TRANSPORT
SCOTLAND
CÒMHDHAIL ALBA

Transport Scotland Research Strategy

2021-24

Contents

Message From Minister For Transport

I'm pleased to present Transport Scotland's Research Strategy which sets out the priorities for research and evaluation for the next three years. The role of evidence underpins transport policy decision making and is fundamental in understanding how we deliver the outcomes outlined in the National Transport Strategy.

Transport Scotland has a track record of producing high quality research and evidence across all areas of transport policy and delivery, from evaluation of major infrastructure developments, to providing in-depth analysis on the impact of policies at an individual level. Over the past 18 months, analysis on the effect of COVID-19 on transport services and travel behaviours has been invaluable in understanding the impact the pandemic has had across the transport sector. This analysis will continue to be integral to shaping transport policy responses as we continue our journey to recovery from COVID-19.

As a Government, we have set a number of challenging ambitions related to transport policy over the medium to long term, including reducing the need for petrol and diesel cars by 2030; reducing car kilometres by 20% by 2030; and reducing fatalities on our roads by 50% by 2030. Robust and high quality evidence will be required to monitor progress towards these ambitions and shape policy development around them.

The research priorities for the strategy over the coming three years are informed by an ambitious vision for our research, linked to the successful delivery and incorporation in Transport Scotland's policies and programmes of the National Transport Strategy. The vision is for evidence and analysis to be at the heart of everything that Transport Scotland does, allowing robust monitoring and evaluation of the delivery of National Transport Strategy and to assess how well our policies and projects are meeting our priorities for transport of reducing inequalities, taking climate action, delivering inclusive economic growth, and improving our health and wellbeing.

In addition to these priorities, the strategy sets out our analytical approach to providing research and analysis on key policy areas including the Strategic Transport Projects Review 2 (STPR2); the National Islands Plan; accessible travel; climate change; active travel; road safety; and travel across all modes transport.

We also recognise the importance of continued engagement to the success of the Strategy, whether by working with academics and external research providers, communicating our analysis more effectively, or contributing to events and conferences.

By setting out our research priorities for the next three years, this report provides transparency around our analytical programme and opportunity for the research community to engage with us on this, which we welcome.

Graeme Dey MSP

Minister for Transport

September 2021

Executive Summary

This document sets out Transport Scotland's (TS) Research Strategy for the years 2021-2024. In line with other Government departments the strategy is being published to encourage greater transparency around how we commission our research, and to also encourage greater collaboration with external partners involved in the delivery of transport research.

As well as giving a high level overview of our research priorities for the next three years, more detailed information is given on our research programme for the next 12 months.

The significance of the COVID-19 pandemic on transport and travel cannot be understated in setting the context for our research priorities. It has had a profound effect on how and why people travel, exacerbating existing inequalities in transport and creating additional challenges. Conversely, it has created opportunities to bring forward more sustainable transport policies and behaviours. As we emerge from the pandemic, understanding its impact on transport travel and behaviour over the short, medium and long term will be key to informing our research activity.

At the heart of this Research Strategy is Transport Scotland's commitment to deliver the National Transport Strategy 2 (NTS2) vision which was published in early 2020. The NTS2 vision is underpinned by four main priorities for transport services in Scotland around reducing inequalities, taking climate action, helping deliver inclusive economic group, and improving our health and wellbeing. Research and evidence is key to the successful delivery and monitoring of NTS2 and this document sets out some the key projects which we will take forward in coming years.

One of the main priorities of NTS2 is to take climate action to ensure that Scotland can meet its 2045 target of net zero emissions. To ensure that Transport Scotland can meet this target an ambitious set of policies and projects will be required, with additional spend. To support the development and implementation of these a programme of research will be required which will include monitoring and evaluation of these programmes and their associated financial cost to ensure that they are delivering their objectives and offer value for money.

Given relative uncertainties around the COVID-19 pandemic and ongoing implementation of constitutional changes following the UK's exit from the EU, the strategy is also flexible allowing us to address any urgent or unforeseen analytical requests as required.

We value your feedback on this strategy and details on how to comment is given at the end of the document.

Introduction

This section provides further information on Transport Scotland, our analytical function, how we conduct and commission research, our use of transport data, and our area of expertise in relation to evaluation.

About Transport Scotland

Transport Scotland (TS) is the national transport agency for Scotland, directly accountable to Scottish Ministers. We seek to deliver a safe, efficient, cost-effective and sustainable transport system for the benefit of the people of Scotland, playing a key role in helping to achieve the Scottish Government's Purpose of increasing sustainable economic growth with opportunities for all of Scotland to flourish. Our headquarters are located at Buchanan House in Glasgow, with other staff based at the Scottish Government's Victoria Quay building in Edinburgh and Traffic Scotland headquarters in South Queensferry. Approximately 500 staff are employed by Transport Scotland.

About Analysis in Transport Scotland

Analysis is at the heart of everything that Transport Scotland takes forward. From informing initial business decisions, through to the monitoring and evaluation of existing schemes. In 2019/20 we spent just over £1.5m on research and development. (This spend includes Transport Scotland staff costs for those working on research and development and externally commissioned research.)

The majority of analytical work is taken forward by analysts and planners working in Transport Strategy and Analysis (TSA) Directorate. Analysts in TSA are drawn from a number of different professions including the Government Economic Service (GES), Government Social Research (GSR), Government Statistical Service (GSS), as well as transport planners and modellers. Throughout Transport Scotland there are also a number of other analysts from a technical / engineering research background.

Analysts play a key role in providing high quality evidence and advice to inform transport investment & policy choices. The evidence is provided in a number of different ways which include forecasts, modelling, and the collection and publication of Official Statistics. Such information is fed into the pre-appraisal and appraisal stages of projects. Transport Scotland's Scottish Transport Appraisal Guidance (STAG) emphasises the importance of evidence for identifying transport problems or opportunities and ensures that projects are appraised and planned in a consistent manner which link to the Government's Purpose.

Monitoring & Evaluation in Transport Scotland

Once projects or schemes have commenced, analysts play a key role in monitoring and evaluating them to see whether they meet their objectives and whether they offer value for money. This may range from simple counts of users of a project / scheme, through to more detailed systematic in-depth evaluation which collects or interprets existing economic and social data.

In recognition of the importance of monitoring and evaluation, over the last 10 years we have produced specialist guidance to ensure that a systematic approach is used to evaluate our major infrastructure projects - STRIPE (Trunk Roads), and our separate rail evaluation guidance. We plan to continue updating these documents based on learning from evaluations. The guidance documents outline the importance of conducting an evaluation plan early on during the development phase of an infrastructure project, and also the value of collecting baseline information. By doing so, data requirements are identified early on, baseline data collected, and monitoring information collected from the commencement of the project, all of which can be used to inform a later evaluation of the scheme. Staff based in Transport Scotland have extensive experience of designing and conducting evaluations both within the transport sector and also for other areas of government. Drawing upon this expertise they have also been involved in the drafting of the revised HM Treasury Magenta Book which was published in March 2020, and is the central evaluation guidance document for UK Government Departments.

Externally Commissioned Research

As well as taking forward analytical work in-house, we also commission research from external organisations, consultancies and universities. Such projects are typically project managed by a Transport Scotland analyst with data collection and analysis taken forward by an external organisation or consultant. In 2019/20 around £1.1 million of our research was carried out by such organisations.

To commission such work from an external consultant we would use an existing Transport Scotland consultancy framework, or procure the project either as a one stage (a Quick Quote for low risk and/or low value projects) or as a two stage procurement (relevant organisations would be firstly invited to express an interest in a project, and subject to qualification a shortlist of organisations would be invited to tender). To be considered for a one or two stage procurement organisations need to be registered on the Public Contracts Scotland (PCS) website. Opportunities to become a supplier on a framework contract are also advertised on PCS.

Transport Data

Transport Scotland and its associated agencies collect and handle large amounts of transport data. For example, this includes information collected by bus operators for the Concessionary Travel Scheme which Transport Scotland administers; traffic flow road journey times by Traffic Scotland; and data on road accidents by Police Scotland. Such data is used to inform the safe and efficient operation of the transport system in Scotland. We routinely publish some of this data in our annual statistical publications such as the Scottish Transport Statistics compendium, or in our Reported Road Casualty publication which are available from the Transport Scotland Statistics Webpage. Transport Scotland also publishes other data sets on bus accessibility and road transport expenditure on the statistics.gov.scot web-page, and we plan to continue looking at ways to share our data, as well as link with other datasets.

The data which we and others collect is also essential to the successful operation of the land-use and transport models that Transport Scotland has developed solely or in collaboration with the Regional Transport Partnerships. This linked hierarchy of transport models provides a full Land-use and Transport Interaction (LUTI) modelling capability. The national transport model, Transport Model for Scotland (TMfS), offers a generalised, multi-modal representation of travel demands and infrastructure supply for a base and future forecast years. The national land-use model, TELMoS (Transport and Economic Land-use Model of Scotland), provides independent demographic, planning and economic forecasts which form the basis for future travel demands.

The further digitisation of transport, as well as advances in transport technology will lead to existing data being used in new ways, and additional data being collected. It will also have implications on how we store, analyse and access this data. In recognition of these developments, and the importance of data to other existing transport models, Transport Scotland plan to establish a designated data management team.

About this Document

This document sets out Transport Scotland's Research Strategy for the next three years, highlighting the key themes for our analysis and where appropriate, core projects that we envisage carrying out. This Strategy has been developed in close cooperation with a wide selection of colleagues from across Transport Scotland and through work planning with them. It heralds a new joint approach whereby Transport Scotland analysts and planners work even more closely together with each other to ensure that robust analysis is at the heart of all of our policy and operational decisions. As before, some of this analysis will be conducted by analysts and

planners working within Transport Scotland, with other work being commissioned from external organisations or in collaboration with other government departments and public sector bodies.

As well the high level overview of our research priorities for the next three years more detailed information is given on our research plans for the next 12 months.

We hope that the publication of this Strategy will allow us to work more strategically and collaboratively with others involved in research and development such as academics, research councils / funders, other central and local government departments, professional organisations and the private sector. This document also highlights Transport Scotland / Scottish Government's commitment to open government and transparency, providing insight into our planning and decision making process.

Before highlighting the key analytical priorities for the next three years the following section provides a high level overview of some of the key influences on these priorities and this Research Strategy.

Context

This section sets out the key policy and political influences which have shaped the development of this Research Strategy. At the heart of this document is Transport Scotland's updated National Transport Strategy (NTS2), which will shape Scotland's transport system for the next 20 years. To ensure that the Strategy's vision is delivered and to monitor its implementation and outcomes, different types of evidence will be required over the next three years and beyond. Other key influences on the Strategy include the second Strategic Transport Projects Review (STPR2), climate change, political / constitutional change, technological innovations, and the Transport (Scotland) Act 2019 .

The Strategy also recognises the continued importance of working with other organisations such as the Higher Education sector, and other government departments. Transport Scotland will continue to fund in collaboration with SCOTS (Society of Chief Officers of Transportation in Scotland) the Scottish Roads Research Board, and continue to be a core supporter of the annual STAR (Scottish Transport Applications & Research) Conference which is the leading transport research and applications conference in Scotland.

COVID-19

The COVID-19 pandemic has had a profound impact on the transport sector and transport and travel behaviours. Transport Scotland has been routinely monitoring the impacts of the pandemic in terms of transport demand and use; as well as gathering attitudinal data on future intended transport behaviours as a result. The public transport sector has been particularly adversely affected, with advice to avoid public transport and requirement for social distancing as part of travel advice and restrictions reducing capacity and use across public transport use. Our attitudinal research highlights that there are concerns around using public transport and an intention to avoid public transport in favour of increased car use, both of which will impact on sustainable transport use as we emerge from the pandemic. Monitoring the short, medium and long-term use of transport following COVID-19 is therefore a priority of our research programme.

This monitoring will feed into a range of analysis that will provide the basis to inform policy decisions over the months and years ahead around the future public transport system and to support these decisions to be taken on a more holistic basis across modes.

National Transport Strategy 2 (NTS2)

Transport Scotland's new 20 year National Transport Strategy (NTS2) was published in February 2020. NTS's vision is that "We will have a sustainable, inclusive and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors." The vision is underpinned by four main priorities: promotes equality, takes climate action, helps our economy prosper, and improves our health and wellbeing:

Our Vision
We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.

Reduces inequalities
- Will provide fair access to services we need
- Will be easy to use for all
- Will be affordable for all

Takes climate action
- Will help deliver our net-zero target
- Will adapt to the effects of climate change
- Will promote greener, cleaner choices

Helps deliver inclusive economic growth
- Will get people and goods where they need to get to
- Will be reliable, efficient and high quality
- Will use beneficial innovation

Improves our health and wellbeing
- Will be safe and secure for all
- Will enable us to make healthy travel choices
- Will help make our communities great places to live

This vision and these priorities will be central to everything that Transport Scotland does over coming years, and will impact all analysis which we take forward from appraisal through to project evaluation. To measure the success of transport in Scotland in achieving these outcomes, a monitoring and evaluation framework has been developed to map progress. The framework will be regularly monitored using mainly published data and an annual report will be produced to set out performance. For some of the indicators where data is not already collected, we plan to commission new analysis to fill these gaps. The monitoring and evaluation framework for the NTS2 will also be published in 2021.

Strategic Transport Projects Review (STPR2)

Transport Scotland is currently conducting the second Strategic Transport Projects Review (STRP2). The first review was published in 2008 shortly after the publication of the first National Transport Strategy. It set out our strategic transport priorities in the context of that strategy. A total of 29 major packages of work were identified as best serving the needs of Scotland and its regions, with key projects including the Queensferry Crossing and Edinburgh-Glasgow Rail Improvement Project (EGIP). STPR2 will identify the strategic transport priorities needed to support the updated National Transport Strategy, for the next 20 years. All of the projects identified in STPR2 will be subject to business case development beyond the Strategic Case, which STPR2 represents. Therefore robust analysis and evidence will be required to support the socio-economic case of future Outline Business Case and project evaluation.

Climate Emergency

In April 2019 the Scottish First Minister declared that Scotland was facing a climate emergency which required immediate action. The publication in December 2020 of the Climate Change Plan Update sets new ambitious targets to end Scotland's contribution to climate change by 2045. The Scottish Government has committed to reduce emissions by 75% by 2030 (compared with 1990) and to net zero by 2045. As recent data highlights, transport is the largest emitter of greenhouse gas and as a result, urgent action is required to address this. These challenges are acknowledged in NTS2 with taking climate action being one of the four strategic priorities identified. Robust analysis is required to identify ways to reduce emissions from transport, encourage switching to active travel and low carbon modes, as well as to monitor and evaluate the impact of such policies and projects in doing so.

Transport (Scotland) Act 2019

The 2019 Act recognises the importance of reducing transport emissions in the light of the climate emergency. The Act gives local authorities more options to improve bus services and help reverse the decline in passenger numbers. It includes new provision around low emission zones, and the opportunity for local authorities to introduce workplace parking levy which will improve the air quality in our towns and cities. Other measures include legislation on pavement and double parking, improvements to information on bus services, and smart ticketing to make public transport an easier option. Transport Scotland will work closely with local authorities, transport providers and other stakeholders to deliver and monitor these measures.

Constitutional Change

A key on-going priority of Transport Scotland's work is the role of transport in Scotland's future place in Europe and internationally. In the run up to the UK's

departure from the EU at the end of January 2020, Transport Scotland actively prepared for a number of different scenarios and the impact on transport which included leaving without a transition deal. To inform this work a report on how Scotland's trade is transported into and out of Scotland was prepared by Transport Scotland analysts. As the implications of the Trade and Co-operation Agreement come into effect come into effect, we will continue to monitor the impact of our exit from the EU.

Strategic Research Priorities

This section sets out Transport Scotland's strategic research priorities for the next three years. Before setting these out in more detail, we firstly outline our vision for research, and then the approach that we will follow to ensure that we are able to address these priorities. This will include commissioning new research, conducting analysis in-house, as well as influencing others to conduct research which relates to our priorities.

Research Vision

Our strategic research priorities are guided by an ambitious vision for our research for the next three years linked to the successful delivery and incorporation in Transport Scotland's policies and programmes of NTS2. The vision is that:

> "Evidence and analysis will be at the heart of everything that Transport Scotland does. This will allow us to robustly monitor and evaluate the delivery of NTS2, and to assess how well our policies and projects are meeting our priorities for transport of reducing inequalities, taking climate action, delivering inclusive economic growth, and improving our health and wellbeing. Evidence and analysis will also be critical in continuing to inform our understanding of the impact of COVID-19 and shaping our policies as we recover from it."

Working with Others

To help us achieve our vision we recognise the important role of working with others outside of Transport Scotland and the Scottish Government such as the Higher Education sector and key stakeholder groups. One of the key aims of this Research Strategy document is to highlight to our main stakeholders our core research priorities for coming years. By doing so we hope we can influence the focus of such organisations in preparing them for tendering for work which we plan to advertise (where appropriate), as well as influencing others (universities or research councils) to conduct or fund relevant research. The following diagram highlights the hierarchy of our evidence needs. This shows that the focus of our analytical activity will be to exploit existing evidence and research, followed by influencing others to conduct research which relates to Transport Scotland priorities, followed by externally commissioned research.
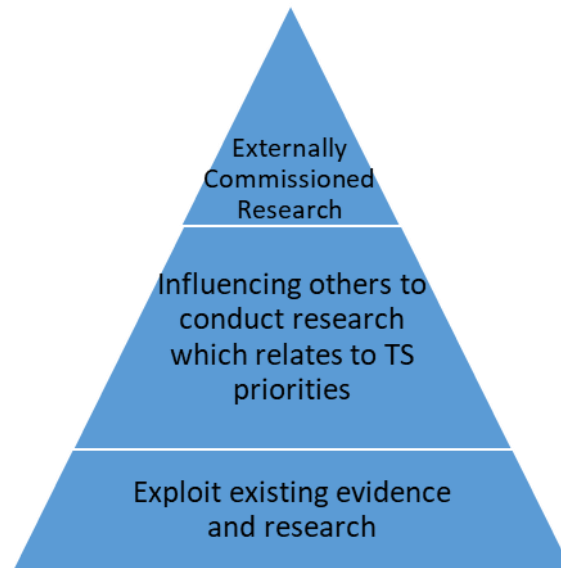
The Strategy also recognises the continued importance of working with other organisations. Transport Scotland will continue to fund in collaboration with SCOTS (Society of Chief Officers of Transportation in Scotland) the Scottish Roads Research Board, and continue to be a core supporter of the annual STAR (Scottish Transport Applications & Research) Conference which is the leading transport research and applications conference in Scotland.

Outlined below are key research priorities for the coming three years. For a number of these priorities we are only able to provide high level information due to uncertainty around exact requirements at time of publication of this strategy. However, drawing upon the high level priorities presented in this section, in Chapter four we outline our immediate research priorities for 2021-2.

The impact of COVID-19 and the Future of Public Transport

The impact of Covid 19 on transport demand has been unprecedented in modern times. By Summer 2021, after over a year of the pandemic, public transport demand, particularly that for rail, remained severely repressed compared with pre-pandemic levels. As the pandemic eases, the vaccination programme takes effect and restrictions are lifted, there is a high degree of uncertainty over how demand will recover.

Impact of COVID-19 on Transport Demand

It is possible that the level of infection or variations of the virus (for example the Delta variant) could mean that the recovery from the pandemic is not straightforward but even in the positive case where the impact of the virus recedes over the remainder of 2021, there will still be great uncertainty over how transport demand, and public transport demand in particular, recovers.

The key will be to explore how the long-term drivers of uncertainty that were present before the pandemic, interact with the behaviours induced by lockdowns and restrictions. The includes, but is not restricted to, issues around the extent of home-working and wider changes in the nature of work, population and location choice, the capabilities and affordability of digital travel and the development of autonomous vehicles. All of this will be in the light of the economic and social impacts of the recovery from COVID-19.

These changes, reinforced by the uncertainty, means that it is sensible to look at the future of public transport more widely. This will include decisions around financing and funding of public transport, including which modes and the levels of each that will be financed and funded; how finance and funding will be raised; governance structures and how these will vary spatially and across modes.

Climate Change

In 2018, for the fourth consecutive year, transport was the largest contributing sector to total Scottish greenhouse gas emissions, accounting for 35.6% of total emissions. 2018 marks the first year since 2013 that emissions have decreased in Scotland, with the previous four showing a gradual upward trend. Scotland's transport emissions in 2018 were 1.1% lower than in 2017.

Following the First Minister's declaration of a climate emergency in April 2019, and the target of net zero greenhouse gas emissions by 2045, the commitment of reducing emissions from transport in Scotland is of even greater priority than before.

The update to the Climate Change Plan in late 2020 also sets out a number of new policies to support Scotland's green recovery, including reducing the number of kilometers travelled by car by 20% by 2030, in line with the vision and priorities of the NTS2. Taking climate action is one of these priorities and research and evidence is essential to ensure that effective policy and interventions to reduce emissions are implemented. It is also important that once these interventions are introduced, they are effectively monitored and evaluated to ensure that we meet these ambitious targets. To address this, a key priority for our research strategy in coming years will be additional analysis on active travel, Ultra Low Emission Vehicles (ULEVs), and the decarbonisation of transport. Analysis will be also required to inform behaviour change interventions particularly around encouraging more people to switch from air to alternative forms of transport for domestic / short-haul travel and encouraging great uptake of ULEVs. Further information on some of those priorities are given below.

National Transport Strategy 2 (NTS2) Monitoring

NTS2 has an ambitious vision for the delivery of transport in Scotland for the next 20 years. To ensure that we have an up to date understanding of whether we are meeting this, a monitoring and evaluation framework has been developed to measure progress. The framework will be regularly monitored using mainly published data and an annual report will be produced to set out performance in relation to the four priorities.

In addition to monitoring and evaluation, Transport Scotland will support the establishment of a People's Panel which will inform the NTS2 Delivery Plan and also provide a source of qualitative analysis and lived experience of transport services.

National Transport Strategy 2 (NTS2) Transport Governance

One of the recommendations from NTS2 is to implement changes on future transport governance in Scotland, most notably the development of a regional variant transport governance model. Before this can be implemented, further analytical work will be required on how such a model could be structured, the practicalities of doing so including financial costs, and how the governance model could be held accountable by Scottish Ministers.

Strategic Transport Projects Review (STPR2)

As a result of the uncertainty in travel demand and behaviours due to the COVID-19 pandemic, STPR2 will report in two phases. Phase 1 was published on 3 February 2021, with Phase 2 to be published in the Autumn this year. Together, Phase 1 and Phase 2 will set out Scottish Government's transport investment priorities for the next 20 years. At the core of STPR2 is the Sustainable Investment Hierarchy prioritising interventions that reduce the need to travel unsustainably. The intention therefore is to make better use of and enhance existing infrastructure, before investing in new capacity.

Phase 1 of STPR2 focusses on recommendations for transport investment in the short term, for up to five years, and represents investment which will seek to lock in positive benefits and travel behaviours of individuals during the pandemic as well as making steps towards a green economic recovery. There are twenty recommendations in the report, ranging from the delivery of Active Freeways to the reallocation of road space for buses.

Road Safety Framework 2030

The next 10 year Road Safety Framework was launched in early 2021, and includes a number of ambitious priorities for improving road safety in Scotland, and for reducing road casualties. These priorities will be monitored using road accident statistics which we already collate and publish but other evidence will be required including evidence reviews, and evaluations of existing road safety schemes.

Appraisal and Scottish Transport Appraisal Guidance (STAG)

We carried out a User Survey in autumn 2019 on our appraisal guidance with regards to how it needs to be updated to make it more user friendly and relevant to its users. Material collected as part of this consultation will be used to enhance the update to STAG to be published by the end of 2021. In addition, further evidence and analysis will be required to inform the on-going development of the guidance.

Accessible Transport

Published in 2016, Transport Scotland's 10 year Accessible Transport Framework set out a vision that all disabled people in Scotland have the same freedom, choice, dignity and opportunity to travel as other citizens. We will continue to monitor the progress of achieving this vision, and provide analytical support to MACS (Mobility and Access Committee for Scotland). This will involve making changes to existing surveys so we get better data on disabled transport users, and also commissioning qualitative research so we know more about the barriers which some users may face in accessing transport.

We have published specific analysis on disabled people's travel behaviour and attitudes as official statistics on the Transport Scotland website. This provides analysis on disabled people's use and experience of transport and will inform policy interventions. We have committed to developing this analysis and keeping it up to date with the latest data.

In addition, through the NTS2 monitoring and evaluation framework, we will provide analysis of progress towards the NTS outcomes for equalities groups, including disabled people.

Active Travel

To help meet ambitious targets with regard to reducing emissions from transport and to support health and wellbeing by encouraging more people to switch to active models of transport, SG spend on Active Travel doubled in the year 2018/19 and has

increased further in 2020/21 and for the current financial year, 21/22. To assess the impact of this increased expenditure, whether it offers value for money, and is achieving its stated outcomes, we will continue to use a variety of different methods to assess this. This includes grant reporting and annual evaluation of projects that we fund. In addition, with regard to specific project evaluation, we are evaluating thematic programmes, including the Free Bikes for Children Who Cannot Afford Them pilot scheme.

We have published an Active Travel Outcomes Model, which draws together a number different indicators and allows us to demonstrate how the SG is progressing in its ambitious goals to encourage more people to switch to Active Travel. To ensure that a diverse and robust set of indicators are used we will work with the producers of existing surveys, including external active travel delivery partners, to develop new and enhanced measures.

We are also interested in drawing learning from active travel projects globally to inform what we do in Scotland where appropriate.

Bus

In the 2019-20 Programme for Government (PfG), £500 million of new investment was confirmed to fund bus priority infrastructure in Scotland. The funding is for trunk road and motorway road-space re-allocation schemes and a Bus Partnership Fund for local roads, and aims to mitigate the negative effects of congestion on bus services and ultimately encourage more people to use public transport. The Fund is linked to the Transport (Scotland) Act (2019). The Act includes new powers so that local councils and Regional Transport Partnerships (RTPs) have more options to improve bus services for their area, by running services themselves, establishing bus service improvement partnerships or local franchising. Regulation around provision of data including bus operator's routes, timetabling, real time location and fares information will also be developed. Public consultation to inform the guidance and regulations necessary to commence these powers is planned for later in 2021.

Owing to the COVID-19 pandemic, the bus sector, in common with other public transport modes, has required significant additional Scottish Government support to maintain operations and provide services to those needing to travel.

Continued analysis will be required to monitor the recovery of the sector as we emerge from the pandemic and to ensure that the increase in spend is targeted at the most relevant areas, offers value for money, and fits in with wider SG commitments to decarbonise transport.

The Scottish Government is also committed to continuing the existing concessionary travel scheme for over 60s and disabled people and analysis will be required to ensure that that bus operators continue to be fairly compensated for their participation in the scheme. During 2021/22, a new young persons' scheme is being established to extend free bus travel to 5-18 year olds resident in Scotland. During the same period, as much progress as possible will also be made to extend it to include 19-21 year olds. The new scheme is intended to support modal shift and combat child poverty and there will be need for evaluation to ensure it meets its objectives.

We will be looking strategically at bus services and their funding and governance in the round in the light of these various bus focused interventions, the continuing impacts of the pandemic and the priorities set by the National Transport Strategy and there will be a need for evidence to support this.

Ultra-Low Emission Vehicles (ULEVs)

The 2017-18, the SG Programme for Government document set out how Scotland will lead the way in the promoting the use of ultra-low emission vehicles (ULEVs), and how the SG will phase out the need for new petrol and diesel cars and vans by 2032, brought forward to 2030 following the publication in December 2020 of the Climate Change Plan Update. To ensure that Scotland meets this ambitious target there will need to be a step-change in the attitudes towards and the adoption of ULEVs, with supporting infrastructure installed.

Research and analysis will be central to ensuring that Scotland meets this target. This will include understanding the key barriers to ULEV adoption, as well as funding research and development into associated infrastructure such as where rapid charging points will need to be located.

Island Connectivity Plan

The Island Connectivity Plan (ICP) will run from 2023 to 2032. This will be prepared as the replacement to the current Ferries Plan 2013-22. Over the next three years analysis will be required to inform the development and implementation of the ICP. We envisage that this will include consulting with key stakeholders, ferry users, and islanders, as well as identifying future trends in ferry travel. The ICP will be closely linked to the STPR2, in order to consider island connectivity more broadly having regard to aviation, ferries and fixed links, and to connecting and onward travel.

Ferry Fares

Since 2007, analysts have been closely involved in the development and setting of ferry fares. A Road Equivalent Tariff (RET) provides affordable passenger fares on all services which are provided as part of the CHFS (Clyde and Hebridean Ferry Services) contract. We will continue to provide analytical support the development of options to reduce fares to the Northern Isles.

Over the next three years we envisage that we will continue to provide analysis on fares, which we will include a holistic review as part of ICP covering passengers, vehicles, freight & cabins.

Ferries Routes and Services Analysis

To ensure that we continue to provide ferry services that meet community needs, provide value for money and contribute to effective delivery of NTS2 and the National Islands Plan (NIP), we plan to carry out a community analysis of ferry routes in Scotland. Alongside this, we will undertake a market analysis of routes in Scotland. This will ensure that the services are being operated as optimally as possible, and demonstrate where applicable if market failure exists. Routes and services appraisal studies will also be required to inform vessel and infrastructure investments.

Rail

The UK rail industry carries out a great deal of research in collaboration with academia and the supply chain to identify more efficient means of delivering new railway infrastructure, rail vehicles and services. This research is aimed at identifying innovative new technologies that can be utilised to reduce the cost of rail infrastructure and systems including the identification of more efficient and sustainable process that can deliver it. These groups also consider the technical and safety standards that are in place to confirm that they are the right standards and to identify whether there are more efficient means of achieving the required standard of safety and technical performance by employing new or different technology.

Transport Scotland is represented on these national and regional forums and inputs to the selection of research topics for study and evaluating the outputs that will be adopted and put into practice to reduce cost and required resources to deliver a rail service.

Through the Rail Recovery Task Force, we have sought to ensure that capacity provided matches demand during the pandemic and is delivered in line with prevailing Scottish Government guidelines. The task force draws on analysis

undertaken by Transport Scotland and others (namely Transport Focus) to inform this.

Timetable changes are implemented via the Task Force and follow consultation with key stakeholders including Regional Transport Partnerships and NHS Stakeholder Groups. The work of the Rail Recovery Task Force is supported by a number of sub-groups covering train Performance, Cross-Border operators, Physical distancing, Revenue Recovery (being developed) Stations, Communications and a Trade Union Partnership.

To achieve our commitment for rail passenger services in Scotland to be decarbonised by 2035, a programme of research work will be carried out on how we will achieve this. We are working with Network Rail to progress electrification projects (benefiting freight and passenger services). This will also explore where it is appropriate to operate battery powered train fleets to allow early replacement of diesel fleets. Discussions with rolling stock manufacturers are also on-going and once funding and business cases for the priority projects are finalised, more formal procurement process will commence to source new fleets to replace a number of our "life expired" trains. Our aspiration is for new zero emission trains to be built as part of a wider fleet procurement which will help build efficiencies and also drive down on-going costs and help support a move towards a consolidation of ScotRail fleets.

Research into longer term rail travel patterns (post COVID-19 pandemic) will also be conducted to inform and support the planned future arrangements for rail services in Scotland.

Evaluation

Outputs from our research activity will help inform our evaluation activity, by addressing any evidence gaps in our evaluation portfolio. We have expanded our in-house expertise in evaluation by having a designated Evaluation Team who will commission and manage evaluation of our projects and services. The team will also provide advice and support to Transport Scotland staff and stakeholders around evaluation. A Transport Scotland Evaluation Strategy will be developed in 2021 detailing our programme and policy evaluation priorities for the immediate and long term periods, highlighting the links to new and emerging research. We will continue to have representatives on the SG Evaluation Working Group, and the UK Government Cross Government Evaluation Group (CGEG).

Launched in 2016, STRIPE (Scottish Trunk Road Infrastructure Project Evaluation) guidance was developed to ensure that major road projects are evaluated robustly and consistently. The guidance has already been used to focus a number of high profile evaluations of major road projects. Over the next three years we will ensure

that all major road projects costing in excess of £5 million are evaluated using the STRIPE approach.

In 2015, Transport Scotland published innovative guidance for evaluating rail projects in Scotland. As well as being routinely used to inform the development and subsequent evaluation of rail projects in Scotland, it is used by other Government departments and organisations. To ensure that the guidance remains fit for purpose we will continue to refine it drawing upon user feedback and learning from rail evaluations which we commission.

Drawing upon the approach outlined in the guidance we will carry out evaluations of a number of different rail projects which have been recently completed or will be completed soon. This includes phase one of the Aberdeen to Inverness Railway Line Improvement project, and the new Robroyston Station.

To inform future evaluation activity we will work with the Levenmouth Blueprint group to assist them in identifying and collecting baseline information which can be used to evaluate the project at a later date.

We will continue to work with Active Travel Delivery Partners to support and shape self-evaluation approaches and the monitoring of active travel in Scotland. This includes representing Transport Scotland on the Spaces for People Monitoring & Evaluation Advisory Group and tracking performance of the Active Travel Outcomes Framework.

Value of the Transport Sector

It is estimated that the transport sector in Scotland contributes over £6 billion Gross Value Added (GVA) annually and employs over 120,000 workers. However, we recognise that we need to get a better overview of the value of the sector, the number of employees in this sector, and the destinations of Scotland's exports / imports which this sector transports.

Constitution

It is envisaged that continued analysis will be required to monitor Scotland's relationship with the rest of the Europe particularly in relation to how we transport goods and services between Scotland and mainland Europe and Ireland. We continue to monitor and review issues which need to be considered in the context of possible future UK constitutional change.

Innovations

25

To address significant issues such as the climate emergency, the next few decades will continue to see research and development investments in innovations in the technology used to transport people and goods, as well in the energy mix used to power these vehicles. Although Transport Scotland currently does not have the budget to directly fund technical / engineering research and development such as innovations in electric vehicle technologies, we will look to collaborate with other organisations and universities funding and / or taking forward research in this area.

External Engagement

As was highlighted earlier, the success of the Strategy will be based on both the successful delivery of the research programme by TS but also through effective engagement with and influence on external providers / funders of research. Further information on how we will do this is given below:

Higher Education

Universities and Higher Education institutions will play a key role in assisting us to deliver our research strategy. Over the years Transport Scotland has established strong connections with a wide range of academics and institutions. This has included us commissioning research projects directly from them, through to academics being members of our research advisory groups. We have also funded and hosted three month postgraduate internships organised as part of the Scottish Graduate School of Social Science (SGSSS) and Economic and Social Research Council (ESRC) internship schemes. We also supports the Graduate Development Programme which brings in recent Civil Engineering graduates for a year's placement allowing them to work in a different teams in Transport Scotland to gain experience to become a Chartered Engineer. We have also been a long standing supporter of the Universities Transport Studies Group (UTSG), being a member of their Research Sponsors group. Going forward we plan to sustain this level of engagement, and look at ways to strengthen this.

Scottish Transport Applications & Research (STAR) and other Conferences

Since its inception in 2005, Transport Scotland has been the main supporter of the annual STAR conference, which is the largest applied transport research conference in Scotland. The event provides the opportunity for researchers and practitioners from across the transport sector to present and share analysis which they are involved. It is organised jointly with a number of organisations such as Glasgow City Council, Strathclyde Partnership for Transport (SPT), University of Aberdeen, and University of Strathclyde. We will continue to support the Conference going forward as it provides an important knowledge exchange platform.

A number of Transport Scotland staff are also involved in the organisation of the annual European Transport Conference which brings together international researchers and practitioners. We also plan to be more proactive in promoting our analysis which we have produced in house at these conferences.

In addition, we will set up a monthly Transport Scotland Analysis Seminar series whereby external researchers will be invited to present their analysis to an audience from across TS and the Scottish Government.

Scottish Roads Research Board (SRRB)

Following the recommendation of an Audit Scotland report into road maintenance, the SRRB was set up as a joint scheme between Transport Scotland and SCOTS (Society of Chief Officers of Transportation in Scotland). The primary aim of the Board is to fund research and development work to deliver improvements in safety, construction, operation and maintenance of the Scottish road network. The Board has an annual budget of around £400,000 to fund such research, and the work is typically commissioned using one of Transport Scotland's framework contracts. We will continue to co-fund and co-facilitate the Board going forward.

Government Department Collaborations

In recent years we have jointly funded research with the UK Department for Transport (DfT) (Mobile Phone and Seatbelt Observation Survey 2014 and 2017; Evaluation of Drink Drive Rehabilitation 2018; All Change – COVID-19 Longitudinal study 2020). Such collaborations have provided us with the opportunity to be involved in large scale projects, and have saved us time and money with the procurement and management of such projects. Where feasible, we will look to commission or co-fund research with other government departments or agencies such as the DfT, Welsh Government, Highways England and the Northern Irish Assembly.

Communicating Analysis Improvement Project

We will continue to routinely publish our analysis on the Transport Scotland website. At the time of publication of this research strategy, we are currently conducting an ambitious improvement project for how we communicate our analysis. As part of this project we are making more of our products easily accessible on our website, adding more interactive elements, and producing more user friendly / accessible reports and outputs. All of our current printed analytical products will be published as web only products. Our aim over the next three years is for Transport Scotland to be the leader in communicating analysis in an accessible and innovative way.

Immediate Priorities For 2021-22

The following section sets out in more details some of our immediate research priorities which we aim to take forward during the coming year.

Active Travel

- We will baseline the outcome measures outlined in the Active Travel Framework, including sourcing of new data if required.

- We will commence our evaluation of the Free Bikes for Children Who Cannot Afford Them pilot scheme.

- We will continue to input into the evaluation of the Spaces for People (SfP) initiative, undertaken by Sustrans. SfP repurposed funding from existing programmes during the pandemic to enable quicker implementation of road reallocation and other temporary schemes.

Bus

- The next 12 months will see the formal launch of the Transport Scotland Bus Partnership Fund, and analysis will be required to inform the development and delivery of the fund. To ensure that we are able to demonstrate at a later date that projects have met their objectives and offer value for money we will develop a robust monitoring and evaluation framework.

- During 2021/22, the SG has committed to roll out free bus travel to all under 22s in Scotland. Robust analysis will be required to inform the development of and roll out of this commitment.

- Another key priority will be to take an overarching strategic look at how the various interventions and challenges facing the bus sector and local public transport more generally come together, in the light of the new NTS, the continuing impacts of the pandemic. Evidence will be central to this.

Climate Change

- To meet our ambitious targets to decarbonise transport we will need to explore different options to achieve this. As well as investing in bus, active travel, and Ultra Low Emission Vehicle infrastructure we will need to consider options to reduce the demand for unsustainable forms of travel and car kilometres travelled. To inform this we will need to set up a programme of work to understand how travel demand management can be implemented, as well as explore options for behaviour change projects based on available evidence.

Ferries

- To ensure that we are able to access high quality, analytical advice quickly on ferries / maritime related issues we will be retendering our Multi-Supplier Framework Agreement for Maritime Consultancy Services during the first half of 2021-22. The duration of this contract will be for four years and we will be using this for the majority of our Ferries related research commissions.

- A key priority for our Ferries research work for the year will be to commence a market assessment of ferry routes in Scotland.

Impact of COVID-19 and the Future of Public Transport

- We will commission and publish externally commissioned research on the potential impact of the pandemic on homeworking and consider what further work should be undertaken.

- We will continue to monitor levels of public transport demand and produce, maintain and update, estimates of potential levels of future demand across all modes.

- We will explore options for changes to the governance and funding of public transport and consider what further changes are required in the light of the current financial position and ongoing uncertainty, to endure we have a public transport system that is available, safe and affordable for users, that is reliable, sustainable and a strong alternative to private car, and which is integrated, fair and financially sustainable.

National Transport Strategy

- In early Autumn 2021/22 we will publish the monitoring and evaluation framework which outlines the indicators to be used to measure progress in relation to the four NTS2 priorities. Before the end of March 2022, we will publish the first NTS2 Annual Report which will set out our progress to date in meeting these priorities.

- We will publish qualitative analysis on child poverty and transport research, conducted during the pandemic with those in the six priority groups identified by the Child Poverty Action Plan.

- We will also assist in the establishment of a NTS 2 People's Panel, intended to provide insight into policy proposals.

Rail

- To assist with future evaluations of new rail stations and infrastructure projects we will commission baseline studies of the Levenmouth rail project and also Robroyston station which opened in December 2019. These studies will include collecting existing data on these areas, as well as primary research with potential users of new infrastructure / services, and other groups such as businesses. Using learning from these baselines studies and other recent rail evaluation projects we will update our rail evaluation guidance.

- To achieve our commitment for rail passenger services in Scotland to be decarbonised by 2035 a programme of research work will be carried out on how we will achieve this. A focus of this will be desk based research on hydrogen trains and the potential for them to be introduced on routes in Scotland. We are working with Network Rail to progress electrification projects (benefiting freight and passenger services) and to explore where it is appropriate to operate battery powered train fleets to allow early replacement of diesel fleets.

Women and Transport

- We will be taking forward further research looking at how gender affects transport behaviour and choices in Scotland, particularly addressing gaps in evidence such as the experience of women in suburban, rural, and remote areas. This work will be guided by NTS2 outcomes as well as the SG Equality Outcomes for transport, and will consider how transport can enable women's access to and participation in the labour market and wider society. This analysis will inform the planned update of Transport Scotland's transport appraisal guidance (STAG).

Update of Appraisal and Investment Decision Making Guidance

- One of our priorities for 2021-22 is to update both our transport appraisal (STAG) and our Investment Decision Making (IDM) guidance to ensure that it reflects the new NTS2 priorities, and also obligations to deliver an inclusive net zero carbon economy. The IDM guidance is being refreshed to take account of the new Transport Scotland Directorate structures as well as new types of spend such as on active travel and funding to other organisations who administers schemes / grants on our behalf.

Comments and further information

If you would like further information on the strategy, about analysis in TS, or have any comments on this document please email: info@transport.gov.scot

We publish all of our externally commissioned analysis on the TS website. Recently published research can be found on the TS website under the publication section (check 'Research' in the filter section in the left hand column):

Our published statistics on transport in Scotland can also be downloaded from the TS website (check 'Statistics' in the filter section in the left hand column):

Glossary

CHFS - Clyde and Hebridean Ferry Services

LATIS - Land-Use and Transport Integration in Scotland

MACS - Mobility and Access Committee for Scotland.

NIFS – Northern Isles Ferry Service

NTS2 – National Transport Strategy 2

PCS – Public Contracts Scotland

PfG – Programme for Government

RTP – Regional Transport Partnership

STAR - Scottish Transport Applications & Research Conference

STPR2 – Strategic Transport Project Review 2

STRIPE - Scottish Trunk Road Infrastructure Project Evaluation

TELMoS - Transport, Economic and Land-Use Model of Scotland

TMfS – Transport Model for Scotland

TS – Transport Scotland

UTSG - Universities' Transport Study Group

Follow us:

f transcotland

🐦 @transcotland

transport.gov.scot

Scottish Government
Riaghaltas na h-Alba
gov.scot