Tunnel also appears to experience higher bus journey time variability during AM peak outbound.

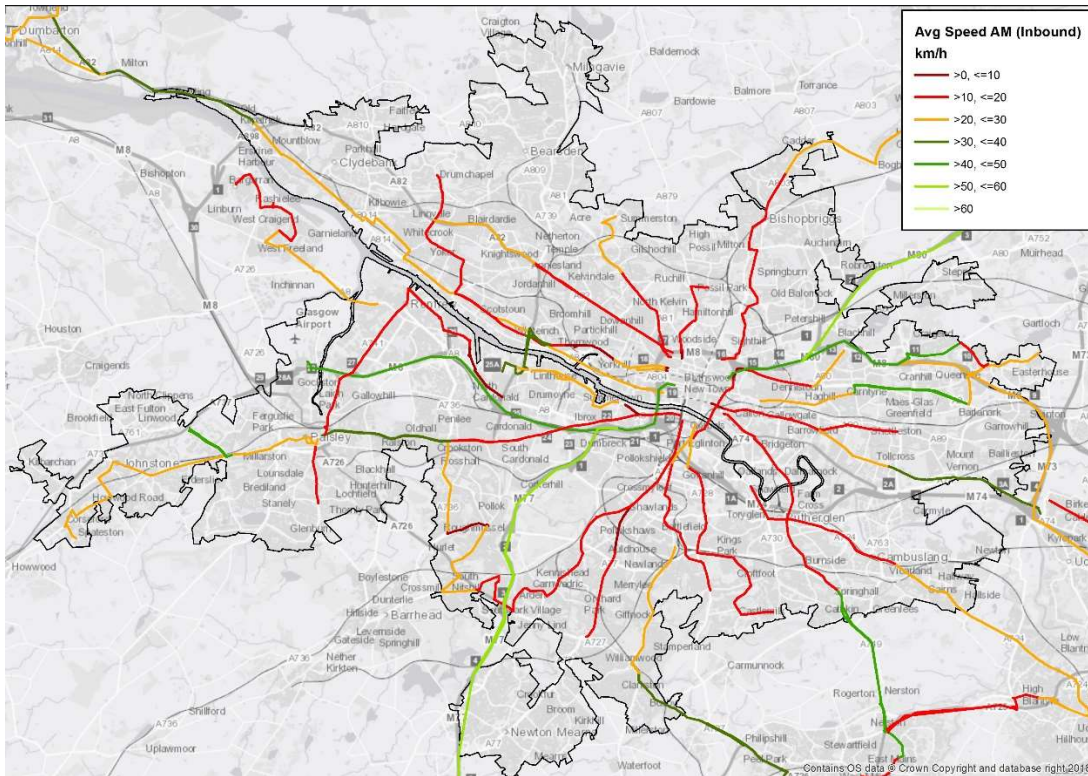
Figure 54 Change (or variability) in bus journey time between peak and interpeak areas in Glasgow conurbation



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SPT have also produced maps showing average speed for bus services in Glasgow for AM, PM and inter-peak periods. The map below shows average speeds for the AM peak, inbound.

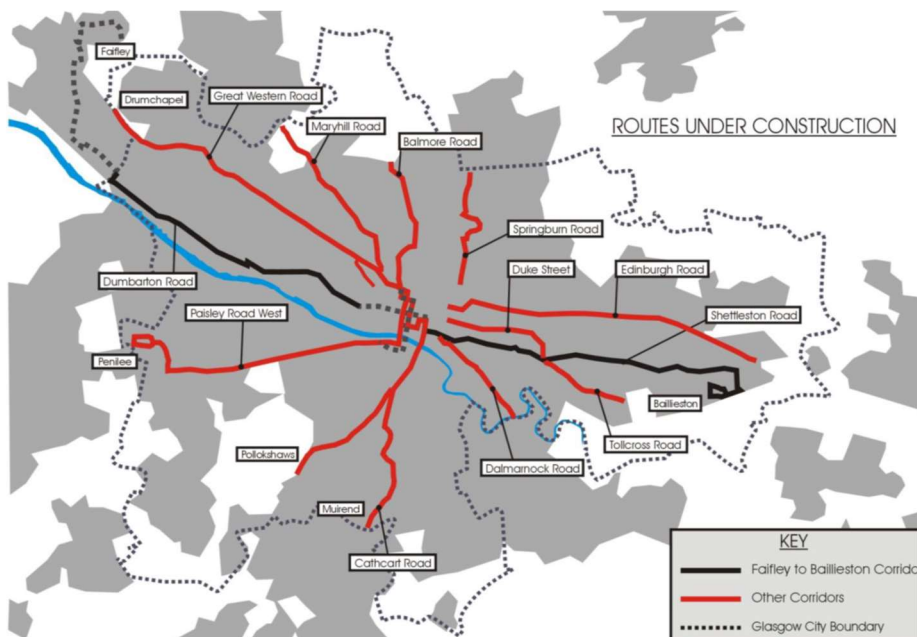
Figure 55 Average speed for buses in Glasgow conurbation



It suggests relatively low speeds for buses on many key routes into Glasgow.

The Streamline concept for bus routes has been in place for Glasgow for over a decade, and is shown in the map below. These corridors have seen investment by the council on a number of issues including measures to improve public transport journey times, waiting facilities and information.

Figure 56 Streamline bus corridors in Glasgow 2008



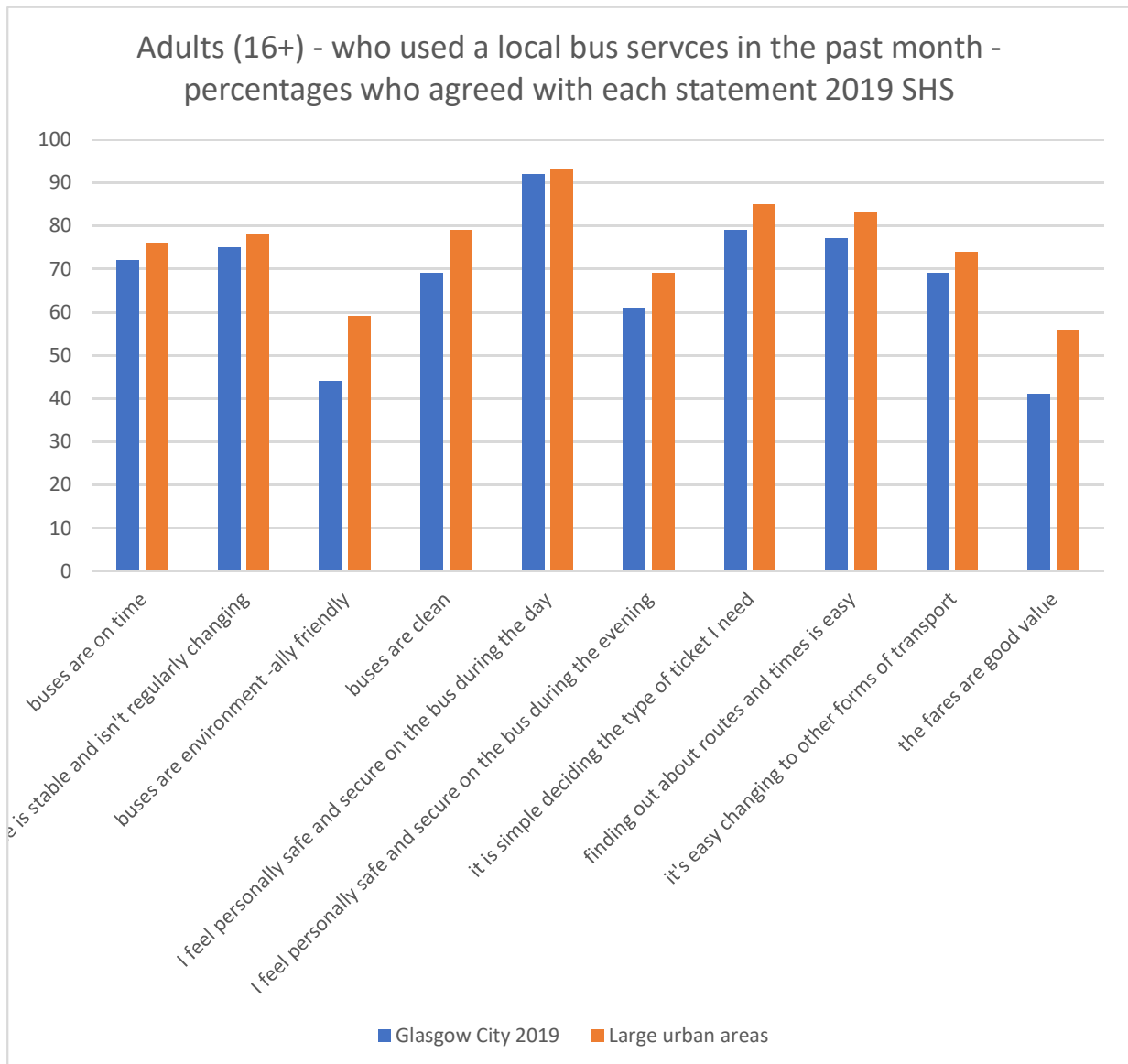
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3.10.3 Bus user experiences and public aspirations

Bus users in Glasgow City area tend to be more satisfied with public transport than the Strathclyde region as a whole and Scotland as a whole – though less than comparable large urban areas in Scotland. Some 74% said they were very or fairly satisfied with public transport in 2018, compared to 67% in Strathclyde Regional Transport Partnership area, 65% at a Scotland level, 77% for large urban areas (satisfaction is higher than 80% in Edinburgh and Dundee)⁴¹.

Satisfaction with specific aspects of local bus services in Glasgow tends to be lower than comparable large urban areas in Scotland as shown in the following figure. It should be noted that the lowest level of satisfaction in 2019 Scottish Household Survey was with the statement “the fares are good value”, at 41%, followed by “buses are environmentally friendly” with only 44% agreeing.

Figure 57 Satisfaction with bus services - - % of respondents who agreed with each statement



⁴¹ <https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-results-from-the-scottish-household-survey-1/>, Table 13 and Table 14

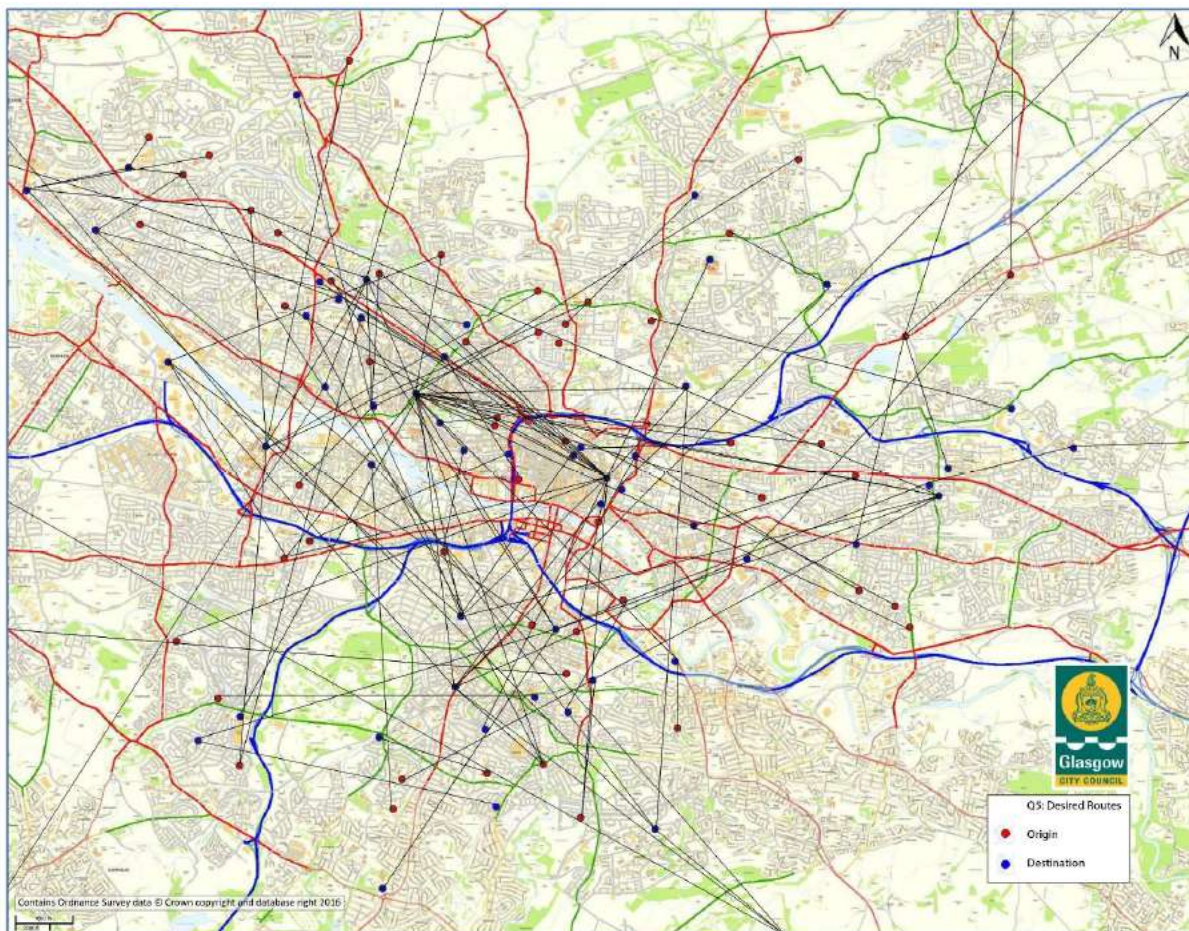
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A community engagement study was carried out in 2016 in Glasgow on the topic of bus services⁴². This work suggested there was a desire for more cross-city routes without having to change in the city centre. Several comments were made at consultation events for the work regarding the lack of direct services linking the East and West Ends of the city, without having to change in the city centre.

Likewise comments were made about accessing both the East and West End from the Southside without having to change. The Queen Elizabeth University Hospital site was also a recurring location mentioned. The map below shows the origin-destination of bus routes cited as desirable by people during the engagement work. The study also suggested that bus routes not going where they needed to go was one of the most commonly cited reasons for not using buses much. Finally, this work also highlighted the importance of buses for work purposes, but even more so amongst the survey sample for visiting friends and family and for attending medical appointments.

It should be noted that the network may have changed since 2016 and this engagement work applies to that moment in time.

Figure 58 Desired bus routes from 2016 Glasgow community engagement study



The Glasgow Household Survey asked residents about satisfaction levels with public transport into the city centre in 2018. Findings (whilst not directly comparable) were similar to the Scottish Household Survey above in terms of aspects people are most and least satisfied with:

⁴² Community Engagement Evaluation Report Glasgow Bus Services, 2016, Sweco for Glasgow City Council.

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- More than seven in ten were satisfied with how safe public transport felt during the day (77%), the journey length (74%), and the frequency (71%) and reliability (70%) of services.
- Two thirds (66%) were satisfied with the level of comfort on board, while 58% were satisfied with the level of cleanliness, and around half (51%) with how safe public transport felt in the evening.
- Respondents in the North West were more satisfied than average with journey time and perceived safety in the daytime, while those in the South were more satisfied than average with perceived safety in the evening.

3.10.4 Cost of public transport in Glasgow

The cost of public transport can be a complex matter in a deregulated market, with an array of tickets on offer by operator. A 2020 engagement session with the Glasgow Youth Council suggested the high cost of public transport, and personal security concerns, were the two biggest issues for them as young people travelling in or around Glasgow.

To illustrate, a peak return trip from Easterhouse or Drumchapel to Glasgow City Centre costs around or just over £5 (depending on whether bus or train). Whilst a different system of public transport operation and not directly comparable to Glasgow, a journey from the outskirts of Edinburgh to the city centre would cost £3.60. It should be noted these fares are for single or return tickets, as opposed to potentially cheaper season tickets.

London has a Hopper fare systems for buses, at £1.50 per journey capped at £4.50 per day (for adults).

There is evidence from various surveys analysed for this report that the cost of buses in particular is an issue for transport users in Glasgow.

3.11 Key Insights: public transport in Glasgow

Passenger journeys on Glasgow's Subway have shown a mixed pattern in recent years, with peak usage in 2007/08, although SPT data on station gate entries suggests use of the Subway increased in 2018/19, recording the highest number of entries in 5 years (pre-Covid19). The busiest stations tend to be in the centre of the city and the north/west.

Rail patronage continues to grow overall in the region (pre-Covid). The fastest growing stations over the last 5 years includes Dalmarnock in the south-east of the city, linked to the Glasgow City Region City Deal programme and Clyde Gateway project. After Central and Queen Street, the top 4 busiest stations in the City are to the west – Partick, Charing Cross, Exhibition Centre and Hyndland. ScotRail have identified capacity constraints at Central as an issue in the Scotland Route Study, and forecast several connections to Glasgow Central seeing more demand than capacity by 2043. Higher growth scenarios assume road congestion to grow as a problem in Glasgow.

Rail users in Glasgow have a higher level of satisfaction with some aspects of the rail experience compared to the average for large urban areas in Scotland.

Public transport patronage generally has been significantly affected by Covid-19 in 2020, and the ongoing impacts of this on the demand for public transport must be monitored.

The key **problems** that need to be tackled in relation to buses in Glasgow are suggested to be:

- Bus passenger numbers have been declining in the region, following a Scotland and UK wide trend.

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- There are concerns from bus operators that bus journey times are variable. Specific road segments where bus journey time is particularly variable have been identified by one of Glasgow's bus operators. Bus speeds appear slow throughout the day in Glasgow though this needs to be compared with other urban areas to draw any conclusions.
- Satisfaction levels with bus travel are lower from bus users in Glasgow compared to other urban areas in Scotland, although higher than the Strathclyde region and Scotland as a whole. The cost of buses was the topic people were least satisfied with, from Scottish Household Survey data in 2019.
- Key reasons commonly cited in qualitative surveys on barriers to bus use are lack of available services going to where people need to go, and poor reliability.

The **key opportunities** in relation to public transport that can be built upon in Glasgow include:

- There is a relatively high use of buses in Glasgow generally, particularly for commuting. This coupled with a relatively high proportion of the population without access to a car, and a relatively dense population, suggests demand for non-car modes of travel. Similarly, there is a relatively high use of rail in Glasgow and an extensive rail network. The Subway is an important part of the public transport offer in Glasgow, and there is an ongoing modernisation programme by SPT.
- There is a bus partnership in place in Glasgow, and the Transport (Scotland) Act 2019 provides for Bus Service Improvement Partnerships (BSIP) as well as providing local authorities with enhanced powers in relation to bus services.
- Work on decarbonisation of the rail network in Scotland is ongoing with targets and a recently published plan. This will also support cleaner air in and around stations in Glasgow with the phasing out of diesel trains.
- The LEZ scheme in Glasgow City Centre has already led to cleaner buses, and there are ongoing funding opportunities from Transport Scotland for bus operators to invest in cleaner engines, which will support air quality objectives in Glasgow.

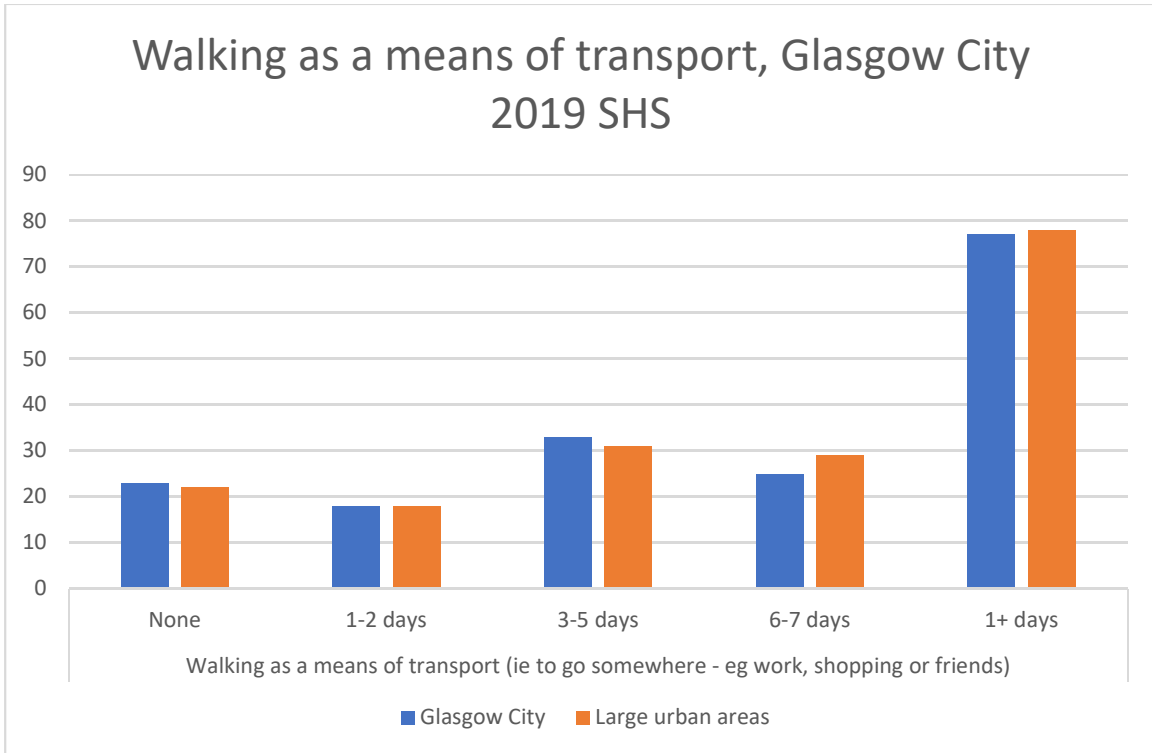
3.12 Walking

Walking and cycling, and scooting, are important methods of travel in the city. Commonly referred to as active travel, they are at the top of the sustainable travel hierarchy and are low (almost zero) emission, health promoting and (mostly) inclusive forms of travel.

In terms of frequency of walking, the data presented earlier in this report for mode of travel for work, education and all journeys suggest Glasgow lags behind other large urban areas in Scotland in terms of the proportion of people who walk for journeys (though it has comparatively more people using public transport than other large urban areas in Scotland).

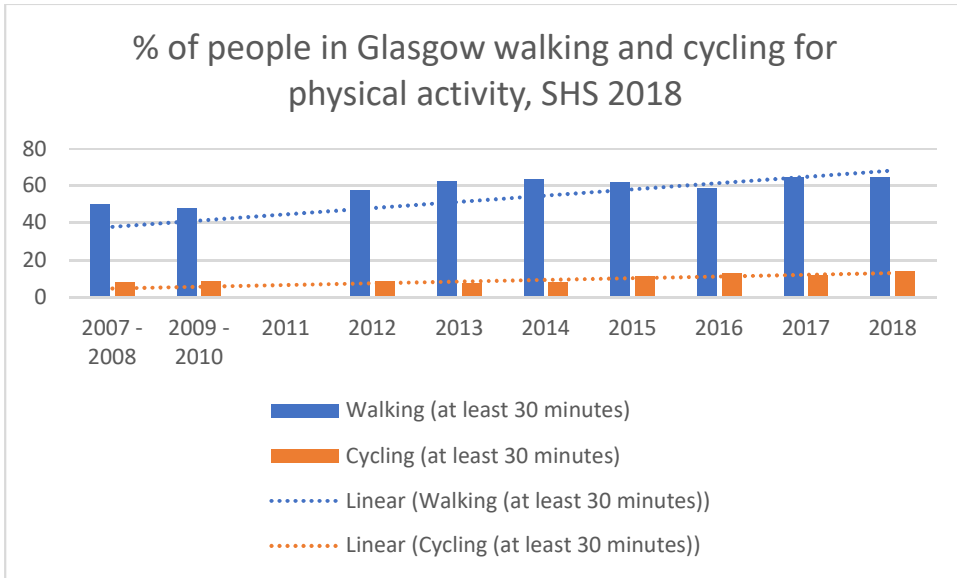
Similarly, a slightly higher proportion of Glasgow residents say they never go for a walk for leisure compared to other large urban areas in Scotland (Scottish Household Survey).

Figure 59 Walking as a means of transport and for pleasure/exercise in Glasgow 2019 SHS



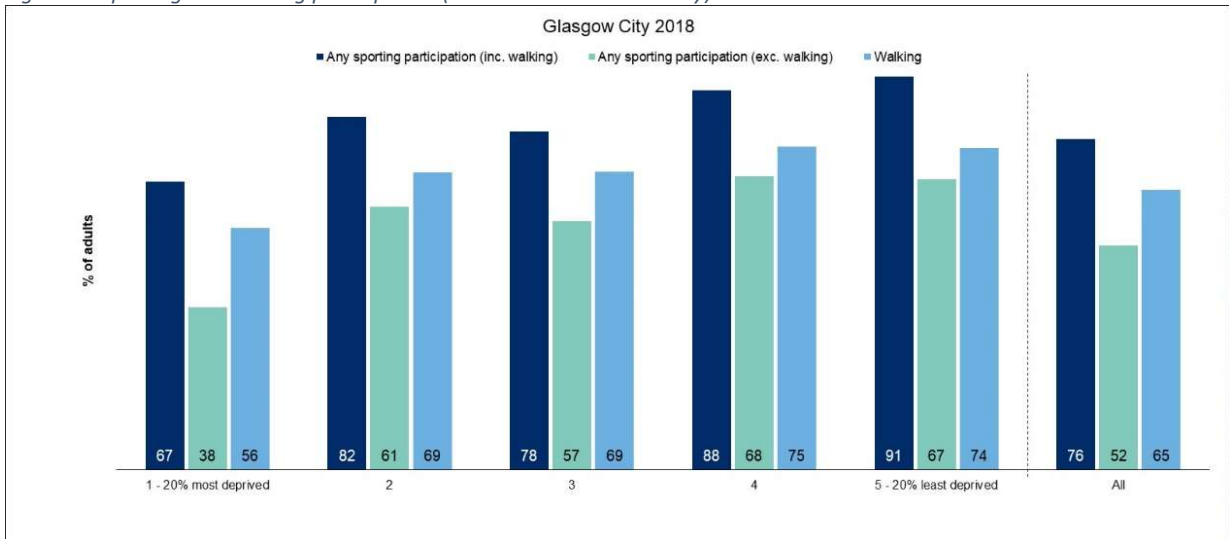
Participation in walking for at least 30mins as a form of physical activity is low in Glasgow compared to Scotland, though it has been increasing in recent years. Conversely, cycling for physical activity in Glasgow is now slightly ahead of the Scottish average (Scottish Household Survey).

Figure 60 Glasgow walking and cycling for physical activity



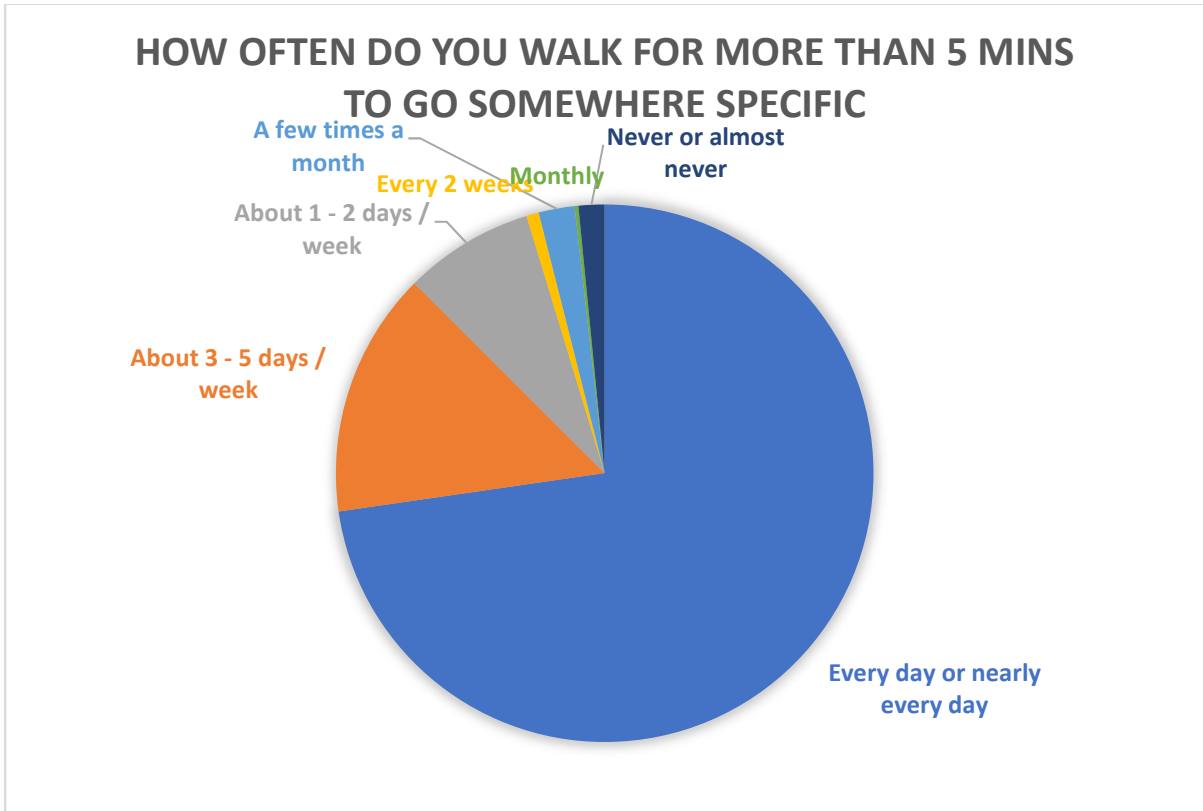
Participation in walking varies by ranking of deprivation, with those in more deprived areas less likely to participate. This is a challenge for inclusion.

Figure 61 Sporting and walking participation (Scottish Household Survey)



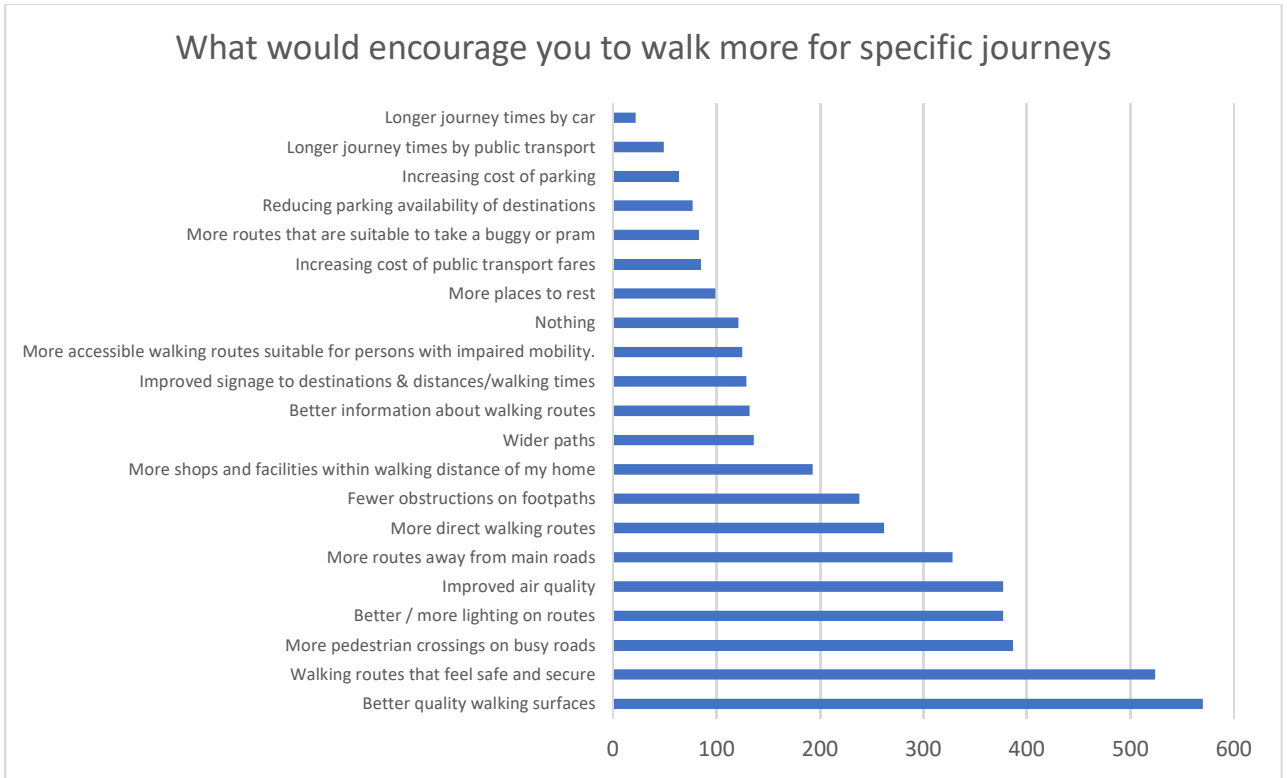
The SPT RTS public survey in 2019 asked survey respondents how often they walked for more than 5 minutes in the last 6 months to go somewhere specific, such as a workplace, local shops, meeting friends or taking children to school. For Glasgow residents, the results are shown in the following figure (as a proportion of question respondents). The responses suggest that walking for short journeys is important for most people in Glasgow - almost three-quarters of respondents to that question (and over 70% of the survey sample overall) said they walked for more than 5 mins every day or nearly every day.

Figure 62 Frequency of walking, SPT RTS survey responses for Glasgow residents



When asked what would encourage them to walk more often for journeys like this, the most frequently selected responses in the SPT RTS survey of Glasgow residents related to the quality of walking infrastructure (surfacing, less obstructions), personal security and safety issues (walking routes that feel safe and secure, more pedestrian crossings on busy routes, more lighting), and directness of routes as well as better air quality.

Figure 63 Factors that would encourage more walking (SPT RTS survey results for Glasgow residents)



3.13 Cycling

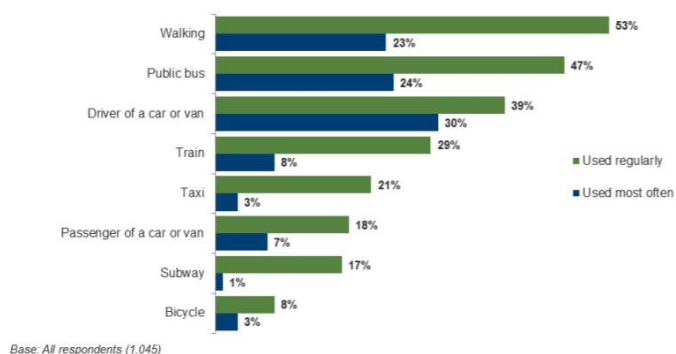
In Glasgow in 2018, some 73% of households had no private access to a bike according to the Scottish Household Survey. This is substantially higher than the Scotland average of 65% and higher than the comparable figure for large urban areas in Scotland. This is a challenge for uptake of cycling in the city, and there is evidence (below) to suggest those on lower incomes are least likely to have access to a bike.

Glasgow Household Survey 2017 explored the topic of cycling in detail with residents⁴³. For journeys around Glasgow, only 8% of respondents said they regularly used a bicycle compared to 53% who said they regularly walked, and 51% who were a driver or passenger in a car or van. Just under half (47%) said they regularly used the bus.

⁴³ <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=39299&p=0>

Figure 64 Glasgow Household Survey 2017 – modes of transport used

Figure 8.1: Modes of transport used regularly for journeys around Glasgow



The survey showed that C2DEs job classifications were more likely than ABC1s to travel by bus or taxi on a regular basis, while ABC1s were more likely than C2DEs to walk, drive, take the train or cycle.

One in five (19%) respondents said that they owned or had access to a bicycle; fewer than in 2011 (26%) when the question was last asked. Ownership or access to a bicycle remained most common among:

- men (23%, compared to 16% of women)
- respondents aged 35 to 54 (27%, compared to 22% of those aged 18-24, 16% of those aged 25-34, 19% of those aged 55-64 and 7% of 65s and over)
- ABC1s (25%, compared to 13% of C2DE)
- households with children (24%, compared to 17% of households without children)

Almost half of respondents (48%) who owned or had access to a bicycle cycled at least monthly, with a third cycling at least once a week, and 14% cycling daily – this showed little change from the results of the same questions asked in 2011.

Almost two-thirds of those who had cycled in the last year said they had done so for recreation (61%), and under half (44%) said they had cycled to keep fit. Just over a third (35%) had cycled to work or their place of study and just under a quarter (23%) to carry out other everyday tasks, such as shopping. While most of the figures were consistent with those from previous years, there has been a doubling since 2011 in the percentage using their bike to commute (from 18% to 35%).

Figure 65 Glasgow Household Survey 2017 – trends in reasons for cycling

Table 8.3 – Trends in reasons for cycling

	2007	2011	2017
	%	%	%
Recreation	57	63	61
Fitness	47	45	44
Commuting to work/place of study	38	18	35
Transport for other everyday tasks	21	18	23
Base: All who had cycled in last year	124	175	183

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Looking at respondents' single *main* reason for cycling in 2017 specifically, the top answer was again recreation (39%), followed by commuting (25%), fitness (24%) and transport for everyday tasks (12%)

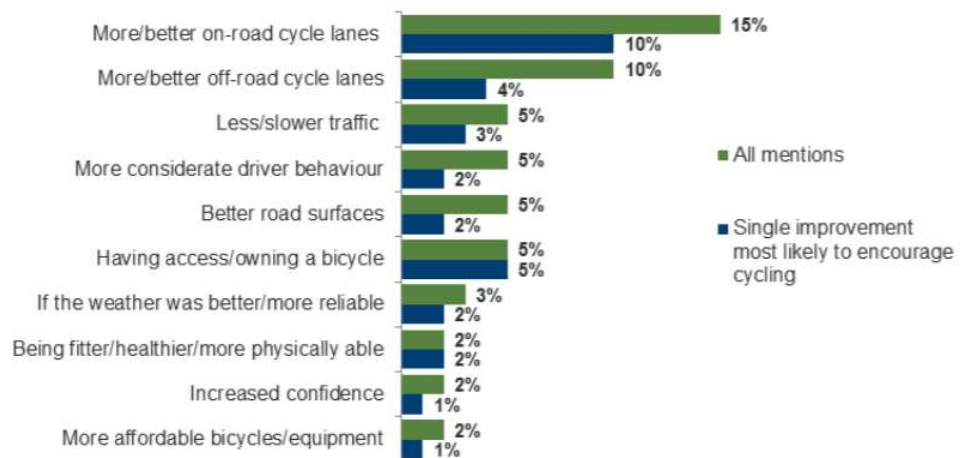
All respondents were asked what would encourage them to cycle more or take up cycling. Consistent with the findings from 2011, just over half (52%) said they were not interested in cycling any more than they currently did, with the figure rising to 69% among respondents aged 55 and over, and 65% among C2DEs.

Among those amenable to cycling more, the measures they said would encourage them to do so related to road and traffic conditions: Around one in ten mentioned more or better on- or off-road cycle lanes (15% and 10%, respectively), while one in twenty (5%) mentioned less or slower traffic, more considerate driver behaviour and better road surfaces. When respondents were asked to identify the single measure that would most encourage them to cycle more, the rank order of responses was largely unchanged, with improved on- and off-road cycle lanes remained the priorities (10% and 4%).

Respondents in the North East were more likely than those elsewhere to perceive a need for more or better off-road cycle lanes (14%, compared to 11% in the North West and 7% in the South) and more considerate drivers (10%, compared to 3% in the North West and 4% in the South).

Figure 66 Glasgow Household Survey 2017 – measures that would encourage residents to cycle

Figure 8.3: Measures that would encourage residents to cycle – top ten responses

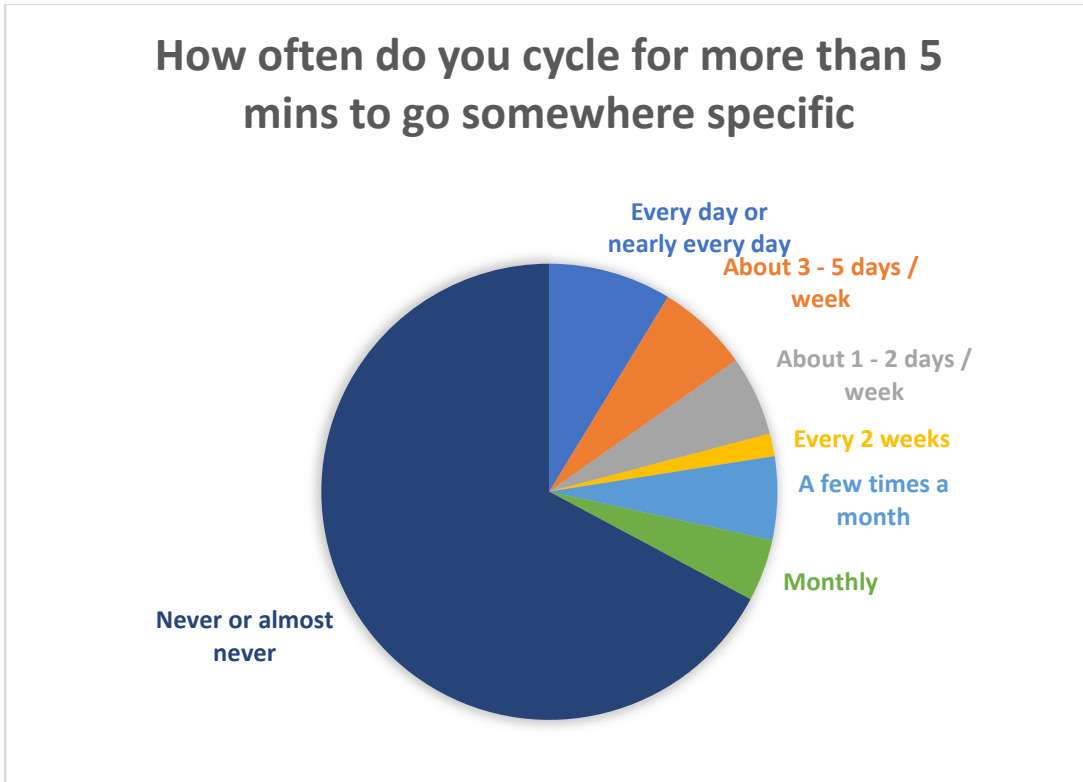


Base: All respondents (1,045)

In the SPT RTS public survey in 2019, respondents were asked how often they cycled for more than 5 minutes in the last 6 months, to go somewhere specific such as local shops, workplace, meeting friends or taking children to school. In contrast to the responses to the similar walking question shown above, the majority of Glasgow residents in this survey sample (67% of the question sample, 65% of the survey sample overall) said they had never cycled in this way in the last 6 months.

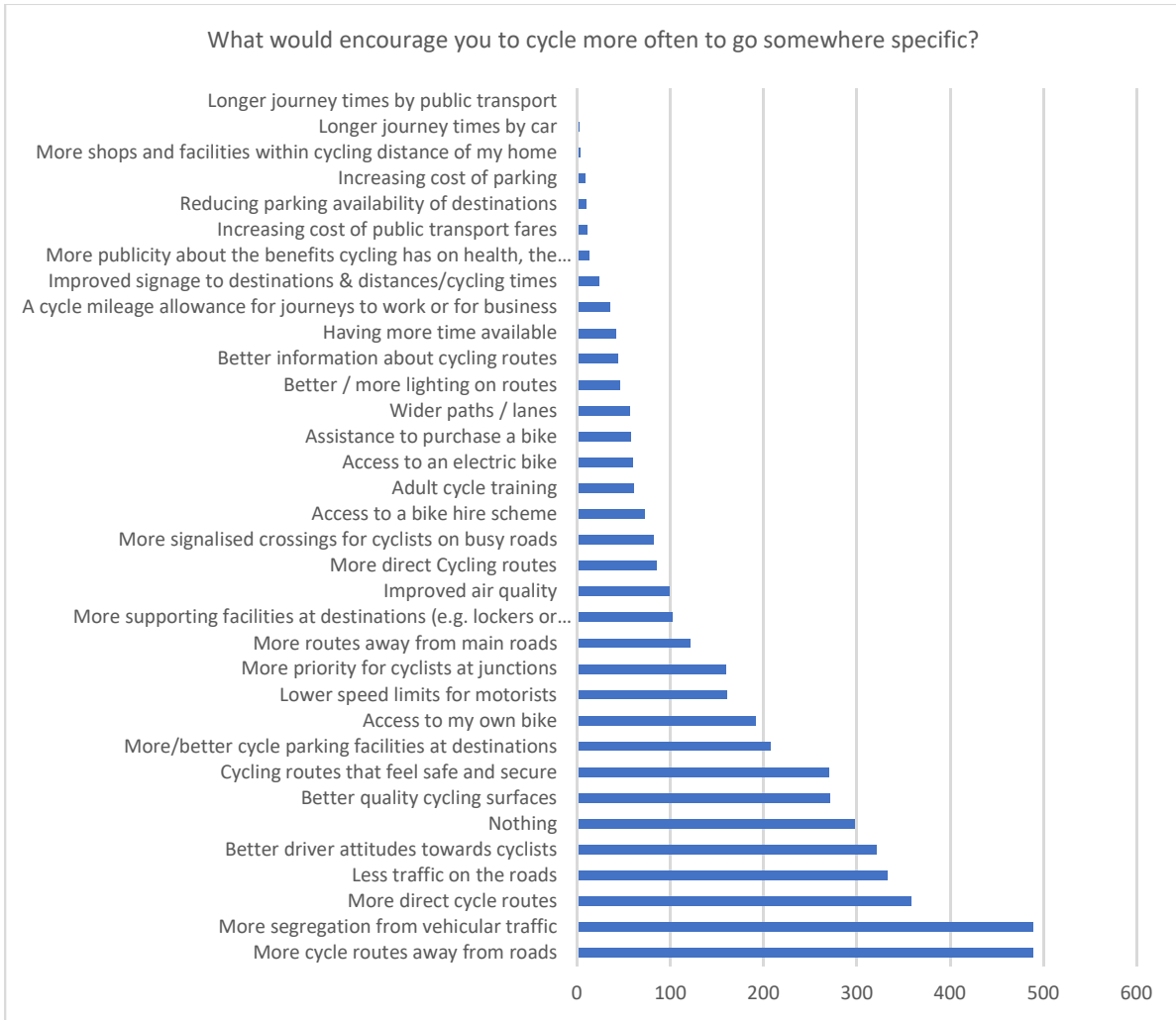
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Figure 67 SPT RTS - frequency of cycling for journeys



When asked what would encourage them to make these kinds of cycling journeys more often, the quality and availability of cycling routes / infrastructure was the main category of responses selected by Glasgow residents. This includes more cycle routes away from roads, more direct cycle routes, better quality surfaces. Better driver attitudes towards cyclists was also mentioned frequently.

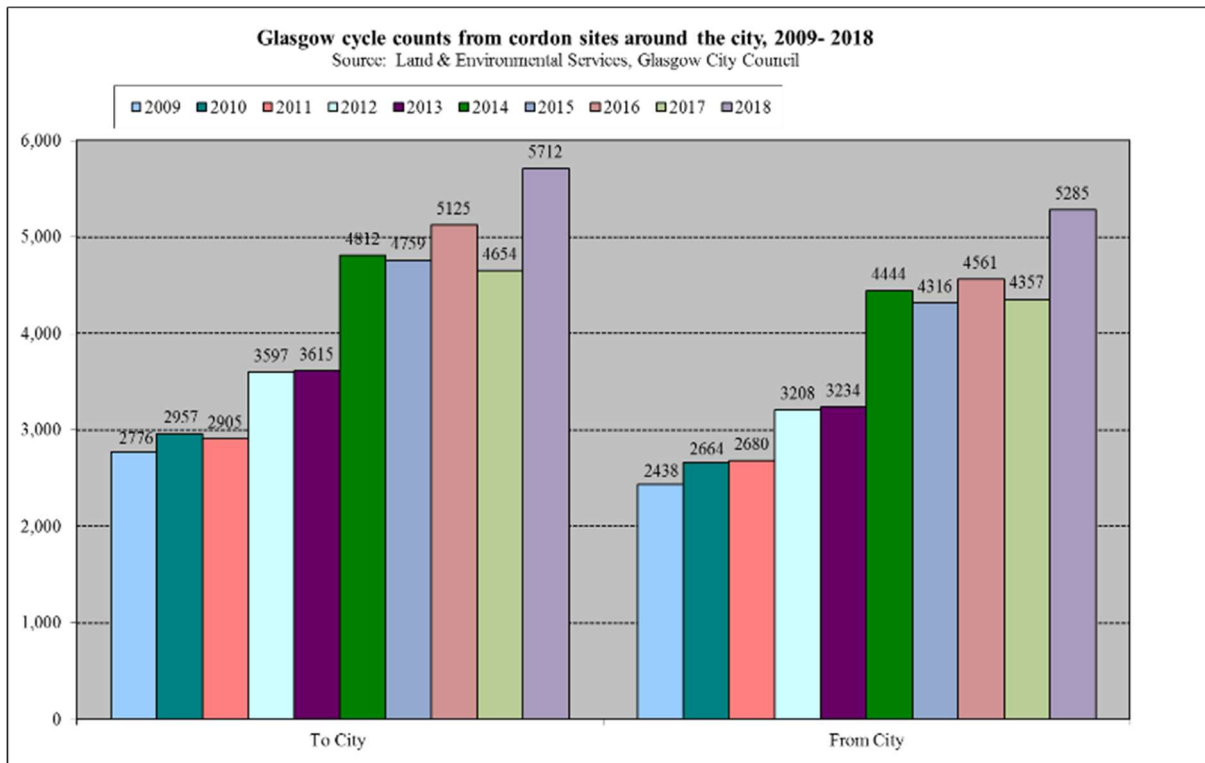
Figure 68 SPT RTS survey – what would encourage you to cycle more for journeys?



3.14 Numbers of people cycling

Over the last decade, Glasgow City Council has commissioned a count of cyclists and pedestrians entering and leaving the city centre. The graph below shows counts of cyclists moving into and out of the city centre based on this 2-day survey in the period 2009 – 2018.

Figure 69 Glasgow cycle count data



There has been a 111% increase in cycle trips into and out of the city over the period 2009 to 2018. In 2018, the cordon survey counted 11,000 trips into and out of the city per day by bicycle. This figure represents a 22% increase in the number of cycle trips compared to the previous year. Between 2009 and 2018, cycle trips into and out of the city centre (as recorded by the cordon survey) increased on average by 12% per year.

In terms of the longer term rise in cycling in the city over the past decade, Glasgow's Mass Automated Cycle Hire (MACH) scheme was launched in June 2014 just prior to the start of the Commonwealth Games. The scheme initially provided 400 bikes for public hire at 31 locations across the city and with additional temporary sites at 6 Glasgow 2014 Commonwealth Games venues. Since then extra cycle hire stations in the east and south of the city have been added, as well as new bikes in September 2017 and again in August 2018. In October 2015, the South West City Way opened providing a 2km segregated cycle route running north-south between Pollokshields and the Tradeston Bridge.

3.15 Key Insights: Walking and Cycling in Glasgow

Glasgow slightly lags behind other large urban areas in Scotland in terms of the proportion of people who walk for journeys (though it has comparatively more people using public transport than other large urban areas in Scotland). Walking still remains a very important mode overall however, particularly for the journey to school.

Walking for leisure in Glasgow is at a lower level than comparable urban areas. Conversely, cycling for physical activity in Glasgow is now slightly ahead of the Scottish average. Participation in walking varies by ranking of deprivation, with those in more deprived areas less likely to participate. This is a challenge for inclusion.

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When asked what would encourage them to walk more for journeys, the most frequently selected responses in the SPT RTS survey of Glasgow residents related to the quality of walking infrastructure (surfacing, less obstructions), personal security and safety issues (walking routes that feel safe and secure, more pedestrian crossings on busy routes, more lighting), and directness of routes as well as better air quality.

In Glasgow in 2018, some 73% of households had no private access to a bike according to the Scottish Household Survey. This is substantially higher than the Scotland average and higher than the comparable figure for large urban areas in Scotland. The Glasgow Household Survey in 2017 found a similar proportion without access to a bike, and highlighted that men, those aged between 35 and 54, ABC1 professional groupings (generally higher income) and households with children were more likely to have access to a bike. This is a challenge for uptake of cycling in the city, and there is other evidence to suggest those on lower incomes are least likely to have access to a bike. It should be noted there are a number of community-based projects in Glasgow that are tackling inclusive access to bikes.

The Glasgow Household Survey 2017 found that for journeys around Glasgow, only 8% of respondents said they regularly used a bicycle compared to 53% who said they regularly walked. The SPT RTS survey found a slightly higher proportion of Glasgow residents who said they cycled for journeys at least a few times a week.

The Glasgow Household Survey in 2017 showed that the proportion cycling for commuting had doubled since the last time this question was asked in 2011. Recreation was the main reason people cycled.

In terms of modal share, the Scottish Household Survey in 2018 suggested 5% cycle to work, which is higher than the average for Scotland though lower than Edinburgh. Cycling for the journey to school is less than 1% which is consistent with the picture nationwide.

When asked what would encourage them to make cycling journeys more often, the quality and availability of cycling routes / infrastructure was the main category of responses selected by Glasgow residents in the SPT RTS survey. This includes more cycle routes away from roads, more direct cycle routes, better quality surfaces. Better driver attitudes towards cyclists was also mentioned frequently.

Finally, cycling has been increasing in the city over the past decade, as measured by counts at particular locations in the city centre.

4 Socio-economic-environment problems and opportunities – employment, income, deprivation, health, energy and emissions

4.1 Introduction

Transport plays a role in many other aspects of life. It can be difficult to attribute the direct role of transport, though there is guidance and assessment methodologies that help to identify and quantify some direct impacts. Key interfaces between transport and other issues tend to include the following:

- Transport's contribution to economic growth through enhancing connectivity to jobs, to customers and markets for goods. There are also harder to define wider economic impacts e.g. agglomeration.

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- Transport's contribution to access to jobs, jobs of particular skillsets and income levels, and the cost of transport can have an impact on household incomes generally and be a deciding factor on the ability to take up a job depending on salary v. transport cost. Transport has a role to play in poverty and deprivation, and research in Scotland has documented the impacts of poor transport links in this regard⁴⁴.
- Transport's contribution to health is clear in some aspects in terms of the direct health impacts of poor air quality (e.g. exacerbates breathing conditions) and sedentary forms of transport such as driving a car which directly contributes to us having low levels of physical activity. Transport's contribution to other issues such as health inequalities is harder to define but undoubtedly plays a role (linked to local environment, income levels, accessibility).
- Transport's contribution to quality of life, life satisfaction and wellbeing can also be harder to define but again, transport and place undoubtedly play a role. As an example, transport noise and severance from major transport infrastructure such as busy roads and motorways or railway lines can lessen social interactions, or lessen public confidence in allowing children to play outdoors or travel independently.

This section summarises some of the characteristics of Glasgow in relation to the areas that transport can have direct and indirect impacts upon, to help scope the areas of relevance to Glasgow's new transport plans.

4.2 Demographics and housing

Glasgow is the most populous urban area in Scotland, with over 600,000 residents. It sits within a wider city region of over 1m people. Moreover, its population is growing. Between 2008 and 2018, the Glasgow City Council area has seen a net increase in population of 8.7%, the third highest in Scotland after City of Edinburgh and Midlothian Council areas, and double the Scottish average⁴⁵. Glasgow's population is projected to grow by 2.9% from 2018 to 2028, with the largest component of this being net migration⁴⁶. Whilst this is higher than the average projected growth for Scotland as a whole, it is less than projected population growth for some other areas in Scotland such as City of Edinburgh, Stirling, some Lothian authorities, East Dunbartonshire and East Renfrewshire.

Overall, whilst population growth can place pressures on services, this also presents an opportunity as people are the lifeblood of any society and economy.

A particular opportunity is the age profile of Glasgow's population. Glasgow has a relatively young population, and the youngest of the four largest city-based local authorities in Scotland, with a median age of 35 (compared to the Scottish median of 42). Whilst the older population segment will increase in the future, Glasgow has the lowest % projected growth in over 75s between 2018 and 2028 in Scotland. Together with Edinburgh, Glasgow has the highest % population at working age, at 70%, which has implications for travel demand in relation to employment and economic activity.

It should be noted that from 2018 to 2019, Glasgow had the highest level of net migration in Scotland, with over 78% of these being from overseas. This is important to bear in mind in relation to transport demand from immigrant populations and specific needs of diverse populations.

⁴⁴ <https://povertyinequality.scot/wp-content/uploads/2019/06/Transport-and-Poverty-in-Scotland-Report-of-the-Poverty-and-Inequality-Commission.pdf>

⁴⁵ <https://www.nrscotland.gov.uk/files/statistics/council-area-data-sheets/glasgow-city-council-profile.html>

⁴⁶ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/stats-at-a-glance/infographics-and-visualisations#pop-estimates> 2018-based population projections

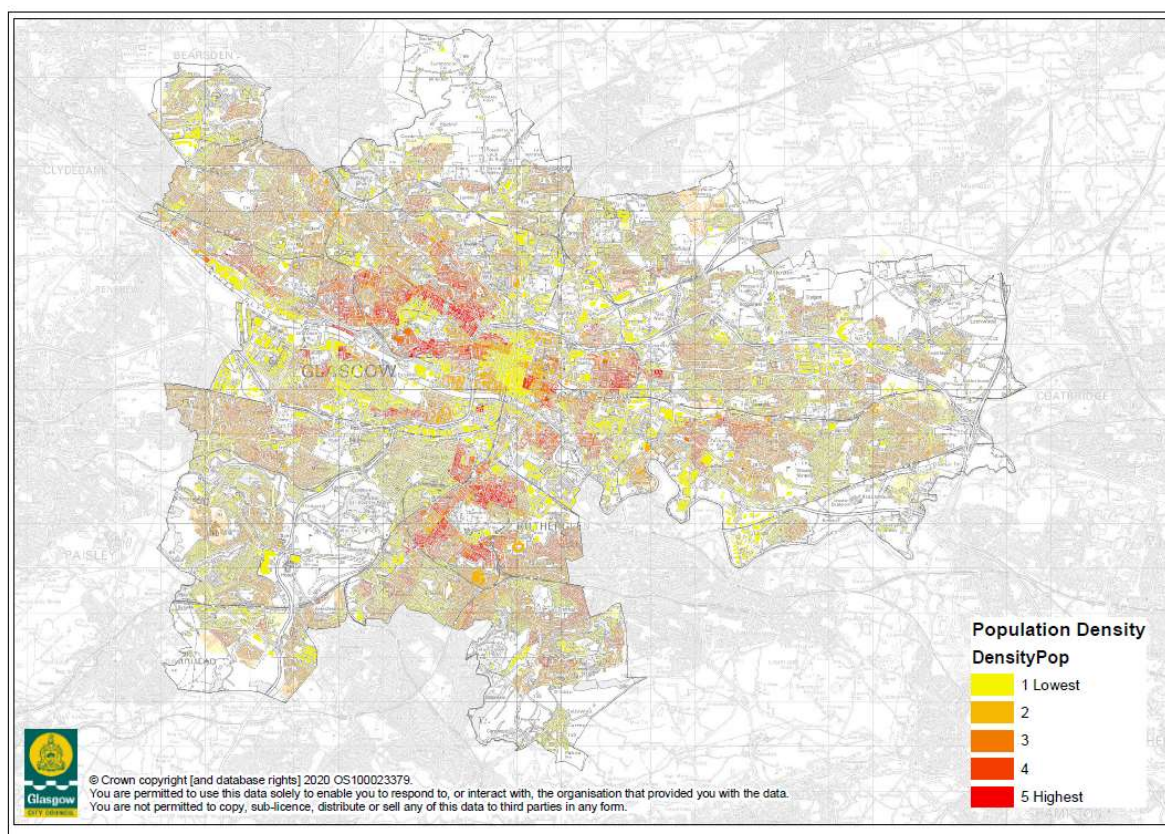
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In terms of households now and in the future, and how this population is distributed spatially, the number of households in Glasgow is forecast (principal projection) to rise by 12% between 2018 and 2043, which is higher than the average for Scotland as a whole (10%)⁴⁷.

Indeed, Glasgow City has the highest population density of any local authority area in Scotland, at 3,586 persons per square kilometre (2018). This provides an opportunity for a compact city in terms of planning and service provision, reducing the need to travel / focusing transport on shorter trips. The following map shows population density across the city (based on 2011 Census).

Figure 70 Population density (2011 Census)



Glasgow has significantly more people living in a flat, maisonette or apartment compared to Scotland as a whole - double the proportion of Scotland, at 68% in 2018 v 33% for Scotland⁴⁸. Glasgow has a higher proportion of people living in rented accommodation than Edinburgh and Scotland as a whole, with a particularly high proportion living in social rented accommodation. This has implications for travel demand and transport solutions in many respects. For example, it is harder for people store bikes or have individual EV charging points in flats, and suggests more focus on providing communal facilities. Higher density housing offers opportunities for shared mobility solutions, and more efficient markets for communal / collective transport.

4.3 Key insights from housing and demographics for travel demand

Key messages from a review of housing and demographic data include:

⁴⁷ <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-projections/2018-based-household-projections>

⁴⁸ Scottish Household Survey, [https://www.gov.scot/publications/scottish-household-local-authority-tables/](https://www.gov.scot/publications/scottish-household-local-authority-tables/Table 2.13) Table 2.13

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Glasgow has:

- A relatively young population, and a high working age population. Younger age groups tend to live in or around the city centre.
- A growing population.
- A compact, dense population, with a significant proportion living in flats/tenements. Population density in Glasgow is generally higher north of the river in the City.

Problems:

- It is traditional to assume that a growing population generates new travel demand – however, this has to be monitored carefully in coming years as emerging evidence suggests travel demand is declining for a number of reasons. The legacy of Covid19 may also have an impact.

Opportunities:

- Glasgow's population is projected to grow by 2.9% from 2018 to 2028, with the largest component of this being net migration.
- There is a market for sustainable, collective transport (buses, heavy rail, light rail) due to a high population density, and an opportunity to ensure planning policy supports a compact city in the future.
- A younger population may be more open to technology to support travel decisions, and there is evidence that younger people are less likely to want to use or own a car. This particularly applies to the city centre, where policy goals exist to double the residential population. Glasgow Household Survey data suggests younger people are more likely to consider living in the city centre, and least likely to want to have access to a car.

4.4 Equalities and accessibility

An Equalities Impact Assessment screening exercise has been collaboratively undertaken for Glasgow's new transport plans. This is the start of an ongoing process to ensure the Council's statutory duties on equalities, a Fairer Scotland, human rights and child rights in particular, sustainability and climate change inform the development of the plans at each stage.

This section is therefore a summary of more detailed work presented in the Equalities Impact Assessment – Screening Form (available to view at www.glasgow.gov.uk/transportstrategy).

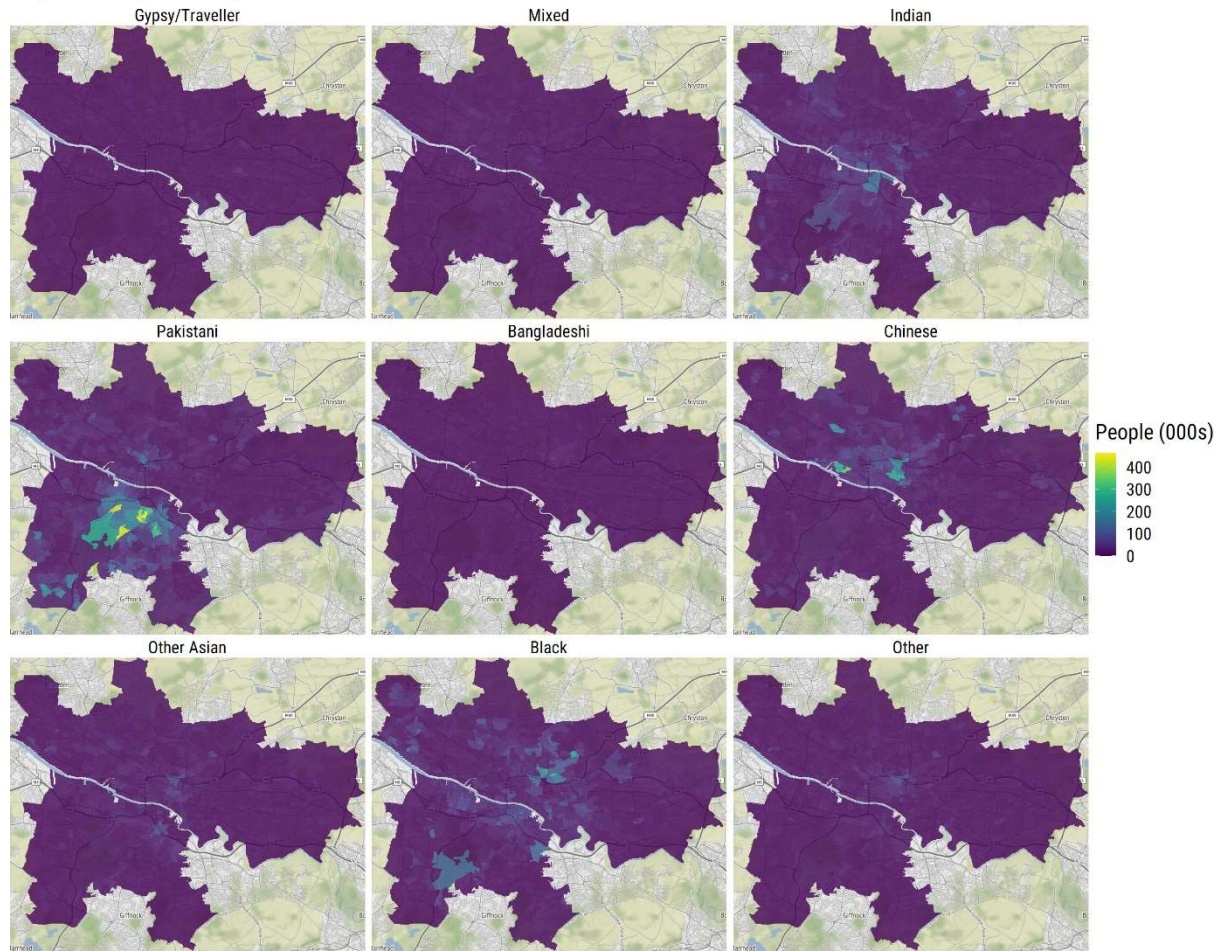
4.4.1 Distribution of population by age and ethnicity

The University of Glasgow have similarly mapped population by ethnicity from the 2011 Census (excluding white) in each of Glasgow's data zones. Some clear patterns are visible e.g., the clustering of the Pakistani community south of the river, Chinese population around the city centre, and Black population in pockets across the city. There is evidence from the Census that car access varies considerably by ethnicity (see below).

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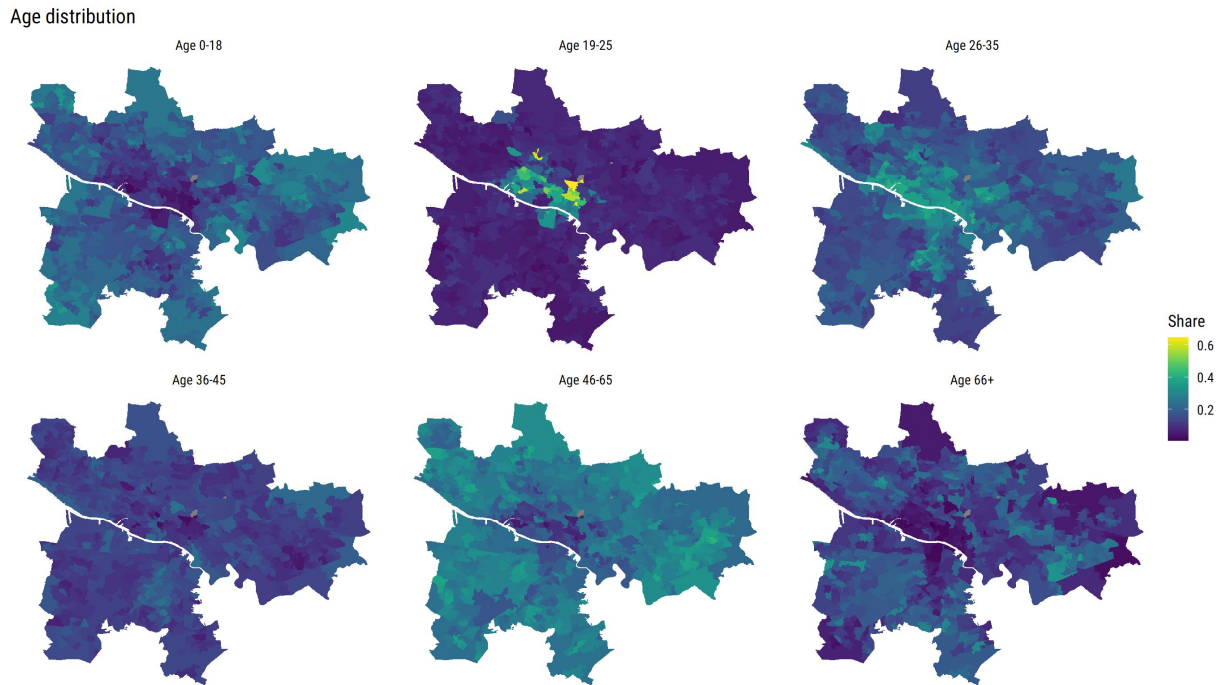
Figure 71 Spatial distribution of population by ethnicity from 2011 Census (University of Glasgow UBDC analysis)

Population by ethnicity



University of Glasgow’s Urban Big Data Centre have produced analysis on the spatial distribution of people by age in the city. The maps below show the distribution of people by age group in Glasgow. The main pattern is that young people tend to be more likely to live in the city centre. The effect is particularly noticeable for people aged 19-25, which may reflect Glasgow’s sizeable student population. The effect persists somewhat in to the 26-35 age group.

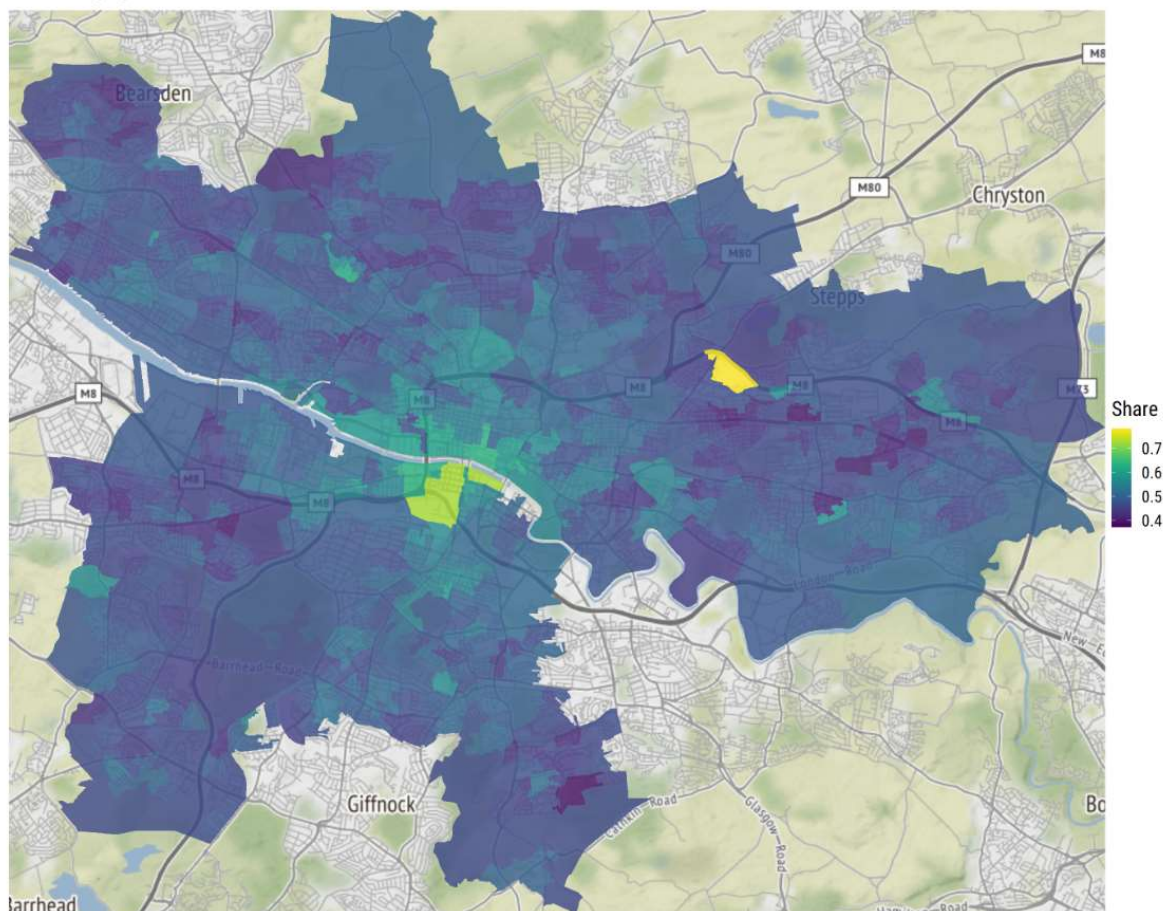
Figure 72 Spatial distribution of population by age (University of Glasgow UBDC analysis)



When the population is mapped by sex, there are a greater proportion of males living in the city centre. This generally results in better accessibility to jobs for men, as discussed further in sections below.

Figure 73 Spatial distribution of population by sex – proportion of population per datazone that is male (University of Glasgow UBDC analysis)

Share of population that is male



4.4.2 Differential impacts

As part of the Equality Impact Assessment screening work for Glasgow’s new transport plan, a number of insights have been gained into the differential impacts of transport for the city’s population. This is important to note, as decisions on which mode of travel to invest in can have different impacts on different parts of the community. The key impacts to note are:

- Wealth of evidence that people in low income and deprived areas suffer most from lack of transport, and unequal access to specific types of transport. This is particularly an issue for Glasgow given high levels of poverty and deprivation.
- Glasgow has a significantly higher than average proportion of households without access to a car compared to Scotland – 46% of households have no car (Scottish Household Survey 2018). This increases to over 70% of social sector tenure households, compared to 25% of owner occupied households.
- Almost three quarters of households in Glasgow have no access to a bike, the fifth highest proportion out of all local authorities in Scotland.
- Women are less likely to have access to a driver’s licence than men, and use buses more frequently than men.
- Young people are less likely to have access to a car or a licence and more likely to rely on buses. They are more likely to walk to work or travel by bus to work. Glasgow has a relatively young population compared to Scotland.

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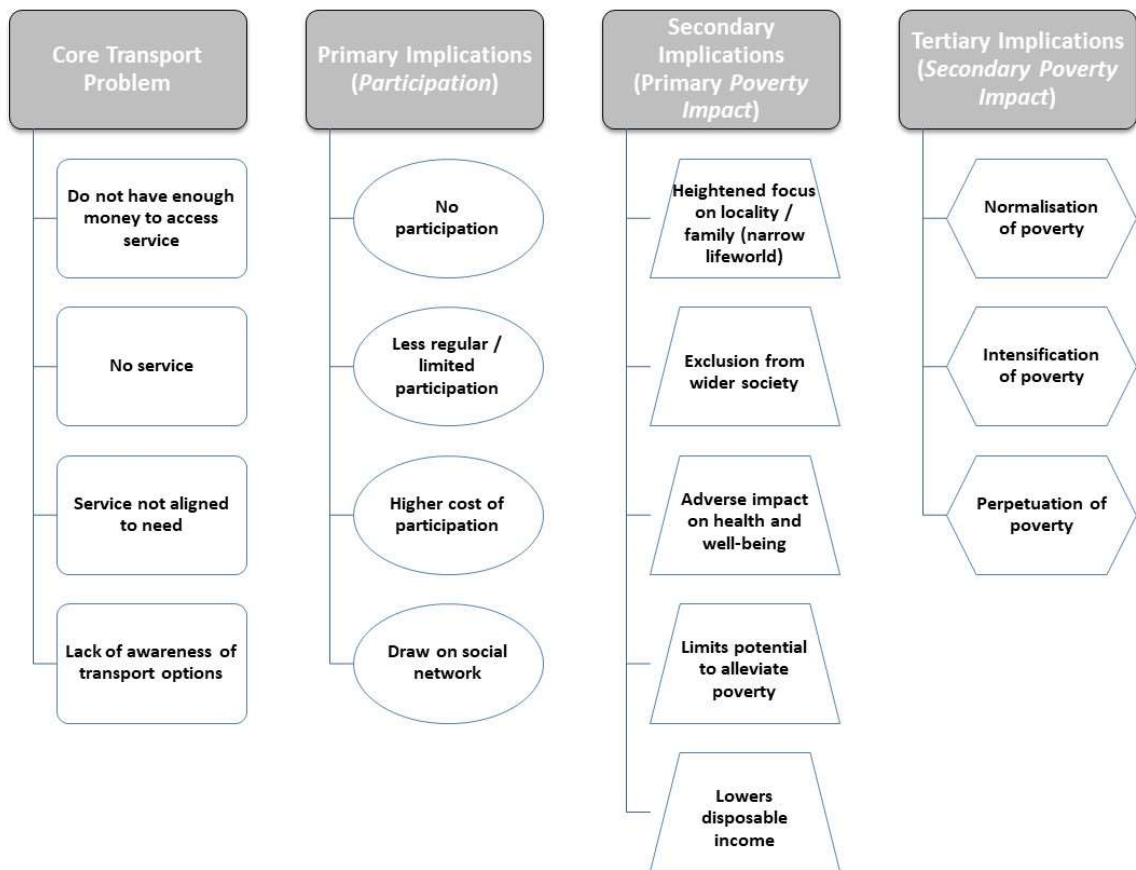
- Older people are less likely to drive (vehicle licensing data), older people use concessionary fares and therefore have high usage of buses, older people may be more likely to suffer mobility difficulties. Glasgow has the lowest % population at pensionable age of all local authorities in Scotland.
- Sick or disabled adults much less likely to have driving licence; disabled adults are more likely to use the bus; nearly 8% of adults find walking difficult (Scotland); disabled people are less likely to use rail than the general population; people in Scotland with a limiting health condition are less likely to have walked or cycled in the previous week than non-disabled people.
- Over a third of bus journeys are by concessionary pass holders (Scotland).
- Glasgow has a higher non-white population than Edinburgh. Glasgow has a significantly larger Asian population than Scotland on average. There is also a sizeable African population compared to Scotland as a whole. Households from Chinese or African households are more likely to not have access to a car in Glasgow compared to other ethnic groups. In Glasgow, black and minority ethnic communities are under-represented when it comes to riding a bike.
- 68% of people cycling in Glasgow were men and 92% white, 50% of “bike riders” were under 34 years of age. This suggests other population segments are under-represented in cycling and more has to be done to making cycling inclusive for all.
- Lower income households use bus more and train less. University of Glasgow public transport accessibility analysis suggests people in the worst SIMD decile have longer public transport journey times to access jobs. There is a correlation between lack of car access and SIMD in Glasgow. Households with income up to £15k pa more likely to walk to work. Higher income households drive more often including to work, and also cycle most.
- Some populations are more likely to feel harassed or have concerns over personal safety, including on public transport – such as ethnic minorities, LGBTQ+ communities.
- Spatial differences in the city – in addition to some parts of the city having longer journey times on average by public transport to some destinations and types of jobs, people in lower socio-economic groupings are less likely to travel to the city centre (Glasgow Household Survey).

4.4.3 Deprivation and poverty: the interactions between transport and poverty

The Scottish Poverty and Inequality Research Unit at the Glasgow Caledonian University have identified key interactions between transport and poverty and the implications. This is shown in the figure below.

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Figure 74 Drivers of poverty - transport problems (Glasgow Caledonian University)⁴⁹



Over 40% of the population in Glasgow City are in the most deprived quintile (worst 20% datazone) from SIMD⁵⁰. Looking at the Thriving Places areas in Glasgow specifically, this figure rises to over 78%.

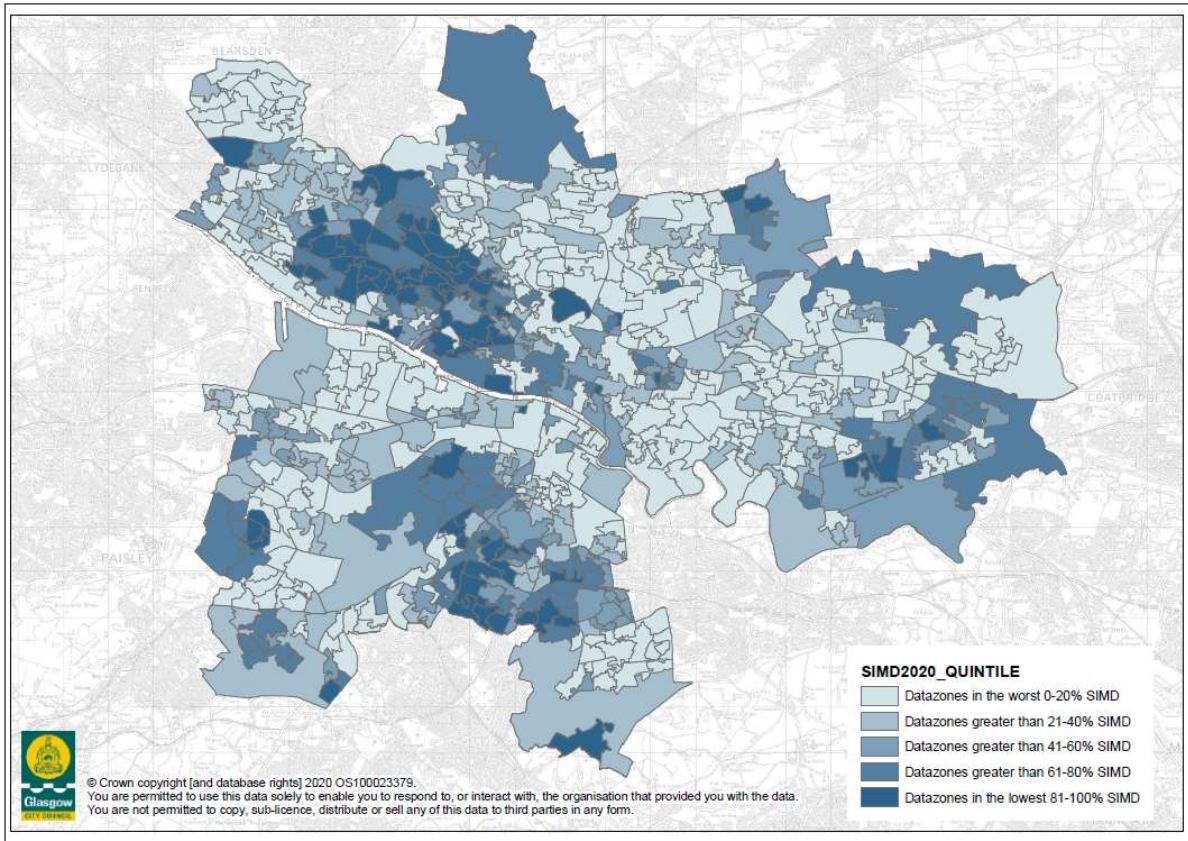
In 2017, over 34% of children were classed as being in poverty after housing costs. This was the highest of all local authority areas in Scotland.

Deprivation varies spatially across Glasgow, as the map below demonstrates (the higher the ranking e.g. 1, suggests a higher degree of deprivation comparatively, and higher ranks are darker in colour in the following map).

⁴⁹ Scottish Poverty and Inequality Research Unit, Glasgow Caledonian University, John H. McKendrick and Tracey Hughes, 2019

⁵⁰ <https://www.glasgowcpp.org.uk/index.aspx?articleid=15815>, Resilient Communities section of Performance Monitoring Data 2019 xls

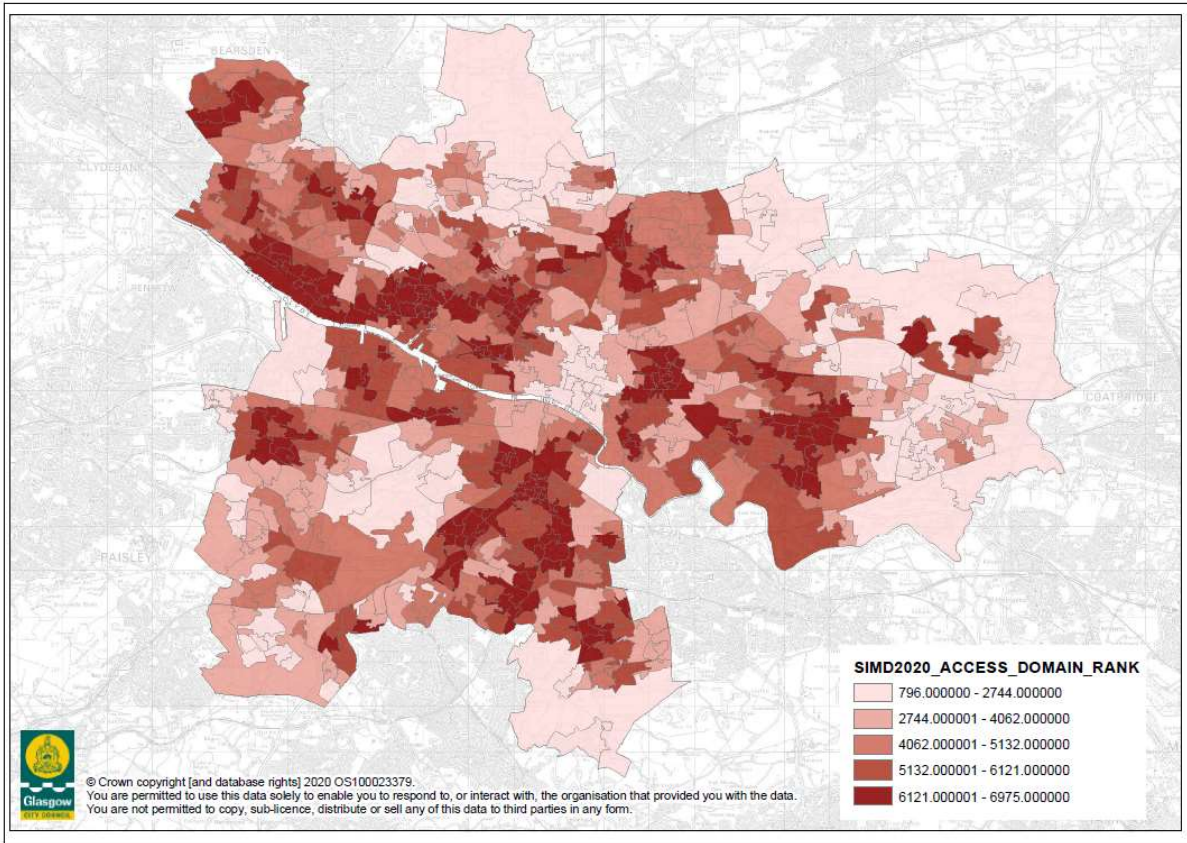
Figure 75 Glasgow areas by SIMD rank 2020



Looking at the access domain within SIMD specifically, a slightly different picture emerges across the city. The geographic access to services domain in SIMD looks at mean travel time (in minutes) to key services, by car or public transport⁵¹. These key services are GP surgery, Post Office, Retail Centre, Primary School, Secondary School and Petrol station. Using this domain as an indicator, there are areas in the city centre with relatively high access domain rankings, meaning they suffer more from access issues to key services. This is an issue for goals to increase the residential population in the city centre.

⁵¹ <https://statistics.gov.scot/data/scottish-index-of-multiple-deprivation---geographic-access-to-services-indicators>

Figure 76 Glasgow areas by SIMD access domain ranking 2020



4.5 Public transport accessibility analysis

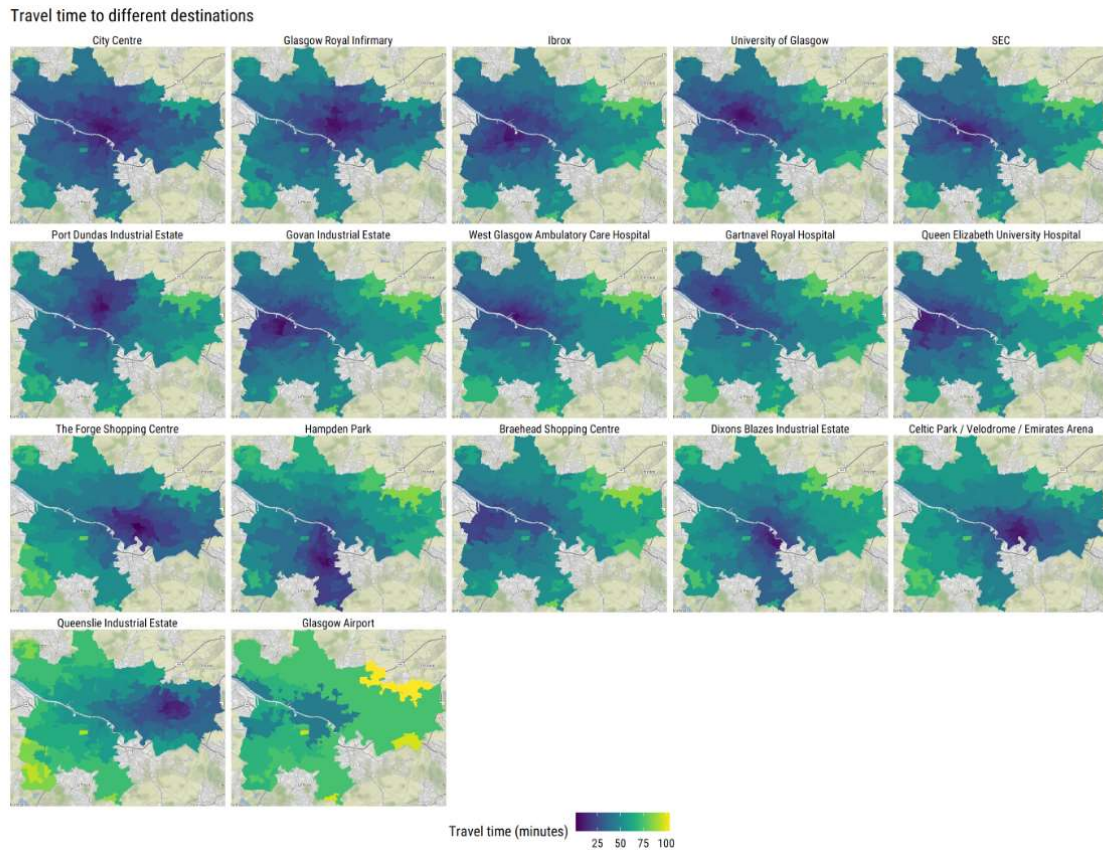
University of Glasgow’s Urban Big Data Centre have carried out some initial public transport accessibility analysis to a set of significant destinations in the city to help inform this draft Case for Change report. The analysis has used the national Traveline dataset and Rail Delivery Group information from a Monday noon time period, and analysed within ArcGIS. Public transport in this analysis refers to buses, trains and Subway. The analysis was based on timetable information from the first week in September 2020.

The analysis looked at travel time to various locations in Glasgow and how these vary spatially and by socio-economic factors i.e. sex, age, ethnicity, and deprivation. It also looked at how accessibility to jobs in different industries varies (reported in a later section of this report).

Travel times to locations in the city and how this varies by sex, ethnicity, age and deprivation level

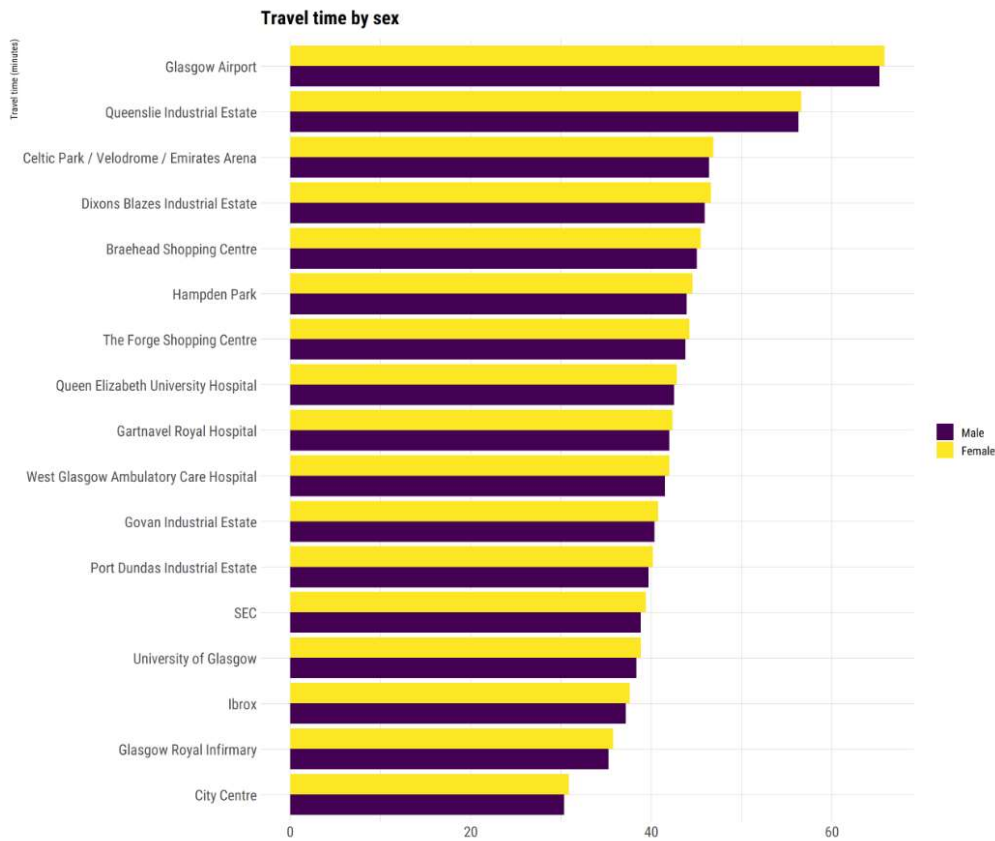
Looking at overall travel times to a number of specific destinations in the city, the picture is varied. Clearly travel time increases for areas further away from the destination in question, though it is noticeable how some outer parts of the city in the north-east and south-west appear to have longer travel time for most of the destinations picked, regardless of destination.

Figure 77 Travel time to different destinations by all population groups (by datazone) – University of Glasgow UBDC analysis, April 2020



Travel time was analysed to different locations in Glasgow for males and females. This was done by taking a weighted-average of the travel times from data zone centroids across the study area. Women tend to have longer travel time to all destinations. This is driven by the fact that there are quite a lot of males living in the well-connected city centre compared to females.

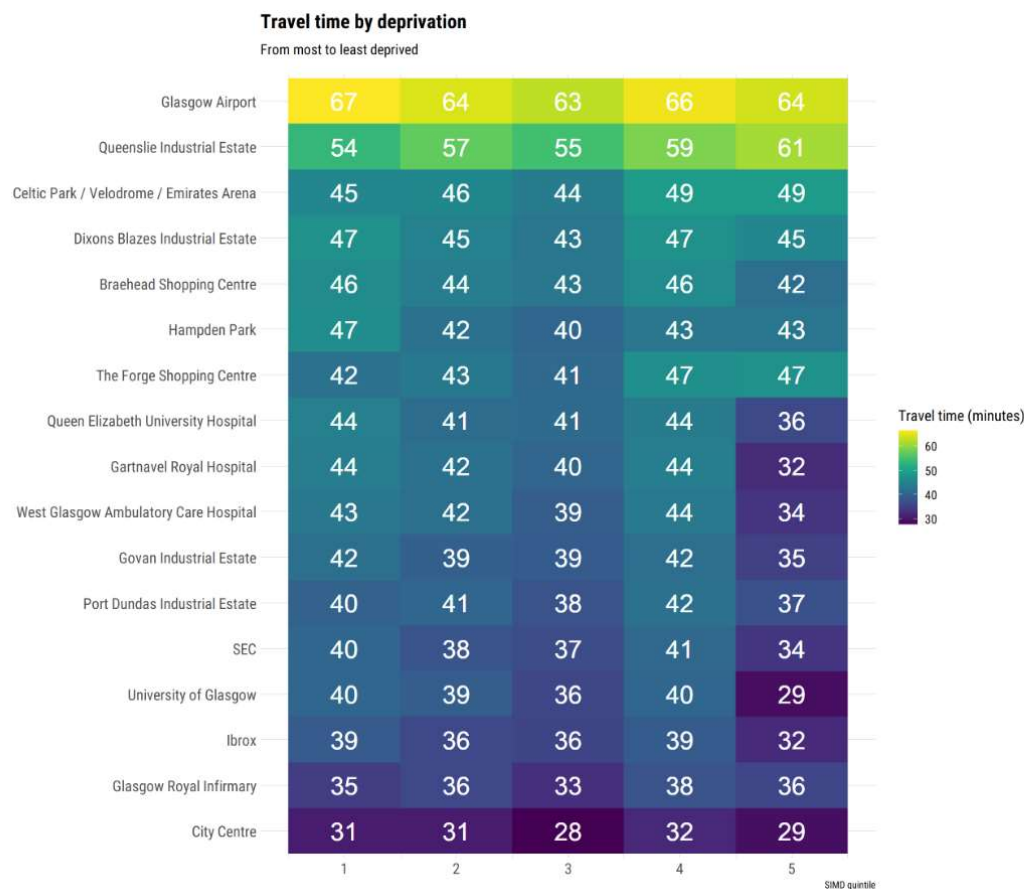
Figure 78 Travel time to different destinations by sex (by datazone) – University of Glasgow UBDC analysis, August 2020



The University of Glasgow analysis also looked at travel time by age, ethnicity and deprivation. Trends were hard to discern from analysis by ethnicity, though populations clustered closer to the city centre tended to have better accessibility to destinations. The same is true of younger people as they are more likely to live within the centre of the city.

In relation to deprivation, travel times for each category were calculated by taking weighted averages. They are plotted below for each combination of destination and deprivation quintile. The travel time in minutes is also shown. This analysis suggests that those in more deprived quintiles (1 is most deprived) have generally longer travel times to key destinations. This is particularly noticeable for travel times to all hospitals except for Glasgow Royal Infirmary, Govan Industrial Estate, SEC, University of Glasgow.

Figure 79 Travel time to different destinations by SIMD levels of deprivation – University of Glasgow UBDC analysis, April 2020



4.5.1 Digital inclusion

The proportion of households with access to the internet in Glasgow has lagged behind Scotland as a whole which has implications for household access to information to support travel choices. In 2018, 83% of households had home internet access in Glasgow compared to 87% in Scotland as a whole⁵². 85% of survey respondents also labelled themselves as an internet user, slightly lower than the 87% at a Scotland wide level who said the same. Glasgow survey respondents were more likely to access the internet for personal use whilst on the move (e.g. via a mobile phone/smartphone/tablet) compared to the Scottish average, and slightly less likely to access the internet from home than Scotland-wide. They were also more likely to access the internet via a public library than the Scotland-wide survey sample.

4.6 Key insights from equalities and inclusion for travel demand

There is a wealth of evidence that transport has differential impacts on different populations, and often negative impacts on specific population groups. This must be taken into account in relation to:

- engagement during the development of the new Glasgow Transport Strategy, to ensure all sections of the population have their say and contribute. The EqIA screening work directly informed the approach to the Public Conversation and community engagement in particular; and

⁵² Scottish Household Survey, LA Tables, Fig 7.1 <https://www.gov.scot/publications/scottish-household-local-authority-tables/>

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- policies and projects and investment decision-making within and as a result of the new transport strategy, to ensure inequalities are not deepened – and moreover, to tackle and reduce inequalities.

Some of the biggest differential impacts from transport relate to:

- The type of mode people tend to use for journeys (this is not equal amongst all population groups, and therefore investments in each mode must take this into account).
- Access to the tools needed to make a journey is not equal amongst populations – be it a car, bike, public transport services.
- Those on lower incomes and in poverty generally are affected in multiple ways by transport barriers, and are also more likely to suffer from other differential impacts e.g. health inequalities.
- Initial public transport accessibility analysis by University of Glasgow's Urban Big Data Centre suggests that women generally have longer travel times to access key destinations in the city, as do people in the most deprived parts of the city as ranked by SIMD. Younger people tend to have better accessibility due to being more likely to live closer to the city centre. Some ethnicities are clustered in parts of the city, which matters for public transport provision as access to a car can vary substantially by ethnicity.

4.7 Employment and economic sectors

The Glasgow City Region makes a significant contribution to Scotland's economy, at a value of £42,911m of total Gross Value Added in 2018⁵³. Glasgow City makes up almost half of this total GVA. Income levels however for Glasgow residents are lower than the regional and Scottish average.

Glasgow's employment rate has been improving in recent years although at 67.8% of 16-74 year olds (Oct 2018-Sept 2019), it is lower than the Core Cities average of 70.4% and lower than the Scotland-wide average of 74.8%⁵⁴. It also has a higher proportion (25%) of workless households than the Core Cities average (this is higher than the Scottish average of 17%, 2018). This has transport implications in relation to travel demand e.g. patterns of travel (spatially and by time of day), affordability of travel options, and the role of transport in supporting access to skills, training and employment.

Glasgow Household Survey in 2018 explored the topic of transport and employment⁵⁵. Just under one in ten (9%) respondents said they had had been unable to apply for, or accept, a job whilst living in Glasgow because it would have been difficult to get to or from the place the job was based. The figure was very slightly higher among those living in the North East and North West (11% and 12% compared to 5% in the South); those with children (12% compared to 8% of those with no children); and those without a car (12% compared to 7% of those with car).

In terms of the specific factors that would have made it difficult to get to or from the place the job was based, these most commonly related to public transport; in particular, a lack of services suited to the working hours (33%); a basic absence of services (30%); or insufficient services (17%). Journey time (19%) was another factor cited by almost one in five respondents

⁵³ Source: Glasgow City Region Intelligence Hub

⁵⁴ Core Cities - Birmingham, Bristol, Cardiff, Glasgow, Leeds, Liverpool, Manchester, Newcastle, Nottingham and Sheffield. Data from Community Planning Performance Management Framework Portal <https://www.glasgowcpp.org.uk/performance> 2018 update

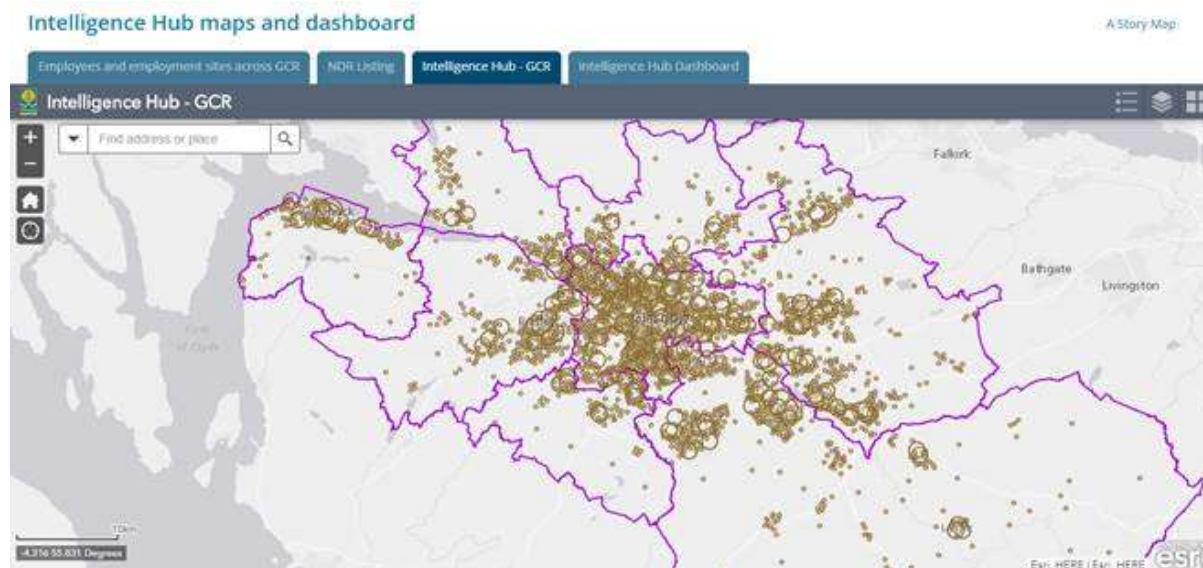
⁵⁵ <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=46752&p=0>

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Mapping of jobs in the City demonstrates a high proportion of jobs in the city centre area, as well as the west of the city around Braehead and Hillingdon, and a general westward corridor from the city centre. The concentration of jobs in the region are broadly in a south-east to north-west corridor.

Figure 80 Job density per km² - Glasgow City Region City Deal Intelligence Hub



It should be noted that the Glasgow City Region City Deal will continue to have significant spatial impacts and support transport improvements.

In 2019, there were 414,000 employee jobs in Glasgow⁵⁶. The largest sectors of employment in Glasgow City in 2019 were human health and social work activities; administrative and support services activities; and wholesale and retail trade, repair of motor vehicles and motorcycles. Understanding the distribution of jobs by sector is important to understanding the nature of travel demand in the City. It is also an important factor to consider in any future changes to travel demand if employment in these sectors rises or falls.

At 35.5%, Glasgow has a higher proportion of workers classed as 'low skilled' than the Core Cities average of 34.1% (2017-18)⁵⁷. Transport plays an important role in access to training and skills development as well as to employment generally.

The Glasgow Household Survey in 2019 asked residents about workplace location, mode of travel to the workplace and where they parked. The survey had a sample of 32% of respondents working within the City Centre in Glasgow, 27% working elsewhere in the city and 17% working in premises outwith the city boundary. Some 44% of this sample used a car or a van for at least part of their commute, and those with children in the household were much more likely to than non-children households (56% compared to 37%). Among those who travelled to work by car or van, 62% had free onsite parking provided at their place of work, while 36% did not. For those without free onsite parking, 59% used free parking on the street, while just under a third (31%) paid for parking either in private car parks (20%) or on street (11%).

⁵⁶ <https://www.nomisweb.co.uk/reports/lmp/la/1946157420/report.aspx#tabjobs>

⁵⁷ <https://www.glasgowcpp.org.uk/performance>, 2018 update

4.8 Public transport accessibility analysis to jobs

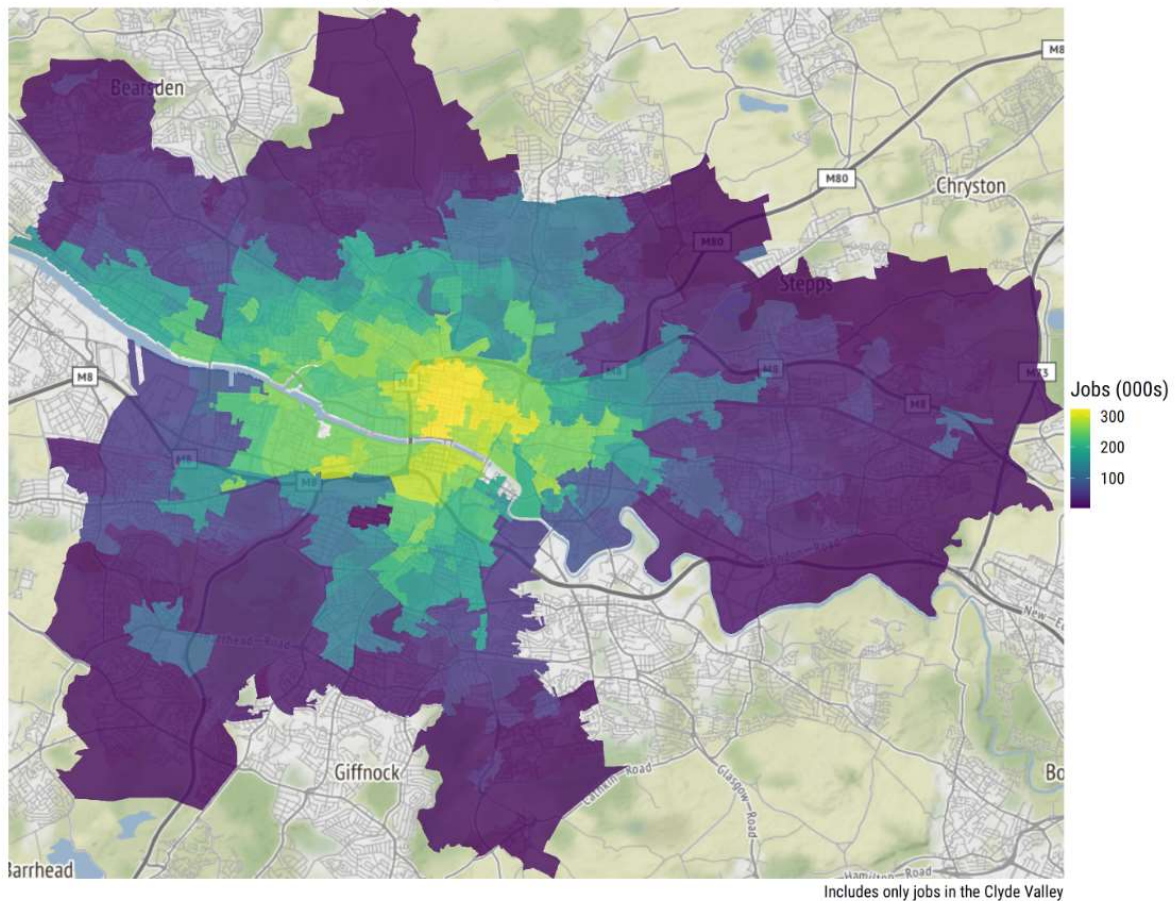
As part of the work University of Glasgow’s Urban Big Data Centre carried out on public transport accessibility analysis, to help inform this Case for Change report, accessibility to different types of jobs was considered. The number of jobs is taken from Nomisweb and is based on the Business Register and Employment Survey (BRES), 2018.

There are many different ways to measure accessibility to employment. One of the simplest measures is a so-called isochrone measure, where the number of jobs within a travel time threshold are counted. For this analysis, a threshold of 30 minutes has been used. The analysis also includes access to jobs within the Clyde Valley Planning Area.

The map below looks at how many jobs can be accessed within 30 minutes by population per datazone. Clearly those living in or near the city centre have 30 minute public transport travel time access to the largest number of jobs, whilst those on the outer edges of the city have least access.

Figure 81 Number of jobs accessible within 30 minutes travel time by public transport, by population datazone - University of Glasgow UBDC analysis, April 2020

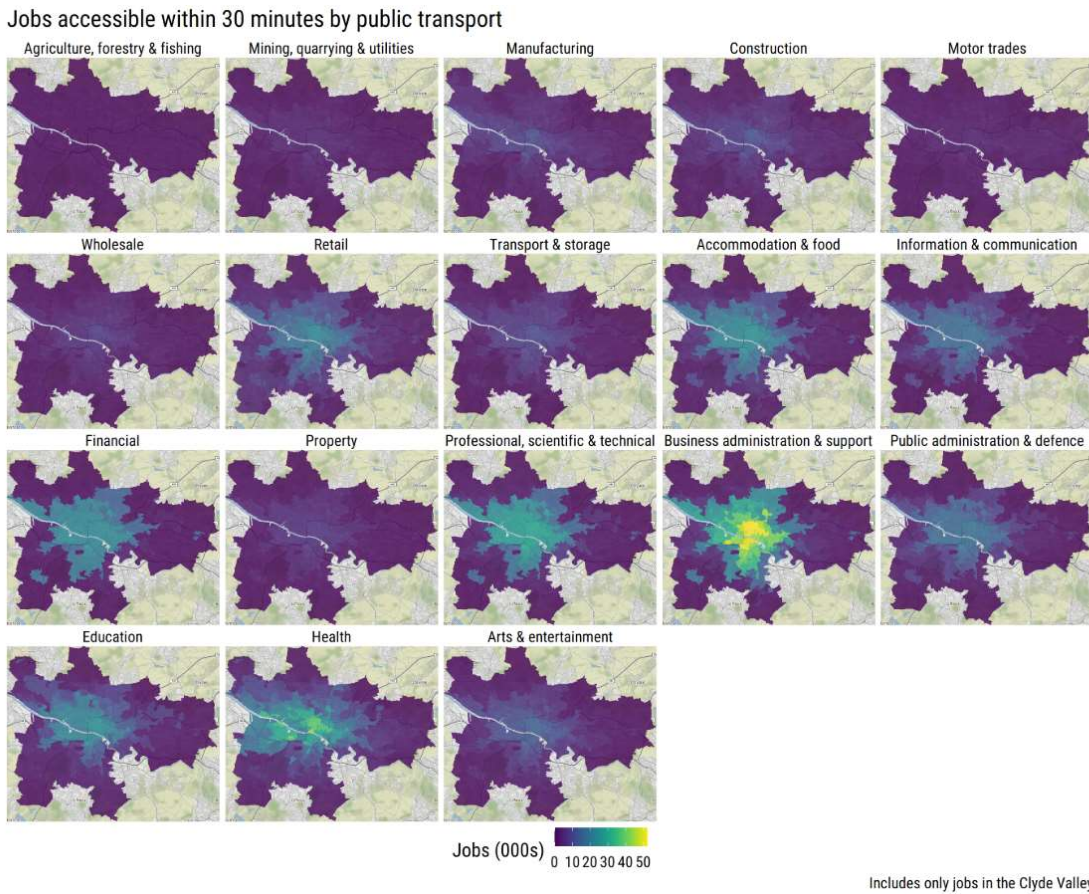
Jobs accessible within 30 minutes by public transport



The map below is similar though now focusing on jobs by industry. The first map shows which industries dominate Glasgow and where they are accessible from. Some industries are quite concentrated while others are more spread out. Generally speaking, those living near the city centre and towards the west of the city have 30 minutes travel time access to more jobs than those living in the east, south and far north-west of the city. It is worth noting the sectors which employ most people in Glasgow – administration, education, retail. These maps show consistently less jobs access

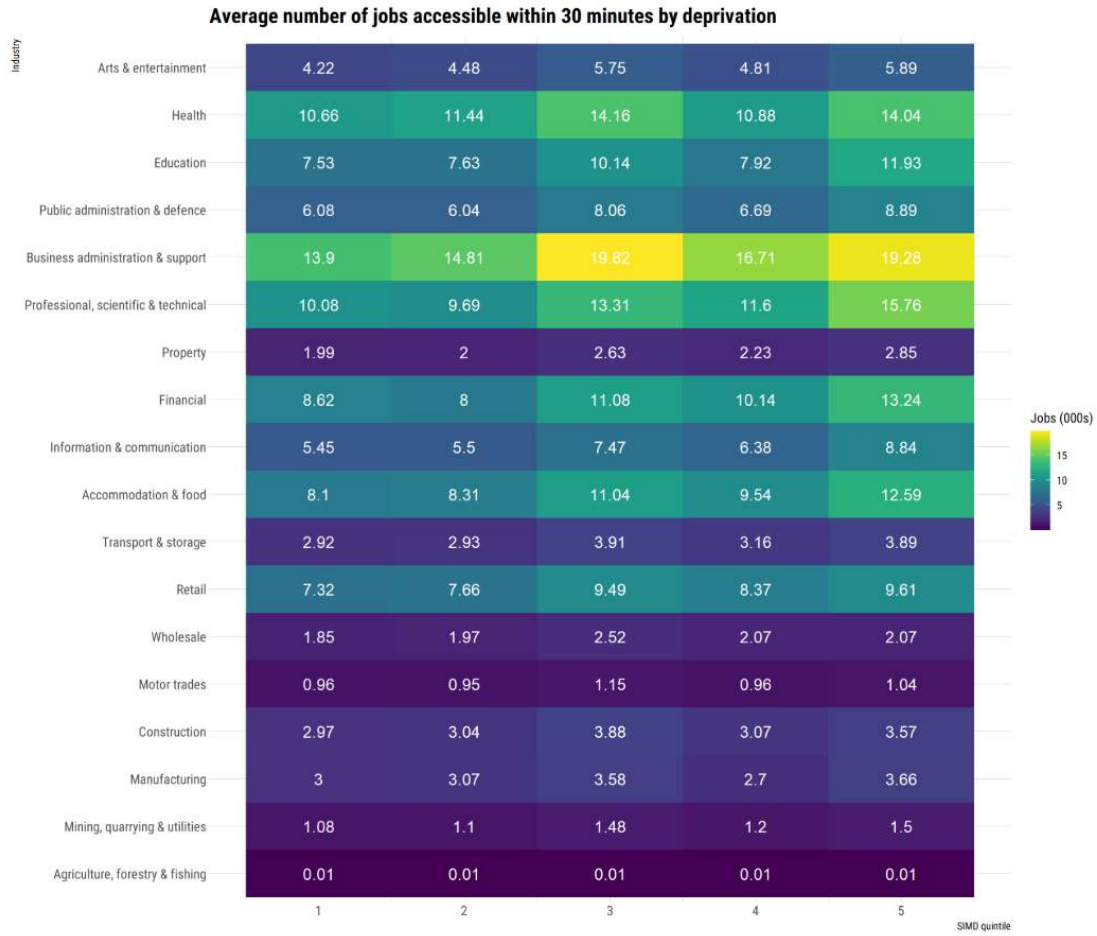
by public transport for outer parts of the city, and there may be a correlation with lack of car access for some of these areas.

Figure 82 Number of jobs accessible within 30minutes travel time by public transport, by population datazone and by job sector - University of Glasgow UBDC analysis, April 2020



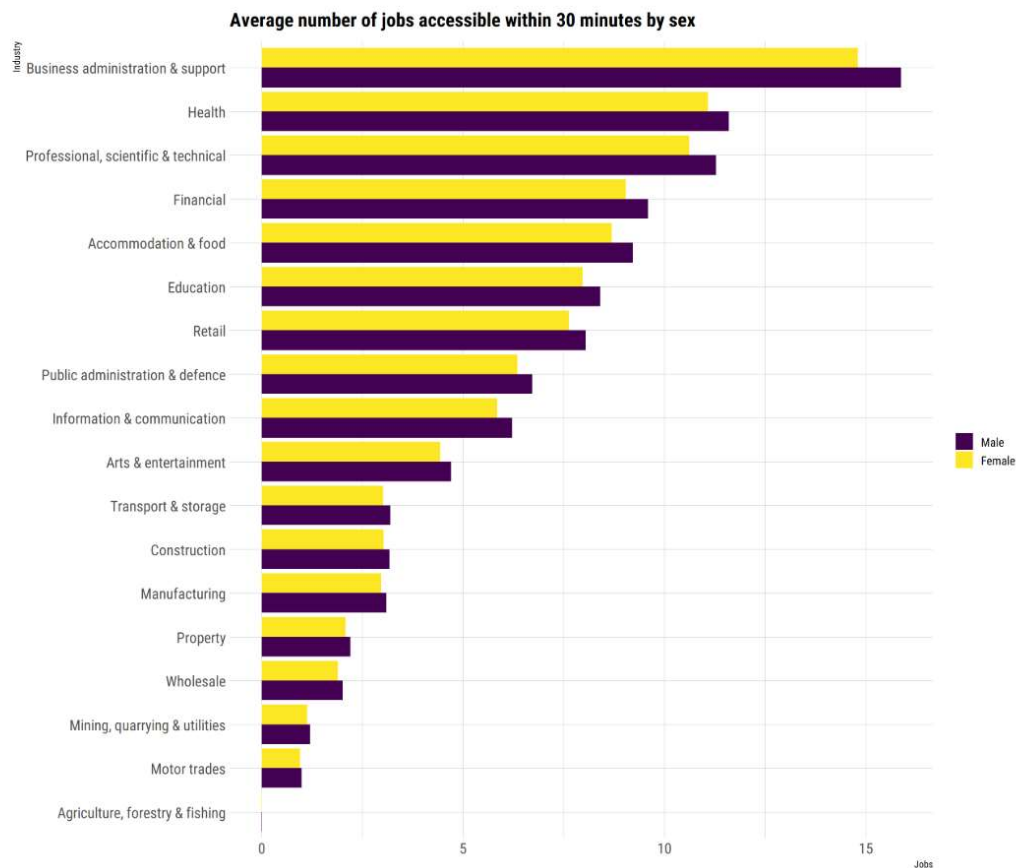
Below we see how access to types of jobs varies by deprivation. There is a clear tendency that people living in the most deprived neighbourhoods (ranked 1) have the lowest access to jobs. The accessibility improves as we look at less deprived neighbourhoods (5).

Figure 83 Travel time to different types of jobs by SIMD levels of deprivation – University of Glasgow UBDC analysis, April 2020



We can see how the accessibility to jobs varies by sex in the chart below. Males tend to have better accessibility to jobs. Once again, this is most likely driven by the concentration of males living in the city centre.

Figure 84 Travel time to different types of jobs by sex – University of Glasgow UBDC analysis, April 2020



4.9 Key insights from employment and jobs

There is evidence that transport can be a significant barrier to taking up jobs and training, with one in ten respondents to the Glasgow Household Survey saying they had been unable to apply for, or accept, a job whilst living in Glasgow because it would have been difficult to get to or from the place the job was based. This was even more the case for those without access to a car, and was slightly more of an issue for people in the north of the city as opposed to the south.

The largest sectors of employment in Glasgow in 2019 were human health and social work activities, administrative and support services, and wholesale and retail trade, repair of motor vehicles and motorcycles. This has implications for travel demand, and how this travel demand may change in the future, and further work would be useful to describe the characteristics of travel demand associated with different employment sectors.

Mapping of jobs in the City demonstrates a high proportion of jobs in the city centre area, as well as the west of the city around Braehead and Hillington, and a general westward corridor from the city centre. At 35.5%, Glasgow has a higher proportion of workers classed as ‘low skilled’ than the UK Core Cities average of 34.1%

Initial public transport accessibility analysis by University of Glasgow suggests those in the most deprived parts of the city have access to the lowest number of jobs within a 30 minute travel time.

Clearly the location of jobs now and potentially in the future should be one of the factors to help shape investment decisions in transport services and infrastructure.

4.10 Technology

Technology already plays a strong role in Glasgow’s transport system. As part of a Future Cities Glasgow programme, an urban traffic control centre is in place at Eastgate. Traffcom monitors traffic flows and signals across the city, using an adaptive control system known as SCOOT (Split, Cycle, Offset Optimisation Technique). Related to this system is BIAS, the Bus Information and Signalling System, which supports buses with advance priority at lights in the city when needed. This is also integrated with a real-time passenger information system in the region, supported by SPT. All of this is further supported by a network of High definition CCTV (PTZ: pan, tilt and zoom) cameras.

There are a number of smartcards in place in Glasgow – digital and cashless ways of paying for travel. These include the ScotRail smartcard, SPT’s smart ticketing system on the Subway, and the Glasgow Tripper smartcard which supports travel on a number of bus services across the city (<https://glasgowtripper.co.uk/>). Work is ongoing to make the Zonocard fully SMART.

Work is ongoing by Transport Scotland to support greater use and interoperability of Smartcard technology in Scotland, and the public-facing website <https://smartravel.scot/> was launched in 2019 to raise awareness of existing smartcards and interoperability.

Glasgow City Council is also involved in an open data platform, and is working to create more opportunities for open data in the city to support innovation, transparency and public engagement. As part of the Glasgow City Region City Deal funding package for Glasgow, a new high-growth innovation hub has been developed. Glasgow City Council’s Centre for Civic Innovation is based at this hub in Tontine.

There are many opportunities to further develop technology in Glasgow’s transport system, and move towards being a “smart” and connected city. These include:

- Using technology (e.g. sensors, video analytics, LIDAR) to identify movement and volume of cyclists and pedestrians and integrating this with City management and traffic flows e.g. at traffic light priority, congestion management which also supports minimising emissions.
- More multi-modal ticketing across different modes of travel in the city and potentially linking to other forms of mobility such as bike hire and car clubs.
- Mobility as a Service platforms to proactively promote sustainable travel choices in the city.

4.11 Health and life expectancy

In 2015 to 2017, Glasgow City was ranked 389th (the lowest rank in the UK) for life expectancy at birth for both males and females, with life expectancy at 73.3 years for males and 78.7 years for females⁵⁸. In 2016-18, Glasgow City male residents had the lowest healthy life expectancy in Scotland at 56.1 years compared to 61.9 years on average in Scotland, whilst women had a healthy life expectancy of 58.2 compared to 62.2 in Scotland⁵⁹. This presents a challenge to uptake of active travel in particular, as well as an imperative to move towards more active lives given the role physical activity can play in mortality rates.

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<https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/healthandlifeexpectancies/bulletins/healthstatelifeexpectanciesuk/2015to2017>

⁵⁹ <https://www.glasgowcpp.org.uk/performance> 2019 update

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Over a quarter of respondents to the Scottish Household Survey for Glasgow in 2018 said they had a long term limiting physical or mental health issue, though this figure has declined from 32% in 2014. This figure is also less than 30% for Scotland as a whole in 2018.

There are several identified “Thriving Places” areas in Glasgow, where a greater level of interventions are being developed to support inclusion. Data shows these areas have lower levels of positive perceptions of mental or emotional wellbeing.

Figure 85 Positive perception of wellbeing by Thriving Places in Glasgow – comparison of 2017/18 with 2014/15

	Thriving Places				Comparison					
	Gt Gorbals	Parkhead/ Dalmarnock	Ruchill Possilpark	Govanhill	Total for 4 TP areas	Rest of Glasgow	% Gap	Bottom 15%		
								Datazones	Other Areas	% Gap
Positive Perception of Mental or Emotional Wellbeing	81%	84%	76%	81%	80.4%	87.6%	-8.2%	80.5%	86.4%	-6.8%

2014/15 NHS Greater Glasgow & Clyde Health & Wellbeing Survey (Thriving Places Report)

	Thriving Places				Comparison					
	Gt Gorbals	Parkhead/ Dalmarnock	Ruchill Possilpark	Govanhill	Total for 4 TP areas	Rest of Glasgow	% Gap	Bottom 15%		
								Datazones	Other Areas	% Gap
Positive Perception of Mental or Emotional Wellbeing	80%	82%	76%	78%	78.8%	88.8%	-11.3%	77.4%	88.2%	-12.2%

4.12 Neighbourhoods

The Scottish Household Survey shows that the rating of their neighbourhood as a place to live has steadily improved in Glasgow in recent years, from 83% of survey respondents rating it as very or fairly good in 1999/2000, to 92% in 2017. That said, this is significantly lower than the Scotland-wide figure of 95%⁶⁰.

The rating of places as a place to live correlates with the level of deprivation with those living in areas of higher deprivation scoring their neighbourhood lower - 86% of the most deprived quintile ranked their neighbourhood as very/fairly good v. 100% least deprived quintile.

The Glasgow Household Survey also asked residents how satisfied they were with their neighbourhood as a place to live in 2019⁶¹. 83% of respondents were either very satisfied or fairly satisfied with their neighbourhood as a place to live, while just over one in ten (11%) were either very or fairly dissatisfied. Satisfaction was down six percentage points from that in 2016, when 89% of respondents were either very or fairly satisfied with their neighbourhood, while dissatisfaction was up by 5 percentage points. Residents of the North West were more likely to be satisfied with their neighbourhood than those in the North East and South (88% compared with 78% and 83% respectively). Older respondents (aged 65+) were more likely than average to be satisfied with their neighbourhoods (90% compared with 83% overall). There was further variation by social grade and deprivation: ABC1s were more satisfied than C2DEs (86% compared with 81%), while those in the least deprived areas were more satisfied than those in the most deprived areas (95% compared with 73%).

⁶⁰ https://www2.gov.scot/Topics/Statistics/16002/LATables2018/2018_split_SHS_Local%20Authority_table, Section 4

⁶¹ <https://www.glasgow.gov.uk/CHttpHandler.ashx?id=46672&p=0>

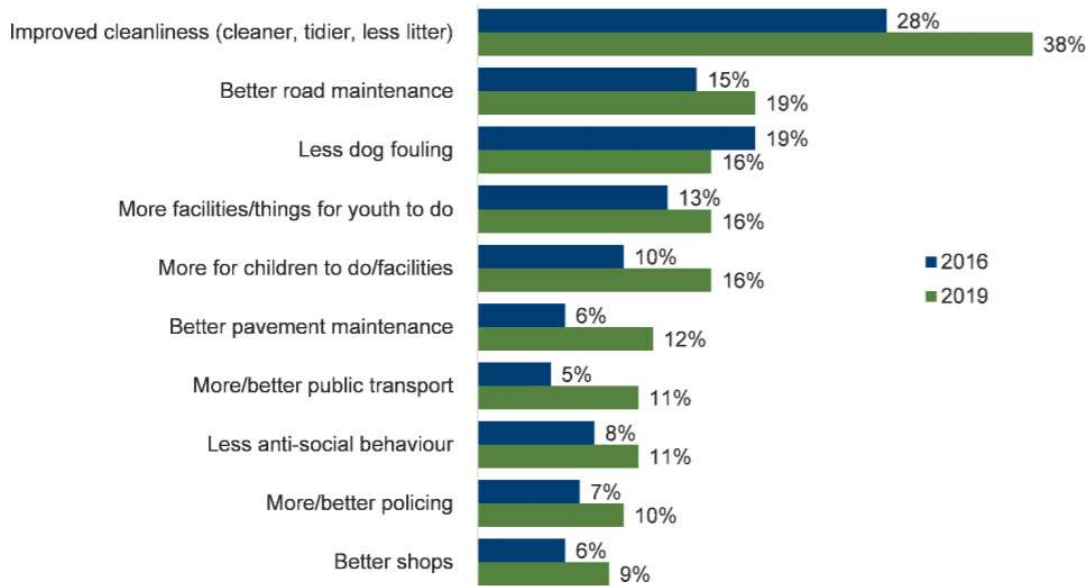
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SHS respondents in Glasgow were less likely to say they felt safe walking alone than those in Edinburgh. Despite this, some 78% of Glasgow respondents said they felt very or fairly safe walking alone.

When Glasgow Household Survey respondents were asked about the types of improvements they would like to see in their neighbourhood to make it a better place to live, improved cleanliness was top of the list.

Figure 86 Suggestions for improvements to neighbourhoods – Glasgow Household Survey

Q What improvements, if any, would make this neighbourhood a better place to live?



Base: All respondents (1,065)

4.13 Environment

Transport’s impact on the environment is well-defined and will be captured within the Strategic Environmental Assessment (SEA) for this work, and used to directly inform and influence the GTS. All SEA related work is available to view at www.glasgow.gov.uk/transportstrategy.

The topic of transport emissions (in relation to air quality and climate change) has been separated out from the topic of environment, and is discussed in detail below.

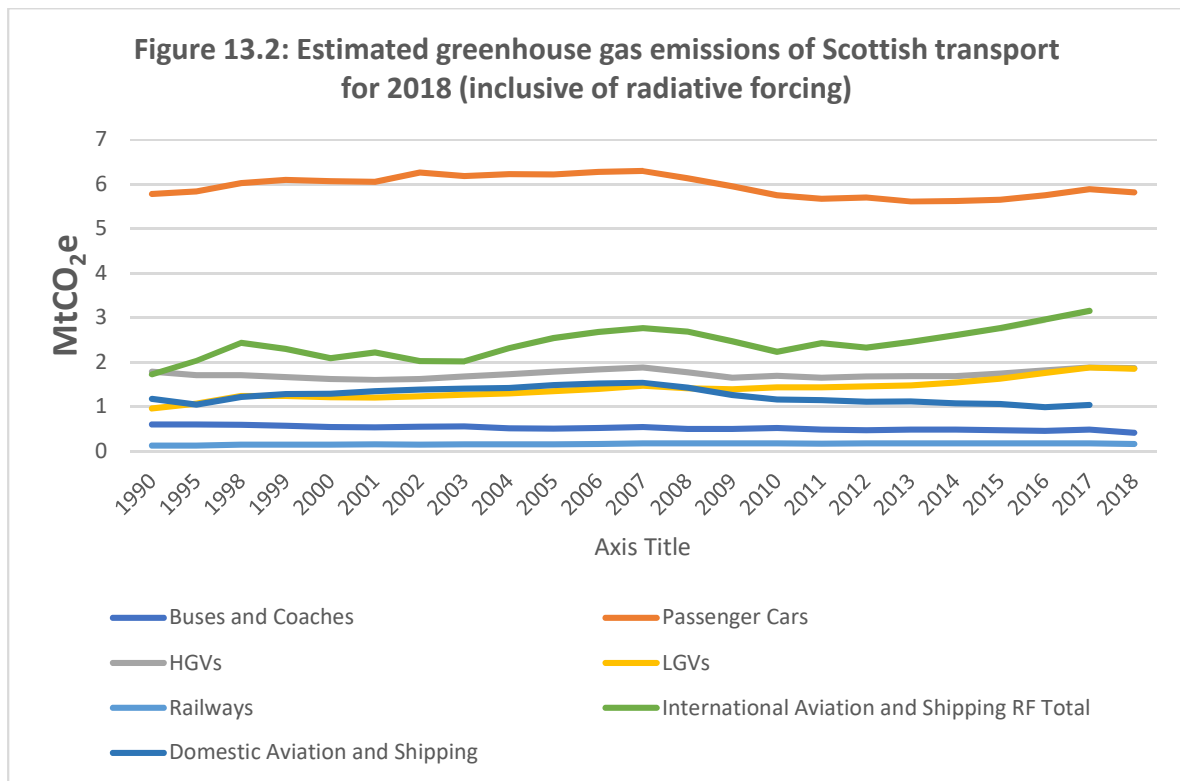
4.14 Emissions and energy

The energy used for transport (in terms of type of energy used and volume) is a problem, as it results in emissions that are directly linked to climate change, and emissions that have been directly linked to harming human health from local air pollution.

At a Scotland and UK level

A fundamental problem relates to the impact of transport in relation to greenhouse gas emissions (GHG) including carbon dioxide – GHG emissions for most other sectors have been declining over the last 20 years, whilst transport sector emissions have remained relatively static. In Scotland, transport also accounts for the largest source of GHG emissions overall, and for carbon dioxide specifically. By mode, passenger cars are the largest source of greenhouse gas emissions in Scotland, whilst rail is the smallest (aside from mopeds & motorcycles). GHG emissions from light goods vehicles (LGVs) has been starting to increase in recent years, potentially linked to changing consumer patterns, online shopping and self-employment.

Figure 87 GHG emissions by mode of transport in Scotland in 2018 - extract from Scottish Transport Statistics 2020⁶²

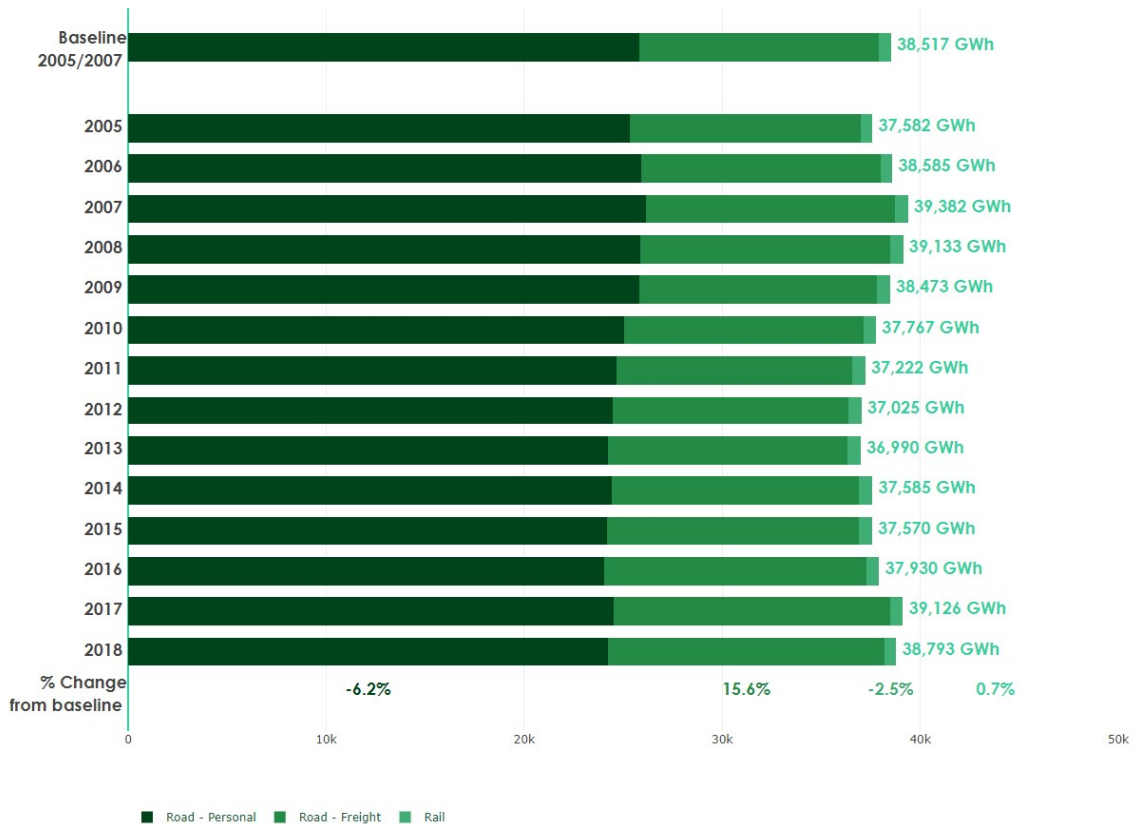


⁶² <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-39-2020-edition-pdf-only/>

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Energy consumption from transport has increased slightly in Scotland since 2005, with notable increases in relation to diesel cars (personal transport) and freight, particularly diesel LGVs. Personal transport on road consumes more energy than freight/goods-related transport, although the latter has been increasing in its energy consumption whilst personal has been reducing. This trend also applies to Glasgow City.

Figure 88 Road and rail energy consumption in Scotland by personal transport and by freight⁶³



In terms of how transport in the UK generally sources its energy, road transport is still predominantly dependent on petroleum projects, with electricity only accounting for 0.1% of transport energy sources in 2018 (less than is sourced from bioenergy & waste)⁶⁴. This compares to the rail sector in the UK which has steadily increased its use of electricity in recent decades, growing from 14.5% in 1970 to 38% in 2018 though it should be noted it was much higher in the 1990s. That said, petroleum accounts for the main proportion of rail energy sources currently although this may well vary by area within the UK.

The main air pollutants NO_x, PM₁₀ and PM_{2.5} have steadily reduced in Scotland from a baseline of 1990⁶⁵. Air pollutants from transport have also reduced, although the proportional contribution of transport to NO_x emissions has increased and is now larger than the contribution from non-transport emissions.

⁶³ <https://scotland.shinyapps.io/sg-scottish-energy-statistics/?Section=EnergyEfficiency&Subsection=DemandReduction&Chart=TransportEnConsumption>

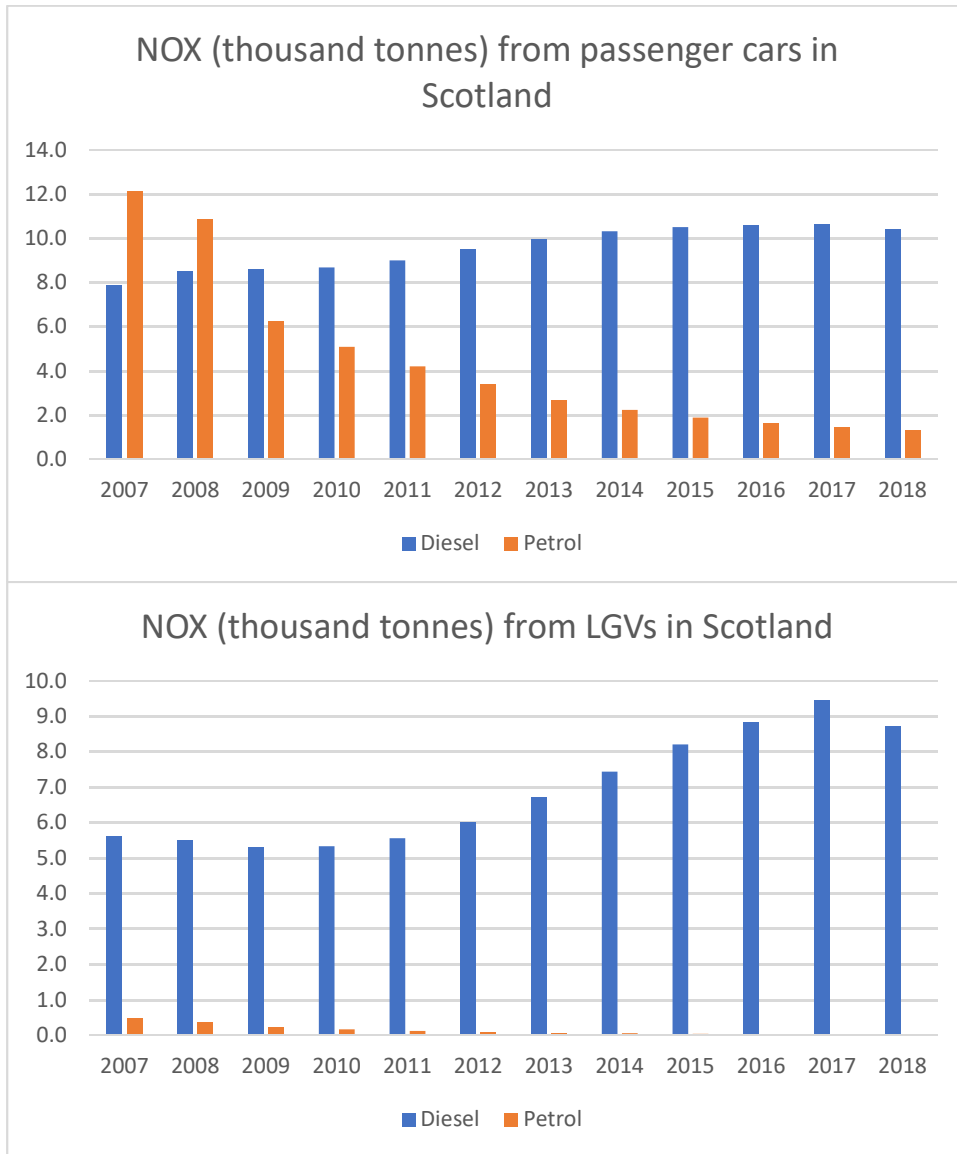
⁶⁴ <https://www.gov.uk/government/statistics/energy-chapter-1-digest-of-united-kingdom-energy-statistics-dukes>. Energy Consumption by final user

⁶⁵ Scottish Transport Statistics Ch13 Environment

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After road transport, shipping remains the most significant contributor to NOX from the transport sector. Passenger cars account for just under half of road transport’s NOX emissions, with diesel cars being the largest source of pollutants within this category. Diesel cars and diesel LGVs have become an increasing source of NOX pollutant emissions and remain a substantial problem to be tackled.

Figure 89 Sources of NOX emissions by fuel type⁶⁶



In relation to PM10 and PM2.5, again these have been steadily decreasing in Scotland as has the contribution from transport. Shipping was the largest source of PM10 in the baseline year of 1990 but has since been overtaken by road transport. From road transport, road abrasion and tyre and brake wear account for the majority of both PM10 and PM2.5 pollutants. It should be noted road abrasion and tyre and brake wear arises from any vehicle, including low carbon vehicles such as electric cars, and this is a problem that needs to be acknowledged and managed.

⁶⁶ <https://www.transport.gov.scot/publication/scottish-transport-statistics-no-39-2020-edition-pdf-only/>

At a Glasgow level

Energy

Proportionally, transport consumes the lowest share of energy in terms of GWh in Glasgow compared to industry & commercial, and domestic, though this is largely aligned with the national picture⁶⁷. Glasgow consumes less energy for the transport sector compared to some larger and more rural authority areas such as Perth & Kinross and North & South Lanarkshire authorities. That said, the amount of energy consumed by the transport sector in Glasgow has not reduced substantially compared to domestic and industrial sectors, meaning tackling transport consumption of energy in Glasgow remains a major issue.

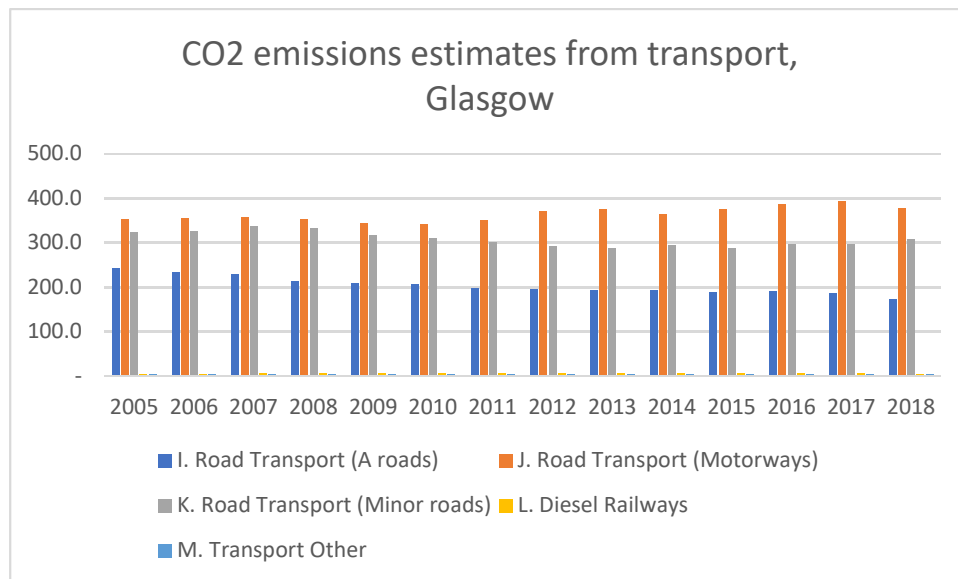
CO2 emissions

CO2 emissions are reducing per capita in Glasgow, aligned with the reduction at a national level⁶⁸.

CO2 emissions overall have reduced in Glasgow since 2005, as have CO2 emissions from transport. As a proportion of all CO2 emissions in the local authority area however, the share from transport has increased in recent years.

CO2 emissions have increased since 2005 in Glasgow on the motorway network, which is not directly managed by Glasgow City Council, though clearly Glasgow residents and employees will use and benefit from the strategic road network. This requires a partnership approach with Transport Scotland to achieve reductions.

Figure 90 Glasgow – CO2 emissions by transport source



Vehicle types and propulsion

Petrol has overtaken diesel in terms of new vehicles registered in recent years, and electric-powered vehicles are increasing but at a very slow rate – electric vehicles constituted c1.5% of all vehicle registrations in 2019⁶⁹. There is a similar split for all vehicles registered, with 99% still fuelled by

⁶⁷ <https://scotland.shinyapps.io/sg-scottish-energy-statistics/?Section=EnergyEfficiency&Subsection=DemandReduction&Chart=EnergyConsumption>

⁶⁸ <https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018>, citing 2018 data

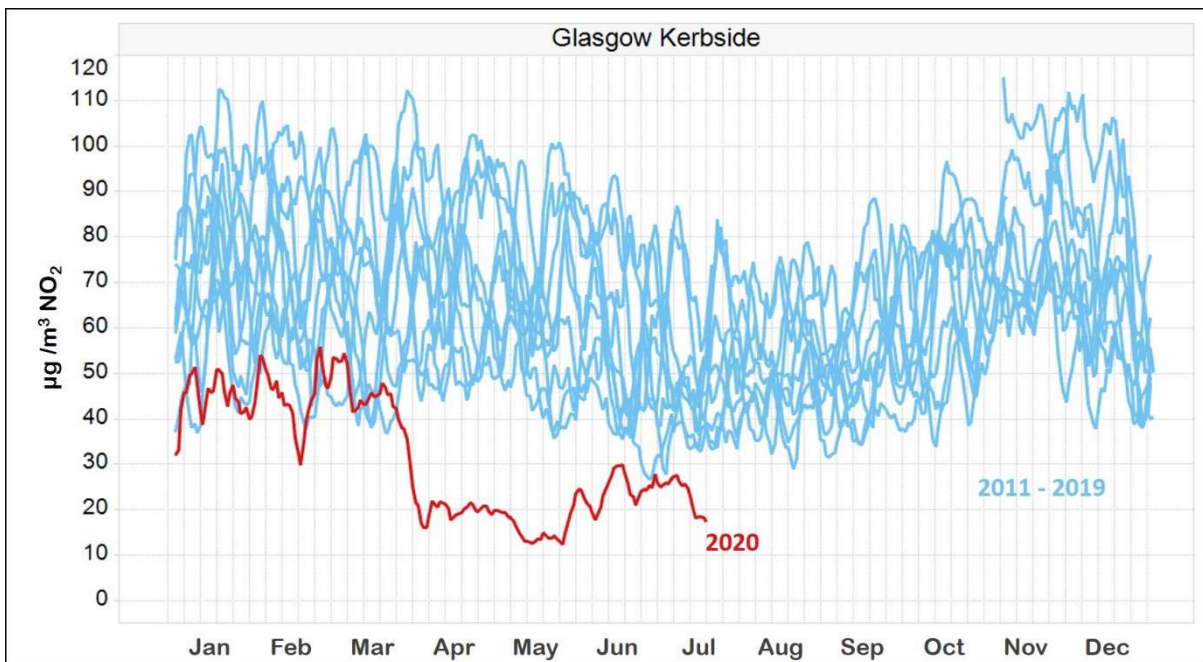
⁶⁹ Scottish Transport Statistics 2020, chapter 13

either petrol or diesel in 2019. Some 39% of cars licensed in Glasgow in 2018 were diesel powered, and almost 99% of vans were diesel⁷⁰.

Low Emission Zone and air quality

Glasgow’s Low Emission Zone has been in place since December 2018, initially applying to buses⁷¹. There has already been a reduction in nitrogen dioxide (NO₂) concentrations seen across the city centre, as bus routes have been serviced by increasingly cleaner Euro VI and retrofitted vehicles. The following graph, supplied and reproduced with permission from SEPA, shows the 7-day moving average of observed NO₂ concentrations for the last ten years at the Glasgow Kerbside automatic air quality monitoring station.

Figure 91 Glasgow kerbside monitoring on NO₂, SEPA



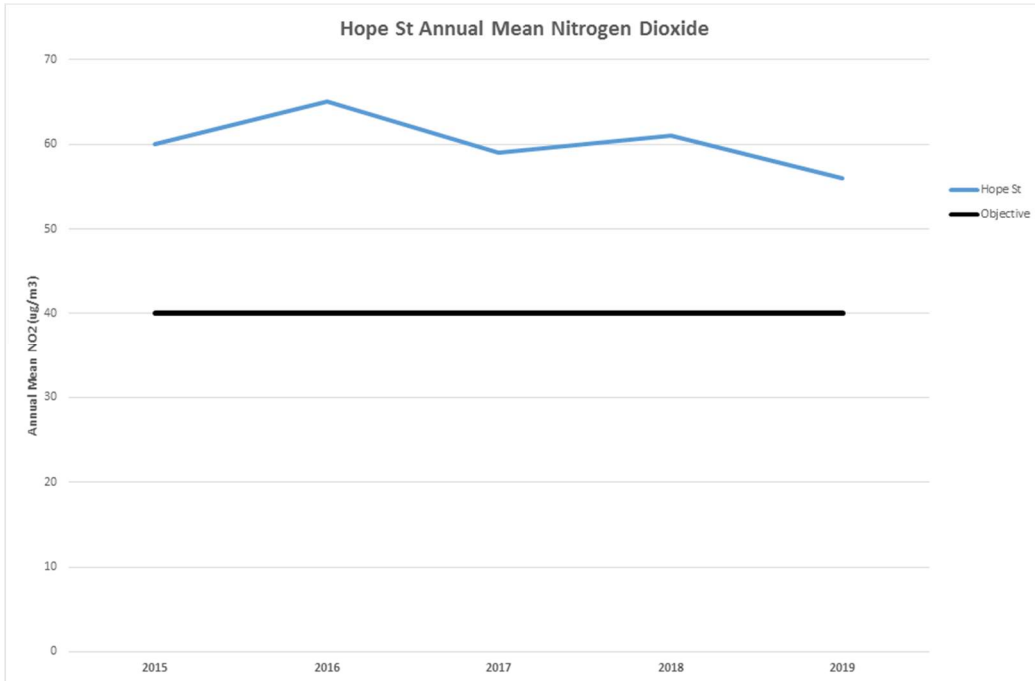
At the start of 2020 the LEZ was performing well when compared to previous years due to the increase in the number of Euro VI buses operating on the local road network. The impact of the Covid-19 lockdown saw concentrations of traffic-related NO₂ falling sharply after lockdown conditions were applied on 23rd March and remained at low levels through April and May before rising in June as restrictions began to be lifted.

That said there is still work to do as the following graph shows – whilst NO₂ has been reducing, it still remains above the objective on some streets.

⁷⁰ <https://www.gov.uk/government/statistical-data-sets/all-vehicles-veh01>, VEH0105

⁷¹ <https://www.glasgow.gov.uk/LEZ>

Figure 92 NO2 levels in Hope Street across 5 years against NO2 objective



Other opportunities

Most of the railway lines serving Glasgow Central and Queen Street stations are on electrified lines, and the Transport Scotland Rail Services Decarbonisation Action Plan seeks to transition from any remaining diesel-only rail services and decarbonise rail by 2035⁷². This will reduce carbon emissions and improve air quality in and around rail stations in Glasgow.

There is an overarching opportunity for Scotland to move quicker towards carbon neutral / net-zero goals than the rest of the UK – Scotland generates a higher proportion of electricity from renewable sources than the rest of the UK, and has substantial renewable assets due to climate and topography and coastal opportunities.

Scotland is also pursuing the topic of hydrogen as a sustainable energy source in the future. The Scottish Government’s Energy Strategy highlights the possibility of alternative energy scenarios in the future – one which focuses on hydrogen being the predominant fuel source, the other electricity⁷³. It concludes the future is likely to be a combination of both. Transport Scotland’s rail decarbonisation plan identifies hydrogen as one of two technologies to support decarbonisation of rail (the other being battery powered trains).

For road transport, electrification is likely to continue to dominate the passenger car market although hydrogen could be an option for buses (as per an Aberdeen project). The development of the hydrogen market in other sectors e.g. for domestic heating (pilots of which are ongoing such as H21 in England), could enhance the chances of hydrogen becoming a significant source of energy for transport through the creation of a market and supply chain. ‘Green hydrogen’ can be linked to renewables and is very low carbon, whilst ‘brown hydrogen’ is less desirable as it has a higher

⁷² <https://www.transport.gov.scot/public-transport/rail/building-a-greener-railway/#:~:text=Plans%20to%20decarbonise%20Scotland's%20passenger,continue%20to%20reduce%20carbon%20emissions.>

⁷³ <https://www.gov.scot/publications/scottish-energy-strategy-future-energy-scotland-9781788515276/>

carbon footprint. The issues of energy storage will become increasingly important in the future, and hydrogen could be a strong solution to this alongside battery technology. The availability and pursuit of these technologies in Glasgow could therefore matter for public transport, fleet vehicles and even the goods distribution industry.

Finally, the distributional impacts of policies and projects to reduce emissions need to be analysed to ensure they do not have adverse impacts on populations on low incomes or in poverty in the city, or on economic growth, which are other key policy goals for Glasgow and components of the overarching Community Planning objective of inclusive growth. The Scottish Government's collaborative work on a Just Transition Commission articulates this need to achieve a low carbon future in an equitable manner⁷⁴.

4.15 Key insights from environment, energy and emissions from transport

The key problems that need to be tackled under this theme include:

- Transport sector accounts for around a third of greenhouse gas emissions and has not been declining as fast as other sectors. By mode, passenger cars are the largest source of greenhouse gas emissions in Scotland.
- Proportionally, transport consumes the lowest share of energy in terms of GWh in Glasgow compared to industry & commercial, and domestic, though this is largely aligned with the national picture. Glasgow consumes less energy for the transport sector compared to some larger and more rural authority areas such as Perth & Kinross and North & South Lanarkshire authorities. Over the last 10 years, energy consumption by personal transport in Glasgow has reduced although freight transport consumption has increased, particularly diesel LGVs.
- In terms of fuel consumption, diesel cars and diesel light goods vehicles have seen the largest growth in the last decade in Scotland.
- Road transport still relies almost completely on fossil fuels (over 95% of energy used).
- Despite improvements in local air pollutants, tyre and brake abrasion are still substantial sources of particulates and this remains a problem for low or zero carbon vehicles of any kind.
- CO₂ emissions overall have reduced in Glasgow since 2005, as have CO₂ emissions from transport. As a proportion of all CO₂ emissions in the local authority area however, the share from transport has increased in recent years. CO₂ emissions have increased since 2005 in Glasgow from the motorway network and partnership working is therefore required.

There are also many opportunities to build upon:

- Air pollutants NO_x, PM₁₀ and PM_{2.5} have steadily reduced in Scotland from a baseline of 1990, including from transport – though transport's share has increased as other sources have reduced. Glasgow's Low Emission Zone has helped to reduce harmful air pollutants from vehicles, at a rate that would otherwise not have been achieved. The Low Emission Zone in the city centre will help to improve the standard of all vehicle engines in terms of local emissions.

⁷⁴ <https://www.gov.scot/groups/just-transition-commission/> h

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- Hydrogen is being explored for fleet transport in Glasgow City Council as articulated in the Council's Fleet Strategy and for rail in Scotland as per Transport Scotland's Rail Services Decarbonisation Action Plan.
- Transport Scotland have committed to decarbonising Scotland's railways by 2035 and this will benefit Glasgow in terms of carbon emissions and local air quality as stations in the city are still served by some diesel trains. In recent years, there has been significant investment by Transport Scotland in electrifying rail on major lines serving Glasgow.

5 Managing uncertainty – alternative futures and changes to travel demand

5.1 The role of scenario planning

This Case for Change workstream has identified evidence-led problems that will inform outcomes and objectives for the Glasgow Transport Strategy. It has also identified opportunities that can be built upon. In later stages of the work, travel demand will be forecast for specified future years and the impact of alternative transport strategy interventions will be assessed to understand the impacts on travel demand.

Scenario planning helps to manage risk and uncertainty in the future. It helps to identify alternative futures, and assist long-term planning by ensuring any strategy is robust in multiple scenarios.

In this Case for Change work, scenario planning is being considered to recognise uncertainty in a time of significant change in society, and the world of transport. A light-touch approach has been applied to date, which has helped to identify a range of drivers of change which the transport strategy should acknowledge and take into consideration in policies and projects. This work will continue throughout the development of the Glasgow Transport Strategy.

5.2 The focal issue

Fundamental to transport is the demand to travel. Transport is a largely derived demand – it is a means to an end. Therefore, transport is driven by demand for that transport e.g. access to healthcare, access to work, access to education. It should be noted that sometimes travel has a meaning in itself – such as a way to avoid social isolation amongst certain population groups (such as older people and buses), or as an act of physical activity (cycling), or for pleasure and leisure (cycling, going for a drive).

Therefore, the focal issue for the scenario planning process in this workstream is travel demand (mainly derived).

The current characteristics of travel demand in Glasgow are set out in detail in this report.

5.3 What are the key drivers of change?

The following sections look at key drivers of change, and aims to comment on (and question) how these may influence travel demand, our focal issue for scenario planning.

5.3.1 How is travel demand changing generally in the UK?

The Commission for Travel Demand report on the future of travel demand was published in 2018⁷⁵. It highlighted a key observation – we are travelling less as a society. “We make 16% fewer trips than

⁷⁵ http://www.demand.ac.uk/wp-content/uploads/2018/04/FutureTravel_report_final.pdf

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1996, travel 10% fewer miles than in 2002 and spend 22 hours less travelling than we did a decade ago⁷⁷ This is contrary to what many transport models and transport appraisals have assumed and to an extent, continue to assume, that demand will continue to grow in the future.

The report presents a number of insights into how travel demand has changed in the last 25 years:

- We now make 16% fewer trips than we did in 1996.
- There has been a 20% reduction in commute trips per week since the 1990s, although we are making longer distance commuting trips.
- Growth in car traffic has slowed. In the 1980s it grew by 50% whereas in the decade to 2016 it grew by 2%.
- Whereas in the 1990s by the age of 30, 80% of people were driving, this marker is now only reached by the time people reach 45.
- We travel 10% fewer miles than we did in 2002 (now 6,396 miles/person/year).
- We spend 22 hours less travelling than in 2005 and less than at the start of the 1990s.
- There has been a 56% increase in rail trips and 23% increase in distance travelled by rail.

Overall, the key message from this work is that we cannot assume travel demand will continue to grow in the future. It also varies by population group and by geographical area, and the differences between traffic growth on local roads and motorway networks needs to be better addressed in forecasting. The work stresses the need to take a scenario planning approach as opposed to a core scenario approach to demand forecasting, recognising that uncertainty cannot be ignored. Finally, this work recommends incorporating policy goals into demand forecasting to help shape the future we want.

5.3.2 Covid 19

The Covid-19 pandemic in 2020 (ongoing) has had dramatic impacts on travel demand in the UK, Scotland and Glasgow city region. Travel changed substantially during the first Covid19 lockdown in 2020, particularly in relation to public transport provision and use of public transport, traffic levels, and levels of walking and cycling and journey purpose.

Transport Scotland have been monitoring travel trends since the start of Covid lockdowns in Scotland. In Scotland generally during the first lockdown in 2020⁷⁶:

- Demand for public transport fell by 85% to 95% - rail services were running at around 40% and bus at 30%.
- Travel reduced overall, with people making on average 1.4 trips per day compared to a baseline of 2.7 trips per day prior to lockdown.

In the heart of lockdown in mid April 2020, travel in Scotland had reduced though this varied by mode of transport:

- Concessionary bus journeys down by 90%
- Rail journeys down by 95%
- Ferry journeys down by 95%
- Plane journeys down by 90%
- Car journeys down by 75%
- Cycling journeys up by 50%

⁷⁶ <https://www.transport.gov.scot/coronavirus-covid-19/transport-transition-plan/>

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Later data bulletins from Transport Scotland showed walking journeys were also up during the first lockdown period compared to a comparable period in 2019.

The Scottish government implemented four phases midway through the lockdown in order to limit the spread of infection. This limited individuals' use of public transport with services at reduced capacity until phase 3 of the lockdown strategy. Service levels for rail and bus largely returned to near-full timetables in August 2020, although capacity on buses and Subway were reduced by at least 50% due to the requirement for 1m distancing on board.

The University of Glasgow Urban Big Data Centre has been carrying out analysis of traffic and cycling data throughout lockdown, using Glasgow City Council data. Their work, drawing on SCOOT data in the city, shows that AM and PM peaks reduced substantially, though this varied spatially across the city with greater reductions on routes outside of the city centre⁷⁷. Traffic levels in late June/early July 2020 were still on the whole lower than a comparable period in 2019, whilst they have been rising in the city steadily to date. Morning peaks have been much diminished, though traffic levels have been building in the afternoon in the City on some routes.

Work by the Glasgow Centre for Population Health in collaboration with the UBDC and the Council showed rises in cycling activity at various locations in the City during April⁷⁸.

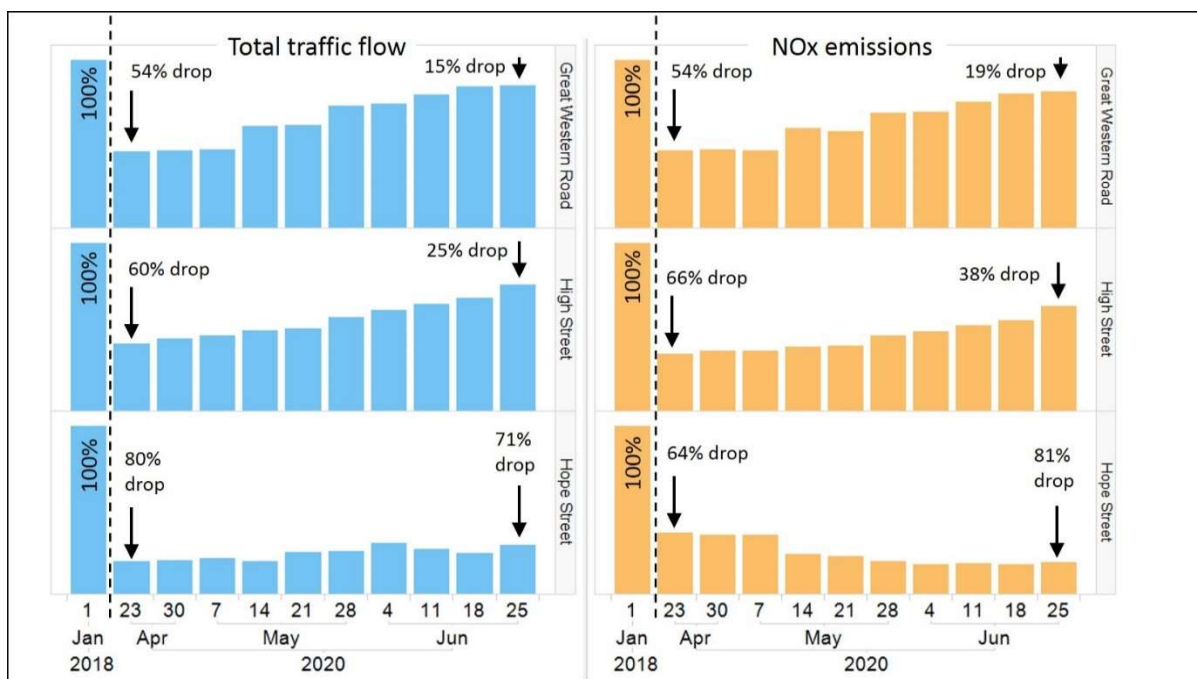
Data collection and analysis by SEPA showed that during the lockdown period, total traffic flows and emissions of nitrogen oxides (NOx) (expressed as tonnes of NOx per year per km of road) along Great Western Road, High Street and Hope Street dropped considerably compared with January 2018 levels.

Figure 93 SEPA analysis of traffic flow and NOX in Glasgow 2020

⁷⁷ <http://www.ubdc.ac.uk/news-media/2020/april/the-effects-of-the-lockdown-on-traffic-in-glasgow/> and <http://www.ubdc.ac.uk/news-media/2020/june/on-the-road-again-monitoring-traffic-following-the-easing-of-lockdown-restrictions/>

⁷⁸ <http://www.ubdc.ac.uk/news-media/2020/may/active-travel-during-a-pandemic/>

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The demand for travel and how people travel continues to change during the Covid-19 pandemic in 2020 and 2021, and trends are being monitored by the Council.

5.3.3 New (and old) uncertainties from Covid-19

The Covid-19 pandemic has heightened some previously known trends, and has introduced some new concerns around travel demand and modal choice.

Less travel demand, particularly in the AM peak

As noted above, there is evidence people are already travelling less as a society. Travel demand dropped significantly during Covid-19, and whilst trip-making has been increasing across 2020, there are questions over whether some levels of travel demand will ever return to pre-Covid-19 levels. This is particularly the case for commuting, which has impacts on the transport system in the morning peak in particular.

Surveys of the public in Scotland by Transport Focus indicate that around of half of people in work expect to work from home more in the future⁷⁹. Whilst this may be indicative of the phase in lockdown when the survey work took place (mid 2020), there is wider evidence from a number of surveys in 2020 to suggest the trend of working flexibly and remotely may be a longer-term change. This may have lasting impacts on the demand for peak public transport and road network, as well as the demand for office space in areas such as the City Centre. There are also equality issues around this topic, as the Office for National Statistics (ONS) has indicated workers in occupations requiring higher qualifications and more experience are more likely to work from home than elementary and manual occupations⁸⁰.

Other trends potentially accelerated from Covid-19 are:

⁷⁹ Travel during COVID19 – tracking research by Transport Focus Wks 1-17, August 2020, Scottish data compiled by SPT, <https://www.transportfocus.org.uk/>

⁸⁰

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/bulletins/coronavirusandhomeworkingintheuk/april2020>

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- a tendency to shop online more
- to use contactless payments as opposed to cash
- to use electronic means of communications for social, leisure and work purposes

These factors will all have impacts on travel demand, and could also be opportunities for greater digital literacy.

Demand for public transport and use of the car

There are new uncertainties over the demand for public transport, and any form of collective travel. Transport Scotland has been monitoring public attitudes to transport and travel throughout the Covid-19 outbreak through telephone surveys. By Wave 7 of this survey work, published in the first week of September 2020, concerns about using public transport remain high. Around two-thirds of the survey sample remain concerned about contracting or spreading the virus on public transport, and about not having enough space to physically distance on public transport⁸¹. Half of survey respondents agreed with the statement “I will avoid public transport and use my car or other vehicle more than I did before when restrictions on transport are lifted”, an increased proportion agreeing with this statement from the previous wave of survey work.

There are again equality issues around this topic, as Transport Focus research in Scotland (June 2020) suggested those without access to a car, people from Black and Ethnic Minority Communities and younger people under 25 were more likely to say they would be happy to travel by public transport again, whilst women and disabled people were less happy to⁸².

The Transport Focus work also suggested an increased appetite to drive, with around a half of respondents (in June 2020) saying they may drive more in the future. Transport Scotland survey work suggests by around three-quarters of people who are travelling to work are travelling by car (Wave 7 of the research, published 3 September 2020). A UK survey was undertaken by SYSTRA with 1,500 adult respondents (16+) between the 4th and 6th of June, 39% of them confirmed they would not be using public transport once government travel restrictions had been lifted, with around 65% confirming that they would be switching to car travel⁸³.

There is also some emerging evidence of a rise in demand for second-hand/used cars as a result of Covid-19. Motorway.co.uk reported that since they restarted sales in May 2020 with socially distanced collections, they had recorded sales of as much as £1.6 million per day⁸⁴. These figures are almost a third higher than its previous peak, prior to the UK lockdown. A rise in older vehicles in the fleet profile is a concern for air quality, as well as potential modal shift from more sustainable modes of travel.

Rise in demand for walking and cycling infrastructure

A more positive trend to emerge from Covid-19 is the rise in walking and cycling, particularly for leisure journeys but also for functional trips. From the Transport Focus research in Scotland, around 4 in 10 (latest data from August 2020) said they would walk more instead of using public transport in the future, whilst around 25% said they would cycle more for journeys they used to take by public

⁸¹ <https://www.transport.gov.scot/publication/covid-19-public-attitudes-survey-data-wave-7/>

⁸² Travel during COVID19 – tracking research by Transport Focus Wks 1-8, June 2020, compiled by SPT

⁸³ <https://www.systra.co.uk/en/newsroom-37/latest-news/article/public-transport-passengers-say-they-could-make-fewer-trips-after-pandemic>

⁸⁴ <https://www.theguardian.com/business/2020/jul/21/used-cars-uk-commuters-transport-scooters-mopeds-bikes>

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transport. People aged under 35 years, people without access to a car, and people who identify as black or minority ethnicities were more likely to say they would cycle for at least some journeys where they would have used public transport in the past.

Anecdotally, the demand for new and used bikes has risen considerably during Covid-19. A bike repair voucher scheme launched by Cycling UK in the UK and Scotland was anecdotally very popular.

Glasgow City Council's Spaces for People programme has introduced temporary measures to provide additional space for physical distancing in public places for people to walk, wheel or cycle⁸⁵. It is also a key part of the City's economic recovery plans.

5.3.4 Demographics and spatial change

The following sections cover a range of factors that may drive change in travel demand. This first section looks at the theme of demographics and spatial change in Glasgow and the city region.

5.3.4.1 *Key drivers of change:*

- Ageing population – in Glasgow, this is forecast to be less of an issue than other places in Scotland (National Records of Scotland).
- Shrinking working age population in Scotland overall though people also working longer (and therefore an older workforce in the future).
- Single person households will continue to grow in Glasgow, and the population is forecast to grow overall.
- An IPPR report on skills in Scotland notes that Brexit will lead to further pressures around skills gaps, supply, utilisation⁸⁶. "Whether Scotland remains a part of the UK or not, and indeed a member of the EU or not, a more restricted immigration policy in the UK will likely have an impact in Scotland too."
- Compact city aspirations in the City Development Plan – a denser urban environment which is easier to serve by mass transit and less need for private cars.
- Glasgow City Council's City Centre Living Strategy aims to double the city centre residential population over 15 years⁸⁷. This could result in more residents in the city centre, a younger population attracted to dynamic city centre living, reduced need for cars in city centre by residents and higher modal share for active modes in particular (there is evidence from the Glasgow Household Survey that young people are more likely to live in the City Centre and supported by University of Glasgow analysis).
- Continued influence of City Deal projects which will support new investment in transport infrastructure and services, and change the shape of travel demand in some parts of the city.

5.3.4.2 *Implications and questions for travel demand*

- How will changes in the residential population in Glasgow's city centre impact on travel demand?
- How will population growth, and the demographic profile of Glasgow's population impact on travel demand in the future?

⁸⁵ <https://www.glasgow.gov.uk/spacesforpeople>

⁸⁶ https://www.ippr.org/files/publications/pdf/Scotland-skills-2030_May-2017.pdf

⁸⁷ <https://www.glasgow.gov.uk/article/25299/Glasgows-City-Centre-Living-Strategy-aims-to-double-areas-population>

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5.3.5 Employment, Income levels, poverty, equality:

5.3.5.1 *Key drivers of change:*

- Changing types of jobs – increasing automation, more low paid and uncertain jobs (zero hours contracts, agency work and gig economy, self-employment), more people juggling multiple part-time low paid and low skill jobs⁸⁸.
- Better ICT facilitates more self-employment and working from home (Census 2001 v. 2011 shows significant rise to those working at/from home, c10% of population) plus the impact of Covid-19 on remote working expectations. Ageing population and older people are more likely to be self-employed.
- Glasgow Economic Commission recommended focus on key employment growth sectors of low carbon industries; life sciences; tourism; engineering, design and manufacturing; financial and business services; higher and further education⁸⁹.
- Growing discussion on a wellbeing-based economy as opposed to economic growth measured by GDP⁹⁰. Glasgow City Council is also exploring the topic of a circular economy.

5.3.5.2 *Implications and questions for travel demand*

- Could there be a gradual decline of AM and PM peak travel demand periods with employment changes, and increased working from home?
- Could there be lower absolute levels of travel demand in the future?
- What would a reduced focus on economic growth measured by GDP mean for travel demand?

5.3.6 Values and consumer patterns:

5.3.6.1 *Key drivers of change:*

- Changing values of future generations – “Greta effect” – more climate aware, more conscious of impact of choices, and less likely to have a car?⁹¹
- Climate and Ecological Emergencies have been declared in Glasgow and may help to raise awareness and change views.
- Some evidence of a move towards an experience economy as opposed to a consumption / consumer based economy.
- Rising awareness of air pollution may influence travel choices particularly with a visible Low Emission Zone (signage) in Glasgow.
- Some evidence younger people may seek a better work/life balance, move towards a 4 day working week.
- There has been a significant shift to online shopping, representing around 20% in 2019 and potentially rising to over half of all retail sales by 2028⁹²

5.3.6.2 *Implications and questions for travel demand*

- Could more conscious and informed choices be made in the future around sustainable travel, resulting in modal shift and less car ownership and higher demand for active travel infrastructure and public transport?

⁸⁸ <https://www.gov.scot/publications/technological-change-scottish-labour-market/pages/3/>

⁸⁹ <http://glasgoweconomicleadership.com/key-sectors>

⁹⁰ <https://limits2growth.org.uk/wp-content/uploads/AETW-Policy-Briefing-No-3-digital.pdf>

⁹¹ <https://www.theguardian.com/media/2020/feb/04/greta-effect-spurring-uk-childrens-online-activism-ofcom-says>

⁹² The Digital Tipping Point, 2019 Retail Report, Womble Bond Dickinson and Retail Economics

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- What impact will Covid-19 have on the tendency (and need) to use a car?

5.3.7 Government, politics, community, funding:

5.3.7.1 *Key drivers of change:*

- More community empowerment and Local Place Plans through Planning legislation.
- Decarbonisation is a major driving force at all levels of government, and enshrined in Scotland's National Transport Strategy (Transport Scotland 2020), legislation and targets.
- New funding streams - Infrastructure funding, green infrastructure levy in Planning Act 2019, Green City Region Deals in the Scottish Government's Programme for Government 2019.
- Governance of transport in the region was raised in the Connectivity Commission, and Transport (Scotland) Act 2019 has given local authorities new powers in relation to buses.
- Climate and ecological emergencies in Glasgow – a greener and more liveable and walkable city.

5.3.7.2 *Implications and questions for travel demand*

- How will localism and more community empowerment change travel demand and local placemaking?
- Increasing need to demonstrate carbon impact of projects and policies in relation to funding.

5.3.8 Technology:

5.3.8.1 *Key drivers of change:*

- Provision of vital services e.g. some elements of healthcare may involve more automation and tele-healthcare with less need to travel. The Topol Review "In the future, many aspects of care will shift closer to the patient's home, while more specialised care is centralised into national or regional centres." "Genomics, digital medicine and AI will have a major impact on patient care in the future"⁹³.
- Continued progress in the city on open data, innovation and a smart city with smart transport systems.
- Progress in becoming a smart city with smart transport systems – enables better planning, instant decision making and better flow for vehicles and pedestrians and people on bikes.
- 5g will support faster communication, opening up value of live data and information on journeys and modes.
- New technology sectors – genomics, financial, smart grid, semiconductors.
- Automation and Artificial Intelligence especially in world of work but also in healthcare and many other sectors.
- Driverless / automated vehicles and connected vehicles.
- User apps / Big Data / intelligent processing.
- Advanced manufacturing (including 3D printing, robotics etc).
- Internet of Things – connected and self-organising network of information and objects.
- Novel materials and embedded sensors in infrastructure e.g. self-healing materials in roads or rail, sensors allowing for continuous monitoring.

5.3.8.2 *Implications and questions for travel demand*

- Will increased remote access to services lead to less travel demand overall? What will the impacts on leisure travel be if people are travelling less for work?

⁹³ <https://topol.hee.nhs.uk/>

- What impact will faster, connected systems have on travel demand and modal choices? And connected and autonomous vehicles?

5.3.9 Energy:

5.3.9.1 Key drivers of change:

- Decline in petrol and diesel vehicles due to 2030 phasing out of need for new petrol and diesel vehicles in Scotland (Scotland Programme for Government) – gradual transition towards low carbon vehicles.
- Role of hydrogen as an alternative fuel in the future, and role in energy storage from renewables.
- Ofgem analysis shows energy supplier costs dipped in 2015/16 but have generally risen since mid 2016⁹⁴.
- Big picture/macro level - global energy consumption forecast to continue rising – 50% by 2050 over 2018 levels though most of this from non-OECD countries including Asia. Electricity consumption by transportation sector growing. Electricity generation growing by 79% from 2018 to 2050. *“Electricity use grows in the residential sector as rising population and standards of living in non-OECD countries increase the demand for appliances and personal equipment. Electricity use also increases in the transportation sector as plug-in electric vehicles enter the fleet and electricity use for rail expands.”* Renewables forecast to be largest source of primary energy consumption by 2050⁹⁵.

5.3.9.2 Implications and questions for travel demand

- What role can transport systems play in helping to re-skill for a carbon neutral economy?
- What is the role of the public sector in energy for transport and how much influence can it have?
- Will transport systems become more linked to other sectors, linked by energy sources e.g. hydrogen production?
- What impact will a move towards low carbon vehicles have on travel demand?
- What impact will different forms of energy, and the cost of those changing energy sources, have on travel demand?

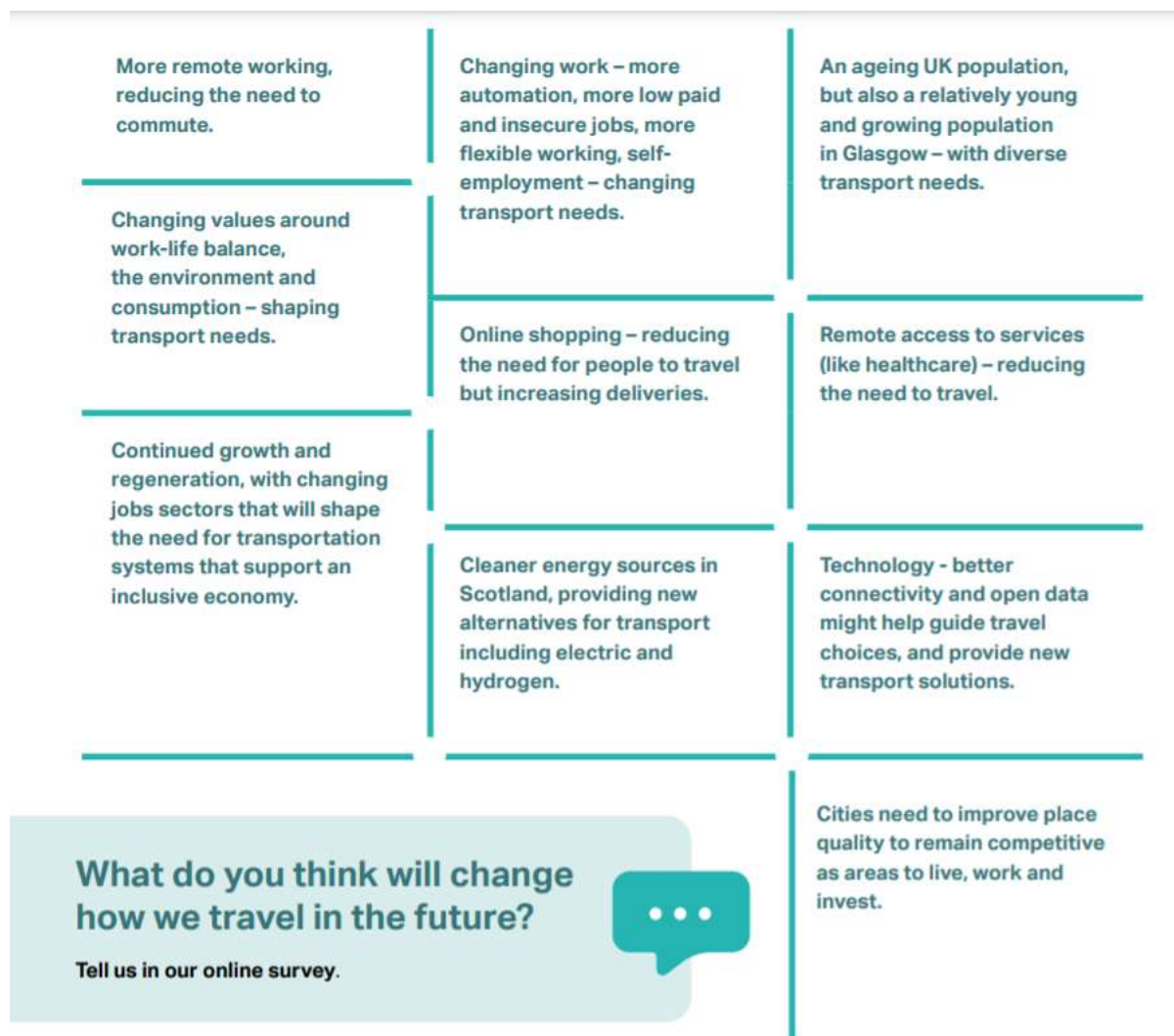
5.4 Public Conversation feedback on key drivers for change

The question of how travel needs may change in the future was raised in the Public Conversation online survey and in stakeholder organisational responses. On the whole, most seemed to agree that the list of factors influencing changes in travel demand in the future presented in the Public Conversation brochure was relatively robust, as shown in the figure below.

⁹⁴ <https://www.ofgem.gov.uk/node/97634#thumbchart-c8329010666635703-n106412>

⁹⁵ <https://www.eia.gov/todayinenergy/detail.php?id=41433>

Figure 94 Drivers of change presented in the Public Conversation



Some additional points made by stakeholder organisations included the following:

- Blended learning in tertiary education may impact upon travel demand.
- People may view the commute as a way to get physical activity.
- Deployment of increased digital services.
- City wide ‘heat as a service’, electrification of transport, climate adaptation infrastructure, growth of e-bikes and e-scooters supporting more modal shift from car.
- Role of ‘smart streets’ that also function as places for people to meet and socialise.
- Many people will continue to work from home, all or part of the time.
- A scenario planning approach is needed to manage uncertainty and inform flexible transport policies.
- Rush hours may reduce, encouraging more people to cycle or walk to work or amenities.
- Growing demand for active travel generally, as evidenced by Covid19.

5.5 Summary of factors that may influence travel demand in the future

Here are some of the big areas of change that may influence travel demand. We need to monitor these issues, and also ensure the GTS appraisal process takes these uncertainties into account as far as possible. This will be done in the next stages of the GTS development, by assessing alternative

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solutions against different scenarios of change to see how resilient the solutions are. These factors of change will also be developed further.

Table 3 Summary of factors that may influence travel demand in the future

Factors which may influence travel demand in the future
Covid-19 has changed when and for what purpose we travel - less commuting, more online service access, less peak-time journeys, shift in employment sectors
Population change - Glasgow has a relatively young population for now, the population is forecast to grow including in-migration, the city centre residential population will grow
The world of work - more flexible working, more automation, more job uncertainty and new models of employment
Consumer choices - more online shopping, moving towards an experience-based economy instead of consumption, changing environmental values & awareness, work/life balance
Technology - more automation and digital services including healthcare & education, 5g and faster networks, smart city technologies. AI, big data and the 'internet of things'
Governance - more localised decision-making and community empowerment, more funding streams linked to low carbon economy, regulatory framework & governance changes
Energy - targets for renewable energy, phasing out petrol & diesel cars, supply & price of electricity, role of hydrogen
New modes of mobility, disruption in the marketplace, connected and autonomous vehicles

5.6 Next steps

Further work will be carried out in relation to alternative scenarios of travel demand in the future based on an identification of critical uncertainties, and this will be built into the assessment of solutions for the Glasgow Transport Strategy. A set of indicators to help monitor change will also be explored.

6 Public, community and stakeholder inputs to key problems and opportunities to be tackled

6.1 Introduction

Some engagement was carried out early in 2020 to inform an initial scoping of problems and opportunities. This engagement comprised the following:

- An online survey of GCC officers internally across various team, receiving over 50 responses
- An internal workshop with GCC officers with nearly 40 attendees from multiple team
- Two workshops with invited stakeholders in February 2020 in the Lighthouse, Glasgow
- One to one discussions with some stakeholders to explore issues in more detail across 2020.

A set of problems was then devised to test in the Public Conversation on Glasgow's Transport Future, a major public engagement on transport in Glasgow in September-October 2020. A consultation report has been published at www.glasgow.gov.uk/connectingcommunities.

It should be noted this engagement work focused on transport issues in the City that need to be considered in all new transport plans – the Glasgow Transport Strategy; a City Centre Transformation Plan; a Liveable Neighbourhoods Plan and Active Travel Plan.

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6.2 Internal engagement

Initial internal engagement work in 2019 and 2020 within Glasgow City Council, a survey and workshop, served two purposes:

- To identify good work and expertise already available within the Council that can feed into the new transport plans for Glasgow, and ensure there is no duplication of effort with ongoing or past work.
- To start a process of 'buy-in' to the new transport plans by involving teams from multiple sectors, to maximise the chance of successful delivery of the new plans (and reinforcing the cross-cutting nature of transport).

6.3 External engagement pre-Public Conversation

Workshops

Two scoping workshops were held in Glasgow in February 2020. A range of stakeholder organisations were invited, and a note of the workshops is provided in Appendix A. Attendees included:

- Neighbourhood partnership representatives
- Business sector
- Organisations involved in lobbying for specific improvements e.g. on walking and cycling
- Public transport operators
- Academia

Stakeholder one to ones and bespoke engagement

The process of engaging with selected stakeholders on a one to one basis continues throughout the development of the GTS. In 2020, some one-to-one discussions were held with stakeholders to help further develop understanding on particular problems related to transport, including with YoungScot and Department of Work and Pensions (DWP). These have highlighted the barrier transport presents in accessing training and employment. They have also presented opportunities to build on, particularly in the flexibility of the YoungScot card which can be tailored to specific areas in terms of offers and discounts available; and the work already done by DWP staff in supporting the cost of travel in early weeks of employment and journey planning advice. A discussion with Get Glasgow Moving highlighted the support for their campaign on free buses and a change to bus operations in the City. Finally, a session with the Glasgow Youth Council in August 2020 provided insight into concerns young people have about the public transport system in Glasgow, citing the high cost and concerns over personal security as particular issues. This also helped to shape some of the approach to engagement in the Public Conversation to target young people.

6.4 Engagement carried out in recent years of relevance

A major survey of Glasgow residents in 2018 was part of SPT's work on developing their new Regional Transport Strategy. This has been used extensively in the analysis of problems and opportunities in this report. This survey work helped to establish common barriers to sustainable travel choices, and issues of important to transport users in Glasgow.

There have been several other major consultation exercises in Glasgow in recent years, where transport has featured highly. These are all being reviewed for this work, and including public consultation in relation to the Climate Emergency in Glasgow. Reporting associated with that work noted "The single most prominent area mentioned by respondents to our public survey was transport. People are deeply unhappy with the current state of public transport and want to see a

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more rapid transition made to a city where walking and cycling are the norm. They also want a high quality, low emissions public transport system developed under the city's control – and potentially one which is free to use. A radical change to the transport system clearly needs to take place.”

Other consultations include on Strategic Development Frameworks, and District Regeneration Frameworks covering the city centre, and key insights into transport issues will continue to be drawn from this work to avoid duplication of effort and consultation fatigue amongst the public.

6.5 Engagement with neighbouring local authorities

An ongoing process, an initial session was held with neighbouring local authorities via the SPT RTS Working Group in February 2020. At this session, the transport strategy team presented their approach to developing new transport strategies and invited initial comments on some of the key issues neighbouring authorities expected to see tackled. A few focus areas were discussed:

- The need to liaise with neighbouring local authorities on active travel connections in particular to ensure these are 'joined up'.
- Some concerns by local authorities over the impact of parking charges and restrictions on their areas, and increased demand for transport hubs in their areas.

A further session was held with the same grouping during the Public Conversation. This process of engagement with neighbouring local authorities will continue throughout the development of the transport plan.

6.6 The Public Conversation on Glasgow's Transport Future

A public engagement exercise under the title “Connecting Communities” took place during Autumn 2020, to help inform the new transport strategies. Entitled ‘a Public Conversation on Glasgow's Transport Future’, it presented baseline information to the public and asked for their views on key questions related to the vision and aspirations for transport in Glasgow.

The aim was to gather views from the public around how the city's transport can:

- Enable everyone to travel in a clean and sustainable manner, helping Glasgow to become a carbon-neutral city by 2030.
- Give everyone access to opportunities, helping to reduce poverty and deprivation and improve our health and wellbeing.
- Drive and support inclusive economic success across the city.
- Help make every neighbourhood more liveable, including the city centre.

The Public Conversation on Glasgow's Transport Future did this by asking questions and prompting debate around the core elements of:

- Problems our new transport plans need to tackle
- Proposed outcomes for the Glasgow Transport Strategy
- Initial policy focus statements
- Specific Issues, including Covid-19 impacts
- Solutions

The Public Conversation took place over six weeks, between 21 September and 30 October 2020. Due to Covid-19 pandemic restrictions this was largely conducted online and by phone.

The different elements of the Public Conversation were as follows:

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- Online survey (& callers to 0800 number had option of dictating survey responses by phone).
- Online transport priorities simulator.
- Online community discussions on transport based on a structured discussion guide - part paid-facilitation, part self-facilitated.
- Two online stakeholder workshops, one-to-one discussions with some stakeholders and stakeholder groups.
- Online Community Council Development Session with a focus on transport.
- Connecting Moments website for uploaded images and videos.
- Written submissions by stakeholder organisations.

The Public Conversation was almost wholly digital out of necessity during Covid-19. Substantial efforts were made by Glasgow City Council, supported by Sustrans and external consultants, to reach as representative an audience of Glasgow's transport system as possible. Further detail is contained in the appendices, but in general:

- 2,899 responses to the online survey, 83% of which were Glasgow residents and 14% as non-residents who travel in Glasgow regularly (the remainder organisations and businesses).
- Some 38 stakeholder organisations submitted a written response. 29 stakeholder organisations were represented at two online workshops.
- 23 online conversations were held with community organisations, some self-facilitated, others managed by paid facilitators, Sustrans or a Council Transport Strategy team officer.
- 25 survey responses were marked as from a 'business', and Transport Strategy team officers attended a Glasgow Business Resilience Council online discussion.
- 11 Community Councils responded to the survey with representatives from seven of them attending an online workshop. 21 Community Council representatives attended a further Community Council Development Session with a focus on transport, with the opportunity to speak directly to transport operator representatives, SPT and Glasgow City Council.
- 654 responses were submitted to the online Transport Simulator tool.

There was broad representation across age, gender, socio-economic groupings and spatial areas in the city in the Public Conversation generally. The approach to engagement was informed by an Equality Impact Assessment Screening process to identify those who disproportionately feel the impacts of transport, and whose voices were particularly important to hear.

Key messages from the Public Conversation were:

- Over 50% disagreed that the transport system in Glasgow was adequate for their needs. More positively, there is a substantial desire and openness to change. For example, almost 60% said they would consider leaving their car at home more for shorter journeys (say trips up to 1 or 2 miles) and walking or cycling instead.
- People generally agreed with the key problems the Council presented in the Public Conversation, and the top transport problems people themselves mentioned related to lack of safe places to cycle; quality, reliability and connectivity issues with public transport (particularly buses), high cost of public transport (particularly buses) and lack of integration in the public transport system including ticketing.
- People generally agreed with the four draft outcomes presented for Glasgow's new transport strategies and plans, and some offered more specific objectives to include, which will be taken on board in the development of the Glasgow Transport Strategy.

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- People supported the concepts of a new City Centre Transformation Plan and a new Liveable Neighbourhoods Plan. They also generally supported the reallocation of roadspace in Glasgow to more sustainable ways of travelling.
- There was broad support for a set of draft policy focus statements, though further definition and development was requested on some.
- Amongst the top solutions to tackling transport problems people would like to see were more segregated cycleways / safer places to cycle, integrated and smart public transport ticketing and systems, cheaper or free public transport, changes to public transport governance, more and better fixed link public transport, promotional and behaviour change campaigns, more restrictions on traffic, better environments for walking, better bus services and better access to bikes and cycling support.

The points above are a high-level summary and snapshot of findings and should be read alongside the full set of findings in the report of the engagement “A Public Conversation on Glasgow’s Transport Future – Main Report of Findings” available at www.glasgow.gov.uk/connectingcommunities.

7 Analysis of problems and opportunities

7.1 Analysis of problems to tackle

A set of problems was presented in the Draft Case for Change report to accompany the Public Conversation. This set of problems drew on the analysis of evidence presented in the Draft Case for Change report. A summarised list of problems was then presented and tested through the Public Conversation process described above.

The Public Conversation also provided further insight into the problems people face in Glasgow’s transport system in their own words, providing “qualitative” evidence of problems.

7.1.1 Suggested list of problems in Public Conversation

The Public Conversation document (and associated survey) listed a number of problems linked to transport. The aim of this was to reassure the public and stakeholders that the Council was aware of transport-related problems from previous research and consultations, and to seek validation or challenge to this. The online survey asked respondents to select which problems were important to them, and the results are shown in the table below.

Table 4 Problems presented in the Public Conversation and % of survey respondents who selected them as important

Problem stated in survey	% of survey respondents who selected it	Number of respondents who selected it
Different ways to travel are not smart and integrated, including ticketing	74%	2136
High cost of transport particularly public transport	70%	2034
Safety concerns over cycling on road and lack of a complete cycling network	67%	1947
Rising traffic levels and congestion	65%	1875
Poor air quality and health problems from vehicle emissions	60%	1739

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Problem stated in survey	% of survey respondents who selected it	Number of respondents who selected it
Poverty and unequal access to transport	59%	1702
Transport's role in climate change particularly cars	55%	1585
Less people walk for journeys than comparable areas and people want better quality and safer places to walk	51%	1477
Reliability issues with bus journey times	50%	1458
Complicated governance of transport in the City (lots of organisations involved)	50%	1451
Physical and mental barriers created by motorways and busy roads	44%	1273
Health inequalities and unequal participation in active ways to travel i.e. walking and cycling	43%	1233
Rising numbers of vans and light goods vehicles, with associated emissions	37%	1082
Bus use is declining	33%	952
Mobility difficulties and resulting unequal access to transport	32%	938
Transport as a barrier to economic success	26%	744

7.1.2 Transport issues that affect people the most in their own words

The survey also asked an open question around problems that mattered most to people, and which they wanted the Council to tackle in their new transport plans.

The answers to this were qualitatively categorised, and each mention of a problem in a response was recorded in the analysis. The summary of this analysis is shown below, with the most frequently mentioned problems (over 100 mentions) highlighted in bold.

Table 5 Categorisation of transport problems from the online survey open question

Category of	Problem	No. of mentions
Equality	Disability-related mobility and transport problems	87
Built & natural environment	Not enough green spaces/ planting	18
	Better use of the river as a transport corridor	4
	Car-dominated spaces/design/ decisions; too easy to use car	138
Social environment	Hostile road environment to cycle / driver behaviour [<i>not</i>	92
	Lack of public/ stakeholder engagement	10
	Cycling behaviour	64

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Category of	Problem	No. of mentions
	Unsafe journey to school	35
	Safety concerns using public transport or active travel	126
Strategic	Strategy and governance	96
Health and wellbeing	Covid-19 related problems	43
	Air and noise pollution and climate change	212
Transport	Lack of local bus connections / infrequent services	108
	Issues for motorised vehicles	56
	Barriers to mobility	31
	Lack of public transport connections between different parts	292
	Public transport long journey times generally	172
	Lack of Park & Ride options	9
	Bus / train reliability issues	307
	Public transport quality issues (inadequate service, cost,	570
	High cost of public transport	438
	Lack of pedestrian priority & poor walking environment	261
	Anti-car policy	63
	Lack of multi-modal, smart/integrated ticketing	291
	Lack of public transport integration	281
	Lack of protected cycle lanes / cycling network fragmented and	667
	Lack of tram/metro/more fixed line public transport/Subway	233
	Fragmented public transport system / public transport	216
	Covid-19 related problems	43
	Parked vehicles causing problems	130
	Lack of information on how to travel (including public transport	88
	Road infrastructure problems e.g. maintenance, signage	134
Electric vehicle/low carbon vehicle problems - lack of charging,	17	

7.2 Community discussions – main problems identified

Below is a short summary of the problems which were discussed in the community conversations, highlighting some of the impacts.

- The high cost of public transport, especially relative to low incomes
- Disability-related problems with transport including a lack of physical accessibility and many other barriers to travel caused by a complex and unreliable system, lack of assistance, poor information, lack of toilet facilities, and poor attitudes of staff and passengers
- The lack of adequate transport options (including in evenings and a weekends) in some parts of the city, particularly between neighbouring communities and within local communities, and to key services and facilities such as healthcare, schools and food
- Lack of integration in the public transport system and unequal access to public transport across the city. Different modes of transport not linked together physically, with timings, or with tickets.
- Problems with personal safety on public transport, including discrimination, overcrowding, hate crime and sexual assault

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- Reliability of public transport, particularly buses
- Inadequate walking environments which limit mobility and access to local services and contributes to feelings of neglect and poor mental health
- Vehicle-dominated design and spaces in the city, with people walking and cycling competing for the same restricted space, and mobility limited by parked vehicles
- Cycling related problems, including lack of confidence, lack of access to bikes and storage, lack of safe places to cycle and uneven distribution of cycle infrastructure across the city.
- Road infrastructure issues including maintenance and poor surface water drainage further limiting active mobility
- Absence of everyday services like fresh food and education in some neighbourhoods

7.3 Stakeholder inputs on problems

Problems were also discussed at the two stakeholder workshops and raised in stakeholder organisation submissions to the Public Conversation. Problems raised by stakeholders *in addition* to the list presented in the Public Conversation above, or particularly reinforced by stakeholder organisations, included the following:

- Overall design of the city in recent history to focus on the car. This is particularly a problem now for climate change and emissions.
- Congestion in the city and number of motorised vehicles, impacting on people on bikes and also particularly on buses and leading to journey time delay and variability.
- Parking related issues around schools and from heavy vehicles, and lack of enforcement.
- Impacts of heavy goods vehicles on local communities and fabric of the road/footway network.
- Poor public transport access to hospitals.
- Complex bus operating system with a lack of publicly-owned buses, failure of bus privatisation and lack of public transport integration.
- High cost of public transport and impact on low-income workers.
- Inequality of public transport connections for outlying areas particularly in areas of deprivation. Inadequate bus services within and to communities in some parts.
- Lack of Park and Ride and public transport interchange opportunities in some parts of the city.
- Train stations inaccessible to those with mobility difficulties. Still significant issues overall in the transport system for people with disabilities, including less visible conditions like epilepsy.
- Lack of support for public hire taxis in Glasgow, and the need to recognise them as part of an integrated public transport system.
- Still new build development with lack of facilities within walking distance, and issues with the quality of walking infrastructure and public realm in parts of the city.
- Lack of cycling network, including in green spaces.
- Lack of cycle storage particularly for tenements.
- Lack of cross-boundary active travel links. The need to tackle cross-boundary trips overall.
- Rise in serious injured cycling casualties in the last 10 years.
- Tension between users in shared space and some concerns over anti-social cycling behaviour.
- Lack of adequate surface public transport access to Glasgow Airport.
- Lack of access to data due to silos and restrictions, which is making it hard to develop solutions and be innovative.
- The need to support transport and access-related issues for businesses and the city centre, particularly in recovery from Covid-19.
- Lack of consultation on cycle lane implementation, anti-car policy in the city.

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Issues raised by Community Councils are included in the list above. At a local level, Community Councils raised issues in particular around:

- The impacts of parking on their communities and perceived lack of enforcement, and sometimes lack of parking for local public transport interchanges. Conversely, some concerns parking is too restricted in some areas and impacting on families and local businesses.
- The lack of accessible local rail and Subway stations.
- Inadequate bus services and connections to nearby areas and crucial services such as health. High cost of buses, lack of integrated ticketing and failure of bus privatisation.
- Speeding concerns.
- Environmental pollution issues from high traffic levels on some routes.
- Concerns over conflict between pedestrians and cyclists in shared spaces.
- Lack of adequate walking and cycling infrastructure locally.
- Impacts of heavy vehicles on local roads and pavements, and historic buildings.

7.4 Summary of problems and opportunities

Drawing on all the evidence presented in this report, from policy reviews, data analysis, review of previous research and public and stakeholder engagement, a list of key problems to be tackled in Glasgow's new transport-related plans has been produced. A list of opportunities that transport policy and projects can build upon has also been developed.

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Figure 95 Key problems identified to date for the Glasgow Transport Strategy to tackle

<p>Vehicle kilometres and traffic volumes continue to rise in Glasgow, particularly (though not exclusively) on the trunk road network. Vehicle dominated spaces were raised as a problem in the Public Conversation from parking, to speeding to people on foot or on bikes feeling secondary to cars.</p>	<p>Large proportion of population in Glasgow have no access to a car – a problem and an opportunity. These is a correlation with SIMD and no access to a car in Glasgow. There is also unequal access to a bike, and this varies by social economic group. Unequal access to the transport system, particularly in certain parts of Glasgow, was commonly cited in the Public Conversation.</p>	<p>The topic of better governance of transport has been raised in several reports – at the national level, and at a regional & city level by the Connectivity Commission. Also cited as a problem in relation to public transport from the Public Conversation, with a desire for a publicly run public transport system which is integrated and affordable.</p>	<p>There are significant differential impacts from transport in Glasgow, as evidenced by the Equality Impact Assessment work and evidence in this report. Those on lower incomes and in poverty generally are affected in multiple ways by transport barriers, and are also more likely to suffer from other characteristics e.g. health inequalities.</p>	<p>Lack of a connected cycling network for all journeys, and people still want safe places to cycle separate from traffic. Confirmed as a key problem in the Public Conversation.</p>	<p>Lack of access to bikes, and lack of safe cycle storage in some parts of the city raised as problems in the Public Conversation.</p>
<p>As with Scotland as a whole, there is still much to be done in reducing the proportion of children being driven to school. Local impacts of too many vehicles around schools cited as a problem in the Public Conversation.</p>	<p>Cross boundary trips contribute particularly to carbon emissions in the region, and this requires a partnership, region wide approach to this aspect of travel demand. Lack of cross boundary active travel links cited in Public Conversation.</p>	<p>Rail capacity constraints are forecast at Glasgow Central in coming years.</p>	<p>Bus is a significant mode in Glasgow, but like elsewhere in the UK, passenger numbers have been declining.</p>	<p>Public Conversation showed people are least satisfied with buses, and then Subway, rail to a lesser extent. Public transport quality problems featured highly in Public Conversation (reliability, cost, cleanliness, availability etc).</p>	<p>Cost of transport and public transport (and buses) in particular, and impact of this on people on low incomes and young people. Satisfaction levels with the cost of bus fares is low. Problems confirmed in the Public Conversation.</p>
<p>Operators report journey time reliability issues. Public Conversation highlighted poor journey time reliability as an issue for bus users.</p>	<p>Lack of public transport connections cited as a key problem in the Public Conversation, particularly for some parts of the city. This includes bus links between some communities as opposed to the city centre, frequency and time of day. Specific locations included links to Glasgow Airport, links to healthcare and some large shopping centres.</p>	<p>People would like to walk more for journeys, but cite quality of walking infrastructure, personal security and safety issues, and directness of routes and air quality concerns as barriers. Slightly less people walk for journeys compared to other large urban areas in Scotland.</p>	<p>Transport sector accounts for around a third of CO2 emissions in Glasgow and has not been reducing as much as other sectors. Passenger cars are the largest source of CO2 emission in Scotland.</p>	<p>Road transport still relies almost completely on fossil fuels. In terms of fuel consumption, diesel cars and diesel lights goods vehicles have seen the largest growth in the last decade in Scotland.</p>	<p>Some previous consultations have raised the issue of major infrastructure acting as barriers in the city, such as motorways & Clydeside Expressway. Connectivity Commission raised the issue of road dominated space.</p>
<p>Connectivity Commission raised the issue of an economically divided city, and public transport accessibility analysis to jobs suggests those in lower income areas have longer journey times.</p>	<p>Despite improvements in local air pollutants, tyre and brake abrasion are still substantial sources of particulates and this remains a problem for low or zero carbon vehicles of any kind. Air quality is improving but there is still work to be done.</p>	<p>Covid 19 has introduced new uncertainties over the demand for public transport, and concerns that car use may increase. That said, it has also led to temporary improvements in walking and cycling infrastructure which could be built upon in the future. Public Conversation raised problems over supporting access to city centre post Covid19 in economic recovery.</p>	<p>Relatively high levels of deprivation compared to rest of Scotland, and high levels of poverty and child poverty. Low life and healthy life expectancy.</p>	<p>Lack of integration in the public transport network, including specifically a lack of integrated ticketing. Confusing and complicated public transport system for some, and cost impacts of having to buy multiple tickets across operators were cited. Also linked to transport governance issues above.</p>	<p>Personal security concerns on public transport, particularly from young people, people from different ethnic groups and people from the LGBTQ+ communities. Public Conversation confirmed this as a problem, plus problems of perceived discrimination and hate crimes on public transport.</p>
<p>Lack of accessible environments is still an issue for some in Glasgow, as evidenced by the Public Conversation. From inaccessible rail and Subway stations, to lack of disabled spaces on buses or in taxis, to specific needs not being catered for e.g. those with hidden disabilities.</p>	<p>Impact of heavy goods vehicles on some communities cited as a problem by some stakeholders in Public Conversation.</p>	<p>Concerns over conflict between pedestrians and cyclists in shared spaces.</p>	<p>Public Conversation showed some perceive an anti car policy in Glasgow and many still rely on the car.</p>	<p>Still a lack of joined up thinking/practice between land use planning and transport.</p>	<p>Poor road and path maintenance in places cited in Public Conversation which causes issues for those on bikes and walking or wheeling.</p>

Figure 96 Key opportunities for the Glasgow Transport Strategy to build upon

2030 carbon neutral target and Glasgow climate and ecological emergency and associated actions.	Existing targets for reductions of private vehicles in the city centre.	National Transport Strategy for Scotland sustainable travel hierarchy, new outcomes, STPR2 is ongoing and RTS also in preparation.	Transport Scotland rail decarbonisation action plan.	Transport (Scotland) Act 2019 with new opportunities for changing bus operations, introducing WPL, tackling pavement parking.
National targets on energy and climate change (carbon emissions) and air quality.	Accessible travel framework in place in Scotland.	Potential new funding streams including WPL, Infrastructure Levy and others.	More community empowerment.	Existing projects underway in the city and wider city region which will work towards outcomes.
Less people travel to work by car in Glasgow than other areas, and more travel by public transport. In general, Glasgow's extensive public transport network is a strength to build on.	High density city which makes provision of collective transport more efficient.	There has been growth in cycling in recent years, and substantial investment in cycling infrastructure projects.	Glasgow's Low Emission Zone has helped to reduce harmful air pollutants from vehicles, at a rate that would otherwise not have been achieved.	CO2 emissions are reducing per capita in Glasgow, aligned with the reduction at a national level, though as a proportion of all emissions, emissions from transport has increased.
Hydrogen and battery technology are an opportunity being explored in Scotland and in the region.	Half of journeys in Glasgow are less than 3km, suggesting potential for modal shift to active travel for those who are able.	From the SPT RTS survey of Glasgow residents in 2018, when asked what would encourage them to use their car or van less, the top responses referred to better public transport.	Evidence suggests people have been travelling less in recent years, and Covid 19 may accelerate this trend. This could reduce the overall carbon impact of travel, though it could also have unintended consequences e.g. on the nature of city centres and demand for office space.	Technological improvements are a significant opportunity to transform the travel experience and support more informed sustainable travel choices.
		Significant volume of projects by the Council, Glasgow City Region City Deal, Transport Scotland, Sustrans and many partners across the City the city is improving each year and there is much progress to build upon.		

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8 Developing outcomes and objectives for the Glasgow Transport Strategy

8.1 Analysis of vision suggestions from internal and stakeholder engagement to date
 An internal workshop was held with GCC officers in November 2019, together with an online survey which received over 50 responses from individuals representing various teams. Two stakeholder workshops were held in February 2020 with a selection of invited stakeholder organisations. In all these engagement streams, participants were asked to describe what kind of city they wanted Glasgow to be in 2030. The following word cloud and list of words shows the words that came out of that exercise.

Figure 97 Vision words from internal engagement and stakeholder pre-engagement workshops Feb 2020



In terms of an analysis of word content, in which words are grouped into similar themes, the table below shows the main groupings that emerged.

Table 6 Analysis of words in engagement workshop discussions on vision and outcomes

Word groupings	Number of mentions
people, place, liveable, neighbourhoods, life, places, friendly, social, family, happy	142 mentions
accessible, connected, integrated, networks, reliable, system, convenient, efficient, integration, easily	138 mentions
Sustainable, green, greener, climate, trees, pollution, environment, environmental, trees, nature, biodiversity, ecological, wildlife, habitats, air	111 mentions

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Word groupings	Number of mentions
welcoming, inviting, vibrant, thriving, resilient, creative, economy, resilient, adaptable	83 mentions
inclusive, fair, equitable, poverty, affordable, equal, free, vulnerable	82 mentions
clean, cleaner, quality, attractive, maintained	82 mentions
active, healthy, health, wellbeing	38 mentions
safe	33 mentions
<i>Better, improved, quality, change, changing, opportunities</i>	61 mentions

These clusters of words represent the key themes in a future vision for Glasgow, and transport within that.

8.2 Proposed outcomes for Glasgow’s new transport strategy

Taking into account the analysis of policy drivers set out in Section 2 of this report; the analysis of problems and opportunities summarised above, and vision word analysis above, the following were proposed as **overarching draft outcomes** for the new Glasgow Transport Strategy.

Figure 98 Draft overarching outcomes for Glasgow's new transport strategy



8.2.1 Input from the Public Conversation on outcomes, vision and objectives

The four draft outcomes were tested through the public Conversation on Glasgow’s Transport Future in September-October 2020, and there was broad support for all.

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Table 7 Survey responses on draft outcomes

	Strongly agree	Slightly agree	Neutral	Slightly disagree	Strongly disagree	Overall agree	Overall disagree
Transport contributes to a successful and just transition to a carbon neutral, clean and sustainable city <i>n=2879, skipped 20</i>	70% 2038	17% 500	7% 216	3% 76	2% 49	87%	5%
Transport has a positive role in tackling poverty, improving health and reducing inequalities <i>n=2880, skipped 19</i>	65% 1887	21% 620	7% 217	3% 99	2% 57	86%	5%
Transport responds to and contributes to continued and inclusive economic success and a dynamic, world-class city <i>n=2865, skipped 34</i>	62% 1809	23% 670	9% 249	3% 79	2% 58	85%	5%
Places are created where we can all thrive, regardless of mobility or income, through liveable neighbourhoods and an inclusive City Centre <i>n=2861, skipped 38</i>	69% 2010	17% 488	7.5% 218	3% 83	2% 62	86%	5%

In addition, the online survey asked people to offer comments on whether they thought there should be a different outcome.

Table 8 Survey responses to question "Do you think we should have a different outcome?"

	Number of survey responses
General comments - supportive of outcome(s) (positive sentiment)	91
General comments - querying or against outcome(s) (negative sentiment)	68
General comments - all other comments	150
Proposed solution (not a goal or outcome)	362
Revised outcome	46
New additional outcome	22
No response	670

Survey responses which proposed revisions to or an additional outcome covered the following topics:

- Inclusion – the city and transport should be **inclusive** of and **available to everyone**.
- The word transport should explicitly focus on walking, cycling and public transport (though there were also comments that all forms of transport should be included).
- Explicit focus on **affordability** of transport.

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- Several comments on the need to refer to **safety** in the outcomes – including **personal security** for people using public transport.
- Climate concerns and sustainability and carbon reduction should be a priority outcome.
- Several mentions of the word **easy** and **easy to use** with regards to transport, and **accessible to all**, both spatially and in terms of those with additional mobility needs.
- Several mentions of the words **integrated** and **reliable**.
- Not just about getting to the city centre.
- Several references to **health** and **wellbeing** of citizens and quality of life.

Stakeholder organisation and Community Council comments on the outcomes came from individual submissions as well as the online stakeholder workshops. The comments can be summarised as follows:

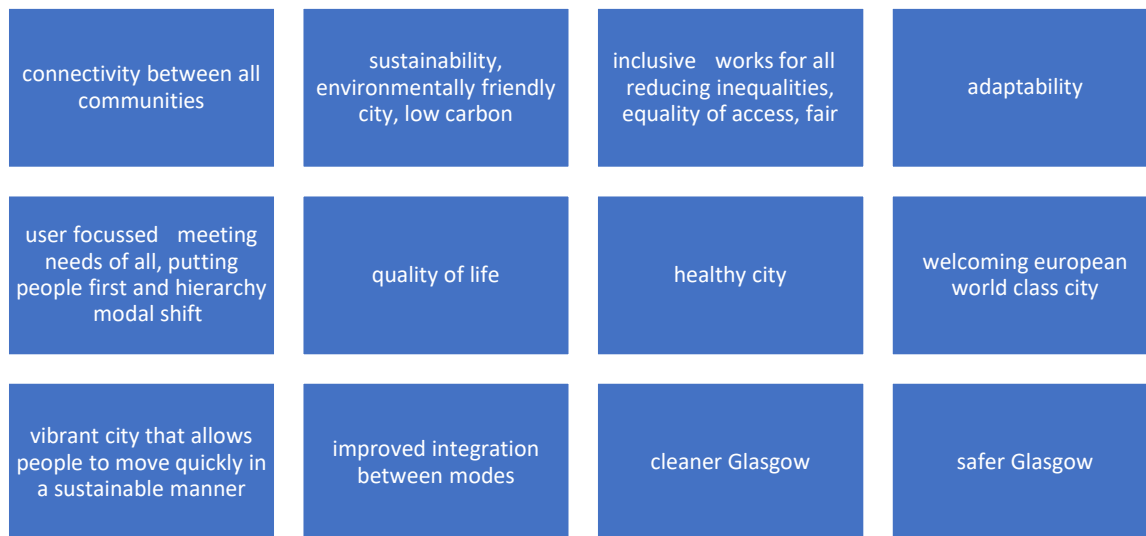
- On the whole, there was support for all four draft outcomes.
- Some comments were made on the generic nature of some of the outcomes, and how they were difficult to disagree with. It was suggested more definition was required related specifically to transport, and indicators were also needed.
- Outcomes where there were more discussions and/or some neutral or disagree comments were:
 - o Outcome on transport's role in tackling poverty etc – at least one stakeholder suggested transport improvements should benefit everyone and not just those in more deprived areas.
 - o Outcome on transport's role in inclusive economic success etc – at least one stakeholder raised the possible issue of conflict between this outcome and the other outcomes.
 - o Outcome on City Centre and Liveable Neighbourhoods – for those expressing neutral or disagreement with this outcome, comments were also made in the submission re: the importance of recognising the role of the car for some people.
- In terms of any suggestions for revised outcomes, at least one stakeholder commented on unclear wording in the carbon neutral outcome.
- In terms of suggestions for different or additional outcomes, the following topics emerged in some comments:
 - o A safer transport system for all
 - o Integrated / connecting transport network
 - o Affordable / low cost / free public transport.
 - o Simple transport network.
 - o Transport that is accessible to all.
 - o Stronger focus on air quality and clean air.

Finally, the online survey asked people to offer views on their transport vision for the future. The following wordcloud shows the types of themes emerging from this.

Survey question: "Thinking about the city of Glasgow, and the role transport could play in it – give us 5 words that describe the type of transport system you would like Glasgow to have in ten years' time."

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Figure 100 Objectives for a new transport strategy for the city



8.3.1 Draft transport planning objectives

Draft objectives were set out prior to the Public Conversation, with relationships to the proposed outcomes shown.

Transport contributes to a successful and just transition to a carbon neutral, clean and sustainable city.

- Objective suggestion: to support low carbon/ zero carbon ways of movement across the city, for people and for goods
- Objective suggestion: to promote clean air through transport investment and decision-making

Transport has a positive role in tackling poverty, improving health and reducing inequalities.

- Objective suggestion: to support affordable, sustainable and inclusive transport for all, with a particular focus on parts of the city who suffer most from unequal access to transport
- Objective suggestion: to support physical activity and health improvement through travel

Transport contributes to continued and inclusive economic success and a dynamic, world class city.

- Objective suggestion: to promote an integrated, affordable transport system within the city-region to support employment opportunities and inclusive economic success
- Objective suggestion: to contribute to a resilient transport system that can adapt sustainably in the future

Places are created where we can all thrive, regardless of mobility or income, through liveable neighbourhoods and an inclusive City Centre.

- Objective suggestion: to deliver the sustainable travel hierarchy in the city centre and neighbourhoods in the city
- Objective suggestion: to support accessible, safe and high quality public spaces in the city centre and neighbourhoods in the city

These were presented at two online stakeholder workshops, as well as in the supporting Draft Case for Change report.

8.3.2 Proposed final transport planning objectives

The sub-objectives proposed in the Draft Case for Change report largely cover the additional elements suggested in the Public Conversation. That said, there are a number of elements that could be added and/or strengthened, specifically:

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- New theme of safety, including personal security
- New theme of reliability
- Strengthened theme of accessibility
- Strengthened theme of integrated system which is convenient to use

These are therefore incorporated into the objectives below. **Note the word “safe” in this context relates to both physical safety and personal security, whilst “accessible” in this context specifically refers to those with additional mobility needs.** The transport planning objectives have also been re-framed to demonstrate that each one contributes to multiple outcomes.

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Table 9 Re-framed transport planning objectives for the Glasgow Transport Strategy

<p><i>Each objective contributes to all outcomes – those with particularly significant contribution are classed as having a “major” role though assumed all TPOs contribute to each outcome to some degree</i></p>	<p>Transport contributes to a successful and just transition to a carbon neutral, clean and sustainable city</p>	<p>Transport has a positive role in tackling poverty, improving health and reducing inequalities</p>	<p>Transport contributes to continued and inclusive economic success and a dynamic, world class city</p>	<p>Places are created where we can all thrive, regardless of mobility or income, through liveable neighbourhoods and an inclusive City Centre</p>
<p>Objective: To promote low carbon movement of people and goods in a resilient transport system that can adapt sustainably in the future</p>	<p>Major</p>		<p>Major</p>	
<p>Objective: To achieve clean air through sustainable transport investment and decision-making</p>	<p>Major</p>			<p>Major</p>
<p>Objective: To encourage and enable physical activity and improved health & wellbeing through active travel</p>		<p>Major</p>		<p>Major</p>
<p>Objective: To promote an affordable, inclusive and equitable sustainable travel system</p>		<p>Major</p>	<p>Major</p>	
<p>Objective: To improve reliability, integration and convenience of sustainable travel modes for people and goods</p>	<p>Major</p>	<p>Major</p>	<p>Major</p>	<p>Major</p>
<p>Objective: To ensure the transport system is accessible by all</p>		<p>Major</p>	<p>Major</p>	<p>Major</p>
<p>Objective: To improve the safety and personal security of all transport users and the public spaces that they use</p>		<p>Major</p>		<p>Major</p>
<p>Objective: To deliver spaces for people first and foremost, with high quality public spaces which respect and respond to the natural environment, and an effective sustainable travel hierarchy</p>	<p>Major</p>			<p>Major</p>

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8.4 Initial Policy focus areas tested in the Public Conversation

To support public engagement on the topic of transport in Glasgow, and to start to consider what delivering the proposed four outcomes would involve, a series of initial policy focus areas were developed for feedback and discussion during the Public Conversation in 2020. These were tested in the Public Conversation, and the results from the online survey are shown below, together with some commentary received in individual stakeholder submissions.

Table 10 Online survey responses to policy focus statements

Policy focus statement – online survey responses	Support this policy focus	Neutral	Do not support this policy focus
Investment in cycling infrastructure to produce a city-wide network that people feel safe to cycle on (presented in our updated “Active Travel Plan” which will replace our existing Strategic Plan for Cycling). <i>[n=2846, skipped 53]</i>	75% 2186	14% 412	9% 248
Continued working towards zero serious and fatal injuries on our road network (our updated Road Safety Plan to 2030). <i>[n=2845, skipped 54]</i>	85% 2474	11% 328	1% 43
Efficient management of our road networks through design and technology to make better use of the space we have, ensuring the sustainable travel hierarchy informs our decisions and priorities <i>[n=2827, skipped 72]</i>	77% 2239	17% 502	3% 86
Reallocation of and better management of access to road space to give priority to people walking, wheeling, cycling and on public transport, and ensure goods get to where they need to go in the city <i>[n=2843, skipped 56]</i>	81% 2342	11% 316	6% 185
Continued maintenance of what we already have to ensure our pavements, cycleways and roads enable sustainable travel. <i>[n=2839, skipped 60]</i>	87% 2535	9% 257	2% 47
Embedding the Fairer Scotland Duty into our transport decision making alongside our Equality and Climate Duties, and applying a ‘wellbeing test’ to our transport investment decision-making. <i>[n=2816, skipped 83]</i>	71% 2048	23% 676	3% 92
Investment in a modern public transport system that supports our economy, and serves the thousands of households which don’t have access to a car, providing a real alternative for those who do. In particular, supporting buses, exploring a Metro, working with SPT to support the modernisation and promotion of the Subway, and exploring innovative models of public transport provision in a changing market. <i>[n=2832, skipped 67]</i>	90% 2606	6.5% 189	1% 37
A smart, technologically savvy city where we use technology in transport for public benefit, we are open	78%	17%	3%

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Policy focus statement – online survey responses	Support this policy focus	Neutral	Do not support this policy focus
and transparent and encourage innovation through open data. We upskill Glasgow residents in carbon, energy and technological advances related to transport so that everyone benefits. <i>[n=2827, skipped 72]</i>	2252	486	89
We work with partners to reduce the cost of public transport in Glasgow, particularly for young people and for people on low incomes or in poverty. <i>[n=2830, skipped 69]</i>	87% 2519	8% 243	2% 68
We work towards a goal of a single, integrated, smart ticket for public transport in the city (with the potential to include other forms of mobility like cycle hire and car clubs). <i>[n=2833, skipped 66]</i>	89% 2589	7% 199	1.5% 45
We collectively agree an approach to transport governance in Glasgow that is in the best interests of the users of our transport systems. <i>[n=2810, skipped 89]</i>	83% 2408	13% 370	1% 32
We create financially sustainable models of transport provision in the City and proactively identify sources of income to sustain investment in sustainable transport. <i>[n=2791, skipped 108]</i>	78% 2,266	16% 475	2% 50
We work collaboratively with Glasgow’s taxis, which often plugs a gap in transport, to improve provision, particularly with the growth of app-based ride and hail services. <i>[n=2808, skipped 91]</i>	52% 1513	33% 948	12% 347
People and place are prioritised in our City Centre - making it easier and quicker for people to walk and cycle and make onward journeys by public transport. A new City Centre Transformation Plan will support existing goals to reduce car journeys in the city centre by 30%, whilst enabling the residential population to double. <i>[n=2813, skipped 86]</i>	77% 2243	13% 376	7% 194
Parking supply and cost are balanced to ensure that using public transport is cheaper than driving into the city centre. An evidence-led and policy-driven car parking strategy is developed for the city. <i>[n=2812, skipped 87]</i>	71.5% 2073	16% 460	10% 279
Working collaboratively with planners and regeneration teams, ‘Liveable Neighbourhoods’ are created which maximise the availability of services within 20 minutes walking distance. <i>[n=2796, skipped 103]</i>	83% 2418	10% 298	3% 80
A focus on the journey to school – further investment in walking and cycling infrastructure, working towards a default speed limit of 20mph, and a wide rollout of school road closures.	72% 2091	17% 481	8% 220

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Policy focus statement – online survey responses	Support this policy focus	Neutral	Do not support this policy focus
<i>[n=2792, skipped 100]</i>			
A focus on making sure the city centre and neighbourhood environments are accessible for all. <i>[n=2802, skipped 97]</i>	88% 2549	8% 227	1% 26
Local communities are supported and enabled to take forward ideas which benefit their neighbourhood, in line with the community empowerment agenda and recent changes to planning legislation. <i>[n=2772, skipped 127]</i>	78% 2271	15% 449	2% 52
Ensuring a just transition to a low carbon transport future by: first, reducing the need to travel; then, supporting trips by foot, wheeling, bike, public transport and shared transport; finally, moving to low carbon and low emission vehicles. <i>[n=2796, skipped 103]</i>	78% 2269	13% 381	5% 146
Less vehicles of all kinds on our roads, and a reallocation of road space to sustainable ways to travel. <i>[n=2804, skipped 95]</i>	73% 2126	15% 429	9% 249
Monitoring consumer trends and doing what we can to manage the rising number of light goods vehicles on our roads. <i>[n=2778, skipped 121]</i>	67% 1949	24% 681	5% 148
Considering and using the tools at our disposal to support cleaner vehicles in the city. <i>[n=2794, skipped 105]</i>	81% 2353	13% 371	2% 70
Considering greenspace, open space and biodiversity when we plan transport and placemaking projects, to maximise the benefits of our investment. <i>[n=2795, skipped 104]</i>	86% 2506	9% 252	1% 37

In terms of organisational responses, the pattern above was largely also reflected in the feedback. The policy focus statements that organisations in general questioned by either being neutral or not supportive of tended to be:

- **Working collaboratively with taxis in Glasgow** – concerns on this statement ranged from stating the focus should be on a good public transport network first and foremost, to some concerns over the pollution caused by taxis and driving behaviour. It was also highlighted however that public hire taxis often provide a service where public transport is not an option and there is a lack of sufficient taxi ranks in the right locations. One organisation also challenged the unhelpful lack of distinction between private and public hire in the Public Conversation policy focus statement.
- **Less vehicles of all kinds on our roads**, and statement on **balancing supply of parking cost and supply** – some expressed concern in relation to how some rely on a car.
- **Reducing the rising number of light goods vehicles** – they were several neutral positions on this statement.

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Some queried the meaning of partnership and collaboration in some statements, in the context of not continuing to work with private bus operators but bringing buses into public control.

These policy foci will be further developed where appropriate into individual policy areas within Glasgow's Transport Strategy, City Centre Transformation Plan, Liveable Neighbourhoods Plan and Active Travel Strategy, and added to.

9 Change we can be certain of – committed projects

9.1 Committed projects

There are a number of projects and schemes that are already committed to varying extents in the City, some substantial in budget and outcomes. These are being compiled, to help understand how the city will look like in the future without any further interventions from the Glasgow Transport Strategy. This will provide a baseline against which any additional interventions will be assessed.

These projects will be included in the consideration of how travel demand may change in the city in the next stage of the work. They include:

- The Glasgow City Region City Deal projects for Glasgow - Clyde Waterfront and West End Innovation Quarter Programme, Carlton Barras Collegelands Programme, Metropolitan Glasgow Strategic Drainage Partnership, Canal and North programme, City Centre projects including George Square.
- Glasgow Avenues programme in the city centre.
- Cycling infrastructure projects including City Way programme.
- Any Spaces for People projects that Elected Members determine should be retained as permanent features.
- Bus improvement projects (supported by SPT) including Pennilee, Paisley Road West, Pollok Roundabout.
- Continued rollout of Glasgow's Low Emission Zone in phases.
- ScotRail commitments in CP6 including East Kilbride line improvements.
- Roll-out of 20mph speed limit in certain areas of the city.
- School car-free zones.
- Parking zones workplan.
- SPT led projects including modernisation of the Subway, enhancements to Buchanan Bus Station.
- Transport Scotland's free bus travel for under 19s as announced in 2019 (and new commitment to all under 22 years of age).
- Transport improvements presented in Strategic Development Frameworks for the six priority areas for intervention in the city as these form part of the City Development Plan.

9.2 Spatial change in the city

9.2.1 City Development Plan

The City Development Plan is the spatial representation of change in the city, in particular for housing, business and industry. These are key land uses that generate and influence travel demand in the city. The existing City Development Plan was adopted in 2017, and sets out a 10 year planning framework for the city. It adopts key principles to spatial development in the city including:

- The placemaking principle
- Sustainable transport (details of which are set out in Supplementary Guidance)

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- A network of centres with thriving neighbourhoods, and specific intervention in priority areas in the city – the City Centre, Glasgow North, Greater Easterhouse, Govan/Partick, Inner East, and the River Clyde Development Corridor – reflected in Strategic Development Frameworks. These form part of the development plan for the city.

It should be noted that work is beginning on the new Development Plan for the City in 2021. The GTS will therefore review transport-related proposals in the existing City Development Plan, and reflect emerging thinking on future areas of growth in the city as best as possible at this stage.

The Council also has a number of District Regeneration Frameworks in various stages of development covering the city centre area. These are aspirational frameworks which require further assessment and development of project ideas. The new City Centre Transformation Plan will review projects emerging from the DRFs within the overall transport framework for the city centre.

In general, the GTS will seek to provide a coherent and overarching transport approach which builds on and responds to the spatial changes proposed in the council's development-related documents as well as enabling review points to manage uncertainty in the future.

9.2.2 Glasgow City Region City Deal

The Glasgow City Region City Deal was the first City Deal in Scotland and of the 30 or so UK City Deals agreed to date, is one of the largest in terms of government funding.

The partnership of eight neighbouring local authorities, with Glasgow as lead authority, is the first ever City Deal to benefit from funding from both the UK and Scottish Governments, with £500 million provided from each for infrastructure investment and local authorities contributing a further £130 million.

The £1.13 billion infrastructure fund will deliver 21 projects focusing on improving connectivity including roads and public transport and unlocking key sites across the region for housing, commercial and retail development over the next 10-20 years. A further three innovation projects are supported by £18.8 million funding from BEIS (Department of Business, Energy and Industrial Strategy). Three labour market projects are supported by £24.6 million funding from both the DWP (Department of Work and Pensions) and Member Authorities.

Together these City Deal projects will enable a programme of work which will greatly add to the value of the local economy over the next 20 years.

Glasgow City Region, one of the largest regions in the UK, is Scotland's economic powerhouse. With a population of 1.8 million, it is home to 29% of Scotland's businesses and base for 33% of the nation's jobs. A key engine of economic growth for both Scottish and UK economies, it generates around 32% of Scotland's GVA.

Glasgow City Region is made up of eight Member Authorities: East Dunbartonshire Council; East Renfrewshire Council; Glasgow City Council; Inverclyde Council; North Lanarkshire Council; Renfrewshire Council; South Lanarkshire Council and West Dunbartonshire Council.

The region benefits from numerous economic assets:

- strengths in financial services, life sciences, engineering, manufacturing and
- construction, as well as in the creative and media industries;
- successful universities, further education and research institutes which provide the space for both innovation and the people who will drive the region's development, and

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- a highly skilled workforce across a wide range of industries.

However, it also faces various challenges that act as barriers to future economic growth:

- high rates of long-term unemployment;
- poor survival rates for business start-ups;
- a high number of stalled development sites in key locations, and
- pressures facing existing transport infrastructure.

Recognising these advantages and challenges, the City Deal will support the local area to achieve its shared long term vision for the local economy by:

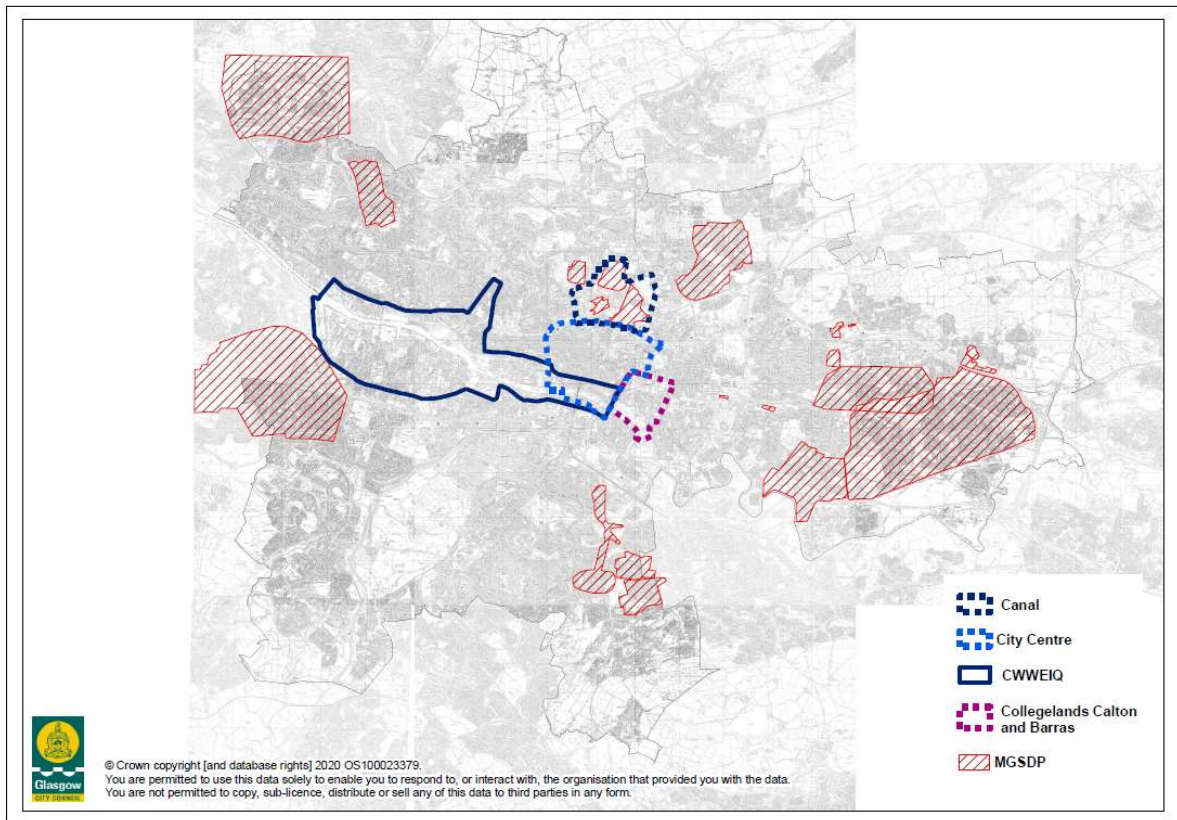
- establishing a £1.13 billion infrastructure fund, to support the delivery of an improved transport network across Glasgow and the Clyde Valley; key development and regeneration sites and improved public transport;
- supporting further growth in the life science sector through the establishment of world class research, development and commercialisation facilities;
- enabling more small and medium enterprises to grow by providing additional business incubator and grow-on space for entrepreneurs across the region;
- tackling unemployment challenges through the establishment of programmes that will provide targeted support to 16-24 year olds and vulnerable residents that are in receipt of Employment Support Allowance, and
- testing new ways of boosting the skills and incomes of people working in the Care Sector and supporting sector resilience.

Over its lifetime, it has been estimated that the City Deal will:

- deliver £2.2 billion in additional GVA per annum (a 4% uplift) across the City Region;
- support an overall increase in the economy of around 29,000 jobs in the City Region;
- create 15,000 construction jobs through the ten year City Deal construction programme;
- work with 19,000 unemployed residents and support over 5,500 back into sustained employment;
- lever in an estimated £3.3 billion of private sector investment, and
- spread the benefits of economic growth across the whole Region, ensuring deprived areas benefit from this growth, supporting inclusive growth.

Further spatial analysis will be carried out in the next stages of the work to assess transport accessibility and connectivity opportunities in relation to City Deal projects.

Figure 101 Glasgow City Region City Deal projects in Glasgow



10 Generating a long list of options

10.1 Introduction

We are applying a multi-criteria appraisal approach to the development of the Glasgow Transport Strategy, based on STAG. This, alongside our application of the SEA approach, requires us to consider all possible types of solutions or “options” to achieve our goals and objectives; to assess these against our objectives; and to ensure we consider alternatives so that we are confident our decisions are the right ones. These are then assessed against a range of criteria to see how they perform, and check they contribute to the goals we have set. The criteria include the transport planning objectives above, and the STAG criteria of economy, safety, accessibility & social inclusion, environment and integration.

10.2 Approach to generating a long list of options

The following figure sets out the approach to developing a long list of options for the GTS to further consider.

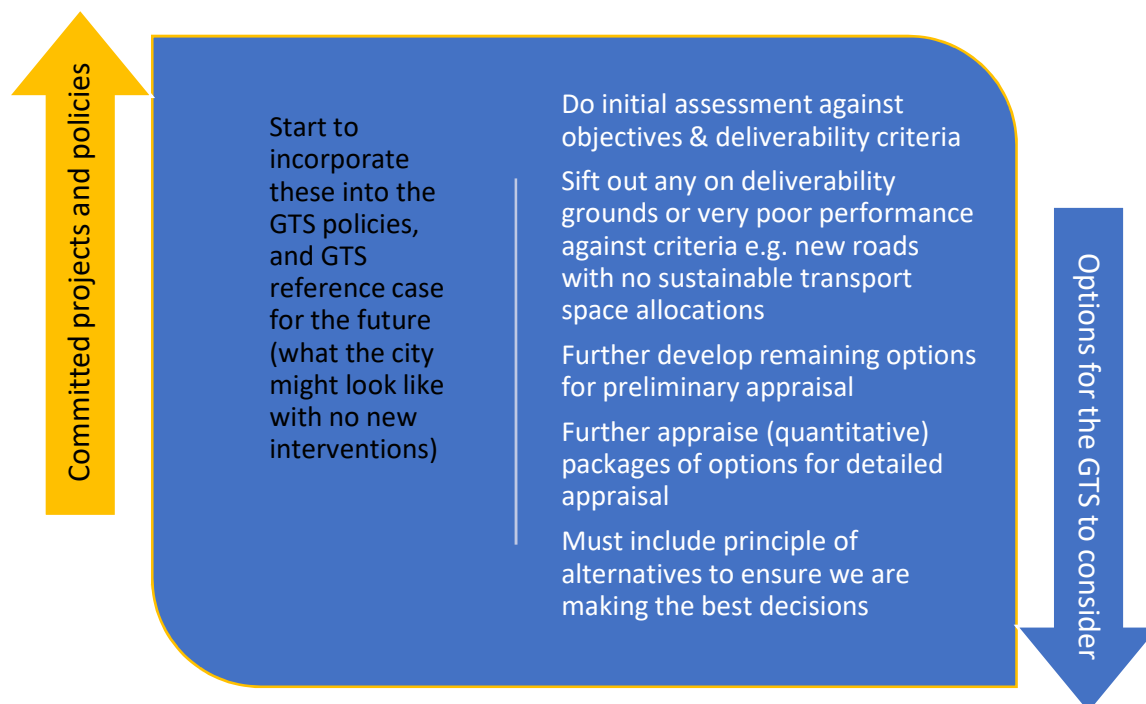


After reviewing and collating all the information as per the figure above, some of these are then identified as **committed projects and policies** – that is, projects and policies (and even targets) that have a degree of certainty and commitment as to delivery. For example, they have already been through appraisal or significant consultation and approved by Elected Members in a strategy or plan; or they have been granted funding, or they have relevant statutory consents in place. These will form part of the ‘do minimum’ and/or reference case for the transport appraisal work – that is, what the city might look like should there be no additional interventions as a result of the GTS. Some of these will also be taken on board in the GTS as policy, building on the effort already put in to developing various plans and strategies.

This leaves a list of other projects and ideas which still need to be assessed as to whether they should be part of the GTS. Some of these may have particularly important impacts on travel demand and need to be quantified as to how they support the GTS objectives; some may also not be the only

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solution to a particular problem and be part of a series of alternatives, which also require appraisal to ensure we are making the best decisions.



Appendix B sets out the range of ideas and solutions gathered during the Public Conversation on Glasgow’s Transport Future in 2020. These have directly informed the long list of possible options, as have outputs from the review processes shown in the figures above.

10.3 Existing proposed projects and ideas

There are a number of existing project & policy proposals that will have informed this long list:

- Projects from the Connectivity Commission including High Street / Traffic calmed and reconstructed High Street; Roof Over M8 Charing Cross; Queen St / Central Station Tunnel; Crossrail - City Union Line with stations at Glasgow Cross & West Street; Glasgow Airport rail connection; strategic bus terminals.
- Glasgow Metro.
- City Development Plan projects including Clyde Fastlink 2 and others.
- Transport related actions from the Climate Emergency and associated Climate Implementation Plan.
- Project concepts emerging from the Development Regeneration Frameworks and Strategic Development Frameworks Glasgow City Council.
- RTS Draft Case for Change long list of options.
- STPR2 options for the Glasgow City Region.

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10.4 The long list of options

The following presents a summary of the long list of options now being considered in the GTS process:

- **Public transport**
 - Bus service & bus infrastructure improvement options
 - Demand responsive / flexible public transport
 - Public transport fare improvements & smart integrated ticketing
 - Subway & rail improvements
 - Metro scheme
 - Park & Ride
- **Community & social transport**
 - Enhanced role of community transport
 - More sustainable transport access to food, healthcare, education/ training, employment
- **Shared mobility**
 - Mobility hubs
 - E-scooters & micro-mobility
 - Car journey & journey sharing
 - Improving existing bike hire & car club offer
 - Public taxi & private hire, ride-hailing
- **Accessible transport system**
 - Accessible information & journey planning
 - Improvements to the journey experience & raising awareness of issues
 - Accessible walking environment
 - Inclusive cycling interventions
 - Scottish Accessible Travel Framework
- **Cycling**
 - More affordable access to cycling & further bike hire
 - Improved cycling infrastructure
 - Improved integration with other modes
 - Active travel hubs & training & information
 - Improved & consistent information & signage

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- Improved & more cycle parking & storage
- **Walking**
 - Improved walking infrastructure
 - Improved & consistent information & signage
 - Personal security enhancements
 - Reducing barrier impacts of major infrastructure
- **Clean air**
 - Further development of LEZ & air quality measures
 - Further support electric bikes
 - Enhancing electric vehicle charging
- **Movement of goods**
 - Tackling last-mile delivery
 - Consider freight distribution consolidation
 - Low carbon freight movement
 - Expanding Eco-Stars
 - Improve journey time reliability of goods movement
- **Travel information & behaviour change and information provision**
 - As above - improved information provision on sustainable transport
 - Improved integrated branding of sustainable transport in Glasgow
 - Behaviour change campaigns
 - Mobility as a Service
- **Transport governance & decision making**
 - Consider options under the Transport (Scotland) Act 2019
 - Consider overall governance of transport in Glasgow
 - Improve transparency of Council decision-making on transport
- **Water-based transport**
 - River-based movement of people and goods
 - Canal-based movement of people and goods
 - Improved connectivity to and across the river
- **Transport and technology**

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- Further development of existing urban traffic control system e.g. greater priority for sustainable transport
- Consider role of connected autonomous vehicles
- Consider skills & jobs opportunities from new transport technologies
- Open data standards
- **Transport and climate and biodiversity**
 - Improving biodiversity through transport decision-making
 - Climate adaptation measures in transport projects
 - Low / zero carbon energy & propulsion for transport
 - Consider skills & jobs opportunities from new transport & carbon & energy initiatives
 - Improved climate change resilience of transport
- **Demand management, vehicle restraint and road safety**
 - Strategic approach to parking in the city
 - Consider workplace parking levy & other charging mechanisms to manage demand
 - Further road safety improvements
 - Pavement parking prohibitions implementation
- **Road infrastructure**
 - New road capacity schemes with sustainable transport allocations
 - Managing capacity
 - Improved maintenance
 - Roadspace reallocation to sustainable modes (as per categories above)
 - Reducing the barrier impact of major roads infrastructure
- **Development and plan related**
 - Place-making in transport schemes
 - Development plan policies to reduce the need to travel e.g. 20 minute neighbourhoods and discourage car ownership
 - Transport proposals from Strategic Development Frameworks which form part of the City Development Plan
 - City Centre Transformation Plan measures
 - Liveable Neighbourhood Plan measures
 - Travel planning for new development

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- **Process related**
 - Improved monitoring of transport trends
 - GCC staff travel plan update
 - Innovative & resilient sources of funding
 - Low carbon Council fleet
 - Improved enforcement to support sustainable transport
 - Further mainstreaming equalities in decision-making

11 Next steps

The Final Case for Change report represents a milestone output in the development of the GTS. In presenting the Case for Change, the first stage of the STAG-based approach (Initial Appraisal: Case for Change) is complete⁹⁶. The next stage is preliminary appraisal of options, and development of policies in the GTS is ongoing. Alongside the appraisal process, the SEA and EqIA processes will both continue and proactively inform the development of the GTS.

⁹⁶ <https://www.transport.gov.scot/public-transport/rail/rail-policy-and-strategy/local-rail-development-fund/>

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Appendix A: Stakeholder workshops, February 2020 – note

External stakeholder workshops on Glasgow's new transport plans – summary note

What and when: External stakeholder workshop on Connectivity Communities - Glasgow's new transport plans - problems and opportunities workshop, Lighthouse, 13th February 2020.

Attendees

Organisation
ScotRail
Baillieston Area Partnership
Calton Area Partnership
Clydeplan
Cycling Scotland
Cycling UK
Dennistoun Area Partnership
Drumchapel/Annie'sland Area Partnership
DWP
First Glasgow
GCV Greenspace Network
Glasgow Centre for Population Health
Glasgow Chamber of Commerce
Glasgow Disability Alliance
Glasgow Hoteliers' Association
Glasgow Life
Glasgow School of Art
Glasgow Third Sector Forum
Glasgow/West of Scotland Housing Forum
GoBike
Living Streets Scotland
McGills
Merchant City & Trongate CC
Network Rail
Newlands Auldburn Area Partnership
NHS Greater Glasgow and Clyde
Paths for All
Police Scotland
SNH
South West Community Transport
Springburn/Robroyston Area Partnership
SPT
Sustrans
Transport Scotland
University of Glasgow
University of Glasgow - Urban Big Data Centre

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University of Strathclyde
Victoria Park Area Partnership
West Coast Motors
Young Scot

Introduction and aims of the workshop

As part of the ongoing work in Glasgow City Council to develop three new transport-based Plans for the City – a Connectivity Plan, a Liveable Neighbourhoods Plan and City Centre Transformation Plan – two external workshops were held with a range of organisations in February 2020. These workshops formed part of an approach to scoping a Public Conversation on the new transport plans and to begin the process of identifying key issues that the new transport plans must tackle from a range of perspectives.

The title of these workshops was - **Connecting Communities - Glasgow's new transport plans – Problems and Opportunities workshops**.

There were three aims of the workshops:

- To flesh out our understanding of problems and opportunities for our new transport plans and sense check these with stakeholder organisations.
- To start the process of engaging externally with organisations representing a wide range of issues.
- To gather stakeholder views to help shape our public engagement and identify the key issues to be tackled by the new transport plans.

Structure of the workshop

The workshop was structured to ensure most of the time was spent listening to workshop attendees and collating their views. After an initial presentation by the transport strategy team to set the scene for some of the potential problems and opportunities the new transport plans would have to tackle, break out groups focused on:

- Problems the new transport plans should tackle, and opportunities they could build upon
- Thoughts on a vision for Glasgow in 2030
- What success looks like for each of the three new plans
- Future trends that may impact upon travel demand in the city
- Shaping the key questions to put to the stakeholders and communities in the Public Conversation on transport issues in 2020

Workshop participants were split into smaller break-out groups to ensure that everyone had a chance to contribute. Each was facilitated by a member of the Transport Strategy team to a pre-determined list of prompts to ensure consistency amongst groups in relation to topics covered.

As previously defined a range of stakeholder organisations were invited and included:

- Neighbourhood partnership representatives
- Business sector
- Organisations involved in lobbying for specific improvements e.g. on walking and cycling
- Public transport operators

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- Academia

Problems and Opportunities

The first break out group discussion session focused on identifying problems that the new transport plans should consider. It also included a discussion of opportunities to build upon in the new transport plans.

Shown below is a summary of the **problems** discussed across the four groups.

Problems that need to be tackled	Number of mentions on flipchart records of discussions
Issues with buses - not competitive with car, not available when needed, poor public perceptions of buses, impact of congestion, services withdrawn, structure of bus industry and deregulation and profit oriented, city centre focused and hard to make cross-city journeys, perceived safety on buses, health conditions affecting ability to use buses for some	15
Lack of integration - between modes, ticketing systems not integrated, too much competition between public transport modes, physical connections between modes poor, lack of connected network	10
Barriers to cycling - lack of connected cycling network, perceived safety issues, perceptions of cyclists, lack of safe cycle routes, lack of cycle routes to school, lack of focus on utility journeys, issues of bike ownership and lack of access to bikes	9
Planning and transport policy – some GCC projects working in isolation, existing built environment is not adequate, still planning for the car and roads, planning policy conflicts	9
Road congestion (and evidence of this)	4
Cost of transport – too high, lack of awareness of ticketing options, cost of buses is too high and not subsidised like rail	4
Walking – quality of walking and access networks needs improved (crossings, pavements, junctions etc.), feels like walking is at the bottom of the hierarchy	4
Transport and young people – cost is an issue over 16s and over, not everyone has a YoungScot card, lack of cycle routes to school	3
Car ownership in Glasgow, and changing assumption people should own a car	2
Disability and access issues	2
Not all about the city centre, other journeys in city are important	2
Public attitudes	2
Rail issues specifically – lack of connections between Central & Queen Street	2
Slow progress, need better incentives for change in faster timescales	2
Carbon	1
Inclusive growth	1
Lack of community engagement	1
Lack of open data	1

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Problems that need to be tackled	Number of mentions on flipchart records of discussions
Subway – missed opportunity to expand	1
Maintaining road conditions	1
Park & Ride pushes problem out of city	1
Small things cumulatively make a difference	1

Additional points from the wider group discussions:

- Several groups discussed more widely the bus and rail (including the underground) systems and networks in Glasgow, noting the lack of integration – of networks, timing of services and ticketing. Examples of other cities where there is apparently more integration were noted (e.g. Dundee, Edinburgh, and London).
- It was felt that opportunities to expand rail or the underground has not been capitalised on and that despite having the largest suburban rail network outside of London some communities are still not connected. Glasgow’s large communities on the edge of the city remain reliant on buses which creates a challenge to the journey proposition, for example services not running early enough to enable people to get to work across the city. Increasing active travel in these areas, for example for longer journeys to work across the city, would also likely be a significant challenge.

The workshop groups discussed **opportunities** that could be built upon in the new transport plans. The flipchart records included:

- Carbon neutral goal for Glasgow, and other targets such as decarbonisation of rail target by 2035
- Alignment of goals and policies through strategic planning in the Council
- Examples of partnership working e.g. on Park and Rides between rail and bus
- Research on bus issues (KPMG) and good practice from elsewhere, so known solutions and evidence to build on
- Transport Scotland work on improving EV charging networks
- Trends towards working from home and changing travel patterns, provision of more services from a distance / virtually
- Technology and data, MAAS, contactless payment systems
- Good examples from elsewhere e.g. Dundee ABC project, European free public transport
- YoungScot card and public transport discounts
- Subway modernisation programme
- Transport (Scotland) Act 2019
- Building on projects GCC already has underway in the City, and promote these more
- Sustrans work on active travel (and other organisations working on this)
- E-bikes
- Health as a driver / motivation
- Car clubs, more shared ownership
- TSRGD - Traffic Sign Regulation Guidance - now a devolved matter
- Political agendas aligning
- Permitted development and bike storage

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The workshops also discussed what success looked like for each of the three transport plans. For the overarching transport strategy for the city, the following table shows the key messages from group discussions.

Table 11 What does success look like for a new transport strategy/LTS for the City?

What does success look like in a new transport strategy for the city?	Number of mentions on flipchart records
Active travel - role in decarbonisation, people want active travel, cycling infrastructure and segregated cycle paths, pedestrian priority at lights and on streets, P&R with active travel, better footpaths	10
Public transport - people want to use it, better buses outside of city centre, modernised bus route network, integrated ticketing, more reliable public transport, a system people value and use, affordable public transport, reduce need to interchange for bus journeys	10
More attractive, liveable city - improved quality of life, best place in Scotland, successful place, design, beautiful buildings and places, European City	9
Reduced cost of transport - cheaper to get around city, multimodal network, integrated and cheaper tickets, free public transport	7
Decarbonisation of transport - more EVs and be clear on role of EVs, green energy, public choose the most sustainable option	6
Sustainable travel hierarchy - change streets and junctions to give pedestrian priority, really deliver the hierarchy, reduce the primacy of the car	6
Reduction in poverty & differential impacts - no child poverty, reduced transport poverty, city that works for all ages, good transport for young people	6
Integrated transport - between modes, multimodal network, ticketing, hubs	6
Less traffic - no cars in city centres, tackle congestion, low traffic liveable neighbourhoods, public leadership on reducing primacy of car	5
Cross city movements, not all about city centre, places and neighbourhoods connectivity	3
Technology & data - AVs, better information and data	2
Improved health and wellbeing, healthy children	2
Demand management - pavement parking, parking and WPL	1
River as transport	1

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What does success look like in a new transport strategy for the city?	Number of mentions on flipchart records
Clean air	1
Faster journeys	1
Accessible transport	1
Governance, process	1
Enforcement	1
Benchmarking against European cities	1
Taxis	1
Events and trip attractors, show flexibility	1
Road safety fewer casualties	1

Additional points from the wider group discussions:

- The wider group discussions around ‘success for the new transport strategy’ focussed on the integration and greening of transport, providing inclusivity and creating a healthier, greener, connected city.
- Success will involve making transport faster, cheaper and simpler, with any shift in transport mode encouraged through provision of the right facilities.
- It would also mean people choosing to come to the city centre for work or leisure and to experience clean air and far reduced congestion (e.g. cars not replaced with EVs).

Similarly, the following tables outline what success looks like for the City Centre Transformation plan and Liveable Neighbourhoods.

Table 12 What does success look like for the City Centre Transformation?

What does success look like for the City Centre transformation?	Number of mentions on flipchart records
A people-focussed centre supporting increased and longer-term residency and city centre living, increased footfall	9
Active and sustainable transport - city welcoming of bikes, improved bike parking (e.g. European-style underground mass parking), emphasis on active travel and sustainable transport choices	7
Public transport improvements, greater use of public transport, transport and work hubs. Connecting to HS2	7

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What does success look like for the City Centre transformation?	Number of mentions on flipchart records
More greenspace, city greening and place focussed, improved and clean environment	6
Car free - address vehicle volumes entering city centre, especially from motorway	6
Goods & deliveries - decarbonise last mile with electric vehicles or retail delivery hubs, reduce numbers of large delivery lorries/HGVs, vehicle access only for deliveries	4
Strong leadership, transparent about the issues and driving success through action plans	3
Clean air, improved air quality	3
River - create vibrancy and a focal point	2
Digital technology use, journey info	2
Healthy and safe people	2
Reallocation of roadspace	1

Additional points from the wider group discussions:

- The wider group conversations around the meaning of ‘success’ for the city centre transformation gave a sense of the centre becoming an obviously vibrant, flourishing place, beginning to feel like a community again, and a place that people would want to travel to/visit.
- Key to this would be higher rates of residency in the city centre, a more people-focussed reallocation of space to greening /pocket parks, greater footfall generally coupled with more visibility of active travel, which is prioritised over motor vehicles.

Table 13 What does success look like for Liveable Neighbourhoods?

What does success look like for Liveable Neighbourhoods?	Number of mentions on flipchart records
Vibrant high street hubs and spaces – with all services & amenities - thriving shops and communities - all times of day – seeing people	16
Greenspace and parks/ vacant or derelict space to community use or greenspace / land use - public spaces	11
Green network access and connections, permeability, active travel routes	9

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What does success look like for Liveable Neighbourhoods?	Number of mentions on flipchart records
Transport - accessible, affordable, local, integrated	8
Better designed residential developments	6
Reduce traffic volume and speed, safe streets, increase enforcement	6
Pedestrian and cycle priority	5
Multi-organisational cooperation to drive & achieve changes	5
Consider needs of all ages, mobility requirements, health & wellbeing	4
Street play and open roads, focus on children and young people in particular	4
Safety - perception of and actual – both to live (crime) and travel	4
Housing and population density/ liveable neighbourhoods/ compact city	3
Glasgow-specific context - consider weather	1
Behaviour change/ cleanliness	1

Additional points from the wider group discussions:

- As shown in the flipchart notes summary above, key to creating success for liveable neighbourhoods are vibrant high streets and easy access to services and amenities. There was wider discussion around the concept of the '15-minute city' currently being promoted in Paris: "self-sufficient communities with amenities nearby, to cut pollution and stress", so that for many residents the need to travel further is reduced. It was felt that perhaps Victoria Road is on the way to becoming an example of such a multipurpose neighbourhood.
- Creating greenspaces and green networks and prioritising active travel are also key, however, there is a requirement to carefully define a green space and to grade their quality, as well as agreeing on what a reasonable distance is for people to access a green space.
- There was concern to clearly define and communicate what a 'liveable neighbourhood' is so that people can understand it.

Objectives for Plans

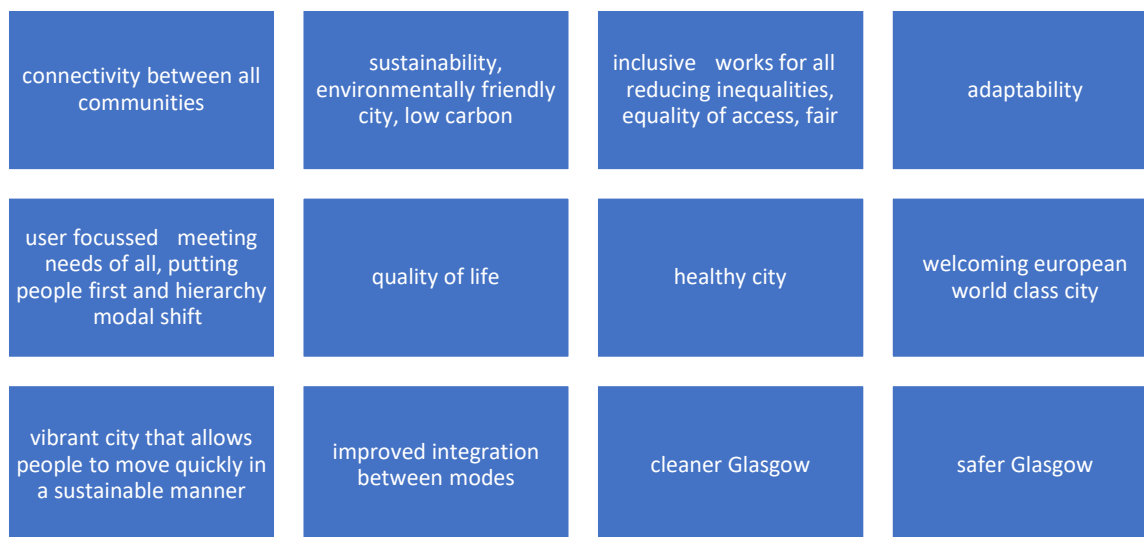
Workshop groups were asked to discuss potential objectives for each of the three plans. The figure below shows the main themes from the discussions on an overarching transport strategy for the city.

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Figure 102 Objectives for a new transport strategy for the city



Several other themes emerged from these discussions, and whilst not objectives as such, they will be considered in the development of the strategy. These included the following points:

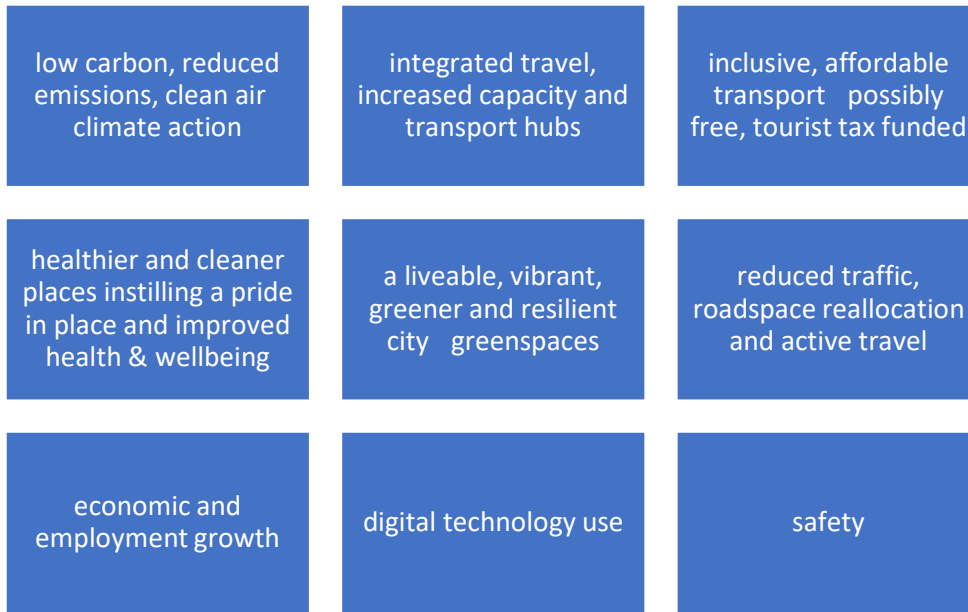
- Honesty and truthfulness regarding congestion
- Recognise the reality of the timescales of delivery
- Content, actions, accountability - owned actions, actual change
- Evidence driven change and transparency in decision making and inclusivity (linked to the topic of open data)
- Provide a vision - that is fed and led by example, leaders that lead by example
- Any benefits to be extended beyond the boundary of the city - shared with other neighbouring local authorities
- More people coming to city centre, and quicker access to city centre
- Sustainable movement of goods
- Users - commuting/business travel/leisure
- Integrated ticketing and modes and routes
- Education/information for behaviour change
- Active travel
- Integrated and coordinated public transport and active travel networks - including ticketing
- Road pricing

The same activity was carried out by the groups for the City Centre Transformation and Liveable Neighbourhoods.

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Figure 103 Objectives for City Centre Transformation Plan



Further to the above, it was noted during the conversations that there are difficult decisions to be made at the top level but with political support, showcasing transformation and investment to back up plans, this can lead to a real and noticeable transformation, which will hopefully in turn lead to changes in attitudes and behaviour. Economics and health are strong drivers of this.

Figure 104 Objectives for Liveable Neighbourhoods Plan



Further to the above it was also noted during the conversations that there could be a focus on Liveable Neighbourhoods becoming climate resilient.

Vibrant, successful neighbourhoods should be so at all times of the day - providing safe evening and night-time spaces.

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Future trends and key drivers of change

Participants were asked to think about how travel demand may change in Glasgow in the future - what will change how people travel and move around, and even the need to travel? The suggestions put forward were as follows:

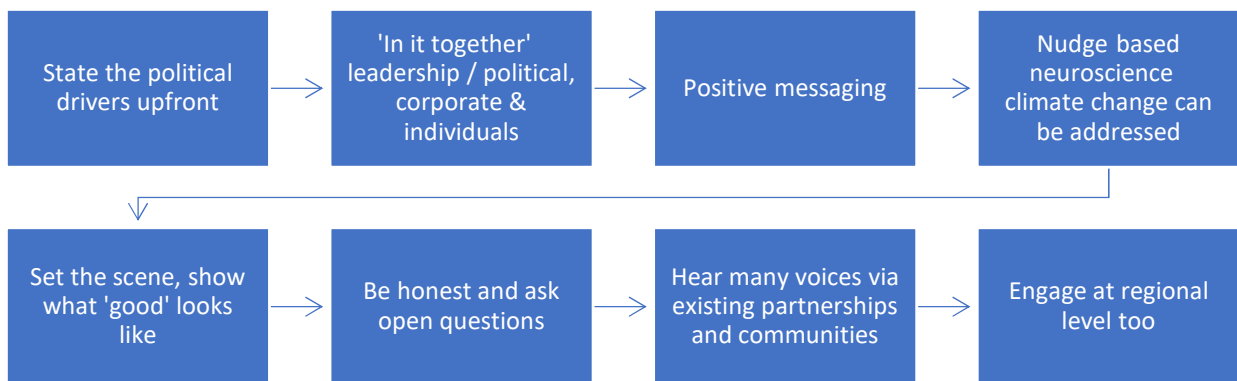
- demographics - ageing populations, how do we keep young and working populations
- growing student population and make the city affordable for young people
- circa 60% of students in Glasgow stay in Glasgow
- young people - cultural norms and attitudes changing
- technology
- working from home & flexible working vs more shift working and more variable shift patterns
- tourism / tourist integrated ticketing
- money
- environmental awareness
- increased infrastructure for walking and cycling
- decreased incentives/ease of driving
- climate change - weather
- car ownership - younger people
- car ownership - from diesel/petrol to electric
- technology
- retail changes
- smart ticketing

Themes in a Public Conversation

Finally, workshop participants were asked to discuss questions to put to the public and stakeholders in a Public Conversation in 2020. This Public Conversation will aim to start a discussion on a desired future for Glasgow, and the role transport needs to play in helping to achieve this.

Participants commented on the tone of approach to the Public Conversation that could be taken, and which are mapped in the below flow chart:

Figure 105 Suggested approach to Public Conversation



In addition to the above, the round table conversations emphasised the need for an inclusive dialogue and engagement, to finding effective mediums to reach the people who are usually out of the loop in public conversations – all people living within the city need to be represented, and there’s a need to plan for the most vulnerable in society. It was also questioned whether

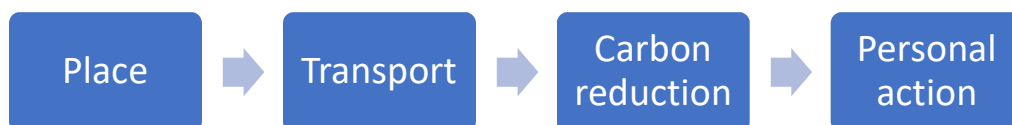
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surrounding regions should be included in the conversation as so many people travel to work in Glasgow.

Several themes are apparent from the 50+ questions which were posed by the discussion groups during the workshops. Broadly, these can be characterised by: place; transport; carbon reduction, and; personal action, and are discussed more fully below.

Figure 106 Questions themes



Place

Questions around Place were split between Liveable Neighbourhoods and the City Centre. Those relating to Neighbourhoods asked:

‘What kind of place do you want to live in and what additions to your neighbourhood would you prioritise to make it more liveable and feel safer?’

‘Can transport help shape this?’

Some groups noted it would be important to define ‘liveable’ as this will mean different things to different people and age groups – and in defining/creating a liveable neighbourhood now, what would that mean for your children in 10-20 years?

The questions relating to the City Centre can be summarised as:

‘How do we change the city centre to encourage city-centre living, make it fair and inclusive for everyone, so that it improves our mental and physical health, and you can move around it?’

Transport

Some groups discussed whether it would be possible to have ‘improved’ local policies, e.g. banning drive-throughs or imposing congestion charging or a parking levy. Those prepared to pay could fund public transport.

Overall though, the suggested questions fall under the broad umbrella heading of Transport, can be grouped under several sub-categories, including a more ‘general’ transport category, public transport, car use and active travel.

The questions related to a more general transport category can be summarised by the open questions:

‘How can we make travelling easier for you?’ and ‘What needs to change in transport to achieve the vision?’

The questions for public transport can be summarised by:

‘How can we make public transport accessible and affordable for all [so that car dependency is reduced]?’

Interestingly, the question of whether public transport should be free was raised several times.

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Questions relating to private car use asked:

'How can we reduce the need to travel by car?'

Those relating to Active Travel can be summarised by:

'How can we make active travel accessible for all and promote behaviour change?'

Carbon Reduction

The questions here can be simply summed up by:

'What would encourage you to move to a low carbon transport mode?'

Personal Action

In this final category, the questions focussed on what individuals need to make changes to their own travel behaviour, summed up by:

'What can you do to change and what can we do to help?'

The below table lists several of the actual questions within each category suggested by the workshop participants:

Table 14 Selection of questions from workshop sessions (flipcharts)

Place neighbourhoods & the city centre
<ul style="list-style-type: none">• What kind of place do you want to live in? What is important to you where you live?• What facilities is your neighbourhood lacking? What would make your area more liveable and feel safer?• How do we make the city fair and inclusive for all?• What would encourage you to live in the city centre?• How could changes in the city centre improve your mental and physical health?
Transport general
<ul style="list-style-type: none">• What can we do to make your travel easier?• What transport improvements are important to you/would you like to see?• How can we best use technology to improve transport?• What needs to change in transport to achieve the vision?• What matters most to you integrated ticketing free transport car free zones cycle infrastructure workplace parking levy?
Public Transport
<ul style="list-style-type: none">• How do we make public transport accessible and affordable for all?• How do we make public transport cheaper than driving?• What would encourage you to use public transport more?• Do you think public transport should be free would you use it more if so?
Private car use
<ul style="list-style-type: none">• Do you have a car?• How can we reduce your need to travel by car?• What would it take to get you out of your car?• Do we want to allow the volume of small vehicle traffic to continue to increase in Glasgow?

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These workshops were planned to give the Council some initial insight into the issues new transport plans need to tackle in Glasgow. These specific workshops focused on identifying problems and opportunities, which is the first step in a business case/transport appraisal-based approach to the development of strategies and projects. This information has fed into ongoing analysis of evidence-based problems and opportunities and is being tested and expanded by data analysis and research.

The workshop also helped to start the discussion on a transport-based vision for Glasgow in the future, and what success looks like for Plans. This will help feed into the development of objectives and outcomes for the Plans in 2020.

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Appendix B – Public Conversation material on solutions

Public Conversation reporting

The full report on the Public Conversation on Glasgow’s Transport Future, which should be read in conjunction with this Case for Change report, is available at www.glasgow.gov.uk/connectingcommunities.

Public Conversation and solutions / ideas

A major part of the Public Conversation was inviting ideas from the public and stakeholders on the types of solutions they would like to see in response to the transport-related problems they raised.

The following table shows the categories survey responses fell into (qualitative categorisation by the study team of open text responses).

Table 15 Survey ideas on how to improve transport in Glasgow

Categories	Frequency of Responses
Segregated cycle lanes / cycle network / cycle priority / maintain	881
Integrated smart public transport ticketing	677
Cheaper / free public transport	651
Integrated transport system / one body / brand / between modes [not ticketing and no specific mention of public ownership]	511
Buses (& trains) in public ownership / not for profit	504
Extend Subway/improve Subway	482
Behaviour change/branding/marketing / incentives to stop using car	451
Restrictions on traffic / less traffic / enforcement [not speed or parking]	418
Pedestrian env improvements / prioritise pedestrians & walking	377
New/extend/ improved bus services including frequency & timing	320
Better access to bikes & cycling	302
Cleaner vehicles, reducing pollution including EVs, electric buses, more LEZ coverage, electric bikes	263
Reduce the need to travel, planning-related	260
Extend / better rail network / station improvements	257

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Categories	Frequency of Responses
New or improved or different public transport & connections [where no mode mentioned]	255
Bus quality improvements e.g., clean, driver training, personal security, quieter buses, bus stops	248
New tram/metro / trolleybus	206
Control /limit/manage parking-related solutions	198
Improve reliability of buses / bus priority / improve journey times	163
Miscellaneous	163
Better travel information available / apps / better signage / at stop info	149
Process related solutions	123
Climate resilient infrastructure & carbon neutral transport	108
Road maintenance / quality of roads infrastructure including at bus stops [not footways or cycleways, separate category]	106
Taxi related changes	89
Disability / mobility related improvements	85
Reduce traffic speed	71
Glasgow airport fixed link	63
Park and Ride	60
Public realm suggestions / trees etc	53
Support travel by car, no restrictions, more or free parking, don't penalise, more roads	50
Less priority / emphasis on cycling, curtail cycling, more regulation	49
Shared transport - car club, nextbike	46
More better cycle parking	43
Water based solutions	39
Less buses, less bus lanes / bus gates	37
M8 related ideas	35
Journey to school suggestions	34

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Categories	Frequency of Responses
Goods related solutions	34
E-scooters	25
Roadworks / projects phasing	13
Reduce noise from transport	10
<i>Solutions with Spatial detail</i>	357
<i>Solutions city centre specific</i>	404

Stakeholder organisation, Community Council and community ideas to improve transport in Glasgow

In terms of suggestions from stakeholders, these came from individual Community Council and stakeholder organisation submissions, as well as online stakeholder workshops. Suggestions included:

- Generally reducing roadspace allocated to cars. Policies to reduce dominance of car e.g., no more drive-through restaurants or new car parks. Ensure sustainable travel hierarchy is applied in decision-making. Applying the transport hierarchy and promoting this, so walking, cycling, buses for shorter urban journeys to free up train capacity for longer journeys. Better integration between these modes.
- Managed Motorways work to support commuter movements to city centre and reduce congestion/emissions.
- Deliver on Connectivity Commission recommendations.
- Tackling congestion and giving more priority to buses on the road network – this would improve journey times, make buses more efficient and drive down costs to the user.
- Smart integrated ticketing, including building on existing integrated tickets in the city. Improve information also on how to buy tickets and on existing integrated tickets e.g., promote Traveline Scotland. Better and affordable integrated ticketing, and even free fares if possible. Better wayfinding on public transport in the city and city centre, including from perspective of a visitor/tourist.
- Extending opening times and accessibility of public transport stations/hubs.
- Increasing shared park and ride opportunities e.g., at stations in North Glasgow. Park and Choose opportunities.
- Express buses for longer routes, different services for shorter journeys. Designated buses in peripheral neighbourhoods. More and better bus and rail links, including to, from and between periphery estates. Improve journey times and reliability of buses.
- Metro system to serve peripheral areas. Extend Subway to outer areas, and extend Subway operating hours especially on Sundays and in evenings. Outer circle of fixed public transport links, to bring same level of connectivity to communities in north in particular, as enjoyed by communities in inner Glasgow.
- Re-regulating buses / more public control over buses – regulation is the missing link in Scotland compared to bus operations in other European countries.
- Make buses free. Cheaper peak time trains.
- Better public transport connections to Glasgow Airport and large employment area around this.
- Better use of community transport in the future and recognition as an important part of the public transport system.

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- Treating public hire taxis as part of the public transport system, providing more taxi ranks at important destinations across the city and measures to support public hire taxis as part of an integrated transport system generally.
- Extension of cycling routes and more segregated cycle routes. More projects like the Avenues in peripheral areas to encourage cycling. Integrate active travel network with green network and wider placemaking. Better maintenance of existing cycle routes to ensure they are safe to use.
- Measures to support cycling e.g., more Nextbike locations, bikes on buses, better cycle parking.
- Better use of Forth Canal.
- Restricting vehicular access around schools. More dedicated school buses.
- Workplace parking levy which could then be ringfenced to support cheaper public transport. Congestion charge. Road pricing to manage travel demand and to provide funding for alternative modes of transport. (Though concerns expressed by some business representatives on these).
- Restrict larger vehicles entering residential streets. Support cargo-bikes for deliveries with infrastructure, and e-bikes can also be useful for deliveries. More coordination of parcel deliveries. Recognising the city centre as an economic and social hub and the need to consider the movement of freight and goods around the city centre with innovative solutions.
- Slower road traffic speeds.
- Education/behaviour change projects needed to make public transport the default choice and more acceptable to all users. Behaviour change to promote active travel to school, walking in particular. Education and behaviour campaign on sharing space (e.g. conflicts between pedestrians and cyclists).
- Single branded Glasgow transport to improve understanding of system. Campaign to improve the perception of buses in Glasgow to encourage use by all.
- Acknowledging that some rely on the car and have parking opportunities for businesses and residents.
- Low traffic neighbourhoods.
- Whole systems approach to transport planning.
- Measures to support accessible walking environments such as keeping a level of noise for vehicles so they can be heard, de-cluttering walking spaces, retaining kerbs and tactile markings especially where cycle lanes join roads.
- Electric scooter trial.
- More shared transport opportunities such as the Bikes for All project. Planning new developments with shared transport and mobility hubs.
- Investment in training to raise awareness of conditions that impact on people's transport experience and choices e.g., epilepsy.
- Open data platform.
- A focus on economic recovery and role in transport on that, and coordinated action.

Community discussions also generated ideas on solutions. Further detail on this is provided in Appendix B, but in summary, the key topic areas emerging from community discussions were:

- **Improving the accessibility of public transport:** People expressed a need for a transport system which is accessible to all, affordable, serves all parts of the city and which actively tackles inequalities, referring to a 'human rights approach to transport'
- **Cheaper or free public transport, particularly buses:** Free public transport, particularly buses, was suggested in almost all community discussions. Some people suggested free buses for all, whilst many focused on free travel for specific groups, including all children and young people, asylum seekers, university students, families and those on low incomes. Some thought travel for

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children and young people should be free in the school holidays, and some thought transport should be free within your local area. Some people linked free or affordable public transport with public ownership, and 'fairness'.

- **Improvements to bus services:** The bus tended to be a primary mode of transport for most people in the community discussions. People consistently wanted more and better bus services which took them to more places. This means buses which run regularly including in the evenings, and connect together. Improved reliability of public transport was mentioned, but community discussions focused more on increasing the frequency of services, increasing options for public transport, and reducing journey times by designing public transport routes which are based around where people need to go.
- **Integrated transport system:** Apart from buses, most community discussions did not focus much on distinctions between different modes of transport. People focused on a public transport system which is quick, reliable, efficient, had plenty of options, and took you where you needed to go. As well as integrated ticketing, people want physical integration between different modes and services, describing examples in other countries where 'if you miss the train, there will be a bus'. The Subway was considered fast, affordable and reliable and some people thought it should be extended to cover much more of the city, and should have extended opening hours.
- **Integrated public transport ticketing:** A universal ticket accepted on all modes of transport and including community transport services was suggested in almost all community discussions.
- **Regulation of and influence over the planning and functioning of the transport system:** People frequently said that public transport should be a public service, and some people thought that public ownership of the public transport system was necessary to achieve this. Some people suggested more generally that the Council needed to have greater control of public transport, particularly in order to achieve better integration. People wanted greater involvement of communities in designing transport on an ongoing basis, so that transport can respond more effectively to peoples' needs and is 'based on what communities themselves believe will enable their areas to thrive'.
- **Safety and personal security on public transport:** Many people said that safety of public transport should be improved to give them confidence in travelling and not using the car. Suggestions to improve safety including more services at peak times to stop overcrowding (both for physical distancing and personal safety), more staff and greater visibility of staff and better lighting and more CCTV. People also thought that there should be campaigns against harassment, sexual assault and unacceptable behaviour including raising awareness of how to report incidents and ensuring there are implications for perpetrators i.e. fines.
- **Improvements to the pedestrian / walking environment and experience:** Seating was mentioned a lot as important for people to rest along their journeys, to enable a more accessible walking environment. Better maintenance of paths and pavements to reduce pot holes and gathering of surface water as well as dropped kerbs were also often mentioned. People want to walk more to local facilities and for leisure but need it to feel safer by e.g., having more people around in spaces with better social interaction opportunities, better lighting, improved maintenance of vegetation for visibility, CCTV. Traffic free routes were seen as important but people didn't want them to be directed through dark back streets or poorly lit parks. A few groups mentioned conflict between cyclists and pedestrians as a barrier to safe walking routes. People would like cyclists to be more visible and respectful of pedestrians.
- **Control / limit parking and impact of parked vehicles:** Stopping cars parking on pavements was mentioned a lot in terms of improving the walking and cycling environment and making people feel safer using these routes.

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- **Safer places to cycle:** Lots of people felt that there should be more safe cycling routes, including permanent segregated cycle paths on roads, use of temporary infrastructure, creation of bus and cycle lanes and off-road routes. People thought they should be well connected and provide unbroken journeys and links between facilities including schools. It was also suggested that there should be enough space for different types of cyclists including family groups. Affordability of bikes was an important issue for many groups with suggestions of free bikes for asylum seekers and refugees and those on benefits, cheaper access to electric bikes and bike libraries. Alongside providing safe cycle routes and access to bikes, training was also seen as important to encourage more people to cycle.
- **Restrictions on vehicles in Glasgow:** The majority of people who participated in community discussions were not car owners, though some people who did drive felt very reliant on their car. There was general support for reducing private car use, creating more car and traffic free spaces, having traffic free times around schools and prioritising walking and cycling infrastructure. Some groups felt that investment in active travel infrastructure shouldn't come at the expense of public transport as it could exclude people, particularly those with disabilities. Consultation with people who rely on their cars, particular those with disabilities who don't have another option was also seen as important.
- **Cleaner vehicles and less pollution:** People felt that electric buses and cars were a good thing in relation to climate change but that electric vehicles need to be more affordable before they could be accessible to more people, particularly disabled people who might not be able to use public transport. Moving buses from diesel to electric was seen as important in reducing harmful emissions.

Online transport simulator

An online transport simulator tool ran throughout the Public Conversation. This was designed as a "game" by which participants had a "budget" of points which they could allocate across categories, to a maximum of 5 per category. They could also earn up to 3 points from three categories.

Each category had a description, and each degree of points allocation e.g. 0, 1, 2 etc, had an accompanying description to explain the potential consequences of allocating points.

The online transport simulator tool received 654 responses. The results are shown below, and categories with the highest points allocations overall (over 2.5 points on average, or half of the allocation per category) are shown in bold.

Group	Item	Average Allocation
Cycling Improvements	Cycling improvements	3.5
Walking Improvements	Walking Improvements	3.2
Local Neighbourhoods	Local streets are designed and managed to give priority to people over traffic, helping to create more attractive, vibrant and inclusive neighbourhoods.	3.0
Bus Improvements	Improve our bus services and bus infrastructure	3.0
Managing vehicles in our city	Measures to manage and reduce vehicle trips on our network	2.9
Integrated Ticketing	Provide smart and integrated ticketing	2.9
Rail Improvements	Improve rail services	2.7

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Light Rail Network Enhancements	Light rail network enhancements	2.4
Low carbon vehicles	Low or zero carbon vehicle investment	1.7
Road Safety	Improve road safety	1.6
Supporting sustainable movement of goods	Sustainable movement of goods	1.6
Travel information and behaviour change	Travel information and behaviour change	1.5
SMART Technology	Invest in SMART technology for the city's transport systems	1.3
Shared mobility	Shared mobility	1.2
<i>Earn yourself more points to allocate</i>	Congestion Charges	0.9
<i>Earn yourself more points to allocate</i>	Parking management	0.9
<i>Earn yourself more points to allocate</i>	Workplace parking levy	0.8

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