Partnership report

Developing the Regional Transport Strategy – Consultation on the Draft 'Case for Change'

Date of meeting 12 March 2021 **Date of report** 16 February 2021

Report by Chief Executive

1. Object of report

To update the Partnership on the development of the new Regional Transport Strategy (RTS) and the forthcoming consultation on the draft Case for Change report.

2. Background

2.1 Further to earlier reports[1], members will recall that in response to impacts of the pandemic on the RTS programme, the 'Issues and Objectives' and 'Options' stages of the development process have been consolidated into a single 'Case for Change' stage.

2.2 The consultation on the draft Case for Change report marks an important milestone at this stage in the development of the new RTS. It is important to emphasise that the draft Case for Change is not the final strategy; it sets out the wider policy context for the new RTS; the proposed RTS Strategic Framework (vision, priorities, and targets); key issues for the RTS to address; and finally, a 'long list' of options; the policies, actions and investments that can help tackle the specific problems identified in the key issues, achieve the objectives and targets, and realise the RTS vision.

2.3 It is hoped that the consultation will elicit views from partners and stakeholders in terms of support for the proposed Strategic Framework, agreement on the key issues, and views on the long list of options. Following the consultation on the draft Case for Change, the next stages of RTS development will begin: further refinement of the options, appraisal, and development of the draft strategy, for which there will be a further period of public consultation.

3. Outline of proposals

3.1 Further to the previous report to the Strategy and Programmes Committee in November 2020, this section provides an update on work since then in relation to the Strategic Framework and Options, and an overview of the draft Case for Change report for consultation.

[1] Item 7, http://www.spt.co.uk/corporate/2020/11/strategy-programmes-committee-27/

3.1.1 Strategic Framework – additional proposed target

The vision, priorities and targets for the RTS form its Strategic Framework. In direct response to and in support of the outcome to reduce car kilometres by 20% by 2030 included in the Scottish Government's recently published Climate Change Plan update (CCPu), an additional proposed target has been added to the RTS Strategic Framework, reflecting this updated national position.

The new RTS will have a key role to play in supporting partners to understand what this new national target means at local level, and ways of achieving it. Further, in the NTS2 Delivery Plan, Transport Scotland commit (subject to any further impacts of the COVID pandemic) to publishing a 'route map' in 2021 on achieving the 20% reduction by 2030. It will be crucial for the RTS to stay aligned with these developments going forward to enable an appropriate setting of the target within the regional context.

The principles of all of the proposed targets, as part of the Strategic Framework, will be consulted on through the Case for Change consultation. Following feedback from the consultation, SPT will engage with partners on the methodology and actual setting of targets in the development of the final Strategy.

3.1.2 Options generation

The RTS Options are the policy and project proposals and initiatives which could help achieve the vision, priorities and targets of the RTS and address the Key Issues. An initial 'long list' of Options has been generated through a structured process, ensuring links back to the specific problems identified under each thematic RTS Key Issue, and the Transport Planning Objectives of the RTS.

A deliberately unconstrained process was used to identify the 'long list' of Options, drawing on a wide range of sources including prior engagement sessions with stakeholders and partners, the STPR2[2], and the earlier RTS policy review. Following development of this initial list, a technical note was circulated to local authority officers, who were further provided with the opportunity to feedback on the Options, and to suggest additional ones, and following receipt of this feedback, the Options list was updated.

In order to maintain focus in the consultation on seeking agreement across partners and stakeholders on the type and nature of Options that should be within scope of the RTS, and ensuring that we have captured the full range of options that fall within this, there is minimal spatial or geographic definition of the Options at this stage.

Following the consultation, there will be further development of the Options including refining spatial and geographic definition. This period will also allow for taking on-board consultation feedback as well as staying integrated and up to date with key parallel processes including the STPR2, local transport strategies in development, the Metro Feasibility Study, development of the Strategic Active Travel Network and bids for the Bus Partnership Fund.

[2] https://www.transport.gov.scot/our-approach/strategy/strategic-transport-projects-review-2/

3.1.3 Draft Case for Change report for consultation – overview

Attached at Appendix 1 is the draft Case for Change report for consultation, and a summary of each section of the report is noted below:

- RTS Context

  This section sets out the policy drivers for the RTS including key updates over the past year such as the publication of the National Transport Strategy 2, the CCPu, and indicative Regional Spatial Strategies (RSS). The broad spatial context for the new RTS is set out including the urban and rural characteristics of the region, locations of future population change, spatial development priorities set out in the RSSs, as well as existing regionally important sites with regard to travel demand including major hospitals, town centres and international transport gateways and corridors. This section also sets out the broad context for travel behaviour and demand, noting the pre-COVID position and some of the key potential COVID implications that need to be considered in the next stages of RTS development.

- Strategic Framework

  This section sets out the elements of the Strategic Framework that have been developed thus far in the process in response to the RTS context, namely the vision, priorities and proposed targets in principle.

- Key Issues

  This section sets out the 'Key Issues' for the RTS to address that were developed through the identification of problems and opportunities during the baseline analysis and engagement activities. The 'Key Issues' are the groupings of the main thematic transport challenges in the region that should be the focus of the new RTS. These are:

  - Transport Emissions
  - Access for All
  - Regional Connectivity
  - Active Living
  - Public Transport Quality & Integration

- Objectives

  This section sets out the transport objectives that were developed in response to the 'Key Issues.' The objectives focus on what the RTS more specifically needs to accomplish to achieve the proposed targets and the Vision. The objectives are 'outward looking' and provide a clear expression of the outcomes the RTS is seeking to deliver from the perspective of users (passengers and groups e.g. business) of the transport networks in the SPT area.

- RTS Options

  This section sets out the 'long list' of Options to be taken forward for further assessment and appraisal in the next stage. The Options are all of the policies, actions and investments that may tackle the

specific problems identified in the Key Issues sections. The Options are wide-ranging and include investments and policies which may be the responsibility of other organisations but where SPT has a supporting role in promoting these through other processes as key regional priorities, as well as those that SPT has a role in delivering directly. It is worth highlighting that the 'long list' of Options as presented in the draft Case for Change at Appendix 1 will, in the published document for consultation, be re-ordered and grouped by category, with additional information on context in order to aid their legibility and understanding.

- Delivering the Strategy

  This section focuses on some of the key challenges around roles, responsibilities and funding, and some actions that SPT and partners will seek to take forward over the next year, in order to more fully consider these as part of the development of the new RTS.

3.1.4 Draft Case for Change consultation process

Following consolidation of feedback from Partnership members at this meeting, the consultation on the draft Case for Change will commence in April for a minimum of 6 weeks. SPT will publish the draft Case for Change on the dedicated RTS webpage, seeking comment on the key elements of the report as outlined above. There will be a structured questionnaire to allow respondents to frame their responses alongside the report however, the answer format will be open so that respondents may provide as much or as little detail as they see fit. The background reports and statutory assessment iterative reports will also be available to review.

The consultation will be promoted by SPT through our own social media channels as well as distributed to partners and stakeholders directly as this has proven a successful approach in previous exercises such as the RTS public survey in 2019.

4. Conclusion

The consultation on the draft Case for Change marks a key point in the development of the new RTS. The draft Case for Change report is both comprehensive and, reflecting the area it covers, complex. It is hoped that stakeholders will engage with the process in a positive way and that their responses reflect the scale of ambition necessary to deliver the significant change required in the west of Scotland transport system. Officers will continue to engage with Transport Scotland, councils and other partners throughout the RTS development process and keep the Partnership updated on progress towards the completion of the new RTS development process in 2022.

5. Partnership action

The Partnership is recommended to:

- Note the contents of this report; and
- Note the update on development of the RTS and the forthcoming consultation on the draft Case for Change at Appendix 1 of this report.

6. Consequences

Policy consequences	*The new RTS will set the framework for transport in the west of Scotland for the next 15 - 20 years.*
Legal consequences	*Preparation of the RTS is a statutory responsibility of SPT arising from the Transport (Scotland) Act 2005.*
Financial consequences	*Within existing budgets.*
Personnel consequences	*None.*
Equalities consequences	*The RTS process is following all due statutory equalities requirements.*
Risk consequences	*None.*

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APPENDIX 1

Developing the Regional Transport Strategy – Draft 'Case for Change' – For Consultation

April 2021

1. Introduction

Developing a new Regional Transport Strategy

Strathclyde Partnership for Transport (SPT) has a statutory duty under the Transport (Scotland) Act 2005 to produce a Regional Transport Strategy (RTS). The current RTS, A Catalyst for Change: The Regional Transport Strategy for the West of Scotland 2008 – 2021, was approved by the Scottish Government's Minister for Transport, Infrastructure and Climate Change in 2008. A new RTS is now being prepared that will set out frameworks and plans to improve transport networks and services and to influence travel behaviour in the west of Scotland.

The core purpose of the RTS remains unchanged since 2008 in terms of SPT's statutory role, functions and duties and aligning the RTS with the achievement of national and local outcomes. However, there have been significant changes in policy focus since the first RTS was approved. This includes the climate emergency and a stronger focus for transport on tackling inequality.

Central to this new policy landscape is the new National Transport Strategy (NTS) which sets out ambitious and long-term national transport priorities that the RTS will help deliver in the west of Scotland. It is proposed that the new RTS will have a 20-year horizon to ensure good alignment with the new NTS.

Case for Change report

The purpose of this Case for Change report is to seek input and views from stakeholders on the type and level of change needed in the transport system of the west of Scotland, which in turn will help inform the development of the final strategy.

This report begins by setting out the wider context within which the RTS is being developed. It then sets out a proposed strategic framework with a new Vision, Priorities and Targets to help drive forward the change required to respond to the wider policy context and challenges to achieve a more sustainable, equitable and healthier transport system for all. The report then sets out the transport challenges – the 'Key Issues' – that the RTS needs to help tackle and the objectives for the new strategy. At the end of the report, a long list of potential actions, projects, interventions and investments – the 'Options' - that may be required to achieve the Vision, Targets and Objectives are set out.

This Case for Change report has been informed by the SPT Partnership Board, RTS Board, RTS Strategic Advisory Group, engagement with councils and other partners and stakeholders, engagement with residents of the region through the RTS Public Survey, review of the policy environment, analysis of data and evidence, and through Strategic Environmental Assessment and Equality Impact Assessment scoping processes. Background reports are available at www.spt.co.uk/vision.

The impacts of COVID19 mean that there is significant uncertainty about future travel demand and it is likely that some of the challenges identified within the Key Issues sections of this report may be more or less problematic at this time and in future. However, the Key Issues remain relevant overall as the main thematic challenges for the RTS to address and SPT will continue to develop our understanding of the longer term impacts of the pandemic as the new RTS is developed over the coming year.

Commenting on this report

It is important that it is the right strategy for the people of the west of Scotland and we welcome your comments on the Case for Change report at this time. A consultation form is available alongside this report at www.spt.co.uk/vision.

2. The RTS Context

This section examines the overall context for the RTS in relation to 'Policy Drivers', 'the Spatial Context', and 'Travel Behaviours & Demand'. Implications for the RTS are summarised at the end of each of these sub-sections.

Policy drivers

The new RTS is developed within a complex policy environment. This section summarises key policy drivers for the new RTS.

National Transport Strategy

The second National Transport Strategy (NTS2)[1] provides the national transport policy framework, and sets out four interlinked national priorities and 12 outcomes that underpin a new vision for transport in Scotland that places improving people's lives and protecting our climate at its core.

The NTS2 makes plain that a step-change in transport provision in Scotland is required and confirms commitment to placing the Sustainable Travel Hierarchy at the heart of decision-making and investment priorities for transport. The Hierarchy promotes walking, wheeling, cycling, public transport and shared transport in preference to single occupancy private car use, and promotes sustainable freight transport, particularly a shift from road to rail. The NTS2 also outlines the Sustainable Investment Hierarchy, which looks at how best to reduce the need for travel by unsustainable modes, how to better maintain and safely operate existing assets and make best use of existing capacity before considering whether any new, targeted infrastructure needs to be built.

The first NTS2 Delivery Plan was published in December 2020. The document confirms that delivering on the NTS2 priorities is central to the recovery from COVID19 and the actions taken to address the impacts of the pandemic are a core component of taking forward the longer-term strategy.

Climate Change & Adaptation

The updated Climate Change Plan (CCPu)[2] sets out the Scottish Government's pathway to meeting Scotland's world-leading climate targets over the period to 2032. Scotland aims to be 'net-zero' of all greenhouse gas emissions by 2045 with a 75% reduction by 2030.[3]

Crucially, the updated CCPu confirms the Scottish Government's commitment to the climate change targets and to a 'green recovery' from COVID19 that captures the opportunities of a 'just transition' to net zero carbon through creating 'green' jobs, developing sustainable skills, and nurturing wellbeing.

The CCPu sets out the transport context around the current situation resulting from COVID19 and the opportunities to make the most out of potential longer-term changes in behaviour, including home working and more activity within local neighbourhoods, to reduce the need to travel and shift journeys to more sustainable means.

The CCPu sets out four outcomes for roads transport that are particularly relevant to the RTS:

- Reduce car kilometres by 20% by 2030
- Majority of new buses purchased from 2024 are zero-emission
- Phase out need for petrol and diesel cars in Scotland by 2030

- Reduce the need for new petrol and diesel heavy vehicles by 2035

The need to adapt to the impacts of climate change is also a key policy driver for the RTS. More severe and frequent extreme weather events directly affect the transport system by disrupting services and networks and damaging infrastructure and, in future, through rising temperatures, may have impacts on the wellbeing and comfort of people using public transport systems and walking, wheeling and cycling.

Strategic Transport Projects Review 2

STPR2 will help to deliver the vision, priorities and outcomes for transport set out in the National Transport Strategy (NTS2) and will align with other national plans such as the Infrastructure Investment Plan, National Planning Framework (NPF4) and the Climate Change Plan.

STPR2 will report in two phases, the first of which makes recommendations on transport interventions for investment in the short term, as the world deals with the COVID-19 pandemic and the Scottish Government plans for a green recovery. Phase 2 reporting will be in Autumn 2021, giving Scottish Ministers a programme of potential transport investment opportunities for the period 2022-2042. STPR2 will not solely consider new infrastructure, but will be taken forward using the Sustainable Investment Hierarchy also set out in NTS2.

The STPR2 presents significant opportunity for transport investment in the west of Scotland and for the delivery of the new RTS.

Regional Spatial Strategies

The forthcoming National Planning Framework 4 (NPF4) will set a long-term strategy for development and infrastructure at a national level to support sustainable and inclusive economic growth and to explore options that may help to accelerate the reduction in carbon emissions and reverse rural depopulation.

The Planning (Scotland) Act 2019 requires Regional Spatial Strategies (RSS) to be prepared by planning authorities or groups of planning authorities and for these RSSs to help inform the national and regional planning priorities which will be set out in the NPF4. Regional Spatial Strategies are long-term spatial strategies which specify the area(s) to which they relate and identify:

- the need for strategic development
- the outcomes to which strategic development will contribute
- priorities for the delivery of strategic development
- proposed locations for strategic development

The NPF4 Position Statement4 includes an expectation that future Regional Spatial Strategies and Regional Transport Strategies will be aligned.

Three indicative Regional Spatial Strategies (iRSSs) covering the SPT region have been prepared by local authority partners, including Clydeplan, on a voluntary basis, to inform the preparation of the NPF4. The iRSSs provide the spatial development context and priorities to be considered in the development of the new RTS. There is further detail on this set out in the next section “Spatial Context.”

Regional City / Growth Deals and Inclusive Economic Growth

The Glasgow City Region City Deal, Ayrshire Growth Deal and Argyll and Bute Rural Growth Deal aim to achieve more inclusive economic growth through co-ordinating and directing support and investment in key sectors & innovation, labour markets and infrastructure to drive up productivity and build resilience to a shifting international political-economic landscape.

The £1.13bn Glasgow City Region City Deal supports the city region's long-term vision for sustained and inclusive economic growth through improved infrastructure, growth in life sciences, supporting business innovation and tackling unemployment.

The £251m Ayrshire Growth Deal aims to increase regional inclusive economic growth, secure future prosperity of Ayrshire communities, increase the number and quality of jobs, and encourage further inward investment.

The £50m Argyll and Bute Rural Growth Deal aims to drive inclusive economic growth, boost local population and develop Argyll and Bute as a successful region and economic driver for Scotland.

Depopulation

Improving the sustainability of communities experiencing depopulation is a key policy driver for the new RTS. In the SPT region, depopulation is not only experienced in rural, remote and island communities, but is also experienced in some urban areas particularly coastal towns. Inverclyde, Helensburgh & Lomond, North Ayrshire & Arran, and West Dunbartonshire all experienced an overall decline in population between 2009 and 2019.[5] Other local authority areas are also experiencing rural depopulation including the Doon Valley, Cumnock, Clydesdale and Carrick South.[6] Between 2014 and 2019, the population of rural areas in the region decreased by around 5% overall.

Tourism

The region's cultural, historic and natural heritage, its wealth of recreational & leisure opportunities and its capacity to host major international events make business and leisure tourism an important sector for the west of Scotland. The long-term impact of COVID19 on tourism is highly uncertain, but the importance of the sector to the regional economy is demonstrated by the c. £1.3 billion in GVA contributions by the sector within the region in 2014 and c. 1 million overseas tourist trips and 4 million domestic tourist trips made within the region per annum.[7] The SPT region is also a key gateway to the Loch Lomond and Trossachs National Park.

Poverty, Deprivation & Inequality

The SPT region has large challenges around poverty, deprivation and inequality that persist within the region and between the region and the rest of Scotland. Overall, 15% of the regional population is income deprived compared to 10% in the rest of Scotland[8] and the rate of child poverty is also higher in the SPT region than in Scotland as a whole.[9] There are inequalities between the SPT region and the rest of the Scotland in key labour market indicators including qualification and employment rates[10] and the region has underemployment challenges.[11],[12]

Within the region, at least 40% of areas in Inverclyde, Glasgow, North Ayrshire and West Dunbartonshire are ranked in the 20% most deprived areas in Scotland in

2020[13] whilst North Lanarkshire experienced one of the largest increases in deprivation between 2016 and 2020.[14] People who live in the most deprived areas are most likely to experience conditions which limit their opportunities in life. However, people who live in less deprived areas may also experience disadvantage.[15] These figures predate COVID19 and any potential worsening of poverty and inequalities as a result of the pandemic.

Equality & Human Rights

The Public Sector Equality Duty (PSED)[16] requires public authorities to have due regard to the need to eliminate unlawful discrimination, harassment, victimisation; advance equality of opportunity; and foster good relations with regard to nine protected characteristics.

Advancing equality of opportunity means removing or minimising disadvantages experienced by people as a result of their protected characteristics; taking steps to meet the needs of people from protected groups where these are different from the needs of other people and encouraging people from protected groups to participate in public life or in other activities where their participation is disproportionately low.

The UN Convention on the Rights of Persons with Disability makes it clear that disabled people have the same right as every other citizen to equal access to employment and healthcare and participation in learning, social, leisure and cultural activities in order to live life to the full. The Scottish Government's Going Further: Scotland's Accessible Travel Framework (SATF)[17] supports the implementation of the Convention in Scotland and is a key framework for the new RTS. In each of the council areas in the SPT region, between one-fifth and one-third of the adult population has a limiting long term physical or mental health problem.[18]

In the SPT region, a greater proportion of women work part-time hours (38% compared to 11% of men) and, in 2020, the Gender Pay Gap (median) in West Central Scotland was 15.2% compared to 11.4% for the whole of Scotland.[19] Relative poverty rates in Scotland are highest for single women with children.[20] The underemployment challenges in the region are also more likely to be experienced by women, disabled people and young people.[21],[22]

The SPT region is also experiencing population ageing. The proportion of the population aged 60 years and over is projected to increase from 24% to 30%, or approximately 130,000 people, by 2041.[23] The region is also ethnically diverse with about one in every 15 residents are Black or Minority Ethnicities.[24]

Health & Wellbeing

Increasing active travel strongly features in national public health strategies including the Mental Health Strategy,[25] which recognises the links between mental health and physical activity and the Active Scotland Outcomes Framework[26], which aims to cut physical inactivity in adults and teenagers by 15% by 2030. The national Active Travel Framework brings together the key policy approaches to improving the uptake of walking and cycling in Scotland for travel. The SPT region has lower levels of physical activity than the rest of Scotland.

Experiencing social isolation or loneliness has serious impacts on mental and physical health and wellbeing. Social isolation refers to the 'quality and quantity of

the social relationships a person has at individual, group, community and societal levels' whilst loneliness is more subjective and influenced by individual circumstances as well as psychological and cultural factors.[27] There is no typical profile for those experiencing social isolation or loneliness, but risks include socio-economic disadvantage, poor physical or mental health and living alone – all of which are existing challenges or characteristics for the SPT region.

Poor air quality is a significant public health issue and transport continues to be a major source of preventable air pollution in our region's built up areas.[28] The main emissions of concern are nitrogen dioxide and particulates,[29] which have serious consequences for our health.[30] These transport emissions increase incidences of a large number of diseases and are bad for everyone, but have a disproportionate impact on more vulnerable population groups and urban communities. This includes children, older people, people with existing health conditions and areas of higher deprivation.[31,32,33] There are 15 Air Quality Management Areas in the SPT region – about 2/5ths of AQMAs in Scotland.

The national air quality strategy, *Cleaner Air for Scotland - The Road to a Healthier Future (CAFS)*[34], brings together all cross-Government policies impacting on air quality into a single integrated framework and sets out how the Scottish Government and partners propose to further reduce air pollution to protect human health and fulfil Scotland's legal responsibilities as soon as possible.

Place & Communities

The National Transport Strategy confirms the need for all those responsible for providing transport services and looking after transport assets to apply the Place Principle[35] and work collaboratively with communities to meet local needs and help achieve local outcomes.

Community Planning is the process by which local authorities and other public bodies work together and with communities, business, voluntary groups and third sector partners to plan and deliver better services and improve outcomes for people and communities.

The Community Empowerment Act (2015) has placed Community Planning on a stronger statutory basis and placed more responsibilities on and scrutiny of and by Community Planning Partners, including Regional Transport Partnerships, to deliver on outcomes around poverty, health, employment and education.

Community Planning Partnerships (CPPs) are required to produce Local Outcome Improvement Plans (LOIPs) to provide focus in the delivery of improved outcomes for communities. SPT is a statutory Community Planning Partner within the 12 CPPs in the region.

Policy Drivers - Implications for the RTS

COVID19 has had a profound impact on travel behaviours and demand; however, the overarching policy drivers for the RTS have not changed. At the forefront is the NTS2 and the recognition in the national strategy that a step change in travel behaviour and provision of attractive, affordable, accessible and sustainable travel options is needed. The Sustainable Travel Hierarchy and Sustainable Investment Hierarchy must be at the heart of the development of the new RTS.

The regional transport system's contribution to climate change must be reduced and this should be achieved in a way that supports a 'Just Transition' and a 'Green

Recovery' and helps achieve co-benefits for other policy objectives including health & wellbeing. This means decarbonisation is only part of the answer - reducing demand for less healthy and equitable transport modes and shifting more travel to sustainable and active modes is crucial, as evidenced by the CCPu commitment to a 20% reduction in car kilometres. At the same time, COVID19 has amplified the importance of a resilient transport system and climate change adaption needs to be reflected in the new RTS.

The RTS must be aligned with regional spatial strategies and the City & Growth Deals to help facilitate a green recovery and long-term objectives for sustainable development and inclusive economic growth. At the same time, the RTS needs to help improve the sustainability of places experiencing population decline and support the revitalisation of a sustainable tourism and visitor economy as this sector reshapes in future.

The impacts of COVID19 on employment and income are likely to exacerbate existing poverty and societal inequalities in the region. The socio-economic value of transport has perhaps never been more important and the RTS will need to help facilitate fairer economic outcomes through reducing inequalities of access to activities essential to a more inclusive economy including jobs, education & training opportunities, and healthcare.

The differential experiences of people with protected characteristics must be recognised and responded to by the new RTS and the barriers that prevent many people from traveling and accessing their everyday needs safely and conveniently and fulfilling their human rights must be tackled.

The new RTS will also need to help reduce the adverse impacts of transport, especially motorised vehicles, on people's health and the quality of places, help people participate in every day activities to reduce social isolation, and encourage an increase in physical activity to help improve mental and physical health & wellbeing.

The RTS will need to support and facilitate place-based approaches and be responsive to the different social, economic and cultural characteristics and needs of the region's urban and suburban areas, towns, and rural and island communities.

Spatial Context

Urban-Rural characteristics and population change

The SPT region is geographically and demographically diverse, comprising 7000 sq. km and 2.3 million people living in 194 localities. The region includes 40% of Scotland's urban area; however, over 90% of the region's land is classified as rural[36] and nearly 2 in every 10 people in the region live in small towns, rural or remote places.

By 2041, the population of the SPT region is projected to grow by about 1%, or around 25,000 people (on a 2018 baseline).[37] At sub-regional level, there is a large geographic variation to this projected growth with the largest growth projected to be in East Dunbartonshire, East Renfrewshire and Glasgow City and slightly lower growth in Renfrewshire and South Lanarkshire. On the other hand, coastal areas and other areas more peripheral to the central belt area are projected to experience population loss. All areas in the region are projected to lose population

from natural change (e.g. births and deaths) whereas all areas except Inverclyde are projected to experience population growth from in-migration.

The areas that are projected to experience population loss are also likely to disproportionately experience ageing populations compared to more urban areas in the region. In 2018, one-third (33%) of people living in remote areas are aged 60 years or older compared to a quarter (24%) in urban areas.[38] This is projected to increase to nearly one-third by 2041 for the whole region while Argyll and Bute, Inverclyde, North Ayrshire and South Ayrshire are projected to have around four in every 10 residents aged 60 years or older by 2041.[39] Only East Dunbartonshire, East Renfrewshire, Glasgow and Renfrewshire are projected to grow their working age populations. These figures pre-date any potential COVID19 impacts on demographic trends.

Jobs and travel to work corridors

In 2019, there were around 1 million employee jobs located in the region.[40] Glasgow is the regional strategic centre of employment and around one in every 3 travel to work movements within the region, pre-COVID19, were to a Glasgow-based workplace.[41] Other larger cross-boundary travel to work movements in the region include:

- North Lanarkshire - South Lanarkshire, particularly Airdrie/Coatbridge-Motherwell – Hamilton – East Kilbride
- North Ayrshire – East Ayrshire – South Ayrshire
- North Clyde Corridor: Clydebank - Dumbarton – Helensburgh / HMNB Clyde;
- Barrhead - Paisley / Renfrew;
- South Clyde Corridor: Inverclyde – Renfrewshire.

The impacts of COVID-19 on the economy, the spatial context of regional labour markets and commuting patterns is highly uncertain at this time.

Strategic Development Priorities

Strategic Development Priorities for the SPT region are identified by the emerging Regional Spatial Strategies.

Helensburgh and Lomond Growth Corridor

The Argyll and Bute Regional Spatial Strategy sets out a strategic development priority for a Helensburgh and Lomond Growth corridor built on maximising the economic potential of the £1.2billion UK Government investment in HMNB Clyde at Faslane, tackling depopulation through housing development at Helensburgh and increasing the tourism and visitor potential of the area particularly as a gateway to Loch Lomond and Trossachs National Park. Connectivity priorities include connections to the central belt and access to the rest of Argyll and Bute and beyond including investment in the rail network with a new station at Shandon serving HMNB Clyde and improved services on the West Highland Line as well as trunk road resilience and safety particularly Tarbet to Inverarnan and A83 Rest and Be Thankful.

Ayrshire

The Ayrshire Regional Spatial Strategy is strongly linked with the Ayrshire Growth Deal and sets out 17 strategic development priorities including locations at Hunterston, Ardrossan, Irvine and the Great Harbour, Prestwick Airport and Kilmarnock. Connectivity priorities include connections to Arran, cross-Ayrshire

connectivity, inter-regional connections to Glasgow & Cairnryan and M74, and local public transport networks and services. Specific transport connectivity improvements include Bellfield Interchange, A77/M77 Corridor, A737 Corridor and Connections to M74 and Central Scotland Green Network.

Glasgow City Region

The Glasgow City Region Regional Spatial Strategy sets out the key regionally important strategic development priorities principally related to the council areas of the Clyde Mission-Clyde Corridor which runs west from the mouth of the River Clyde estuary on the Firth of Clyde eastwards to the Clyde Gateway, parallels the River Clyde and includes large scale transformational mixed-use projects, a number of which seek to maximise the opportunities arising from the current Glasgow City Region City Deal infrastructure and investment programme. Other spatial priorities include Ravenscraig and Eurocentral/Mossend, Forth and Clyde Canal and Glasgow and Clyde Valley Green Network. Connectivity priorities include Greenock Ocean Terminal, Glasgow Airport, Glasgow City Centre, connectivity within and links to the Clyde Mission-Clyde Corridor including development of the Glasgow Metro, sustainable connections for suburban commuting areas, and inter-regional connections to Ayrshire, Edinburgh and the Lothians and England, including through High Speed Rail.

International Connectivity

The peripheral nature of the region in a UK and global spatial context means that good connectivity to the UK, Ireland & European and global markets is essential to boosting trade and attracting inward investment and enhancing the region's competitive position. Key international gateways & corridor for the region include:

- Eurocentral/Mossend
- Greenock Ocean Terminal
- Glasgow Central
- Glasgow Airport
- Prestwick Airport
- M74
- West Coast Mainline
- Connections to Cairnryan Ports

Town Centres and Glasgow City Centre

Town centres are a key component of successful local economies and a base for small businesses and jobs and a centre of community life, offering a range of everyday and essential services and facilities and opportunities for community members and groups to interact. The 'Town Centre First' Principle encourages town centre living, vibrant local economies, community-led regeneration, better digital connectivity and support for small businesses, pro-active planning approaches and access to public services including good public transport and walking and cycling, links to town centres. There are over 50 town centres in the SPT region providing a range of services and facilities and fulfilling roles as centres of employment and social, cultural & entertainment activities.

Glasgow is the centre of economic activity for the region and the City Centre is critical to regional economic development and growth strategies. The City Centre provides a retail, cultural, educational and visitor economy function of national significance and around one-fifth of all employee jobs in the region are located

here.[42] The City Centre is a key facilitator of regional connectivity as a national transport hub for inter-urban and cross-border rail and bus services and connections to Glasgow Airport.

All centres are experiencing challenges exacerbated by COVID19 and more details of this are set out in the next section under travel behaviours and demand.

Regional Hospitals

Hospitals are major centres of employment, with one in every six regional jobs being in the health sector,[43] and have large travel to work catchments. Additionally, catchments for patients and visitors can be very large as services have been rationalised both spatially and by specific services and specialisms.

There are more than a dozen hospitals in the SPT region of regional importance that require good connectivity for patents and staff and inter-regional connections for some services. For example, some maternity services are delivered at Royal Alexandria Hospital for residents of Argyll and Bute. The Queen Elizabeth University Hospital campus and Golden Jubilee Hospital in Clydebank are nationally strategic sites. A replacement for the existing Monklands hospital is planned to open in 2026/27 and the

Tertiary Education

Tertiary education institutions are major centres of employment and play a key role in developing the regional labour force, attracting skills and knowledge to the region and facilitating innovation. There are 14 universities and colleges located within the region across 35 campuses supporting c. 220,000 student enrolments in Higher and Further Education.[44]

Strategic business and industrial parks

In addition to economic development and investment priority locations, there are more than two dozen mature strategic business and industrial parks across the region, which are key centres for freight activities and employment.

The Spatial Context - Implications for the RTS

The increasing urbanisation in the region can support more sustainable transport through reduced journey distances, less transport energy use and more viable public transport and active travel options. However, growth in peri-urban and suburban locations in the region can be associated with increasing car ownership, which can exacerbate existing challenges. At the same time, depopulation of rural and coastal areas is a long-standing problem projected to worsen in future. Depopulation can affect viability of local services including public transport and affect the sustainability and wellbeing of these communities.

Presently, there is much uncertainty around the economic recovery from COVID19 and the extent that existing travel to work corridors may change in future. However, the emerging Regional Spatial Strategies provide a blueprint of the region's spatial development priorities to be considered within the new RTS. The new RTS will need to be well-integrated with the new RSSs to help facilitate sustainable and inclusive growth and development and support wider efforts to stabilise and reverse rural and coastal depopulation in the region. At the same time, good connectivity to international gateways and corridors and the region's town

and City centres, hospitals, tertiary education and strategic business and industrial parks will continue to be required in future.

Travel behaviours & demand

This section provides an overview of key travel behaviour and demand trends pre-COVID-19 and some of the emerging COVID19 impacts that need to be considered in the development of the new RTS. This section draws upon early findings from the COVID19 Transport, travel & social adaptation study led by Institute of Transport Studies at the University of Leeds. This study includes surveying residents of the region to develop a better understanding of the impacts of COVID19 on transport and travel behaviours.

Car ownership

Private car ownership is lower in the SPT region as a whole than the rest of Scotland, but the gap has been reducing over a long period of time. Growth in car ownership is occurring through households moving into car ownership for the first time and households acquiring additional vehicles. There are geographic variations in car ownership within the region, which has both the lowest and highest car ownership rates in Scotland by local authority area. In Glasgow, about half (53%) of households have access to a car for private use compared to 9 in every 10 households (90%) in East Renfrewshire.[45]

There is early evidence from the COVID19 Transport, travel & social adaptation study that car ownership in the region has remained broadly the same at an aggregate level since the onset of the COVID19 pandemic. However, there is an important change underlying this: COVID19 appears to be a greater factor in reducing car ownership than in increasing it. Key factors cited for reducing car ownership include reduced household income and working hours and less need for a car. At the same time, according to the same study, many households are choosing to keep an older car for longer and the majority of households acquiring an additional car are purchasing a used car more than 2 years old. Only one in ten people who increased car ownership in 2020 cited fear of using public transport as the main reason behind their decision.

Inequalities of access to cars

People who live in households with a car, and the main drivers within those households, are the most mobile and have higher levels of access to opportunities.[46]

There are large inequalities in access to private cars in the SPT region as car ownership is strongly linked with household income and employment. There is also variability in access across different population groups, which is strongly linked to these wider inequalities in household income and economic activity. In the SPT region, this includes:

- Women are much more likely to be the head of single parent households, which have lower rates of personal car ownership than two parent households.
- Fewer than half (49%) of single parent households with dependent children have a car available for private use.[47] This compares to 91% for married or cohabiting couples with dependent children.[48]
- Disabled people are also less likely to live in a household with a car available for private use. About one in every two individuals whose daily activities are

limited a lot by a long-term health problem or disability live in a household that does not have access to a private car. This is compared to just one in every five individuals whose daily activities are not limited by a long-term health problem or disability.[49]

COVID19 may be exacerbating existing inequalities of access to private transport. As noted earlier, the COVID19 Transport, travel & social adaptation study identified that lack of affordability appears to be a key factor in reducing household car ownership during the pandemic. Additionally, there some evidence of forced car ownership in Glasgow City Region where some households that acquired a car since the initial lockdown would struggle to afford it.

Driving

Generally, there has been growth in driving in the SPT region with an upward trend in the proportion of adults who have a driving licence and choose to drive. This increased from 59% to 62% between 2009 – 2019.[50]

In 2019, about three in every five people in the region who had a driving licence drove every day.[51] This proportion has remained unchanged, broadly, for 20 years. The proportion of people who drive 3 or more times a week, though, has doubled over same time period. [52]

People who are moving into retirement are nowadays more likely to own a car and drive than previous older generations. Conversely, younger people are less likely than previous generations to have a driving licence or drive. Evidence suggests that this tendency toward lower car use is likely to persist throughout their lives.[53]

COVID19 has had large impacts on driving activity. According to early results from the COVID19 Transport, travel & social adaptation study, driving activity for people living in the region was about 70% of pre-COVID19 levels. Car use for travel to work has decreased, but the greatest proportionate reductions have been for day trips, visiting friends and relatives and non-food shopping trip purposes.

COVID19 is also impacting on driving licence take up. The proportion of residents who said they were likely or very likely to obtain a driving licence within the next year reduced substantially during the initial lockdown period and, by December 2020, continues to be below pre-lockdown levels.

Use of public transport services

There were two very different trajectories in the use of public transport in the SPT region in the ten years between 2009 and 2019. Passenger rail experienced a surge in use whilst demand for local bus services declined. Over the same time, travel on Glasgow Subway services remained fairly static.

Over this time period, use of passenger rail services increased in terms of passenger numbers and frequency of use. Rail station usage increased by 22% in total across the 188 rail stations in the region[54] and rail was used as the main mode by 10% of people travelling to work in 2019 – an increase from 7% in 2009.[55] Passenger rail also broadened its passenger base in this time period. In 2019, about four in every 10 adults (41%) used a train service at least once in the previous month compared to just over three in every 10 (33%) in 2009.[56]

The trends for local bus in the SPT region, on the other hand, show a steady decline in passenger numbers.[57] In the ten years between 2008/09 and 2018/19, bus

passenger journeys in west and southwest Scotland fell by 75 million. The broad trend is mirrored in the rest of Scotland and indeed is not unique to Scottish regions nor the UK. However, the extent of the decline in the west of Scotland has been much more severe than elsewhere in the country.

The passenger base for local bus services has also decreased over the past decade. Forty-six percent (46%) of adults in the region used a bus at least once per month in 2009/10, but this fell to 38% by 2019. In the South-East of Scotland (including Edinburgh), 47% of residents used the bus at least once per month in 2019. Every day use of local bus has also decreased significantly in the SPT region – falling from 13% of passengers in 2009/19 to 8% in 2019.[58]

Subway use declined following the downturn in the economy in 2007/08, but usage was fairly static between 2009/10 and 2019/20 at around 13 million passenger journeys per annum.[59]

Clearly, COVID19 has had severe impacts on use of public transport and there remains great uncertainty over future demand. The large majority of people using bus and rail services since the onset of the pandemic are doing so because they have no alternative choice whereas people who are not using public transport largely have alternatives for the journeys they need to make. However, according to early results from the COVID19 Transport, travel & social adaptation study, travelling to fewer places was the main reason given by 30% of people who did not travel by bus and by 40% of people who did not travel by train (in October 2020).

Active travel

Walking as a form of transport increased in the region in the ten years between 2009/10 and 2019. In 2019, 67% of adults walked at least one day per week as a means of transport – an increase from 60% in 2009/10.[60] The majority of the increase is attributed to people who walk at least 3 days per week. These walking levels are similar to the Scottish average, but below the South-East Scotland region.[61]

Commuting by bike also increased from 1% of travel to work journeys in 2009/10 to 2% by 2019.[62] However, this is slightly below the Scottish average (2.7%) and only half of South-East Scotland (4%).[63] In 2019, Glasgow had the largest proportion of residents cycling to work in the region at 4%.[64] Just over half of school children travelled actively to school in 2019.[65]

Tracking the amount of change in walking and cycling activity due to COVID19 impacts is challenging as more travel is being undertaken locally away from many existing active travel monitoring sites and changes in leisure and exercise activities. However, the COVID19 Transport, travel & social adaptation study found that residents believed they were walking around 50% more and cycling about 30% less in October 2020 compared to the previous year. Transport Scotland's Public Attitudes Surveys in October, November and December 2020 found that around six in every 10 adults believe they will walk or cycle more once travel restrictions are eased.

Demand for travel to work trips

Pre-COVID19, the region was already experiencing shifts away from traditional employment and commuting patterns. Working from home, part time employment and self-employment were increasingly common while the number of people with a usual fixed location of work had decreased. Public transport operators reported more 'peak spreading' and a less 'Monday-to-Friday' commuting behaviours.

More recently, in mid-January 2021, around two in every five people in Scotland (38%) who were working were doing so from home at least part of the time.[66] Over nearly the same time period, 39% of Scottish adults who are working say they expect to work from home more often in future.

At the same time, only 14% of businesses in the UK surveyed in January 2021 reported that they intend to use increased homeworking as a permanent business model going forward and only 9% believe home working has increased productivity.[67] Reducing overheads and improving staff wellbeing are the top reasons given for those businesses intending to increase home working more permanently.[68]

COVID19 has also highlighted that working from home differs profoundly by occupation. Many 'key workers' in health and social care, essential retailing and the supply chain have no choice but to continue to travel to work. The impact of this on public transport can be seen in reduced demands for 'peak' travel as the vast majority of key workers are on shifts.

Demand for shopping trips and town centre activity

Retailing is an important function of town centres in the SPT region and Glasgow City Centre has long been the top retail destination in the UK outside London. Additionally, Glasgow and South Lanarkshire were ranked in the top 6 local authority areas in Scotland in terms of share of retail GVA.[69] Pre-COVID19, shopping was the main purpose for about one-third of all journeys made in the SPT region.

Pre-COVID19, structural change in the retail sector and changes in shopping behaviours was already driving an increased demand for online shopping. Internet sales as a proportion of all retail sales have been steadily increasing year on year for over a decade, rising to 19% by 2019. COVID19 impacts drove this up to 28% in 2020, reaching nearly one-third of all sales in Quarters 2 and 4.[70]

COVID19 clearly has had a significant impact on high street footfall, with Glasgow City Centre experiencing a 42% lower footfall in Jan- July 2020 compared to the same time period in 2019. At the same time, high street vacancy rates have increased significantly in the past year.

Travel Behaviours & Demand - Implications for the RTS

Pre-COVID19, car ownership and driving were increasing while demand for local bus was reducing at a much higher rate than the rest of Scotland and active travel rates were lower than desired. These trends exacerbate many transport-related problems such as poorer access by public transport, road safety, congestion and air pollution. This can have disproportionately adverse impacts on people and

communities unable to access private transport who tend to be groups already experiencing structural disadvantage.

COVID19 has also demonstrated the role of public transport as an essential service for key workers, and that any reduction in service levels will have a disproportionately large impact on people in these essential occupations. The role of active travel in delivering improved accessibility has also been brought into sharper focus by COVID19. At the same time, the faster rebound of car travel compared to public transport experienced after the initial lockdown was eased during the summer of 2020 highlights the potential risk of worsening conditions as the region emerges from the pandemic in the future.

The shared experiences of the COVID19 pandemic also means more people than ever before have discovered how digital technology can replace physical travel for many purposes including working, business travel and socialising could lead to a reduction in commuting, business and discretionary travel in future. However, there is uncertainty about how much of this change will prove resilient.

Pre-COVID, there was already a move towards redefining centres as hubs for cultural, residential and leisure activities and services with a greater emphasis on the quality of places for people. The future appetite for working in city/town centre offices and the future of retailing is highly uncertain and there may be longer term impacts on the location of development and travel patterns. However, vibrant town centres with a dense and wide scope of activities have always been important to designing efficient transport systems that support good accessibility for all.

Overall, the pre-COVID19 travel trends and behaviours were largely not moving towards more sustainable, equitable and healthier outcomes. The new RTS, despite the uncertainty over future travel demands attributed to the impacts of COVID19, will still need to facilitate a step-change in sustainable transport and travel behaviours to align with the policy drivers and support sustainable development. At the same time, improving access to employment and supporting revitalisation of city/town centres will continue to be key focal areas for transport even if there are permanent shifts in commuting and shopping behaviours.

Summary

There is significant uncertainty around future travel demands and behaviours that need to be understood as the strategy development continues; however, the key policy drivers for the RTS are clear and provide the context for the emerging RTS Strategic Framework set out in the next section.

3. The RTS Strategic Framework - Vision, Priorities and Targets

The RTS Vision and Priorities were shaped in response to the policy drivers. The Vision sets out the role of a high quality, sustainable and more equitable regional transport system for the region as a place, and the beneficial impacts of this for individuals and communities, business and the economy, and the environment.

Vision:

The west of Scotland will be an attractive, well-connected place

with active, liveable communities and accessible, vibrant centres

facilitated by a high quality, sustainable transport system shaped by the needs of all.

Priorities

A healthier environment Inclusive economic growth Improved quality of life

At the same time, the urgency of climate change and the need to tackle poverty and inequality means that the new RTS will have a set of Targets to help drive forward immediate change. SPT is proposing up to three Targets for the new RTS and the principles of these are set out below.

Proposed Targets (in principle)

Target 1: A reduction in roads transport emissions

Target 2: A reduction in car kilometres by 2030

Target 3: A 'modal shift' from private passenger car to more sustainable modes and methods

4. Identifying the Key Issues

The Case for Change is centred around 5 ‘Key Issues’ that the new RTS should respond to. The ‘Key Issues’ are thematic groups of the specific transport problems and challenges that were identified during the initial analysis, engagement and statutory assessment activities in the development of the RTS. The ‘Key Issues’ are:

- Transport Emissions;
- Access for All;
- Regional Connectivity;
- Active Living; and,
- Public Transport Quality and Integration.

The next five sections of the Case for Change set out more the specific challenges and problems under each ‘Key Issue.’

5. 'Key Issue' - Transport Emissions

Overview

One of the greatest challenges for the new RTS will be to help achieve a reduction of the harmful emissions from the regional transport system that have adverse impacts on our environment and health. SPT believes the RTS can be most effective at supporting a rapid reduction in transport emissions by focusing on the largest number of transport system users with the least efficient behaviours, and those modes and behaviours that are most within the scope of the new RTS. This means the new RTS should concentrate primarily on reducing emissions from roads transport, which is the largest source of transport sector emissions in the region. This section considers key emissions trends and a range of specific challenges to reducing transport emissions to be considered in the development of the new RTS.

Emissions trends

Transport and Greenhouse Gases

The transport sector makes the largest contribution to Greenhouse Gases (GHG) in Scotland.[71] Pre-COVID19, transport emissions had been increasing for a few years in line with an increased demand for travel[72] despite large improvements in vehicle fuel efficiency over the past two decades.[73] However, there was a small decrease in transport sector emissions between 2017 and 2018.[74]

Globally, there has been a reduction in daily carbon emissions in 2020 due to the COVID-19 pandemic; however, research shows that there is no appreciable difference in global carbon concentration trends[75] and, instead, it will be the recovery response to the pandemic that is crucial to meeting carbon targets.

Roads transport emissions

Roads transport is the largest emitter by far within the transport sector in Scotland, accounting for around two-thirds of Scottish GHG emissions from transport in 2019.[76] The largest component of GHG emissions from roads transport is passenger cars (39% of transport emissions) followed by goods vehicles (25%),[77] although the largest proportionate increases in emissions from roads transport over the past 10 years have been from light goods vehicles.[78]

Estimated CO_2 emissions from roads transport were rising in the SPT region between 2013 and 2017. This was followed by a slight fall between 2017 and 2018[79] although roads transport emissions increased in both North Lanarkshire and Renfrewshire between 2017 and 2018.[80]

The higher levels of traffic on A class roads means that A roads make the largest overall contribution to roads transport emissions in the region, although emissions from A Roads were 3% lower in 2018 compared to 2008.[81] Over the same time period, emissions attribute to motorway traffic increased by 14% and emissions attributed to minor roads fell by 1%.[82]

Traffic was also increasing on all types of roads in the SPT region between 2012 and 2018. In 2018, vehicle-kilometres were 8% higher than ten years earlier across all roads in the region.[83]

Transport and air quality

In 2017, roads transport accounted for about half (47%) of total transport emissions in Scotland of nitrogen dioxide followed by shipping (45%) and rail (4%).[84] Roads transport also accounts for the majority of transport emissions of particulate matter.[85,86,87] Air pollution from transport is a significant problem for the SPT region, which has about two-fifths of Scotland's Air Quality Management Areas located in Glasgow, North & South Lanarkshire, Renfrewshire and East Dunbartonshire.

Air quality is also an equality issue as there is a wide body of evidence showing that people living in socio-economically disadvantaged areas are disproportionately affected by poor air quality. At the same time, lower income households are less likely to own a car and make a smaller contribution to air quality problems.[88]

Presently, COVID-19 impacts on travel demand have resulted in better air quality in many urban areas. Some researchers have suggested that the small reduction in traffic (from the pre-COVID19 baseline) and the changed timing of journeys is enough to cut congestion and this has delivered air quality benefits.[89] However, it is not clear that this will be sustained after travel restrictions are eased without policy intervention. Additionally, the emerging evidence linking poor air quality and the most severe COVID19 health complications[9091] gives further impetus to reducing transport's contribution to air pollution.

Cleaner vehicles

Uptake of Ultra Low Emission cars & vans

Harmful emissions attributed to ultra-low emission vehicles (ULEVs) are substantially lower than conventionally fuelled vehicles[92] and ULEVs will play an increasingly important role in reducing roads transport emissions in future. To facilitate this, the Scottish Government will phase out the need for new petrol and diesel cars and vans by 2030.[93] However, vehicles that do not produce exhaust pipe emissions, such as battery electric vehicles, still contribute to air pollution through the wear of tyres, brakes and road surfaces and resuspension of dust.[94]

In the SPT region, there were over 9,700 Ultra Low Emission Vehicles (ULEVs) licenced by the third quarter of 2020 – an increase of 3,500 vehicles, or 57%, in one year.[95] However, ULEVS represent less than 1% of the 1.148 million cars and vans licenced in the SPT region.[96] Based upon 2020 Q3 figures, Argyll and Bute, East Dunbartonshire, East Renfrewshire and Renfrewshire have the most ULEVs per head of population.[97]

The RTS Public Survey asked owners of petrol or diesel cars to describe their concerns about purchasing an electric vehicle. Residents identified purchase cost, lack of charging infrastructure, and a lack of understanding of distance range as key barriers. This is in line with wider evidence. [98,99]

SPT partners also identified a number of challenges to scaling up delivery of charging infrastructure. These include:

- selection of the charging technologies;

- lack of network development guidance or spatial strategies;
- infrastructure maintenance costs;
- providing infrastructure for existing residential areas especially flatted dwellings;
- access to infrastructure in rural areas; and,
- uncertainty about public and private sector roles to develop and grow the market and the long-term approach to covering revenue costs at public charging points.

Larger employers have also noted uncertainties around scaling up on-site charging infrastructure to meet future demand from employees.

Composition of local bus fleet

The updated Scottish Government Climate Change Plan sets an outcome for the majority of new buses purchased from 2024 to be zero-emission. In 2019, there were 5,700 buses and coaches licensed in the SPT region, which is 40% of all buses and coaches licensed in Scotland.[100] Currently , less than 1% of the local bus fleet in the SPT region are zero emission models, as recent investment has largely focused on low emission Euro-6 diesel buses and retrofitting emissions abatement technologies on older buses. Local bus operators have raised the challenges of introducing electric bus charging infrastructure on a large scale.

Travelling and moving goods more efficiently

Lifecycle carbon and car growth

There is growing evidence that 'swapping' existing conventionally fuelled vehicles for lower emission varieties will not achieve sufficient reductions in carbon emissions[101] if we consider emissions over the total vehicle lifecycle from production through to end of use. Current estimates are that electric car lifecycle emissions are around one-third to two-thirds lower than conventionally fuelled cars dependent upon the type of vehicle and the source of electricity.[102]

This means that the transport system, even with significant electrification, could remain a large source of carbon emissions if the number of new vehicles, of any fuel type, continues to grow. Presently, the number of cars licensed to residents of the SPT region is increasing at a faster rate than population growth.[103] Between 2016 and 2019, licensed cars increased by 5% compared to a 1% increase in population. The number of cars per head of population increased in every council area in the SPT region over the same time period with the exception of East Renfrewshire and East Dunbartonshire.

Inefficient personal travel

We generate a lot of emissions per person when we undertake journeys by less efficient methods of travel. This means reducing transport emissions needs to focus on the way we travel, as well as making vehicles cleaner. Table X.X outlines the grams of CO2 emitted per passenger kilometre by different transport modes. These figures are based upon average occupancies per mode.

The average car passenger occupancy in the region has been decreasing.[104] This underutilisation of vehicle capacity results in more emissions per person as car trips are increasingly made by lone drivers rather than shared with other members of a household or other people. COVID-19 also presents problems for vehicle occupancy rates as car sharing has been discouraged where this can be avoided.

At the same time, travel by lower and zero emitting modes including public transport, cycling and walking remains much lower than car usage in the region, with demand for bus in particular falling rapidly over the past 10 years.

Growth in light goods vehicles and traffic

The growing number and complexity of last mile deliveries coupled with lack of investment in cleaner vehicles means that LGV traffic has been responsible for the largest proportionate growth in roads transport carbon emissions over the last 10 years as well as contributing to air quality problems. Carbon emissions attributed to LGVs increased by 35% between 2009 – 2017 in Scotland,[105] while the number of LGVs in the SPT region grew by 18%, or 16,000 additional vehicles between 2009 and 2019.[106] 98% of LGVs licenced in the SPT region were diesel vans in 2019.[107] Every council area in the region experienced an increase in the number of licenced light good vehicles in their area between 2016 and 2019 except East Renfrewshire and North Lanarkshire.

Integration of land use & transport

The extent to which we can make more efficient use of our transport system and travel more sustainably is highly linked with the use of land and location of activities including where and how we live, work and access services. Integration of transport and land use measures do not necessarily result in a rapid reduction in emissions, but are important to aligning the region to a low carbon trajectory. Previous research[108],[109] has found that transport emissions from daily personal travel generally decreases with increased urbanisation and population densities.

The wider policy environment clearly sets out the need for good integration of transport and land use planning to achieve sustainable development and reduce dependency on travel by car. However, many councils raised with SPT the challenges around achieving sustainable transport connections and services for new development. Some existing development locations may not be well aligned with existing public transport and active travel corridors or located too far from key destinations to encourage walking, wheeling or cycling. The nature and design of some developments may not make them conducive to encouraging demand for public transport, which creates challenges in the delivery of sustainable transport services. The complexity of transport roles and responsibilities and the different goals of the various public and private sector actors in the SPT region also creates further uncertainty and challenges around delivering new infrastructure and transport services.

At the same time, the refreshed focus on 20-minute neighbourhoods and local accessibility presents opportunities for good alignment of transport and land use to reduce the need to travel and encourage more local walking, wheeling and cycling trips. Pre-COVID, average journey distances in the region increased by 1.1 miles between 2012-13 and 2019.[110] Average journey distances broadly increased in East Ayrshire, East Renfrewshire, Glasgow, North Lanarkshire, South Ayrshire and South Lanarkshire between 2012-13 and 2019. [111]

6. 'Key Issue' - Access for All

Overview

The new RTS will have a focus on facilitating improved access to the transport system and to the places that people need and want to go to. Transport has an underpinning role in tackling poverty, socio-economic & health inequalities and supporting inclusive economic growth. In particular, transport helps people to get to work, education and training opportunities, to access the healthcare system and other services, and to participate more fully in society.[112]

For many, transport can also be a barrier to accessing our everyday needs. This happens when there are barriers to accessing the transport system itself. This includes cost, environmental, technological, information and design barriers. This also happens when the transport system does not provide access to the places we need and want to go.

These problems impact more than an individual's single journey. They place limitations on our ability to access meaningful work and education, use our healthcare system, participate in our communities and have a fulfilling family and social life.[113] In turn, these problems can contribute to social isolation and household economic stress and ill health.[114] The inter-related impacts on household income & expenditure and health outcomes can further exacerbate poverty and the societal inequalities that persist in the region.

The SPT region is demographically and spatially diverse and has a large number of disadvantaged and access-deprived communities. This means the new RTS needs to be developed with an understanding of the transport problems experienced by different population groups and geographic communities in the region. Figure X summarises some of the key problems faced by different groups. Many individuals, families and communities experience combinations of these problems at the same time. The section sets out many of specific access challenges to be considered in the development of the new RTS. The challenges are summarised under key themes, but many of these are inter-related problems which can have cumulative impacts on individuals and communities.

Affordability of Transport

The cost of transport is one of the most significant barriers to achieving a more inclusive transport system that supports wider efforts to tackle poverty and inequality.

'Forced' car ownership

Some people own a car due to a lack of suitable transport alternatives, but the expenditure allocated to the purchase, fuelling, maintenance, taxing and insuring of the vehicle can place significant pressure on household budgets that may be already stretched.[115],[116] This 'forced' car ownership may be an issue for rural areas in particular, where public transport services are limited.[117,118]

In the SPT region, this is highlighted by figures showing three-fifths (61%) of rural households located within the most income deprived areas in the SPT region own at least one car.[119] There is also evidence that forced car ownership is a growing problem in urban households.[120] In a study of forced car ownership in disadvantaged places in Glasgow, researchers found that car ownership may be

increasingly viewed as a necessary component of modern life, with car ownership seen as necessary to search for and take up employment and manage complex household mobility needs.[121] This research also suggests that accessibility may be increasingly determined by the quality of public transport rather than availability alone. [122]

Experiences or fear of racism, sexual harassment and hate crime on public transport may too force some households into car ownership where otherwise suitable alternative transport options exist. Forced car ownership may also occur in households with a disabled person if accessibility barriers prevent individuals from being able to make some journeys by public transport or active travel.

Public transport fares

The RTS Public Survey found that residents of the SPT region identified the cost of public transport fares as one of their top transport-related challenges when accessing work, education, and hospitals by public transport and in the take up of new employment opportunities. Additionally, a recent survey of young people by the Scottish Youth Parliament found that many young people felt that the cost of fares was too high in relation to the wages they earn.[123] In addition to this engagement evidence, the UK Retail Price index shows that the cost of public transport fares increased above general inflation between 2008 and 2018 - rail fares by 18% and bus fares by 35%.[124]

Bus fare rises in particular have a disproportionate impact on women, younger people, disabled people and black and ethnic minority people as people in these groups are more likely to use buses to meet a large proportion of their travel needs.

Concessionary fares are one of the most widely-applied measures in Scotland to directly target public transport affordability problems in support of wider outcomes including for social-economic inclusion, health and wellbeing. The Scottish Government's National Concessionary Travel Scheme and the Strathclyde Concessionary Travel Scheme are widely used in the SPT region with nearly 4 in every 10 people aged 60 years or older using their concessionary fares pass every week.[125]

However, concessionary fares cannot improve access if there is a lack of suitable public transport services for people to actually use, or if services or infrastructure are not physically accessible to people who are otherwise eligible for concessionary travel.

Additionally, concessionary fares schemes, at this time, do not cover all people who face cost-related barriers to transport. This can include people and households experiencing in-work poverty.

People on lower incomes are also less likely to be able to access the 'best value' tickets. Public transport ticketing products such as weekly or monthly 'passes' offer savings over standard fares, but these require an upfront payment that may be out of reach for some people. Additionally, these products are often unsuitable for people who are working part-time or who have insecure work that makes it difficult to forecast future travel needs.

Accessible transport system

Journey planning & accessible travel information

There is a lack of integrated and comprehensive accessible journey planning information essential to disabled people being able to plan a whole journey. This includes information on services, interchange hubs, connections between locations, availability of assistance and information on vehicles. There is also a lack of consistent provision of audio/ visual travel information on board transport service in the region. SPT was told that accessible, non-digital formats at stops and hubs continues to be important for people who cannot use or access digital travel information including many older people or people who have financial barriers to digital access. Additionally, existing travel information may not be accessible to people who do not speak English.

Journey Assistance

The RTS engagement activities highlighted that many disabled people are not able to or are not confident about leaving home on their own due to uncertainty of the physical environment and of the realities of making journeys on transport services as a disabled person. Similarly, previous research by the RNIB found 43% of visually impaired persons want to leave home more often but transport-related issues were felt to be one of the key barriers to doing so.[126]

Stakeholders raised with SPT that public transport journey assistance services are not provided in a consistent way across operators and there is a lack of co-ordination between operators and modes. The ScotRail journey assist service is well-developed with processes in place to further improve the service, but there are no formal journey assist services available on local bus services in the region. An informal journey assist service is available on Subway services, with a formal service being developed in 2021.

SPT was also told that the lived experience for disabled people often does not match the planned experience and there is a need for an improved approach to assistance in the event that something goes wrong when a journey is already in progress.

Accessible transport services & facilities

Many bus, Subway and rail stations and stops in the region are not fully accessible for disabled people to be able to board and alight services. Some local bus services use coach buses, which are not step-free, and there is a lack of consistent policy regarding access to wheelchair spaces on buses. The Subway is also only partly accessible for people who use wheelchairs.

Just over half (55%) of licenced taxis in the SPT region are wheelchair accessible, but this is not distributed equally across the region. Glasgow and South Ayrshire are the only local authorities in the SPT region where 100% of licenced taxis are wheelchair accessible and in 7 local authorities the percentage is under 20%.[127] Only 141 out of more than 9000 private hire cars in the region are wheelchair accessible.[128]

There are 77 Changing Places facilities in the SPT region – enhanced accessible toilet facilities with special features for those who require them - but only three of these are located at transport interchanges – Glasgow Central Station, Glasgow Queen Street and Glasgow Airport.

Physical Environment

Pavements and streets including routes to public transport and interchange connections are not always fully accessible or well-maintained whilst navigation aids can be inconsistent or not working. Pavement clutter can be problematic for people who are visually impaired or people using a wheelchair or other mobility aids. 'Floating' bus stops that do not have signalised crossings are problematic for visually impaired individuals wanting to access a bus stop. The quality and maintenance of pavements and footpaths was raised with SPT by partners and stakeholders as a key problem particularly affecting older and disabled people as well as people with children in prams. The provision of digital navigation aids should be increased, but not as a substitute for a well maintained and accessible physical environment.

Safety and security

Safety and security when walking, wheeling and cycling

Stakeholders noted key problems for vulnerable road users are traffic volumes and speeds on streets and active travel corridor and the safety and accessibility of road crossings especially for children, older people, people who are visually impaired and people who have reduced personal mobility.

Research by Sustrans has found that children living in socio-economically disadvantaged areas are disproportionately adversely impacted by roads traffic and road safety problems. Research on the indicators from the Active Scotland Outcomes Framework also found that personal safety and security concerns are a barrier to encouraging more active travel, in particular for older women and disabled people. [129]

Safety & Security when using public transport

Only three in five people (62%) feel safe and secure on bus services in the evening in the SPT area – one of the lowest levels among Scottish regions - with three in four people (74%) feeling safe and secure on rail services in the evening. [130,131]

Safety and security problems are more likely to affect women, older people, younger people, LGBTQ people and black and ethnic minority people. SPT was told that some people no longer use public transport because they have experienced racism or harassment and / or had been the victim of hate crimes in the past. Additionally, a perceived lack of safety may also deter people from using public transport.

Coverage and availability of bus and rail

Bus network

The bus network has extensive coverage in the region with nine in every 10 households located within 400 metres of a bus stop. The overall coverage of the bus network increased slightly overall between 2011 and 2019 in terms of the number of bus stops with a service. However, level of service has been changing over time. In 2019, an average of 42% of bus stops were served by one or two buses per hour between 7am and 6pm compared to 33% of bus stops in 2011.

The availability and coverage of bus services in the evening is also more limited. In 2019, the number of bus stops with a service was 17% lower between 7pm-

9pm when compared to the daytime average (7am – 7pm). This decreases to 23% lower between 9pm – 11pm and 43% lower after 11pm. Demand is much lower in the evening, but reduced service levels in particular present challenges for people who need to use the bus for essential travel including work.

Rail

Nearly half of employee jobs in the region in 2019 were located within a 10-minute walk of a rail station, and more than one-third (36%) of these jobs are located outside Glasgow City Centre.[132] This highlights the importance of the rail network in providing access to employment across the whole of the region. The economic recovery from COVID19 may also mean that, whilst remote working may increase, other workers may be travelling farther to access work. Rail facilitates a large proportion of cross-boundary commuting and increasing access to the network presents opportunities for sustainable and inclusive access to jobs, particularly for people without a car and for remote, rural and peripheral areas.

Accessing work, education, healthcare & services

Access to employment services & jobs

Employment and income deprivation are large challenges for the SPT region.[133] Transport is critical to strategies to tackle these challenges by helping people access employment services and to get to work and into better jobs. In particularly, many jobseekers rely on public transport, and the bus in particular, to reach these opportunities.

In the RTS Public Survey, many people looking for employment felt that transport was a factor in their decision to not take up job opportunities. This often related to the timing of public transport services, or the cost and time of making multi-operator journeys. Two in every 3 young people who felt they had been unable to take up a job due to transport issues mentioned cost of public transport as a key factor. Seeking employment also often involves making unfamiliar journeys and this can pose challenges. For example, we were told that knowing when to disembark a bus is difficult when travelling on an unfamiliar route if the name of the bus stop is not announced.

Many people also commented on the challenges of trying to access work by public transport including limited early morning or evening bus services. One person commented that several potential job opportunities were only 20-30 minutes journey by car, but would take around 2 hours and involve changing between several buses, and therefore were felt to be inaccessible.

Additionally, the number of jobs that could be reached by the working age population in the SPT region varies considerably if travelling by car compared to public transport, based upon analysis using accessibility software (TRACC). For example, around one quarter of the regional working age population could reach around 20,000 jobs within 20 minutes if travelling by public transport whilst nearly 100% of the population could reach the same number of jobs if travelling by car. These figures demonstrate the relative difference in access to employment opportunities for those who have access to a car compared to those who are dependent upon other means of travel to get to work. This highlights

the inter-connectivity of inequalities in access to private transport and wider socio-economic inequalities.

Access to Tertiary education

In the RTS Public Survey, around two-thirds of people currently attending tertiary education believe they experience transport-related challenges regularly when travelling to campuses. The cost, frequency, reliability and directness of public transport services were most frequently cited challenges.

Young people responded that transport-related challenges for their journeys to education have wider impacts on their ability to take up part time employment and have a social life if their choices are constrained by the timing and frequency of public transport services.

The RTS Public Survey results also identified that transport features in decision-making when people choose which universities or colleges to attend. This underlines the importance of addressing access issues to help ensure transport is not limiting young people's opportunities.

Stakeholders also noted that the closure of some tertiary education campuses across the region may have impacted on access to education for some young people especially in less urbanised areas.

Access to Hospitals

In the RTS Public Survey, about half of people who had attended hospital within the past 6 months felt they had experienced transport-related challenges when travelling to hospital. These challenges were most frequently cited as no direct public transport services, frequency of public transport and availability of parking at hospitals.

A number of individuals commented that they have to set off on their journey to hospital much earlier than they feel should be necessary, because they are worried that they will miss their appointment due to transport-related problems that are out with their control. One in every three individuals reported that transport-related issues had caused them to be late for a hospital appointment on at least one occasion in the past 6 months.

Travelling to a hospital by car is considerably quicker than by public transport with most people in the SPT region able to reach a hospital in less than 30 minutes if travelling by car, based upon accessibility analysis. However, this does not capture the time required to park and traverse hospital campuses, which some individuals noted can be particularly difficult for older or disabled people, people who are unwell and people travelling with unwell children.

Stakeholders highlighted that service rationalisation and consolidation of healthcare locations has impacted on accessibility across the region.

A change in the eligibility criteria for use of Patient Transport Services has also impacted on access to hospitals. Some Community Transport operators in the region are playing an increasingly important role in providing transport to hospital, but there is limited or inconsistent recognition and wider support for this across national, regional and local agencies. Broadly, there continues to be a lack of a fully co-ordinated approach to integrating all existing and potential hospital transport services and ensuring people have the right information to access them.

Access to town centres & the 'poverty premium'

Town centres provide a range of services, facilities and shops as well as being centres of employment and social, cultural & entertainment activities. There are over 50 town centres across the SPT region, and a large majority of people living in the region are able to reach at least one centre within a 20-minute journey time by car or public transport, based upon accessibility analysis.

However, in the SPT region, there are large differences in the number of centres that are accessible to people dependent upon public transport compared to those who are able to travel by car.[134] This could mean that some people have less choice and are unable to access a wider range and better value goods and services than people who have access to a car. This can place further pressure on household budgets and may be an example of a 'poverty premium'.

The concentration of diverse activities within town centres continues to be important to improving access. Maintaining and enhancing town centres to protect and enhance their functions and roles is a critical part of the economic recovery from the COVID-19 pandemic.

Access for Rural, Remote and Island Communities

Access for rural communities

In rural & remote areas, commuting, accessing key services and undertaking other everyday activities generally involves longer journeys relative to more urban areas. This means higher fuel costs or public transport fares and less time available for other activities.

Remoteness from towns, larger employment centres and key facilities coupled with more limited transport options also means poorer access to jobs and services and reduced choice of goods, services and employment opportunities. This is especially true for individuals and households that do not have access to a car. These access-related issues are central to rural experiences of deprivation and social isolation.[135]

In the SPT region, rural households are much more likely to have a car overall and more likely to have 2 or more cars than households in urban areas or accessible small towns.[136] Access to a car provides much greater levels of accessibility but, for lower income rural households, this can be a source of significant economic stress when car ownership is a necessity rather than a choice.

Rural car ownership generally is also less sensitive to changes in the cost of motoring compared to urban car ownership[137] due to the limited alternatives to car travel. This means lower income rural households can be particularly vulnerable to fuel price increases and other changes in the cost of motoring.

Public transport services are critical for people in rural areas who cannot drive or do not have access to a car. However, in most cases, access to employment and key services by public transport in rural areas means much longer journey times compared to car users. For example, from remote mainland areas in the SPT region, a journey to hospital by public transport is well over an hour and typically closer to 2 hours in one direction compared to an average of about 45 minutes by car.[138] This means less time for other activities and long public transport journeys can be physically difficult for many people who are older, sick or disabled, or travelling with children who are unwell.

In the SPT region, about one in 10 individuals of working age living in a rural or remote area experience employment deprivation.[139] The challenges of accessing employment by public transport from rural and remote areas can mean a greater dependency on limited local employment opportunities, or, alternatively, relatively high public transport fares for the longer journeys required to get to larger centres of employment. Both of these can pose challenges for household income and expenditure, albeit in different ways. Accessing job centres for employment support services is also challenging, with public transport journeys typically more than one hour in one direction for most people living in rural and remote areas.

Over the past 5 years in the SPT region, the population of accessible and remote rural areas has decreased by around 5% overall and the proportion of the population that is 60 years and older is increasing.[140] Lack of suitable public transport in rural and remote areas can be a barrier for young people in accessing education and employment. This has impacts on young people's opportunities as well as the sustainability of rural communities experiencing both out-migration and ageing population trends.

Access for Island communities

Access issues for island communities are similar to those faced by mainland remote areas but dependence upon ferry services creates additional access issues for island residents in terms of cost, time and aligning journeys to ferry schedules.

Of the ferry services in the SPT region, the Ardrossan – Brodick and Wemyss Bay – Rothesay ferry services were most likely to experience service delays, pre-COVID.[141]

Service cancellations are not a significant ongoing problem for ferry services in the SPT region, but most routes experience infrequent short periods when the culmination of cancellations will impact on accessibility for island residents.[142] However, even short periods of cancellations can be highly disruptive to island communities.

Most services in the SPT region provide sufficient time between first and last crossings to undertake a working day on the mainland, but integration with other forms of public transport can be an problem when ferry, bus or rail services are delayed resulting in missed connections.[143]

7. Key Issue - Regional Connectivity

Overview

The new RTS needs to support regional spatial and economic development objectives and priorities as set out in the RTS context section of this report. Transport connectivity has a critical role in the performance of the regional economy - the transport system facilitates the movement of goods through supply chains to markets and people to workplaces, services and business, helps open up economic opportunities and improves the attractiveness of places to live, work, invest and do business.

One of the most significant critical uncertainties emerging from the COVID19 pandemic concerns the overall level of future travel demand, and in turn how this will contribute to any restructuring of the economy across sectors and places. The scale and nature of the economic recovery, the extent to which home working will continue, the future appetite for working in offices in city & town centres, and the accelerated move to on-line retail are all factors that will have impacts on the demand for transport.

The reliability and capacity problems highlighted later in this section outline a pre-COVID19 position across various modes in the region. The extent to which these problems return as the economic recovery takes shape is highly uncertain. However, the Regional Spatial Strategies and City & Growth Deals provide certainty around the spatial and economic development priorities that will underpin economic recovery and provide a blueprint for the region's strategic connectivity needs and opportunities. COVID19 has also brought further attention to the need for a resilient transport system including adapting to climate change and key problems in regard to that are outlined later in this section.

Reliability & Capacity

Roads traffic and congestion

Roads traffic in the SPT region increased by around 8% between 2008 and 2018, although growth was not evenly distributed across the network.[144] The motorway network in the SPT region experienced the largest proportionate increases in traffic of around 35% amounting to an additional 1.2 billion vehicle-kilometres per annum.[145] Over the same time period, minor roads (B, C and unclassified roads) experienced a 6% increase in vehicle-kilometres. Between 2008 and 2018, three councils experienced a much larger increase in roads traffic compared to the regional average – Renfrewshire (17%), South Lanarkshire (12%) and North Lanarkshire (11%) – while four councils also experienced less change than the regional average – Inverclyde (no change overall), North Ayrshire (2%), South Ayrshire (5%) and Glasgow (6%).

Pre-COVID19, transport modelling suggested that, over the next 20 years, traffic flows on motorways will continue to increase, but the most notable growth will be on the local roads network. It also suggested that capacity may be exceeded on the wider road network across the SPT region.[146]

Analysis of average speeds between AM and Inter-peak periods suggested that the largest differences occur on the motorway network and local access links to the motorway. The M8 particularly between Glasgow Airport and Glasgow City

Centre was identified by a number of councils and stakeholders as particularly problematic. Bellfield Interchange was raised by Ayrshire Roads Alliance and is identified in the Ayrshire Regional Spatial Strategy as a connectivity improvement priority, as existing conditions impact on spatial and economic development. During the RTS engagement activities, all local authorities in the SPT region noted concerns about growing traffic and related journey time reliability problems on sections of local and trunk roads networks in the region. In the RTS Public Survey, 75% of people who travel to work by car reported traffic congestion as key challenge for their everyday journey to work.

Roads traffic has fluctuated extensively since the on-set of COVID-19 restrictions and fell to around one-quarter to one-third of 2019 levels during the first 'lockdown' phase in 2020; however, traffic on Scottish trunk roads rose to around 90% of the previous year's levels by late August - September 2020, when restrictions had been eased. There were similar traffic levels recorded across Great Britain by the Department for Transport.

Variability in bus journey times

Pre-COVID19 analysis of real time passenger information systems in the SPT region found evidence of variability in bus journey times across the region. [147] Bus timetables generally take account of average variations in traffic level that can mean slower speeds; however, these longer journey times make bus less attractive to users and increase costs to operators. Bus operators also reported that journey times were beginning to be affected again by general roads traffic volumes on some routes in late Summer 2020 when travel restrictions had been eased.

Ferry capacity

Ferry passenger numbers on subsidised services in the SPT region were generally declining across most routes in the ten years up to 2015.[148] However, between 2015 and 2018, following introduction of the Road Equivalent Tariff on ferry routes in the Clyde network in 2015, ferry passenger numbers on these services increased by 13%.[149] The number of cars carried has increased at a higher rate than passenger growth with cars carried increasing by 20% between 2015 and 2018. Passenger numbers on the commercial Western Ferries Gourock-Dunoon route increased by 5% between and 2015 and 2018, and cars carried increased by 6% over the same period.

The Ardrossan – Brodick route has experienced the largest change in the number of passengers compared to number of cars carried. There were 5.4 ferry passengers for every car carried in 2008 and this fell to 4.2 passengers per car by 2018.[150] Stakeholders noted the need to encourage more people to access ferry services by public transport and active travel.

COVID-19 has had large impacts on ferry passenger numbers in 2020; however, the lifeline nature of these services coupled with the potential for increased desirability for 'staycation' holidays in the short to medium term could result in a rapid return to a pre-COVID-19 position.

Rail capacity

Rail passenger numbers in the SPT region increased by 22%, or around 23 million passengers, between 2008/09 and 2018/19.[151] Prior to COVID-19, passenger numbers across the Strathclyde passenger rail network were predicted to

continue to increase in future. Network Rail's higher growth scenarios suggested that, without intervention, passenger demand was expected to exceed seating capacity at peak times by 2043 on all routes into Glasgow Central, with trains being most crowded in the city centre. Passenger demand was also forecast to exceed demand on the Cumbernauld – Glasgow Queen St, Airdrie – Glasgow Queen St, and Helensburgh/Milngavie/Balloch – Glasgow Queen St corridors. Many of these corridors were forecast to have passenger capacity problems by 2023/24. Platform capacity at Glasgow Central station is a key problem for the region and is currently being considered through the STPR2 process.

COVID-19 has had a profound impact on passenger rail demand in 2020. Passenger numbers across the Strathclyde region were around 60% lower than in 2019.[152] The Strathclyde rail passenger market has a large cross-regional commuter base[153] that has been impacted by COVID-19, but, pre-COVID19, there was also a large demand from occasional users with a quarter of residents using rail services once or twice a month.[154]

Rail Park and Ride capacity

There has been a large expansion of park and ride capacity in the SPT region over the past 10 years and there are now more than 100 rail-based park and ride sites and over 10,000 car parking spaces for rail passengers.[155] About half of sites in 2014 were operating at capacity or close to capacity (85% or more) on weekdays[156] and stakeholders identified, pre-COVID19, that demand continues to increase and can result in localised congestion and road safety problems.

Surface Connectivity to Ports

A lack of operational, multi-modal freight facilities and route resilience problems impact on surface connectivity to ports in the region, particularly Greenock Ocean Terminal and at Hunterston PARC. This includes vehicle restrictions on the A78 south of Hunterston, wider journey time reliability and resilience problems on the roads network, and the variety of traffic on port access routes. Surface access to Cairnryan ports is also important to the SPT region and connectivity is affected by the length and reliability of journey times on the A77 south of Ayr.

Surface connectivity to airports

Development at and around Glasgow and Prestwick Airports are integral to the Glasgow City Region City Deal & Economic Strategy and the Ayrshire Growth Deal, respectively.

Glasgow Airport and Glasgow Airport Investment Area, including the Advanced Manufacturing Innovation District Scotland (AMIDS), are well connected to the strategic road network. However, pre-COVID19 traffic levels during peak travel periods have adverse impacts on surface connectivity for business, freight and tourism activities and passenger movements by car, taxi and bus. Numerous stakeholders noted that roads congestion had worsened in recent years and that, without intervention, the plans for the wider Glasgow Airport Investment Area have the potential to exacerbate existing problems.

Connectivity to Glasgow Airport is also limited by lack of direct rail services, which requires interchange with bus or taxi services at Paisley Gilmour Street. This means almost all passengers arrive by road-based modes with about 81% of

passengers travelling to Glasgow Airport by car or taxi with around 49% using a private car. This compares to 53% and 30%, respectively, for Edinburgh Airport.[157] Travel to work trips to the Glasgow Airport Investment Area are dominated by passenger car movements.[158]

Prestwick Airport has a rail connection and is well located in relation to the strategic roads network. The airport and surrounding area are a key focus of the Ayrshire Growth Deal to establish Prestwick Airport as the leading horizontal launch Spaceport in Europe with a visitor centre and innovation hub. Surface connectivity is affected by traffic levels on road links to the airport and connectivity from strategic transport corridors including the M74. Despite having a rail connection, the vast majority of travel to work trips to Prestwick Airport and surrounding area are undertaken by car.[159]

Resilience and Climate Change Adaptation

Transport infrastructure resilience was identified as an issue for the region. This includes existing issues and developing impacts from projected changes to our climate. Resilience problems have immediate costs to business and the economy and longer-term impacts on investment and growth. Adapting transport infrastructure to be resilient to climate change is increasingly important for the region's long-term growth and development.

Roads

Overall, around 600km of the roads network in the SPT region is at risk of surface water flooding and around 50km is at risk of coastal flooding.[160,161] The A83 has high exposure to flooding and landslide,[162] whilst the Erskine Bridge has high exposure to impacts from high wind and storms. [163]

Sections of the A8, A77, A78, A82 and A83 are identified as being particularly prone to disruption from flooding, landslip or other storm-related closures or road incidents. This is particularly problematic due to long or unsuitable diversionary routes.

These problems impact both local access for people and business including disruption to bus networks, as well as strategic access to ferry terminals and ports, including Hunterston, Gourock, and Cairnryan, and inter-regional freight and tourism routes including from Argyll & the Highlands to the Central Belt.

Rail

Surface water and coastal flooding of rail networks is an existing resilience problem in the SPT region, and climate change projections have the potential to increase the frequency and severity of these issues. Around 166km of railways are at risk of surface water flooding and around 3km are at risk of coastal flooding.[164165]

Coastal erosion presents potential risks for sections of the West Highland Line around Helensburgh, Cardross and Dumbarton and sections of the Largs branch between Largs – Skelmorlie and Ardrossan – Stevenston.[166167]

Ferries

A lack of fleet resilience, ageing ferry terminal infrastructure and lack of inter-operability between routes presents resilience issues for ferry services on the Clyde. This exacerbates resilience issues related to weather conditions.

Air

Temperature increases and increasing frequency of storms and high winds based on climate change projections are key resilience issues for the region's two airports.

Health & wellbeing

There is also a need to consider the health and wellbeing of public transport staff, passengers and people who are walking, cycling and wheeling. Climate change is likely to result in warmer temperatures overall and more intense and frequent 'heat waves.' Infrastructure will need to be planned or adapted to help people to travel safely and work comfortably in these conditions.

8. Key Issue – Active Living

Overview

The new RTS will have a focus on making walking, wheeling and cycling the natural choice for shorter everyday journeys to support a better quality of life and to support a modal shift to more sustainable travel.

The existing transport and land use systems in the region have developed over a long period of time in ways that have often 'locked-in' a range of unhealthy conditions that can contribute to poor physical and mental health and wellbeing being experienced by individuals. These conditions are complex and inter-related, but generally systems that encourage and facilitate travelling by car as the preferred mode, particularly over short distances, can contribute to sedentary lifestyles and obesogenic environments.[168] Increasing levels of car travel can also be linked to lower physical activity rates and unhealthy body weight.[169] This can increase risk of developing a range of diseases and health disorders and lead to shortened life expectancy.

The wider evidence shows that creating the conditions that encourage and enable more walking, cycling and other ways of travelling actively is one of the most practical and effective means of increasing regular physical activity and, in turn, supporting improved physical and mental health outcomes.[170] The imperative for transport policy to support wider public health policy through increasing active travel is even more acute due to the adverse impacts of COVID-19 on mental health and wellbeing. The rest of this section sets out key challenges for enabling a shift to more walking, wheeling and cycling in the region.

Experiences and perceptions

The RTS Public Survey identified key challenges for people who walk or cycle to work. The main challenges recorded by respondents who walk to work were:

- Condition of pavements and surfaces (50%);
- Personal safety and security when walking (39%); and
- Air quality (32%).

For people who cycle to work, the top responses were:

- Availability of segregated cycle routes (73%);
- Condition of surfaces (53%); and
- Behaviour of other road users (52%).

SPT also asked what was required to encourage people to walk and cycle more often. The top responses were:

- Better quality walking surfaces (42%);
- Walking routes that feel safe and secure (38%); and
- Better / more lighting on routes (29%).

The top enablers to cycle more often were:

- More routes away from roads (33%);
- More segregation from vehicular traffic (27%); and
- More direct cycle routes (25%).

The survey results have a strong focus on networks, infrastructure and safety.

A Step Change in Infrastructure

Network connectivity

Journeys made by active travel should be as convenient as using other modes and not require significant diversion from one's desired route. This requires good network connectivity between the places where people live and the places they want to travel every day. A number of network connectivity challenges were identified by SPT partners which the new RTS has a role in helping to tackle:

- A need for improved cross-boundary planning;
- Support to tackle significant severance challenges such as major junctions;
- A need for more direct routes on main travel corridors;
- Better co-ordination of routes for local bus and cycling; and

Network quality and safety

Poor surface integrity discourages active travel and is a significant safety concern particularly for older and disabled people and people who are cycling. Councils have raised with SPT the challenges of maintenance funding and that this challenge increases as more infrastructure is required to support the implementation of active travel policy.

Segregation from motorised traffic and priority at junctions are also important to protect vulnerable road users and encourage more active travel. The level of segregation on cycling routes can vary on different sections of the same route in the region, and is often reduced or non-existent at major junctions. Many partners and stakeholders have noted the challenges of reallocating road space to facilitate improved conditions for people who are cycling. High quality and well-maintained pedestrian crossing infrastructure is also raised by councils as a key priority to enable more walking and improve safety for vulnerable road users. In 2019, over a quarter (27%) of people killed on roads in Scotland were walking at the time of the accident, and 10 people who were cycling were killed.[171] People who are involved in a road accident while walking or cycling are much more likely to be seriously injured or killed compared to other modes.

Inclusive and accessible infrastructure

Research shows that disabled people, older people, women, teenage girls and black and ethnic minority people are less likely to be physically active, and that walking or wheeling has been found to be a key activity to reduce inequalities in physical activity rates.[172] Safe, secure, obstruction-free walking routes with well-maintained surfaces are important to facilitating more walking for these groups. The RTS Public Survey found that key factors to enable more walking for people who are blind or have a visual impairment include safe, obstruction free walking routes with good surface quality and places to rest. Cycling infrastructure also needs to consider the needs of people using non-standard or adapted bicycles.

Green Networks

There is a need to increase and improve active travel infrastructure on main transport corridors to achieve modal shift. However, Green Networks – such as the Central Scotland Green Network partially covering the SPT region - are also key to enabling more active travel by broadening the appeal of travelling actively and delivering additional health benefits associated with being closer to the

natural environment and providing opportunities for longer active travel journeys, when desirable, to increase physical activity.

Integration with public transport

Most journeys made by public transport also include an element of active travel to and from public transport stops and stations. This means good integration of public transport and active travel is important to enabling more walking, wheeling and cycling. This includes high quality walking and cycling routes to public transport hubs and adequate facilities to store or carry bikes when making a journey.

Specifically, partners and stakeholders noted that:

- Integration of cycling and buses needs to be improved and that, although this is challenging, there are good working examples to be drawn upon;
- Integration of cycling and Subway is limited and there are opportunities to improve this; and,
- Accommodation of bikes on rail and ferry services can be a problem, particularly at peak travel times (pre-COVID19) and improving this is important to encouraging modal shift as well as encouraging more sustainable tourism & visitor travel.

Prioritising people and places

Traffic volumes and speeds

All motorised roads traffic, even at lower speeds, presents safety risks particularly for the most vulnerable road users including children, disabled and older people and people who are cycling, whilst traffic volumes and speeds are key factors that discourage people from travelling by active means more often.[173]

Pavement Parking

Parking of vehicles on pavements creates obstructions for people who are walking or wheeling and is particularly problematic for older and disabled people and people using prams. Pavement parking can make it difficult and inconvenient to use local streets and can create unsafe conditions when people are forced to walk or wheel on the carriageway. One in 6 people in the RTS Public Survey said that fewer obstructions on pavements was a key factor to encourage more walking. Pavement parking can also cause substantial damage to pavements, which further adds to existing problems on surface quality and cost of maintaining pavements.

Local accessibility

The scope to encourage and enable more active travel is highly linked with journey distances and the ease of reaching every day destinations such as workplaces, food shops and services from home. Good integration of transport with placemaking and land use planning, including the 20-minute neighbourhood concept, will continue to be essential to increase walking, wheeling and cycling.

Enabling behaviour change

The new RTS will need to be supportive of broader travel behaviour change plans and initiatives as part of integrated approaches to modal shift and encouraging healthier ways of travelling, particularly as part of the post-COVID response and

recovery. However, there are two specific challenges that were raised by partners and in the wider evidence base that SPT feels should be a focus for the new RTS – tackling the school run and increasing access to bikes. Tackling these challenges are likely to be important to unlocking wider benefits.

The "School Run"

Previous research by Sustrans has shown the importance of walking and cycling to school to increase children's physical activity rates and instil sustainable behaviours at an early age.[174] Accessibility analysis identified that almost all (96%) primary school aged children and around half (50%) of secondary school aged school children live within 20 minutes of a primary or secondary school, respectively. This analysis does not account for route quality and safety problems that may deter use of shortest routes to schools; however, it demonstrates that travel distances to school across the region, particularly primary schools, are broadly suitable for active travel.

Engagement with local authorities found that increasing uptake of walking and cycling to school continues to be a challenge. In 2019, just over half (52%) of school children in the region travelled to school by walking or cycling and around one in four (26%) travelled by car as the main mode.[175] These figures have remained largely unchanged for more than 10 years.[176] The Hands Up Scotland Survey also showed, in 2019, that the percentage of children who are driven to school ranges from around one-quarter to one-third across the 12 local authorities in the SPT region.[177]

Improving local active travel infrastructure and road safety around schools including reducing or removing motorised traffic is important for enabling more walking and cycling to school, including older children who may be unaccompanied by an adult. However, tackling wider behavioural change around the 'school run' is also a key challenge for the RTS. The RTS Public Survey found that 70% of people said 'combining work and school travel' was a key reason for their travel to work modal choice being to travel by car.

The long-term impacts of COVID-19 on the nature of work are not well understood, but any sustained increases in home or remote working and flexible working are likely to present increased opportunities to facilitate more active travel to school.

Access to bikes

The RTS Public Survey found that access to one's own bike would encourage around a quarter (23%) of people who do not cycle regularly (less than once per week) to cycle or to cycle more often.[178] Only around three in every 10 households (29%) in the region have access to a bike for private use.[179] In 2019, bike ownership was lowest in Inverclyde and North Lanarkshire, and highest in South Ayrshire, East Renfrewshire, Argyll and Bute, East Dunbartonshire and North Ayrshire.[180]

There are inequalities in access to bikes as higher income households are much more likely to have access to an adult bike compared to lower income households in Scotland.[181] Higher income households are also much more likely to have awareness of cycle hire schemes compared to lower income households.[182]

Councils noted the success of the Glasgow bike hire scheme in reaching people who do not have access to bikes as well as encouraging more cycling in the city.

There is generally a desire to develop more bike hire schemes in the region, although it was noted that there are a range of challenges to implementing cross-boundary schemes. It was noted that electric bikes were also an area for development which would make it easier for more people to choose cycling by providing powered assistance whilst cycling up hills, over longer journeys or through large junctions.

The Glasgow-based Bikes for All project aimed to increase access to cycling for socially excluded individuals by breaking down barriers to cycling through provision of shared bikes (including discounted access to the Next Bike Hire Scheme) and one-to-one support. The evaluation of the project shows a large reduction in lack of access to a bike as a barrier to cycling and, overall, cycling participation increased with the percentage of participants cycling at least once a week increasing from 21% to 59%.[183]

9. Key Issue – Public Transport Quality & Integration

Overview

The new RTS will have a focus on improving the quality and integration of public transport to make it more desirable to use, and support a modal shift to more sustainable travel. This section looks at specific challenges around public transport services including the needs of existing passengers, and barriers for people who don't use public transport regularly or at all.

Attractiveness of Public Transport

Key challenges for existing passengers

The RTS Public Survey identified that nine in every 10 bus passengers, eight in every 10 rail passengers and 4 in every 10 Subway passengers feel that they regularly experience transport challenges during their journeys using those modes. The top three recorded challenges by mode were:

- Bus – reliability of services, cost of fares, and frequency;
- Rail – reliability of services, crowding, cost of fares; and
- Subway – crowding, cost, hours of operation.

Additionally, a substantial number of comments were received on integration challenges, including multi-operator ticketing and inter-changing between services.

There are likely to be some changes to passenger expectations and perceptions from pre-COVID travel experiences. Passengers are likely to value cleanliness more, and our perceptions of crowdedness and personal safety will have changed. These changes may be short-lived or may have lasting impacts on passenger expectations and satisfaction levels, which will be important to understand as the new RTS is developed. However, core service attributes around pricing, reliability and frequency will continue to be important to all passengers.

Barriers for non-users

The RTS Public Survey also asked people what stops them from using public transport at all or more regularly. The top 5 recorded challenges were each identified by more than 30% of respondents:

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

Cost of fares was the top challenge identified by respondents in West Dunbartonshire and East Ayrshire and frequency of services was the top challenge identified by respondents in Argyll and Bute. Lack of direct services was the top challenge for all other council areas.

Passenger Satisfaction

Satisfaction with local public transport services in the region has been decreasing and has fallen by 10 percentage points from a high in 2014 when 78% of residents in the SPT region were satisfied compared to 68% in 2019.[184] There is a large variation in satisfaction between council areas within the region. East Ayrshire (49%), Renfrewshire (58%), South Lanarkshire (61%) and South Ayrshire (44%) have the lowest satisfaction while Glasgow (79%) and Inverclyde (75%) have the highest satisfaction.[185] Argyll and Bute (24%), North Lanarkshire (20%), Renfrewshire (20%) and South Lanarkshire (17%) have a higher proportion of residents who are dissatisfied compared to the regional average (14%).[186]

Public transport fares vs Cost of driving

The UK Retail Prices Index rose by 31% between 2008 and 2018 whilst the cost of motoring increased by 32% - representing a very small real terms increase over 10 years.[187] Over the same 10-year period, rail fares increased 18% above the RPI level and bus and coach fares by 35%.[188] This has consequent impacts on the attractiveness of public transport compared to car travel not only for individual journeys, but also for longer term decisions related to owning and operating a car. Research suggests that demand for bus use in particular is highly responsive to changes in price.[189,190]

Value for Money

Value for money for public transport passengers can be broadly explained as being the perceived value of the transport service received in exchange for the price of the ticket. Research by Transport Focus research suggests that the price of the ticket is important, but getting the core service right - punctual, frequent and reliable services with available seating – is also at the heart of the value for money equation.[191] Value for money is also affected by the complexity of ticketing and fare structures, and the quality and accessibility of information about these options. Passengers need to be confident that they have access to the best available fares for the journey they want to make. In the SPT region, bus passenger satisfaction with value for money was 68% in 2018.[192] This compares to 76% in Edinburgh and Southeast Scotland region.[193] Rail passenger satisfaction with value for money on Scotrail services in Strathclyde was 56% in Autumn 2019.[194]

Service quality

Rail Reliability and Punctuality

Between 2016/17 – 2018/19, passenger rail routes demonstrating the lowest Public Performance Measure (PPM) in the SPT region were the Argyle Line (all services operating via Glasgow Central Low Level), Glasgow North (services operating via Glasgow Queen St Low Level), Motherwell-Cumbernauld and the Shotts line. The Public Performance Measure (PPM) is the standard measure for train service performance throughout Great Britain and it has two elements – punctuality and reliability.

Local Bus Reliability and Frequency

Analysis of bus journeys times at different times of the day identified variability in journey times on many routes across the region. The greatest variability was identified on the following sections of the network:

- M77 between Kilmarnock and Glasgow
- M8 between Paisley and Glasgow
- M80 between Cumbernauld and Glasgow
- A82 - A814 between Dumbarton – Clydebank - Glasgow
- A82 between Drumchapel and Glasgow City Centre
- A803 thru Bishopbriggs
- A814/Clydeside Expressway
- A739 Clyde Tunnel
- Aitkenhead Road, Glasgow
- Kennishead Road, Glasgow
- Tollcross Road
- M74 between Hamilton and Glasgow
- A749 East Kilbride - Cathkin
- A727 East Kilbride – Clarkston
- A78 Inverkip – Greenock

Service frequencies have generally been declining in the SPT region. In 2011, 41% of bus stops were served by at least 6 buses per hour between 8am and 9am. This decreased to 29%, or nearly a 1000 fewer bus stops, by 2019.

Subway

Pre-COVID19, crowding and hours of operation were key challenges identified by Subway passengers and stakeholders. Crowding was observed during weekday morning and evening peak travel periods and during event-related travel.

Pre-COVID19, there was also a strong desire from passengers and stakeholders for longer operating hours on Friday and Saturday nights and on Sundays. Weekend operating hours are a particular focus for passengers, business and stakeholders in relation to supporting the City Centre night time economy.

Integration

Journeys that involve a public transport mode as the main mode of travel are more likely to include using more than one mode of transport compared to journeys where car is the main mode of travel.[195] This means that changing between different services, modes or other means of travel needs to be convenient, efficient and attractive from the passenger perspective. The RTS Public Survey and engagement with councils identified the key challenges to be around inter-changing between services and ticketing.

Inter-changing

There is a need for improved integration of timetables between modes and operators. This is particularly an issue for rural services, areas with limited provision of public transport services, and during the evening or other times of lower demand, as the consequences of missed connections is more likely to be greater than times when services are more frequent.

Partners noted the challenges to integration where there is competition between operators or modes and that integration can be affected by service reliability problems. There is a need for improved provision of passenger information, particularly real time information to assist passengers in making integrated journeys. It is also essential to ensure that accessibility is at the core of

integration plans as inter-changing can be more challenging for some people more than others.

Integrated ticketing

The need for better integrated ticketing for public transport was one of the most often mentioned problems by residents, partners and stakeholders. Current ticketing products and arrangements in the region do not provide a fully smart, simple and integrated solution that meets the diverse needs of passengers and gives confidence in selecting 'best value' tickets.

ZoneCard is a multi-operator, multi-modal transport ticket covering bus, rail, Subway and ferry services in the SPT region and the ZoneCard ticketing arrangement has been in existence for around 30 years, administered by SPT on behalf of the participating operators. SPT recognises that the ZoneCard format does not currently represent modern best practice for ticketing. SPT and the ZoneCard participating operators also recognise that there are significant areas of potential improvement in the ticketing arrangement, which has been further amplified by COVID-19 impacts on travel to work patterns. Currently, there is work underway to simplify the complex Zone structure as a first step in fully modernising the ticket.

It was also raised by stakeholders that tourist-based ticketing is well behind cities like Copenhagen and Berlin where integrated travel SmartCards are available at airports, stations and travel hubs, actively marketed at the point of visitor bookings and linked to discounts for visitor attractions and facilities.

10. Setting the RTS Objectives

Five RTS Objectives have been developed in response to each of the 'Key Issues'. The objectives focus on what the RTS more specifically needs to accomplish to achieve the proposed targets and the Vision. The objectives are 'outward looking' and provide a clear expression of the outcomes the RTS wishes to deliver from the perspective of users (passengers and business) of the transport networks in the SPT area.

Key Issue	**Objective**
Transport Emissions	To reduce transport emissions in the region
Access for All	To improve equality of access to the transport system and improve accessibility to town centres, jobs, tertiary education and hospitals and other opportunities
Regional Connectivity	To improve connections between regional centres of economic activity & development opportunities within the region, and to key domestic and international markets
Active Living	To enable walking, cycling and wheeling to be the most popular choice for short, every day journeys
Public Transport Quality & Integration	To make public transport a desirable travel choice for residents and visitors

11. RTS Options

The development of the RTS options follows identification of the Key Issues and RTS Objectives. The RTS options are all of the policies, actions and investments that can help tackle the specific problems identified in the Key Issues sections, achieve the RTS Objectives & Targets and realise the RTS Vision.

An initial 'long list' of options has been generated through a structured process, ensuring links back to the specific problems identified within the RTS Key Issues. The RTS options, at the stage, are wide-ranging and include ideas for regional policies, infrastructure & service investments, demand management & other behaviour change interventions, and regulations; and will consider interventions that affect demand and supply. This is in line with Scottish Transport Appraisal Guidance (STAG) and the need to consider a wide range of options as potential solutions to the identified problems.

SPT will gather feedback on the options during the Case for Change consultation. Detailed option development will follow the consultation, which will determine the spatial characteristics of options and the more specific policy settings and actions. The appraisal process will determine which options perform best against the objectives and targets and will inform the development of the final strategy.

No	Option
1	Regional Electric Vehicle (EV) network charging strategy
2	Invest in EV charging infrastructure
3	Promotion of Ultra Low Emissions Vehicles (ULEVs)
4	Local bus fleet transition to ultra-low emission buses
5	Community Transport sector transition to ultra-low emission vehicles
6	Freight sector transition to ultra-low emission vehicles
7	Development of alternatives to battery electric vehicles, particularly Hydrogen opportunities and for larger vehicles
8	Implementation of Low Emission Zones
9	Air quality mitigation measures
10	Taxi sector transition to low emission vehicles
11	Regional demand management policy – option to develop regional policy framework to support the development and implementation of demand management interventions in the region including establishing principles of what types of interventions are best developed on a cross-boundary, regional or national level.
12	Demand management measures – options for road space reallocation, parking, pricing and behaviour change
13	Develop shared mobility choices – options to reduce personal car ownership and single occupancy car trips including journey sharing, car sharing including car clubs, bike sharing
14	Options to enhance public transport and active travel
15	Cyclelogistics – improvements to transport of freight by bike
16	'Last mile' innovations – improving integration and better co-ordination of the 'last mile' in freight transport deliveries
17	Freight consolidation centres

18	Low emission road freight where rail freight alternatives do not exist
19	Support Rail freight market development
20	Transit-oriented development – land-use developments which support and facilitate sustainable travel
21	Sustainable transport for new developments
22	Develop a Housing & Transport Affordability Index (H&TA) – option to develop a H&TA Index, which are used in other countries to support sustainable and integrated land use and transport planning policies, to discourage urban sprawl and reduce transport affordability challenges by reducing need to travel, car dependency and journey distances
23	City & town centre living strategies
24	"20-minute neighbourhoods" – facilitating the ability to meet most daily needs within a 20-minute walk, cycle or public transport journey from home.
25	"Zero car" housing development – encouraging housing developments which positively discourage car use, but have sustainable transport / active travel options.
26	Affordable fares regional policy
27	Changes to eligibility criteria and scope of concessionary fares schemes
28	"Free" or very low public transport fares
29	Improve integration of ticketing and fares
30	Influence local bus fares to support wider policy objectives
31	Influence and develop fares and ticketing structures to be more responsive to flexible, shift and part time working patterns
32	Review Subway fares policy
33	Regional accessibility strategy to prioritise and deliver actions from the Scottish Accessible Travel Framework
34	Journey assistance services across all public transport operators in the region
35	Integration of journey assistance services between operators / modes
36	Fully accessible and comprehensive travel information and journey planning services – at stops/stations, on board services, and digital – including improved
37	Promote awareness and training to public transport staff about hidden disabilities
38	Enhanced accessibility of public transport and active travel infrastructure
39	Increased access to accessible demand responsive transport services
40	Increased availability of accessible taxis
41	Improved accessibility of shared mobility options e.g. Car Share schemes
42	"Level of Service" regional policy – this would clarify and define the desired level of access by public transport / active travel for a geographic area or community
43	Development and enhanced capacity building & resilience of Community Transport Network
44	Enhanced local bus services & networks
45	New rail stations
46	Improved walking & cycling routes to public transport stops/stations/hubs
47	Increase and enhanced active walking & cycling networks

48	Increased capacity, flexibility and coverage of demand responsive services
49	Improved integration between Community Transport, Demand Responsive Transport, and local public transport
50	"Total Transport" approach and initiatives – options to integrate transport services in geographic areas that are currently commissioned by different government agencies and delivered by different operators, such as non-emergency patient transport, socially necessary bus services, adult social care transport and home to school transport.
51	Improved safety and security on routes to public transport
52	Improved safety and security at public transport hubs
53	Improved safety and security on board public transport
54	Implement Road Safety Framework in the region
55	Implement public transport Hate Crime Charter in region
56	Enhanced walking and cycling infrastructure including segregation and safer crossings
57	Local accessibility frameworks or plans for local communities to tackle specific problems (e.g. locality planning areas)
58	Jobs access schemes – option to develop schemes that help unemployed people into work by removing transport barriers including cost, information and journey planning barriers. Typically, these schemes offer personalised travel advice and free or discounted travel particularly during the first weeks of a new job before wages are received
59	Health and Transport Action Plan with each Health board in the region
60	Increased travel planning including promoting TravelKnowHow
61	Sustainable integrated transport hubs for hospitals, campuses & town centres
62	Support role of Community Transport in providing access to healthcare
63	Integrated 'mini' transport hubs for smaller towns and rural communities to improve integration with mainstream public transport
64	Improved resilience and sustainability of rural transport services and networks in the region
65	Support development and delivery of the Islands Connectivity Plan
66	Enhanced resilience of ferry services for Arran and Cumbrae and peninsular communities on the Clyde
67	Increased sustainable transport options on islands and rural mainland communities
68	Support capacity enhancements and constraint resolution on roads network
69	Enhanced or new fixed links for Cross-Clyde connectivity
70	Improved resilience of local roads networks to flooding and other weather-related incidents
71	Smart / managed motorways using Intelligent Transport Systems
72	Enhanced Urban Traffic Control systems for all local roads authorities in the region
73	HGV rest stops and enhanced secure overnight facilities
74	Enhanced intermodal freight transfer facilities
75	Rail enhancements to support freight modal shift to rail
76	New / enhanced bus lanes/segregation
77	Improved traffic management
78	New / enhanced traffic signal control

79	Enhanced enforcement of bus lanes
80	New/Enhanced bus park and ride
81	Capacity enhancements and constraint resolution on rail network
82	Improved resilience and adaptation of rail
83	Enhanced economic and social value of rural railways
84	Support Rail Services Decarbonisation Plan
85	Re-opening of disused rail lines (passenger and freight)
86	Support Glasgow Central capacity enhancement (aligned with STPR2 process)
87	Support delivery of High Speed Rail to the region (aligned with STPR2 process)
88	New/Enhanced rail park and ride
89	Strategic Active Travel Network and Active Freeways
90	Enhanced harbour and terminal infrastructure for passenger ferry services
91	Enhanced capacity on ferry routes on the Clyde
92	Glasgow Metro – options for Glasgow Metro system including modal interventions and integration (options development aligned with Glasgow City Region processes)
93	Support development of national aviation review
94	Regional Active Travel Network Strategy
95	20pmh speed limits and 20pmh zones
96	Implementation of Pavement Parking guidance and regulations
97	Place-making schemes to improve the quality of the built environment for walking and cycling
98	Support and develop behaviour change activities that tackle wider societal norms around car use, walking and cycling to support the wider "tackling the school
99	Active travel promotional, marketing and branding activities
100	Support and promote uptake of electric bikes
101	Invest in electric bike infrastructure
102	Develop local bike hire & bike sharing schemes & initiatives
103	Facilitate development of cross-boundary bike hire/bike sharing opportunities
104	Co-ordinated and enhanced active travel journey planning information
105	Improve integration of active travel and public transport
106	Service Quality regional policy – option to develop regional policy focused on defining the desired public transport service quality, particularly to achieve a modal shift
107	Transport (Scotland) Act 2019 provisions for local bus – options for franchising, municipal bus companies and Bus Service Improvement Partnerships
108	Public transport Passenger Charter
109	Enhanced local public transport networks and service frequencies
110	Improved local public transport journey times, reliability and punctuality
111	Improved multi-modal integration of public transport networks and services

112	Enhanced local public transport stop/station infrastructure
113	Enhanced and integrated promotional, marketing and branding activities for local public transport
114	Improved monitoring of passenger satisfaction
115	New Subway service plan (following completion of Subway Modernisation)
116	A regional framework for Mobility as a Service – option to develop a framework for the development and delivery of MaaS in the region
117	ZoneCard modernisation
118	Enhanced Smart and integrated ticketing for the region (e.g. tap on/tap off)
119	Enhance provision of real time passenger information

12. Looking ahead - delivering the Strategy

This section sets out some of the roles, responsibilities and funding challenges that were identified during the development of the Case for Change and the actions that SPT will be taking during the development of the RTS.

Transport roles and responsibilities

Roles and responsibilities challenges were identified early in the process to develop the new National Transport Strategy. An initial review undertaken as part of the development of the NTS concluded that there was a case for change in transport roles and responsibilities in Scotland, and that change should be based on some form of regional model, subject to it being workable and deliverable. Others too, have flagged it as a key issue, including Glasgow's Connectivity Commission, who made some radical proposals in that regard. Many stakeholders also highlighted skills in transport as a key issue.

It is clear that many of these issues can only be dealt with at national level and, building on the earlier work, a further review of transport governance is being led by Transport Scotland, with input from regional and local partners and stakeholders. SPT is directly engaged in this process and will continue to participate in this workstream in 2021/22.

Local Bus

From the options identified so far at this stage, it is clear that local bus will play a key role in delivering the new RTS in future. The Transport (Scotland) Act 2019 sets out new provisions for local transport authorities to improve local bus services. SPT will take forward, with council partners, a feasibility study of the Transport (Scotland) Act 2019 provisions for local bus services in 2021/22 to support the development and appraisal of options for the new RTS.

Transport for new development

The engagement activities for the RTS highlighted the challenges in implementing existing transport and land use planning policy including decisions around the wider public realm. Specific challenges include:

- planning, securing and maintaining provision of local bus services for new development – specifically, the development pipeline from site allocation to occupation can be prolonged and bus services and networks can change in the interim. Developer contributions can be used to introduce bus services for an initial period, but this does ensure the delivery of an integrated network or that bus services will continue in future.
- decision making and certainty around rail infrastructure and differing aspirations at local, regional and national levels;
- delivering an integrated network for walking & wheeling, cycling and local bus across complex development sites; and,
- The need for the efficient use of the public estate resulting in site rationalisation of services and facilities that have wider impacts on accessibility and transport networks.

SPT will engage further with our local planning authorities and ClydePlan over 2021/22 to identify opportunities to secure better sustainable transport outcomes for new development.

Open data and Mobility as a Service

The new RTS will need to recognise the role of data in helping to provide improved services within the region. Travel data will supply a rich source of information that will greatly improve visibility of services and allow passengers to make more informed travel choices. It will also be key to the integration of multi-modal journeys and provision of real-time journey management information as well as the wider implementation of Mobility as a Service (MaaS).

The MaaS concept envisages a shift to a more user-centric, service-based model where users purchase packages of travel services rather than the means of transport whilst transport providers respond more dynamically to individualised travel requirements and desires aided by improved data and analytics. The types of transport services that could be brought together into a MaaS 'ecosystem' include traditional services such as local bus and taxis and existing shared mobility options such as community car clubs and bike hire schemes as well as emerging shared mobility options such as peer-to-peer car sharing and one-way car sharing, smart 'dockless' bike sharing and electric bike & electric scooter sharing, taxi sharing and other forms of small-scale demand responsive transport.

There are a number of key challenges to the successful implementation of MaaS. These include a lack of local evidence of the most appropriate delivery models, developing the open data environment necessary for a diverse and mature marketplace, improving digital connectivity in rural areas and for people with limited access to digital resources as well as defining the roles and capabilities of the private and public sector to achieve mutually beneficial collaborative relationships and partnerships.

Mobility as a Service presents opportunities to address specific transport challenges in the SPT region. However, there is uncertainty as to how this can be best developed to support the RTS vision. SPT will take forward a study with council partners to assess issues and options for MaaS in the region including investigating and assessing widening access to data and the wider governance approaches that can be taken for MaaS.

Funding for Transport

Stakeholders have highlighted a range of challenges in resourcing the delivery of transport services and infrastructure. Further, while there has been a welcome greater recognition of transport's role in delivering wider outcomes this has, in turn, served to increase pressure and expectation on resources in transport to deliver more.

Pressures on capital and revenue funding for transport have only been exacerbated by the impact of Covid-19 with, for example, increased concerns about potential future demands for revenue funding for socially necessary bus services should the commercial network not return in as full a form as it was pre-pandemic. More fundamentally, there is increasing pressure on local government to deliver towards national priorities (e.g. in relation to active travel) and targets (e.g. climate change targets) at a time when there is increased demands on their diminishing resources, and where even fulfilment of basic operational requirements such as maintenance of the local road network are proving difficult.

Delivering the step change in transport provision required to achieve the RTS Vision, particularly in light of the impacts of the pandemic, will require the appropriate level of resources to achieve it. To that end, SPT undertook an initial scoping review of funding opportunities in 2020, and will seek to build on this initial work in 2021/22, following the completion of the consultation on the Case for Change and the initial appraisal of options, to further identify potential opportunities for transport funding for delivery of an ambitious RTS.

13. Next Steps

SPT welcomes comments on the draft Case for Change report. A consultation form is available alongside this report at www.spt.co.uk/vision.

After the consultation period is ended, all feedback will be considered and consolidated. The Case for Change report will be updated as required and a consultation report will be published.

Following this, SPT will work with partners to develop the options further before appraising options and developing the recommended strategy. A further consultation on the Draft Regional Transport Strategy will then take place, with the new RTS due to be complete in early 2022.

14. References (note – some references still to be updated)

[1] https://www.transport.gov.scot/our-approach/national-transport-strategy/

[2] Securing a Green Recovery on a Path to Net Zero: Climate Change Plan 2018–2032 – update https://www.gov.scot/publications/securing-green-recovery-path-net-zero-update-climate-change-plan-20182032/

[3] https://www.gov.scot/policies/climate-change/reducing-emissions/

[4] https://www.gov.scot/publications/scotlands-fourth-national-planning-framework-position-statement/

[5] National Records of Scotland. Mid-year population estimates: Scotland and its council areas by single year of age and sex 1981 to 2019

[6] National Records of Scotland. Small Area Population Estimates

[7] Visit Scotland: Tourism in Scotland's Region 2016. Available at: https://www.visitscotland.org/research-insights/regions

[8] Scottish Government; Scottish Index of Multiple Deprivation 2020. Using Income Count Indicator for number of people who are income deprived.

[9] RTS EQIA Scoping Report; using data from Scottish Index of Multiple Deprivation 2016 and End Child Poverty Campaign

[10]Scottish Government; Regional Employment Patterns in Scotland: statistics from the Annual Population Survey 2018 Web Tables. Table 1.1 and Table 4.2

[11] Scottish Government; Regional employment patterns in Scotland: statistics from the Annual Population Survey 2018 Web Tables. Table 1.16

[12] Scottish Government; Regional employment patterns in Scotland: statistics from the Annual Population Survey 2018 Web Tables. Table 1.15.

[13] Scottish Index of Multiple Deprivation 2020; Local Share Tool

[14] Scottish Index of Multiple Deprivation 2020: introduction
Key findings in SIMD 2020. Available at: https://www.gov.scot/publications/scottish-index-multiple-deprivation-2020/pages/5/

[15] Scottish Index of Multiple Deprivation 2020: introduction
Key findings in SIMD 2020

[16] Poverty and Income Inequality in Scotland 2016-19

[17] Going Further – Scotland's Accessible Travel Framework (2016). Available at: https://www.transport.gov.scot/publication/going-further-scotland-s-accessible-travel-framework/

[18] Scottish Surveys Core Questions 2019

[19] Office of National Statistics; Gender Pay Gap (median). Annual Survey of Wages and Earnings 2020

[20]

[21] Scottish Government; Regional employment patterns in Scotland: statistics from the Annual Population Survey 2018 Web Tables. Table 1.16

[22] Scottish Government; Regional employment patterns in Scotland: statistics from the Annual Population Survey 2018 Web Tables. Table 1.15.

[23] National Records of Scotland principle population projections (2018-base) by local authority

[24] Scottish Surveys Core Questions 2019

[25] Scottish Government; Mental Health Strategy 2017 – 2027 (2017). Available at: https://www.gov.scot/publications/mental-health-strategy-2017-2027/

[26] Scottish Government; Active Scotland Outcomes Framework . Available at: https://scotland.shinyapps.io/sg-active-scotland-outcomes-framework-indicators/

[27] A connected Scotland strategy

[28] As identified in Local Air Quality Management. Available at: http://www.scottishairquality.scot/laqm/aqma

[29]Transport Scotland; Scottish Transport Statistics, No. 38 2019 Edition. Chapter 13: Environment and Emissions

[30] 33. See results of Air Quality and Health project (https://www.environment.gov.scot/our-environment/air/air-quality-and-health/) including Cowie, H., Crawford, J., Davis, A., Steinle,S., Reis, S., Dixon, K., Morris, G., and Hurley, F. (2015). Air Quality, Health, Wellbeing and Behaviour. Available at: https://www.environment.gov.scot/media/1133/iom-seweb-aq-health-behaviour-review.pdf

[31] European Environment Agency; Air quality in Europe — 2019 report . EEA Report No 10/2019. Available at: https://www.eea.europa.eu/publications/air-quality-in-europe-2019

[32] Scottish Government; Cleaner Air for Scotland – the Road to a Healthier Future (2015). Available at: https://www2.gov.scot/Resource/0048/00488493.pdf

[33] IBID

[34] IBID

[35] Scottish Government and COSLA; Place Principle: introduction. Available at: https://www.gov.scot/publications/place-principle-introduction/

[36] Scottish Government; Urban Rural Classification 2016. Using 6-Fold Classification.

[37] National Records of Scotland; Population Projects for Scottish Areas (2018-base)

[38] Scottish Government; Urban Rural Classification 2016. Using 6-Fold Classification. And National Records of Scotland. 2019 Small Area population estimates.

[39] Using National Records of Scotland; 2018-base principle population projections for 2018-2043 by sex, council area and single year of age
[40] Business Register and Employment Survey 2019 NOMIS Web
[41] National Records for Scotland; Scotland Census 2011. Using Travel to Work Origin-Destination data. See RTS Baseline Report for more information. This includes people living and working in Glasgow.
[42] Office of National Statistics; Business Register and Employment Survey 2018
[43] Office of National Statistics; Business Register and Employment Survey 2018
[44] Scottish Funding Council Infact database; HESA
[45] Transport Scotland, Travel and Transport in Scotland Local Area Analysis: 2019. Table 4
[46] IBID.
[47] National Records of Scotland; Scotland Census 2011. Table DC1401SC
[48] IBID
[49] National Records of Scotland; Scotland Census 2011. Table LC3045SC
[50] Transport Scotland; Travel and Transport in Scotland Local Area Analysis: 2009/10, 2012/13, 2014, 2015, 2016, 2017, 2018 and 2019. Table 5.
[51] Transport Scotland; Travel and Transport in Scotland Local Area Analysis SHS results: 2018. Using figures from Table 5.
[52] Transport Scotland; Travel and Transport in Scotland Local Area Analysis: 2009/10, 2012/13, 2014, 2015, 2016, 2017, 2018 and 2019. Table 5.
[53]Chatterjee, K. et al. (2018). Young People's Travel – What's changed and Why? Review and Analysis. Report to Department for Transport.
[54] Office of Rail and Road. Rail Station Usage Estimate Time Series of passenger entries and exits. 2008/09 – 2018/19
[55] Transport Scotland; Transport and Travel in Scotland Local Area Analysis 2009-10, 2012-13, 2014, 2015, 2016, 2017, 2018, 2019. Table 1
[56] Transport Scotland; Transport and Travel in Scotland Local Area Analysis 2009-10, 2012-13, 2014, 2015, 2016, 2017, 2018, 2019. Table 13
[57] Transport Scotland; Scottish Transport Statistics No. 38 2019 Edition. Table 2.2b.
[58] Transport Scotland. Transport and Travel in Scotland Local Area Analysis. 2009-10, 2012-13, 2014, 2015, 2016, 2017, 2018, 2019. Table 14a
[59] SPT Public Transport Monitoring Reports. Available at: http://spt.co.uk/corporate/about/minutes-agendas/operations-committee/
[60] Transport Scotland; Transport and Travel in Scotland Local Area Analysis: 2009/10, 2012, 2014, 2016, 2019. Table 9.
[61] Transport Scotland; Transport and Travel in Scotland Local Area Analysis: 2019. Table 9
[62] Transport Scotland. Transport and Travel in Scotland Local Area Analysis. 2009-10, 2012-13, 2014, 2015, 2016, 2017, 2018, 2019. Table 1
[63] Transport Scotland; Transport and Travel in Scotland Local Area Analysis, 2019. Table 1.
[64] Transport Scotland; Transport and Travel in Scotland Local Area Analysis, 2019. Table 1.
[65] Transport Scotland; Transport and Travel in Scotland Local Area Analysis, 2019. Table 3
[66] Office of National Statistics. Coronavirus and the social impacts on Great Britain. Results for 13 January 2021 – 17 January.
[67] Office of National Statistics. Business insights and impact on the UK economy Wave 22, 28 January 2021
[68] Office of National Statistics. Business insights and impact on the UK economy Wave 22, 28 January 2021
[69] Scottish Government; Scottish Annual Business Statistics 2017: Profile of Scottish Retail Sector. Available at: https://www.gov.scot/publications/scottish-annual-business-statistics/
[70] Office of National Statistics. Internet sales as a percentage of total retail. January 2021
[71] Transport Scotland; Carbon Account for Transport No. 11: 2019 Edition.
[72] IBID
[73] Transport Scotland; Scottish Transport Statistics, No. 38 2019 Edition. Chapter 13: Environment and Emissions. Table 13.6a.
[74] Transport Scotland; Carbon Account for Transport No.12: 2020 Edition.
[75] Temporary reduction in daily global CO2 emissions during the COVID-19 forced confinement, Nature Climate Change 10 647 – 653
[76] Transport Scotland; Carbon Account for Transport No. 11: 2019 Edition.
[77] Transport Scotland; Carbon Account for Transport No. 12: 2020 Edition.
[78] IBID
[79] Department for Business, Energy & Industrial Strategy; Emissions of carbon dioxide for Local Authority areas
[80] Department for Business, Energy & Industrial Strategy; Emissions of carbon dioxide for Local Authority areas
[81] IBID
[82] IBID
[83] Transport Scotland; Scottish Transport Statistics, No. 37 2019 Edition. Chapter 5: Road Traffic. Table 5.5. The figure includes the whole of Argyll and Bute.
[84] Transport Scotland; Scottish Transport Statistics, No. 38 2019 Edition. Chapter 13: Environment and Emissions. Table 13.1a
[85] IBID
[86] European Environment Agency; Explaining Road Transport Emissions – a non-technical guide (2016). Available at: https://www.eea.europa.eu/publications/explaining-road-transport-emissions
[87] Air Quality Expert Group; Non-Exhaust Emissions from Road Traffic (2019) https://uk-air.defra.gov.uk/assets/documents/reports/cat09/1907101151_20190709_Non_Exhaust_Emissions_typeset_Final.pdf
[88] Barnes, J., Chatterton, T., Longhurst, J. (2019). Emissions vs exposure: Increasing injustice from road traffic-related air pollution in the United Kingdom. Transportation Research Part D: Transport and Environment,
V 73, pp 56-66.

[89] Scottish Environment Protection Agency
[90] Ogen, Y. (2020) Assessing nitrogen dioxide (NO2) levels as a contributing factor to coronavirus (COVID-19) fatality. Science of the Total Environment, V.726, pp
[91] Frontera, A., Cianfanelli, L., Vlachos, K., Landoni, G., and Cremona, G (2020). Severe air pollution links to higher mortality in COVID-19 patients: The "double-hit" hypothesis. Journal of Infection, V 81 (2), pp. 255-259.
[92] European Environment Agency; Driving to an Electric Future (2017). Available at: https://www.eea.europa.eu/signals/signals-2017/articles/driving-to-an-electric-future
[93] Climate Change Plan update
[94] European Environment Agency; Explaining Road Transport Emissions – a non-technical guide (2016). Available at: https://www.eea.europa.eu/publications/explaining-
[95] Department for Transport/DVLA; Vehicle Licensing Statistics: Quarter 3 2020. Table VEH0132
[96] Department for Transport/DVLA; Vehicle Licensing Statistics: 2019. Table VEH0105.
[97] Department for Transport/DVLA; Vehicle Licensing Statistics: 2020Q3. Table VEH0132.
[98] IPSOS (2018). The future of Mobility: Electrification. Available at: https://www.ipsos.com/en/future-mobility-electrification
[99] RTS Public Survey
[100] Department for Transport/DVLA; Vehicle Licensing Statistics: 2019, Table VEH0105.
[101] EASAC; Decarbonisation of transport: options and challenges (2019). Available at: https://easac.eu/fileadmin/PDF_s/reports_statements/Decarbonisation_of_Tansport/EASAC_Decarbonisation_of_Transport_FINAL_March_2019.pdf
[102] European Environmental Agency; Electric Vehicles in Europe (2015).
[103] Using figures from Department for Transport/DVLA: Vehicle Licensing Statistic – Table VEH0105 and National Records of Scotland; Mid Year Small Area Population Estimates.
[104] Transport Scotland; Travel and Transport in Scotland Local Area Analysis SHS results; 2012/2013, 2014, 2015 and 2016-2018 combined. Table 6.
[105] Transport Scotland; Scottish Transport Statistics 2019 Edition. Chapter 13 Environment, Table 13.2.
[106] Department for Transport/DVLA; Vehicle Licensing Statistics: 2019. Table VEH0105.
[107] Department for Transport/DVLA; Vehicle Licensing Statistics: 2019. Table VEH0105.
[108] Gately, C., Hutyra, L., and I. Wing. (2015). Cities, traffic, and CO2: A multidecadal assessment of trends, drivers, and scaling relationships. Available at: https://www.pnas.org/content/pnas/112/16/4999.full.pdf
[109] Barla, P., Miranda-Moreno, L. and M. Lee-Gosselin. (2011). Urban travel CO2 emissions and land use: A case study for Quebec City. Transportation Research Part D: Transport and Environmen. V.16 (6), pp 423-428.
[110] Transport Scotland; Transport and Travel in Scotland Local Area Analysis 2012-13, 2014, 2015, 2016, 2017, 2018 and 2019 Table 20.
[111] Transport Scotland; Transport and Travel in Scotland Local Area Analysis 2012-13, 2014, 2015, 2016, 2017, 2018 and 2019 Table 20.
[112] RTS EQIA Scoping report; Available at www.spt.co.uk/vision
[113] Lucas, K., Stokes, G., Bastiaanssen, J., and J. Burkinshaw (2018). Inequalities in mobility and access in the UK transport system. An evidence review commissioned for the Forecast Future of Mobility project. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784685/future_of_mobility_access.pdf
[114] IBID.
[115] Sustrans; Locked out: transport poverty in England (2012)
[116] Mattioli, G. (2017). 'Forced Car Ownership' in the UK and Germany: Socio-Spatial Patterns and Potential Economic Stress Impacts. Social Inclusion V5 (4), pp 147- 160
[117] Crisp, R., Gore, T. and McCarthy, L. (2017). Addressing transport barriers to work in low income neighbourhoods: a review of evidence and practice. Report prepared for Sheffield Hallam University.
[118] Lucas, K., Stokes, G., Bastiaanssen, J., and J. Burkinshaw (2018). Inequalities in mobility and access in the UK transport system. An evidence review commissioned for the Forecast Future of Mobility project. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784685/future_of_mobility_access.pdf
[119] Using figures from National Records of Scotland; Scotland Census 2011, Table KS404SC; Scottish Government Urban Rural Classification 2016; and Scottish Government Scottish Index of Multiple Deprivation 2016 – 20% Most Income Deprived
[120] Curl, A., Clark, J. & Kearns, A. (2017). Household car adoption and financial distress in deprived urban communities over time: a case of 'forced car ownership'? Transport Policy 65,
61 - 71
[121] IBID
[122] Curl, A., Clark, J. & Kearns, A. (2017). Household car adoption and financial distress in deprived urban communities over time: a case of 'forced car ownership'? Transport Policy 65,
61 - 71
[123] Scottish Youth Parliament; All Aboard Campaign Survey Results
[124] Transport Scotland; Scottish Transport Statistics No. 38.2019 Edition. Table 10.7.
[125] Transport Scotland, Transport and Travel in Scotland Local Area Analysis 2019
[126] Pavey, S., Dodgson, A., Douglas, D., and B. Clements. (2009). Travel, Transport, and Mobility of people who are blind and partially sighted in the UK. Final report for the RNIB. Visual Impairment Centre for Teaching and Research, University of Birmingham. Available at: https://www.rnib.org.uk/knowledge-and-research-hub/research-reports/travel-mobility-and-living-skills-research/travel-transport-mobility
[127] Using figures from Transport Scotland, Scottish Transport Statistics 2019. Chapter 1, Table 1.4 Taxi, private hire cars and drivers licensed by local authority area, 2019

[128] Using figures from Transport Scotland, Scottish Transport Statistics 2019. Chapter 1, Table 1.4 Taxi, private hire cars and drivers licensed by local authority area, 2019
[129] IBID.
[130] Transport Scotland; Transport and Travel in Scotland Local Area Analysis SHS results, 2019. Tables 14a and 14b.
[131] SPT Subway Passenger Surveys (2014, 2015)
[132] BREST
[133] Using figures from Scottish Government; Scottish Index of Multiple Deprivation 2020 Income and Employment Domains. Also see RTS EQIA Scoping Report.
[134] See RTS Baseline Report.
[135]Thompson, J., Communities Analysis Division, Scottish Government (2016). Rural Deprivation Analysis Summary. Available at: https://www.gov.scot/binaries/content/documents/govscot/publications/research-and-analysis/2017/02/scottish-index-of-multiple-deprivation-rural-deprivation-evidence-and-case-studies/documents/rural-deprivation-an-evidence-review/rural-deprivation-an-evidence-review/govscot%3Adocument/rural%2Bdeprivation%2Bevidence%2Breview.pdf
[136] Using figures from National Records of Scotland; Scotland Census 2011, Table KS404SC; Scottish Government Urban Rural Classification 2016
[137] Dargay, J. (2002). Determinants of car ownership in rural and urban areas: a pseudo-panel analysis. Transportation Research E, 38 (5). pp. 351-366. Available at: http://eprints.whiterose.ac.uk/2486/1/ITS2106-determinants_of_car_ownership_uploadable.pdf
[138] See RTS Baseline Report.
[139] Using figures from Scottish Government; Scottish Index of Multiple Deprivation 2020 Employment Counts
[140] Using figures from National Records for Scotland; 2014 and 2019 Small Area Population Estimates and Scottish Government Urban Rural Classification (6 Fold) 2013-14 and 2016.
[141] See RTS Baseline Report.
[142] See RTS Baseline Report
[143] See RTS Baseline Report
[144] Transport Scotland; Scottish Transport Statistics No. 38 2019 Edition. Table 5.5
[145] IBID.
[146] RTS Baseline report
[147] RTS Baseline report
[148] Transport Scotland; Scottish Transport Statistics No. 38 2019 Edition. Tables 9.15 and 9.16.
[149] IBID
[150] Transport Scotland; Scottish Transport Statistics No. 38 2919 Edition.
[151] Officer of Road and Rail; Station Usage Estimates 2018/19
[152] Scotrail
[153] Scotland Census 2011
[154] Transport Scotland; Travel and Transport in Scotland 2019 Local Area Analysis using figures from Table 11.
[155] SPT park and ride data.
[156] Scotrail; Rail station Car Park Survey, 2014.
[157] Transport Scotland; Scottish Transport Statistics
[158] Scotland Census 2011
[159] Scotland Census 2011
[160] SEPA; Ayrshire Local Plan District Flood Risk Management Strategy (2015)
[161] SEPA; Clyde and Loch Lomond Local Plan District Flood Risk Management Strategy (2015)
[162] Climate Ready Clyde; Climate Risk and Opportunity Assessment for Glasgow City Region: Infrastructure Technical Report. Available at: https://www.crc-assessment.org.uk/infrastructure
[163] IBID
[164] SEPA; Ayrshire Local Plan District Flood Risk Management Strategy (2015)
[165] SEPA; Clyde and Loch Lomond Local Plan District Flood Risk Management Strategy (2015)
[166] Climate Ready Clyde; Climate Risk and Opportunity Assessment for Glasgow City Region: Infrastructure Technical Report. Available at: https://www.crc-assessment.org.uk/infrastructure
[167] North Ayrshire Council and South Ayrshire Council; Ayrshire Shoreline Management Plan 2018.
[168] Law, C., Power, C., Graham, H., Merrick, M. (2007). Obesity and health inequalities. Obesity Reviews V.8 (Suppl. 1), pp. 19–22.
[169] Jacobson, S.; King, D. and R. Yuan. (2011). A note on the relationship between obesity and driving. Transport Policy V 18 (5), pp 772 – 776.
[170] National Institute for Health and Care Excellence; Physical Activity: Walking and Cycling Public health guideline [PH41] (2012).
[171] Transport Scotland. Reported Road Casualties Scotland. 2019
[172] Scottish Government; Active Scotland Outcomes: Indicator Equality Analysis (2015). Available at: https://www.gov.scot/publications/active-scotland-outcomes-indicator-equality-analysis/
[173] Transport Scotland; Travel and Transport in Scotland 2018 Table 26, 2019 Table 26a
[174] White, Rachel (2019). The importance of walking and cycling to school. Environmental Education. National Association for Environmental Education
[175] Transport Scotland; Transport and Travel in Scotland 2019 Local Authority results Table 3.
[176] Transport Scotland; Transport and Travel in Scotland Local Authority results Table 3 (2009/10, 2012/13, 2014 – 2019)

[177] Sustrans; Hands Up Scotland Survey 2019 results. Using Table 3.1 for all schools by local authority. Available at: https://www.sustrans.org.uk/our-blog/projects/2019/scotland/hands-up-scotland-survey/

[178] RTS Public Survey. This does not include people who said 'nothing' could encourage them to cycle more often.

[179] Transport Scotland; Transport and Travel in Scotland 2019 Local Area Analysis Table 8

[180] Transport Scotland; Transport and Travel in Scotland 2019 Local Area Analysis Table 8

[181] Transport Scotland; Transport and Travel in Scotland 2019 SHS results, Table 18.

[182] Transport Scotland; Transport and Travel in Scotland 2019 SHS results, Table 46.

[183] Glasgow Centre for Population Health (2020). Bikes for Good: evaluation: summary of overall findings. Available at: https://www.gcph.co.uk/assets/0000/7955/Bikes_for_All_year_two_report.pdf

[184] Transport Scotland: Transport and Travel in Scotland Local Area Analysis. 2012-13, 2014, 2015, 2016, 2017, 2018 and 2019. Table 13

[185] Transport Scotland; Transport and Travel in Scotland Local Area Analysis SHS results; Using combined figures for 2016, 2017, and 2018 results. Table 13.

[186] Transport Scotland; Travel and Transport in Scotland Local Area Analysis 2019. Table 13.

[187] Transport Scotland; Scottish Transport Statistics No. 38. 2019 Edition. Table 10.7

[188] Transport Scotland; Scottish Transport Statistics No. 38. 2019 Edition. Table 10.7

[189] Mackett, R., Paulley, N., Preston, J.M., Shires, J., Titheridge, H., Wardman, M. and White, P. , Balcombe, R. (ed.) (2004) The demand for public transport: a practical guide. Wokingham, UK. TRL Limited 246pp.

[190] Urban Transport Group; What's driving bus patronage change? An analysis of the evidence base (2019). Available at: http://www.urbantransportgroup.org/resources/types/reports/whats-driving-bus-patronage-change-analysis-evidence-base

[191] https://www.transportfocus.org.uk/news/getting-bus-basics-right-the-key-to-value-for-money/

[192] Transport Focus; Bus Passenger Survey 2018; Strathclyde results

[193] Transport Focus; Bus Passenger Survey 2018; Sestrans results

[194] Transport Focus; Rail Passenger Survey Autumn 2019; Scotrail/Strathclyde results

[195] Transport Scotland; Transport and Travel in Scotland Travel Diary results 2018. Table TD2c (combined 2012-2018 results).