HITRANS Regional Transport Strategy

Case for Change Report

On behalf of **Highlands and Islands Transport Partnership**

Project Ref: 330610615 | Date: September 2022

Registered Office: Buckingham Court Kingsmead Business Park, London Road, High Wycombe, Buckinghamshire, HP11 1JU
Office Address: 3rd Floor, Randolph House, 4 Charlotte Lane, Edinburgh EH2 4QZ
T: +44 (0)131 297 7010 E: info.Edinburgh@stantec.com

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	Name	Position	Signature	Date
Prepared by:	Scott Leitham	Director, Transport Planning		06/09/2022
Reviewed by:	Stephen Canning	Senior Associate		08/09/2022
Approved by:	Stephen Canning	Senior Associate		08/09/2022
For and on behalf of Stantec UK Limited				

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V2.1	24/01/23	Final report addressing HITRANS comments			
V2.2	20/02/23	Final report with updated Exec Summary			
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Executive Summary

The Transport (Scotland) Act 2005 created the framework for Regional Transport Partnerships (RTPs), effectively recognising the need for cross-boundary transport strategy, planning and delivery. This was intended to address the long-running issue whereby, following the abolition of regional government, there was a gap between national and local transport planning, leading to inefficiencies at the regional level. The guidance for the development of a Regional Transport Strategy (RTS) states, in summary, that the RTP must *seek to identify the present and future transport needs of the region, practical means of addressing these needs, and set out how transport in the region will be provided, developed, improved and operated so as to: promote safety; enhance social and economic well-being; promote sustainability; conserve and enhance the environment; promote social inclusion and equal opportunities; improve access to healthcare; and foster integration between modes and with cross-boundary routes*.

The Highlands and Islands Regional Transport Partnership (HITRANS) is the statutory RTP for much of the Highlands and Islands covering the entire council areas of Comhairle nan Eilean Siar, Moray Council, Orkney Islands Council, The Highland Council and much of Argyll and Bute Council (Helensburgh and Lomond excepted, which are covered by Strathclyde Partnership for Transport, SPT). HITRANS, working with local authority partners, is seeking to produce a **new RTS** for the development of transport in the region over the next circa 20 years with the aim of delivering a transport system that **reduces inequalities**, **takes climate action**, **helps deliver inclusive economic growth, and improves the health and wellbeing of people in the region**.

This document represents the first step in developing a new RTS for the HITRANS region. The purpose of it is to make the **'case for change'** and set the scene for the subsequent development of the Strategy. The key output is a set of evidenced and logically derived Strategy Objectives aligned with the outcomes set out above. It should be noted that **the report does not develop or appraise options, nor does it develop the RTS itself** – this comes in subsequent stages once the 'case for change' is established and agreed.

What are the main demographic and spatial issues in the region?

The **HITRANS region is unique within the UK**. Its general **remoteness from major population centres** is one of its defining features. However, it is also **diverse, containing a mixture of islands, remote mainland, rural and urban areas**. The area includes the fast-growing city of Inverness; other major settlements such as Elgin, Nairn and Oban; island 'capitals' such as Kirkwall and Stornoway; larger islands with their own service centre (e.g., Lewis, Mull, Orkney Mainland etc); and remote islands with populations of fewer than 100 people.

The area is large, accounting for around 50% of Scotland's land mass. It includes long indented coastlines as well as mountainous areas. It also has several dozen inhabited islands. These physical features act as barriers to the movement of people and goods. Routes can be slow and / or circuitous, increasing the time and cost of travel.

Key demographic and spatial considerations are as follows:

- The HITRANS region has a higher proportion of **older age groups** and a **lower proportion of working age adults** compared to Scotland as a whole. This is typical of rural areas across the country and implies a greater demand for access to health and

care services in particular. There are areas within the region where this is particularly pronounced.

- Highland, Moray and Orkney saw significant **in-migration** in the decade prior to the COVID-19 pandemic, a trend which accelerated with changing working patterns post-pandemic (although the permanence of this effect remains to be established). Transport links are likely to be a factor in determining the **future pattern of in-migration** across the region and will be important in retaining those moving into the area in the longer-term.
- The **population of the region is projected to drop in the medium-term and its age profile will increase**, with fewer young and working age people and more people of pensionable age. This will increase the need to **access health and social care services** and also generate **labour market issues**, potentially with insufficient workers to fill posts in certain areas. The **geography of the HITRANS region effectively precludes 'in commuting'** to fill these posts in some areas. The provision of improved connectivity within and to / from the region is important in retaining young people and attracting in-migrants.
- **Over half of the HITRANS region's population is classed as 'remote' or 'very remote'** whilst around a quarter live in larger settlements (10,000+). The region is therefore very diverse and the RTS needs to address the needs of some of Scotland's most geographically remote communities through to those living in the city of Inverness.
- Inverness is the **primary employment, retail and service centre for much of the HITRANS region**, albeit there are several regionally important service centres such as Lochgilphead and Kirkwall.

What are the primary socio-economic characteristics of the region?

Geography is again a defining factor in shaping the economy of the HITRANS region, as noted below:

- Reflecting the rural nature of much of the region, **car ownership rates are higher than the Scotland average**. This implies a high degree of **car dependence** for many and the requirement to own and run a car **('forced' car ownership)** will undoubtedly have a significant negative impact on some households' finances. Moreover, some households will require a second car if the primary car is away from the property for most or all of some days.
- Despite its size, the **region is home to less than 10% of Scotland's population**. The small scale of the local market means that **many businesses have a strong outward focus**, selling goods and services outside of the region, ranging from whisky to textiles. Moreover, the area is well-endowed with **natural resources** such as timber and has a significant primary sector, particularly in terms of agriculture, forestry and fishing. This means that **transport links with other parts of Scotland and beyond are as important as those within the region itself**. Moreover, the HITRANS region is unique in rural Scotland in terms of **high volumes of inbound seasonal tourism travel**, particularly post-COVID-19.
- The region sees **less in the way of extremes of wealth and deprivation than other parts of Scotland**. Nevertheless, there are areas with **pockets of multiple deprivation** in Dunoon, Rothesay, Alness, Balintore, Inverness, Oban and Wick.
- Large parts of rural HITRANS have some of the highest rates of **second home ownership** in the country. These houses are likely to generate many mostly car-based

trips to and from the area either through the owners' use or as holiday lets. **Car-based tourism is a major contributor to traffic in the region**.

- Even prior to the pandemic, working from home was more common in the region compared to the rest of the country. The **travel-to-work areas generally show high degrees of self-containment**. Inverness is the focus of in-commuting, with nearly 12,000 living outside the area and travelling to work there.
- Providing **access to healthcare** is already a key issue and will become increasingly important as the population profile is projected to age and there is a trend towards service centralisation. This is an issue across many communities in the region (even in large settlements such as Wick) but those in some island and very remote mainland locations face particular difficulties.

What is the national policy context?

The RTS acts as the conduit between national transport policy and the local aspirations of the constituent HITRANS authorities. The new RTS must therefore reflect the prevailing national policy context, most notably the new **National Transport Strategy 2 (NTS2) and its four 'priorities' of: (i) reduces inequalities; (ii) takes climate action; (iii) helps deliver inclusive economic growth; and (iv) improves our health and wellbeing**. Two key points of substance emerge from NTS2 with respect to this RTS:

- In accordance with the **NTS2 *Sustainable Travel Hierarchy***, options and themes promoted through the Strategy, and any which will emerge from it, should prioritise **active travel and accessible public transport connections** whilst at the same time **discouraging short, single car occupant journeys**.
- The **NTS2 *Sustainable Investment Hierarchy*** dictates that investment in new infrastructure should only be considered once a wider package of options to reduce the need to travel; reduce the need to travel unsustainably; optimise use of existing infrastructure; and influence travel behaviour or manage demand have been explored.

The approach adopted in the NTS2 is focused on delivering Scotland's **legal commitment to deliver net zero greenhouse gas emissions by 2045**, but in a manner that reduces **inequalities, improves public health and supports a strong and resilient economy**. The commitment to net zero allied with NTS2 has in turn generated a number of policies which the RTS will need to take cognisance of, including:

- The recommendations of the **Strategic Transport Projects Review 2 (STPR2)**, which is effectively the delivery plan for NTS2 with respect to nationally funded strategic infrastructure. Of relevance to the HITRANS region is the desire to increase active travel provision, reduce the movement of freight on roads and redesign travel to some island communities.
- The policy to **reduce car kilometres** by 20% by 2030. Regional targets have not yet been set but there is an acknowledgement that urban and rural targets and approaches may vary.
- The adopted National Planning Framework 4 (NPF4) sets out plans to increase connectivity through the development of new **20-minute neighbourhoods and**

improvement of strategic connections between all modes of transport, adhering to the **'Place Principle'**[1] as far as possible.

- The HITRANS region covers most of Scotland's islands and the RTS should therefore reflect and where appropriate challenge the **National Islands Plan** and provide inputs to future iterations of the Plan.

What are the transport problems in the HITRANS region?

The 'Case for Change' sets out at some length the transport problems in the HITRANS region – these can be summarised as follows:

- **Journey times** for trips between settlements within the HITRANS region and to / from the region to elsewhere in Scotland are **long** and characterised by **low average speeds**. This is true of road, rail and bus and impacts on the productivity and economic competitiveness of the region.
- **Journey time reliability by road** is also relatively poor, affected by vehicle platooning, inclement weather and limited daylight hours in winter. This is a particular issue for **road freight**, which is often moving high-value and time sensitive products to end customers or forwarding depots, which makes journey time reliability essential.
- **Reliability** more generally is becoming a **major issue on almost all ferry networks** in the region, with **ageing vessels and port infrastructure** breaking down more frequently. These issues compound the **underlying reliability challenges** caused by inclement weather.
- **Public transport frequency** is also generally **very low** and, in most cases, operates over a **shorter day** than would be found elsewhere in Scotland. This acts to **limit access to opportunities** and can lead to the need for **expensive overnight stays**, particularly for those travelling from and to island communities. Even in Inverness, the first **direct trains** of the day from the Central Belt do not arrive until late morning / early afternoon (10:28 from Glasgow Queen Street and 12:01 from Edinburgh Waverley). Similarly, the use of much of the bus fleet to fulfil school bus contracts means that many timetabled bus services are off-peak, which is clearly ill-suited to traditional working patterns and limits time at destination.
- The **long travel distances**, and in some cases the need to **combine an overland trip with a ferry or air service**, make the **average journey more expensive** than elsewhere in Scotland. For **ferry travel**, this is compounded by **differential tariff structures** (passenger, car and freight) between networks and even on some islands within the same network.
- Some roads within the HITRANS region also suffer from a **poor road safety** record. Even on trunk and major A-roads, **the network is almost exclusively single carriageway or single track, often over difficult terrain with few overtaking opportunities and limited lighting**. Several **major roads** such as the trunk A96 Inverness – Aberdeen and A82 Inverness – Glasgow via Fort William also **run through several settlements** along their route, making walking, wheeling and cycling less safe and attractive.

[1] The 'Place Principle' requires that all those responsible for providing services and looking after assets in a place need to work and plan together, and with local communities, to improve the lives of people, support inclusive and sustainable economic growth and create more successful places. *National Planning Framework 4* (Scottish Government, 2022), p. 154.

- **Transport resilience** is also a major issue in the region. The **road and railway networks** are subject to **extremes of weather (e.g., snow, flooding etc) and geological instability** in some locations. In the event of road closures, with few alternative routes, this can lead to **very long diversions** and can have **major negative impacts on the emergency services** (e.g., if an ambulance or fire appliance is located on the 'wrong side' of an accident) and in terms of **service delivery**, such as social care, district nursing etc. The **ferry networks** around the region are also generally operated on fine margins, with **few spare vessels** to cover for increasingly frequent breakdowns, particularly during refit / drydock periods, which themselves are becoming longer.
- With **Inverness acting as the major regional centre** to a widely dispersed hinterland, this generates significant vehicle kilometres and a demand for parking in the city. Moreover, for those travelling from the remotest settlements, journey times are long and services can be infrequent and expensive, particularly given fuel price differentials in more remote areas.
- Many of the settlements in the HITRANS region are **rural**, and the region includes some of Scotland's **most remote communities**. The impact of this is fourfold: (i) **labour markets are limited in size** and in most cases **largely self-contained** within discrete travel-to-work areas – this can lead to **labour shortages and challenges in matching skills to jobs**; (ii) there is a reliance on the transport network to **connect people to services** (e.g., retail) and vice versa (e.g., social care), but the limitations of the network make such journeys long and expensive; (iii) **very low travel volumes** make the **delivery of transport services expensive** and, with respect to bus services, **subject to short notice reduction and withdrawal**; and (iv) the scope of **active travel journeys between settlements is limited**.
- Connected to the above point is the issue of **transport poverty**, where low service frequency and / or short operating days can act to **limit the ability to access essential services**. Indeed, in some areas, the are no scheduled public transport services at all, leading to **'forced car ownership'**. This can be a '**push' factor in out-migration** in communities which are already fragile.
- The above challenges are compounded by the **extreme winter-summer differentials in travel in the Highlands and Islands**. In the summer months, the network overall has to accommodate daytrippers, staying visitors, motorhomes and cruise passengers, whilst traffic has to be managed at 'honeypot' locations such as Skara Brae. A particular feature of tourism in the region is that much of it is drawn towards where the transport infrastructure is least well-placed to support it, e.g., the North Coast 500; the islands, where visitors can consume a significant amount of ferry vehicle capacity; and 'honeypot' locations such as Glenfinnan and the Fairy Pools on Skye.
- A consequence of low population density and public transport frequency is that **the region derives a proportionally lower benefit from national policies and funding streams**, e.g., the National Concessionary Travel Scheme – this is a clear inequality. Moreover, there are **inequalities between areas within the region associated with anomalies in historic funding and delivery arrangements**, the existence of which have little evidential basis. For example, all ferry services in the Clyde and Hebrides Ferry Services (CHFS) network are entirely funded by the Scottish Government, whereas the additional cost of local authority funded ferry services over and above the Grant Aided Expenditure (GAE) settlement from the Scottish Government must be met largely by local authorities from their own resources.
- The very different nature of the supply of and demand for transport in the HITRANS region also raises a **question as to how national government policy aspirations should be delivered**. For example, for some essential journeys, there is no realistic

alternative but to use the private car, which presents a challenge in terms of delivering the 2045 net zero commitment and the proposed 20% reduction in vehicle kilometres by 2030.

- Despite the transport challenges, the HITRANS region is in many respects thriving like never before. Long-term population decline has been checked (although forecast population loss and ageing remains an issue); there are significant concentrations in growth industries such as renewables and tourism; and the region is also at the forefront of piloting renewable fuels, the use of hydrogen fuel cells on the Orkney Ferries' vessel MV *Shapinsay* for example. **Continued development and growth is however dependent on the provision of fast, reliable, safe and resilient connections between communities in the region and between the HITRANS region and elsewhere in Scotland**.

What are the Strategy Objectives?

The Strategy Objectives define what HITRANS is trying to achieve through the RTS – they have been developed using a rigorous and systematic process and are a reflection of:

- The transport problems identified above
- The policy environment within which the resolution of these problems must sit

It should be noted that the order in which the Strategy Objectives are presented does not imply a prioritisation, neither will they be weighted in the appraisal. The proposed Strategy Objectives are therefore:

Strategy Objective 1 - To make a just transition to a post-carbon and more environmentally sustainable transport network.

Why? – Scotland has a target to achieve net zero carbon emissions of all greenhouse gases by 2045 and transport is a key sector in terms of such emissions. Our transport networks and services must adapt to fulfil this target in a fair and equitable way whilst also being developed in as environmentally sustainable a way as possible. The process must also recognise the needs of all groups through a 'Just Transition'.

Strategy Objective 2 – To transform and provide safe and accessible connections between and within our city, towns and villages, to enable walking, wheeling and cycling for all.

Why? – to allow everyone to walk, wheel and cycle more, leading to more local living patterns, greater inclusion, affordable transport, healthier lifestyles, and reduced car use – the latter leading to reduced emissions / noise etc and improved road safety.

Strategy Objective 3 – To widen access to public and shared transport and improve connectivity within and from / to the region.

Why? – to give people new travel choices, allowing them to: (i) use accessible and affordable public or shared transport options to make journeys they previously could not make; or (ii) to use public or shared transport instead of the car - this leading to lower levels of car use and reduced emissions / noise etc., as well as improved road safety. This objective is also important in encouraging inclusive economic growth by widening labour markets and providing improved accessibility to employment opportunities by public transport.

Strategy Objective 4 – To improve the quality and integration of public and shared transport within and from / to the region.

Why? – to make public and shared transport more attractive and competitive with car-based travel and to ensure the accessibility needs of all groups are accommodated. This will improve the travel experience for existing public transport users and encourage people to use public or shared transport instead of the car, leading to lower levels of car use and reduced emissions / noise etc, improved road safety and will support the social benefits associated with shared transport.

Strategy Objective 5 - To ensure reliable, resilient, affordable and sustainable connectivity for all from / to our island, peninsular and remote communities.

Why? – some of our island and peninsular communities have suffered from pronounced connectivity difficulties in recent years. This has wide-ranging impacts on these communities and this objective recognises the need to tackle this issue, in tandem with Strategic Objective 4. Meeting this objective will provide the foundation for the long-term sustainability and success of these vulnerable communities, including through helping meet the needs of people with protected characteristics and by tackling socio-economic disadvantage.

Strategy Objective 6 – To improve the efficiency, safety and resilience of our transport networks for people and freight, and adapt to the impacts of climate change.

Why? – our transport systems must be safe and able to adapt to changing demands (e.g., tourism patterns, trade) and be resilient in the face of climate change. This objective is important in allowing the society and economy of the HITRANS region to prosper and to reduce inequalities of outcomes associated with socio-economic disadvantage.

1 Introduction

1.1 Overview

1.1.1 The Transport (Scotland) Act 2005 created the framework for Regional Transport Partnerships (RTPs), effectively recognising the need for cross-boundary transport strategy, planning and delivery. This was intended to address the long-running issue whereby, following the abolition of regional government, there was a gap between national and local transport planning, leading to inefficiencies at the regional level. The guidance for the development of a Regional Transport Strategy (RTS) states, in summary, that the RTP must *seek to identify the present and future transport needs of the region, practical means of addressing these needs, and set out how transport in the region will be provided, developed, improved and operated so as to: promote safety; enhance social and economic well-being; promote sustainability; conserve and enhance the environment; promote social inclusion and equal opportunities; improve access to healthcare; and foster integration between modes and with cross-boundary routes*.

1.1.2 The Highlands and Islands Regional Transport Partnership (HITRANS) is the statutory RTP for much of the Highlands and Islands covering the entire council areas of Comhairle nan Eilean Siar, Moray Council, Orkney Islands Council, The Highland Council and much of Argyll and Bute Council (Helensburgh and Loch Lomond excepted, which are covered by Strathclyde Partnership for Transport, SPT).

1.1.3 The current HITRANS RTS was first published in 2008 and was refreshed in 2017, although the refresh was never formally adopted due to changes in the wider policy environment. The Transport (Scotland) Act 2005 states that RTPs should keep their RTS under review and modify or create a new one as necessary. Given wider socio-economic changes and the evolving policy environment, there is a recognition that a new RTS is now required. HITRANS has therefore commissioned Stantec UK Ltd in partnership with Ecus Ltd and Eyland Skyn to produce this new RTS.

1.1.4 The new RTS will set the strategic framework for the development of transport in the HITRANS region over the next circa 20 years with the aim of delivering a transport system that reduces inequalities, takes climate action, helps deliver inclusive economic growth, and improves the health and wellbeing of people in the region.

1.1.5 This document represents the first step in developing a new RTS for the HITRANS region. The purpose of it is to make the 'case for change' and set the scene for the subsequent development of the Strategy. As well as a clear expression of the context in which the RTS must sit, the key output is a set of evidenced and logically derived Strategy Objectives.

1.1.6 The report does not develop or appraise options, nor does it develop the RTS itself – this comes in subsequent stages once the 'case for change' is established and agreed.

1.2 Case for Change Report

1.2.1 This report consists of five further chapters as follows:

- **Chapter 2** provides a profile of the region, covering its population and economy.
- **Chapter 3** sets out the national policy context within which the RTS sits.

- **Chapter 4** provides an analysis of transport in the HITRANS region, taking each mode of travel in turn and focussing on the range of transport problems which the RTS will seek to address.
- **Chapter 5** sets out the range of technological and behavioural changes which may affect the transport sector over the life of the RTS, and therefore which must be taken into account in its development.
- **Chapter 6** then builds on the findings of the preceding chapters and sets out a structured approach to the development of Strategy Objectives.

1.3 Case for Change Engagement

1.3.1 As the 'case for change' provides the basis for the RTS overall, it was important to consult on its content with stakeholders and the public at large. To this end, the 'Case for Change' Report, Strategic Environmental Assessment, Equalities Duties Report and Island Communities Impact Assessment were put out to consultation between 27th March and 9th May 2023. This took the form of: an online-based consultation using ArcStory Map (with paper-based versions available at the HITRANS office) summarising the 'case for change'; publication of the four draft reports which collectively make-up the 'case for change'; and a short online survey.

1.3.2 In total, **202** responses to the survey were received, with **181** respondents identifying as a member of the public and **21** as an organisation. The survey results were analysed and have been used to inform the final package of documents which form the 'case for change'.

1.3.3 The engagement process validated the findings of the 'Case for Change' and accompanying impact assessment reports, with broad support for the RTS Strategy Objectives upon which the RTS itself will be based.

2 The HITRANS Region - Background and Context

2.1 Overview

2.1.1 The HITRANS region is unique within the UK. Its general remoteness from major population centres is one of its defining features. However, it is also diverse, containing a mixture of islands, remote mainland, rural and urban areas. The area includes the fast-growing city of Inverness; other major settlements such as Elgin, Nairn and Oban; island 'capitals' such as Kirkwall and Stornoway; larger islands with their own service centre (e.g., Lewis, Mull, Orkney Mainland); and remote islands with populations of fewer than 100 people.

2.1.2 The area is large, accounting for around half of Scotland's land mass. It includes long indented coastlines as well as mountainous areas. It also has several dozen inhabited islands. These physical features act as barriers to the movement of people and goods. Routes can be slow and / or circuitous, increasing the time and cost of travel.

2.1.3 Despite its size, the region is home to less than 10% of Scotland's population. The small scale of the local market means that many businesses have a strong outward focus, selling goods and services outside the area, ranging from whisky to textiles. Moreover, the area is well-endowed with natural resources such as timber and has a significant primary sector. This means that transport links with other parts of Scotland and beyond are as important as those within the area itself. Moreover, the HITRANS region is unique in rural Scotland in terms of high volumes of inbound seasonal tourism travel (particularly post-COVID-19) which puts pressure on the limited capacity transport network.

2.2 Travel-to-Work Areas

2.2.1 In some of the analysis which follows, the Office for National Statistics (ONS) defined Travel-to-Work Areas (TTWA)[2] have been used to provide sub local-authority level information. These TTWAs are defined as broadly self-contained labour markets, of which there are **18** across the region. These are:

- Alness and Invergordon
- Aviemore and Grantown-on-Spey
- Broadford and Kyle of Lochalsh
- Campbeltown
- Dunoon and Rothesay
- Elgin
- Fort William
- Golspie and Brora
- Inverness
- Lochgilphead
- Mull and Islay

[2] https://ons.maps.arcgis.com/apps/MapSeries/index.html?appid=397ccae5d5c7472e87cf0ca766386cc2

- Oban
- Orkney Islands
- Portree
- Thurso
- Ullapool
- Western Isles
- Wick

2.2.2 The figure below shows these TTWAs, together with the main localities in the region in gradations from 500 persons upwards.

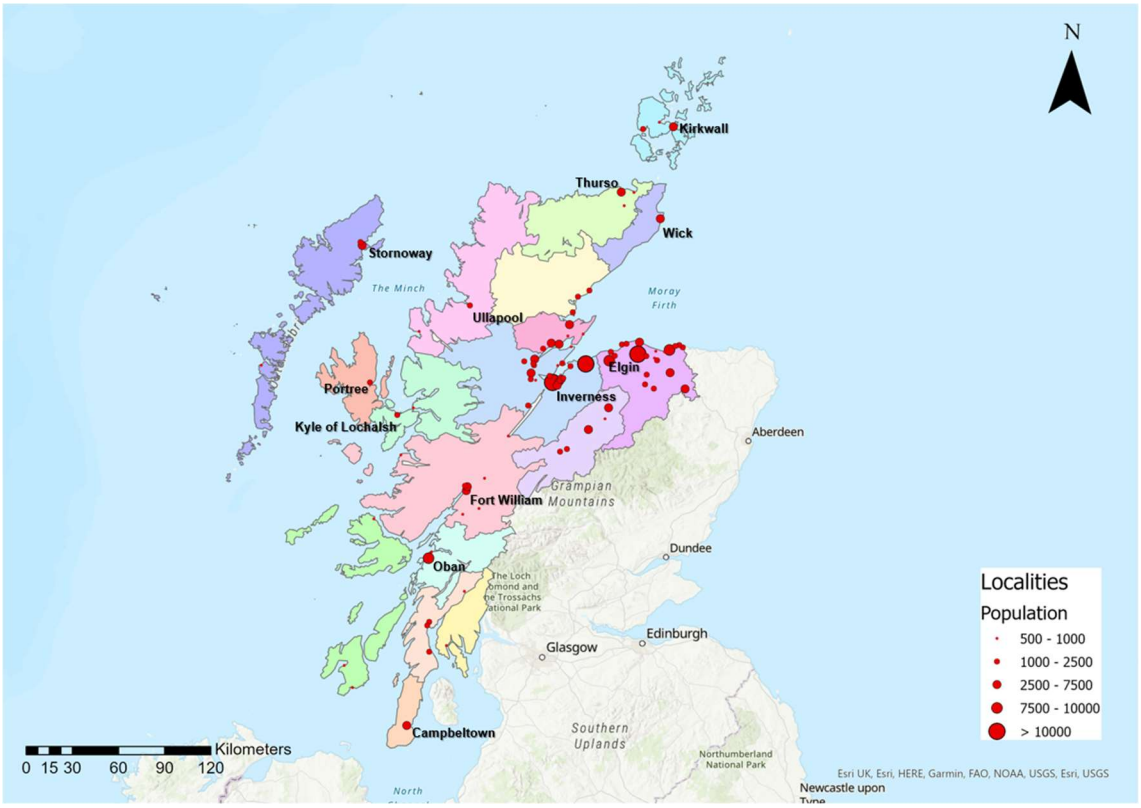


Figure 2.1: HITRANS TTWAs and localities populations (Source: ONS)

2.2.3 The concentration of the largest settlements around the Inner Moray Firth and the Cromarty Firth is very clear from this graphic. However, even with this higher overall concentration, the only localities with a population of greater than 10,000 are Inverness (47,290), Elgin (24,760) and Forres (10,100).

2.3 Demographics

Population

2.3.1 The figure below shows the HITRANS local authorities' populations in 2021.[3]

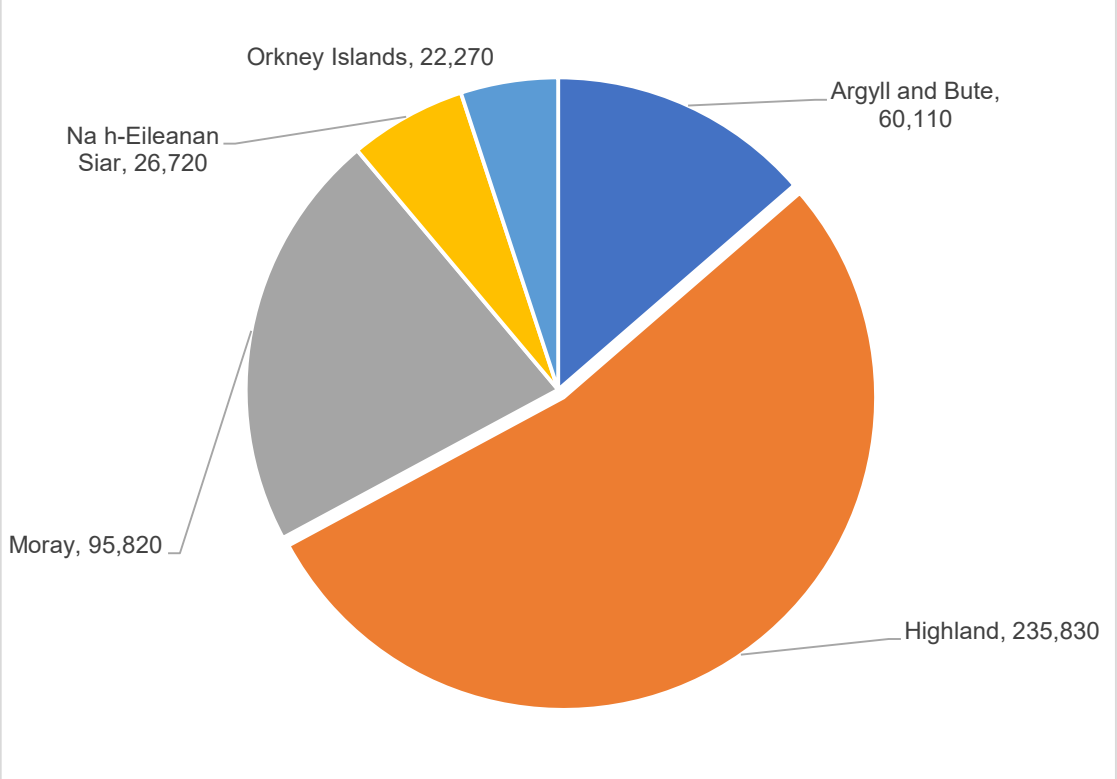


Figure 2.2: HITRANS local authorities' populations (Source: NRS mid-year population estimates)

2.3.2 The estimated total population of the region in 2021 was 440,750 (8% of the Scottish total), 54% of whom lived in The Highland Council area. Some 11% of HITRANS residents live in the island groups of the Outer Hebrides (Na H-Eileanan) and Orkney.

2.3.3 In terms of TTWAs, population is heavily concentrated in the Inverness and Elgin TTWAs and these two areas account for over 50% of the total HITRANS region population. All other TTWAs have populations of around 20,000 or less.

Population age profile

2.3.4 The age profile of an area has an influence on travel patterns and the demand for travel by mode. The chart below shows the breakdown of the HITRANS population by age (Argyll & Bute data are only available at full local authority level).

[3] Estimate of HITRANS part of Argyll and Bute (70%)

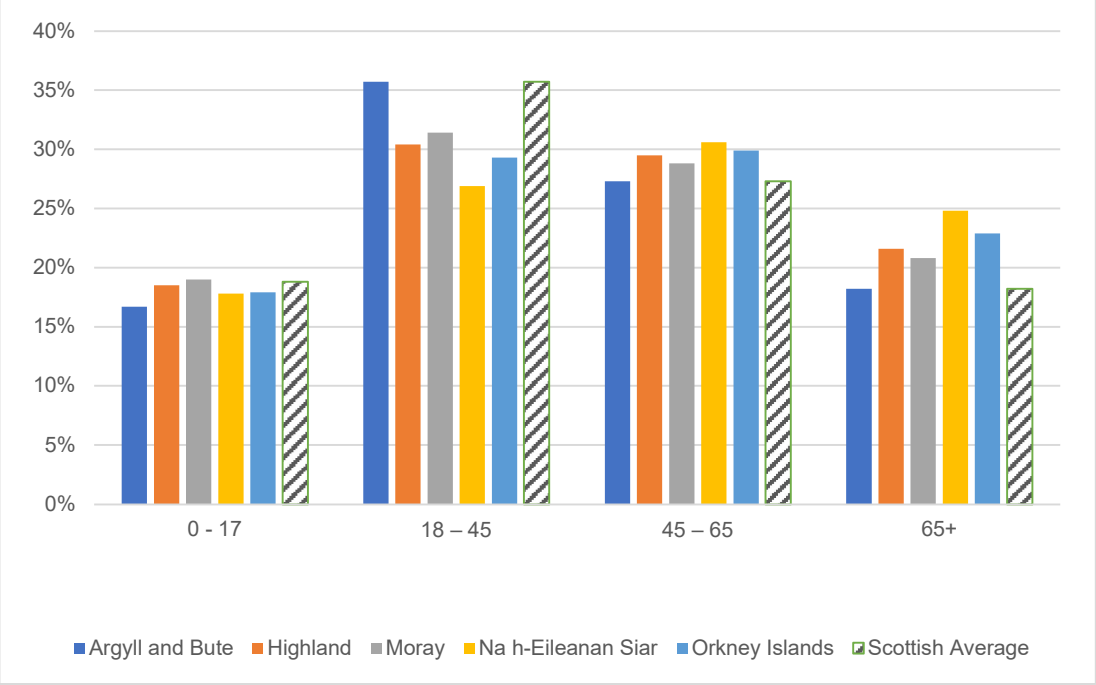


Figure 2.3: HITRANS local authorities population age profile (Source: NRS mid-year population estimates)

2.3.5 The figure shows that the Argyll and Bute local authority area most closely mirrors the Scotland average (although this may be skewed somewhat by the Helensburgh and Lomond areas of the authority, which are in the SPT area). The other four local authorities have an older age profile than Scotland as a whole, with notably lower proportions of those aged 18-45 and higher proportions of those aged 65+. This perhaps reflects young people moving to the bigger cities for education / work then potentially returning later in life. In-migration may also be concentrated amongst older groups who make a lifestyle choice to move to rural Scotland. This age pattern has implications for transport connectivity to health facilities (and for the delivery of healthcare at home) and other services important to older age groups.

2.3.6 This age profile also differs markedly by TTWA as shown in the table below. Red, amber and green shadings[4] indicate less and more 'favourable' demographics, in terms of an ageing population.[5]

[4] The scale used is: (i) Green = equal to or better than the Scottish average; (ii) Amber = within four percentage points of the Scottish average (i.e., lower than the Scottish average in % under-16 and %16-65 and higher than the Scottish average in %65+); and (iii) outwith four percentage points of the Scottish average (again, lower than the Scottish average in % under-16 and %16-65 and higher than the Scottish average in %65+).

[5] It should be noted that for certain areas, and particularly the most rural areas, there will be significant averaging effects within the data that do not account for local characteristics. For example, on some of the islands in Orkney, the proportion of the population aged 65 or over is much higher than the Orcadian average, which will disproportionately reflect Orkney 'mainland' residents.

Table 2.1: Age profile by TTWA[6] (Source: ONS TTWA data)

Travel-to-Work Area	% Under-16	% 16-65	% 65+
Alness and Invergordon	19%	60%	21%
Aviemore and Grantown-on-Spey	15%	62%	23%
Broadford and Kyle of Lochalsh	13%	61%	25%
Campbeltown	16%	58%	27%
Dunoon and Rothesay	14%	56%	30%
Elgin	17%	62%	21%
Fort William	16%	62%	22%
Golspie and Brora	13%	57%	30%
Inverness	17%	63%	20%
Lochgilphead	15%	60%	25%
Mull and Islay	15%	58%	27%
Oban	16%	63%	21%
Orkney Islands	16%	61%	23%
Portree	16%	61%	24%
Thurso	16%	61%	22%
Ullapool	12%	61%	28%
Western Isles	16%	59%	25%
Wick	17%	61%	22%
Scottish average	***19%***	***63%***	***18%***

2.3.7 There is a wide variation in the TTWA age profiles when compared to the Scottish average, but the key point is that the HITRANS region overall generally has less favourable demographics than Scotland overall. The more urban areas - Inverness, Elgin, Alness and Invergordon, and Oban most closely resemble the national picture, whilst Dunoon and Rothesay, Golspie and Brora, and Ullapool are the most different, with the most extreme ageing populations. All areas however have a higher proportion of 65+ compared to the Scottish average.

Implications for the RTS: The population of the HITRANS region has a higher proportion of older age groups and a lower proportion of working age adults compared to Scotland as a whole. This is typical of more rural areas across the country and implies a greater demand for access to health and care services in particular. There are areas within the region where this is particularly pronounced.

Migration – local authority level

2.3.8 The population trend in any area is a mixture of births, deaths and net migration. Across the HITRANS region, since between mid-2010 and mid-2019 (pre-COVID-19 pandemic), there

[6] Note, not all figures sum to 100% due to rounding.

was a net in-migration of over 10,000 people.[7] As shown in the figure below, this is particularly pronounced in The Highland Council area. Over this period, the Argyll and Bute (local authority area) saw net out-migration and the trend in Na h-Eileanan Siar was flat. In general, across this period, and prior to COVID-19, net in-migration was increasing.

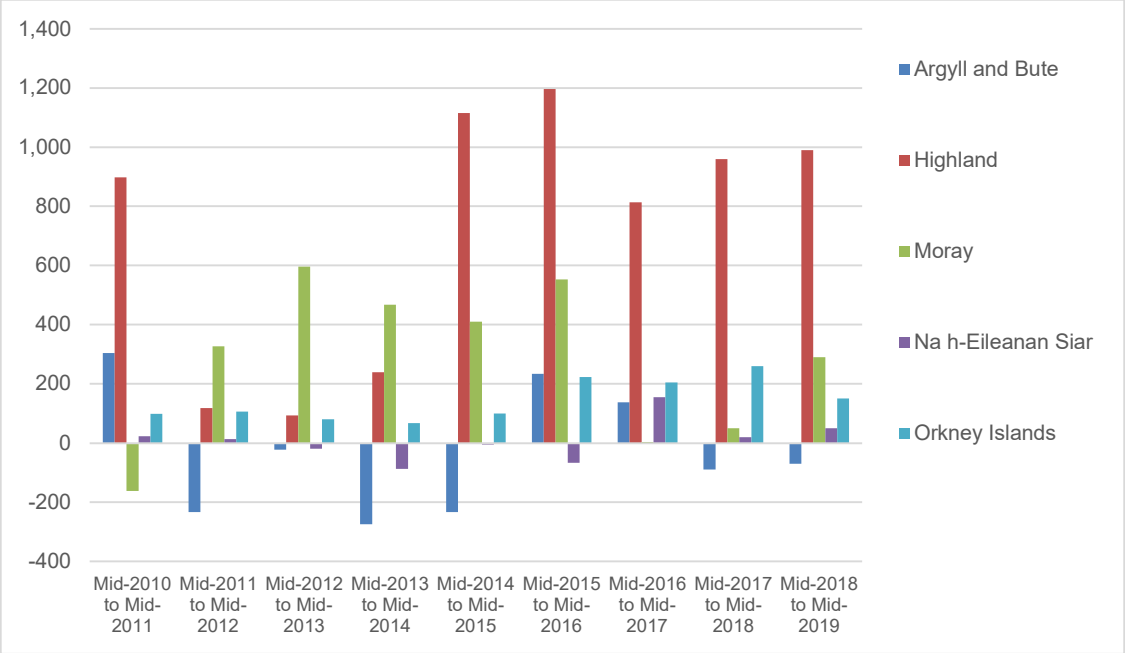


Figure 2.4: HITRANS local authorities' net migration 2010-2019 (Source: ONS migration statistics)

2.3.9 As population in the area has been broadly flat between 2010 and 2019, this implies that the number of deaths has been greater than the number of births in the area, with net in-migration maintaining the population level. Although not shown here, it is likely that much of the net in-migration will be amongst older cohorts, and in particular lifestyle in-migrants, which can further skew the demographic profile of the region.

2.3.10 It should be noted that demand for property and associated in-migration to the HITRANS region increased as a result of the COVID-19 pandemic. The weakening of the link between home and workplace combined with the demand for private (i.e., gardens) and / or increased outdoor spaces led to a surge in demand for rural properties[8], and in some instances this will have been amongst younger cohorts who would previously have found it difficult to relocate without changing jobs. The permanence of this effect remains to be established.

[7] https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/migrationwithintheuk/datasets/localareamigrationindicatorsunitedkingdom

[8] For example, see - https://www.pressandjournal.co.uk/fp/news/highlands-islands/3022411/highland-housing/ and https://www.struttandparker.com/knowledge-and-research/demand-for-rural-scottish-property-as-housing-market-opens-up

Implications for the RTS: Highland, Moray and Orkney witnessed significant in-migration in the decade prior to the COVID-19 pandemic, a trend which accelerated with changing working patterns post-pandemic (although the permanence of this effect remains to be established). Transport links are likely to be a factor in determining the pattern of in-migration across the region and will be important in retaining those moving into the area in the longer-term.

Long-term population trend and projections

2.3.11 The figure below shows the long-term population trend across the constituent HITRANS local authorities, indexed to 1981.[9]

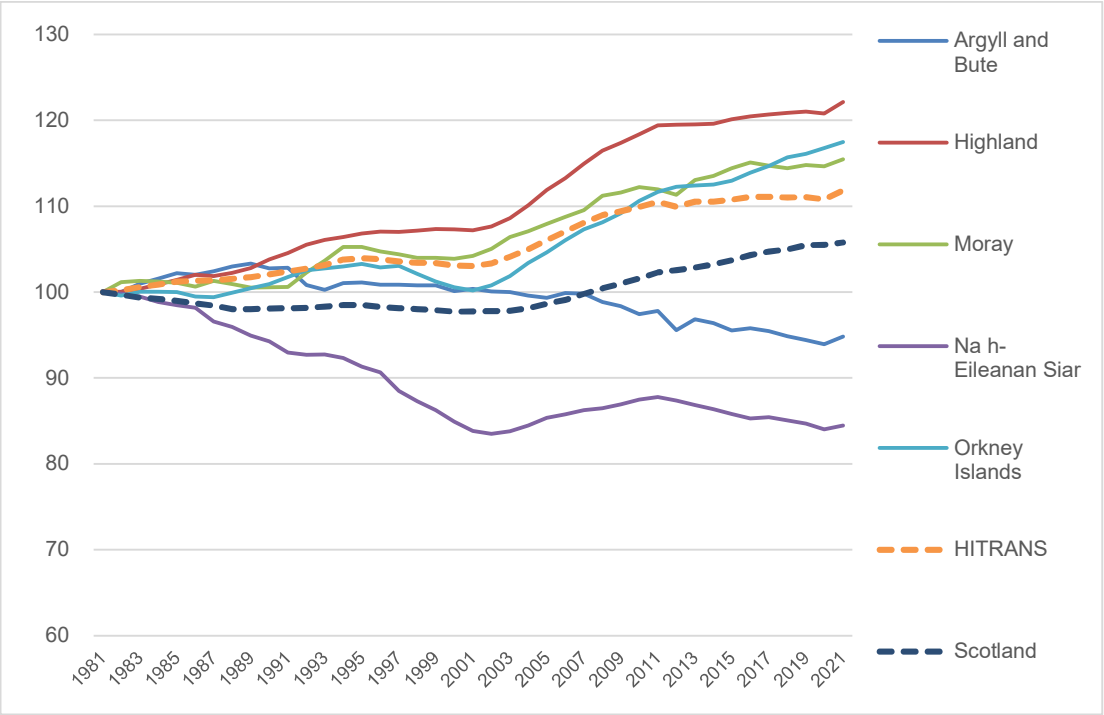


Figure 2.5: HITRANS long-term population trend (1981 to 2021, 1981=100) (Source: NRS mid-year population estimates)

2.3.12 There are very distinct trends amongst the HITRANS local authorities. Highland, Moray and Orkney have generally grown over this period, with population growth accelerating after the turn of the century. Na h-Eileanan Siar saw a steep decline between 1981 and 2001 before stabilising and fluctuating since then. Argyll and Bute has been more stable at ± 5% from 1981 levels over this period.

2.3.13 The most recent sub-national **population projections** are the 2018-based local authority projections from National Records of Scotland (NRS).[10] Despite recent population growth and net in-migration, the NRS population projections suggest that **population will decrease by around 5% by 2043** in the HITRANS region, set against an increase for Scotland overall. It is

[9] NRS mid-year population estimates

[10] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-projections/sub-national-population-projections/2018-based

noted though that these projections pre-date COVID-19 and any redistribution of population from urban to rural areas implied by this. For context, these projections are shown in the figure below for each of the HITRANS local authority areas.

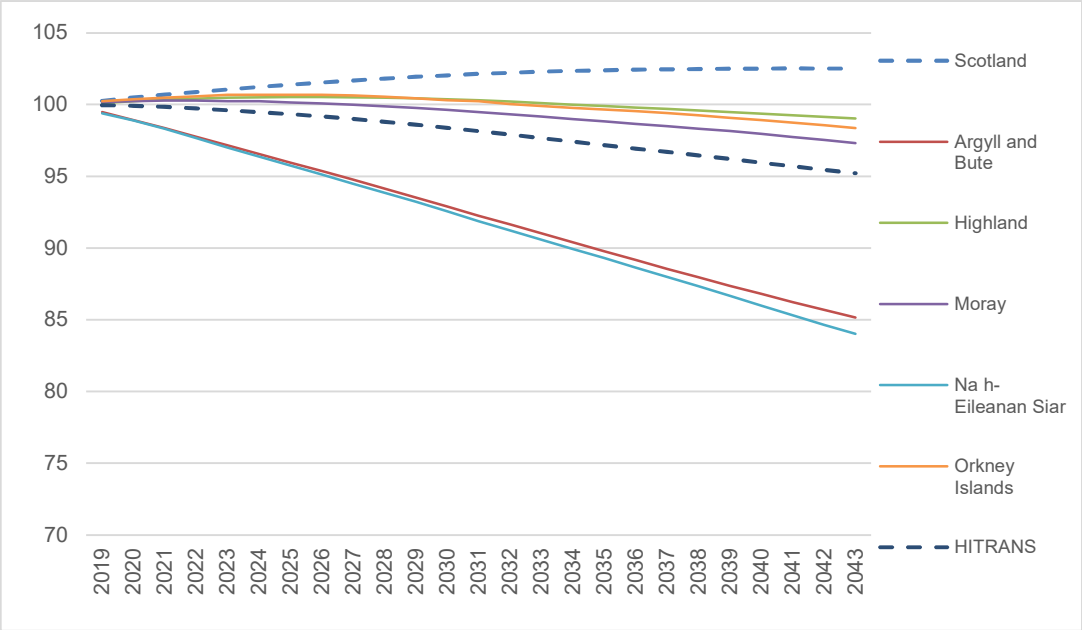


Figure 2.6: HITRANS long-term population estimates indexed (2018=100) (Source: NRS population estimates)

2.3.14 These projections suggest particular drops in Na h-Eileanan Siar and Argyll and Bute with much lower reductions in the other areas. If realised, this would compound the long-term population decline in these areas. The more recent 2020-based projections are only available at the Scotland level and these now suggest that, nationally, population will grow until 2028 then decline by 1.8% from 2020 levels (unlike the 2018-based projections which saw continuous growth).

2.3.15 Scotland's population is also ageing, i.e., the proportion of the total population in older age groups is increasing. [11] As shown below, using the 2018-based projections, in all of the HITRANS local authorities, the number of children and working age adults is projected to decline, whilst the number of people of pensionable age will increase, most so in Highland, Moray and Orkney.

[11] https://www.nrscotland.gov.uk/files//statistics/population-projections/sub-national-pp-18/pop-proj-principal-2018-report.pdf

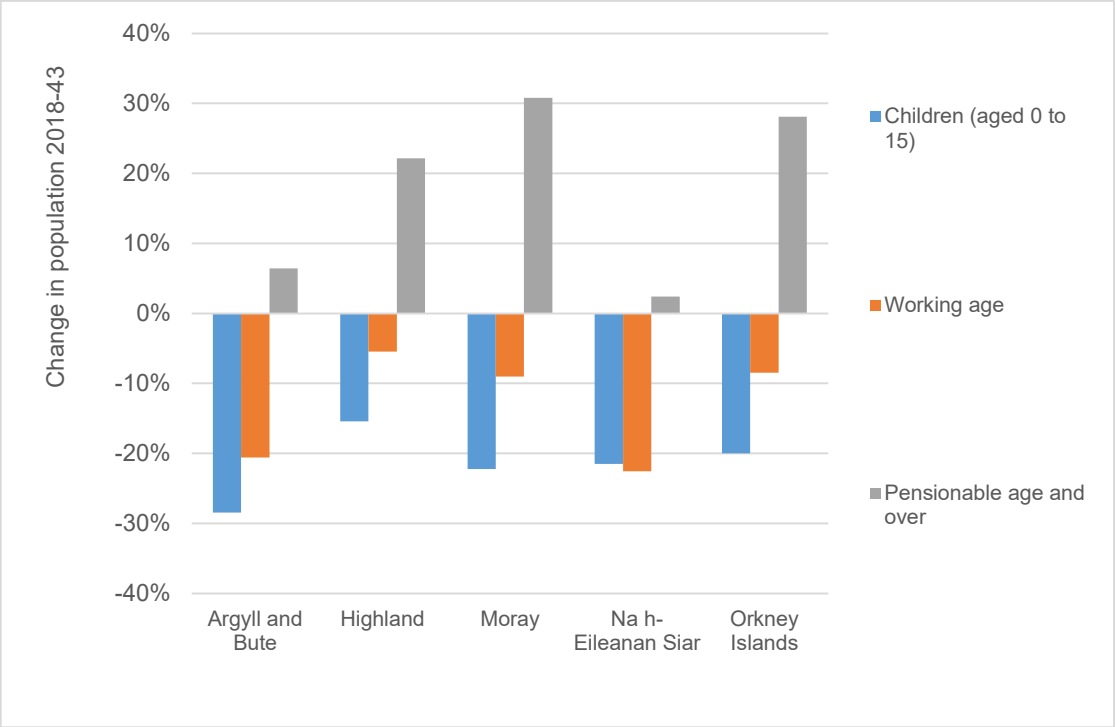


Figure 2.7: Forecast change in population by age group 2018-2043 (Source: NRS population estimates)

2.3.16 After a period where long-term population decline in the region had been checked, and in some cases reversed, headcount is again forecast to decline. Overall, the number of children and working age adults are projected to reduce from 72.5k to 58.6k, and 268k to 232k respectively, whilst those aged 65+ will increase from 100k to 131k (a net loss of circa 19k residents). If this projection materialises, there will clearly be significantly increased demand for health and social care, the delivery of which can be problematic in more rural areas and island communities in particular. The reduction in working age population would also be problematic for the regional economy and the delivery of services across the region, especially given the geography and the implied very limited scope for in-commuting. Again, it is worth noting that there will be significant variations within local authority areas.

2.3.17 Geographic remoteness and the limitations of the transport connections in the region are longstanding and have over many years contributed to the challenge of retaining population in the region, particularly young people. Indeed, research by HIE in 2018 found that the availability and cost of transport is a barrier to young people living, working and studying in the Highlands and Islands.[12]

[12] *Enabling Our Next Generation – Young People and the Highlands and Islands: Maximising Opportunities, Executive Summary* (HIE, 2018), pp. 4-12.

Implications for the RTS: The population of the region is projected to reduce in the medium term and its age profile will increase, with fewer young and working age people and more people of pensionable age. This will increase the need to access health and social care services and also generate labour market issues, potentially with insufficient workers to fill posts in certain areas. The geography of the HITRANS region effectively precludes 'in commuting' to fill these posts. The provision of improved connectivity within and to / from the region is important in retaining young people and attracting in-migrants, and the RTS should reflect this.

Urban-Rural Classification

2.3.18 The HITRANS region comprises a diverse mix of urban and rural areas. The figure below shows the region using the Scottish Government's eight-way urban-rural classification[13] in shades of blue for the most urban areas to shades of green for the most rural areas.

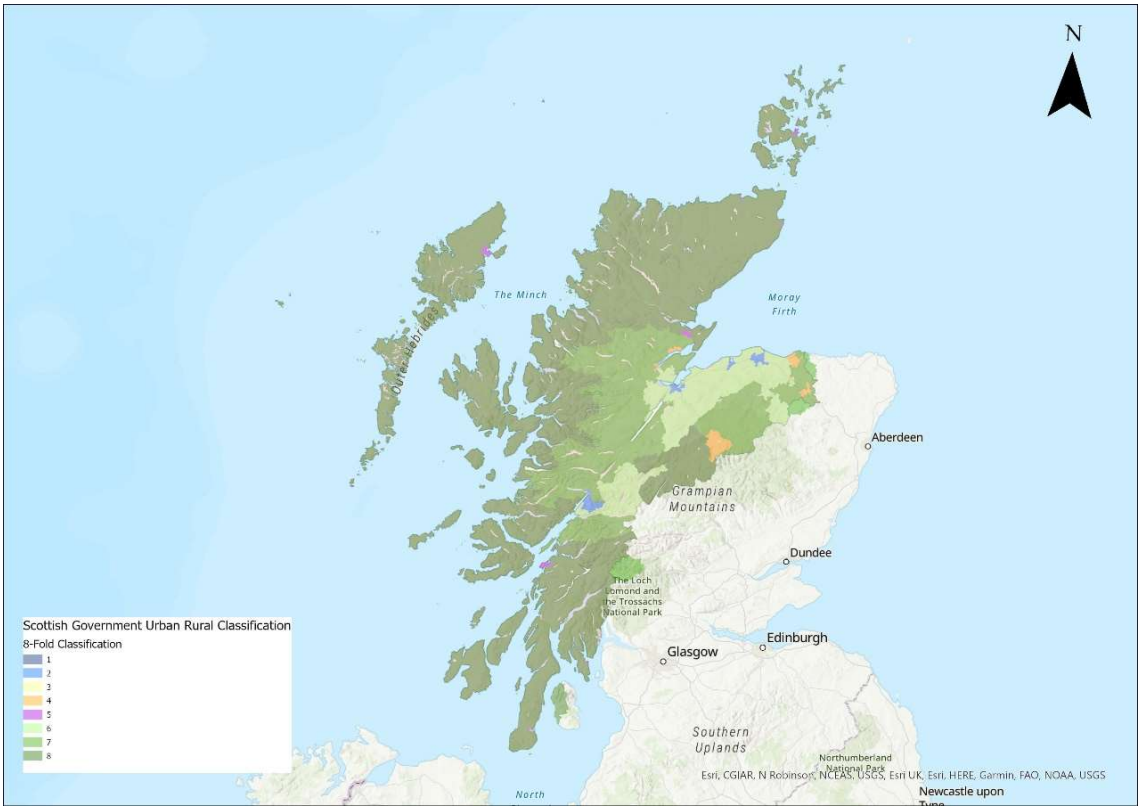


Figure 2.8: Eight level Urban – Rural Classification (Source: Scottish Government)

2.3.19 The eight-way classification is as follows:

- ***(1) Large Urban Areas*** - settlements of 125,000 and over (none in the HITRANS region)
- ***(2) Other Urban Areas*** - settlements of 10,000 to 124,999

[13] https://www.gov.scot/publications/scottish-government-urban-rural-classification-2020/pages/2/

- ***(3) Accessible Small Towns*** - settlements of 3,000 to 9,999, and within a 30-minute drive time of a settlement of 10,000 or more
- ***(4) Remote Small Towns*** - settlements of 3,000 to 9,999, and with a drive time of over 30 minutes but less than or equal to 60 minutes to a settlement of 10,000 or more
- ***(5) Very Remote Small Towns*** – settlements of 3,000 to 9,999, and with a drive time of over 60 minutes to a settlement of 10,000 or more
- ***(6) Accessible Rural Areas*** - areas with a population of less than 3,000, and within a drive time of 30 minutes to a settlement of 10,000 or more
- ***(7) Remote Rural Areas*** - areas with a population of less than 3,000, and with a drive time of over 30 minutes but less than or equal to 60 minutes to a settlement of 10,000 or more
- ***(8) Very Remote Rural Areas*** - areas with a population of less than 3,000, and with a drive time of over 60 minutes to a settlement of 10,000 or more

2.3.20 The proportion of the HITRANS population living in each of these area types is shown in the pie chart below.

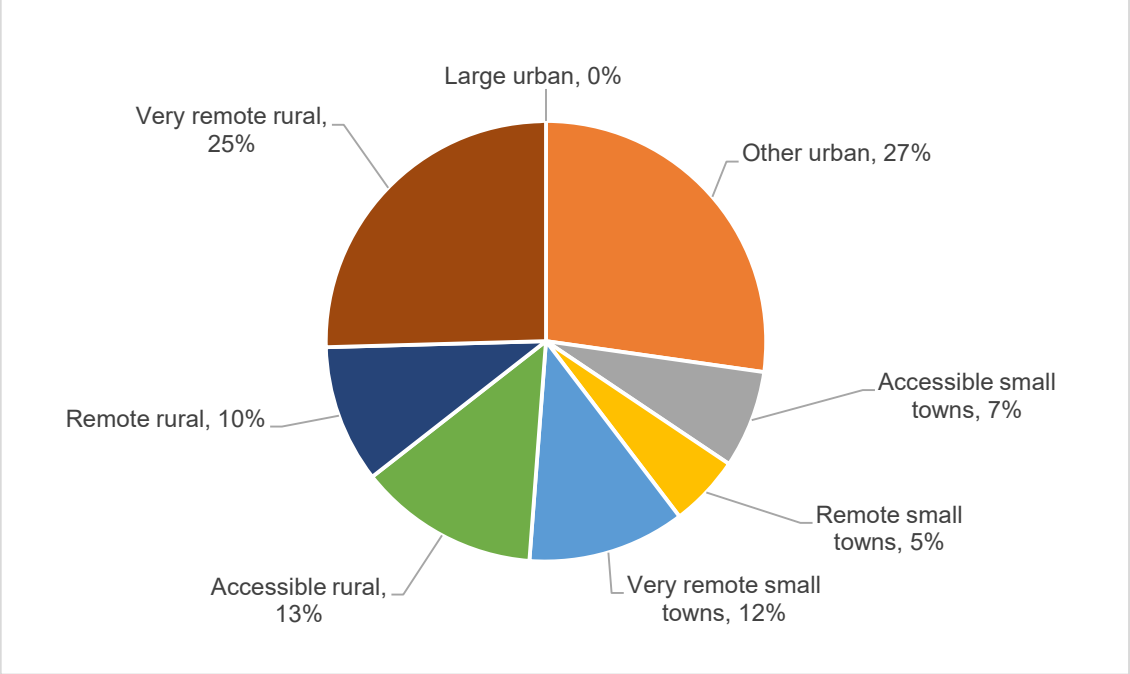


Figure 2.9: HITRANS population distribution by urban-rural classification (Source: Scottish Government)

2.3.21 By this definition, around half of the HITRANS population is 'rural', around a quarter live in 'other urban areas' (Inverness, Elgin and Forres), with the other quarter living in 'small towns' (3,000 to 10,000 people).

2.3.22 In terms of 'accessibility', **15% live in 'remote areas'** (areas that have a drive time 30-60 minutes from a settlement with a population of 10,000 or more), and **37% are 'very remote'** (areas that are a >60-minute drive time from a settlement with a population of 10,000 or more). This means that over half the population are >30-minute drive to a town of 10,000 –

this clearly poses challenges in terms of rural connectivity to services and opportunities and implies a high degree of car dependency.

Implications for the RTS: Over half of the HITRANS region's population is classed as 'remote' or 'very remote' whilst around a quarter live in larger settlements (10,000+). The region is therefore very diverse and the RTS needs to address the needs of some of Scotland's most geographically remote communities through to those living in the city of Inverness.

Car availability

2.3.23 Household car availability is one of the main determinants of travel behaviour. Car availability by HITRANS local authority area, the HITRANS region, and Scotland taken from the 2011 Census is shown in the figure below (note that Census data are now over ten years old).

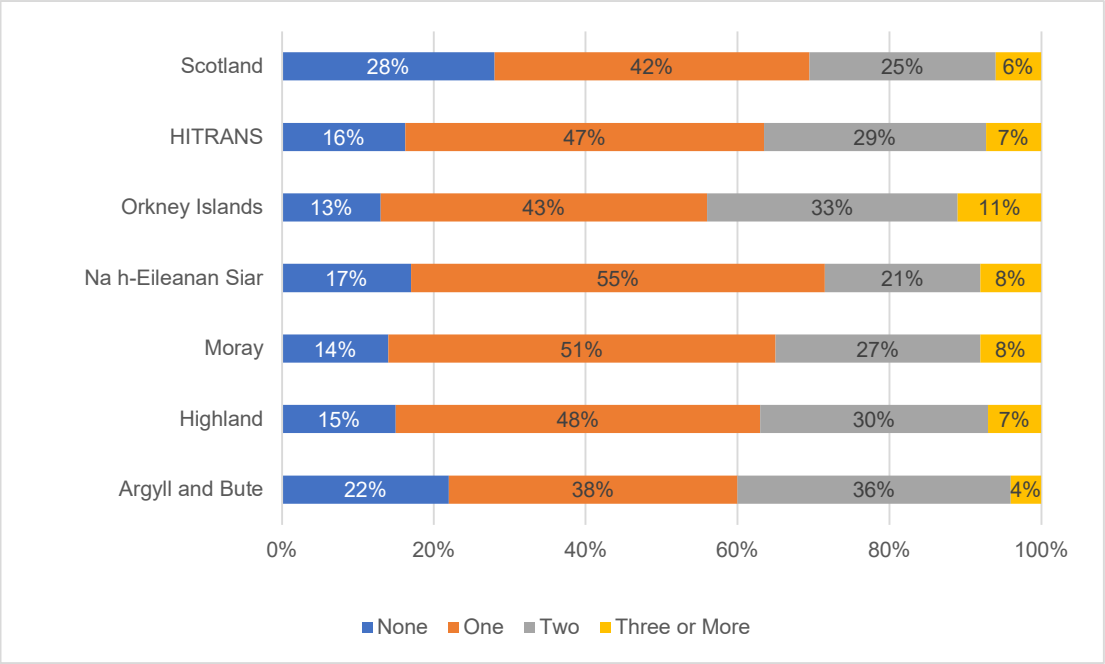


Figure 2.10: Household car availability by local authority (Source: 2011 Census)

2.3.24 Across the HITRANS region, **16%** of households do not have access to a car. This is much lower than the Scotland-wide figure (28%) since many more households in larger towns and cities tend not to have access to a car. This implies a high degree of car dependency, reflecting the rural nature of much of the area. Indeed, HIE has recently published research which found that the vast majority of Highlands and Islands residents (87%) rely on a car or van to get around to at least some extent, and this rises to 92% of residents in accessible or remote rural locations.[14] High levels of car ownership combined with above average trip lengths present a challenge that the RTS will have to wrestle with, given that the prevailing national policy context is focused on reducing vehicle kilometres.

[14] *My Life in the Highlands Islands Research* (HIE, 2022), p. 3.

2.3.25 The chart below shows car ownership at the TTWA level.

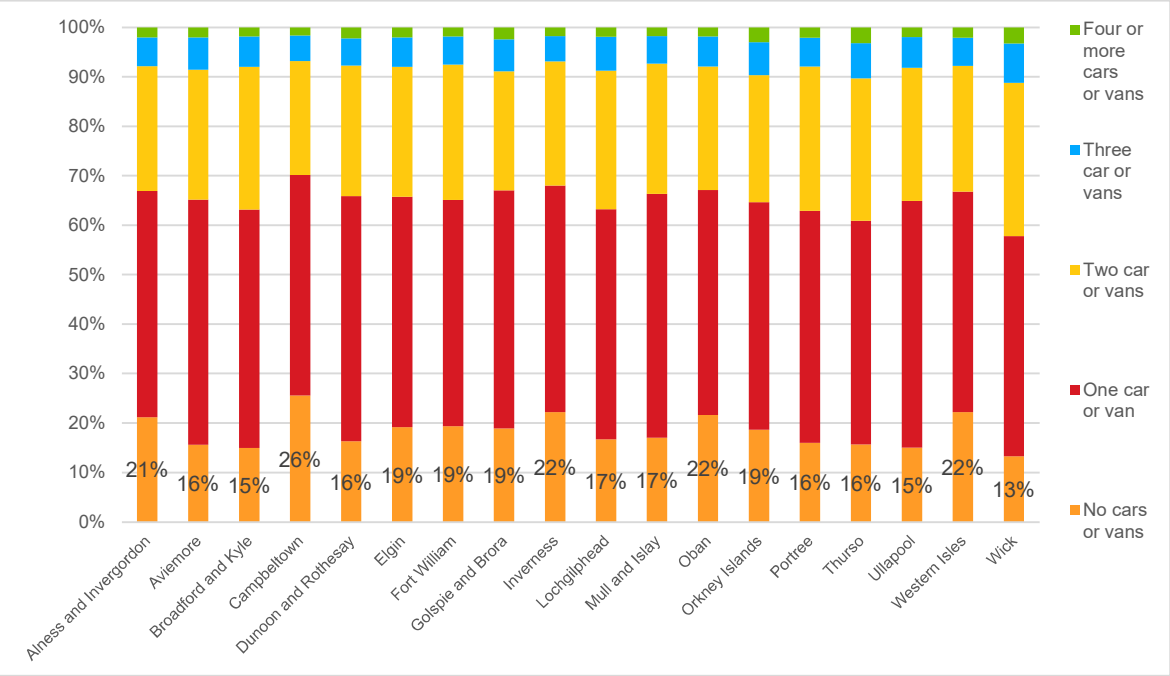


Figure 2.11: Car ownership at TTWA level (Source: 2011 Census)

2.3.26 The areas with high rates of zero-car households tend to be areas with higher levels of deprivation (e.g., Alness and Invergordon, Campbeltown) and the more urban areas where car ownership can be less essential for more people (e.g., Inverness, Oban), although all of these areas still have lower rates of zero-car households than the national average. Wick, Thurso, Lochgilphead and Broadford and Kyle have the highest proportions of 2+ car households. Even in the most rural TTWAs, typically 15% to 20% of households do not have access to a car. This must be problematic for many households given the relatively sparse public transport network in many of these areas.

2.3.27 It is also worth noting that due to the rural nature of much of the HITRANS region, one-car owning households can encounter some of the issues associated with no-car households in more urban areas. That is, if one household member takes the car for the day for e.g., travel-to-work or for business purposes, the remaining household residents may have little to no access to services or facilities during the hours in which the car is not at the property. This contrasts with urban and peri-urban areas where public transport options are more widely available and active travel journeys shorter.

Implications for the RTS: Reflecting the rural nature of much of the region, car ownership rates are higher than the Scotland average. This implies a high degree of car dependence for many, and the requirement to own and run a car ('forced' car ownership) will undoubtedly have a significant negative impact on some households' finances. Moreover, some households will require a second car if the primary car is away from the property for most or all of some days.

Deprivation

2.3.28 The Scottish Index of Multiple Deprivation (SIMD) is a relative measure of deprivation across 6,976 small areas (datazones) across Scotland.[15] In this analysis, all datazones in Scotland are allocated into deciles, with the first decile representing the most deprived and the tenth decile the least deprived communities (all based on a broad range of metrics). High levels of deprivation tend to be associated with poorer health, educational outcomes, and employment levels / incomes. Transport can be a contributor to deprivation where poor public transport for example can limit opportunities or impose high costs on households through 'forced' car ownership.[16] It should be noted that 'deprivation' in a rural setting often differs in nature to that found in an urban setting – it is often more dispersed and focused on low incomes relative to higher cost of living and poor connectivity to services.

2.3.29 The chart below shows the SIMD profile of all HITRANS datazones relative to Scotland. If the HITRANS region mirrored the national picture, then 10% of HITRANS datazones would fall into each decile. A negative figure indicates a lower proportion than the national picture and *vice versa*:

[15] SIMD looks at the extent to which an area is deprived across seven domains: income, employment, education, health, access to services, crime and housing.

[16] It should be noted that HITRANS and its constituent authorities have concerns around SIMD as a measure for deprivation in remote and rural area, where deprivation is less spatially concentrated and where a combination of remoteness and high costs of travel can contribute to deprivation in a manner which is not captured in SIMD.

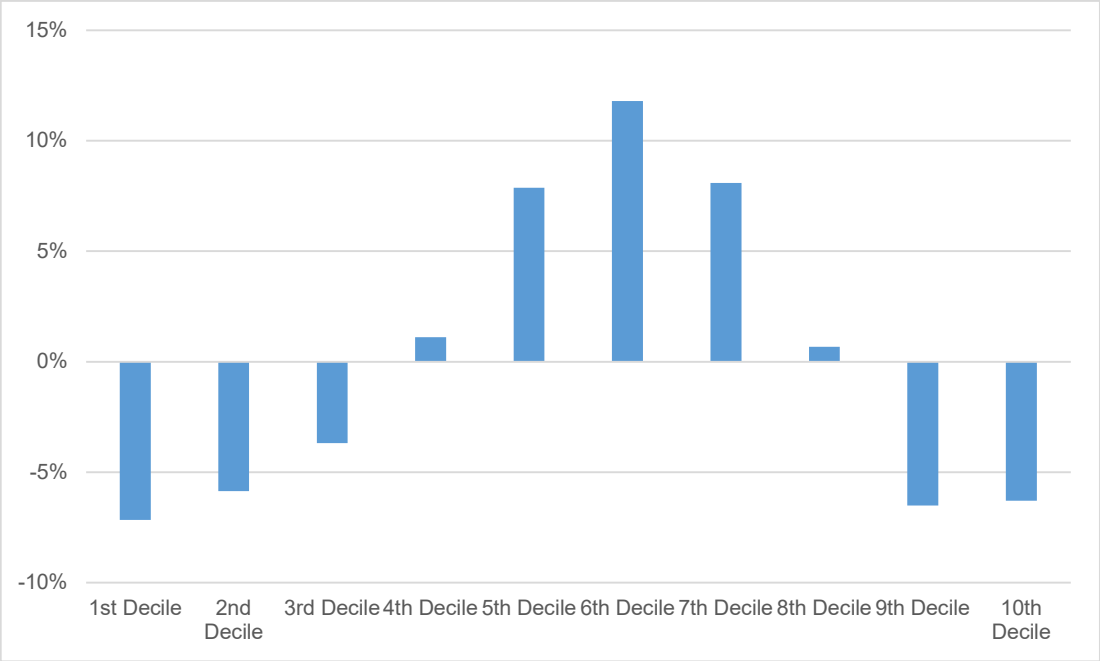


Figure 2.12: HITRANS datazones relation to Scotland overall (Source: SIMD)

2.3.30 It can therefore be seen that the HITRANS region has fewer extremes of deprivation compared to Scotland. Datazones in the first-to-third and ninth-to-tenth deciles being under-represented with the fourth-to-eighth deciles overrepresented. In this respect, the HITRANS region is perhaps more egalitarian than Scotland as a whole. That said, the picture would vary by individual 'domain' – in particular, the HITRANS region would show significant levels of deprivation in the 'Geographic Access to Services' domain, but much lower levels of deprivation in other domains such as 'Employment' and 'Crime'.

2.3.31 There are of course variations across the area. The chart below shows the average SIMD score for each of the 18 TTWAs in ascending order (with a **low score indicating higher levels of deprivation**):

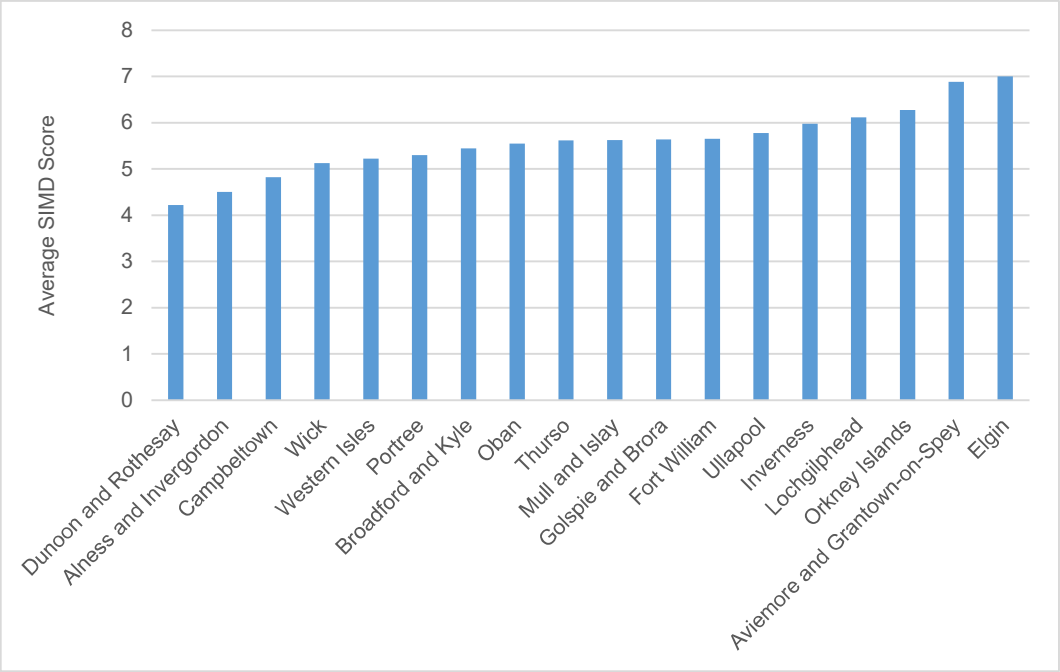


Figure 2.13: Average SIMD score by TTWA (Source: SIMD)

2.3.32 The chart shows that Dunoon and Rothesay, Alness and Invergordon, and Wick have the highest levels of deprivation, whilst Orkney, Aviemore and Grantown and Elgin have the lowest levels of deprivation. In terms of decile one (the 10% most deprived communities), only Dunoon and Rothesay (2), Alness and Invergordon (2), Inverness (8), Oban (1) and Wick (2) have datazones in this category. Elgin has the highest proportion of decile 10 (least deprived) datazones.

Cost of living / business

2.3.33 Whilst there are relatively few areas of multiple deprivation in the region overall, it is important to note that there can be significant levels of 'hidden' deprivation associated with the high cost of living and doing business. These high costs are set against average wages, which are typically lower, particularly in islands and the most remote areas of the mainland, e.g., Wester Ross, Ardnamurchan etc.

2.3.34 Recent research undertaken by the Scottish Government has found that 15% of people living in rural Scotland (or 170,000 people) are in relative poverty. The research estimates that cost of living is considerably higher in rural Scotland, with food, clothing, household goods, housing, transport and household fuel bills being the main causes of this. Fuel poverty is a particular issue, with a third of houses in remote rural Scotland estimated to be in extreme fuel poverty, compared to only 11% of households in the rest of Scotland (and, again, it should be noted that this research was carried out prior to the exponential increase in energy costs in 2022).[17]

[17] Poverty in Rural Scotland: A review of evidence (Scottish Government, 2021), pp. 4-5.

2.3.35 Research by HIE on the required minimum income standard for remote and rural Scotland found that:

- The budgets that households need to achieve a minimum acceptable living standard in remote rural Scotland are typically 10%-40% higher than elsewhere in the UK.
- For households living in the most remote island locations, too far from towns to make regular shopping trips and those relying on heating oil in older homes, additional costs can be even great than 40% (and this was well prior to the exponential increase in energy costs in 2022).
- The three principal sources of this premium are:
  - The higher prices that households must pay for food, clothes and household goods.
  - Much higher household fuel bills, influenced by climate and fuel sources.
  - The longer distances that people have to routinely travel, particularly to work.

2.3.36 Moreover, remote small settlements in the region can have additional costs associated with, for example:

- Additional ferry costs for island-mainland and inter-island travel, particularly given the commuter nature of some islands and peninsular communities (e.g., Rousay, Ardnamurchan Peninsula etc).
- The additional cost of buying groceries in more expensive local stores.
- Higher heating bills associated in some cases with older housing.[18]

2.3.37 It should also be noted that, throughout much of the HITRANS region, fuel prices are generally higher than elsewhere in Scotland. The UK Government introduced a 5p fuel rebate scheme in 2012 for several islands in the region, but the average price per litre remains above the Scottish average in many places. In addition, given that much of the road network in the most remote areas consists of single-track roads with frequent changes in gradient and curvature, fuel consumption and maintenance costs are likely to be higher.

[18] *A Minimum Income Standard for Remote Rural Scotland – A Policy Update* (HIE, 2016), p. 3.

Implications for the RTS: The region sees less in the way of extremes of wealth and deprivation than other parts of Scotland. Nevertheless, there are areas with pockets of deprivation in Dunoon, Rothesay, Alness, Balintore, Inverness, Oban and Wick. Where these areas also suffer from poor connectivity, the RTS should seek to improve opportunities for these communities. Moreover, cost of living in much of the HITRANS region is generally higher than elsewhere in Scotland, driven in part by the need to travel longer distances to access employment and services.

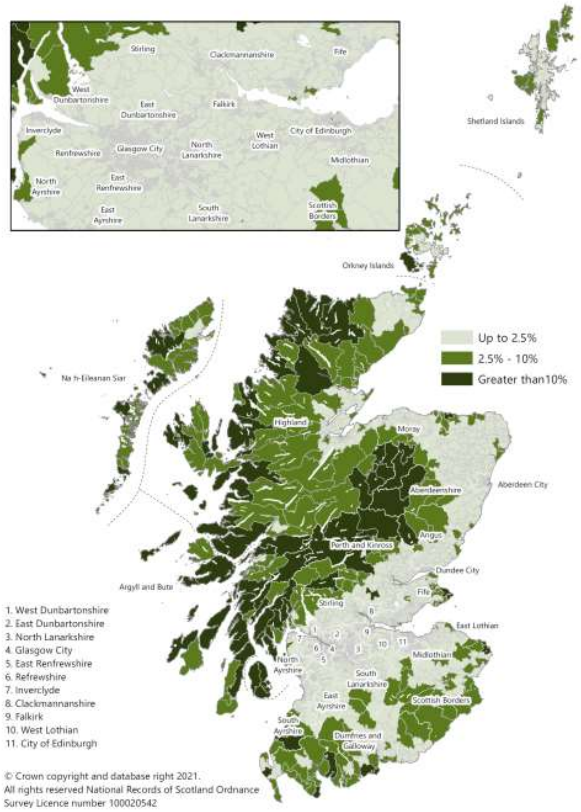
Second Homes

2.3.38 As well as having an impact on local communities, second homes can be significant generators of travel to / from the HITRANS region through use by the owners or through holiday lets.

2.3.39 The *Estimates of Households and Dwellings in Scotland, 2020*[19] report notes that:

- Some 6.3% of 'remote rural areas' homes are second homes, by far the largest proportion by geographical area
- The Scottish council areas with the highest proportion of dwellings that are second homes in 2020 were: Argyll and Bute (6.5%, 3,100 second homes), Na h-Eileanan Siar (5.3%, 800 second homes), Orkney Islands (4.3%, 500 second homes), and Highland (3.2%, 3,800 second homes), i.e., four of the five constituent HITRANS local authorities.

2.3.40 The graphic opposite (taken from the above report) shows that there are many areas across the HITRANS region where the proportion of second homes is greater than 10% (shaded dark green).



Implications for the RTS: Large parts of rural HITRANS have some of the highest rates of second home ownership in the country. These houses are likely to generate many mostly car-based trips to and from the area either through the owners' use or as holiday lets. Car-based tourism is a major contributor to traffic in the region and the RTS should seek to address / mitigate this issue.

2.4 The HITRANS Economy

2.4.1 The patterns of economic activity across a region are a key determinant of employment patterns, and the import and export of goods through supply-chains. The HITRANS region's

[19] https://www.nrscotland.gov.uk/files/statistics/household-estimates/2020/house-est-20-publication.pdf

distance from the Central Belt of Scotland means that there is a high dependence on road-based freight transport and the trunk road network to connect with the many distribution centres and freight forwarders in the Central Belt. Moreover, for high value sectors such as life sciences, energy and business services, connections to the rest of Scotland, the UK and internationally are critical.

2.4.2 The region also has high concentrations in freight intensive industries (particularly road freight, in some cases over ferry services) for food and drink (e.g., whisky, aquaculture), forestry and agriculture. Moreover, there has been and will continue to be major project-related traffic in the region associated with e.g., on and offshore windfarm construction, major construction projects, oil and gas decommissioning and the emerging space industry.

2.4.3 A high quality, reliable and resilient transport network is therefore particularly essential in the HITRANS region, facilitating both intra-region activity and trade with elsewhere in Scotland, the UK and abroad.

The structure of the economy

2.4.4 The structure of the HITRANS economy in terms of employment is shown in the figure below using data from the Business Register and Employment Survey (BRES).[20]

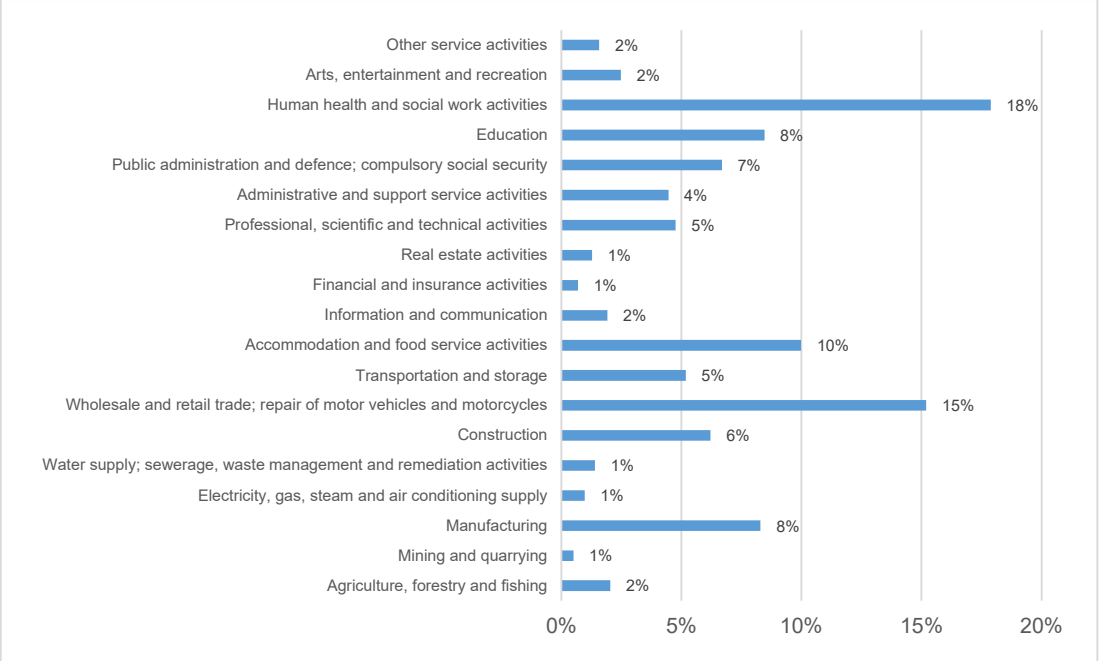


Figure 2.14: Sectoral breakdown of HITRANS economy (Source: BRES, 2020)

2.4.5 The three biggest sectors in terms of employment are therefore the **healthcare (33,300 jobs)**, **retail (28,300)** and **tourism (accommodation and food service activities) (18,600)** sectors. Despite being a mainly rural area, it is notable that only **2%** of employment in the HITRANS

20 https://www.ons.gov.uk/surveys/informationforbusinesses/businesssurveys/businessregisterandemploymentsurvey

region is in **agriculture, forestry and fishing**. Healthcare and retail are also the two largest sectors nationally.

2.4.6 Taking human health and social work activities, education and public administration etc together as a proxy for public sector employment, it is estimated that **one third of all employee jobs in the region are in the public sector**.

How does HITRANS differ from the whole of Scotland?

2.4.7 The figure below shows how the HITRANS region's economy differs from the rest of Scotland in terms of percentage employment by sector.

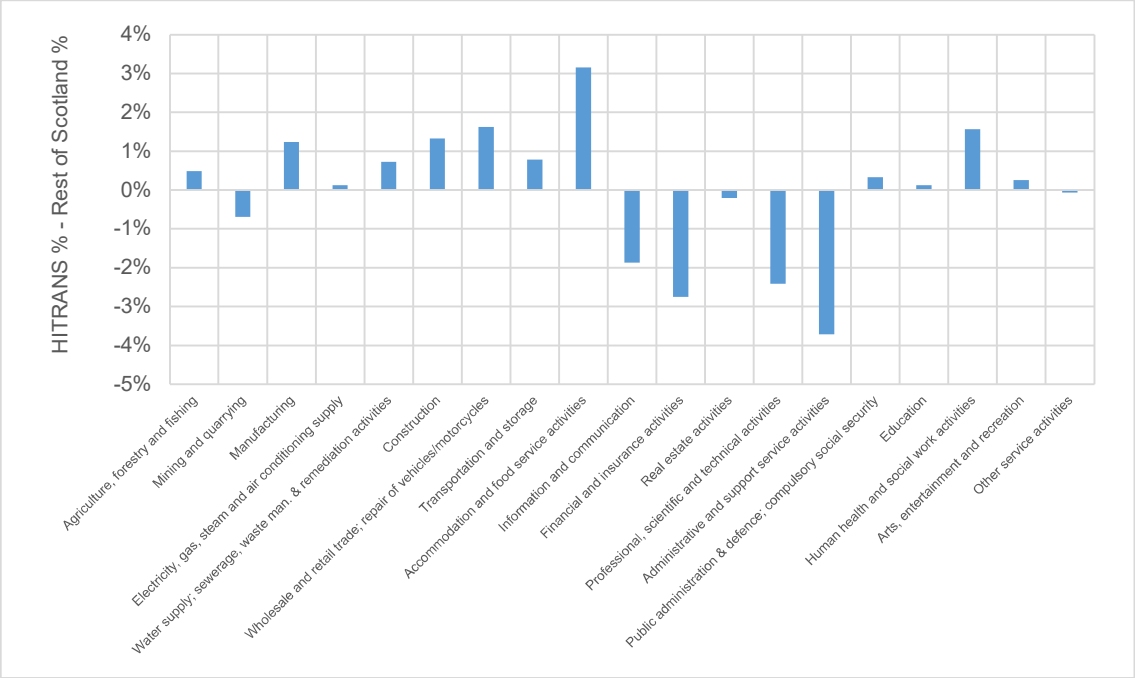


Figure 2.15: HITRANS sectoral breakdown compared to Scotland overall (Source: BRES, 2020)

2.4.8 Compared to the rest of Scotland, the HITRANS economy has a **significantly higher proportion of jobs in tourism** (10% versus 6.8% for the rest of the country) and higher shares in the **health, retail and manufacturing** sectors. There is also a lower share of employment in the sectors more typically associated with larger cities such as 'Professional, Scientific and Technical Activities' and 'Administrative and Support Service Activities'.

2.4.9 There are however significant variations in economic structure across the region. TTWAs with notably high or low concentrations of each sector are outlined in the table below.

Table 2.2: Sectoral concentrations by TTWA (Source: BRES, 2020)

Sector	TTWAs with notable concentrations in these sectors (jobs/resident)	TTWAs with notable absences in these sectors (jobs/resident)
Agriculture, forestry and fishing	Broadford and Kyle, Lochgilphead, Fort William Mull and Islay, Ullapool	Alness and Invergordon, Thurso
Mining and quarrying	Alness and Invergordon, Oban, Thurso	Mull and Islay, Portree, Wick
Manufacturing	Elgin, Mull and Islay (Whisky)	Ullapool, Golspie & Brora
Electricity, gas, steam and air conditioning supply	Oban, Ullapool	Aviemore & Grantown, Broadford and Kyle, Golspie and Brora
Water supply; sewerage, waste management and remediation activities	Thurso (Dounreay)	Aviemore and Grantown, Broadford and Kyle, Dunoon and Rothesay
Construction	Lochgilphead	Campbeltown, Dunoon and Rothesay, Thurso
Wholesale and retail trade; repair of motor vehicles and motorcycles	Inverness, Oban	Broadford and Kyle, Dunoon and Rothesay, Golspie and Brora, Lochgilphead
Transportation and storage	Campbeltown, Orkney	Aviemore and Grantown, Wick
Accommodation and food service activities	Aviemore and Grantown, Broadford and Kyle, Fort William, Oban, Portree, Ullapool	Alness and Invergordon, Elgin, Wick
Information and communication	Thurso	Dunoon and Rothesay, Golspie and Brora, Mull and Islay, Wick
Financial and insurance activities	Portree	Broadford and Kyle, Golspie and Brora
Real estate activities	Portree	Elgin, Thurso
Professional, scientific and technical activities	Thurso	Campbeltown, Dunoon and Rothesay, Lochgilphead, Ullapool, Wick
Administrative and support service activities	Inverness	Broadford and Kyle, Campbeltown, Portree
Public administration and defence; compulsory social security	Campbeltown, Lochgilphead, Orkney, Western Isles (mainly Council headquarters)	Alness and Invergordon, Aviemore and Grantown, Broadford and Kyle
Education	Broadford and Kyle, Fort William, Ullapool	Aviemore and Grantown
Human health and social work activities	Inverness	Campbeltown, Mull and Islay, Thurso
Arts, entertainment and recreation	Aviemore and Grantown, Golspie and Brora, Lochgilphead,	Alness and Invergordon, Thurso
Other service activities	Alness and Invergordon, Aviemore and Grantown	Broadford and Kyle, Lochgilphead, Ullapool

2.4.10 These differences across the region impact on the demand for and type of travel and movement of freight across the region.

Commuting in HITRANS

2.4.11 Given the dispersed nature of much of the population in the region, businesses may struggle to fill posts and retain staff. Indeed, the most recent HIE Panel Survey found that a lack of transport was viewed by 42% of businesses as a risk in relation to their workforce, rising to 48% in rural areas. This is a particular issue amongst tourism businesses.

2.4.12 To provide an overview of labour markets in the region, the 2011 Census travel-to-work data have been used to provide a breakdown of the proportion of jobs in each TTWA: (i) taken-up by **residents**; (ii) those who **work from home**; (iii) those who have **no fixed place of employment**; and (iv) those who **in-commute to each area**. This is shown in the chart below – it should be noted that these data exclude those working offshore or outside of Scotland as these are not 'regular' commutes.

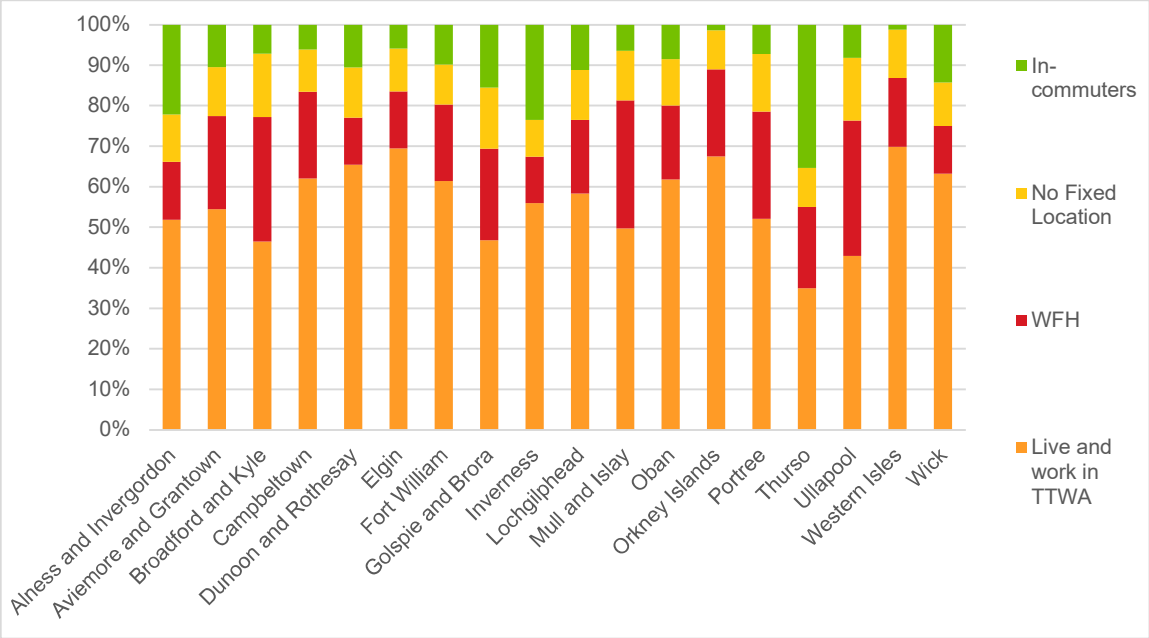


Figure 2.16: Proportion of jobs in each TTWA (Source: 2011 Census)

2.4.13 This analysis shows that, across many of the TTWAs, there is a substantial amount of home-working – especially in the more rural areas. These data also pre-date the effects of broadband and mobile telephony improvements since 2011 and the COVID-19 pandemic, which led a significant increase in home working nationally. Thurso, Alness and Invergordon, and Inverness see the highest proportions of in-commuting. As would be expected, Orkney and Na h-Eileanan Siar are largely self-contained labour markets.

2.4.14 The chart below shows the level of in-commuting, out-commuting and net commuting for each of the TTWAs.

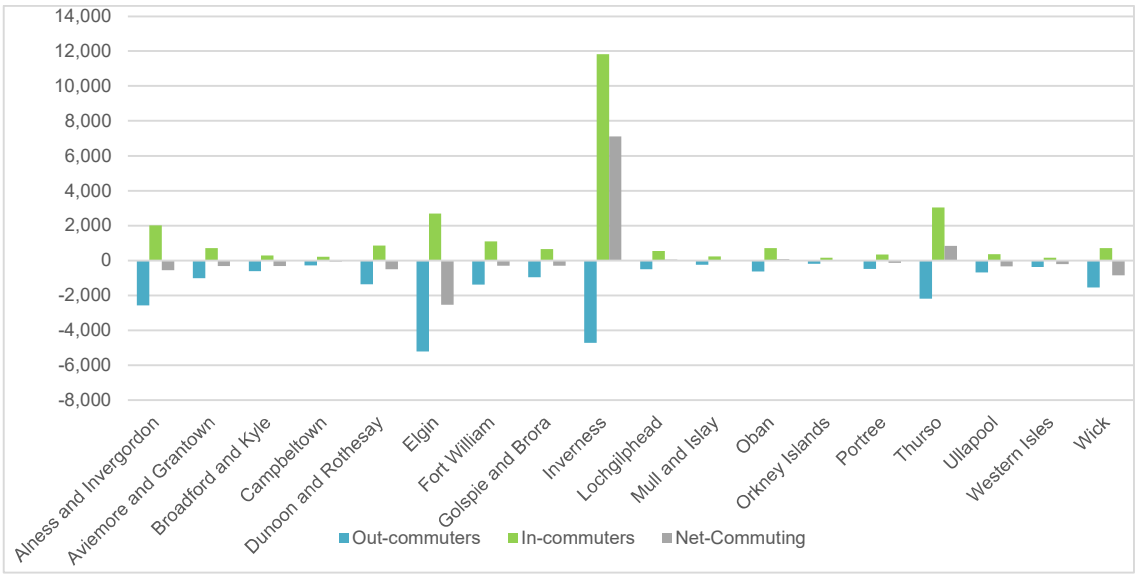


Figure 2.17: Commuting patterns by TTWA (Source: 2011 Census)

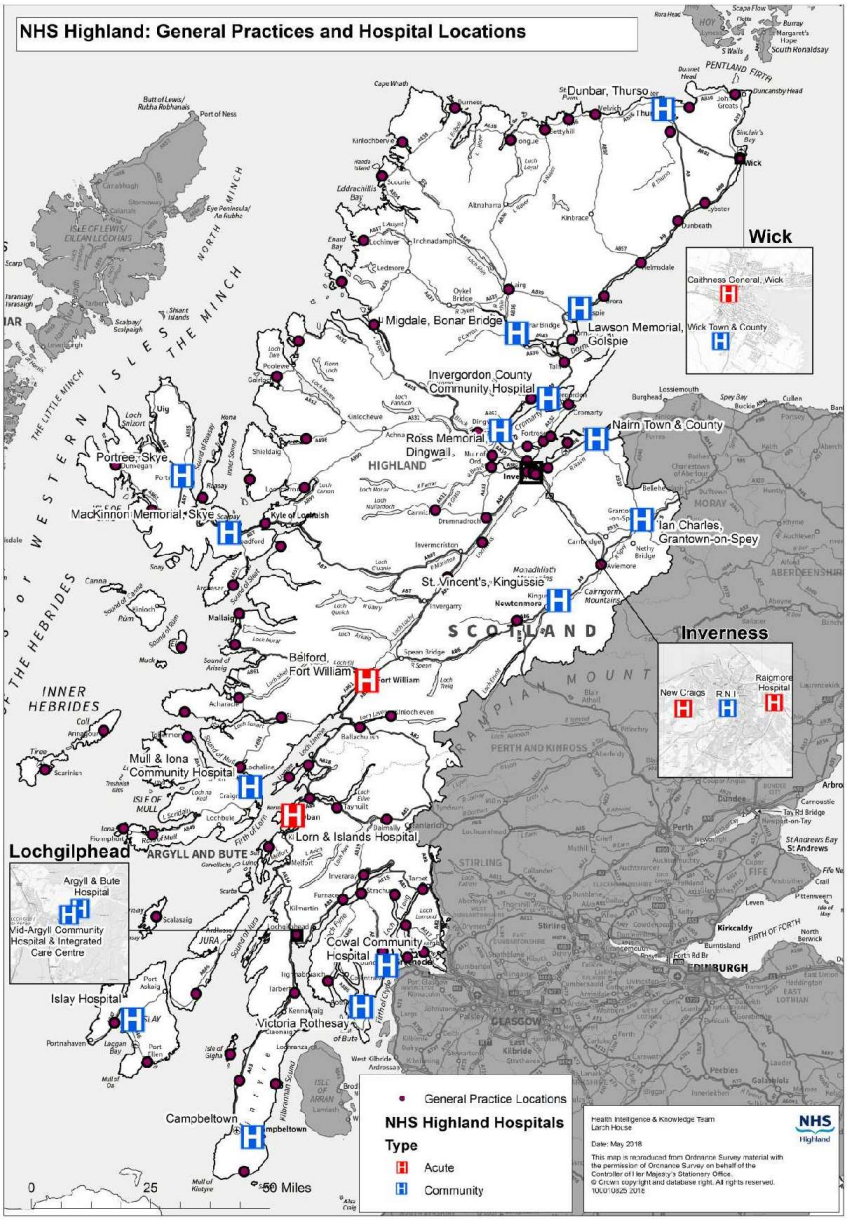
2.4.15 These data confirm the 'pull' of Inverness as an employment location with nearly 12,000 people living outside the TTWA and working in Inverness. Only Inverness and Thurso see net in-commuting to their TTWA – with Elgin and Wick respectively providing the majority of in-commuting to these areas.

2.4.16 Commuting accounts for a substantial proportion of travel, especially at peak times. This will be a key factor for the RTS, although commuting patterns have changed for many post-COVID-19 (see Chapter 5).

Implications for the RTS: Even prior to the pandemic, working from home was more common in the region compared to the rest of the country. The travel-to-work areas generally show high degrees of self-containment. Inverness is the focus of in-commuting, with nearly 12,000 living outside of the area and travelling to work there. As a complement to improved digital connectivity, the RTS should look to improve and widen labour market catchments across the region, improving productivity by providing an improved match between jobs and skills and supporting staff retention.

Health Care

2.4.17 Access to healthcare across the region is a key issue for many people. Beyond the Inner Moray Firth areas, communities are typically highly dispersed meaning that journey times to hospitals are long and often car-dependent. The map here is reproduced from the NHS Highland website[21] and shows the location of GP surgeries, community hospitals and acute hospitals across the NHS Highland area. Inverness, Wick, Fort William and Oban are therefore the main focus for hospital care.[22]



2.4.18 NHS Eileanan Siar operates three hospitals (Stornoway as the main facility with other sites at, Benbecula and Barra – so covering the three island groups) and 14 GP practice sites across the isles. Eileanan Siar residents typically travel to Glasgow for more specialist services.

2.4.19 NHS Orkney operates the Balfour Hospital at Kirkwall and has 16 recognised points for providing GP services on the mainland and across the isles. Access to the hospital in Kirkwall is therefore a key issue for these island communities. Orkney residents at times also travel to Aberdeen for specialist services.

[21] https://www.nhshighland.scot.nhs.uk/OurAreas/Pages/Welcome.aspx

[22] It should be noted that the above map is dated May 2018 and thus some of the detail is now out-of-date. Specifically, the hospitals in Kingussie and Grantown-on-Speay have closed and the new Badenoch and Strathspey Hospital has opened in Aviemore.

2.4.20 The ageing population noted previously will only increase the importance of good access to healthcare over the lifespan of the RTS.

Accessing health care

2.4.21 A static map never tells the full story and it is therefore important to note the significant challenges around access to health and social care in the region. Firstly, whilst there are numerous hospitals around the region, they vary in terms of size and facilities, with Raigmore Hospital in Inverness being the only hospital of a scale similar to those found in the Central Belt. Moreover, several specialist medical procedures have to be undertaken in Aberdeen, Edinburgh and Glasgow. Whilst the cost of the patient accessing hospital is typically covered by the NHS, this is not the case for e.g., visits to the GP or dentist, which may require a long over-land journey or a ferry or flight. Similarly, the cost of a patient escort is not typically covered unless there is a medical requirement for this. The increasing trend towards the centralisation of health services makes this a key issue for the RTS from an equalities, absolute cost and vehicle kilometres perspective.

2.4.22 Cost is also only one part of the problem. For those in deep rural and island areas, a short medical appointment can take up a full day. For example, although perhaps a 'worst-case', a trip to the dentist in Kirkwall for residents of the Outer North Isles in Orkney can require a 10-hour round trip, where subsistence costs are layered on top of travel costs. Indeed, the Orkney Child Poverty Strategy recorded this issue and highlighted that some families forgo dental services and / or treatment due to the cost of travel.[23] Furthermore, research by HITRANS identified that, in recent years, the cost borne by residents of Skye, Lochalsh and South-West Ross of travelling to outpatient appointments alone is over £1m per annum.[24]

2.4.23 Moreover, research undertaken by HITRANS in Lochaber highlighted that the timing of appointments for many locations, particularly islands, can be unsuitable.[25] Indeed, some medical appointments require one or more nights away from home. For example, maternity services for higher risk births in Orkney are typically provided for in Aberdeen and thus require expectant mothers to travel before their due date and remain in Aberdeen until they have their baby. Indeed, even low risk births from Orkney's Outer Isles require the expectant mother to travel to Orkney Mainland until the birth from around 39 weeks gestation. Similarly, those living in Uist travel to Inverness for cancer care, yet the irregular public transport timetables can extend journeys for people who are often very ill.

2.4.24 It should also be noted that transport connections often mean that health and social care delivery can be challenging and expensive for the NHS and local authorities. Indeed, for several of the most remote island communities, different delivery models can be required to ensure a basic level of service is available, e.g., the use of Nurse Practitioners where there is not an island GP surgery.

[23] *Orkney Child Poverty Strategy 2022-2026* (The Orkney Partnership, 2022), p. 45.

[24] *Skye, Lochalsh and South West Ross Transport and Access Plan* (HITRANS, 2020), p. ii.

[25] *Lochaber Health and Social Car Redesign Transport and Access Plan* (HITRANS, 2022), p. 3.

Implications for the RTS: Providing access to healthcare is already a key issue and will become increasingly important as the population profile is projected to age and there is a trend towards centralisation. This is an issue across many communities in the region (even in large settlements such as Wick) but those in some island and very remote mainland locations face particular difficulties. Access to health and social care services is clearly a key issue for the RTS.

Tourism in HITRANS

2.4.25 The above analysis has highlighted the key role of tourism in many parts of the region. The most recent (pre-COVID-19) data from VisitScotland suggests:

- **Argyll and the Isles**[26] (2017-19 average): a total of **6.5m visits**, with **4.0m nights stayed**, with associated spending of **£443m**. Top attractions included Argyll Forest Park, Inverary Castle and Staffa National Nature Reserve.
- **Highlands**[27] (2019): a total of **12.5m visits**, with **11.5m nights stayed** and associated spending of **£1,533m**. Top attractions included Urquhart Castle, Glenfinnan Viaduct, Glencoe visitor centre and Glenmore Forest Park.
- **Orkney**[28] (2019): a total of **192k visits**, with associated spending of **£67m**.
- **Outer Hebrides**[29] (2017): a total of **218k** visits, with associated spending of **£65m**. Top attractions included Callanish Stones, Butt of Lewis and Harris Distillery.

2.4.26 Taken together, these figures amount to around **£2bn** of tourism spend annually in the region pre-pandemic. Whilst travel restrictions during the pandemic did lead to an increase in 'staycations', there is uncertainty as to how these figures will evolve as the easing of restrictions on domestic and international travel filter through to holiday choices.

2.4.27 Despite the clear benefits of the tourism sector, the volume, diversity and type of tourism in the region has a significant impact on the transport network. Some of the main impacts include:

- **Higher traffic volumes** and **slower journeys** during peak tourism season – this affects both trunk and local roads. It also impacts on a range of different users, but particularly on those for whom **journey time reliability** is essential, e.g., freight, residents travelling to catch a ferry etc.
- **Safety and driver frustration risks**. This includes but is not limited to: the risks of driving on the wrong side of the road; misunderstanding the frequent switches between dual and single carriageway on the A9; safety and etiquette when driving on singe track roads; and the high risk of animals on the road.

[26] https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers-2/regional-factsheets/argyll-and-the-isles-factsheet-2019.pdf

[27] https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers-2/regional-factsheets/highland-factsheet-2019.pdf

[28] https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers/orkney-visitor-survey-2019---exec-summary.pdf

[29] https://www.visitscotland.org/binaries/content/assets/dot-org/pdf/research-papers/outer-hebrides-report---may-18.pdf

- **Indiscriminate, illegal and dangerous parking** at 'honeypots' (e.g., the Fairy Pools on Skye, Glenfinnan etc) and in passing places to take photographs or admire views.
- **Vehicle capacity constraints on many ferry routes** (and passenger capacity constraints on a handful of routes) – as visitors can typically book further in advance, they will often book a car deck space early, which can be to the disadvantage of residents who tend to book at shorter notice (although urgent travel is almost always accommodated). This can also impact on freight, although block booking of slots does provide a degree of protection against this.
- There has also been a strong growth in the **independent travel market** in the region, particularly in terms of 'travel' based tourism. The highest profile example is the North Coast 500's (NC500 initiative) success in attracting many more visitors to the areas covered by the route. This actively encourages road-based travel (car, motorbike, motorhome (where there has been rapid growth in rental provision)) in some of the most remote areas of the region and indeed on some of the most unsuitable roads. Whilst the NC500 was reported to have generated £22.9m in GVA for businesses along the route in 2018[30], the increase in visitor numbers and the anti-social behaviour exhibited by some visitors is not universally welcomed.
- **Cruise tourism** has also been a significant growth industry in the region, particularly in Orkney (which is the UK's most popular cruise ship destination, with over 170 calls per annum) and Invergordon, but also in a selection of other ports such as Stornoway and Portree. Cruise tourism can bring significant economic benefits and can also provide the volumes required to maintain e.g., a large and modern bus fleet, but the sheer volume of passengers can overwhelm the limited infrastructure.
- HITRANS has also launched the ***Scottish Islands Passport*** scheme which promotes tourism across 72 Scottish islands. There is perhaps something of a tension between these types of initiatives which encourage travel (much of which, given the geography, will often be car-based) and aspirations to reduce car kilometres in particular.

2.4.28 Overall, tourism is essential to the region, but managing its impact on the transport network, local communities and the environment is a key consideration for the RTS.

Implications for the RTS: The RTS will have to acknowledge the impact of tourism in the region and develop transport measures to make tourism more sustainable in terms of carbon emissions, other environmental impacts and the impacts of (over) tourism on communities in the region.

[30] https://www.scottishfield.co.uk/travel/scotland-travel/north-coast-500-boosts-economy-by-22million/

3 National Policy Review

3.1 Introduction

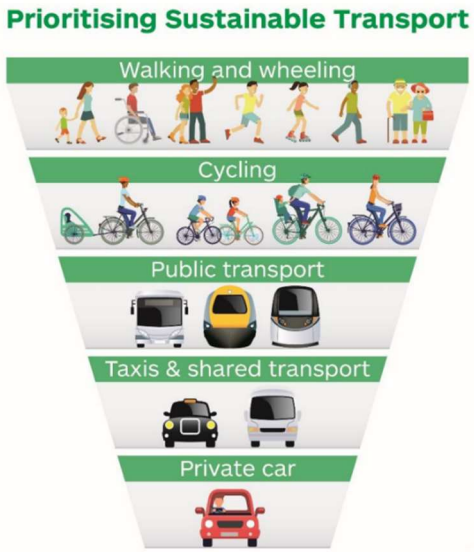
3.1.1 The RTS will be driven in part by national policy, adapted to the HITRANS regional context and to this end this chapter briefly sets out the key national policy context.

3.2 National Policy Documents

National Transport Strategy 2 (NTS2)

3.2.1 In February 2020, Transport Scotland published its *National Transport Strategy 2* (NTS2) which outlines a vision for Scotland's transport system over the next 20-years to 2040, including its contribution to achieving net zero by 2045. The vision is: *We will have a sustainable, inclusive, safe and accessible transport* system*, helping to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors.* The vision is underpinned by four 'priorities' and 12 'outcomes'.

3.2.2 The NTS2 establishes two hierarchies which define how future transport investment decision making and services should be planned. The *Sustainable Travel Hierarchy* defines the priority which will be given to each mode of transport in future investment planning and is shown here. It prioritises walking & wheeling and cycling, with the private car being the lowest priority.



Implications for the RTS: Options and themes promoted through the Strategy, and any which will emerge from it, should prioritise active travel and accessible public transport connections whilst at the same time discouraging short, single car occupant journeys. It is also important to note that the *Sustainable Travel Hierarchy* does not incorporate air and ferry services, which are essential modes of travel in the HITRANS region.

3.2.3 The *Sustainable Travel Hierarchy* is complemented by the *Sustainable Investment Hierarchy*, which establishes a structured set of steps to be followed when planning investment in transport provision (see the image on the right). This hierarchy focuses on how to reduce unsustainable travel, where journeys must be made.

3.2.4 It should though be noted that the *Sustainable Travel Hierarchy* does not include air and ferry services. Whilst in many cases these will be the only option available for travel to or from an island, it is important that, where practicable, travel as a foot passenger is encouraged over taking a car on the ferry.

Implications for the RTS: The *Sustainable Investment Hierarchy* dictates that investment in new infrastructure should only be considered once a wider package of options to: reduce the need to travel; reduce the need to travel unsustainably; optimise use of existing infrastructure; and influence travel behaviour or manage demand have been explored.

3.2.5 The first phase of the *NTS2 Delivery Plan 2020-22* was published in December 2020. This has since been supplemented by the *NTS2 Second Delivery Plan 2022-23*.[31]

Strategic Transport Projects Review 2 (STPR2)

3.2.6 STPR2 was published in December 2022 and outlines the delivery plan for the vision, priorities and outcomes set out in the NTS2. A final list of recommendations is included, each appraised in line with Scottish Transport Appraisal Guidance (STAG). This report will inform future transport investment in Scotland from 2022 to 2042. The objectives of STPR2 are consistent to those listed within the NTS2 and across other government transport policy, namely

- Takes climate action
- Addressing inequalities and improving accessibility
- Improving health and wellbeing
- Supporting sustainable and inclusive economic growth
- Improving safety and resilience[32]

3.2.7 Based on the objectives listed above, the report makes 45 strategic project recommendations, which would provide benefits for individuals, families, communities and businesses across Scotland. An additional six are high-level policies pertinent to the HITRANS region and two tailored to improving current infrastructure. The most relevant to HITRANS are listed in the table below:

[31] https://www.transport.gov.scot/media/51675/national-transport-strategy-nts2-second-delivery-plan-2022-2023.pdf

[32] *Strategic Transport Projects Review 2 Final Summary Report* (Transport Scotland, 2022), p. 5.

Table 3.1: Relevant national STPR2 recommendations[33]

Recommendation(s):	Commentary
2 – Active freeways and cycle parking hubs	STPR2 recommends development of active freeways on high-demand corridors in Scotland's large urban areas, with priority given initially to the larger cities (Inverness in this context).
3 – Village-town active travel connections 4 – Connecting towns by active travel 5 – Long-distance active travel network	These three inter-urban active travel route recommendations combine to provide a nationwide network connecting Scotland's communities for people walking, wheeling and cycling. STPR2 recommends the creation of new and improved active travel routes to connect smaller rural communities with nearby towns **(3)**; connect between Scotland's towns **(4)**; and connect Scotland's cities, regions and major gateways **(5)**.
8 – Increasing active travel to school	STPR2 recommends that improved and safer walking, wheeling and cycling routes to primary and secondary schools are created through a comprehensive package of local infrastructure schemes.
10 – Expansion of 20mph	STPR2 recommends supporting the Scottish Government's 20mph Task Group by scaling-up local programmes and initiatives to provide new or expanded 20mph limits and zones on appropriate roads in cities, towns and villages across Scotland. In areas such as the Scottish Borders, 20mph limits have been set in all urban areas, including where trunk roads pass through settlements, which could potentially be a model for the HITRANS region.
20 – Investment in Demand Responsive Transport and Mobility-as-a-Service	STPR2 recommends that capital funding is used to support pilot schemes and demonstration projects to establish how DRT and Community Transport services can provide improved public transport connectivity and integration without increasing the need for revenue support. In the HITRANS region, this could build on the GO-HI MaaS App, and smart technology where appropriate can be used to provide improved public transport connectivity.
23 – Smart, integrated public transport ticketing	Making it easier for people to reach their end destination by simplifying how they store and pay for tickets with different providers makes public transport a more convenient, flexible and attractive travel option.
37 – Improving active travel on trunk roads through communities	STPR2 recommends the delivery of measures to reduce the adverse effects of trunk road traffic on people walking, wheeling and cycling in those communities that have a trunk road passing through them. This is a major issue in the HITRANS region where major trunk roads such as the A82, A83, A85 and A96 pass through the heart of communities.
38 – Speed management plan	Changing how speeds are managed has the potential to help meet net zero emissions targets by reducing vehicle fuel consumption. Reducing speed in communities can also improve the sense of place and encourage active travel, with a positive impact on emissions as well as health and wellbeing.

3.2.8 STPR2 also lists targeted investment in various areas within Scotland as set out in the table below.

[33] STPR2 Final Summary Report (Transport Scotland, 2022), pp. 17-44.

Table 3.2: Relevant STPR recommendations for the HITRANS region[34]

Recommendation(s):	Commentary
15 – Highland Mainline rail corridor enhancements	STPR2 recommends a programme of strategic rail enhancements to improve journey times and increase capacity and reliability for passenger and freight services. For the Highland Mainline (Perth – Inverness), these would include new and longer passing loops with more flexibility and permissible speed increases.
18 - Supporting integrated journeys at ferry terminals	STPR2 recommends a detailed review of key ferry terminals to consider physical integration and accessibility.
24 – Ferry vessel renewal and replacement and progressive decarbonisation	STPR2 recommends renewal and replacement of the Clyde and Hebrides Ferry Services and Northern Isles Ferry Services vessels, including progressive decarbonisation by 2045.
29 – Access to Argyll (A83)	STPR2 recommends work continues on developing a more reliable route at the A83 Rest and Be Thankful.
36 – Strategy for improving rest and welfare facilities for hauliers.	STPR2 recommends a national review of freight parking / rest areas to better understand barriers hampering their development, consider their financial stability and develop adequate standards.
41 – Potential Sound of Harris/Sound of Barra fixed links and fixed links between Mull and Scottish mainland	STPR2 recommends that further work is undertaken on business cases to better understand the benefits, costs and challenges of replacing ferries with fixed links on these routes.
42 – Investment in port infrastructure to support vessel renewal and replacement and progressive decarbonisation	STPR2 recommends an investment programme in ferry port infrastructure, including shore power supplies to vessels to support wider fleet renewal and replacement and progressive decarbonisation.
43 – Major station masterplans	STPR2 recommends that a station masterplan is progressed for Inverness.
44 – Rail freight terminals and facilities	STPR2 recommends that Transport Scotland supports industry partners in carrying out an updated market study for rail freight growth in Scotland.
45 – High speed and cross-border rail enhancements	STPR2 recommends that Transport Scotland continues to work closely with the UK Government to take forward a programme of infrastructure upgrades targeted at longer-distance cross-border routes. For the HITRANS region, the primary benefit would be improvements to the East Coast Mainline, which would support reduced journey times between Inverness and London Kings Cross (and several other English cities including Newcastle and Leeds).

[34] STPR2 Final Summary Report (Transport Scotland, 2022), pp. 17-44.

Implications for the RTS: The 18 recommendations highlighted above have significant implications for the development of the RTS as they show a desire to increase active travel provision, reduce the movement of freight on roads and redesign travel to some island communities. Transport Scotland determined that ferry services (and potential associated fixed links) and air services provided by local authorities were not within the scope of STPR2 and thus the RTS must play a role in defining priorities for these essential services.

National Planning Framework 4 (NPF4)

3.2.9 The National Planning Framework 4 (NPF4) was laid before the Scottish Parliament on 8th November 2022. The plan sits under a National Spatial Strategy, which is guided by a set of overarching principles, outlined below:

- **Sustainable places –** where we reduce emissions, restore and better connect biodiversity
- **Liveable places –** where we can all live better, healthier lives
- **Productive places –** where we have a greener, fairer and a more inclusive wellbeing economy[35]

3.2.10 NPF4 outlines a wide range of plans and developments across five action areas of Scotland. The HITRANS region is fully or in part of three zones: *North and West Coastal Innovation, Northern Revitalisation and North East Transition*. A description of each area and the intended policy outcomes are listed in table below.

Table 3.3: NPF4 Action Areas and Policy Objectives

Action Area	Area Description	NPF4 Priorities
North and West Coastal Islands	This area broadly comprises the island communities of Shetland, Orkney, the Western Isles, and parts of Highland and Argyll and Bute including the north and west mainland coastline.	• Maximise the benefits of renewable energy whilst enhancing blue and green infrastructure, decarbonising transport and building resilient connections. • Support coastal and island communities to become carbon neutral, thus contributing to net-zero commitments and reducing fuel poverty. • Seize the opportunities to grow the blue and green economy, recognising the world class environmental assets that require careful management and opportunities to develop skills and diversify employment.[36]
North	This area broadly includes Highland with parts of Argyll and Bute, Moray and much of the National parks.	• Protect environmental assets and stimulate investment in natural and engineered solutions to climate change and nature restoration, whilst decarbonising transport and building resilient connections. • Maintain and help to grow the population by taking a positive approach to rural development that strengthens networks of communities.

[35] *National Planning Framework 4* (Scottish Government, 2022), p. 4.

[36] *National Planning Framework 4* (Scottish Government, 2022), p. 23.

Action Area	Area Description	NPF4 Priorities
		• Support local economic development by making sustainable use of the areas' world class environmental assets to innovate and lead greener growth.[37]
North-East	This area broadly includes Aberdeen City and Aberdeenshire with links through Moray towards Inverness, and south towards the Firth of Tay	• Provide net zero energy solutions including extended heat networks and improved energy efficiency, together with urban greening and low carbon transport. • Pioneer low carbon, resilient urban living by rolling out networks of 20-minute neighbourhoods, future proofing city and town centres, accelerating urban greening, investing in net zero homes, and managing development on the edge of settlements. • Target economic investment and build community wealth to overcome disadvantage and support a greener wellbeing economy.[38]

3.2.11 The only geographically specific **'National Development'** designation ('Sustainable Places') in the region **is 'Energy Innovation Development on the Islands'** which covers the **Outer Hebrides, Orkney** and Shetland. This designation focuses on providing infrastructure for low carbon fuels for communities and commerce, as well as for export. It is intended that this will contribute towards improved energy security, unlock opportunities for employment and business, and help to put Scotland the forefront of low carbon fuel innovation.[39]

3.2.12 In this context, a number of classes of development are designated a national development including:

- Supporting the Arnish Renewables Base and Outer Hebrides Energy Hub
- Supporting Scapa Flow Future Fuels Hub and Orkney Harbours[40]

3.2.13 Scotland wide national developments include a 'national walking, cycling and wheeling network'.[41]

3.2.14 It should be noted that NPF4 also advocates an **'infrastructure first'** policy, which is focused on ensuring that infrastructure considerations are at the heart of placemaking.[42]

[37] *National Planning Framework 4* (Scottish Government, 2022), p. 26.
[38] *National Planning Framework 4* (Scottish Government, 2022), p. 31.
[39] *National Planning Framework 4* (Scottish Government, 2022), p. 7.
[40] *National Planning Framework 4* (Scottish Government, 2022), p. 100-101.
[41] *National Planning Framework 4* (Scottish Government, 2022), p. 108.
[42] *National Planning Framework 4* (Scottish Government, 2022), p. 67.

Implications for the RTS: Plans to increase connectivity through the development of new 20-minute neighbourhoods and improvements to strategic connections between all modes of transport will require the RTS to improve current connectivity levels within the region, adhering to the 'Place Principle'[43] as far as possible.

The 'Energy Innovation Development on the Islands' is also a key issue. The overarching 'Sustainable Places' theme highlights the inter-connectivity of climate change and biodiversity loss, supports nature-based solutions and sustainable design and use of resources.

Green Freeports

3.2.15 On 13th January 2023, the UK and Scottish Governments jointly announced the establishment of the **Inverness and Cromarty Firth 'Green Freeport'**.

3.2.16 A 'Green Freeport' is a zoned area within a defined boundary extending up to 45 kilometres beyond the port. It is a type of Special Economic Zone (SEZ) located near shipping ports or airports within which businesses benefit from a range of tax incentives including enhanced capital allowances, relief from stamp duty and employer national insurance contributions. SEZs also benefit from a range of customs measures, where goods imported from abroad are not taxed, allowing manufacturers located within a freeport zone the ability to import raw materials tariff-free. Only finished products leaving the site for elsewhere in the UK face tariffs. The SEZ area can extend up to 45 kilometres beyond the port.

3.2.17 The Inverness and Cromarty Firth 'Green Freeport' aims to create 25,000 jobs and generate £4.8bn in investment for the area, with a focus on floating offshore wind, nuclear and hydrogen that will drive a transition to net zero by 2045. An expansion of the Inverness Campus and Powerhouse is also planned, along with proposals to deliver innovation and skills support. The site includes the ports of Inverness, Cromarty Firth and Nigg, as well as Inverness Airport.[44]

Implications for the RTS: The establishment of the Inverness and Cromarty Firth 'Green Freeport' will lead to a significant increase in economic activity in the intervention area. This will have implications for the movement of current and new employees to and from this area. Moreover, the focus on large-scale manufacturing will have implications for the movement of goods to and from the 'Green Freeport' area.

A Stronger and More Resilient Scotland: Programme for Government 2022-23

3.2.18 The *Programme for Government* (PfG) sets out the Scottish Government's ambitions for each fiscal year. The document provides strategies and policies across all departments of

[43] The 'Place Principle' requires that all those responsible for providing services and looking after assets in a place need to work and plan together, and with local communities, to improve the lives of people, support inclusive and sustainable economic growth and create more successful places. *National Planning Framework 4* (Scottish Government, 2022), p. 154.

[44] https://www.gov.uk/government/news/joint-cooperation-to-deliver-two-new-green-freeports-in-firth-of-forth-and-inverness-and-cromarty-firth

Government, including transport. The interventions identified in the 2022-23 PfG of relevance to the RTS include:

- **Freeze ScotRail fares until March 2023** and complete a *Fair Fares Review*, delivering options for a sustainable and integrated approach to all public transport fares.
- Consult on a new ***Islands Connectivity Plan***, progress the small vessel development programme and continue to improve the resilience of the ferry fleet by sourcing additional vessels. The Scottish Government has also committed to publish the **independent review of ferry governance arrangements**.
- Test a new **mobility and scrappage scheme** to help low-income households to replace a polluting vehicle with the means to travel sustainably.
- Deliver **record investment in active travel**, including multi-year funding, with a focus on new infrastructure and storage, **access to bikes** through schemes and **free bikes for school age children who are unable to afford one**.
- Work with the private sector to deliver £60 million of public and private **investment to double the size of the of the public charging network to at least 6,000 electric vehicle charging** points over the next four years.
- Continue the Network Support Grant to **support bus services by keeping fares at affordable levels and networks more extensive**.
- Roll out the national strategy **for expanding 20mph zones**.
- Introduce regulations to enable **bus franchising and Bus Service Improvement Partnerships**, giving local authorities more options to improve bus services.[45]

Implications for the RTS: The vision for increased spending on active travel together with measures to control or reduce public transport costs will promote these modes of transport (although more so in urban areas), while reducing private vehicle usage.

Consultation on the 20% Reduction in Car KMs: Route Map

3.2.19 The commitment to reduce car kilometres by 20% by 2030 (from a 2019 base) within the *Securing a Green Recovery on a Path to Net Zero: Climate Change Plan 2018–2032 - Update* policy document is a defining aspect of Scotland's net zero future. This target has been set to allow the transport sector to make its contribution to national emissions targets for 2030 (given vehicle fleet assumptions). Transport Scotland recently published their stakeholder consultation report along with a route map to achieve this.

The report outlines current road statistics:

- Longer journeys account for a disproportionate amount of total car kilometres, with 4% of trips (those over 55 kilometres) accounting for nearly 30% of the total kilometres driven in 2019.
- 45% of trips were recorded to be under 8 kilometres and accounted for 12% of total car kilometres driven in 2019.

[45] *A Stronger and More Resilient Scotland – The Programme for Government 2022-23* (Scottish Government, 2022), pp. 21-22.

- Rural areas see more car usage, with 70% of rural residents over the age of 17 driving at least three times per week, compared to only 46% of people in large urban areas.

3.2.20 The framework recognises that any solution must include a holistic set of interventions to provide non-car-based options for different trip types in different geographic areas. To encourage the reduction in car use, the framework outlines the need for a behaviour change by users through positive messaging. This has led to the development of four desired behaviours which are shown below.

Figure 3.1 Route Map to 20% Car KM Reduction - Four Behaviours

3.2.21 From these desired behaviour changes, a wide range of high-level policy interventions have been crafted. Pertinent ones to the RTS have been listed below:

- **Intervention 1c:** Mapping digital connectivity alongside transport connectivity
- **Intervention 3a:** Publishing the Cycling Framework and Delivery Plan for Active Travel in Scotland in 2022
- **Intervention 3b:** Increasing Investment in active travel
- **Intervention 3i:** Providing nationwide free bus travel for Scotland's young people aged under 22 from January 2022
- **Intervention 3k:** Introducing a Community Bus Fund
- **Intervention 3n:** Supporting integrated journeys at ferry terminals
- **Intervention 4a:** Testing the viability of Mobility-as-a-Service in Scotland
- **Intervention 4b:** Re-promoting the benefits of car-sharing and car-clubs post-pandemic

3.2.22 More generally, improved broadband and mobile coverage in the HITRANS region, together with long-term travel behaviour change and adaptation to new ways of working post-COVID-19 provides potential opportunities to reduce the need to travel overall without negatively affecting communities. For example, it is now possible hold productive online meetings on MS Teams that would previously have required a full day's travel or potentially even an overnight stay.

Implications for the RTS: The RTS will need to set out the direction of travel in the HITRANS region in terms of making a contribution to the 20% reduction in car kilometres target. Regional targets have not yet been set but there is an acknowledgement that urban and rural targets and approaches may vary.

Infrastructure Commission for Scotland – Key Findings Report

3.2.23 The Infrastructure Commission was established in 2019 to assess and rethink the usage of current infrastructure to allow Scotland to reach the target of net zero by 2045 and to increase resilience to climate change. The organisation has a large remit, with transport one of the many topics of review.

3.2.24 The report identifies the following relevant recommendations:

- Aligning strategic investment decisions to address fully the requirement for demand management, a substantial increase in the proportion of journeys made by active travel, and opportunities for shared mobility as well as a much greater role for public transport.
- For such road investment that is made as part of the above, a presumption in favour of investment to future-proof existing road infrastructure and to make it safer, resilient, and more reliable, rather than to increase road capacity.
- To enable a managed transition to an inclusive net-zero carbon road infrastructure, the Scottish and UK Governments should immediately commit to establishing a charging / payment regime alternative to the existing fuel and road taxation-based structure. The Scottish Government should also consider additional options to provide a more stable long-term investment regime for the management and maintenance of roads to meet the priorities identified in the first listed objective.

Implications for the RTS: The RTS will need to reflect these targeted improvements which do though mirror those found in other policy documents. It also provides an opportunity to consider how the need for travel could be reduced overall.

Going Further: Scotland's Accessible Travel Framework (2016)

3.2.25 The purpose of the framework is to support disabled people's rights by removing barriers and improving access to travel and ensuring disabled people are fully involved in work to improve all aspects of travel. The framework provides a national vision and outcomes, and a high-level action plan. The vision is: *'All disabled people can travel with the same freedom, choice, dignity and opportunity as other citizens.'*

3.2.26 The plan identifies three themes and six areas that need to be addressed to further increase accessibility on public transport.

- **Theme 1: National guidance and standards**
  - Developing principles and charters for travel accessibility across modes
    - Developing integration of timetable information of different modes of transport
    - Ensuring that transport providers take responsibility for completion of a journey (including across modes)
  - Developing national guidance and good practice for accessible travel issues

- Making stations, ferry terminals and bus stops more accessible
- Ensuring paths are clear, safe and obstacle-free
- Accessible vehicle and vessel design as agreed by disabled people

- **Theme 2: Information and customer service**
  - Improving availability of accessible information to plan and make journeys
  - Enabling staff to support disabled people through awareness and training
- **Theme 3: Engagement and participation**
  - Co-production of transport policy and practices
  - Sharing experiences, feedback, knowledge and learning

3.2.27 The Framework also notes the following outcomes:

- **Outcome 1:** More disabled people make successful door-to-door journeys, more often.
- **Outcome 2:** Disabled people are more involved in the design, development and improvement of transport policies, services and infrastructure.
- **Outcome 3:** Everyone involved in delivering transport information, services and infrastructure will help to enable disabled people to travel.
- **Outcome 4:** Disabled people feel comfortable and safe using public transport – this includes being free from hate crime, bullying and harassment when travelling

Implications to RTS: The policies adopted in the RTS should reflect the three themes and four outcomes set out in the Framework.

National Plan for Scotland's Islands (2019)

3.2.28 The Plan sets out **13** Strategic Objectives which are considered critical to improving the quality of life for island communities. **Strategic Objective 3** is focused on improving transport services – the steps identified to deliver this are as follows:

- Ensure that existing and future transport-related policies, strategies and services are fully **island-proofed** so that they truly meet the needs of island communities.
- Engage with local authorities, island communities and transport operators in developing **regulations and guidance for the bus services provisions of the Transport (Scotland) Act 2019**, which aim to enable local authorities to better respond to local needs.
- Produce a **long-term plan and investment programme for new ferries and development at ports** to improve resilience, reliability, capacity and reduce emissions.
- Develop **a new Ferries Plan** that will meaningfully contribute to delivering the outcomes of wider Scottish Government strategies as set out in the National Transport Strategy 2.
- As part of the next Ferries Plan, review and promote **integration between ferries and other modes of transport on the mainland and islands**, with a view to better facilitating the use of active, public or shared transport for all or parts of journeys to and from islands in an affordable and accessible manner.

- For the **Clyde and Hebrides Ferry Services**, develop and introduce a **new booking, reservation and ticketing system, with smart ticketing capability**, to replace the existing system.
- Work in partnership with local authorities and communities to improve **walking and cycling** infrastructure, the design of place and access to bikes, facilities, promotion and education to make walking and cycling the most popular choice for shorter everyday journeys including as part of multi-modal journeys.
- Explore the potential to **reduce the need to travel** by using the planning system to promote places which bring people and services together.
- Subject to requirements as set out in the Clyde and Hebrides Ferry Services and the Northern Isles Ferry Services contracts, strive to improve, where necessary and possible, issues relating to **freight** and engage proactively with operators, communities and stakeholders as appropriate.

3.2.29 Other relevant improvements include:

- The commitment to dual the A9 between Perth and Inverness, although note that the original deadline for this of 2025 has since slipped
- Decarbonisation of scheduled air services within Scotland by 2040[46]

3.2.30 The Island Communities Impact Assessment which will be undertaken alongside this 'Case for Change' and the RTS itself will ensure that specific island considerations are fully accounted for in the final RTS.

Implications to RTS: The HITRANS region covers most of Scotland's islands. The RTS should reflect and where appropriate challenge the National Islands Plan and provide inputs to future iterations of the Plan.

Other Key Drivers

3.2.31 Other guiding national policy and strategy documents relevant to the RTS development are listed in the table below.

Table 3.4: Other national policy and strategy documents

Policy	Description
Active Travel Framework	The Active Travel Framework brings together the key policy approaches to improving the uptake of walking and cycling in Scotland for travel. It supports the 2030 Vision that 'Scotland's communities are shaped around people, with walking or cycling the most popular choice for shorter everyday journeys'.
Scottish Government's update to the Climate Change Plan 2018-2032	The Scottish Government's update to the Climate Change Plan 2018-2032 (2020) sets out a commitment to reduce greenhouse gas emissions to 75% of 1990 levels by 2030, 90% by 2040 and achieve net-zero by 2045. The Plan recognises the key role that the decarbonisation of transport will play in reducing Scotland's emissions and includes:

[46] *The National Islands Plan* (Scottish Government, 2019), p. 34.

Policy	Description
	• An aim to reduce the number of kilometres travelled by car by 20% by 2030. • A commitment to phase out the need for new petrol and diesel cars and vans by 2030. • A £120 million investment in zero emission buses, driving forward a fully decarbonised future for Scotland's bus fleet and supporting the Scottish supply-chain. • An investment of £50 million to create active freeways, providing a sustainable link between towns, cities and national landmarks.
Scotland's Road Safety Framework to 2030	Sets out a vision for Scotland to have the best road safety performance in the world by 2030 and outlining a safe systems approach to road safety delivery whilst recognising wider strategic priorities including health, sustainability and equality.
Infrastructure Commission for Scotland (2020)	Sets out an overall 30-year vision for infrastructure to support and enable an inclusive net zero carbon economy and establish short and longer-term actions. Recommendations include the prioritisation of existing infrastructure assets to ensure these are most effectively and efficiently utilised, maintained and enhanced to net zero carbon readiness, accelerating the decarbonisation of heat and transport and the ongoing development of digital services including delivery of a full fibre network for Scotland by 2027.
Rail Services Decarbonisation Action Plan (2020)	Transport Scotland's plan setting out how Scotland's railway will be decarbonised over the next 15-20 years. This will be a particularly key issue in the HITRANS region where long and low volume routes may require innovative solutions such as the deployment of e.g., battery or hydrogen trains.
Decarbonising Transport – A Better, Greener Britain (2021)	DfT document setting out how the UK will deliver its legally binding greenhouse gas emissions reduction targets. Whilst predominantly focused on England, the report makes several commitments directly relevant to devolved administrations. Moreover, commitments such as the decarbonisation of rail rolling stock will impact cross-Border routes into Scotland.
Just Transition Commission: A National Mission for a fairer, greener Scotland (2021)	Includes 24 headline recommendations including: • Scottish Government, local authorities and developers must commit to creating communities that embed low-carbon lifestyles, whilst improving health and wellbeing. • Ensure sufficiently developed roadmaps exist for the net zero transition in Scotland, including for key technology options. • Implement Green Participatory Budgeting with agreed target levels of funding.
Equality Act 2010, Fairer Scotland Duty, Child Rights and Wellbeing Impact Assessment, Human Rights	The Public Sector Equality Duty requires public bodies to have due regard to the need to eliminate discrimination and disadvantage, advance equality of opportunity and foster good relations between different people when carrying out their activities. These are being addressed through the separate Equalities Impact Assessment of the RTS together with assessments for the Fairer Scotland Duty and Child Rights and Wellbeing Duty. The assessments have been integrated with the development of the RTS to ensure equalities issues are reflected at each stage of Strategy development.

4 Transport in the HITRANS Region

4.1 Introduction

4.1.1 The HITRANS region has an extensive network of active travel, bus, community transport, rail, ferry, road and air-based services. These are discussed separately by mode in the following sections.

4.2 Transport networks in the HITRANS region

4.2.1 The HITRANS region is unique in the UK in terms of its mix and extent of transport services, ranging from small community operated passenger only ferries and single pilot aircraft through to inter-city rail connections and trunk roads. The two maps which follow show the primary road and rail networks, in both cases also showing ferry connections and airports / airfields[47]. (note that there is some overlap on the Orkney inter-island air service airfields given the required scale of the map):

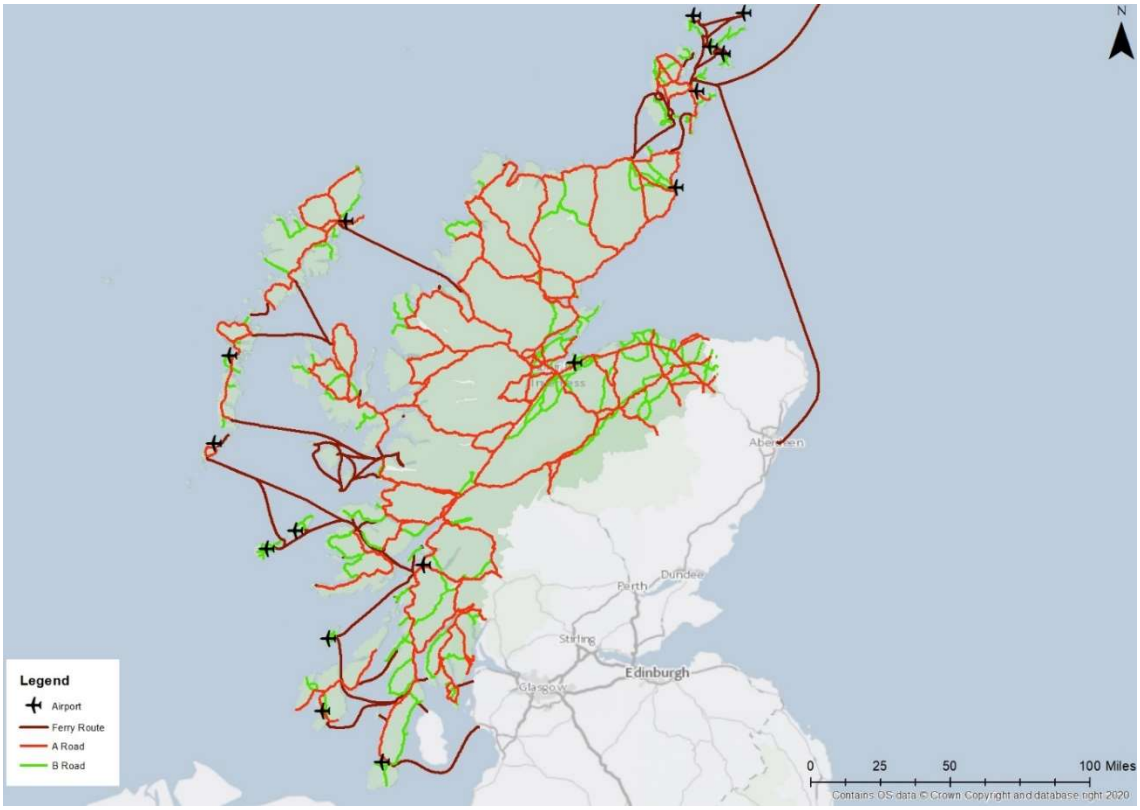


Figure 4.1: HITRANS region road network, ferry connections and airports / airfields

[47] Note that there is some overlap on the Orkney inter-island air service airfields due to the scale of the map. In summary, there are six island airfields – Eday, North Ronaldsay, Papa Westray, Sanday, Stronsay and Westray.

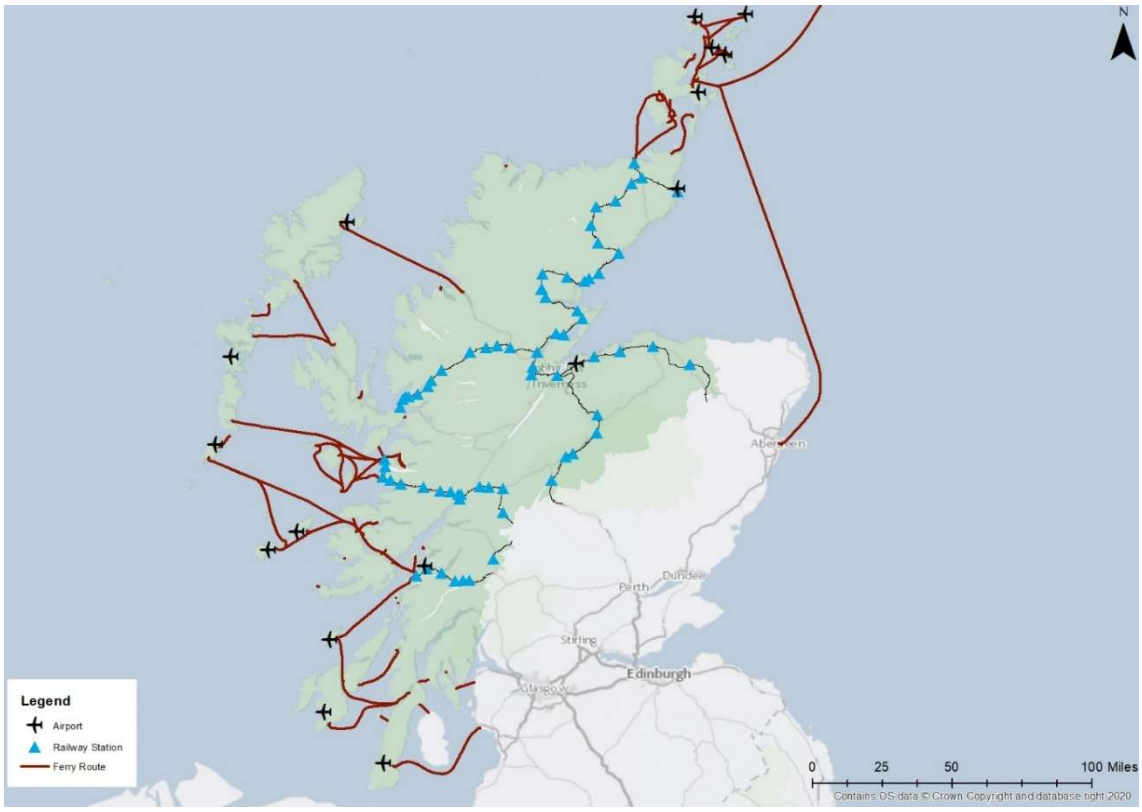


Figure 4.2: HITRANS region railway network, ferry connections and airports / airfields

4.3 Recent Trends

4.3.1 It is important to understand recent trends in travel in the region as these will clearly have a bearing on the types of measures that the RTS will have to consider.

Travel by Mode

4.3.2 The chart below provides an overview of travel by mode in the decade prior to the COVID-19 pandemic, all indexed to 2009 for comparative purposes.[48]

[48] Road traffic – total vehicle kms (Scottish Transport Statistics, STS); Bus passengers – Eilean Siar, Highland, Moray, Orkney Islands, Shetland Islands, Argyll & Bute (STS); Rail passengers – ORR Station data (all stations in HITRANS area); Ferry – Argyll and Bute services, CalMac, Highland Council services, Orkney Ferries, NorthLink (excluding Shetland), Western Ferries (STS); Air – terminal passengers at Barra, Benbecula, Campbeltown, Inverness, Islay, Kirkwall, Stornoway, Sumburgh, Tiree, Wick John O'Groats (STS)

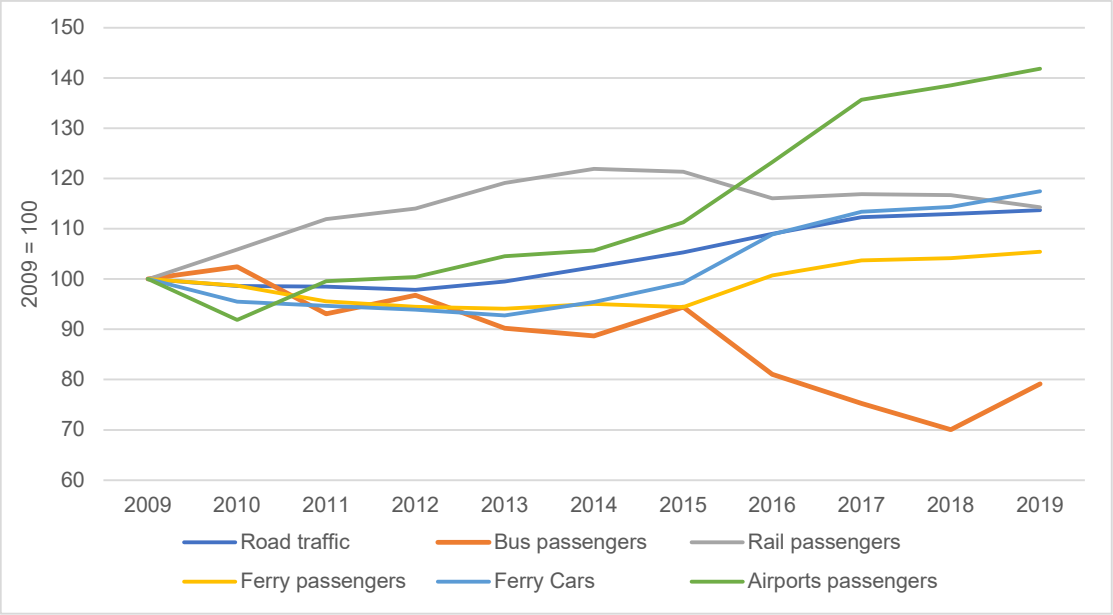


Figure 4.3: Pre-COVID trend in travel by mode in the HITRANS region (2009=100)

4.3.3 The first few years after 2009 saw the aftermath of the financial crash and associated UK recession which explains the dip in most travel. From 2013, road traffic grew steadily until 2019, the last full year prior to the pandemic. Bus travel fell throughout this period and was 20% below its 2009 level in 2019. As is common for most trend-based analysis in the region, there is significant variation between and within local authorities. For example, bus patronage in the Orkney Islands has increased slightly over the same period despite the overall decline across the region.

4.3.4 After air travel, car-based ferry travel has grown the most over this period. It is notable that the growth in car carryings has significantly outpaced the growth in passenger carryings. Much of this is down to the introduction of Road Equivalent Tariff (RET) across the CHFS network, with the most significant reductions in fares introduced in 2015. In air travel, passenger numbers at Inverness Airport grew by 61% between 2009 and 2019.

4.3.5 The pandemic of course had a major impact on travel. The figure here shows the change in demand by mode from 2019 to 2020.

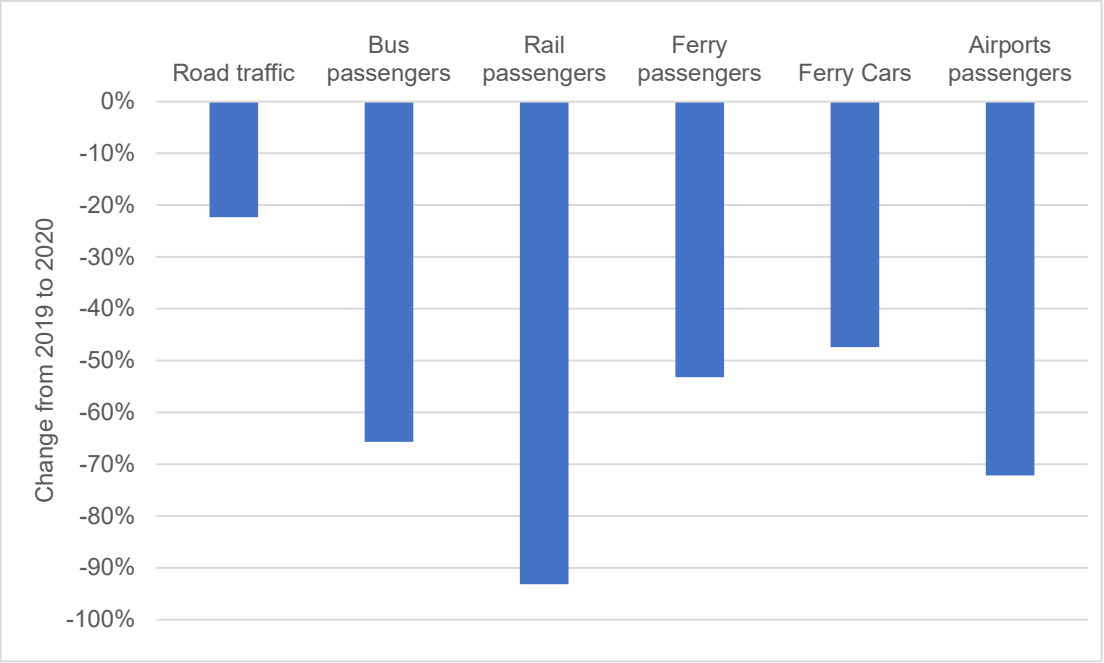


Figure 4.4: Change in demand by mode 2019 to 2020

4.3.6 Whilst road traffic reduced by 22%, public transport (affected by both lockdowns and social distancing policies / concerns over infection) saw bus travel dropping by 66% and train by 93%. Ferry travel was less affected than bus and rail reflecting the 'lifeline' (i.e., essential but non-commercial services to communities to support their socio-economic sustainability) nature of much of this travel (and much of the reduction will be attributable to reduced visitor / tourist travel, particularly at Easter and at least the early part of the summer holidays).

4.3.7 At the Great Britain level, by July 2022, bus and rail passenger numbers were around 80% of pre-pandemic levels, with road traffic having fully recovered (although car traffic is down somewhat with commercial vehicle traffic now above pre-pandemic levels). The impact of the pandemic on public transport is therefore still being keenly felt and post-pandemic reductions in public transport services have the potential to particularly impact on groups with protected characteristics.[49]

Scottish Household Survey

4.3.8 The Scottish Household Survey (SHS) publishes a range of statistics about travel in Scotland, some of which are disaggregated by local authority / RTP area. Analysis of recent trends (between 2012/13 to 2019 (pre-pandemic)) for the HITRANS region shows:

- **Commuting to work:** an increase in car use and active travel, and a reduction in public transport usage
- **Place of work:** an increase in working from home
- **Travel to school:** a reduction in walking and bus use and an increase in car-based travel

[49] As defined by the Equalities Act

- **Main mode of travel:** an increase in car use and a reduction across all other modes
- **Car availability:** an increase in the proportion of households with two or more cars and a reduction in zero-car households
- **Car use:** an increase in car use and driving licence holding
- **Bicycles:** a small increase in rates of bicycle ownership
- **Walking:** a reduction in walking as a means of transport but an increase in walking for leisure
- **Use of buses and trains:** a reduction in bus and train use
- **Satisfaction with public transport:** a reduction in levels of satisfaction with public transport
- **Concessionary fares:** an increase in the proportion of people with a National Entitlement Card but some reduction in usage amongst holders
- **Distance travelled:** an increase in the distance travelled per person

4.3.9 It is therefore clear that the majority of these indicators are going in the 'wrong' direction from a policy (and equalities) perspective, albeit there will again be variation across the region. This clearly presents a range of challenges which the RTS will seek to address.

4.4 Active Travel

4.4.1 At a regional level, active travel can play a key role in providing more sustainable connections between, as well as within communities. It is a major focus of growth at the national level and thus this section sets out the main particulars in relation to active travel for the HITRANS region.

Walking

4.4.2 The frequency of people walking in the HITRANS region is affected by its geography. SHS Travel Diary reports on peoples' frequency of walking, both as a means to an end (as a means of transport), and as an end in its own right (leisure) at the RTP level. The results are shown here for 2019:

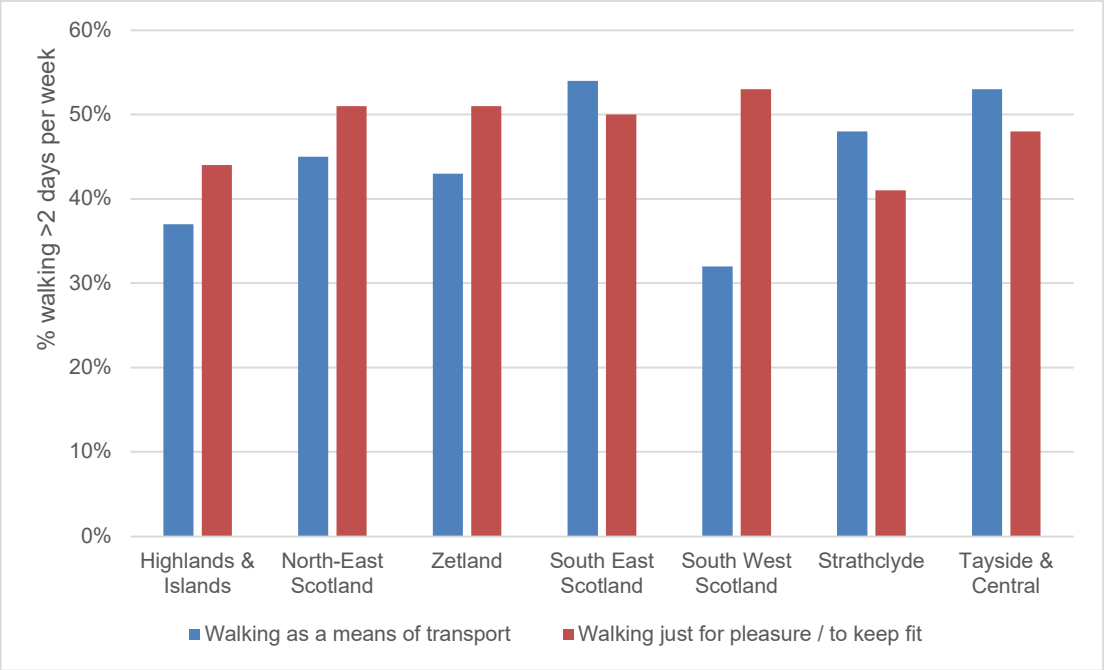


Figure 4.5: Frequency of walking (Source: Scottish Household Survey)

4.4.3 The HITRANS region has the second lowest rate of walking as a means of transport reflecting the relative absence of built-up urban areas more conducive to walking and the dispersal of its population across a very large number settlements (unlike in e.g., Shetland (Zetland) where a large proportion of the population is concentrated in Lerwick).

4.4.4 This is confirmed if these results are viewed in terms of the Scottish Government urban-rural classification, with 60% of those in 'large urban areas' walking as a means of transport more than two days per week, with the equivalent figure for 'remote rural areas' being only 34% (and there will be significant variation around this average in the HITRANS region given its spatial diversity). In contrast, rates of walking for leisure are the highest in 'accessible rural areas' and 'remote rural areas'. This confirms that, for many people in rural areas, walking as a means of transport will be impractical for most journeys due to the distances involved. For shorter journeys, there may be other barriers to walking such as a lack of suitable footways.

Cycling

4.4.5 The National Cycling Network (NCN) is a UK-wide network of signed paths and routes for walking, cycling, wheeling and exploring outdoors. Sustrans states that their vision is to create a UK-wide network of safe and accessible traffic-free paths for everyone. The NCN should:

- Be traffic-free or a quiet-way
- Be wide enough for all users
- Be cared for and well maintained
- Have a smooth surface
- Be clearly and consistently signed

- Be fully accessible to everyone
- Enable all users to cross roads safely and step-free
- Be attractive and interesting
- Feel safe

4.4.6 The coverage of the NCN in the HITRANS region is shown in the figure below.

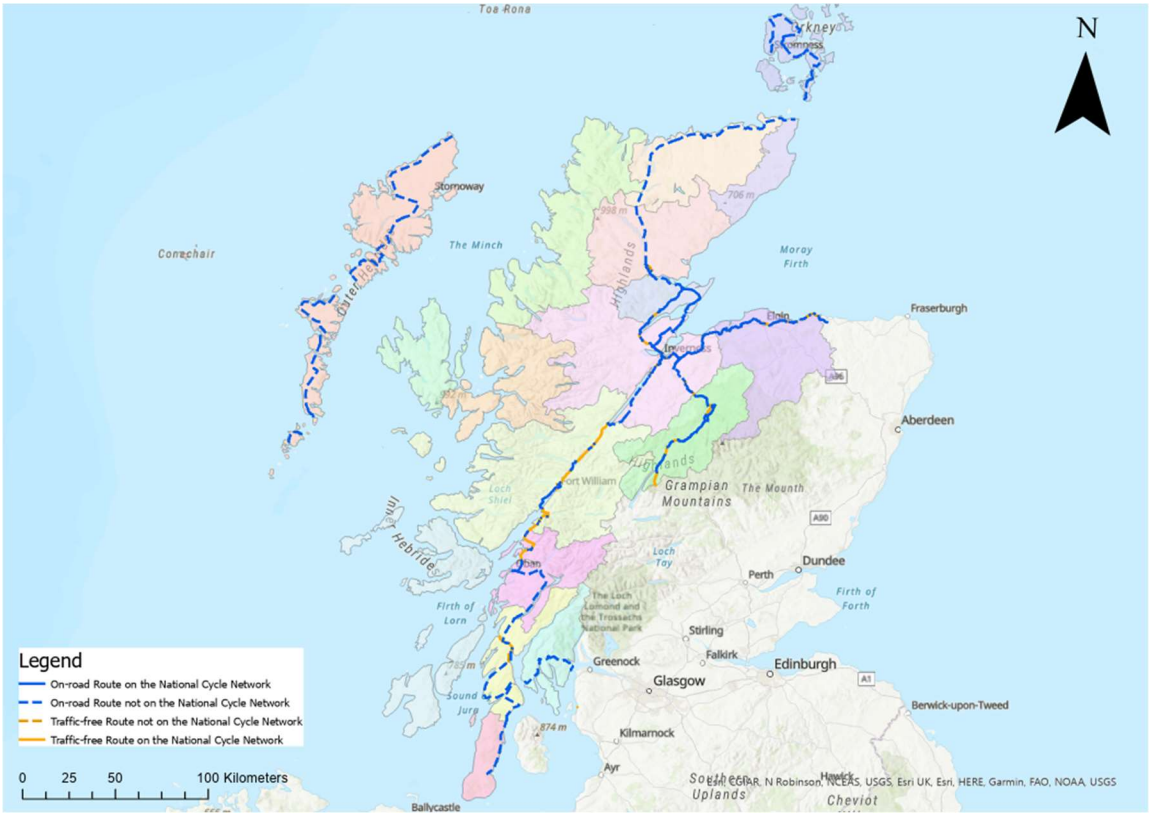


Figure 4.6: HITRANS region NCN coverage (Source: Sustrans)

4.4.7 It can be seen that the NCN network is actually very sparse in the region. Whilst there is a core route indicated from Campbeltown to John o'Groats, much of this route is not on the NCN itself.

4.4.8 Moreover, it should be noted that, in many parts of the region, the trunk road network provides the only connection between settlements for all or part of the route (e.g., Fort William to Mallaig), and thus any cycle route must be on or alongside the road. In most instances, the absence of segregated cycling infrastructure means that cycling does not feel like a safe option for everyday journeys, even where the distance involved would make this possible.

4.4.9 The SHS does not publish frequency of cycling data at the RTP level due to small sample sizes. It does however publish household **bicycle availability and the rates in the HITRANS region are actually the highest in the country**, with 46% of households having access to at least one bicycle. However, the baseline equalities evidence base prepared for this 'Case for

Change' highlights that, nationally at least, the degree of access to a bicycle is much lower than this for families on lower incomes, so there is a clear equalities issue.

4.4.10 In addition to the NCN, HITRANS has produced travel maps for walkers and cyclists covering Inverness, Fort William, Badenoch and Strathspey, and Elgin.[50] These provide a range of suggested cycling routes on-road, on-road (signed), and off-road (shared foot / cycle path) and off-road (other paths and tracks suitable for cycling). Moreover, HITRANS in partnership with several of its constituent local authorities, has produced a series of Active Travel Masterplans for the main settlements in the region, which provide a coherent guide for the development of improved active travel infrastructure.[51]

4.4.11 'Strava Metro' data provides a useful overview of cycling patterns in an area. Whilst not definitive, as Strava users are more likely to be more 'committed' than 'casual' cyclists, this is the most comprehensive source of cycling data available at present. For context, the images below are illustrative 'heatmap' images from across the HITRANS region, where brighter shades indicate higher levels of cycling.

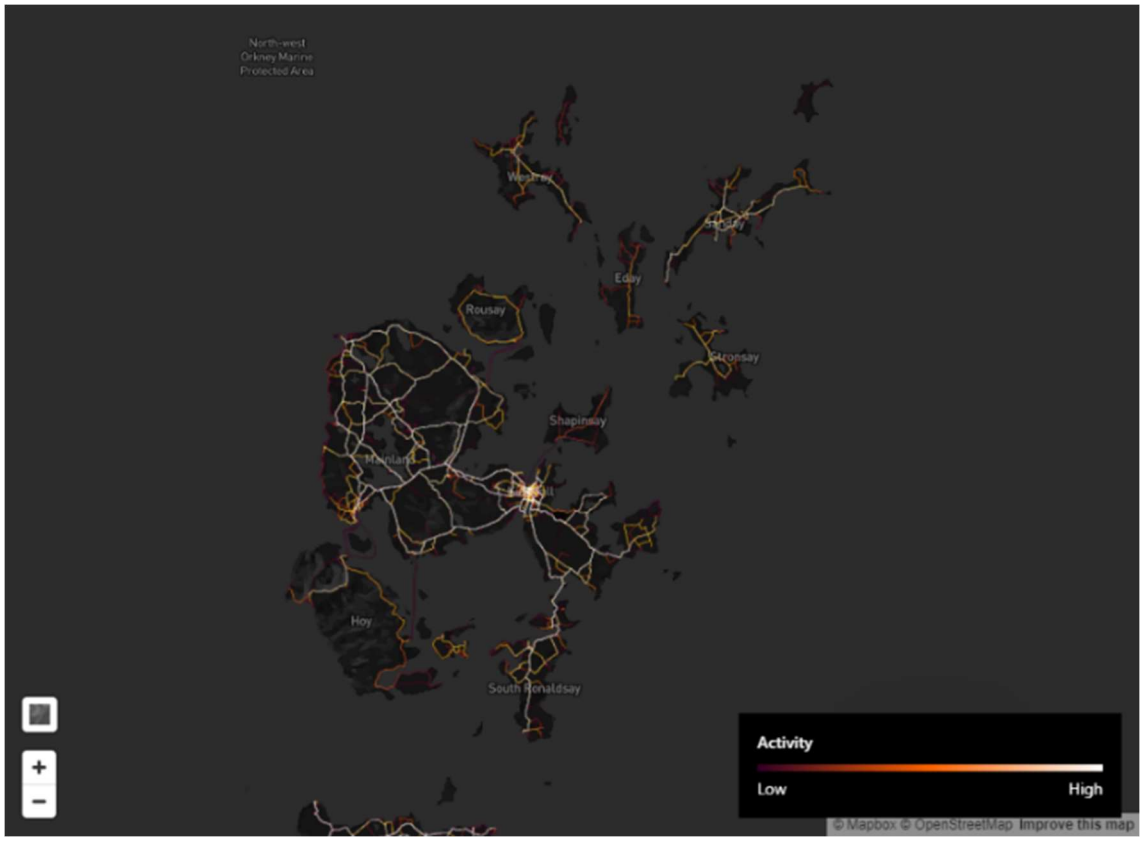


Figure 4.7: Cycling activity in the Orkney Islands (Source: Strava Metro)

[50] https://hitrans.org.uk/hitravel

[51] HITRANS - Highlands and Islands Transport Partnership

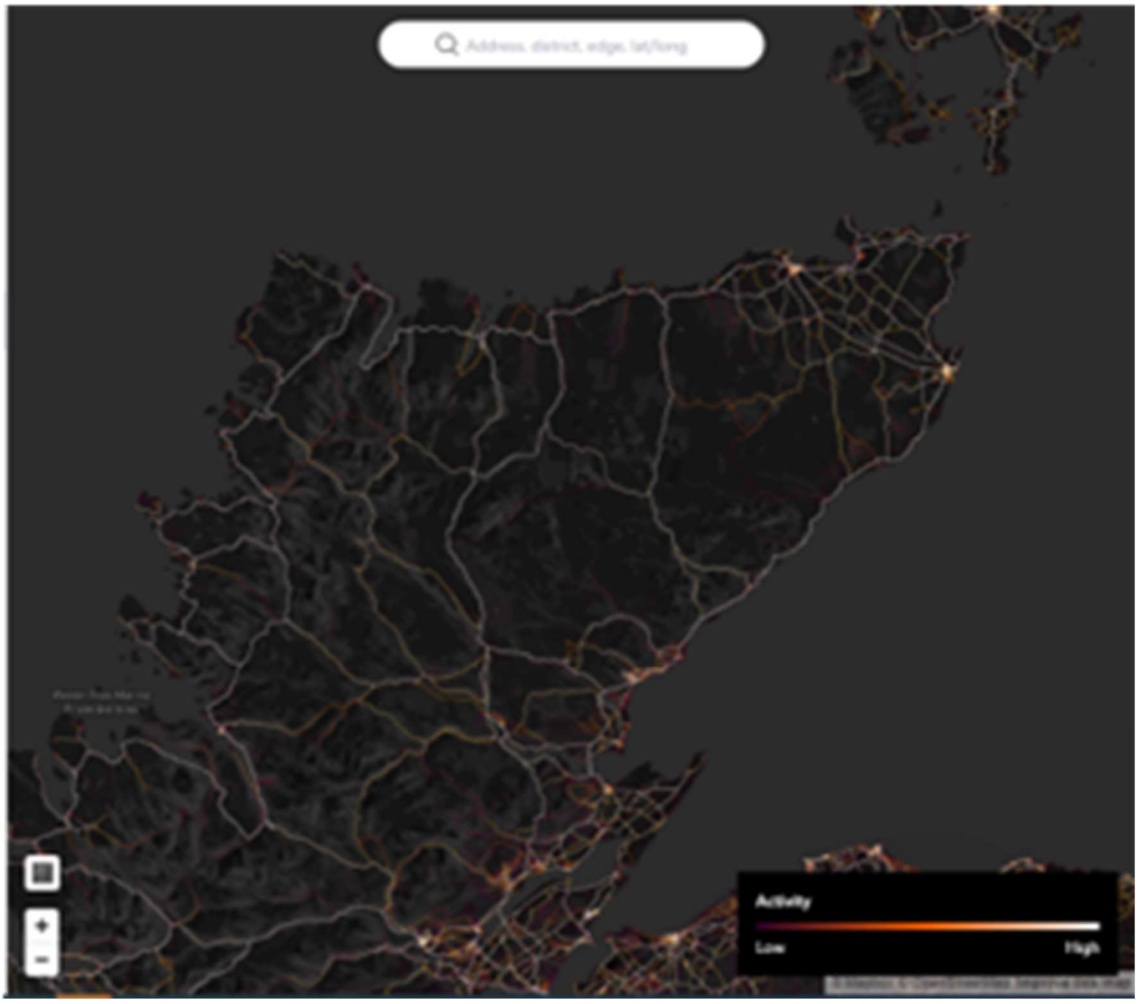


Figure 4.8: Cycling activity in Caithness and Sutherland (Source: Strava Metro)

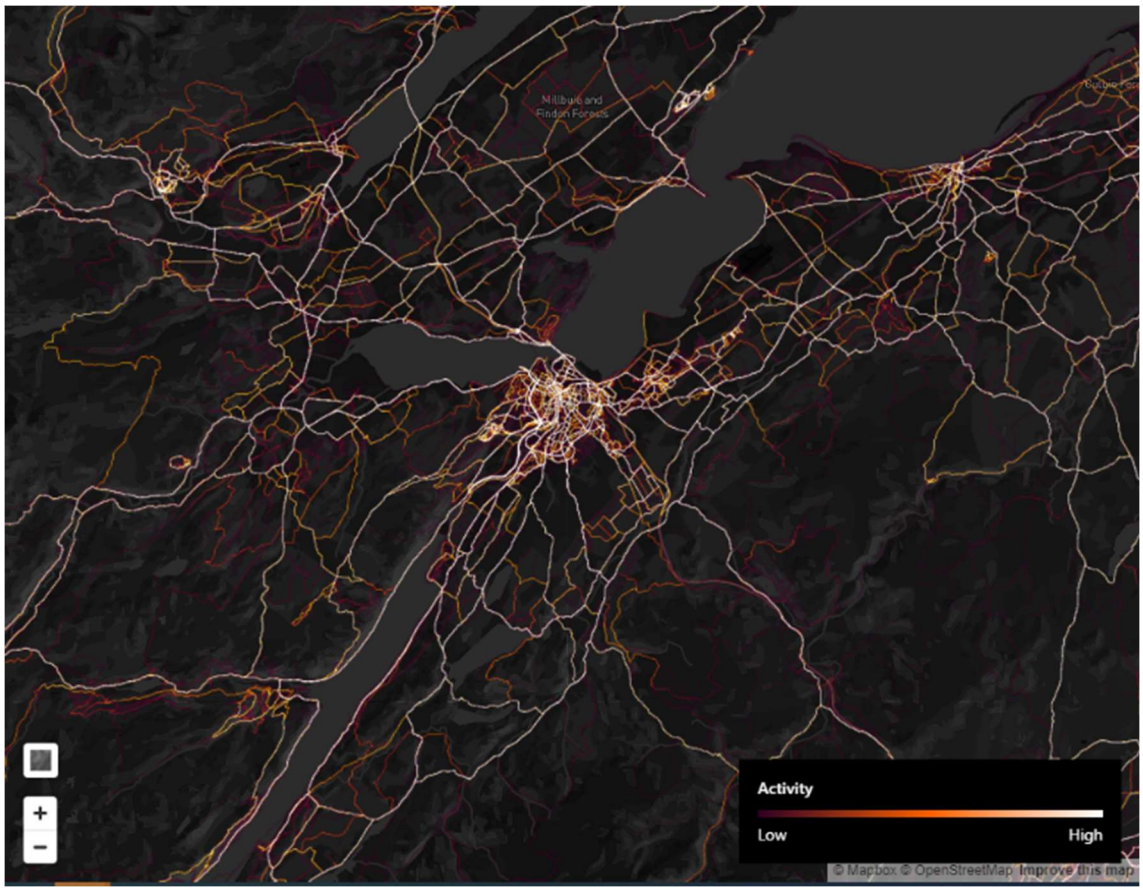


Figure 4.9: Cycling activity in the Inner Moray Firth (Source: Strava Metro)

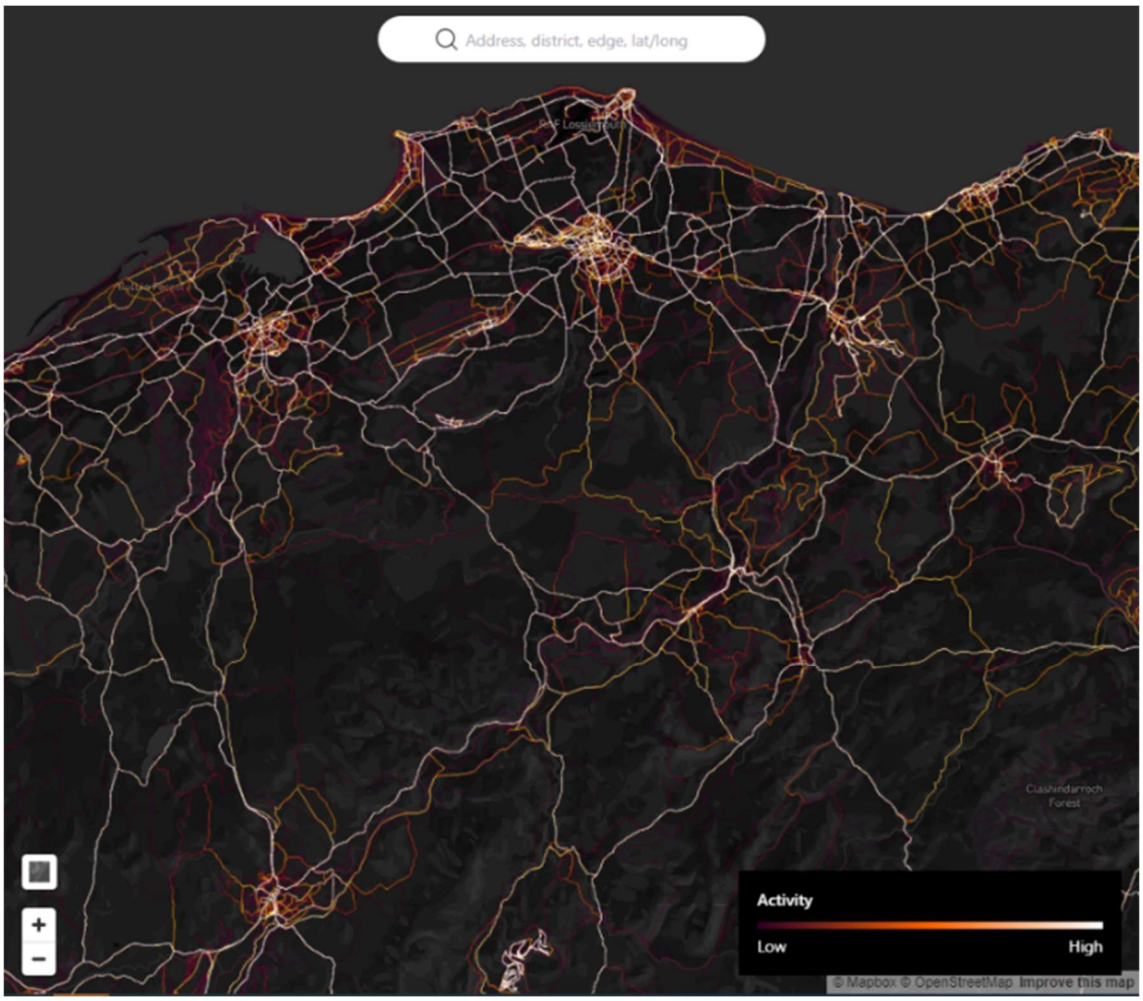


Figure 4.10: Cycling activity in Moray (Source: Strava Metro)

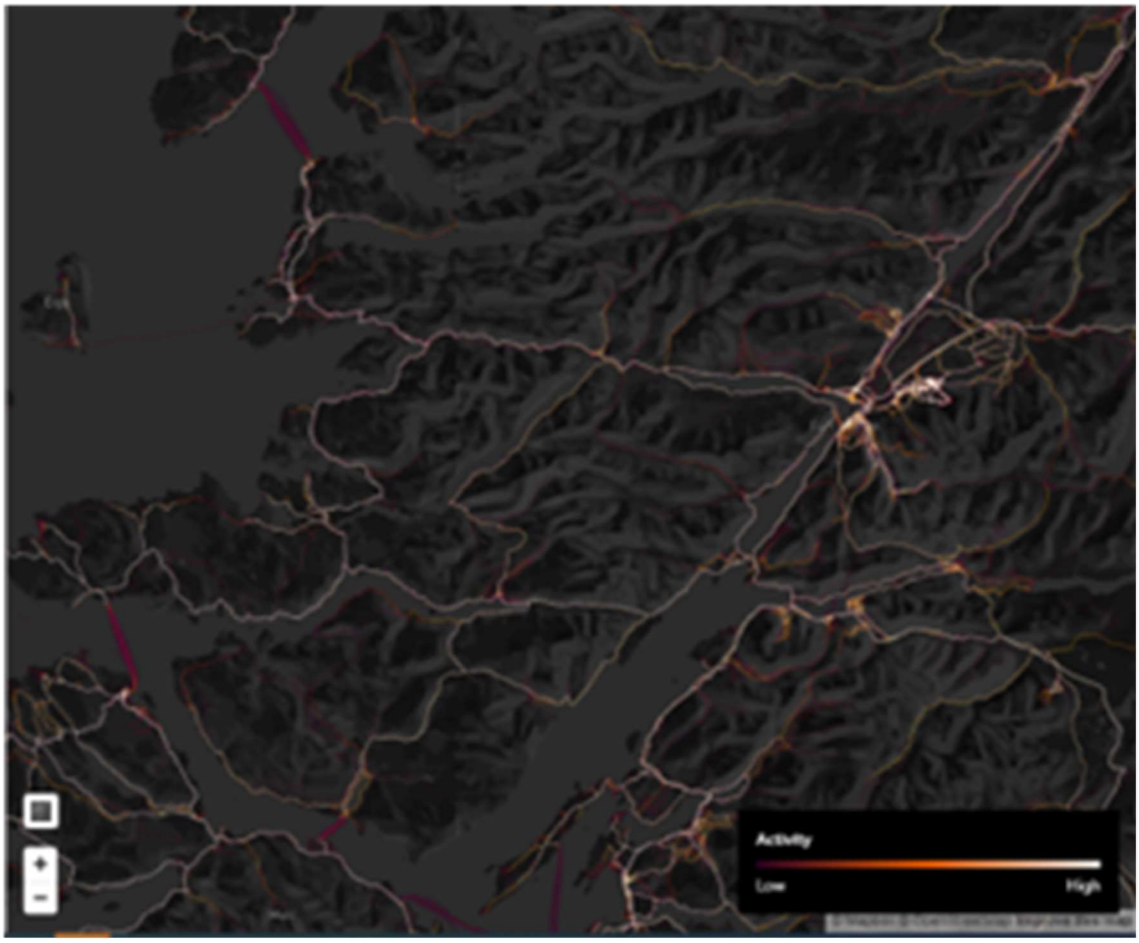


Figure 4.11: Cycling activity in Fort William, Oban and the Ardnamurchan Peninsula (Source: Strava Metro)

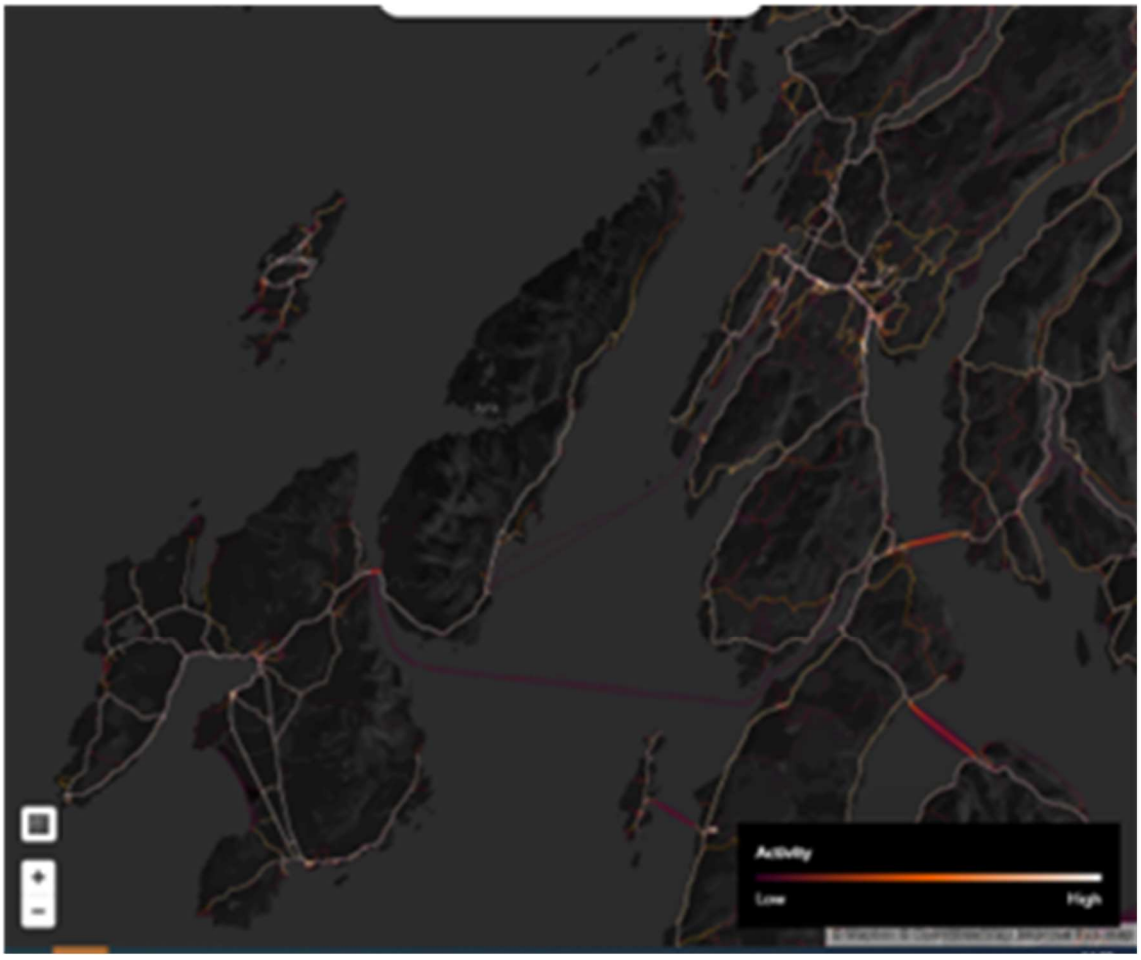


Figure 4.12: Cycling activity in Islay, Jura, Colonsay and west Argyll (Source: Strava Metro)

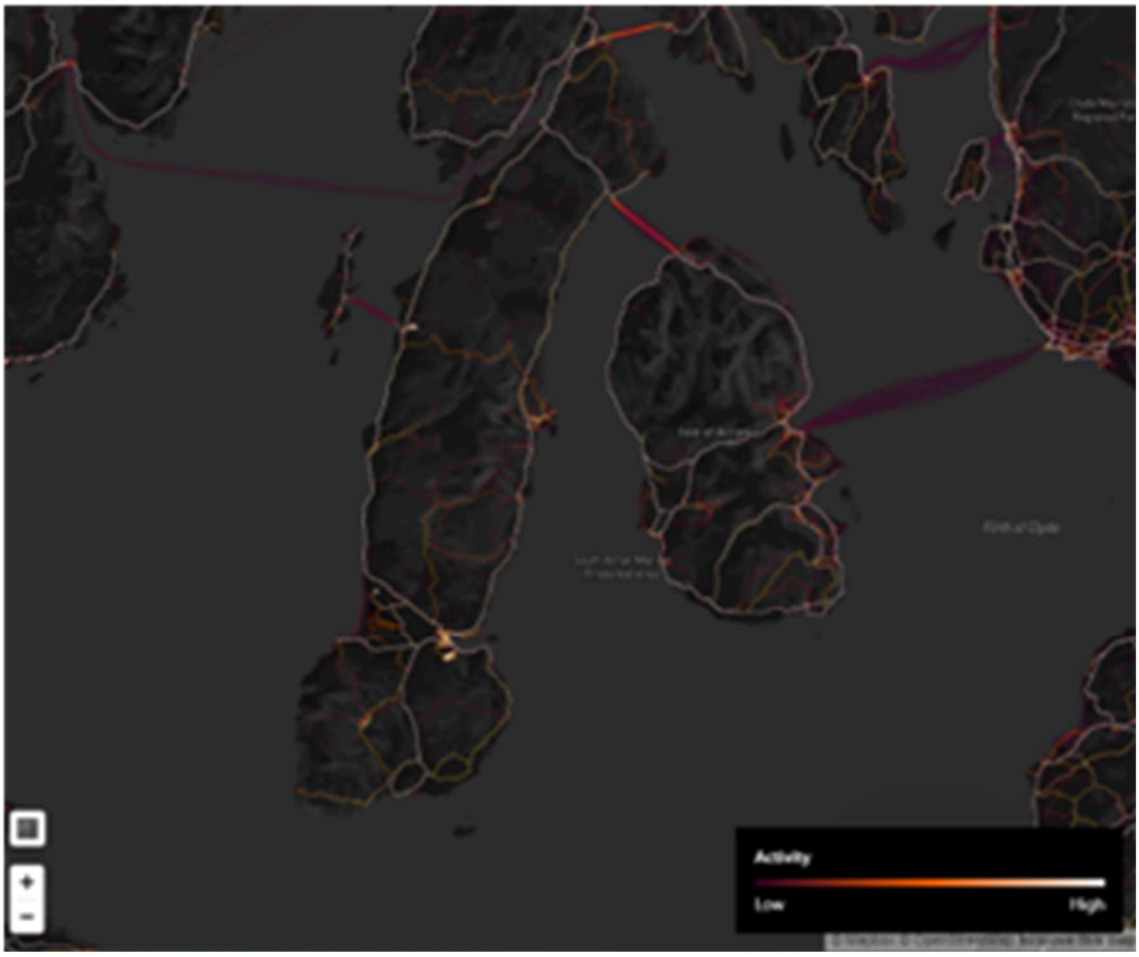


Figure 4.13: Cycling activity in Kintyre (Source: Strava Metro)

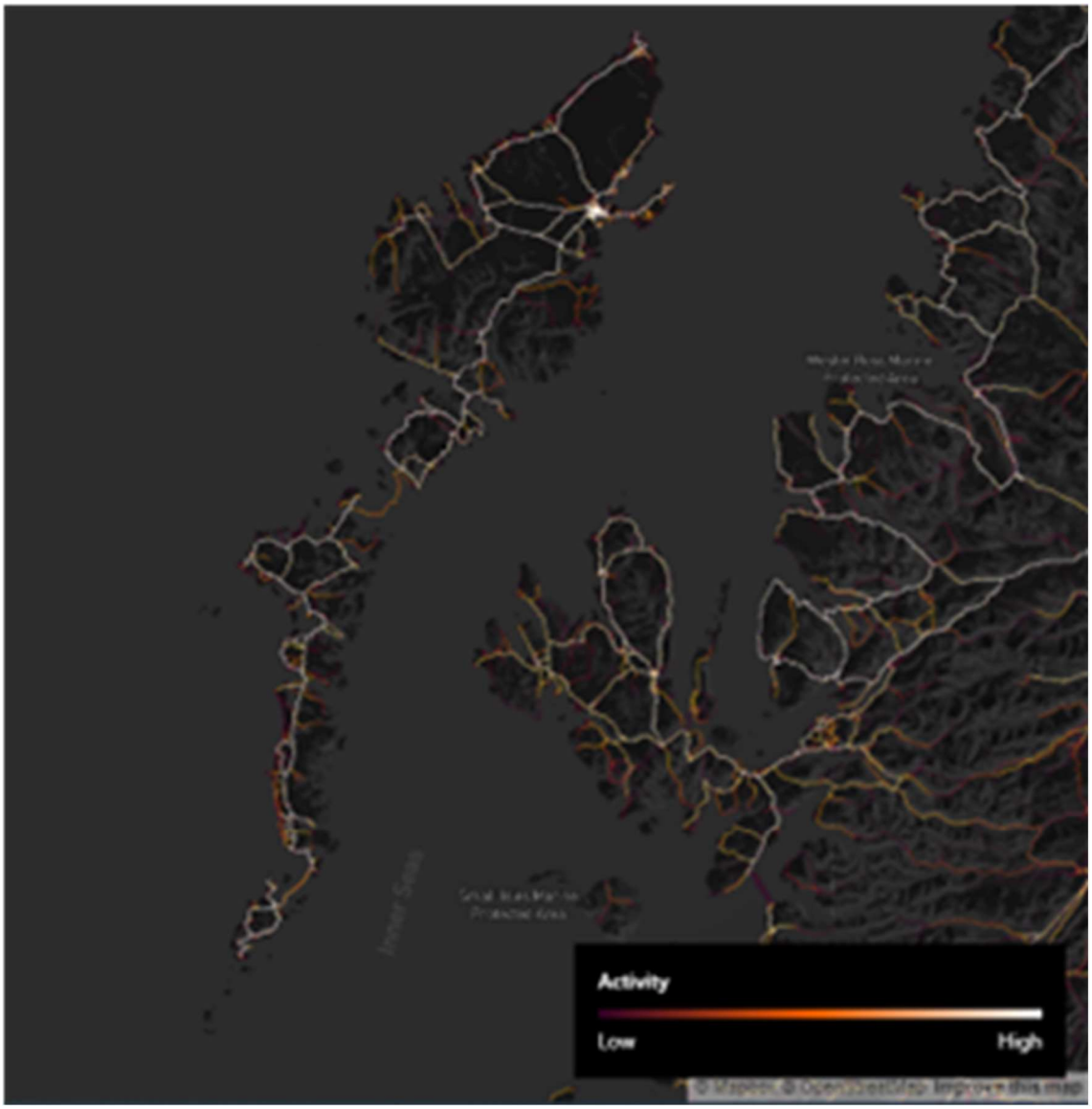


Figure 4.14: Cycling activity in the Outer Hebrides (Source: Strava Metro)

4.4.12 In their *Annual Cycling Monitoring Report*, Cycling Scotland produce a range of national and local authority cycling statistics based on published data and the Sustrans 'Hands-Up' survey in schools. The table below summarises cycling mode share by local authority overall and for travel-to-school:

Table 4.1: Cycling mode share by HITRANS local authority and Scotland overall (Source: SHS and 'Hands-Up' Survey)[52]

	Cycling mode share (Sept 2021)	% pupils cycling to primary school (2014-2019 average)	% pupils cycling to secondary school (2014-2019 average)
Argyll & Bute	0.52%	3.8%	1.1%
Eilean Siar	0.39%	4.9%	N/A[53]
Highland	1.48%	9.4%	4.8%
Moray	0.80%	6.2%	3.2%
Orkney Islands	1.00%	5.9%	2.9%
Scotland	***1.50%[54]***	***5.3%***	***1.6%***

4.4.13 The table above highlights that cycling mode share in the HITRANS region is generally below the national average, with the exception of Highland which is broadly reflective of Scotland overall. This again reflects the dispersed pattern of settlement and employment in the region. In contrast however, the proportion of children cycling to primary and secondary school in the region in most cases exceeds the national average, with only Argyll and Bute lagging for both tiers of education.

Barriers to cycling and walking

4.4.14 There are a range of things which prevent people cycling or cycling more often. The UK DfT's National Travel Attitudes Survey (Wave 5) focussed on attitudes towards cycling.[55] When asked '*We know there are many reasons preventing people from cycling or cycling more, which of the following, if any, would encourage you to cycle more?*' the top 10 following factors were cited:

- Off-road and segregated cycle paths – 55% of respondents
- Safer roads – 53%
- Well-maintained road surfaces for cycling – 49%
- More direct cycle routes – 43%
- Raising awareness of local cycle routes – 36%
- Visible signposting of low-traffic cycle routes – 34%
- Secure storage or parking at work or home – 28%
- Cheaper bicycles available to buy – 27%
- Cheaper bicycles available to hire – 18%

[52] *Annual Cycling Monitoring Report 2022* (Cycling Scotland, 2022), pp. 6-42.

[53] The survey response rate was too low to make an estimate.

[54] Note that the Scotland level data varies slightly from the local authority data. Mode share at the national level is from SHS, whilst the local level data are based on cycle mode share from traffic counts. The two numbers are nor therefore directly comparable.

[55] https://www.gov.uk/government/statistics/national-travel-attitudes-study-wave-5/national-travel-attitudes-study-wave-5

- Better bicycle hire facilities – 17%

4.4.15 This research also found that a majority of respondents (64%) strongly or somewhat supported '*the creation of dedicated cycle lanes in your local area, if this means less road space for cars*'. It also found that, whilst 74% of all male respondents reported to feel 'fairly' or 'very confident' when riding a bicycle, the same was only true for 43% of female respondents.

4.4.16 This broadly aligns with the *Annual Cycling Monitoring Report 2022* produced by Cycling Scotland, which identified both distance and safety as reasons for not cycling to work (in this instance). Weather is of course a factor more commonly cited in Scotland, and this, combined with limited winter daylight hours, is likely to be a particular barrier to cycling in the HITRANS region.[56]

4.4.17 The same survey also asked about barriers to walking more. The top five factors were:

- Well-maintained pavements (even, clean, uncluttered, well-lit) – 74%
- Safer roads – 45%
- More safer crossing points – 44%
- More direct walking routes – 43%
- Better provision for health needs (e.g., benches, public toilets, access ramps) – 40%

4.4.18 These factors provide a clear indication of the types of measures which would encourage people to walk and cycle or walk and cycle more often.

[56] *Annual Cycling Monitoring Report 2022* (Cycling Scotland, 2022), p. 10.

4.5 Bus and Coach

Bus trends

4.5.1 Section 4.3 noted that bus passenger numbers have declined in recent years. The figure below shows a longer time series and includes both passenger numbers and scheduled bus kilometres operated.

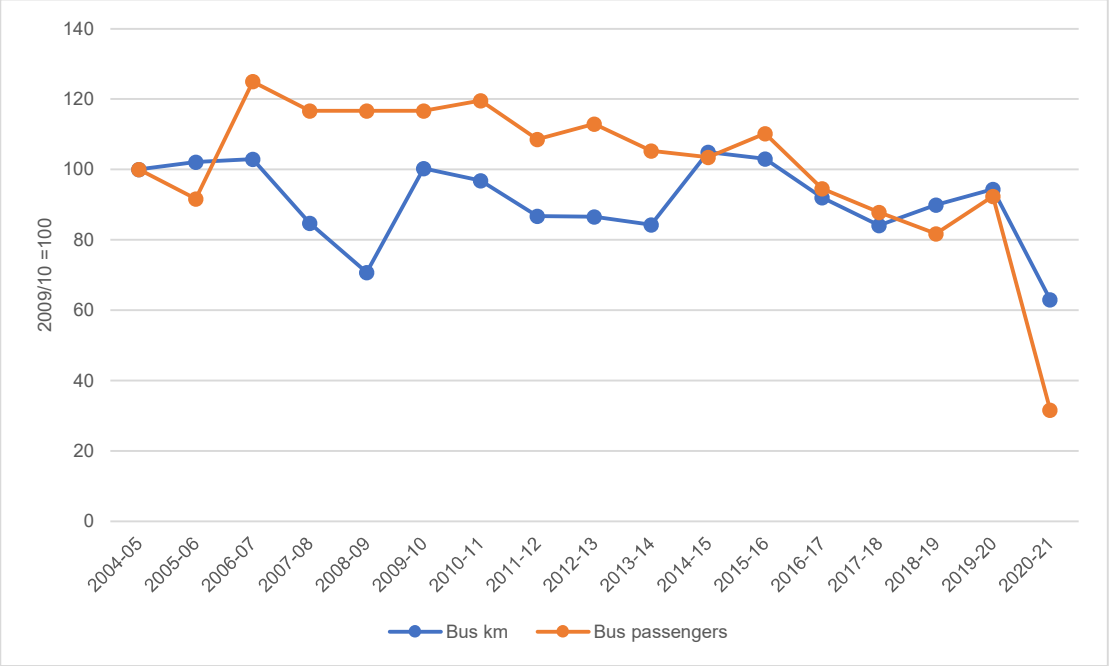


Figure 4.15: Bus kilometres and passenger numbers in the HITRANS region (2009-10 = 100) (Source: Scottish Transport Statistics)[57]

4.5.2 Aside from a dip between 2007-09, the bus kilometres operated were broadly stable, before dropping by around 40% during the pandemic. Bus passenger numbers spiked in 2006, perhaps a reflection of the introduction of the National Concessionary Travel Scheme, before dropping consistently across this period and plunging to 30% of 2004/05 levels during the pandemic. The impact of concessionary travel for under-22s, introduced in January 2022, is yet to filter through, although the benefits of this policy may be less keenly felt in the HITRANS region due to its more limited bus network compared to the SPT, SEStran etc areas

4.5.3 It should be noted that bus networks across Scotland are facing an uncertain future, but this is particularly true in rural areas. Passenger numbers have not generally recovered their pre-pandemic level and the forthcoming withdrawal of the COVID-19 support grants by Transport Scotland could make many routes unviable without further subsidy, particularly in rural areas. Moreover, the bus industry generally is facing issues of a shortage of bus drivers, whilst the

[57] Scottish Transport Statistics, data for Eilean Siar, Highland, Moray, Orkney Islands, Shetland Islands, Argyll & Bute

existing labour force is ageing. This is further compounded by the current high fuel prices and general inflation, where costs are increasing at a time when the revenue base is diminishing.

Bus networks

4.5.4 Bus services across the area are provided by a wide range of operators. The major operator in Highland, Moray and the Orkney Islands is Stagecoach (Bluebird in Moray, Highland elsewhere), whilst West Coast Motors is dominant in Argyll and Bute. In Na h-Eileanan Siar, services are provided by a range of local operators, many of which are very small operations.

4.5.5 Whilst there is broad consistency of provision in urban and longer-distance coach services, the overall level and quality of provision in terms of vehicles, waiting facilities and travel information varies across the region. For example, in Orkney, supported services are delivered by a fleet of low floor and low emission vehicles. In some other areas however, small and sometimes single vehicle operators deliver services, often using older diesel vehicles which do not have step-free access.

Long distance coach market

4.5.6 Megabus provides two coach services between Edinburgh / Glasgow to Inverness via the A9. Services depart hourly from Edinburgh and every two hours from Glasgow. It is possible to buy connecting tickets to Scottish Citylink services.

4.5.7 Scottish Citylink provides four coach services within and to / from the HITRANS region. Some services operate as express, and others stop at a wider range of settlements on the route. During the summer, the frequency of the service is increased to Campbeltown, Oban and Skye from Glasgow to cater for tourism demand. Some services are run in conjunction with Megabus services. Services to Oban and Uig are timed to connect to CalMac ferries as far as practically possible. The following services are provided to a HITRANS destination:

- Edinburgh to Fort William (1 per day (pd))
- Glasgow – Campbeltown (5pd)
- Glasgow – Oban (6pd)
- Glasgow – Fort William (9pd) / Portree (3pd) / Uig (2pd)

4.5.8 There are also three intra-HITRANS services:

- Inverness – Fort William (9pd)
- Inverness – Portree (4pd) / Uig (2pd)
- Inverness – Ullapool (2pd)

4.5.9 Stagecoach provides the majority of regional bus services within the HITRANS region. Most of the services are operated by low floor commuter buses, however some express routes between Aberdeen – Inverness and Inverness – Wick / Thurso are operated by coach. Some routes to the West Highlands connect to ferries onwards to the Outer Hebrides. Frequency varies, with some routes only seeing two buses per day, whilst the Aberdeen – Inverness service in contrast operates hourly.

Service frequencies and time of first and last services

4.5.10 The graphic overleaf provides a high-level overview of bus service frequencies across the HITRANS region. This analysis uses NaPTAN[58] data which is at the level of individual bus stops.

4.5.11 The images which follow show the **frequency** and the times of the **first** and **last buses** from each stop, which gives an indication of the time provided to users of these stops to undertake activities across the day.

[58] https://www.data.gov.uk/dataset/ff93ffc1-6656-47d8-9155-85ea0b8f2251/national-public-transport-access-nodes-naptan

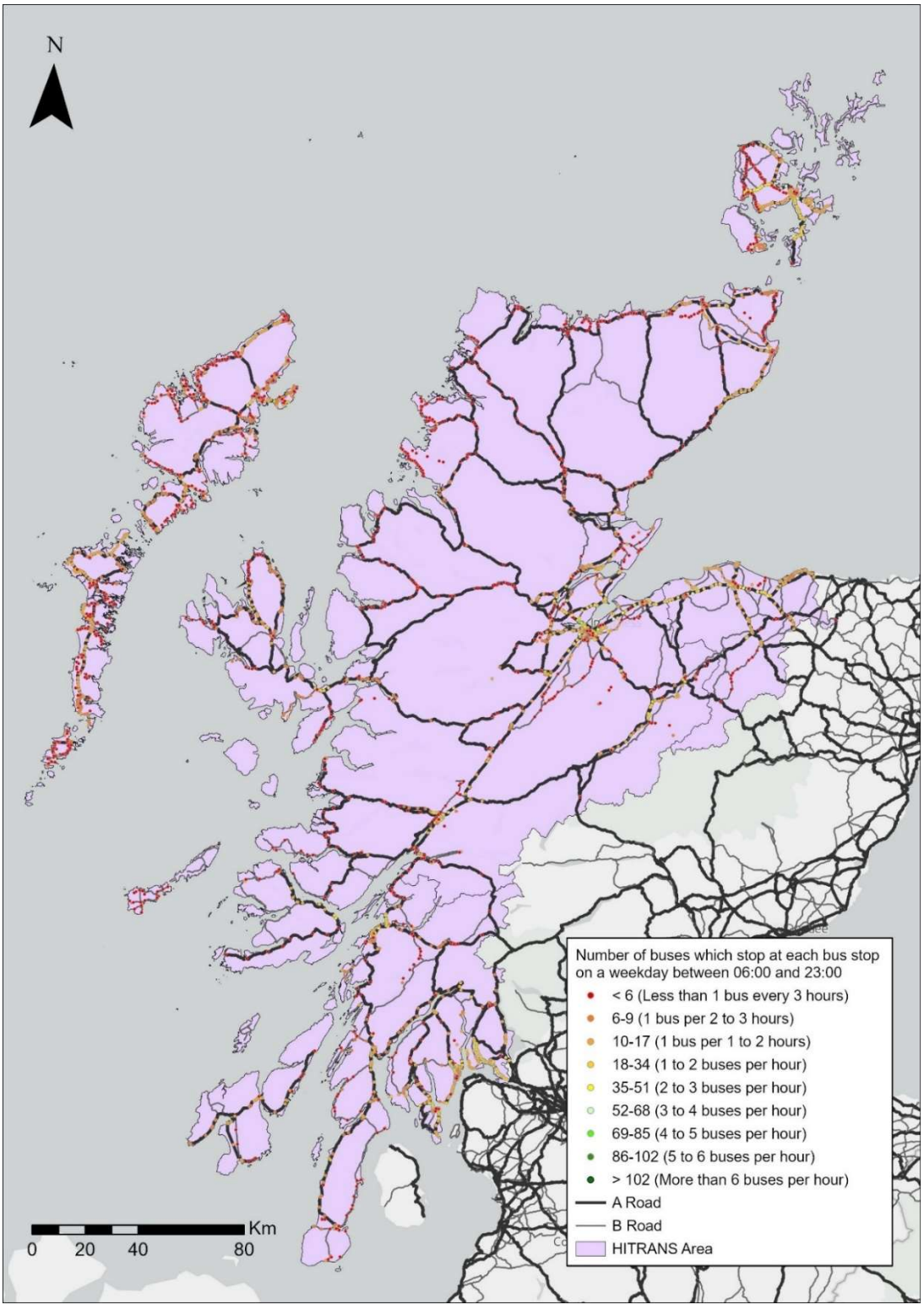


Figure 4.16: Bus service frequencies across the HITRANS region (Source NaPTAN)

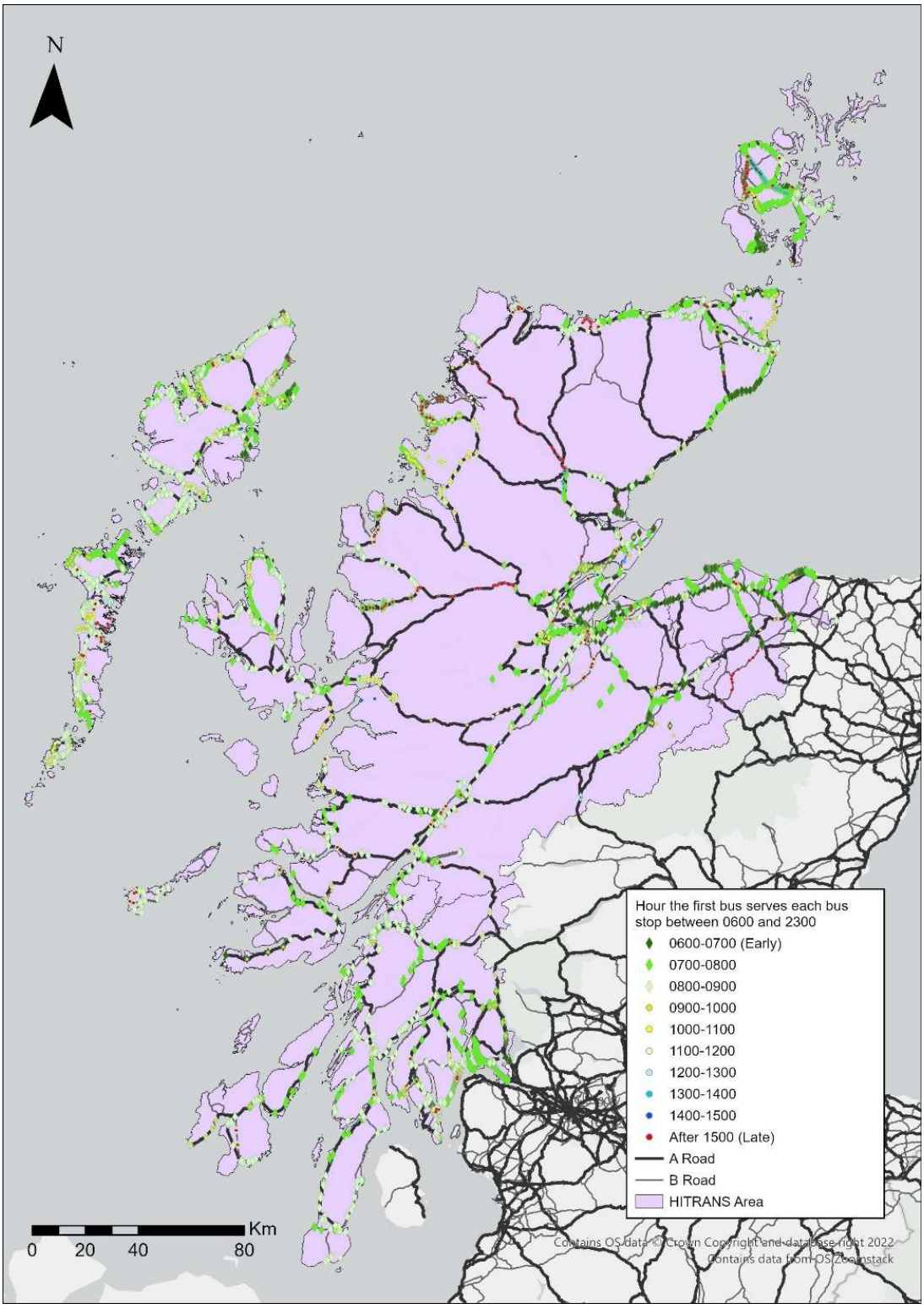


Figure 4.17: First bus from each stop in the HITRANS region (Source: NaPTAN)

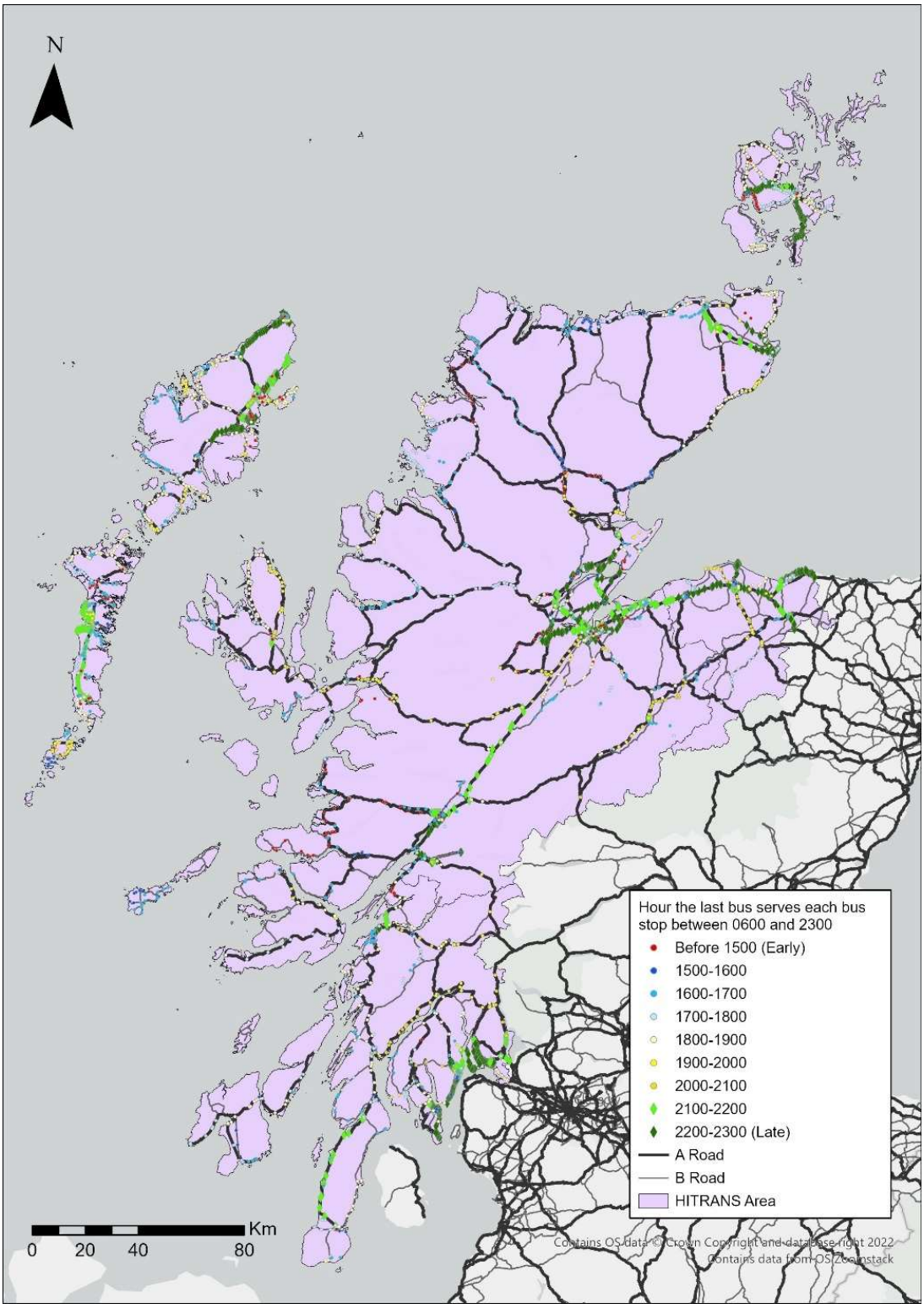


Figure 4.18: Last bus from each stop in the HITRANS region (Source: NaPTAN)

4.5.12 The above figures highlight that, outwith the Inner Moray Forth and a handful of other locations such as Stromness, Stornoway and Kirkwall, bus frequency in the HITRANS region is low and the last bus is often relatively early. This means that those travelling to an urban centre such as Inverness can either have too little time to carry out their activities in a single day or alternatively could have a long wait between services. This again adds to both the time and cost of travel, which is disproportionately greater than for equivalent journeys in Central Scotland.

4.5.13 A key issue in this respect is that a significant proportion of bus vehicles are contracted for the statutory role of providing school transport. Whilst clearly an essential function, a consequence of this in areas of limited supply is that many timetabled bus services are off-peak, which is clearly ill-suited to traditional working patterns and limits time at destination.

Community Transport and Demand Responsive Transport

4.5.14 Given the rurality of the region, Community Transport (CT) and Demand Responsive Transport (DRT) play an essential role in meeting daily travel needs, connecting local residents to services including retail, health and leisure. The conventional model of providing DRT is evolving as technology improves and HITRANS has been actively considering the potential role of 'Enhanced' DRT, which will be considered further in this RTS.

Fares and Concessions

4.5.15 There are currently around 130,000 concessionary fares passes issued to older and disabled people across the HITRANS region.[59] Over 90% of these are issued on the basis of age rather than disability.

4.5.16 In January 2022, the free bus travel scheme was extended to under 22s in Scotland and by August around half of those eligible had successfully applied for the card.

4.6 Rail

4.6.1 HITRANS is served by five railway lines as follows:

- **Highland Mainline** – connecting Perth to Inverness
- **West Highland Line** between Glasgow and Oban and Fort William / Mallaig
- **Kyle Line** between Inverness and Kyle of Lochalsh
- **Far North Line** between Inverness and Wick / Thurso
- **Aberdeen - Inverness Line**

4.6.2 The rail network, together with a representation of station usage using figures produced by the Office of Rail and Road (from 2019-20, pre-pandemic) is shown below:

[59] Scottish Transport Statistics Table 2.14

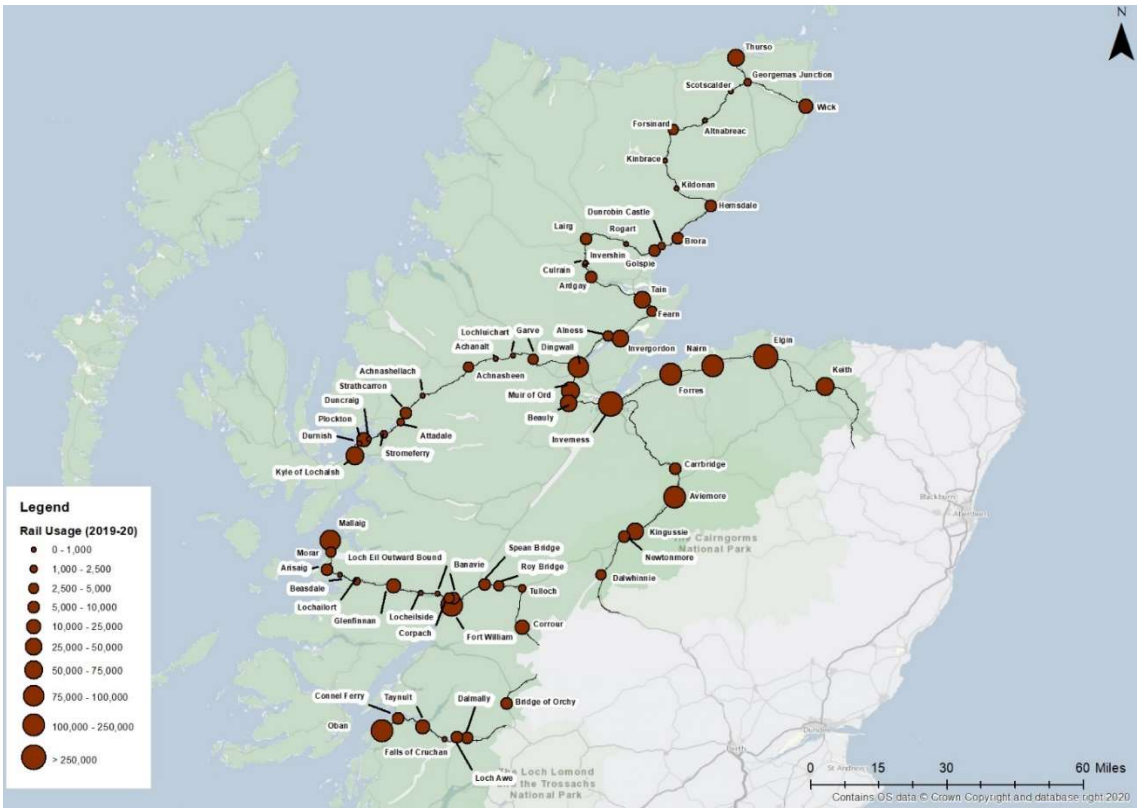


Figure 4.19: HITRANS region station usage (Source: ORR stations entries and exits data)

4.6.3 ScotRail provides the vast majority of services across the network. LNER provides one Inverness – London Kings Cross connection and the Caledonian Sleeper operates six nights per week between both Inverness and Fort William and London Euston.

4.6.4 The busiest stations essentially reflect the settlement sizes. The top 10 busiest stations in descending order are Inverness, Elgin, Oban, Forres, Fort William, Nairn, Aviemore, Mallaig, Dingwall and Muir of Ord. The HITRANS region is notable in having a large number of very lightly used stations. Of the 69 stations in the region, 30 see fewer than 5,000 passengers per day, or less than 100 per week. Many of these are 'request' stops.

4.6.5 Oban, Mallaig and Thurso (for Scrabster) services form connections for ferry services to the Inner and Outer Hebrides, Skye and the Orkney Islands.

4.6.6 The Jacobite is a very popular tourist steam train service running twice a day between Fort William and Mallaig in summer.

4.6.7 As can be seen in the figure below, the five lines experienced a broadly similar trend in usage in the years immediately prior to the COVID-19 pandemic.

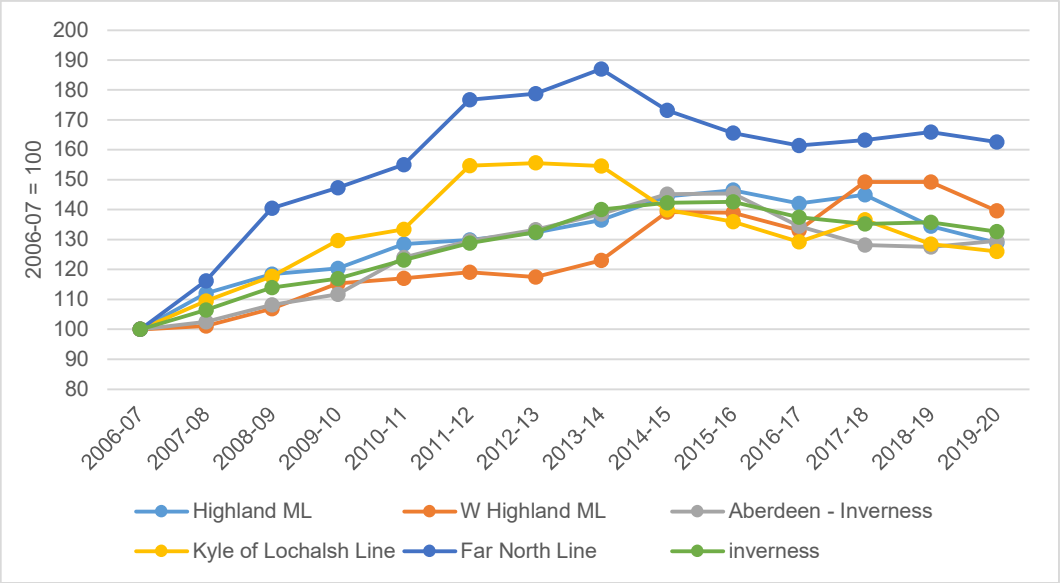


Figure 4.20: Trends in station entries and exits 2006-07 - 2019-20 (2006-07=100) (Source: ORR stations entries and exits data)

4.6.8 The exception though is the Far North Line where growth has been higher. This has been driven by the development of the 'Invernet' services (the Inverness commuter network) and there has been strong growth at Alness, Conon Bridge (opened in 2013), Invergordon and Muir of Ord (and Aviemore to the south). The Kyle line has seen a notable drop in passenger numbers since 2013/14.

4.6.9 The main features of each line are (based on the May 2022 timetable):

- **Highland Mainline:**
  - **Services:** connecting Perth to Inverness, around 13 services per day (seven to Glasgow and five to Edinburgh, plus one to London Kings Cross), plus the Caledonian Sleeper.
  - **Infrastructure:** Despite its importance to the region, the Highland Mainline is not electrified and is single track with the exception of sections between Blair Atholl and Dalwhinnie and Culloden and Inverness. There are static loops[60] at most stations on the line, which allow trains travelling in the opposite direction to pass at these stations. The predominantly single-track line imposes a constraint on capacity and also gives rise to performance risks.
- **West Highland Line:**
  - **Services:** between Glasgow and Oban and Fort William / Mallaig, with five Glasgow-Oban services and four Glasgow-Fort William trains per day (three of which continue to Mallaig).
  - **Infrastructure:** The West Highland Line is entirely single track from where it departs the Argyll Line at Craigendoran Junction, with static passing loops at several stations

[60] A passing loop is a section of double track on an otherwise single-track line which allows trains in opposite directions to pass each other. A static loop is a particular type of passing loop, where trains in the opposite direction can cross but, given its short length, requires both trains to be stationary at the crossing point. Passing loops are typically incorporated into stations and are used widely on long single-track lines.

to allow trains travelling in the opposite direction to pass. When combined with low line speeds and Radio Electronic Token Block signalling (a relatively basic form of signalling), capacity is very limited. Several of the services across the day are split and joined at Crianlarich (where the Oban portion departs) and Fort William (where the Mallaig portion departs).

- **Kyle Line:**
  - **Services:** between Inverness and Kyle of Lochalsh, four services per day.
  - **Infrastructure:** The Kyle Line departs the Far North Line immediately to the north of Dingwall. It is an entirely single track line with static loops at Garve, Achnasheen and Strathcarron. Like the West Highland Line, it is signalled using Radio Electronic Token Block. It has a limited capacity but is less likely to experience reactionary delay than the West Highland Line, as it does not interface with the busy suburban lines into Glasgow.
- **Far North Line:**
  - **Services:** between Inverness and Wick / Thurso, four departures from Inverness per day (to Thurso) with three to five additional 'Invernet' services to Invergordon, Ardgay, Lairg, and Tain.
  - **Infrastructure:** The Far North Line is again entirely single track, with static loops at various stations to allow trains to pass in the opposite direction. The route was built to divert around rather than cross the main river firths (Beauly / Moray, Cromarty and Dornoch) and thus journey times are long. The line is again signalled using the Radio Electronic Token Block system. At Georgemas Junction, the service continues to Thurso and reverses back to Georgemas Junction before proceeding to Wick. This process is repeated in the Up (to Inverness) direction (i.e., Wick – Georgemas Junction – Thurso – Georgemas Junction).
- **Aberdeen - Inverness Line**
  - **Services:** 17 departures per day from Inverness (six to Elgin only).
  - **Infrastructure:** Again, despite its importance, the Aberdeen – Inverness Line is almost entirely single track with passing loops at several stations. Transport Scotland is however progressing the Aberdeen to Inverness Improvement Programmes, which is intended to: reduce journey times from 2 hours 25 minutes to two hours; provide an hourly service; enhance commuter services into each city; and increase opportunities for freight. As part of this programme of works, Kintore Station opened in October 2020 and Dalcross (for Inverness Airport) opened on 2nd February 2023.[61]

4.6.10 The railway network therefore provides a range of direct connections to destinations within and outside the region. The table below shows the extent to which day trips can be made between these locations, again based on the May 2022 timetable.

[61] https://www.transport.gov.scot/projects/aberdeen-to-inverness-rail-improvements/aberdeen-to-inverness-rail-improvements/

Table 4.2: First and last departures on HITRANS routes

Journey	Weekday first outbound departure	Weekday last return departure
Inverness-Aberdeen-Inverness	05:56	22:00
Inverness-Wick-Inverness	07:00	16:00
Inverness-Kyle-Inverness	08:55	17:13
Inverness-Glasgow-Inverness	05:36	19:07
Inverness-Edinburgh-Inverness	06:45	19:38
Mallaig-Glasgow-Mallaig	06:03	18:23
Fort William-Glasgow-Fort William	07:44	18:23
Oban-Glasgow-Oban	05:21	12:22 or 18:23 (Fridays only)
Aberdeen-Inverness-Aberdeen	06:17	21:33
Wick-Inverness-Wick	06:18	18:31
Kyle-Inverness-Kyle	06:11	17:54
Glasgow-Inverness-Glasgow	07:07	20:23
Edinburgh-Inverness-Edinburgh	08:37	18:53
Glasgow-Mallaig-Glasgow	08:21	16:05
Glasgow-Fort William-Glasgow	08:21	17:37
Glasgow-Oban-Glasgow	05:20	20:39

4.6.11 So, for example, the table shows that if travelling from Inverness to Aberdeen and back on the same day, the first departure from Aberdeen is 05:56 and the last train back from Aberdeen departs at 22:00.

4.6.12 Whilst there are early departures in all cases from Inverness, Fort William, Mallaig and Oban, the first direct departures north from Edinburgh Waverley and Glasgow Queen Street to Inverness mean arriving in Inverness at 12:01 and 10:28 respectively with the former being very late for a connection between two of Scotland's cities (although note that an indirect connection from Edinburgh – change at Stirling - would allow for a 10:28 arrival). Also, the last departures from Wick and Kyle of Lochalsh are rather early.

Rail Fares

4.6.13 Rail fares are typically higher than bus fares, as is common across much of the UK, particularly for long distance journeys to the Central Belt. Moreover, yield-based pricing for longer distance journeys can lead to high 'walk-up' fares and uncertainty around the cost of travel.

4.6.14 Residents of selected HITRANS areas are eligible for a Highland Railcard, which provides a 50% discount on rail fares for travel on the West Highland Line (Mallaig/Oban to Glasgow Queen Street), the Far North Line (Wick/Thurso to Inverness), and the Kyle Line (Kyle of Lochalsh to Inverness). Up to two children can also travel on the railcard, with a flat fare of £2 return.

4.6.15 In certain parts of the HITRANS region, rail can be the only public transport connection available, or can supplement an otherwise very thin bus network, with the train effectively acting as the local bus service for some very remote communities. However, as previously noted, rail travel is not included in either the National or Under-22s Concessionary Travel Schemes, although paid railcards are available.

4.6.16 It should be noted that the Scottish Government announced the scrapping of peak rail fares for a six-month pilot period from April 2023. This will result in a significant reduction in fares for commuters, although again the impact may be felt less keenly in the HITRANS region given that rail has a lower commuter market share than elsewhere in Scotland.

Rail Freight

4.6.17 Despite the limitations with the physical infrastructure, several of the bulk products moved to and from the HITRANS region are well suited to rail freight. Key flows include:

- Tesco container trains to Inverness from Daventry
- Wood board from West Fraser at Dalcross to Daventry (which forms the backload for the northbound Tesco movement)
- Cement (to Inverness)
- Alumina (to Fort William from Blyth)
- Occasional movements of nuclear traffic associated with the decommissioning of Dounreay
- Occasional Ministry of Defence traffic to Kinloss and Glen Douglas

4.6.18 Given the challenges with the road network in the region (as will be discussed further below), there are potential opportunities for rail freight growth. However, the limited rail infrastructure in the region will constrain this to some degree.

4.6.19 The principal challenges with attracting freight onto the rail in the region include:

- Limited volumes can present a commercially challenging proposition to develop.
- Poor Route Availability (RA), meaning that heavily loaded wagons and modern freight locomotives cannot be deployed, further weakening the commercial proposition.
- Poor gauge clearance for inter-modal freight.
- Lack of freight terminals and available land for new freight terminals.
- Limited line capacity.
- Short loops limiting train length.
- Long journey times, exacerbated by frequent steep climbs with heavily laden trains.
- Lack of suitable adapted wagons and no funding to procure them.

4.7 Ferry

4.7.1 Ferry services are a key part of the transport network in the HITRANS region. The principal services are:

- **Argyll and Bute Council:** serving Jura, Lismore, Luing and Easdale, provided directly by the Council, which also owns the vessels.
- **CalMac Ferries:** 30 routes across the west coast provided by CalMac Ferries Ltd (a wholly-owned subsidiary of David MacBrayne Ltd, which in-turn is wholly owned by Scottish Ministers) under contract to the Scottish Government using vessels owned by Caledonian Maritime Assets Limited (CMAL, the Scottish Ministers' marine asset owning company).
- **NorthLink Ferries:** serving Orkney and providing a connection between Orkney and Shetland. Services are provided by Serco NorthLink Ltd under contract to the Scottish Government using vessels owned by CMAL.
- **Pentland Ferries:** provides a fully commercial service between Caithness and Orkney using the modern catamaran MV *Alfred*.
- **Orkney Ferries:** serving the 13 islands around the Orkney Mainland, provided by Orkney Ferries Ltd (a wholly-owned subsidiary of Orkney Islands Council) who also own the vessels.
- **The Highland Council:** The Corran Ferry is the Council's main route, for which it both owns the vessels and operates the service directly. The Council operates either directly or under contract a range of other smaller routes, such as the Cromarty – Nigg and Camusnagaul ferries.
- **Western Ferries:** provides a frequent and fully commercial passenger and vehicle service between Hunters Quay in Cowal and McInroy's Point in Inverclyde.

4.7.2 Other services include:

- **Arisaig Marine** which operates a commercial seasonal service to the Small Isles
- The **Cape Wrath** ferry provides a commercial seasonal foot-passenger service to Cape Wrath
- The **Handa ferry** provides a commercial seasonal foot-passenger service to Handa Island
- **John o'Groats Ferries** which operates a commercial seasonal foot-passenger connection to Orkney
- **Skye Ferry Company** which operates a commercial seasonal foot and vehicle ferry between Glenelg and Skye
- The **Ulva Ferry** provides a commercial foot-passenger service between Ulva and Mull
- **Western Isles Cruses** operates a year-round commercial foot-passenger service to the Knoydart peninsula

4.7.3 Where the services are provided directly by a council or via a Scottish Government contract, **fares** are typically set by the by public authority. Commercial operators set their own fares.

Recent trends by network[62]

4.7.4 Whilst section 4.3 set out the aggregate picture for trends in ferry travel, the trends affecting the individual networks are shown below for passengers and cars – both are indexed to 2009 and shown on a common scale for clarity.

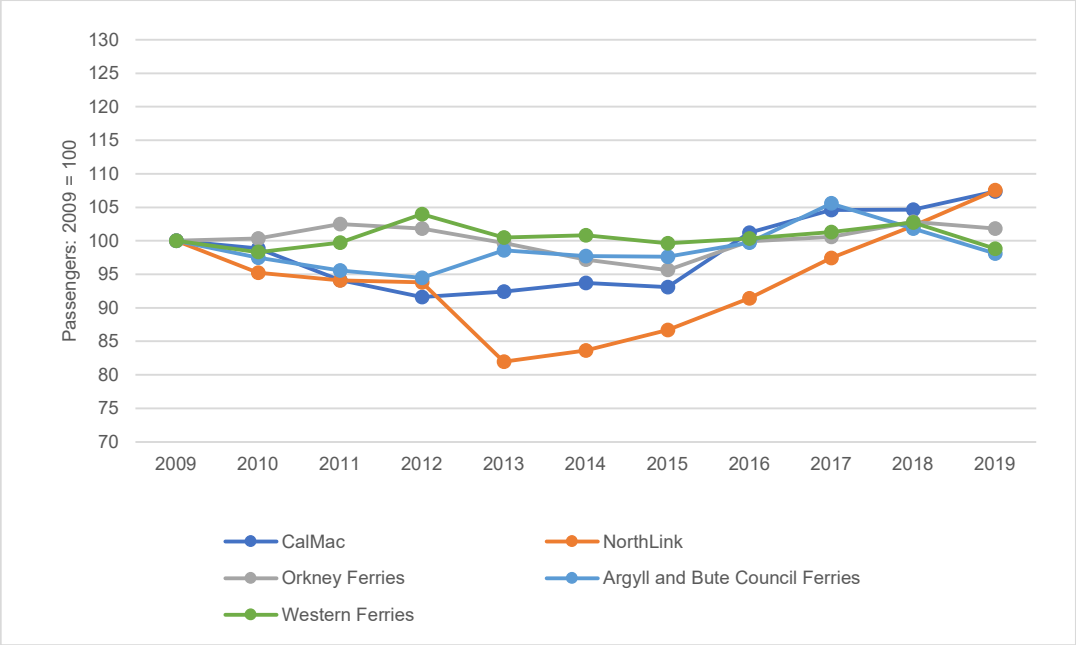


Figure 4.21: Trend in ferry passenger carryings (2009=100) (Source: Scottish Transport Statistics)

[62] Figures for Pentland Ferries are not available

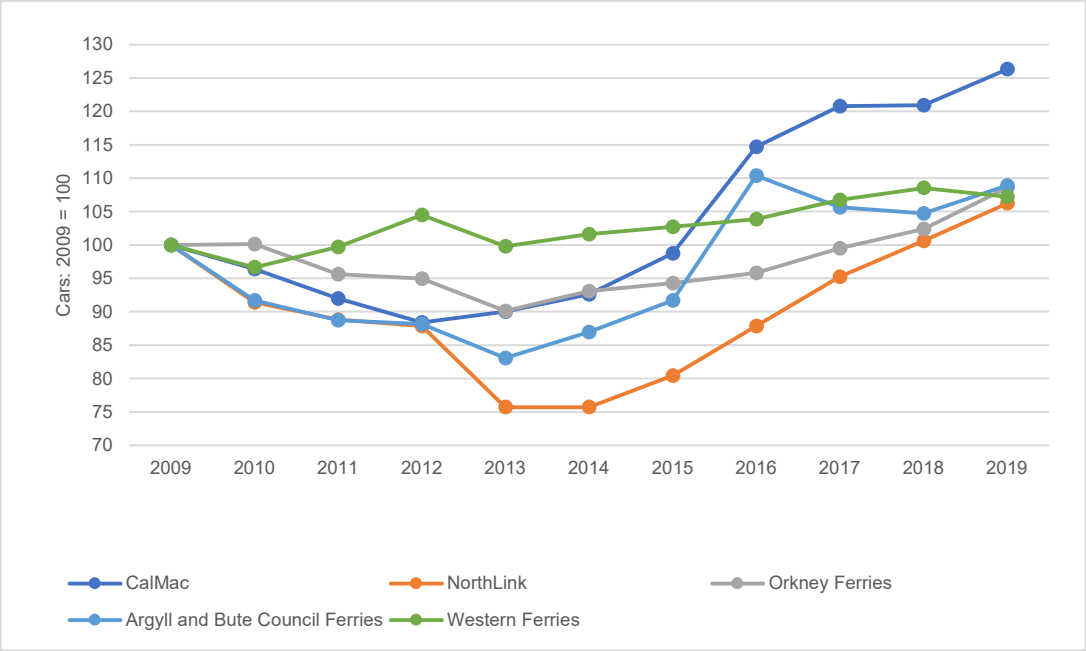


Figure 4.22: Trend in ferry car carryings (2009=100) (Source: Scottish Transport Statistics)

4.7.5 The reduction in NorthLink passenger and vehicle carryings in 2013 stem from a reduction in the Scrabster - Stromness service in that year. This compounded a gradual loss of market share in the early part of this period through increased competition from Pentland Ferries when they introduced MV *Pentalina* in 2009. By 2019 however, carryings had recovered to be above 2009 levels.

4.7.6 The impact of RET can clearly be seen in the CalMac car carryings. 2016 was the first full year of RET for many of the higher volume routes across the network (e.g., Oban – Craignure), the result being that since 2009, car carryings have grown by more than 25%. However, passenger numbers grew by only 7%, implying that one of the main impacts of RET was to encourage people who previously travelled as a foot-passenger to take a car onboard instead.

4.7.7 In general, the growth in car-based travel has far outstripped that of passenger-based travel. All networks have experienced growth in car travel, whilst Western Ferries and Argyll and Bute Council services have seen passenger numbers reduce slightly relative to 2009.

'Market Share' by Operator (2019)

4.7.8 The figure below shows the relative passenger and car carrying figures for the main ferry operators in the region as a proportion of the total passenger and car carryings.

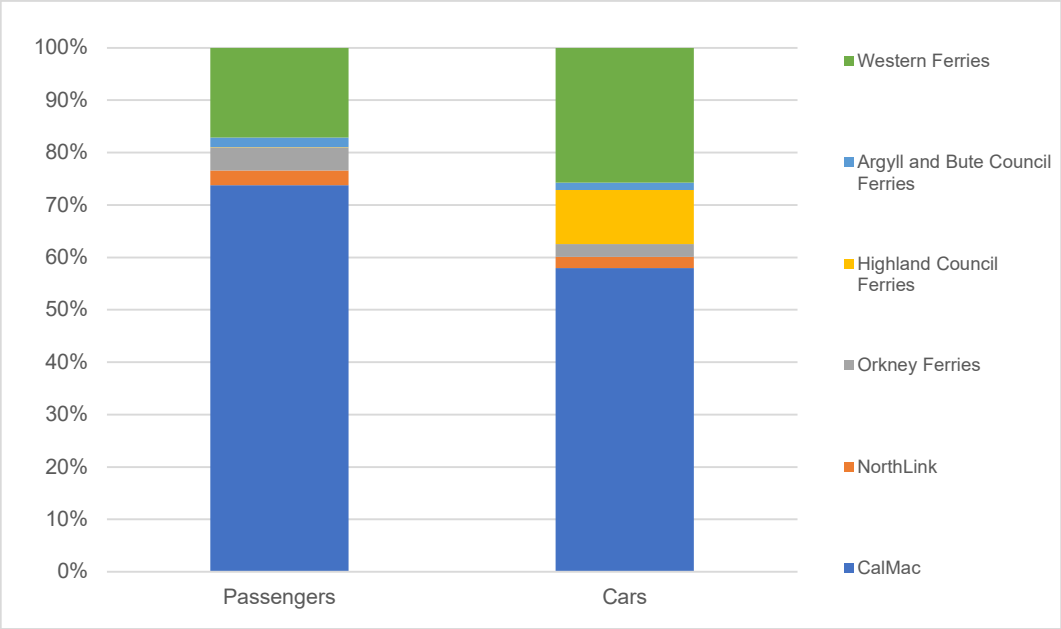


Figure 4.23: Market share by operator, 2019 (Source: Scottish Transport Statistics)

4.7.9 This confirms that CalMac is the major provider of services in the HITRANS region, and also shows the importance of the Western Ferries route between Hunters Quay and McInroy's Point in volume terms.

Seasonality (CalMac 2019)

4.7.10 Ferry services provide for a mix of day-to-day travel and the movement of goods focussed on island residents and businesses, and seasonal tourist travel, both by island residents themselves travelling more in the summer and visitors to the islands. This leads to a highly seasonal demand profile on many routes in the region. CalMac publishes monthly carrying statistics and these have been analysed for 2019 (pre-pandemic) to provide an indication of the profile of demand across the year – this analysis is shown in the figure below:

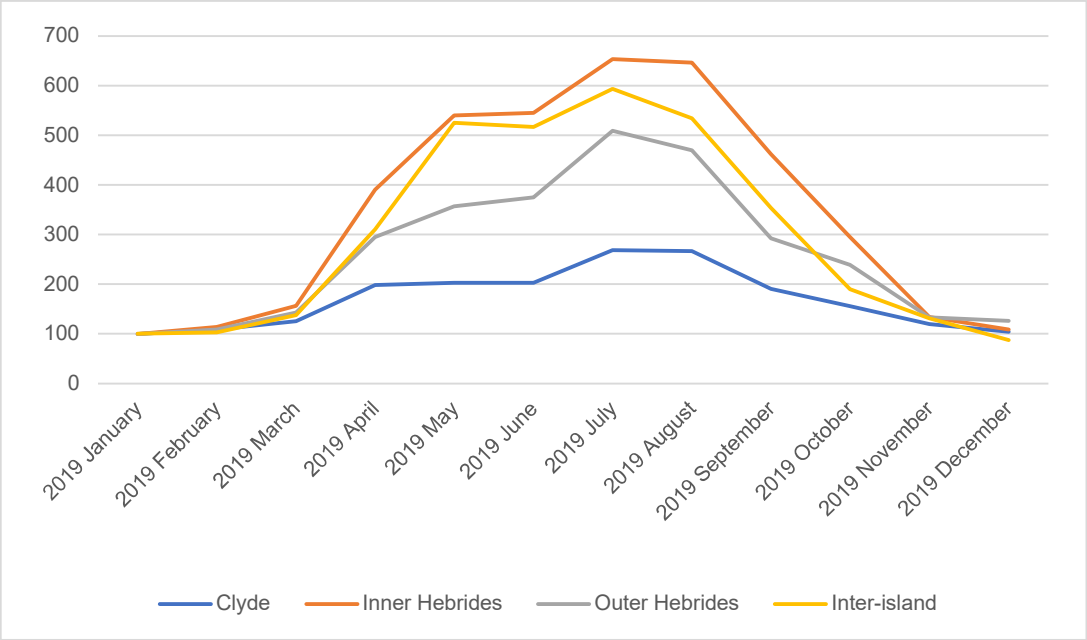


Figure 4.24: Monthly passer carryings by CalMac route group (Source: CalMac carrying statistics 2019)

4.7.11 The other operators will see a similar profile with the extent of the summer peak dependent on the role of the service – for example routes which cater for more commuting and regular travel (such as Western Ferries) will likely have a somewhat flatter profile than that shown above.

Ferry Capacity

4.7.12 Summer demand can cause capacity problems on many routes with summer carryings five to seven times that of winter. Ferry services are not easily 'scalable' to this extent which means that it is challenging to meet this summer demand without providing substantial excess capacity in the winter months. Capacity constraints on the ferry network are overwhelmingly associated with the carriage of vehicles, and on some routes high freight demand. Passenger capacity is very rarely a problem. In addition, the availability of cabins on the southbound Kirkwall to Aberdeen overnight NorthLink service can be a problem throughout the year.

4.7.13 These capacity challenges are a particular issue on the CalMac network where the impact of the 25% increase in car carryings due to RET is causing problems. Whilst CalMac does not publish data on capacity utilisation and hence how often people may be able to travel at the time of their choosing, Transport Scotland published an evaluation of the RET fares policy in March 2020[63] which contained pre and post-RET capacity utilisation data.

4.7.14 This analysis highlighted particularly high-capacity utilisation on the following routes:

- Kennacraig-Islay (year-round)
- Oban-Craignure ('shoulder' and peak summer)

[63] https://www.transport.gov.scot/media/49397/evaluation-of-road-equivalent-tariff-on-the-clyde-and-hebridean-network.pdf

- Uig-Lochmaddy (year-round)
- Ullapool-Stornoway (year-round)
- Uig-Tarbert ('shoulder' and peak summer)
- Berneray-Leverburgh (year-round)

4.7.15 Several routes also have significant freight flows relative to capacity, including Aberdeen – Kirkwall / Lerwick, Stornoway – Ullapool, Kirkwall – Westray and Kennacraig – Islay. Freight can in many respects be considered the 'lifeline' need on these services, exporting island produce and importing almost every consumable required for day-to-day life. These underlying freight flows are additive to passenger vehicle demand, exacerbating already significant capacity issues on many routes. The contracted operators, e.g., CFL, NorthLink etc, have very few price-based or other levers available to manage this demand and must therefore work with customers to balance resident and supply-chain needs as best as possible.

4.7.16 On many routes however, capacity is simply inadequate at peak times. Whilst emergency short notice travel by island residents is almost always accommodated by operators, island residents can on occasions find that they are unable to secure a booking as, for example, tourists can often book much further in advance. This can limit access to mainland services and inconvenience e.g., travel for leisure, visiting friends and relatives, teams travelling for sports fixtures etc.

Service Reliability

4.7.17 In recent years, the reliability of ferry services has become an increasing problem, particularly on the CalMac network with an ageing fleet and the well-publicised delays associated with the construction of new vessels at Port Glasgow. CalMac publishes data on cancelled and operated sailings – cancellation figures are shown below for all routes, Outer Hebrides routes, and 'major vessel' routes.

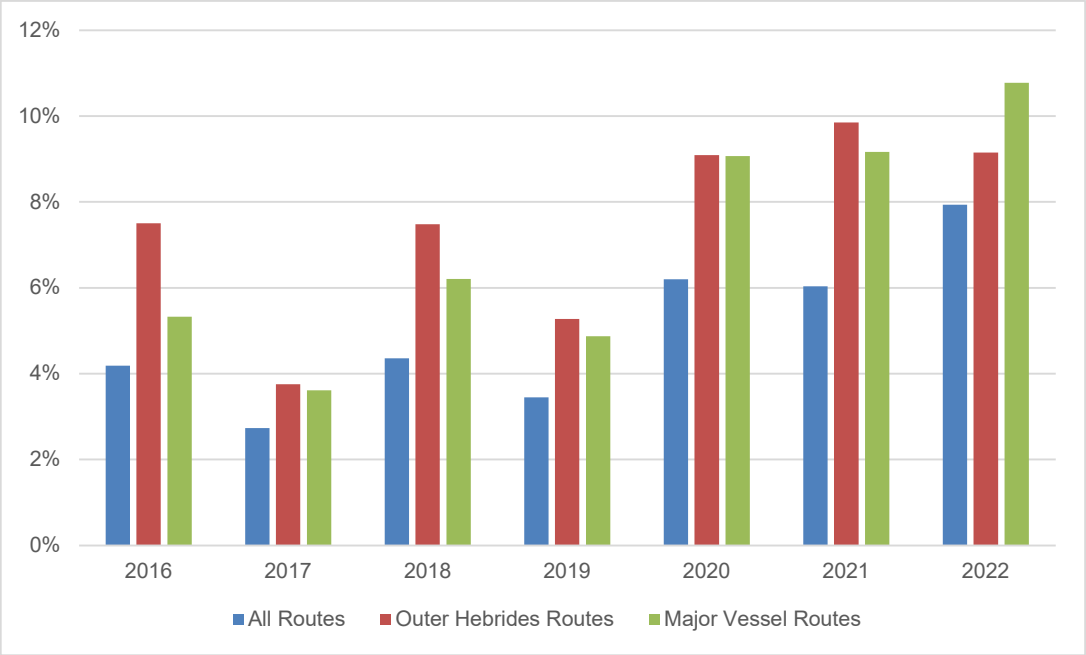


Figure 4.25: CalMac cancellations by year (Source: CalMac route performance data)

4.7.18 The proportion of all sailings cancelled has therefore been on an upward trend since 2019. This can be attributed to vessel breakdowns, increases in severe weather events associated with climate change and COVID-19 outbreaks affecting crews. Amongst the major vessel routes, the cancellation rate has more than doubled since 2019. On Outer Hebrides and 'major vessel' routes, cancellation rates have been approaching, or have exceeded 10% in recent years.

4.7.19 This has been very problematic for the communities affected by these service outages in terms of residents' own travel and for island businesses. It has led to cancelled tourist bookings at short notice, with subsequent reputational damage for the islands in question; cancelled or rearranged trips by residents (often at a cost for onward connections by e.g., rail, air etc); reduction or complete loss of value for time sensitive freight such as seafood; and residents missing e.g., family events. Such poor reliability, if sustained, could have serious detrimental impacts on fragile island communities, including out-migration, business closures and job losses.

4.7.20 Cancellations often have a knock-on impact on vehicle deck capacity, in particular meaning people sometimes cannot travel on subsequent days as well as the day of the service outage.

4.7.21 Outwith the Clyde and Hebrides network, there are both emerging reliability and resilience risks associated with too few and ageing vessels on several of the local authority services, particularly in Orkney but also in relation to the Corran Ferry.

Ferry Fares and Funding

4.7.22 It should be noted that there are differences in the basis on which fares are set on different networks, which in turn leads to different absolute fares / fares per mile for individual communities. For example, on the CHFS network, all fares are set on the basis of RET, whilst

in Orkney, Argyll and Bute and Highland, fares are set by the local authority. Indeed, in many cases, there are differentials between islands in the same network, particularly in terms of freight fares, where there are variations in how the tariff is set, surcharges levied and discounts offered.

4.7.23 Note that there is both an aspiration and policy commitment to extend a modified RET fares system to the Northern Isles routes, but this has not yet progressed due to issues around the potential distortion of competition.

4.7.24 Whilst a delivery issue, it should be noted that there are also differences in how individual ferry networks are funded. For example, all ferry services in the CHFS network are entirely funded by the Scottish Government, whereas the additional cost of local authority funded ferry services over and above the Grant Aided Expenditure (GAE) settlement from the Scottish Government must be met largely by local authorities from their own resources.

Private boat usage

4.7.25 It should be noted that several communities around the region make use of private vessels to supplement their ferry service. For example:

- The community in Shapinsay uses the revenue from their wind turbines to charter a local vessel to provide additional evening connections.
- In the Small Isles, where there can be long gaps between services, private charters are often used,
- In Jura, where there is a need to route via Islay, a private forms provides passenger service between Craighouse and Tayvallich.
- In Flotta, the local community can make use of the vessel used to transport staff to and from Flotta Oil Terminal, MV *Flotta Lass*.

4.8 Ports and Harbours

4.8.1 The graphic below shows all of Scotland's ports and harbours:

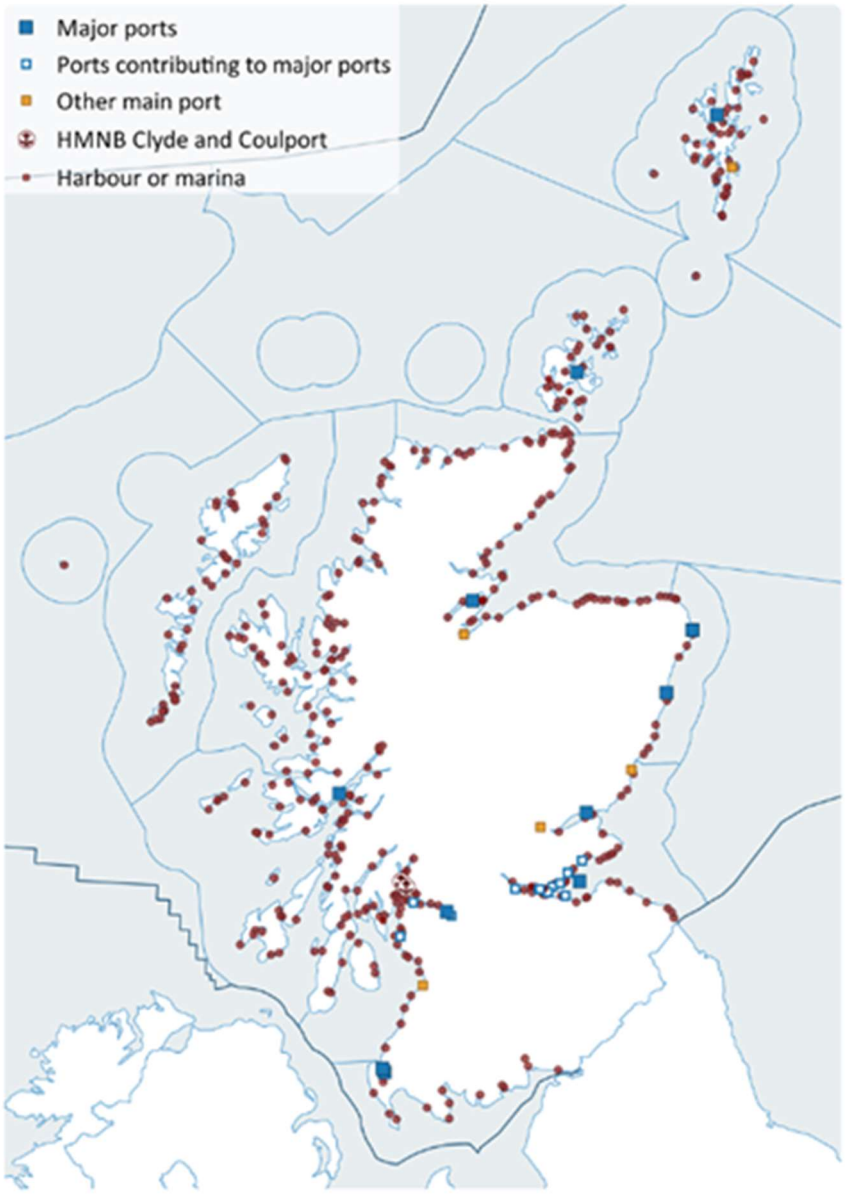


Figure 4.26 Ports and harbours in Scotland[64]

4.8.2 As can be seen here, there are three 'major ports' in the HITRANS region – Cromarty Firth, Orkney (Scapa Flow, Kirkwall and Stromness) and Glensanda. Inverness is classed as an 'other main port'. In volume terms, the privately owned Glensanda, which is only accessible by sea, is by some distance the most significant port with around 6.5 million tonnes of 'dry bulk' good moved through the port in 2019, which solely serves the Glensanda Superquarry which produces crushed rock granite aggregates.

[64] https://marine.gov.scot/sma/assessment/maritime-transport-freight-ports-and-shipping

4.8.3 The local authoity owned Orkney ports saw three million tonnes of goods moved, mainly 'liquid bulk' (free-flowing liquid cargoes, like crude oil, liquefied natural gas and chemicals that are poured into the hold of a tanker) assumed to be the Flotta Oil Terminal in Scapa Flow.

4.8.4 Trust port Cromarty Firth handled around 900,000 tonnes of goods in 2019, mainly dry bulk (dry, unpacked produce and raw materials that are dropped or poured into the hold of a bulk carrier).

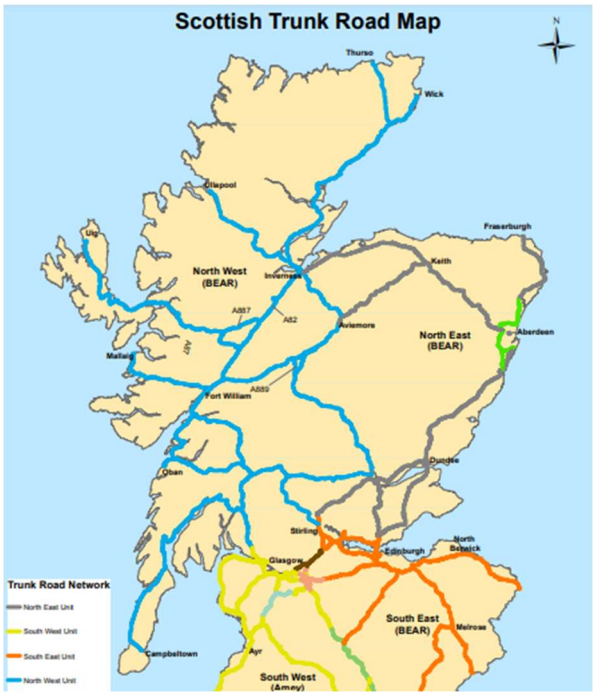
4.8.5 The graphic does illustrate the myriad of ports, harbours and marinas across the region. These ports also have a diverse ownership structure including private and commercial companies, local authority owned facilities, trust ports and CMAL who own many of the west coast's ferry ports used by CalMac ferry services.[65]

4.9 Road

The road network in the HITRANS region

4.9.1 The HITRANS region has an extensive road network with a core trunk road network[66] linking the main settlements and providing external connections comprising:

- A9 from Perth to Thurso
- A835 from Inverness to Ullapool
- A96 Inverness to Aberdeen
- A86 Dalwhinnie to Spean Bridge
- A82 Dumbarton to Fort William
- A85 Tyndrum to Oban
- A828 Oban to Ballachullish
- A83 Tarbet to Campbeltown
- A830 Fort William to Mallaig
- A95 Aviemore to Keith
- A87 Invergarry to Uig / A837 Invermoriston to A87



4.9.2 Note that Transport Scotland is currently undertaking the **dualling of the A9**. However, in early February 2023, Minister for Transport Jenny Gilruth MSP indicated that the **programme to dual the A9 in its entirety by 2025 is no longer achievable**. The Transport Scotland website notes that the Scottish Government remains

[65] https://marine.gov.scot/sma/assessment/maritime-transport-freight-ports-and-shipping

[66] It should be noted that the inset map – taken from the Transport Scotland website – is now slightly out-of-date, with Amey rather than BEAR now looking after the North-East Region.

committed to completing the work in as timely and efficient a manner as possible, with an update on timescales expected in Autumn 2023.[67]

4.9.3 Transport Scotland has also committed to the **dualling of the A96** by 2030, although this commitment is currently being reassessed as part of the *A96 Review*.[68]

4.9.4 Other than the A87 in Skye which is a trunk road because of the Skye Bridge, all island roads are provided and maintained by local authorities. These roads are essential in meeting multiple local needs including active travel, local access, farm access, abnormal load movements for e.g., windfarms and access to nodal points such as airports, ferry terminals, timber extraction site access etc. The local authority road network accounts for the majority of route kilometres in the HITRANS region, but many of these roads are wholly or in part single track with passing places, even some A-class roads. This operation clearly relies on low traffic volumes and progress on these routes can be slow and inefficient (where frequent stopping and starting affects fuel economy / battery life) particularly when volumes are higher in the summer. Moreover, given low volumes and the sheer scale of the local authority road network, maintenance can be challenging from both a human resource and financial perspective.

4.9.5 The network also features routes with an elevation which can be problematic in severe winter weather and where snow gates operate, including[69] the A9 at Slochd, Drumochter and Dunbeath; the A82 at Glencoe, Tyndrum and Bridge of Orchy; the A839 Cockbridge to Tomintoul; the A817 Garelochhead to Loch Lomond; the A835 Aultguish to Braemore Junction; the A889 Catlodge to Dalwhinnie; the A890 Ardnarff to Attadale; the B9007 Carrbridge to Ferness; and the Bealach na Ba Applecross road.

4.9.6 The figure overleaf shows the HITRANS road network together with an indication of the scale of traffic volumes shown by circles representing traffic counts or estimates produced by UK Department of Transport (Annual Average Daily Flow, combined directions).

[67] https://www.transport.gov.scot/projects/a9-dualling-perth-to-inverness/programme-details/#:~:text=30%20miles%20(48%20kilometres)%20of,and%20efficient%20manner%20as%20possible.

[68] https://www.transport.gov.scot/our-approach/strategy/a96-corridor-review/

[69] https://www.sabre-roads.org.uk/wiki/index.php?title=List_of_Snow_Gates_in_Scotland

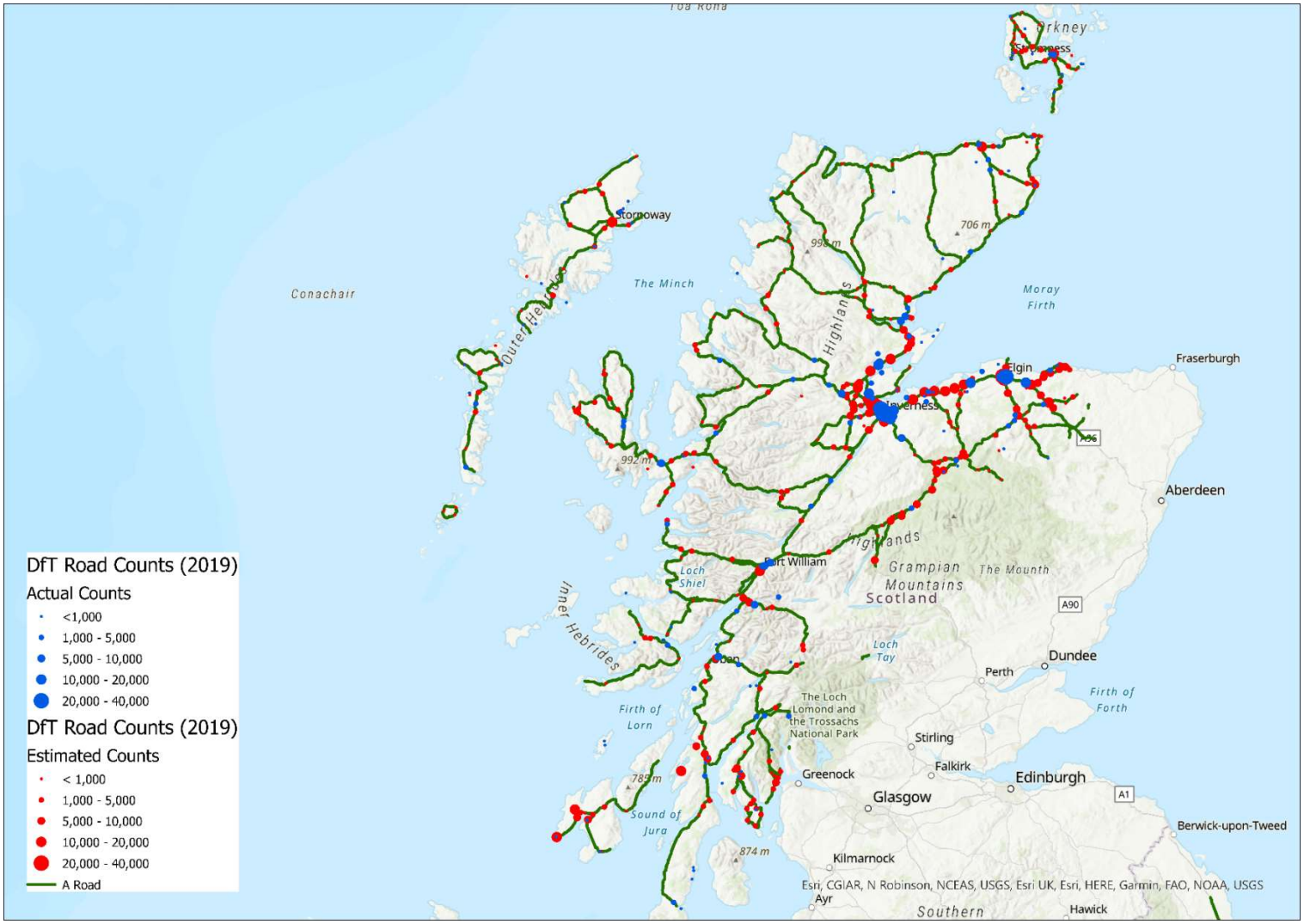

DfT Road Counts (2019)
Actual Counts
<1,000
1,000 - 5,000
5,000 - 10,000
10,000 - 20,000
20,000 - 40,000
DfT Road Counts (2019)
Estimated Counts
< 1,000
1,000 - 5,000
5,000 - 10,000
10,000 - 20,000
20,000 - 40,000
A Road
Orkney
Stornoway
Outer Hebrides
The Minch
Moray Firth
Highlands
Elgin
Fraserburgh
Inverness
Aberdeen
Fort William
Loch Shiel
Grampian Mountains
Scotland
The Mounth
Inner Hebrides
Loch Tay
Perth
Dundee
Firth of Forth
Firth of Lorn
The Loch Lomond and the Trossachs National Park
Stirling
Falkirk
Greenock
Edinburgh
Glasgow
Sound of Jura
Kilmarnock
Ayr
Hawick
Berwick-upon-Tweed
Esri, CGIAR, N Robinson, NCEAS, USGS, Esri UK, Esri, HERE, Garmin, FAO, NOAA, USGS

Figure 4.27: Traffic counts on key HITRANS roads (Source: DfT traffic counts)

4.9.7 Of the 544 sites identified here, 43% see flows of fewer than 1,000 vehicles with a further 37% between 1,000 and 5,000 vehicles. Only 2% of count sites see flows of 20,000 to 40,000. This illustrates how the large majority of routes across the area see very low traffic volumes. Reflecting the pattern of population, the higher flows are concentrated around the Inner Moray Firth area.

Journey times

4.9.8 Traffic data across the HITRANS region has been analysed using 'INRIX' data, under licence from Transport Scotland. This provides detailed journey time data derived from mobile phone and satellite navigation devices etc. It has been used to analyse journey times / traffic speeds and also journey time reliability in the sections which follow.

4.9.9 In order to analyse how journey times vary across the year, four time periods were analysed (for 2019):

- July weekday (Tuesday - Wednesday - Thursday)
- July / August Friday
- July / August Saturday
- November weekday (Tuesday - Wednesday - Thursday)

4.9.10 For the purposes of this analysis, the HITRANS road network was divided into 17 sections as follows and shown in the figure below : A9 (Inverness - Perth), A836 (John o'Groats - Ullapool), A835 Tore–Ullapool, A96 Inverness–Keith, A9 Inverness–Thurso, A95 Aviemore–Keith, A82 Fort William–Inverness, A87 Invergarry–Uig, A82 (Dumbarton-Tyndrum), A830 Fort William–Mallaig, A82 Fort William–Tyndrum, A85 Oban–Tyndrum, A83 Tarbert–Campbeltown, Outer Hebrides Spine route, Stromness-St Margaret Hope, A99 (Latheron-John o'Groats), A828 Oban-Fort William.

Figure 4.28: INRIX analysis road sections

Average journey speeds

4.9.11 The figure below shows the average traffic speed in miles per hour for each of the four periods above:

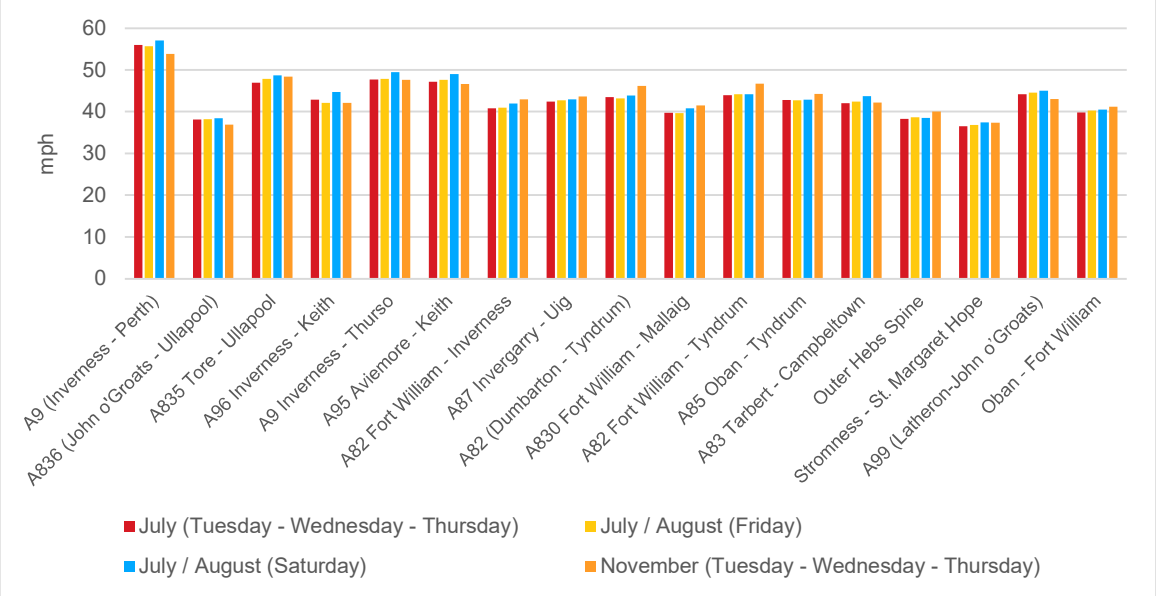


Figure 4.29: Average journey speeds by route section (Source: INRIX)

4.9.12 The absence of dual carriageways across the HITRANS region does result in relatively slow journey times. The only route to exceed 50mph on average is the A9 between Perth and Inverness, where there are sections of dual carriageway and a high engineering standard throughout, with all settlements bypassed.

4.9.13 In contrast, the A836 between John o'Groats and Ullapool has lengthy sections which are single track with passing places resulting in an average speed of around only 37mph. The Outer Hebrides Spinal Route also shows low speeds for similar reasons. The low speeds on Stromness-St Margaret's Hope will likely be influenced by routing through Kirkwall. Of the other routes without single track sections, speeds on the A830 Fort William-Mallaig, the A82 Fort William-Inverness, and the A828 / A82 Oban-Fort William route are typically around or below 40mph.

4.9.14 These averages only vary by up to 3mph across the year. In a number of cases, the slowest speeds are actually seen in the November period. This is in part due to shorter daylight hours and poorer weather, which leads to a reduction in average speeds.

4.9.15 Road-based journey times in the HITRANS region are therefore longer than in other parts of the country where bypasses and dualling are more common.

4.9.16 The three routes with the **fastest average speed** are: A9 Inverness-Perth; A9 Inverness-Thurso, and A835 Tore-Ullapool.

4.9.17 The three routes with the **slowest average speed** are: Stromness-St Margaret's Hope; A836 John o'Groats-Ullapool; and Outer Hebrides Spinal Route.

Journey time reliability

4.9.18 Long journey times are unwelcome, but at least long and consistent journey times can be planned for. If journey times are unreliable, if a journey has a 'hard' arrival time, e.g., a

medical appointment, then a person may have to build in slack to the journey leading to wasted time more often than not.

4.9.19 One measure of journey time reliability is to compare the 5th (fastest) and the 95th (slowest) percentile journey times. If journey times were completely reliable, then this ratio would be 1. If the 5th percentile time is 30 minutes and the 95th is 45 minutes, then this ratio would be 1.5 – so the **higher the ratio, the less reliable the journey time**.

4.9.20 The table below shows the average ratio for AM peak, daytime and evening travel for the four times of year noted above, as well as an overall sample average (the latter highlighted in red for values >1.1, i.e., those routes with higher variability rates).

4.9.21 It also provides commentary on when the highest levels of journey time variability were recorded.

Table 4.3: Average ratio for AM peak, daytime and evening travel (Source: INRIX)

Route	0700-0900	1100-1600	2000-2300	*Overall ave.*	Commentary
A9 (Inverness - Perth)	1.08	1.13	1.09	*1.10*	Daytime journeys are least reliable on this route. July/August Fridays saw the highest ratios with the highest figure of **1.21** recorded southbound, i.e., if a 'free-flow' journey took 2 hours, this trip could take nearer 2.5 hours. July/August Saturdays and November weekday southbound figures were also high.
A836 (John o'Groats - Ullapool)	1.07	1.05	1.03	*1.05*	Poor reliability is less of a problem on this route. AM peak journeys are least reliable. November weekday figures here are the worst at **1.10** for AM peak and daytime southbound.
A835 Tore - Ullapool	1.12	1.09	1.06	*1.09*	AM peak journeys are the least reliable. November weekday figures here are the worst at **1.28** for AM peak and daytime southbound.
A96 Inverness - Keith	1.12	1.17	1.09	*1.14*	Daytime journeys are least reliable on this route. However, the highest figures were recorded westbound in the AM peak at **1.26** with eastbound daytime the second worst at 1.24.
A9 Inverness - Thurso	1.06	1.09	1.05	*1.07*	Daytime journeys are least reliable on this route. July/August Fridays and Saturdays southbound have the worst figures at **1.13**.
A95 Aviemore - Keith	1.10	1.11	1.06	*1.10*	Daytime journeys are generally the least reliable on this route. However, July weekday AM peak sees the highest figures of **1.13** westbound and 1.12 eastbound.
A82 Fort William - Inverness	1.11	1.16	1.06	*1.12*	Daytime journeys are least reliable on this route. The worst figures are seen southbound on July/August Fridays at **1.31**. July/August Saturdays also see a high figure of 1.20.
A87 Invergarry - Uig	1.07	1.07	1.05	*1.06*	Poor reliability is less of a problem on this route. The worst reliability is actually 1.10 seen on a November weekday.
A82 (Dumbarton - Tyndrum)	1.12	1.21	1.12	*1.17*	Journey time reliability is poor on this route. Daytime journey are least reliable, with southbound July/August Fridays the worst at **1.43** and July/August Saturdays also poor at 1.27 southbound and northbound.
A830 Fort William - Mallaig	1.09	1.12	1.05	*1.09*	Daytime journey times are least reliable, particularly eastbound with a figure of **1.21** for July weekdays and July/August Fridays.
A82 Fort William - Tyndrum	1.12	1.15	1.09	*1.12*	Daytime journey times are least reliable, with figure of **1.18** being recorded southbound on July/August Fridays and Saturdays, and northbound July/August Saturdays.

Route	0700-0900	1100-1600	2000-2300	*Overall ave.*	Commentary
A85 Oban - Tyndrum	1.08	1.11	1.07	*1.10*	Daytime journey times are least reliable, with figure of **1.18** being recorded westbound on July/August Fridays. Westbound July/August Saturdays and eastbound July/August Fridays also see high figures of 1.14 and 1.13 respectively.
A83 Tarbert - Campbeltown	1.06	1.06	1.05	*1.06*	The average level of reliability is seen consistently across the time periods – however in general the morning trips see slightly more variation with November AM marginally worse than the other time periods.
Outer Hebrides Spinal Route	1.05	1.04	1.02	*1.04*	Poor reliability is less of a problem on this route. The figures are similar across all the time periods but mornings are slightly worse and the highest figure of **1.10** was recorded southbound on a July/August Friday.
Stromness - St. Margaret Hope	1.05	1.06	1.04	*1.05*	Poor reliability is less of a problem on this route. The figures are similar across all the time periods but mornings are slightly worse and the highest figure of **1.08** was recorded westbound on a July/August Friday.
A99 (Latheron-John o'Groats)	1.13	1.09	1.06	*1.09*	Mornings see much worse reliability on this route, particularly southbound across all periods. July weekdays are worst at **1.22** followed by November weekdays at 1.16.
Oban - Fort William	1.08	1.10	1.05	*1.08*	Daytime journeys are least reliable across the year with the highest figure being recorded northbound on a July/August Saturday of **1.12**. Southbound July/August Saturdays and November weekdays see similar figures if 1.11.

4.9.22 This analysis confirms that road-based journey time across the network in the HITRANS region can be variable. As noted above, unreliable journey times are a particular problem when making a trip for a specific timed appointment or event, e.g., medical appointment, business meeting, ferry or flight. Where journey times are unreliable, people may allow for this resulting in lost or wasted time if the journey proves quicker than anticipated. Such reliability issues will evidently also affect bus services on these routes.

4.9.23 This analysis suggests that the three **most unreliable** routes in terms of travel times are: A82 (Dumbarton - Tyndrum); A96 Inverness – Keith; and A82 Fort William – Inverness.

4.9.24 This analysis suggests that the three **most reliable** routes in terms of travel times are: Outer Hebrides Spinal Route; Stromness-St Margaret's Hope; and A836 (John o'Groats – Ullapool.

Resilience

4.9.25 Resilience across all forms of transport in the HITRANS region is a key issue given its geographic expanse, the remoteness of many settlements and its vulnerability to extremes of weather (e.g., snow, flooding etc) and sea conditions. Nowhere is this more prominent than on the region's road network.

4.9.26 A feature of the road network in large parts of the region is that the network is sparse, defined by the terrain. This means that incidents on the network (including snow gate closures as listed above) can lead to long delays and / or long diversions. For example, closures on roads such as the A82 between Ballachulish and Fort William; the A830 between Lochailort and Mallaig; and the A9 north of Helmsdale can lead to very lengthy diversions. As well as being inconvenient for motorists, such closures and diversions can have major negative impacts on the emergency services (e.g., if an ambulance or fire appliance is located on the 'wrong side' of an accident) and in terms of service delivery, such as social care, district nursing etc.

4.9.27 Nowhere is this more prominent, or at least high profile, than on the A83 Rest and be Thankful (RaBT) route, which has been affected by a series of landslips in recent years, requiring the use of the Old Military Road (OMR) (with associated delays) or creating an additional 25-mile detour via Tyndrum (Tarbet to Inverary via Crianlarich and Dalmally). More frequent severe weather events associated with climate change are exacerbating these concerns. The resilience of the RaBT is a key issue for Argyll and Bute and the Scottish Government published the following data in response to an FoI request.

Table 4.4: A83 Rest and Be Thankful disruption (Source: FoI Request)

Year	Days with temporary lights in operation	No of Days A83 RaBT closed	No of days OMR in operation	No of nights OMR in operation	No. of days both A83 RaBT & OMR closed with diversion route in operation
2010/11	0	0	0	0	0
2011/12	0	5	0	0	5
2012/13	0	4.5	0	0	4.5
2013/14	0	6	5	5	1
2014/15	0	5	5	7	0
2015/16	0	5	3.5	0	1.5
2016/17	0	0	0	0	0
2017/18	155	0	0	0	0
2018/19	365	9	3.5	2	5.5
2019/20	309	2.5	2	2	0.5

4.9.28 The level of disruption and uncertainty clearly affects communities and businesses which rely on the RaBT. Transport Scotland is currently progressing plans to construct a permanent solution to the issue.

4.9.29 Similarly, the A890 near Stromeferry has experienced closure due to rockfalls. The diversion locally (e.g., Lochcarron to Kyle of Lochalsh) adds around 120 miles to the trip, so the

connection between these communities is effectively severed if the road closed. Proposals have been worked up to address the problem but costs are high and they have not been progressed at the time of writing.

4.9.30 The network in the HITRANS region is also subject to climate change related risks, with several trunk roads running adjacent to the sea or major sea lochs (e.g., the A83 in Kintyre) and through terrain which is subject to inclement weather.

Safety

4.9.31 Road safety remains a key issue across Scotland and rural routes (which are prevalent in the HITRANS region) tend to have higher rates of fatal and serious accidents than urban roads or motorways. At the HITRANS level, the total number of accidents has dropped by around half since 2000. Nevertheless, in 2019, there were 39 fatalities and 264 serious injuries on the region's roads.[70]

4.9.32 The routes defined above have also been analysed for their safety records over the last 10 years. The total number of fatal, serious and slight Personal Injury Accidents (PIA) across these routes since 2010 are shown in the chart below – note that 2019 saw a change in the definition of a 'serious' injury, hence the spike in the chart for that year.

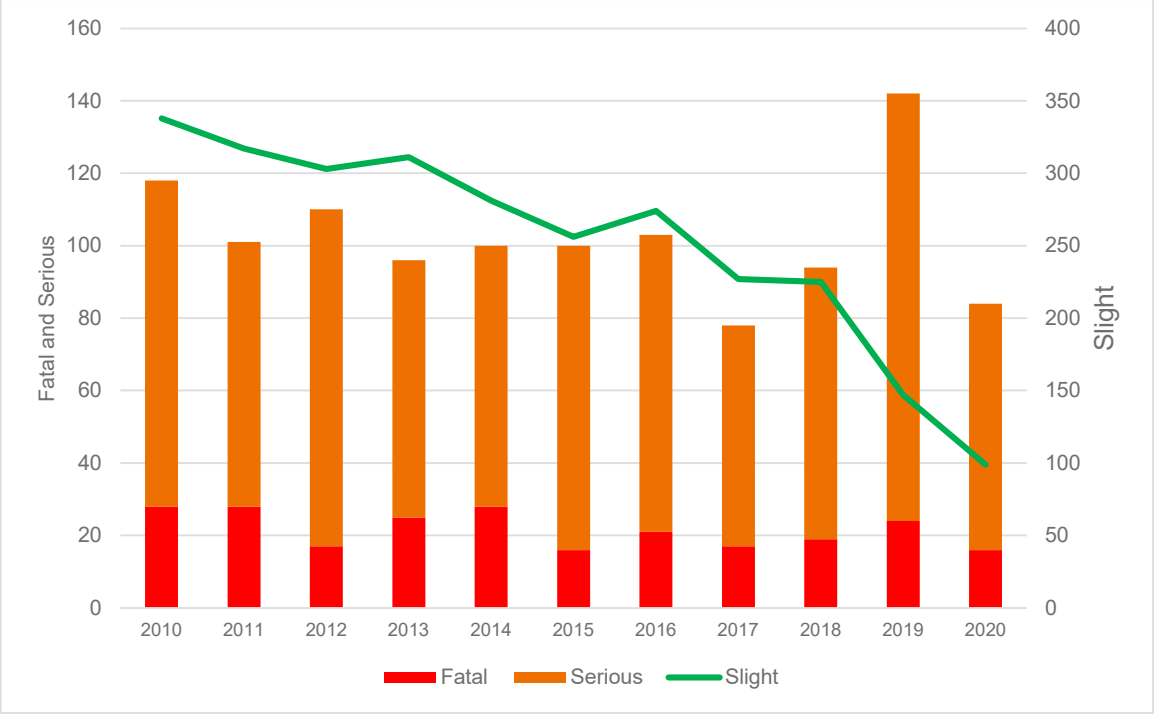


Figure 4.30: Personal injury accidents on HITRANS region roads (Source: Scottish Transport Statistics)

4.9.33 Whilst the number of 'slight' PIAs has reduced markedly, the number of fatal and serious PIA casualties has remained stubbornly high.

[70] Scottish Transport Statistics, includes figures for whole of Argyll and Bute

4.9.34 The figure below shows the average annual number of PIAs between 2010 and 2019 (pre-pandemic) for each of the defined route sections.

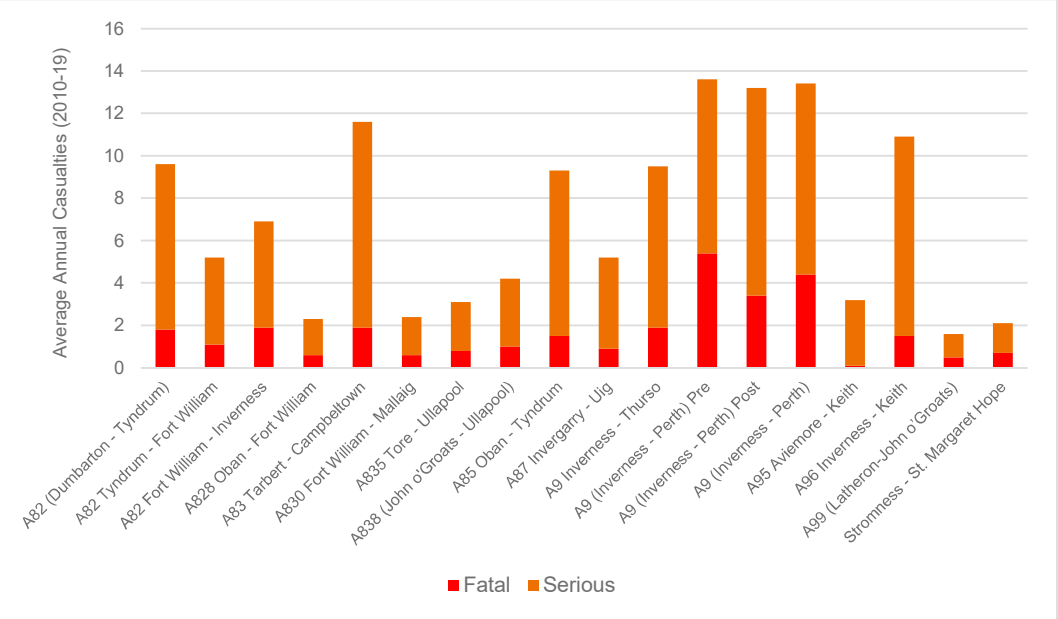


Figure 4.31: Personal injury accidents by route section (Source: Scottish Transport Statistics)

4.9.35 In absolute terms, the routes with the greatest number of accidents are the A9 Perth-Inverness, the A83 Tarbert-Campbeltown-and the A96 Inverness-Keith, the A9 and A96 being two of the higher volume routes in the region.

4.9.36 The traffic counts reported above, and the route distances were used to estimate an annual vehicle-miles figure for each route. These were then combined with the 10-year annual average PIA data to estimate a PIA rate per million vehicle kilometres in each case. The results are shown in the figures below for fatalities and serious injuries in turn.

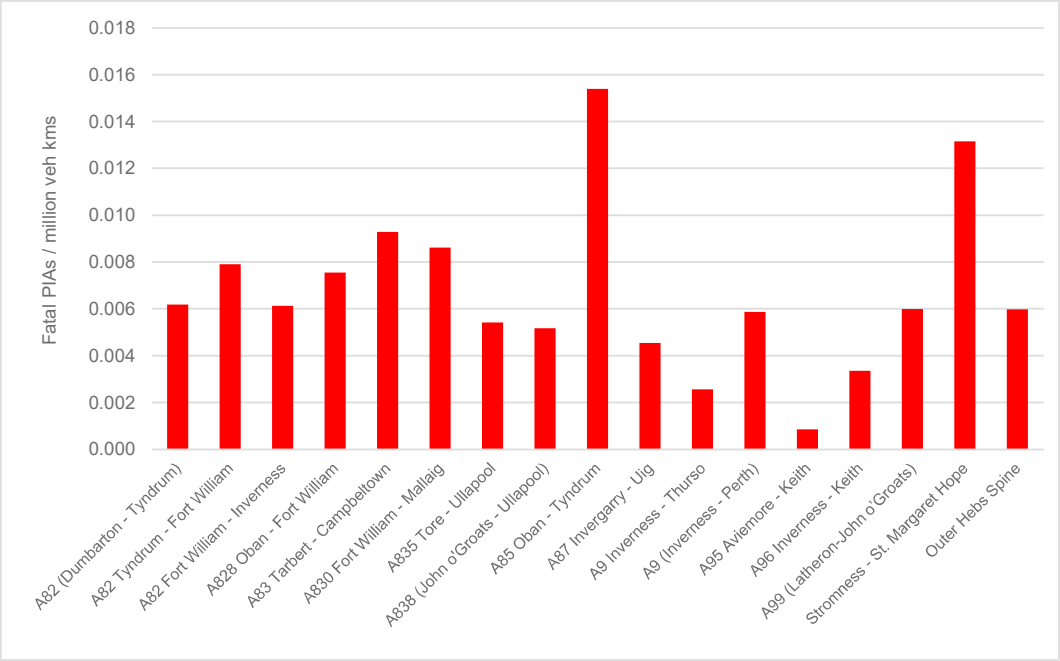


Figure 4.32: Fatal personal injury accidents per million vehicle kilometres (Source: Scottish Transport Statistics)

4.9.37 By this measure, the A85 and the Stromness-St Margaret's Hope routes have the highest accident rates. On the A85, the majority of the fatal accidents occur between Taynuilt and Ganavan. Fatalities on the route in Orkney are concentrated in the Finstown to Kirkwall stretch and at the Churchill Barriers. For context, at the UK level, the average fatal accident rate for a single carriageway A class road (>40mph speed limit) is 0.008 per million vehicle kilometres.[71] It can be seen above that four of these routes exceed this value.

4.9.38 The equivalent data for serious personal injury accidents are shown in the figure below:

[71] Derived from DfT TAG Databook values

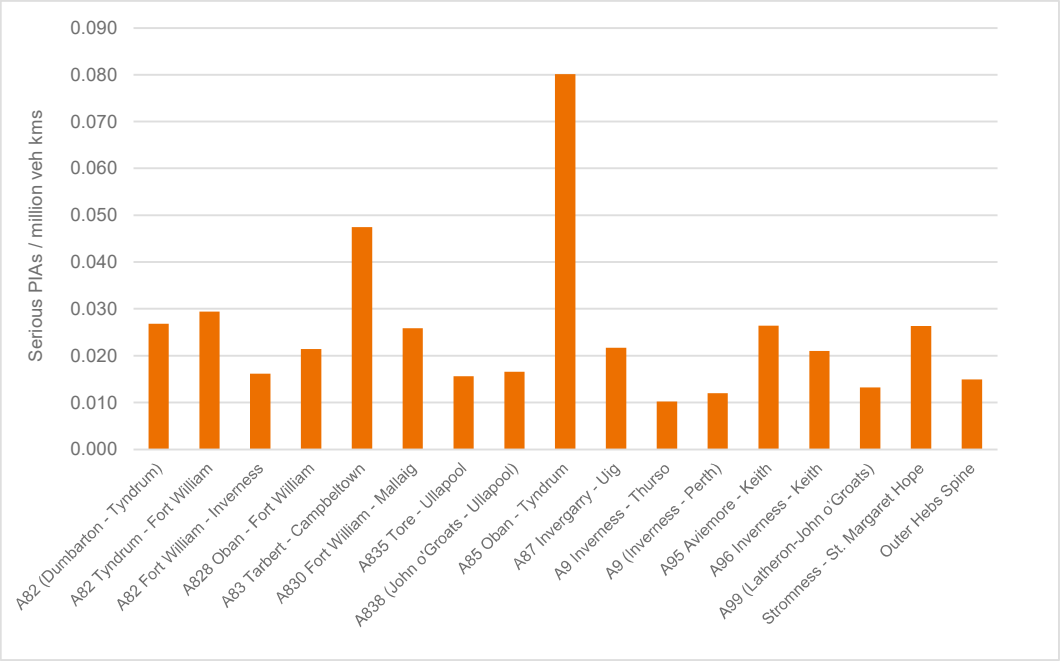


Figure 4.33: Serious personal injury accidents per million vehicle kilometres (Source: Scottish Transport Statistics)

4.9.39 The A85 again stands out as the route with the highest rates of serious PIAs, followed by the A83. The national rate for this type of PIA is 0.046, and only these two routes exceed this value.

4.9.40 Given the strategic focus of the RTS, the above analysis focuses on the main inter-urban routes in the HITRANS region. However, it is important to note that much of the road network across the region is low quality and thus there is a higher risk of accidents on the local road network. In many cases, diversion options are limited and involve lengthy detours around even less suitable roads, highlighting the issue of limited resilience.

Electric vehicles

4.9.41 At the UK level, at the end of 2022 quarter one, battery electric vehicles (BEV) accounted for 1.3% of all registered cars and plug in hybrid electric vehicles (PHEV) accounted for 1.0%. This combined figure of 2.4% has however grown from 0.1% at the end of 2014 quarter three.[72] The figure below shows the number of PHEV and BEV cars per 1,000 people in each of the constituent HITRANS local authorities:

[72] https://www.gov.uk/government/statistical-data-sets/vehicle-licensing-statistics-data-tables

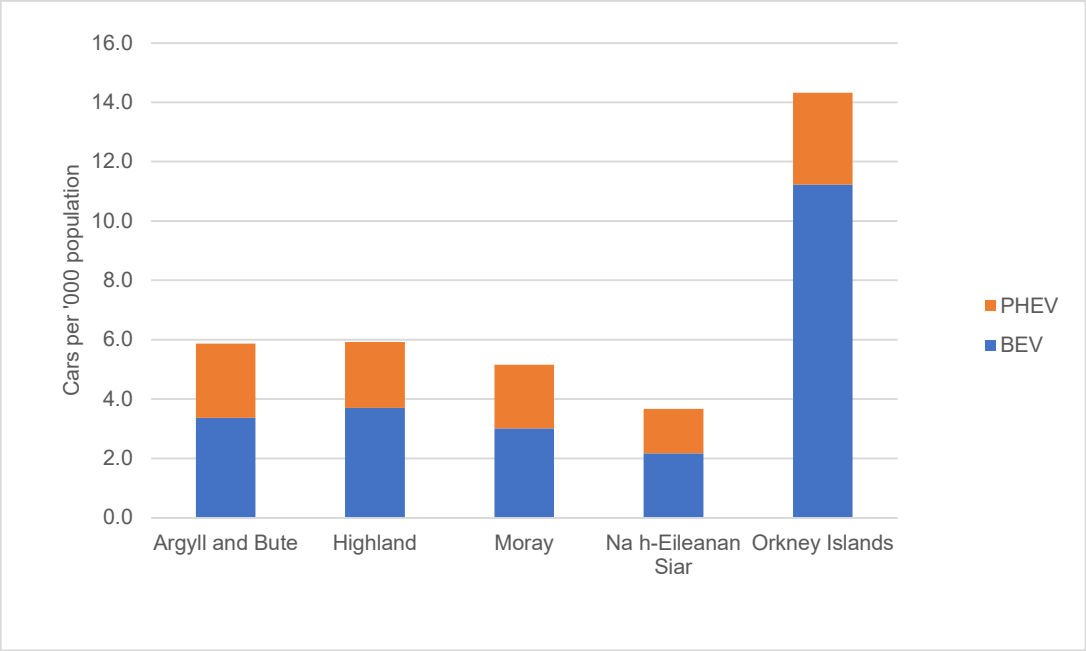


Figure 4.34: PHEV and BEV vehicles in the HITRANS region per 1,000 of the population (Source: UK Government vehicle licensing statistics)

4.9.42 Amongst the HITRANS local authorities, it can be seen that Orkney has by some distance the highest rates of BEV and PHEV ownership (vehicles per 1,000 population). Of the HITRANS authorities, the geography of Orkney is perhaps the best suited to EV use given its size and self-contained nature (as well as its electricity generation 'surplus'). These figures should though be seen in the broader context of total car ownership in the range of 480-500 per 1,000 population. The percentage of the car fleet which has plug-in capability ranges from 3% in Orkney to around 1% in the other local authorities. These vehicles still therefore make up a very small proportion of the fleet, and the ownership rates seen in the HITRANS region (with the exception of Orkney) are lower than typically seen in more urban areas.

4.9.43 Research undertaken by HIE found that, in 2022, 7% of households had already bought or leased an EV / hybrid, whilst 6% were planning to do so in the next 2-3 years, with a further 24% 'considering' an EV. However, the capital cost of these vehicles, the availability of public charging (see below) and range were key concerns for many.[73]

4.9.44 Furthermore, the HIE Business Panel found that, as part of their plans to improve energy efficiency, 46% of businesses plan to use greener forms of transport. However, 53% of businesses consider lack of 'green transport' options as a barrier to moving to low carbon ways of working.[74]

4.9.45 Whilst there are many challenges to encouraging the switch to low or zero emission vehicles, it should be noted that HITRANS has produced an EV Strategy. The RTP therefore has a

[73] *My Life in the Highlands and Islands* Research (HIE, 2022), p.46

[74] www.hie.co.uk – The Impact of COVID-19

well-elaborated approach to pursuing this fundamental change to the vehicle fleet composition.[75]

EV Charging Infrastructure

4.9.46 The network of publicly available EV charging points is complex with a range of providers and suppliers. This complexity is reflected in a myriad of types, availability, account / app requirements and tariffs which will cause a degree of confusion for some users of the network.

4.9.47 In Scotland, ChargePlace Scotland is a publicly owned and operated network of charging points which has no equivalent in the rest of the UK. Some other 'publicly available' charging points are however restricted, for example to hotel guests. The large majority of charging points in Scotland are though provided through the ChargePlace Scotland network with around 2,300 charging points.[76] ChargePlace Scotland is part of the Swarco network.

4.9.48 The table below shows the number of charging devices in each HITRANS local authority as of July 2022 (as reported by DfT[77]).

Table 4.5: Number of charging devices in each HITRANS local authority (Source: DfT EV charging map)

	Total public charging devices	Total public rapid charging devices	Charging devices per 100,000 population
Argyll and Bute (all)	91	21	106
Na h-Eileanan Siar	29	7	109
Highland	256	89	109
Moray	54	10	56
Orkney	41	11	183
Scotland	***2,989***	***775***	***69***

4.9.49 It can be seen that the *per capita* availability of EV charging devices is actually higher than Scotland as a whole in all of the HITRANS local authorities except Moray. The Orkney figure is the highest in Scotland and indeed the highest of all UK local authorities outside of London. The greater EV charger coverage is reflected in the higher EV ownership rates in Orkney.

4.9.50 However, these numbers are low in terms of the population served. As the fleet evolves to be fully BEV, the number of chargers ultimately required is very uncertain at this stage. However, the DfT expects there to be around 300,000 public charge points as a minimum by 2030[78], which would equate to around **450 per 100,000 population** - the DfT suggests that this number could more than double though. This implies at least a quadrupling of provision over the next eight years for the HITRANS local authority areas, with a nine-fold increase required in Moray.

[75] https://urbanforesight.org/wp-content/uploads/2019/02/HITRANS_ELECTRIC_VEHICLE_STRATEGY.pdf

[76] https://chargeplacescotland.org/about-us/

[77] https://maps.dft.gov.uk/ev-charging-map/index.html

[78] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1065576/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf

4.9.51 The graphic below has been developed using publicly available information to provide an indication of the location of publicly available charging points across the HITRANS region. It shows both ChargePlace Scotland locations, and also publicly available chargers provided by other network operators. Many of the sites provided by other operators are restricted to e.g., hotel guests or certain vehicle types (e.g., Tesla).

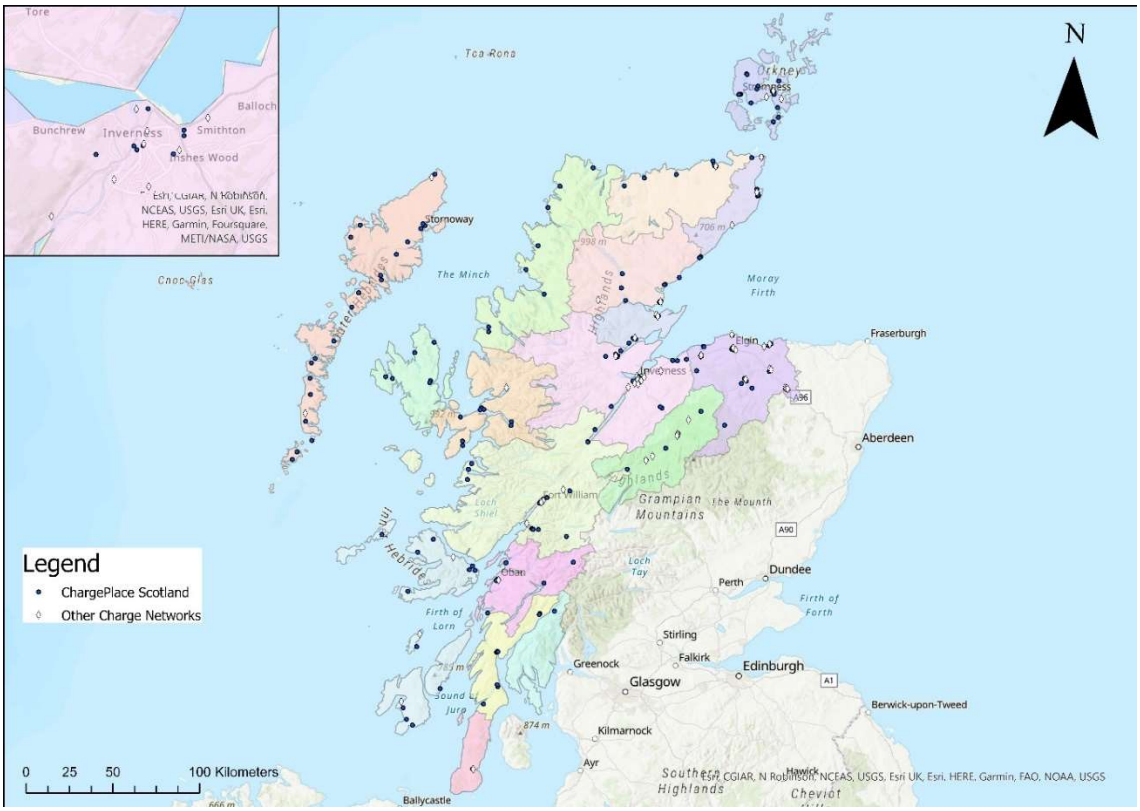


Figure 4.35: EV charging points in the HITRANS region

4.9.52 The above map does demonstrate that there are large gaps in the publicly available charging point network in the region. Any journey being undertaken by EV, particularly in more rural areas, would require a degree of planning. Moreover, there would be some journey uncertainty given the potential lack of alternatives should the planned charging point be unavailable through use or being out of order.

4.9.53 A recurring issue therefore is the maintenance of charging points. At anytime, it is reported that around 10% of the network is unavailable. This will be a source of frustration and inconvenience to EV users, especially in the parts of the area where the network is sparse and the availability of alternatives will be limited as noted above.

4.9.54 Finally, it should be noted that the Chargeplace Scotland network will not be funded after 2025 at the latest, although the Scottish Government is seeking to retain a single access method across any additional networks. Funding is also transitioning from public to private investment over the next four years. All local authorities are being encouraged to collaborate and develop strategies to attract private investment in EV infrastructure.

4.10 Aviation

4.10.1 Air services are provided both within the HITRANS region and to / from locations outside of it. Inverness is the main airport in the region, currently offering the following scheduled services (as at September 2022):

- Loganair to Benbecula, Kirkwall, Stornoway
- Loganair to Belfast, Birmingham, Dublin, Manchester
- KLM to Amsterdam
- Easyjet to Bristol, Gatwick and London Luton
- British Airways to London Heathrow

4.10.2 Loganair, which has recently completed a major fleet renewal programme replacing its Saab fleet with ATR aircraft, also provides a range of other regional services including:

- Glasgow to Tiree / Islay / Campbeltown
- Benbecula – Glasgow
- Stornoway – Glasgow / Edinburgh / Inverness
- Kirkwall – Edinburgh / Aberdeen / Glasgow / Inverness / Sumburgh
- Barra - Glasgow

4.10.3 Eastern Airways also operates a PSO route (supported by the Scottish Government and The Highland Council) between Wick John O'Groats and Aberdeen

4.10.4 Fares and service specifications for all of the above services are determined by the operator on a commercial basis. However, residents of Orkney, Na h-Eileanan Siar, Islay, Jura, Colonsay, Caithness and North-West Sutherland are eligible for the Air Discount Scheme (ADS), which provides a 50% discount on the core air fare on eligible services. Note that ADS is not available to businesses.[79]

4.10.5 A range of services are provided with financial support from the public sector through a Public Service Obligation (PSO). Fares / fares limits and service specifications on these routes are set through the contracting process. These routes are as follows:

- The Scottish Government supports Glasgow to Barra / Tiree / Campbeltown routes, operated by Loganair.
- As referenced above, the Scottish Government and The Highland Council support a PSO route between Wick John O'Groats and Aberdeen, operated by Eastern Airways.
- Argyll and Bute Council supports Oban to Coll, Colonsay, Islay and Tiree routes operated by Hebridean Air Services.
- Orkney Islands Council supports Kirkwall-based services to / from and between Eday, North Ronaldsay, Papa Westray, Sanday, Stronsay and Westray operated by Loganair. An additional summer service to Fair Isle in Shetland will recommence in 2023 following its suspension during the COVID-19 pandemic.

[79] https://www.airdiscountscheme.com/

- Comhairle nan Eilean Siar supports a connection between Stornoway and Benbecula operated by Loganair.

4.10.6 The Argyll and Bute and Orkney services are locally contracted PSOs and fulfil the role of a 'bus service' for small islands, meeting a wide range of needs from travel-to-work and education to local authority service delivery on each island.

4.10.7 Highlands and Islands Airports Limited (HIAL) – a public corporation wholly owned by Scottish Ministers - is responsible for the management and operation of regional airports across Scotland. In the HITRANS region, these are Barra, Benbecula, Campbeltown, Inverness, Islay, Kirkwall, Stornoway, Tiree and Wick John O'Groats. Other than Kirkwall, the airfields in the Orkney internal network are operated by Orkney Islands Council. Similarly, Coll and Colonsay airfields are operated by Argyll and Bute Council.

4.10.8 The chart below shows the total number of terminal passengers at the HITRANS airports where data is reported by the CAA.

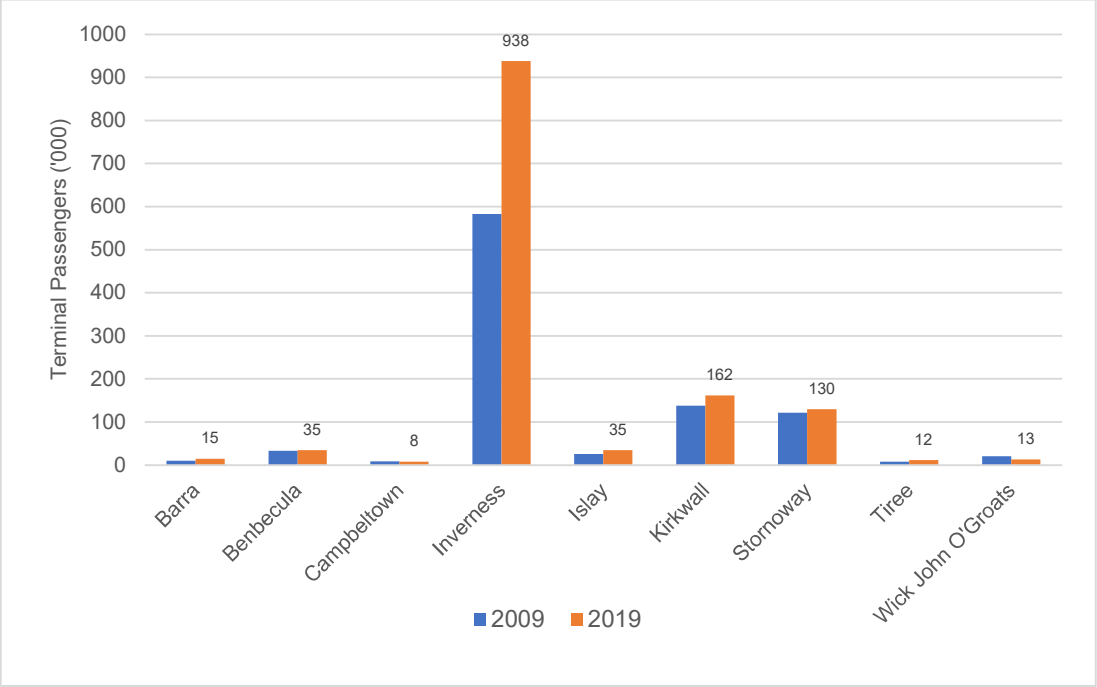


Figure 4.36: Terminal passengers at HITRANS airports (Source: Civil Aviation Authority)

4.10.9 This chart confirms the dominance of Inverness Airport as the key regional hub for air travel. Indeed, the airport saw considerable growth in the decade prior to the pandemic. This growth of Inverness Airport in recent times, expanding links to the rest of the UK and internationally, has been one of the key drivers for the region's expanding tourism sector pre-pandemic. It has also improved access to customers and markets for regional businesses, supporting the region's inward investment efforts.

4.10.10 The table below shows the major movements on an origin-destination basis using data from 2019 (pre-pandemic) from Scottish Transport Statistics.

Table 4.6: Primary destinations from HITRANS airports (Source: STS)

2019	Aberdeen ('000)	Edinburgh ('000)	Glasgow ('000)	Inverness ('000)
Barra			14.6	
Benbecula			25.8	
Campbeltown			7.9	
Glasgow	0.1	1.4		
Inverness	0.2	0.4	0.1	
Islay			29.0	
Kirkwall	49.9	48.4	20.2	21.6
Stornoway	0	18.4	75.8	29.8
Tiree			11.6	
Wick John O'Groats	5.3	7.4		

4.10.11 These figures confirm that Glasgow is the primary destination for airports across the west coast and the Hebrides, reflecting historic (predominantly maritime) links. In contrast, Orkney has more established ties to Edinburgh and Aberdeen. The single largest movement is between Stornoway and Glasgow.

4.10.12 It should though be noted that, for Inverness, the dominant flow is to 'Other UK Airports' (739k passengers), likely to be dominated by the essential connection to London.

4.11 Canals

4.11.1 The HITRANS region has two navigable canals:

- The circa 90-mile **Caledonian Canal**, which connects the Fort William area (Banavie) with Inverness (Clachnaharry and Muirtown Basin).
- The much shorter **Crinan Canal**, which runs between Ardrishaig in the east and Crinan in the west, providing a 'shortcut' across the Kintyre Peninsula.

4.11.2 Both canals are predominantly used for leisure purposes. However, there could be a future role for the Caledonian Canal in the handling of freight associated with the development of pumped hydro storage schemes, e.g., at Coire Glas.

4.12 Emissions

4.12.1 Greenhouse gas emissions caused by transport are a now major focus of transport policy as set out in Chapter 3. The recent trends in emissions are set out in the charts below.

4.12.2 Firstly, the picture for total emissions (CO_2 equivalent) across all sectors is shown for the HITRANS region (noting that only total Argyll and Bute figures are available).[80] Note these

[80] UK local authority and regional greenhouse gas emissions national statistics, 2005 to 2020 - GOV.UK (www.gov.uk)

data do not include air and ferry related emissions. In any case, many of these services would connect two local authority areas.

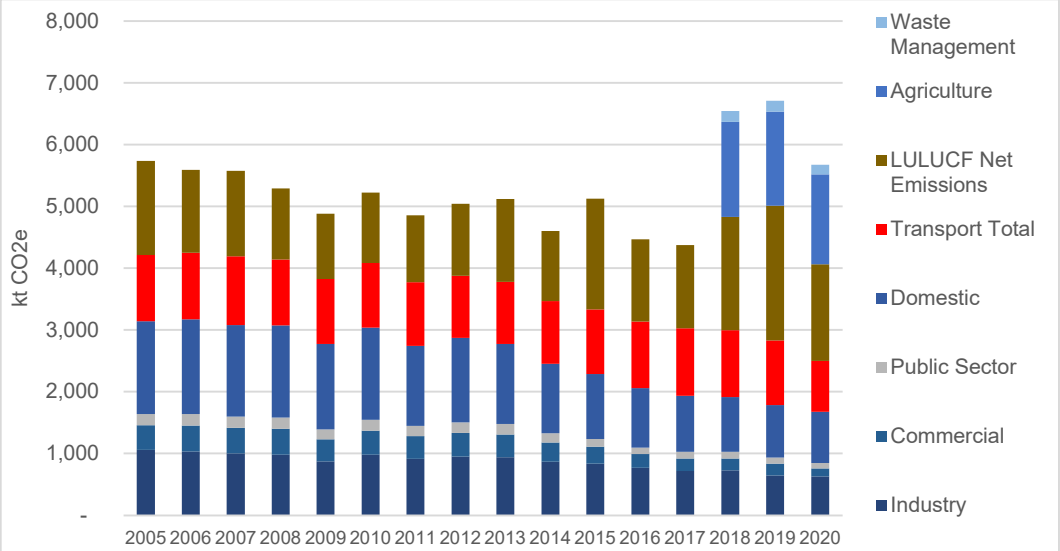


Figure 4.37: Source of UK emissions by sector (Source: UK Government local authority and regional greenhouse gas emissions national statistics, 2005 to 2020)

4.12.3 It can be seen that 'Agriculture and Waste Management' have been included in the figures from 2018 onwards. Excluding these, total emissions had dropped by 13% between 2005 and 2019, driven by reductions in 'Industry' and 'Domestic' consumption (principally emissions associated with the generation of electricity). Emissions from LULUCF[81] have increased over this period.

4.12.4 Secondly the chart below shows transport emissions in more detail:

[81] Land use, land use change and forestry

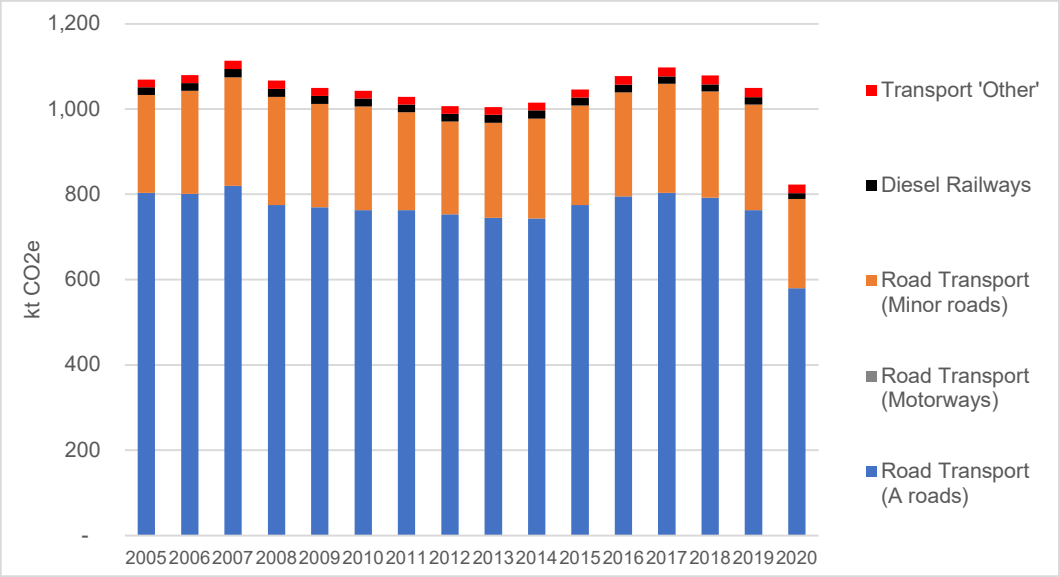


Figure 4.38: Source of UK transport emissions (Source: UK Government local authority and regional greenhouse gas emissions national statistics, 2005 to 2020)

4.12.5 It can therefore be seen that, despite vehicles becoming more efficient over this period, land-based transport emissions were broadly stable between 2005 and 2019, before falling sharply in 2020 with the pandemic. The difference in the scale of emissions from road-based and rail transport in the area is also stark. As there are no motorways in area, A-class roads account for the large majority of emissions.

4.12.6 When viewed at the local authority level, emissions per head of population are lowest in Orkney and Na h-Eileanan Siar and highest in Highland.

5 Future Context

5.1 Overview

5.1.1 The RTS is being developed at a time when a range of factors are likely to influence the future travel patterns and behaviours in the HITRANS region. In particular, two factors need to be taken into consideration in the development of the new RTS including:

- **Transport Innovation**: new technologies are offering the potential to disrupt the traditional transport system by providing new ways of accessing and operating transport networks and services.
- **Travel Behaviour Change**: the COVID-19 pandemic has accelerated a number of long-term trends in travel behaviour that will have repercussions for how and when people want to travel.

5.1.2 To provide context for how these developments may influence the RTS, they are each explored in the remainder of this chapter.

5.2 Transport Innovation

There are four main areas of transport innovation that are relevant to the RTS which include:

- **Alternative Fuels**: transitioning away from fossil fuels towards electric and hydrogen powered vehicles has implications for decarbonisation, supply systems, tax revenue and travel behaviour.
- **Shared Mobility**: new 'on-demand' models of transport where traditional models of ownership are replaced.
- **Mobility-as-a-Service (MaaS)**: based on buying packages of travel and shared mobility solutions to integrated travel with potential implications for travel behaviours.
- **Automation:** both in terms of public transport (conventional and on-demand) and personal transport).

5.2.1 These main areas of transport innovation are supplemented by ongoing innovation in engineering (e.g., improved surfacing to assist road grip in winter) and transport operations.

Alternative Fuels

5.2.2 The vast majority of transport modes use an internal combustion engine (ICE) fuelled by petrol or diesel. Ferries and aircraft in Scotland at present also use fossil fuels by and large. These fossil fuels emit high levels of CO_2 and other greenhouse gases including methane when burned to create energy, as well as atmospheric pollutants which affect human health and biodiversity. In Scotland, the transport sector is responsible for over 30% of CO_2 emissions, the majority of which is emitted by road transport, which is highly dependent on fossil fuels. Ferries are also major emitters of pollutants across the HITRANS region.

5.2.3 As the Scottish Government is aiming to phase out the sale of new petrol and diesel cars, and due to the diminishing supply of available fossil fuels, it is important to understand alternative fuels and low / zero emission technologies for cars and other modes of transport. This section

considers alternative fuels such as electricity, hydrogen, and biofuels (bioethanol and biodiesel) as well as technological developments which facilitate the use of these fuels, such as batteries, fuel cells, and infrastructure.

Types of Alternative Fuels

Electric Vehicles

5.2.4 Electric Vehicles (EVs) are now viewed in the mainstream as the future of road transport as there are many models now on the market and on the road, even though EV market penetration remains in single figures as a proportion of all registered vehicles. The main types are:

- **Battery Electric Vehicle (BEV):** runs on an electric motor powered by batteries. These batteries are charged at home or via the public charging network. Use is constrained by the range of the batteries which can be affected by use of vehicle features (heater, air conditioning etc.), topography, weather, towing etc. Moreover, these vehicles are expensive to buy and there remains a limited public charging network, despite ongoing public investment in this field.
- **Plug-in Hybrid (PHEV):** uses batteries to power an electric motor, and either petrol or diesel fuel to power a conventional internal combustion engine. A PHEV can typically be used in pure electric mode for short distance trips only and then driven on the combustion engine like a conventional car.
- **Hybrid (HEV):** powered by electricity and a petrol or diesel engine - unlike a PHEV, a HEV cannot be plugged into the mains, as the engine is still the main power source. A HEV typically cannot be driven on electric only power
- **Mild hybrid electric vehicles (MHEV):** A mild hybrid vehicle features a small battery pack with an integrated starter-generator, which is designed to improve efficiency. Fuel economy is improved and there's a small reduction in CO_2 emissions.

5.2.5 Whilst the sale of HEVs and MHEVs will be banned at the same time as petrol and diesel cars, at present PHEVs will still be available for a number of years. However, sales of these vehicles are declining in any case in favour of BEVs as battery ranges improve.

5.2.6 There are numerous benefits to electric vehicles within the transport sector, including:

- **Environmental benefits**: lower levels of noise (at low speeds) and air pollution in addition to fuel sources being less carbon intensive than fossil fuels. They are more efficient vehicles, i.e., electric motors have a higher tank-to-wheel efficiency than ICE vehicles meaning they have higher energy efficiency between obtaining energy to when it is exerted via movement. They can also regain kinetic energy through regenerative braking which does not occur in combustion vehicles.
- **Cost benefits**: at present, the 'out of pocket' costs of running a BEV are significantly lower than an ICE car. This will also affect the calculation people make as to whether to drive or use public transport. This may change over time as government look to recoup the loss of income from excise duty and VAT on sales of petrol and diesel. Moreover, there were steep increases in energy prices in 2022 which, if sustained, will narrow the differential with ICE vehicles.
- **Social benefits**: less noise and air pollution benefits people's health as well as plants and animal habitats which humans can enjoy.

- **Future benefits**: The technology is becoming more popular meaning the cost of batteries is declining which will allow more people to adopt these vehicles. Technological advancements are positive thus it is anticipated that future EVs will have lower climate implications than the ones on the market today.

5.2.7 However, there are still many factors hindering the uptake of EVs. Despite the running cost benefits noted above, the purchase price (new and second hand) of an EV remains high compared to a traditional car which prevents many people currently from buying such a vehicle, particularly lower income groups, which often include people with protected characteristics. The technology is developing, but range anxiety is still prevalent due to battery capabilities and a limited charging infrastructure, which can further dissuade potential buyers. Specifically, within rural areas, EVs are not viewed as a practical alternative by some people due to concerns around range and range reliability, evidenced by the HIE research referenced previously.

5.2.8 Although BEVs have zero tailpipe emissions, they still have significant whole life carbon impacts through manufacturing to disposal. More carbon is used in the production of a BEV compared to an ICE car. A BEV only goes into 'credit' against an ICE after a certain mileage and there are a number of factors which affect this including the energy source generating the electricity used by the BEV. Broadly speaking a BEV uses at best about half the carbon of an ICE car over the lifecycle and at worst more than that. A further longer-term challenge for BEVs is mineral dependency given the requirement for graphite, cobalt, lithium, manganese, and nickel, the supply of which is limited and sometimes is in unstable areas of the world. That said, as battery technology evolves and with ongoing decarbonisation of the electricity grid, this balance will gradually change.

5.2.9 Though EVs can be beneficial in some cases for passenger cars and light goods vehicles, they are not yet suitable for larger commercial vehicles, and this is unlikely to change in the medium-term at least for the largest vehicles and longer distance usage. Even if battery technology evolved, charging times could be prohibitive and could affect the efficiency of the supply-chain. Refrigeration poses a further challenge. Moreover, in the bus sector, small operators may require financial support to make this transition.

5.2.10 In the maritime sector, there are fully electric ferries operating in Norway and other countries, and this is likely to become a viable option for future Scottish vessel replacements, at least on the shorter routes. Indeed, the CMAL Small Vessel Replacement Programme (SVRP) is currently working towards the construction of seven new vessels using the latest battery and onshore charging technologies.[82]

5.2.11 The current situation with publicly available EV charging points and the implied amount required in future was covered in Chapter 4.

5.2.12 The substantial increase in publicly available, plus home charging facilities will have significant implications for the electricity grid across the region and generation capacity more generally.

Hydrogen

5.2.13 Hydrogen can be used instead of fossil fuels and only produces energy and water, not CO_2. Currently, hydrogen is produced from fossil fuels ('blue' hydrogen), but under standard pressure and temperature it can be obtained from renewable resources ('green' hydrogen).

[82] https://www.cmassets.co.uk/project/svrp/

However, the cost of producing hydrogen via renewables is higher in comparison to fossil fuels making it less competitive at present and hydrogen is not being produced at scale for these purposes at present.

5.2.14 Hydrogen is used to power fuel cells and produce electricity to drive an electric motor. Fuel cells do not produce emissions and can be an alternative to batteries in cars. These are compact which makes them ideal for portable application within road vehicles and they are already commercially available in some hydrogen powered vehicles. Due to a lack of hydrogen refuelling infrastructure, they are not viewed as competitive compared to ICE vehicles or EVs at present.

5.2.15 Conversely, there is scope for hydrogen to be used within heavier vehicles (with hydrogen fuelled buses already in operation), shipping and aviation as it can fuel longer distances and / or facilitate higher loads. Hydrogen fuel cells are already used in demonstration projects for trucks, trains and commercial forklifts and there are some major ongoing and emerging applications within the HITRANS region. Indeed, the European Union funded HySeas III project is in the final stage of a three-part research programme which is testing the integration of hydrogen fuel cells within a proven marine hybrid electric drive system. It is being piloted in the Orkney Islands on the Council owned MV *Shapinsay*, which runs the Kirkwall – Shapinsay route.

5.2.16 The highest investment in hydrogen and fuel cell vehicles is currently concentrated in a small number of countries including the USA, Japan, China, South Korea and a few EU countries. In the UK, there are currently only 11 hydrogen refuelling stations.

5.2.17 Hydrogen issues:

- Affordability compared to EV and ICE vehicles
- Competition with EV and high rate of penetration into the market
- Deployment of infrastructure takes time and money

5.2.18 It should though be noted that there are various key developments planned in the Highlands and Islands for the production of green hydrogen that could supply the future needs of various transport modes, including the Green Hydrogen Hub at Port of Cromarty Firth, Flotta Hydrogen Hub in Orkney, Hebridean Hydrogen near Stornoway, and GreenPower's investment in the Argyll Green Hydrogen Hub.

Biofuels

5.2.19 Biofuels are produced from renewable organic materials and have recently been used as alternative fuels for cars. There are two main types: bioethanol and biodiesel which produce significantly fewer pollutants than fossil fuels.

5.2.20 Biofuels are rarely used as the sole fuel to power a car; however, they are frequently blended with other fuels like petrol and diesel, which it is argued make them more environmentally friendly. For example, standard unleaded fuel across the UK contains up to 5% bioethanol. There is scope to include a higher percentage as countries like Brazil and Sweden have, up to an 85% bioethanol blend. They can be used within traditional ICE in addition to heavy duty vehicles, aviation and shipping.

Synthetic Fuels

5.2.21 Synthetic fuels can be used in conventional ICE vehicles and increasingly in aviation. Synthetic methanol is produced from oxygen and hydrogen (separated from water) which can be refined into petrol or diesel, this process in effect 'consumes' CO_2 which is then released when burnt as fuel and is therefore carbon neutral. However, producing this methanol takes large amounts of energy which clearly produces CO_2 unless from renewable sources. Synthetic fuels are not yet being produced at scale and are currently being developed in the context of motorsport and motoring heritage. It does have the advantage of continuity with current technology and supply-chains but, for the moment, is a niche product.

Decarbonisation of aviation

5.2.22 It should be noted that the Sustainable Aviation Test Environment (SATE), the UK first low carbon test environment at an operational airport, is based at Kirkwall Airport. A successful demonstration flight of a six-seater plane running on a hybrid battery and internal combustion engine was trialled in 2021. Meanwhile, Britten-Norman is planning to introduce its first zero-emission Islander in 2026.

Travel Behaviour and Decarbonisation

5.2.23 There are several factors which are hindering the widespread adoption of alternatively fuelled vehicles, such as:

- Lack of cost competitiveness and availability in comparison with ICE vehicles
- Range anxiety
- Requirement for infrastructure development to cater for alternative fuel use
- Safety and legal liability of features within EVs
- Lack of ability to charge at home – i.e., no off-street parking
- Charging issues and battery service life and cost of replacement

5.2.24 Technological advancements are attempting to combat these issues. However, by making alternative fuels a like-for-like replacement for fossil fuels, **there will be no perceived requirement for people to alter their travel behaviour, or attitude towards how they travel**. For example, consumers may replace their current vehicle with a BEV without actually adjusting their lifestyle or travel habits. The user may also travel more frequently or for lengthier journeys as their vehicle is perceived by them to be 'green'. In turn, if all road users adopted this attitude, then alternative fuels could actually induce more road traffic, generating traffic congestion and counteracting some of the environmental benefits realised in the first place. Therefore, it is paramount that alongside the adoption of BEVs, there is an effort **to adjust our travel behaviours to account for the whole life carbon associated with car use**, such as walking and cycling for short journeys, using public transport where possible, and reducing the need to travel entierly.

Implications for the HITRANS RTS

Overall, the shift away from petrol and diesel presents a number of uncertainties which will need to be taken into consideration through the development of the new RTS. In the short-term, BEVs are far cheaper to run, and this may in fact generate additional car kilometres as users perceive 'guilt free' motoring. This could lead to congestion, delays and unreliable journey times, particularly in Inverness, Elgin and Fort William and in peak tourist season. Moreover, inequalities around vehicle affordability could become more entrenched with the better off having cheaper motoring costs than those unable to afford a BEV. Indeed, the relatively high purchase price of EVs makes them unaffordable for many groups of people.

A range of policy measures which include encouraging modal shift to active travel and public transport will still need to be pursued to achieve both decarbonisation aspirations and an efficient and sustainable transport system. This situation will prevail until any replacement to excise duty and VAT on fossil fuels is introduced and motoring costs are perhaps broadly aligned to current levels.

Whilst EVs are emerging as the dominant technology, they will not be appropriate for all modes of transport and decarbonisation may require alternative fuels such as hydrogen in some instances.

There are also issues around provision of the necessary infrastructure to support alternative fuels. In particular, who takes the lead and who bears the cost of this as well as ensuring adequate network coverage?

There is also a need to decarbonise ferry fleets in the HITRANS region, as well as publicly owned or supported aircraft. With regards to ferries, it is likely that any new vessels will be powered by a greener fuel and there are several options in this respect. However, there is not at present a preferred option(s) with respect to the future fuel type to be adopted.

Shared Mobility

5.2.25 Shared Mobility is based upon providing people with short-term access to shared vehicles like cars, bikes, scooters, etc. on an on-demand basis. This reduces the need for vehicle ownership and provides people with a wider range of more sustainable transport options than they would have available under the traditional ownership-based approach. Such schemes have potential for beneficial equalities impacts where they offer affordable and enhanced accessibility for disadvantaged groups such as non-car owners (including people with socio-economic disadvantage) and communities with poor access to public transport.

Models of Shared Mobility

5.2.26 Shared mobility can be facilitated through a range of services and mechanisms, including:

- Bike sharing
- Scooter sharing
- Taxis, ride sourcing, and community transport

- Car pooling
- Car sharing

Bike sharing

5.2.27 People are able to access pools of communal bikes as required from a network of bike sharing stations. These are typically unattended and located around towns and urban areas although there is also potential to place them in rural locations for leisure purposes. The majority of bike sharing operators cover the costs of maintenance, storage and parking of bicycles and users can pay on an annual, monthly, daily or per-journey basis. In general, trips of less than 30-minutes are included within the membership fees. In addition to traditional bikes, schemes can also include e-bikes and cargo bikes as well.

Scooter sharing

5.2.28 It is currently illegal to ride an electric scooter on a footway or road in the UK although they are subject to trials within four 'Future Transport Zones' in England. It is anticipated that these will establish the foundations for regulations that will enable use of electric scooters and open-up opportunities to introduce scooter sharing schemes across the country. This would enable provision of short-term access to electric, two-wheeled scooters similar to those available in cities across Europe. These are usually dock-less and users can typically track, reserve and unlock scooters via their smartphone with payment on an annual, monthly, daily or per-trip basis. Nonetheless, there remains legislative and safety issues surrounding electric scooters at this time and these will need to be taken into consideration before any decisions are taken to introduce scooter sharing schemes in the HITRANS region.

Taxis, ride sourcing, demand responsive transport and community transport

5.2.29 Taxis are the most well-established form of shared mobility and are now being incorporated into online ride sourcing platforms in larger urban areas which enable journeys to be booked online or through an app.

5.2.30 In ride sourcing systems like these, a service charge covers fuel costs and vehicle depreciation, the driver's fee, remuneration for the company that linked the service provider and final consumer and any taxes associated with the regulation of the service. They often use a dynamic pricing mechanism in which fares increase when demand is high and then efficiently adjust to the fluctuating demand throughout the day.

5.2.31 Community and Demand Responsive Transport services provide vital links for people who are elderly, require special assistance or, for mobility or other reasons, cannot access public or other private transport. These are often provided by volunteers with minimal charge and, in some instances, are free. These are often lifeline services for people who have no other access to public or private transport providing key links to healthcare, shops and social events. Indeed, CT and DRT are essential modes of travel in the HITRANS region, often providing the only means of connectivity to / from an area, as explained in Chapter 4.

5.2.32 There is also growing interest in technology-led solutions which replace fixed route bus services with 'enhanced' demand responsive flexible services, such as has recently happened in the Inverurie area of Aberdeenshire (although note that Aberdeenshire Council had to end the service on 1st April 2023 due to the high financial costs – the outcomes of the pilot are currently being evaluated and these findings will help identify critical success factors for DRT). There are a number of pilot schemes under way across the UK which seek to both reduce the

costs associated with the funding of subsidised services and to widen the customer base away from traditional DRT models, and also improve the customer experience.

Car-pooling

5.2.33 One of the most well-known forms of shared mobility is ride sharing where people with similar travel requirements share one vehicle rather than make separate trips. Car-pooling is the most common form of ride sharing which can take three forms:

- **Informal:** organised independently of any carpooling system through friends, family or colleagues, as is common throughout the HITRANS region, particularly on the smaller islands. In addition, some informal carpooling schemes are community-based initiatives.
- **Organisational:** coordinated by an employer, university, or other large organisation for their members.
- **Formal non-organisational:** formally coordinated through an online platform or app that seeks to match people who have no other connection other than similar travel requirements.

5.2.34 Car poolers will typically contribute to the running costs of the driver's vehicle and may share driving responsibilities.

Car sharing

5.2.35 This differs from ride sharing in that people share access to a vehicle, like bike sharing, rather than sharing a journey with someone. This means people can enjoy the freedom and benefits of the car without the responsibilities and costs of owning one. Customers typically access vehicles by joining a car sharing organisation that provides a fleet of vehicles in the local area. Vehicles can then be booked online or via a smartphone app. The operator provides fuel, parking and maintenance with users paying a fee each time they use the vehicle.

5.2.36 Like bike share schemes, there are three main types of car share network which include:

- **Station-based round-trip car sharing:** Customers pick-up a vehicle at a designated station and return it to the same place with fees normally being paid on an hourly basis.
- **Station-based one-way car sharing:** Like the above except vehicles do not need returned to the same station but can instead be dropped-off at designated parking places across an area. These are harder to manage as operators must guarantee a level of vehicle availability and an imbalance in demand between stations can lead to an oversized fleet and underused vehicles.
- **Free-floating one-way car share:** Enables vehicles to be picked up and dropped-off anywhere within a designated operating area. There are no specific stations and whilst users can drive outside the operating zone, they still have to drop-off cars inside the operating area.

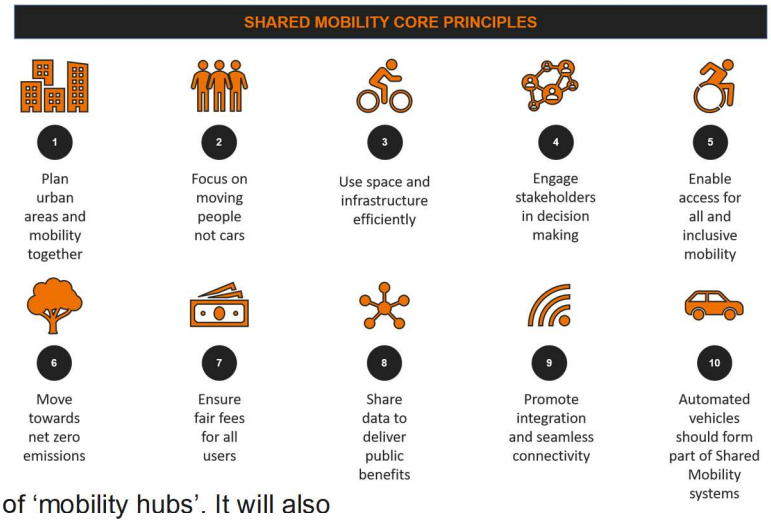
5.2.37 Alongside traditional car sharing schemes like these, an emerging alternative is personal vehicle sharing where car owners rent their vehicle to other drivers on a short-term basis. Generally, a company will broker transactions between car-owners and renters by providing the resources necessary to make the exchange possible (e.g., online platforms, customer support, insurance, etc.).

5.2.38 There are two main types of personal vehicle sharing which are:

- **Peer-to-peer car sharing:** privately owned vehicles that are temporarily made available for shared use by an individual or members of a peer-to-peer car sharing company. The operator facilitates the rental and retains a portion of the fee to cover operating costs.
- **Fractional ownership:** Involves the ownership of a vehicle amongst a small number of people, with each of these individuals taking up a portion of the expense for access to the shared service.

Delivering shared mobility

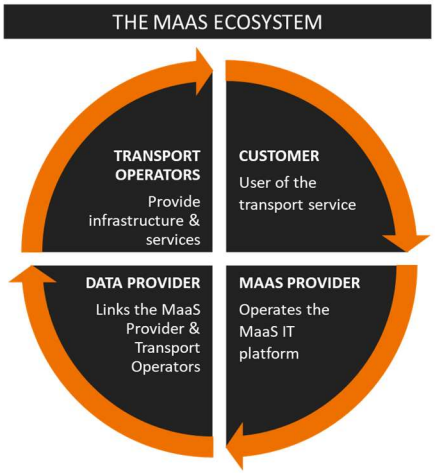
5.2.39 Shared mobility is already in existence. There is an opportunity to further develop and support opportunities around this so as to maximise the benefits provided and ensure shared mobility develops in a manner consistent with policy aspirations to reduce carbon emissions and deliver inclusive economic growth.



5.2.40 To facilitate this, it is essential that shared mobility is developed in line with the principles set out here, and that solutions are used in an integrated manner through the creation of 'mobility hubs'. It will also need to be responsive to changing travel demand patterns and personal requirements resulting from the COVID-19 pandemic.

Mobility-as-a-Service (MaaS)

5.2.41 MaaS envisages users buying transport services (including public transport, car usage, access to active travel, taxi, demand responsive transport, etc.) as packages based on their needs instead of buying the means of transport itself or in a series of distinct packages. It is being driven by digital innovation which presents the opportunity to combine transport provision through a single platform. It is still an emerging concept which has yet to be widely implemented in its fullest form.



5.2.42 That said, HITRANS operates the Go-HI MaaS app for residents and visitors in rural Scotland, which allows users to plan, book and pay for end-to-end multi-modal journeys in a single transaction using their smartphone or desktop devices. The platform offers instant

access to book buses, trains, taxis, demand responsive transport, car clubs, air travel and car hire, with bicycle hire and ferries being added to the app as the project expands.

Core Characteristics

5.2.43 Whilst MaaS is still in its early stages, the fundamental components have been largely agreed which are:

- **Multi-modal**: integration between multiple modes of transport including public transport, active travel and shared mobility solutions
- **Payment solutions**: users are able to pay for their travel across a range of modes directly through the MaaS platform with integrated multi-modal ticketing solutions inbuilt
- **One platform**: for everything including travel information, booking, ticketing and payments
- **Integration**: bringing together customers, transport providers, public sector, payment processors, telecommunication companies and the platform owners
- **Digital**: an online platform supported by telecommunications technology
- **User focused**: centred around demand from customers and personalised to their needs

5.2.44 There are two types of payment model anticipated for MaaS which are:

- **Subscription Based:** The customer would purchase a 'bundle' of services proportionate to their budget and mobility needs e.g., 'fortnightly' subscription which provides unlimited trips on public transport, 11 hours of car sharing, 10% discount on ride-hailing services and unlimited bike rental etc.
- **Pay-as-you-go:** The customer would be provided with the range of available transport services and choose their mode(s) for that journey then pay a single, one-time transaction price for the whole journey. This could include a pricing cap which would be applied at a variety of timescales (i.e., daily, weekly or monthly) to encourage increased usage of MaaS services (e.g., Transport for London has a daily pricing cap on their Oyster Card for example).

Delivering MaaS

5.2.45 The implementation of MaaS presents an opportunity to create a seamlessly integrated sustainable travel system that meets the needs of users as effectively and efficiently as possible. However, given the uncertainty at this time around the ways that MaaS will develop, there is a need for government and bodies like MaaS Scotland to guide and shape MaaS to ensure its successful delivery by supporting a broad, collaborative, and multi-modal approach which provides a framework for:

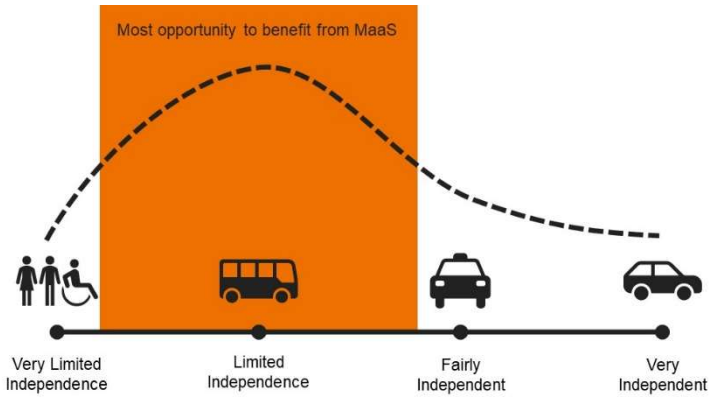
- Achieving beneficial social, economic, and environmental outcomes
- Developing a healthy ecosystem that encourages operators and users to engage with it as well as facilitating an open data environment
- Co-ordination and scaling of infrastructure and services to meet growth in demand
- Equality of access and meeting the needs of all passengers including people in protected characteristics groups

- Performance, monitoring, evaluation, and ongoing improvement
- Future proofing to accommodate innovations like autonomous vehicles

5.2.46 Current uncertainties and barriers around the delivery of MaaS include:

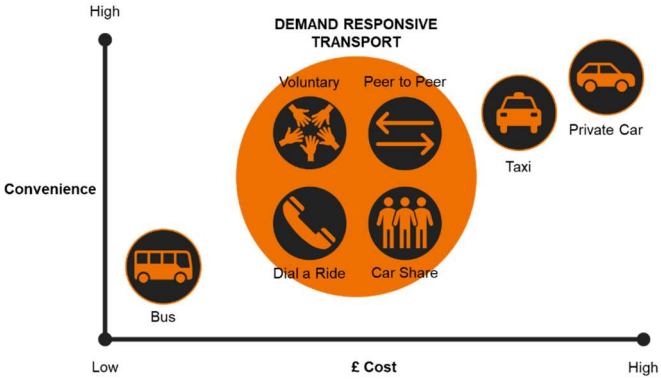
- Data sharing and the extent to which an open data environment can be achieved
- Whether a top down or bottom-up approach should be taken to delivering MaaS
- The most appropriate governance models (e.g., public / private partnership, etc.)

5.2.47 Any full MaaS scheme in the HITRANS region would need to capable of meeting the differing needs of both urban and rural areas. In urban areas, MaaS will predominantly provide a more comprehensive sustainable mobility package that offers an attractive alternative to the private car leading to a reduced need for ownership and usage. In rural areas, MaaS needs to ensure that people are provided with effective and affordable links to essential services particularly for those that do not own a car. Rural residents with lower levels of independence are likely to be the users who have the greatest potential to benefit from MaaS as is shown here.



5.2.48 Within this group, planned journeys, where the person knows in advance where they want to go, are likely to be those with the greatest opportunity to be delivered by new transport methods through MaaS. Here, users typically have more notice to consider their journey method ahead of time. They also have a greater degree of flexibility over their journey compared to commuting or spontaneous trips.

5.2.49 In rural areas, MaaS providers and transport operators should be seeking to increase convenience, decrease cost or ideally do both in order to help create a desirable proposition for passengers (particularly rural residents with lower levels of independence and / or for whom affordability of transport is critical). The greatest opportunity lies in the field of Demand Responsive Transit as illustrated here. Whilst DRT is not a new concept and is already widely operating across the region, there are opportunities to deliver DRT services to a wider user base at a lower cost to users. The opportunity for transport suppliers is to make more use of existing spare capacity on their services. This capacity comes in the form of spare seats, empty running and vehicle downtime. Innovation can help to tackle these



inefficiencies by increasing visibility of services, making booking services easier and smarter routing. The benefit to customers would be optimised services providing better accessibility and meeting their needs more effectively.

5.2.50 The geographic scale at which a MaaS scheme operates also needs to be considered as artificial boundaries could be created which limits its effectiveness. On this basis, a regional scheme may be most effective.

Implications for the HITRANS RTS

The concept of shared mobility could be of significant benefit to parts of the region. Given the cost of owning and running a car and, for the islands, the cost of ferry fares and the availability of vehicle-deck capacity, informal car-pooling arrangements are already established. The formalisation of these measures and their potential extension to e.g., car sharing provides an opportunity to rethink approaches to service delivery. For example, a car-sharing scheme could potentially reduce the need for a 'predict and provide' approach to the construction of new ferries, reducing build and associated infrastructure costs and ongoing operating costs. Shared mobility schemes have potential for beneficial equalities impacts where they offer affordable and enhanced accessibility for groups such as non-car owners and communities with limited access to public transport.

However, the rural nature of the HITRANS region and its highly dispersed population outwith the main settlements will also present challenges. Any shared mobility or MaaS system would need to be focused on providing effective and affordable links to essential services, particularly for those that do not own a car or who have particular accessibility requirements. Rural residents with lower levels of independence are the most likely to benefit from shared mobility schemes. In rural areas, MaaS providers and transport operators should be seeking to increase convenience, decrease cost or ideally do both in order to help create a desirable proposition for passengers. The greatest opportunity in this field lies in Demand Responsive Transport.

Bike sharing could also represent an important opportunity to expand active travel participation in Inverness and other larger settlements. Traffic conditions, topography (in some areas), climate and hours of daylight during the winter months can be a deterrent to cycling. E-bikes can mitigate topography issues to some degree and can provide a pathway into more regular cycling. However, such bikes are expensive to buy and thus shared bike schemes may be a more attractive option for the casual user.

It is also important to acknowledge that an issue with any web-based shared mobility scheme in much of the HITRANS region (such as a MaaS platform) is that mobile phone reception and broadband speeds can be variable, although are generally improving, including on the back of progress through the emergency services mobile network development.

Automation

5.2.51 The automation of the transport system refers to technologies which range from automated car features to modifications across a transport network which integrates information and

communication for different modes. Automation ultimately aims to complement the existing transport network by applying technological advancements to enhance the efficiency and safety for network users, which has scope to reduce transport-based emissions.

5.2.52 Automated features are already present in cars available today, such as automatically regulating a safe distance to the vehicle ahead, lane assist technologies, blind spot detection etc. A fully automated vehicle refers to several systems or automated features which work together to conduct a task with little or no human intervention. This is an attractive concept as it has the potential to revolutionise the way people travel e.g., driving time could be spent productively engaging in other activities. There is also scope for freight transport to shift with automation enhancements via truck platooning or drones being utilised for last-mile deliveries. The various levels of automation are at different stages of development and deployment into the transport system.

5.2.53 There are six levels of automation which range from a vehicle with no automation (a human is in complete control of the vehicle or device) to a fully automated vehicle (where the automated technological system performs the entire movement of the vehicle). The table below summarises the different levels of automation:

Table 5.1: Levels of automation

Driver performs part of the driving tasks		
No automation	***Driver assistance***	***Partial automation***
The driver performs all tasks even if aided by enhanced warning or intervention systems	Some automation, such as steering or acceleration / deceleration features, are in place. These features use information about the surrounding environment to act and warn the driver. There is an expectation that the driver will be engaged and perform the remaining tasks.	One or more automated features are in place such as steering and acceleration / deceleration, again using features from the surrounding environment. There is an expectation the driver will be engaged and perform the remaining tasks.
System performs the entire driving task		
Conditional automation	***High automation***	***Full automation***
The automated vehicle system will undertake all the dynamic driving tasks with the expectation that the driver will be engaged and intervene where required.	The automated vehicle system will undertake all the dynamic driving tasks with no expectation that the driver will need to respond or intervene.	The automated vehicle system will fully undertake all the dynamic driving tasks with no expectation that the driver will need to respond or intervene.

5.2.54 The technology which is currently available on the market mainly belongs to the category shown as *'Driver performs part of the driving tasks'*. These include partially automated vehicles which include Tesla developing an autopilot feature where the system takes control of most driving actions, but the driver is expected to remain alert and intervene where necessary. In addition, intelligent speed assistance is starting to be introduced which aids the driver in maintaining the appropriate speed for the road environment by providing dedicated and appropriate feedback. The other category '*System performs the entire driving task'* involves technology which is being developed. Higher levels of automation have been developed though many are undergoing testing and pilot studies, thus they have not been successfully implemented into mainstream transport to date.

5.2.55 However, technological advancements in this sector are market driven by organisations such as Tesla, Google and other major stakeholders within the technology sector who are competing to develop fully automated or 'driverless' vehicles. Similarly, driverless trucks have been operating within areas like ports and airports, however they are not fully operational on the road network. As such, it is plausible that vehicles which fall into the '*System performs the entire driving' task* category will move from pilot projects to operational within the lifetime of the RTS.

Intelligent Transport Systems (ITS)

5.2.56 ITS manage the transport network via the use of 'big data' and artificial intelligence (AI) to implement the most effective solutions to improve network efficiency and safety. ITS involves integrating technologies including sensors, computers, electronics, communication devices and connected vehicles, and other automated technologies within transport infrastructure and individual vehicles. The aim is to improve efficiency, safety and sustainability, increase travel time reliability and reduce the cost of the transport network on the economy and environment by distributing the information across all modes to the benefit all network users. Users of the transport network would be able to access real time travel information and be presented with smart alternatives at identified areas of high congestion or disruption to inform their travel choices.

5.2.57 To counteract or limit the intensification of congestion or disruption, ITS can manipulate the transport network by:

- Predicting traffic conditions via data from the surrounding environment and infrastructure
- Providing information to network users to best inform travel choice
- Car communication via signal controllers in the road infrastructure relaying information to individual vehicles to modify speed / act accordingly
- Smart intersections which collect data and relay information
- Redirecting road traffic
- Altering signal timings

5.2.58 ITS is being actively introduced into traffic control systems, vehicle designs and interactive systems for informing transport network users. There is also some crossover with ITS and the 'smart cities' concept in which urban areas function in a sustainable and intelligent way through the cohesive integration of infrastructure and services by using technology. The aim is to generate a better quality of life for inhabitants of these urban areas. The main issue within the UK is the lack of investment, state of readiness and the awareness of the smart road transport concept.

Platooning

5.2.59 Platooning involves a lead vehicle, which is generally driven by a person, followed by other vehicles which are potentially driverless. These vehicles do so via automated communication technologies such as longitudinal and lateral control which involves integrating adaptive cruise control and lane keeping assist systems. Coupling and de-coupling technologies can also be implemented to allow other road users to cross and come between different vehicles within a platoon. Platooning can help reduce energy consumption as vehicles are usually driving within a tightly packed 'platoon', reducing the aerodynamic drag. In addition, technologies such as vehicle detection, anti-collision and lateral control technologies can benefit road safety for the

driver of the platoon and other road users. Freight capacity can be enhanced as multiple vehicles containing cargo could be led by one driver which saves time and cost.

5.2.60 This technology has not yet been implemented as a viable commercial product; however, there are pilots which show potential. The European Truck Platooning Challenge (2016) involved European truck manufactures which trialled platoons of trucks with automation technologies on public roads across Europe. In 2016, the first cross-border truck platooning trial was successful in reaching its destination in the Port of Rotterdam. The first driverless bus services in the UK were also recently trialled between Fife and Edinburgh. This form of automation could also therefore begin to emerge as a viable means of transportation during the lifetime of the new RTS.

Other Areas of Automation

5.2.61 In addition to automation of road vehicles, automation could also potentially benefit air and sea transport operations as follows:

- **Sea:** There is potential for vessels to operate with smaller crews where functions are automated or operated remotely. Whilst this is unlikely to be adopted immediately, changes may occur over the life of the RTS and could provide opportunities in relation to ferry services across the HITRANS region.
- **Air:** Automation can be used to enhance safety checks of aircraft prior to take off which aids workers and pilots in managing the flight by replacing certain manual tasks, and air traffic control to monitor the status of all flights. Airports have also implemented automated baggage handling and screening systems which helps to improve safety and remove human error.
- **Delivery services:** Drones have been used to deliver parcels in place of more traditional delivery systems. For example, Royal Mail completed a two-week trial in October 2021 using a large twin-engine drone to deliver mail to North Ronaldsay in Orkney. The drone was able to carry up to 100kg of post and as an Uncrewed Aerial Vehicle (UAV) was able to fly in poor weather conditions. Recent press suggests that this technology will be rolled out more widely and could support islands with the most fragile connections such as North Ronaldsay and the Small Isles. Indeed, Argyll and Bute Council is developing drone-based deliveries in partnership with Skyports as part of their Rural Growth Deal.

Implementation of Automation

5.2.62 The implementation of automation into mainstream transportation is dependent on market and industry stakeholders and legislation. Economic benefits, demographic trends and safety factors are catalysts for automation and companies such as Tesla, Uber and Google are competing to eventually develop cars which completely remove the need for a driver. Many of the technologies described above have been implemented or are undergoing pilot studies. However, it is anticipated that within the next two decades there will be a gradual but significant deployment and uptake of this technology which means this needs to be taken into account in the development of the new RTS.

Implications for the HITRANS RTS

It is anticipated that within the next two decades there will be a gradual but significant deployment and uptake of automated technology and therefore this needs to be taken into account in the development of the new RTS.

There are clear benefits to the implementation of automation within the transport sector, however this needs to be managed carefully through policy. Perhaps most importantly reducing or removing the scope for human error could dramatically reduce the number of personal injury accidents on our roads.

Automation does not automatically result in reductions in energy consumption and emissions, but it indirectly supports changes in vehicle operations, vehicle design, choice of energy, policy intervention, or transportation system design that may or may not be more sustainable. In addition, automated vehicles could increase network efficiency, making driving more attractive to people who may have otherwise opted for an alternative mode. There is thus scope for vehicle kilometres travelled to increase alongside the implementation of automation.

The introduction of driverless buses and commercial vehicles would see operating costs reduce by around 50%. In theory, these vehicles could therefore operate around double the mileage for the same cost. However, there would also be a potential reduction in jobs, specifically for bus and truck drivers and people manually operating trucks, ferries etc as they could potentially be replaced by machine-led automated devices.

There are also concerns about how automated vehicles will replicate human actions and where liability lies, specifically in situations such as traffic collisions. As automation is market-led (within a legislative framework), it is paramount that there is policy intervention to ensure that automation is implemented into the transport network at a gradual and sustainable rate and in a manner that seeks to deliver overarching policy objectives. The accessibility needs of key equalities groups will be an important consideration as automation is deployed more widely in transport provision.

5.3 Travel Behaviour Change

5.3.1 Travel behaviour in the HITRANS region and indeed in Scotland and the UK generally is changing in a way that it has not done so since the 1960s when widespread car ownership became a reality. Long-term behavioural change, new technology and the legacy of COVID-19 is influencing how people travel and indeed in many cases there is now an opportunity to reduce the need to travel where an activity can be carried out remotely.

Long-Term Trends

5.3.2 In addition to technology-based supply-side changes, there are long-term trends surrounding the amount and way that people travel which, if continued, will affect future travel patterns and the demand for transport services. It is important to understand these trends as they will inform the development of the RTS.

5.3.3 Firstly, there is a long-term trend of people making fewer trips, as reflected in the UK DfT's long-running National Travel Survey – this is shown in the figure below up to the pandemic.[83]

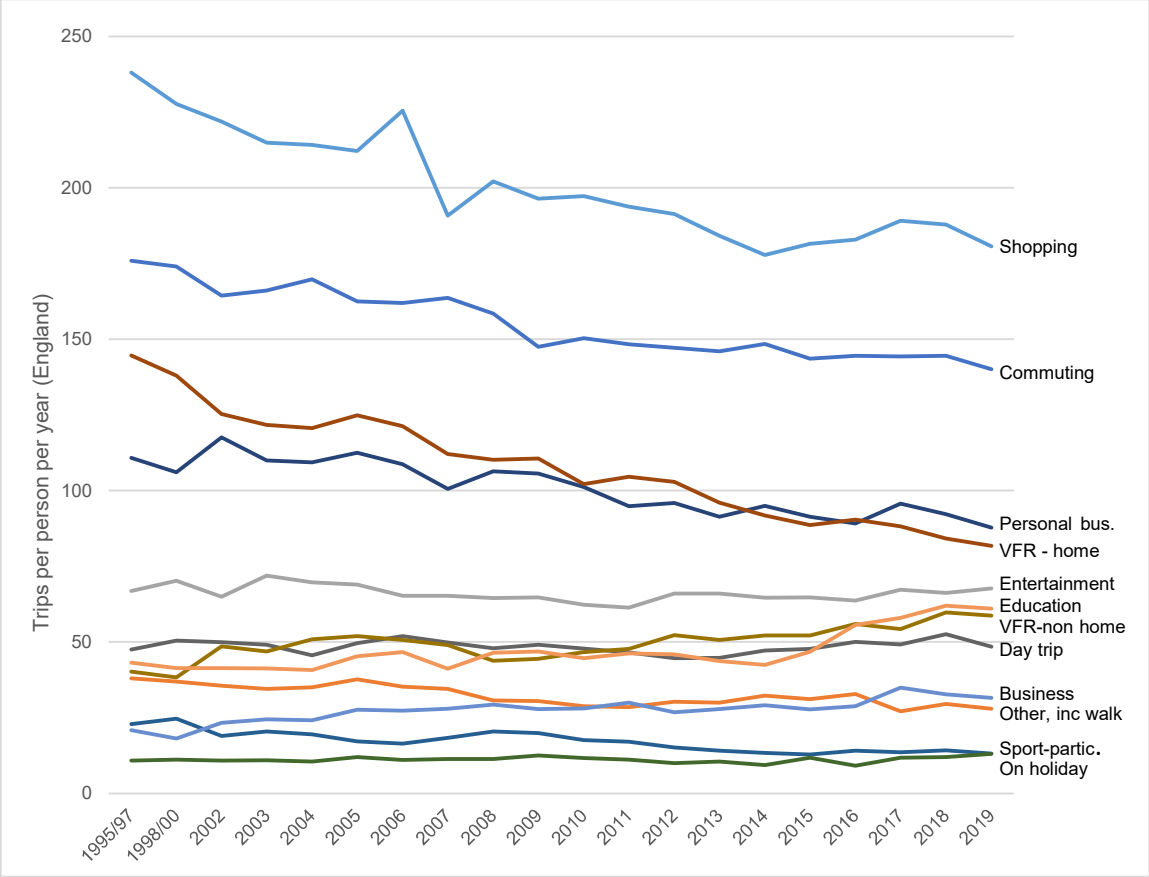


Figure 5.1: DfT Trips Per Person Per Year (1995 – 2019) (Source: DfT National Travel Survey)

5.3.4 On average, before the pandemic people were making 13% fewer trips per annum compared to the mid-1990s. All of the main travel purposes have seen a decline, with only education and some of the less frequent leisure trip categories seeing an increase. The average distance travelled declined at a lower rate (7%) meaning that the average trip length has increased somewhat over this period. Reflecting this, average trip duration has also increased from 20 to 23 minutes.

5.3.5 At the UK level, this reduction in travel per person has been offset by growth in population of around 15% over this period. Population growth has therefore been the main driver of growth in travel, offsetting the reductions in travel at the individual level.

5.3.6 It should though be noted that the HITRANS region has a significant inflow of tourists each year, which are additive to trips made by local residents.

[83] VFR – Visiting friends and relatives

COVID-19

5.3.7 The COVID-19 pandemic and its potential aftermath has introduced a high degree of uncertainty into all aspects of transport planning. Whilst the short-term picture (during the pandemic and the various levels of restriction associated with it) is well understood, there remains some uncertainty regarding the structural (permanent) changes in travel behaviour once the pandemic is fully behind us and behaviours have stabilised.

5.3.8 Using data from the National Travel Survey cited above, the chart below shows how trip making fell between 2019 and 2020 as a result of the pandemic.

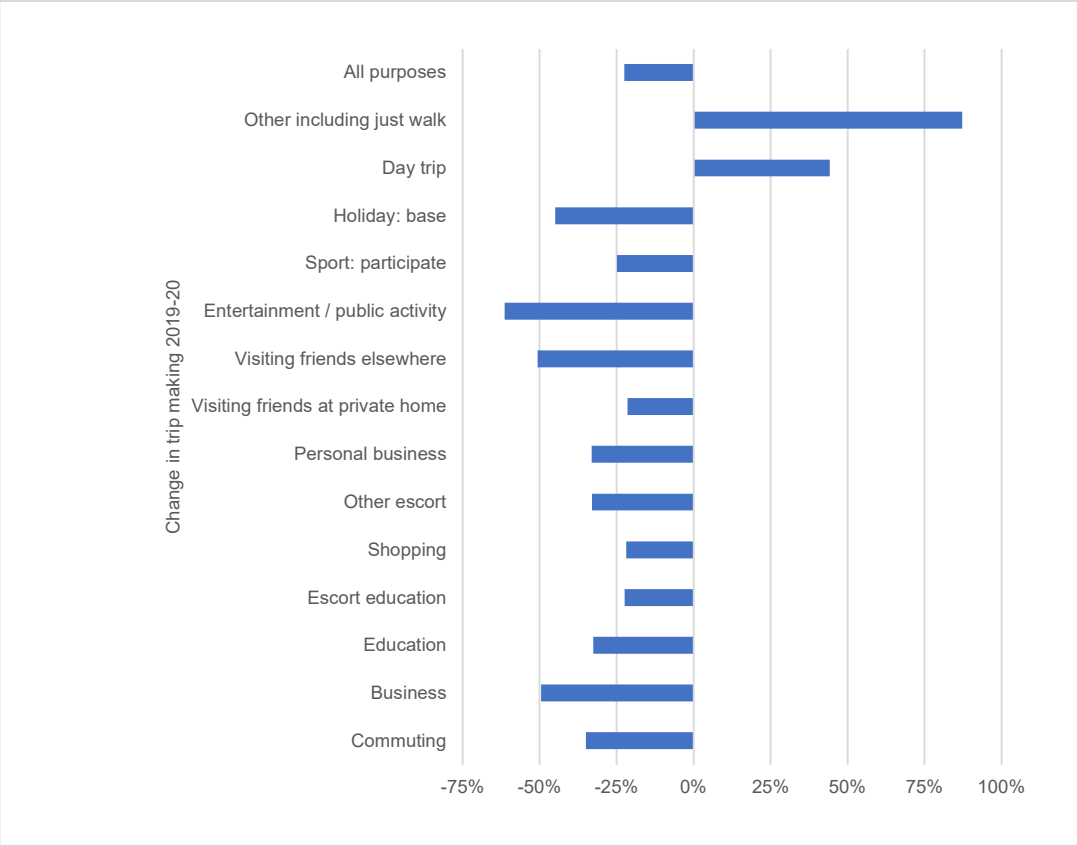


Figure 5.2: Change in trip making by purpose 2019-20 (Source: National Travel Survey)

5.3.9 Overall trip-making reduced by 22% with drops of around 50% in entertainment trips, visiting friends and relatives and business trips. Commuting trips reduced by 35%. These reductions were partially offset by a large increase in walking for leisure.

5.3.10 The DfT has been monitoring UK travel volumes by mode since the onset of the pandemic.[84] The figure below shows these volumes for motorised modes all indexed to a pre-pandemic position.[85]

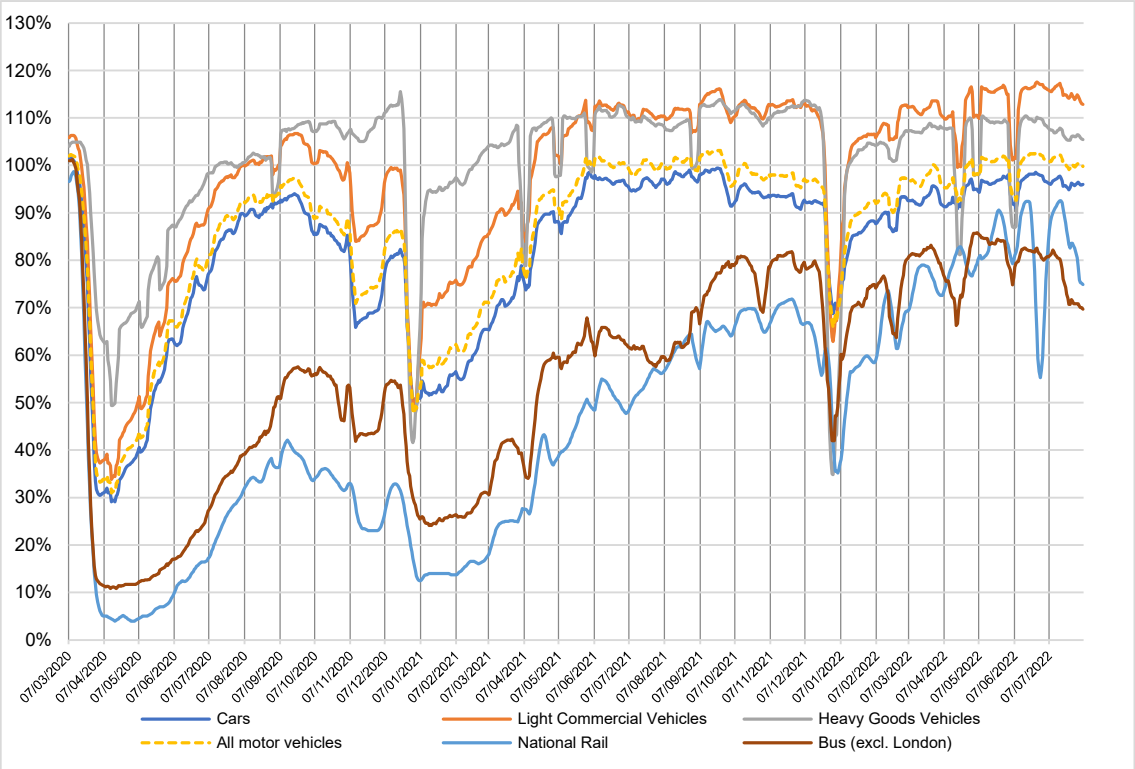


Figure 5.3: UK travel volumes by motorised mode indexed to pre-pandemic position (Source: DfT)

5.3.11 The graph shows the trajectory of travel throughout the pandemic and the various phases of lockdown restrictions. Reflecting advice from governments, the use of public transport collapsed during the lockdown periods. Travel did increase from early 2021 as restrictions began to ease. With the exception of the Christmas period, road traffic has been broadly flat since May 2021. However, car-based travel has yet to return to pre-pandemic levels whilst LGV and HGV traffic is up by around 15% and 10% respectively. Bus has hovered around 80% of pre-pandemic levels since later in 2021 when all restrictions were lifted with rail recovering to nearer 90% prior to recent disruption to services due to industrial action. It should though be noted that the rail and bus industries have witnessed supply-side reductions due to reduced demand, the permanence of which remains to be established.

5.3.12 The figure below shows equivalent data for cycling:

[84] COVID-19 domestic transport data: methodology note - GOV.UK (www.gov.uk)

[85] Roads - Equivalent day from first week of February 2020; Rail - Equivalent week in 2019; Bus travel (excluding London) - -equivalent day from third week of January 2020; Cycling - equivalent day from first week of March 2020

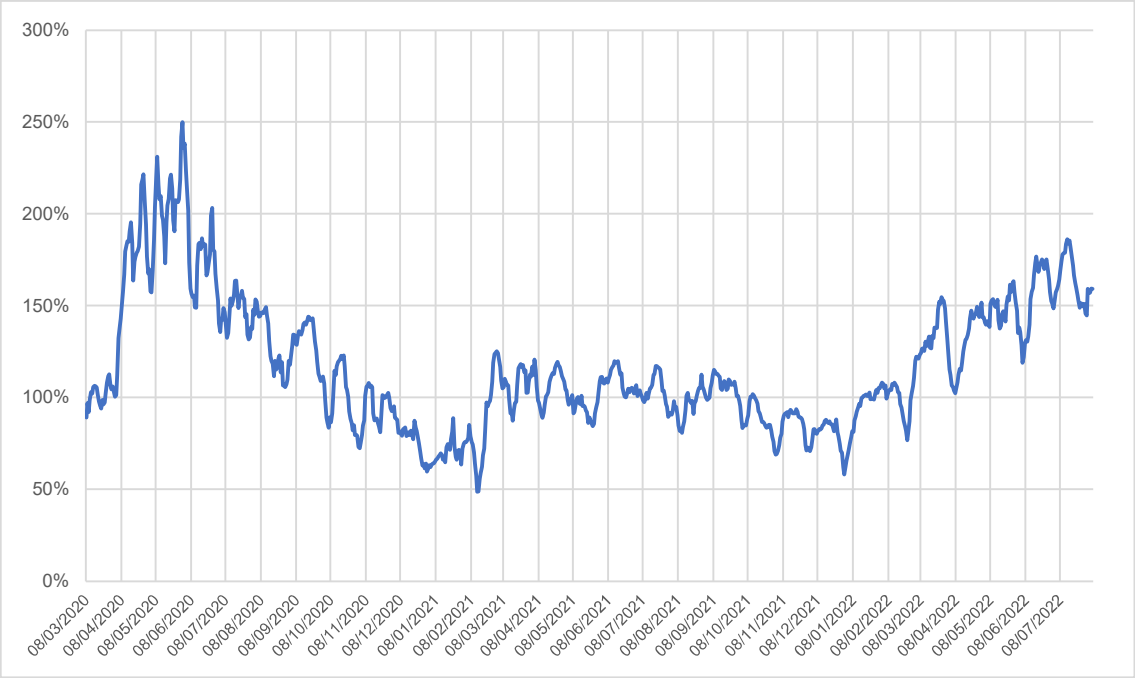


Figure 5.4 : UK cycling volumes by motorised mode indexed to pre-pandemic position (Source: DfT)

5.3.13 Given the March 2020 base, these figures will be influenced by summer weather before dipping into the winter months. There was though undoubtedly a major increase in cycling during the lockdown spring / summer of 2020 which was not repeated in spring / summer 2021. However, March 2022 saw cycling volumes up by around 30% compared with March 2020 and cycling levels have been higher than 2021 equivalents since then. The rising cost of petrol and diesel following the Russian invasion of Ukraine in February 2022 may have had an impact on this, as may the generally good weather during this period.

5.3.14 As this issue is still playing out, the structural impact of the pandemic on travel patterns will be kept under review during the RTS development process. There are however clear opportunities such as the potential need to travel less due to remote working and other such practices, but also threats associated with a reduction in public transport services due to continued suppressed demand. The incidence of these changes on individuals with protected characteristics will be a key issue over the next two decades.

6 Developing RTS Strategy Objectives

6.1 Approach

6.1.1 Given the geographic, socio-economic, demographic and modal diversity of the HITRANS region, it is essential that the approach to setting the RTS Strategy Objectives is rigorous and systematic. The process therefore follows a seven-step 'bottom-up' approach as set out in the diagram and text below.

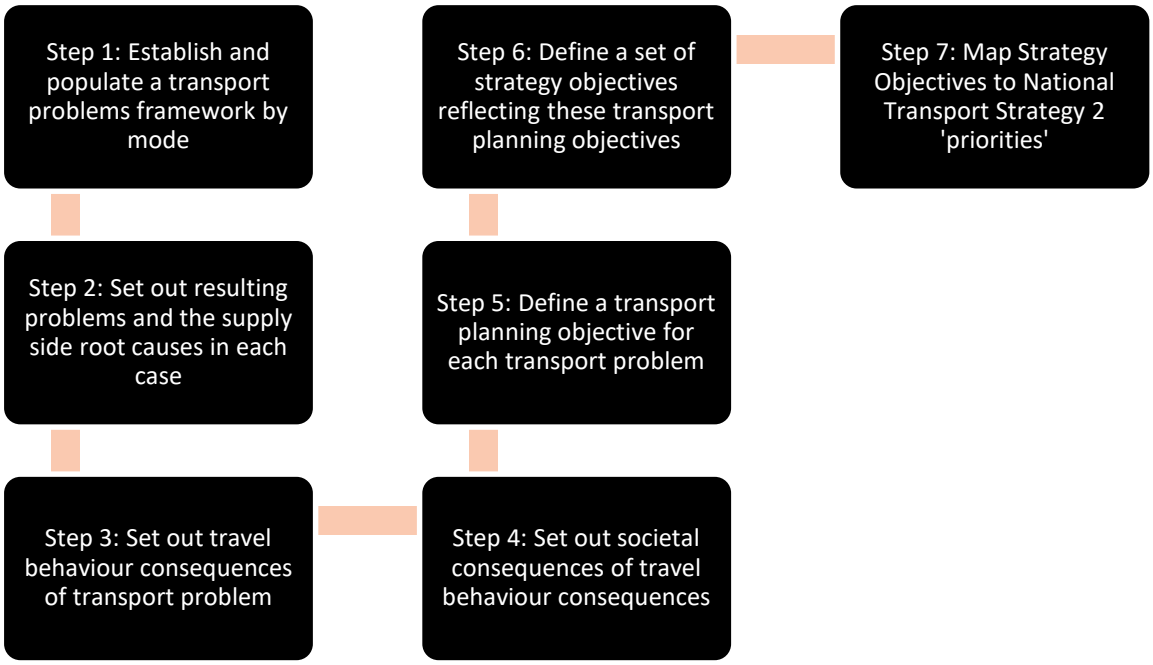


Figure 6.1: RTS Strategic Objectives Development Process

6.1.2 In the interests of brevity, **Steps 1-5** of the above framework are set out in **Appendix A**.

6.2 Step 6: RTS Strategy Objectives

6.2.1 The RTS objectives ('Strategy Objectives') must be a reflection of:

- The range of transport user problems identified above
- The policy environment within which the resolution of these problems must sit

6.2.2 The Scottish Government's *Reducing car use for a healthier, fairer and greener Scotland - A route map to achieve a 20 per cent reduction in car kilometres by 2030* sets out a framework of sustainable travel behaviours to this end, these being:

- Reducing the need to travel
- Living well locally
- Switching modes

- Combining or sharing car trips

6.2.3 As a transport strategy, the RTS can have a limited impact on *reducing the need to travel*. This relies on the increased use of online options in e.g., shopping or the provision of public services, land-use planning approaches and, in some cases, the implementation of effective demand management measures. Similarly, *living well locally* depends on the services you require being available locally, both in terms of existing settlements and new development where the planning system clearly has a role. Good local walking, wheeling and cycling connections can enable this though if the services do exist. Whilst the RTS supports wider policy implementation focused on reducing the need to travel / living well locally, as a transport strategy much of the focus of the RTS is on switching modes as this is the most practical alternative to car travel for most. In addition, enabling people to *combine or share car trips* will also be a focus of the Strategy.

6.2.4 Whilst the 20% car kilometres reduction target is important, it cannot be the sole focus of the Strategy – rurality and the essential role of the private car make this a challenging target in the HITRANS region and thus a proportionate contribution to this target will be sought through the RTS. The transport networks need to provide reliable, resilient and sustainable options for the safe movement of people and goods within and to / from the region.

6.2.5 The proposed Strategy Objectives are therefore:

Strategy Objective 1 - To make a just transition to a post-carbon and more environmentally sustainable transport network

Why? – Scotland has a target to achieve net zero carbon emissions of all greenhouse gases by 2045 and transport is a key sector in terms of such emissions. Our transport networks and services must adapt to fulfil this target in a fair and equitable way whilst also being developed in as environmentally sustainable a way as possible. The process must also recognise the needs of all groups through a 'Just Transition'.

Strategy Objective 2 – To transform and provide safe and accessible connections between and within our city, towns and villages, to enable walking, wheeling and cycling for all

Why? – to allow everyone to walk, wheel and cycle more, leading to more local living patterns, greater inclusion, affordable transport, healthier lifestyles, and reduced car use – the latter leading to reduced emissions / noise etc and improved road safety.

Strategy Objective 3 – To widen access to public and shared transport and improve connectivity within and from / to the region

Why? – to give people new travel choices, allowing them to: (i) use accessible and affordable public or shared transport options to make journeys they previously could not make; or (ii) to use public or shared transport instead of the car - this leading to lower levels of car use and reduced emissions / noise etc., as well as improved road safety. This objective is also important in encouraging inclusive economic growth by widening labour markets and providing improved accessibility to employment opportunities by public transport.

Strategy Objective 4 – To improve the quality and integration of public and shared transport within and from / to the region

Why? – to make public and shared transport more attractive and competitive with car-based travel and to ensure the accessibility needs of all groups are accommodated. This will improve the travel experience for existing public transport users and encourage people to use public or shared transport instead of the car, leading to lower levels of car use and reduced emissions / noise etc, improved road safety and will support the social benefits associated with shared transport.

Strategy Objective 5 - To ensure reliable, resilient, affordable and sustainable connectivity for all from / to our island, peninsular and remote communities

Why? – some of our island and peninsular communities have suffered from pronounced connectivity difficulties in recent years. This has wide-ranging impacts on these communities and this objective recognises the need to tackle this issue, in tandem with Strategy Objective 4. Meeting this objective will provide the foundation for the long-term sustainability and success of these vulnerable communities, including through helping meet the needs of people with protected characteristics and by tackling socio-economic disadvantage.

Strategy Objective 6 – To improve the efficiency, safety and resilience of our transport networks for people and freight, and adapt to the impacts of climate change

Why? – our transport systems must be safe and able to adapt to changing demands (e.g., tourism patterns, trade) and be resilient in the face of climate change. This objective is important in allowing the society and economy of the HITRANS region to prosper and to reduce inequalities of outcome associated with socio-economic disadvantage.

6.2.6 It should be noted that the numbering of the Strategy Objectives does not imply prioritisation and it should be further emphasised that the objectives will not be waited in the appraisal.

6.3 Step 7: Map Strategy Objectives to NTS2 Priorities

6.3.1 Finally, it is important to ensure alignment between the Strategy Objectives developed here and the national policy context. The table below therefore maps the RTS Strategy Objectives to the four NTS2 Priorities:

Table 6.1: Map of Strategy Objectives to NTS2 priorities

	NTS2 Priorities			
Strategy Objective	**Reduces inequalities**	**Takes climate action**	**Helps deliver inclusive economic growth**	**Improves our health and wellbeing**
1: To make a just transition to a post-carbon and more environmentally sustainable transport network.	✓	✓		✓
2. To transform and provide safe and accessible connections between and within our city, towns and villages to enable	✓	✓	✓	✓

Strategy Objective	NTS2 Priorities			
	Reduces inequalities	Takes climate action	Helps deliver inclusive economic growth	Improves our health and wellbeing
walking, wheeling and cycling for all				
3. To widen access to public and shared transport and improve connectivity within and from / to the region	✓	✓	✓	
4. To improve the quality and integration of public and shared transport within and from / to the region	✓	✓	✓	
5. To ensure reliable, resilient, affordable and sustainable connectivity for all from / to our island, peninsular and remote communities	✓		✓	✓
6. To improve the efficiency, safety and resilience of our transport networks for people and freight, and adapt to the impacts of climate change		✓	✓	✓

6.3.2 As can be seen from the above table, there is clear alignment between the proposed regional approach and committed national approach to transport policy.

6.4 Next Steps

6.4.1 This document has set out the 'Case for Change' for the HITRANS RTS. Separate Strategic Environmental Assessment (SEA), Equalities Impact Assessment (EqIA) and Islands Communities Impact Assessment (ICIA) documents have been developed alongside this 'Case for Change' Report and have fed into its development. These documents consider how the equalities and environmental issues identified at scoping stage were taken into account in the development of this document and provide recommendations to inform the future stages of the RTS development.

6.4.2 In line with statutory requirements, this document, along with the accompanying impact assessments, will be subject to a formal public consultation.

6.4.3 Subject to this consultation, the transport problems identified in this document will be used as the basis of generating a long-list of options which will subsequently be appraised against the:

- RTS Strategy Objectives
- STAG criteria
  - Environment
  - Climate change
  - Health, safety, and wellbeing

- Economy
- Equality and accessibility

- Feasibility, affordability, and public acceptability

6.4.4 The results of the appraisal of options will be presented in a Preliminary Appraisal Report and the remaining options taken forward. Following this stage, the RTS itself will then be produced.

Appendix A RTS Strategic Objectives Development Framework, Steps 1-5

A.1 Step 1: Establish and populate transport problems framework

What is a transport problem? Here, we primarily focus on the definition of a transport problem as being **a problem experienced by a user, or potential user of the transport network** in the HITRANS region. These transport problems can be thought of as one or more of:

- Something that **negatively affects a journey which is still made** (people and freight) by that mode of travel – in the main this makes a trip less efficient, more expensive, less comfortable or more stressful in terms of safety and / or wellbeing.
- Something that **stops people or goods travelling by (generally) more sustainable and policy friendly modes** – this primarily leads to more car use and associated negative impacts across a range of policy areas including environment, climate change and safety.
- Something that **stops people making the trips they would like to make, or goods being moved** – impacting on peoples' life chances, wellbeing, and business opportunities.

As noted above, these transport problems are defined as problems faced by users of transport networks and services either now or potentially in the future and are the basic building blocks from which RTS Strategy Objectives are developed. In the subsequent stage (Preliminary Appraisal), options will be developed to address these problems and thus meet the RTS Strategy Objectives.

Transport problems, when defined in this way, are typically associated with a relatively narrow range of parameters which define any trip, defined here as 'problem themes' and set out in the table below.

Table A1: Transport problem 'themes'

All Modes of Travel	Public transport specific
Concern over environmental impact of travel	Booking and journey planning (e.g., making connections between services)
Cost of travel and affordability	Capacity – seating / ferry car deck and sleeping accommodation
Fuel / power issues	Comfort, safety and security
Integration of travel between modes	Connectivity and network coverage (availability of services)
Journey information, including for protected groups who may find accessing information particularly difficult	Ease of use / convenience
Journey quality	Integration between services (within mode, e.g., bus-to-bus and between modes, e.g., ferry-to-train, active travel to bus etc), including for people with disabilities or other protected characteristics which affect accessibility
Journey times	Service reliability (cancellations and punctuality)

All Modes of Travel	Public transport specific
Journey time reliability (including public transport service punctuality)	Timetables (first and last / frequency / days of the week etc.) and their accessibility for all groups
Lack of awareness of travel options	
Personal accessibility – being able to access transport networks and public transport services specifically including people with disabilities or other protected characteristics which affect accessibility	
Personal security (fear of crime)	
Travel safety (collisions, personal injury)	

The above list is used as a ‘checklist’ to develop a set of transport problems for each mode of transport in the HITRANS context based on the baselining work and previously undertaken engagement.

A.2 Steps 2-4: Supply-side causes, and travel and societal consequences

Each of these transport problems can have a consequence in terms of travel behaviour by:

- **Adding cost or inconvenience to any trip** – adding to the cost of travel, journey times / journey time reliability and / or impacting on health, education, and wellbeing
- Meaning that **people travel by a different (often less sustainable) mode** (or they are forced to through lack of alternatives)
- People **not making trips** with a range of consequences for them and society more generally

For each mode in turn, the 'Problems Framework' tables below sets out:

- The **transport problem** as experienced by a user or potential user of the network, grouped by the themes set out above (where relevant) and the **underlying transport supply-side cause(s)** of this problem – *note that this will be used subsequently to generate options for the RTS to consider*.
- For each of the three types of travel behaviour impacts, **the potential range of societal impacts associated with the transport problems** grouped by mode, including inequalities of outcome in terms of protected groups.

Table A2: Problems Framework – Walking and wheeling: problems and supply-side causes

Problem Theme	Transport Problem *Walking and Wheeling*	Supply-Side Cause(s)
Integration of travel between modes	Walking and wheeling links to my local bus stop / railway station / ferry terminal / airfield / between communities are poor	- Absence of connections between paths / absence of any paths requiring the user to walk on the road - Absence of lighting - Absence of paths or footways to connect communities - Lack of suitable road crossing facilities - Obstacles on footway - Quality of streetscape - Quality of surfacing - Road sightlines - Road width - Steps on routes
Journey quality	I don't think my local environment is suitable for walking and wheeling	- Absence of connections between paths requiring the user to walk on the road - Absence of paths or footway to connect communities - Absence of recreational walking opportunities - High traffic speeds and intimidation by traffic - Lack of suitable road crossing facilities - Obstacles on footway - Quality of streetscape - Quality of surfacing - Road sightlines - Road width - Steps on routes
Journey times	Walking takes too long	- Community severance caused by major roads - Indirect routes compared to crow fly
Lack of awareness of travel options	I do not know where walking routes are / do not feel confident using them	- Lack of information regarding walking opportunities - Lack of signing on routes to provide comfort to users
Personal accessibility	Walking is not a realistic option for me because of a disability	- Absence of suitable paths or footways for those with a disability - Lack of appropriate infrastructure including tactile paving etc - Obstacles on footway, visibility of obstacles - Steps and other interruptions (e.g., gates) on routes
Personal security	I sometimes do not think it is secure enough for me to walk	- Fear of crime in local environment - Lack of safe, well-lit, welcoming routes - Low levels of pedestrians

Problem Theme	Transport Problem *Walking and Wheeling*	Supply-Side Cause(s)
Travel safety	I sometimes do not think it is safe enough for me to walk	- Absence of connections between paths requiring the user to walk on the road - Absence of paths or footways to connect communities - Lack of segregation from traffic - Poor quality footways - Requirement to cross major routes such as the A9, A82, A96 etc running through many settlements - Road crossing facilities on stretches of road and at roundabouts - Traffic volumes and speeds

Table A3: Problems Framework – Walking and wheeling problems: Societal consequences

Consequences of **walking and wheeling** related problems that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Anxiety caused by presence of HGVs in particular - exposure to noise and emissions from general traffic especially where major routes run through settlements - Anxiety whilst walking due to personal security concerns – a particular issue for more vulnerable groups, such as people with protected characteristics - Extended journey times associated with longer routes, road crossing arrangements etc. - Fear of injury whilst cycling due to concerns about traffic	- Health impacts due to reduced physical activity as people travel by car or take the bus instead - Makes transport more expensive, impacting most on those with socio-economic disadvantage (including many people with protected characteristics) - When travelling by car rather than walking (including those in some protected groups unable to undertake walking and wheeling journeys), people generate avoidable car kilometres with associated negative impacts (energy usage, emissions, noise, collisions etc.)	- Equalities issues as some of these problems only (or most adversely) affect vulnerable or protected groups – socio-economic disadvantage, gender, age, disability etc. meaning that some groups cannot access services and opportunities - Health impacts due to reduced physical activity if not trip is made - Increased social isolation and associated impacts on health and wellbeing - Reduced discretionary walking for leisure and hence negative impacts on wellbeing

Table A4: Problems Framework – Cycling: problems and supply-side causes

Problem Theme	Transport Problem *Cycling*	Supply-Side Cause(s)
Cost of travel and affordability	I cannot afford to own / maintain / use a bike suitable for me	- Cost of buying and maintaining a bike - High cost of electric bikes

Problem Theme	Transport Problem *Cycling*	Supply-Side Cause(s)
Integration of travel between modes	Cycling links to my local railway station / ferry terminal / airfield are poor	- Absence of dedicated cycling facilities - Limited signage - The roads are not appropriate for cycling because of factors including traffic levels, mix of traffic, traffic speeds, speed limits, road width, road sightlines, lighting etc
	I cannot use my bike to take the bus	- Absence of secure bike parking at bus stops - Carriage of bikes on buses at operator discretion and therefore not possible in all cases / guaranteed - No specialised bike buses operating in the region
	I cannot always take my bike on the train	- Limited capacity for taking bikes on rail services. Whilst the West Highland Line has modified Class 153 stock for bike carriage purposes, no other lines in the Highlands and Islands have such an offer and space tends to be very limited
	Cycle parking options at the stations / ferry terminal / airport I use are poor	- Absence of secure and weatherproofed bike parking at many stations / ferry terminals / airports - Quality of secure and weatherproofed bike parking at many stations / ferry terminals / airports
Journey quality	I do not think my local environment is suitable for cycling	- Absence of traffic free paths to connect communities - Advisory cycle lanes not fit for purpose in places - Quality of cycle routes, continuity of standard, fragmentation, gaps in routes, lack of segregation etc. - Routes are poorly maintained - The road surface is poor in places - Traffic levels and speeds are intimidating
	There is nowhere for me to securely park a bicycle	- There is a lack of bike parking facilities at my home and I cannot keep a bike in my home - There is a lack of bike parking facilities when I use my bike away from my home
	I do not like cycling up hills	- Costs and availability of electric bikes - Cycling routes which are not defined to minimise the impact of gradients - Topography
	I need to be presentable at work	- There is a lack of facilities (e.g., showers, lockers, cycle parking etc) at my workplace
Journey times	Journey times by bike are too long	- Indirect cycling routes required to avoid busy roads unsuitable for cycling - Dwell times at traffic lights in main urban areas
Lack of awareness of travel options	I am not aware of cycling opportunities in the HITRANS region	- Lack of information, promotion of and signing of cycling routes
Personal Accessibility	I cannot use a standard bicycle due to disability	- Cost of buying and maintaining a bespoke bike - Route constraints - Steps and other interruptions (e.g., gates) on routes

Problem Theme	Transport Problem *Cycling*	Supply-Side Cause(s)
Personal security	I do not think it is secure enough for me to travel by bike	- Absence of other cyclists can lead to intimidation - Fear of crime or anti-social behaviour in local environment - Lack of safe, well-lit, welcoming routes - Poorly maintained routes (broken glass etc.) add to low amenity and an intimidating environment
Travel safety	I do not think it is safe enough for me to travel by bike	- Absence of dedicated cycling facilities - Intimidation by vehicular traffic - Lack of segregation from general traffic - Requirement to cross major routes such as the A9, A82, A96 etc - Roundabouts on routes - The roads are not appropriate for cycling because of factors including traffic levels, mix of traffic, traffic speeds, speed limits, road width, road sightlines, lighting etc - Unprotected right turns

Table A5: Problems Framework – Cycling problems: Societal consequences

Consequences of **cycling-related** problems that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Anxiety caused by presence of HGVs - exposure to noise and pollutants from general traffic especially where major routes run through settlements - Anxiety whilst cycling due to security concerns – a particular issue for more vulnerable groups, including those with protected characteristics - Damage to bicycles due to surfacing, lack of maintenance - Extended journey times associated with longer routes - Fear of injury whilst cycling due to concerns about traffic	- Health impacts due to reduced physical activity as people travel by car or take the bus instead - Lack of suitable alternatives can mean 'forced' car ownership for some households with significant financial implications, particularly for households with socio-economic disadvantage and in dispersed rural areas - Makes transport more expensive, impacting most on those with socio-economic disadvantage (including many people with protected characteristics) - When people travel by car rather than cycling (including those in some protected groups unable to undertake cycling journeys), they generate avoidable car kilometres with associated negative impacts (energy usage, emissions, noise, collisions etc.)	- Equalities issues as some of these problems only (or most adversely) affect vulnerable or protected groups – socio-economic disadvantage, gender, age, disability etc. meaning that some groups cannot access services and opportunities - Health impacts due to reduced physical activity – particularly where there are low cycling participation rates in more vulnerable groups - Reduced discretionary cycling for leisure with associated negative impacts on wellbeing - Reduced tourism-based cycling in some communities with knock on economic impacts

Table A6: Problems Framework – Bus based travel: problems and supply-side causes

Problem Theme	Transport Problem *Bus*	Supply-Side Cause
Concern over environmental impact of travel	I am concerned about the environmental impact of travelling by bus	- The bus fleet in the HITRANS region is generally diesel-powered affecting greenhouse gas emissions and local air quality
Cost of travel and affordability	I cannot afford to travel regularly by bus	- Concessionary travel entitlement regime means that some low-income groups do not benefit - Level of fares, including arrangements for regular bus users in the HITRANS region vary by operator
	Travelling by bus uses a high proportion of my disposable income	- Concessionary travel entitlement regime means that some low-income groups do not benefit - Level of fares, including arrangements for regular bus users in the HITRANS region vary by operator
Integration of travel between modes	I cannot realistically take a bus to catch the train	- Competition between rail and bus services means that services often compete rather than provide a complementary service - Low frequency and long route distances makes reliable integration between rail and bus services difficult
	I have to buy two tickets to travel by bus and rail	- Competition between rail and bus services limits the incentives to provide combined offering, although the HITRANS MaaS app helps to address this to some degree - Limited availability of, and or lack of awareness of integrated PlusBus bus / train tickets (Elgin, Fort William and Inverness only)
	Integration between my local bus and train services is poor	- Competition between rail and bus services means that services often compete rather than provide a complementary service - Low frequency and long route distances make reliable integration between rail and bus services difficult
	I have to buy two tickets to travel by bus and ferry	- Competition between bus and ferry on some peninsular routes - Different ticketing system with little crossover between bus and ferry operators - Very few buses operate over the ferry service
	Integration between buses and ferries is poor	- Buses generally cannot wait for long enough for a delayed ferry due to the requirement to maintain their timetable - Ferry arrival and departure times can vary by day, making it difficult to plan bus services, where the requirement is generally for a 'clockface' arrangement - 'Thin' / seasonal markets mean that bus companies cannot profitably connect with every ferry service
	Integration between buses and air services is poor	- First bus of the day arrives after first flights have departed - Last bus of the day leaves before last flights arrive - Low volumes and infrequent flights affect bus service viability - No bus route to airports / airfields - Requirement to change buses to get to airports / airfields - Bus has limited catchment, so would require interchange between bus services to provide meaningful connectivity to airport – timetables not well aligned

Problem Theme	Transport Problem *Bus*	Supply-Side Cause
	Switching between modes is difficult for me due to disability	- Alighting and boarding arrangements are not accessible to all - Physical barriers such as steps - Short connecting times between services - The absence of appropriately skilled staff to assist
Journey information	I do not know if my bus is going to be on time	- Absence of real time journey bus information at bus stops and via apps etc.
	I cannot access bus service information	- Bus journey information is not in a format which is accessible to all
Journey quality	I am exposed to weather at bus stops	- Inadequate availability / quality of bus shelters across the HITRANS region
	Travelling by bus does not feel like a high-quality experience	- Absence of bus stop signs in places - Absence of onboard toilets on longer routes - Absence of other facilities such as Wi-Fi and plug points on some longer routes - Age and quality of some vehicles - Customer experience - On board temperatures can be too hot or too cold - Quality of bus stop infrastructure
Journey times	It takes a long time to travel by bus, particularly compared to travel by car	- Circuitous service routeing - Congestion in main settlements, particularly Inverness, Fort William and Elgin - Frequency of bus stops, particularly on some long-distance services which are serving both local and long-distance movements - Road formation, use of bus lay-byes, alignment and quality means that average speeds are low
	I have to change buses or between bus and train which makes my journey long	- Current timetables and routeing options - Low frequency and long route distances mean that there can be a long wait when interchanging
Journey time reliability / punctuality	Journey times by bus are not reliable	- Climate change leading to more frequent severe weather events with associated disruption - Delays due to driver availability issues - Delays due to incidents on the road - Delays due to traffic congestion and absence of bus priority in and around the main settlements - Delays due to vehicle mechanical issues, sometimes associated with older vehicles - Long route distances for many services – adds to scope for delay - Seasonal variations in journey time as a result of high volumes of tourist traffic
	The bus is sometimes late to arrive and I have a longer wait at the stop	- Buses not punctual due to incidents on the network or operational reasons
Lack of awareness of travel options	I am not aware of the bus services available	- A particular issue for occasional or infrequent users, including visitors to the HITRANS region for whom information has to be readily accessible, understandable and reliable - Level of, accessibility of, and promotion of bus routes, fares and vehicle information by all stakeholders in the HITRANS region

Problem Theme	Transport Problem *Bus*	Supply-Side Cause
Personal Accessibility	I find it difficult to, or am unable to travel on the bus due to a disability	- Absence of journey assistance offer for those unable to travel unaccompanied - Access and egress routes to / from bus stops - Combination of bus station / stop location and design, and bus design - Issues with driving standards - Not all bus stops are fully accessible - Smaller buses (under 22 seats) are more common in rural parts of the region and are exempt from Public Service Vehicle Accessibility Regulations 2000
Personal security	I do not feel secure travelling on the bus	- Anti-social behaviour on buses - Infection control measures in the wake of the COVID-19 pandemic - Lack of CCTV on board buses - Low bus occupancy in places can make people feel vulnerable
	I do not feel secure waiting at bus stops	- Absence of formal bus stations with facilities in some places - Absence of other people passing in area of bus stops - Anti-social behaviour on transport and in the vicinity of bus stops - Combination of bus station and bus stop location and design, lighting - Lack of CCTV coverage - Majority of bus stops in deep rural areas and are thus very isolated
Travel safety	The walking route to my bus stop does not feel safe	- Some stops require people to walk along verges of busy roads where there are no footways
Comfort	I do not find bus travel comfortable	- Some of the bus fleet is ageing which will impact on ride comfort, noise, temperature control etc.
Connectivity and network coverage	There are no bus services where I live	- Coverage provided by current scheduled bus and DRT network - Large parts of the region are very rural affecting service provision
	There are bus services, but they do not go where / when I want to go	- Absence of buses at the times people want to travel - Absence of Sunday services - Coverage provided by current scheduled bus and DRT network - Lack of connections to key locations
Integration between services	I have to change buses to get where I want to go	- Extent of current scheduled bus and DRT network - Many services are arranged on a 'hub-and-spoke' basis, with a need to change in e.g., Inverness, Kirkwall, Stornoway etc
	I have to buy two tickets to travel by different bus operators	- Absence of multi-journey or multi-day tickets across different operators
	Integration between my local and long-distance bus is poor	- Bus timetables and absence of multi-operator tickets - Sparse services in rural areas make this more difficult

Problem Theme	Transport Problem *Bus*	Supply-Side Cause
Service reliability / cancellations	The bus sometimes does not show up	- Cancellations due to driver shortages - Cancellation due to vehicle issues - Cancellations due to incident on the road network caused by traffic incident or weather
	The school bus sometimes doesn't show up	- Cancellations due to driver shortages - Cancellation due to vehicle issues - Cancellations due to incident on the road network caused by traffic incident or weather
Timetables	The bus service is not frequent enough	- Extent of the commercial bus network is limited away from the more populated areas - Extent of current scheduled bus timetable - Limited network in more sparsely populated parts of the region
	There is no bus at the time I want to travel	- Extent of the commercial bus network is limited away from the more populated areas - Extent of current scheduled bus timetable - Limited network in more sparsely populated parts of the region
	I can't travel by bus for a regular working day	- Extent of the commercial bus network is limited away from the more populated areas - Extent of current scheduled bus timetable - Limited network in more sparsely populated parts of the region
	I can't get to early morning appointments / shift work or attend late night social events / shift work by bus	- Extent of the commercial bus network is limited away from the more populated areas - Extent of current scheduled bus timetable - Limited network in more sparsely populated parts of the region
	I cannot travel by bus on one or more days per week	- Extent of the commercial bus network is limited away from the more populated areas - Extent of current scheduled bus timetable - Limited network in more sparsely populated parts of the region

Table A7: Problems Framework – Bus based travel: Societal consequences

Consequences of a **bus-based** problem that…		
…negatively affects a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Anxiety caused by exposure to traffic on unsuitable paths or verges to / from bus stops - Anxiety due to uncertainty of bus arriving on time / turning-up, particularly when an onward connection has to be made - Anxiety whilst using the bus due to health / virus concerns - Anxiety whilst using the bus due to security concerns (particularly for some protected groups - e.g., women, elderly and disabled people) – on bus and at stop - Cost of bus travel particularly significant for lower income households and can comprise a significant component of disposable income contributing to transport poverty - Discomfort at bus stops with poor facilities - Extended journey times associated with longer routes, frequent stopping, waiting times when interchanging etc. leading to lost personal / in-work time - Higher costs when separate ticket purchases are required - Inconvenience and difficulty when travelling as a person with a disability (journey planning, access to infrastructure and accessing and using services / vehicles) - Missed appointments, including health appointments if buses are late / are cancelled, some with a cost implication - People may have to rely on lifts reducing independence and increasing reliance on others (a particular issue for young people) - People travel at a time less convenient to them	- Health impacts due to reduced physical activity as people travel by car rather than bus which involves some walking - Lack of suitable public transport services can mean 'forced' car ownership for some households with significant financial implications, particularly for households with socio-economic disadvantage and in dispersed rural areas - Lack of suitable bus services can mean that people have to use taxis with significant financial implications for some households - Negative behaviours associated with predominantly car-based tourism when people do not have an alternative, e.g., congestion, indiscriminate parking, misuse of single-track roads etc - When people travel by car rather than bus, they generate avoidable car kilometres with associated negative impacts (energy usage, emissions, noise, collisions)	- Equalities issues when vulnerable groups cannot travel by bus, and / or have accessibility issues in relation to bus information, getting to bus stops, physical vehicle access etc - Increased social isolation and associated impacts on health and wellbeing - Labour market access issues– particularly those undertaking shift work and vulnerable groups such as dispersed rural communities and deprived communities (impacts on those with socio-economic disadvantage) reducing job opportunities and earning potential - Labour market efficiency impacts through poor matching of people to jobs - Population out-migration / areas less attractive to in-migrants – can damage social fabric of an area and increase the cost of service delivery to the public sector - Reduced business investment and / or centralisation of that investment - Reduced business productivity as a result of limitations on labour supply / poor matching of jobs-to-labour - Reduced community participation in leisure, social, cultural and sporting activities with negative impacts on wellbeing - Reduced community participation in tertiary education and training leading to lower educational attainment - Reduced tourism around the region leading to an uneven distribution of the benefits of tourism-related business

Table A8: Problems Framework – Train-based travel: problems and supply-side causes

Problem Theme	Transport Problem *Train*	Supply Side Cause
Concern over environmental impact of travel	I am concerned about environmental impacts when I travel by train	- All trains used in the HITRANS region are diesel. Furthermore, the 125 stock (or more accurately the Class 43 power cars) date from the late 1970s and the Class 15x stock from the late 1980s and thus will need to be replaced at an appropriate juncture - LNER Azuma rolling stock and Caledonian Sleeper run as diesel services to Haymarket / Edinburgh Waverley
Cost of travel and affordability	I can't afford to travel regularly by train	- Differentials between *Scotland's Railway* and LNER pricing - Even discounted fares can be prohibitive for some - Level of fares set by *Scotland's Railway* - Low awareness of discount products such as the Highland Railcard - In Argyll & Bute, some stations sit just outwith the SPT fares zone (e.g., Ardlui) leading to increased fares - Variable fares for some long-distance travel, with high prices for walk-up / short notice travel
	Travelling by train uses a high proportion of my disposable income	- Differentials between *Scotland's Railway* and LNER pricing - Level of fares set by *Scotland's Railway* - Low awareness of discount products such as the Highland Railcard - In Argyll & Bute, some stations sit just outwith the SPT fares zone (e.g., Ardlui) leading to increased fares - Variable fares for some long-distance travel, with high prices for walk-up / short notice travel
Integration of travel between modes	I have to buy two tickets to travel by rail and bus	- Competition between rail and bus services means bus / train through ticketing is limited - Limited availability of, and or lack of awareness of integrated PlusBus bus / train tickets (Elgin, Fort William and Inverness only)
	Integration between my local train and bus services is poor	- Competition between rail and bus services means that services often compete rather than provide a complementary service - Low frequency and long route distances make integration between rail and bus services difficult
	Ferry arrival / departure times do not align with rail services	- Ferry departure and arrival times determined by customer demand, berth availability, vessel overnight location, crewing hours and, in some cases, tides - Rail timetabling is complex, particularly on the West Highland, Far North and Kyle Lines. Need for trains to meet in loops and, for West Highland, split and join at Fort William and Crianlarich and peak hour unit availability in the Central Belt - There are many constraints which make this difficult in places

Problem Theme	Transport Problem *Train*	Supply Side Cause
	Switching between modes is difficult for me due to disability	- Alighting and boarding arrangements are not accessible to all - Physical barriers such as steps - Short connecting times between services - Short connecting times between services - The absence of appropriately skilled staff to assist
Journey quality	Travelling by train does not feel like a high-quality experience	- Far North Line and Kyle Line trains are Class 158 DMUs, which also date from the late 1980s / early 1990s. They have however recently been refurbished to a higher standard - HST (125) trains are high emission and expensive to operate - Occasional use of Class 158 / Class 170 trains between Inverness – Aberdeen and Inverness – Perth / Edinburgh Waverley / Glasgow Queen Street not considered of an equivalent standard to 125 or LNER Azuma stock - West Highland Line trains are Class 156 + Class 153 diesel multiple units (DMUs) which are over 30 years old so are not state of the art
	My local station has poor facilities	- Closure of facilities in the evening - Island platforms can lead to use of unattractive underpasses / steep steps - Many stations do not have ticket offices, pre-purchase collection, ticket machines, toilets, shops etc. - Staffing levels
Journey times	I find journey times by train across the region to be too long	- Circuitous routeing to avoid natural barriers (e.g., Moray, Cromarty and Dornoch Firths) - Dwell times for split and join operations (e.g., at Fort William and Crianlarich) - Indirect services to Thurso (i.e., via Wick) - Low line speeds on all lines, but particularly the Far North, Kyle and West Highland Lines - Scheduled dwell times in passing loops - Station stopping patterns – almost all services 'all-stop' and rural lines have a large number of stations
	I have to change trains or between train and bus which makes my journey long	- Absence of stations in settlements with a railway line, e.g., Evanton - Extent of bus and rail network (and low frequency of service, which can lead to long interchange times)
Journey time reliability / punctuality	Journey times by train are not reliable	- Extended station dwell times in peak season - Knock-on delay caused by large stretches of single line working - Knock-on delay imported from the Central Belt, or further afield for LNER and Caledonian Sleeper services - Rolling stock reliability issues - Staffing issues - Weather events, some of which are linked to climate change

Problem Theme	Transport Problem *Train*	Supply Side Cause
	The train sometimes leaves and arrives late	- Extended station dwell times in peak season - Knock-on delay caused by large stretches of single line working - Knock-on delay imported from the Central Belt, or further afield for LNER and Caledonian Sleeper services - Rolling stock issues - Staffing issues - Weather events, some of which are linked to climate change
	The train is sometimes cancelled	- Knock-on cancellations caused by large stretches of single line working - Knock-on cancellations imported from the Central Belt, or further afield for LNER and Caledonian Sleeper services - Rolling stock reliability issues - Staffing issues - Weather events, some of which are linked to climate change
Personal Accessibility	I find it difficult to, or am unable to travel by train due to a disability	- Absence of journey assistance offer for those unable to travel unaccompanied - Many stations have poor access routes to / from and at stations – e.g., absence of step free access, ramps for train access etc. This is a particular issue for island platform stations. - Some station locations are not convenient for the communities they serve
Personal security	I do not feel secure travelling by train	- Low train usage in places can make people feel vulnerable - Onboard staffing levels
	I do not feel secure at railway stations	- Quality / absence of lighting, CCTV etc - Low station usage levels can make users feel vulnerable - Remote and isolated rural stations can make users feel vulnerable - Unstaffed stations can make users feel vulnerable
Comfort	I don't find train travel comfortable	- Despite recent refurbishment, Class 156 / 153 DMUs used on the WHL are relatively old and of a poorer standard than would perhaps be expected for a circa five-hour journey from Glasgow Queen Street – Mallaig. Refurbished Class 158s are of a comparatively higher standard although still ageing. - Use of Class 158 and Class 170 stock below passenger expectations for longer distance journeys from Inverness
Capacity	I occasionally cannot get a seat on the train	- Significant seasonal peak variation in use of lines in the HITRANS region. - The West Highland and Kyle lines are particularly susceptible to this.
Connectivity and network coverage	There are no railway stations near where I live	- Absence of railway lines in larger settlements (e.g., Buckie, Grantown-on-Spey, Fort Augustus, Dornoch etc) - Absence of stations in settlements with a railway line (e.g., Evanton)

Problem Theme	Transport Problem *Train*	Supply Side Cause
	There are train services, but they do not go where I want to go	- Absence of railway lines in larger settlements (e.g., Buckie, Grantown-on-Spey, Fort Augustus, Dornoch etc) - Absence of stations in settlements with a railway line (e.g., Evanton)
Integration between services	I have limited time to make a connection between two infrequent rail services, particularly if one service is delayed	- Constrained timetables on single lines as noted previously - Rolling stock diagrams / timetable design
Timetables	The train service is not frequent enough	- All HITRANS region routes are constrained to some degree by single line working - Cost / value for money considerations impact on service provision and new investment - Platform capacity at Glasgow Queen Street and Edinburgh Waverley - Supply-side infrastructure and rolling stock constraints
	I can't travel by train for a regular working day	
	I can't get to early morning appointments / shift work or attend late night social events / shift work by train	
	I cannot travel by train on a Sunday	- Allowances for extended Saturday night into Sunday morning possessions - Cost / value for money considerations - No Caledonian Sleeper service on a Saturday evening into Sunday morning in either direction - Timetables operated by *Scotland's Railway*

Table A9: Problems Framework – Train based travel: Societal consequences

Consequences of a **train-based** problem that….		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Anxiety whilst using the train due to health / virus concerns - Anxiety whilst using the train due to security concerns (particularly for some protected groups - e.g., women, elderly and disabled people) – on train and at station - Cost of rail travel particularly significant for lower income households and can comprise a significant component of disposable income contributing to transport poverty and increased inequalities of outcome. This is particularly the case where there is no local bus service and train is the only choice of public transport - Discomfort at stations with poor facilities - Discomfort on ageing rolling stock - Extended journey times associated with slow line speeds, stopping patterns, waiting times when interchanging etc. leading to lost personal / in work time - Inconvenience and difficulty when travelling as a person with a disability (journey planning, access to infrastructure and accessing and using services/vehicles) - Missed appointments, including health appointments if trains are late / are cancelled, some with a cost implication - People may have to rely on lifts reducing independence and increasing reliance on others (a particular issue for young people) - People travel at a time less convenient to them	- Health impacts due to reduced physical activity as people travel by car rather than train which involves some walking - Lack of suitable train services can mean 'forced' car ownership for some households with significant financial implications, particularly for households with socio-economic disadvantage and in dispersed rural areas - Lack of suitable train services can mean that people have to use taxis with significant financial implications for some households - Negative behaviours associated with predominantly car-based tourism when people do not have an alternative, e.g., congestion, indiscriminate parking, misuse of single-track roads etc - When people travel by car rather than rail, they generate avoidable car kilometres with associated impacts (energy usage, emissions, noise, collisions)	- Equalities issues when vulnerable groups cannot travel by train, and/or have accessibility issues in relation to train information, getting to railway stations, physical vehicle access etc - Increased social isolation and associated impacts on health and wellbeing - Labour market access issues – particularly those undertaking shift work and vulnerable groups such as dispersed rural communities and deprived communities (impacts on those with socio-economic disadvantage) reducing job opportunities and earning potential - Labour market efficiency impacts through poor matching of people to jobs - Population out-migration / areas less attractive to in-migrants – can damage social fabric of an area and increase the cost-of-service delivery to the public sector - Reduced business investment and / or centralisation of that investment - Reduced business productivity as a result of limitations on labour supply / poor matching of jobs-to-labour - Reduced community participation in leisure, social, cultural and sporting activities with negative impacts on wellbeing - Reduced community participation in tertiary education and training leading to lower educational attainment - Reduced tourism around the region leading to an uneven distribution of the benefits of tourism-related business

Table A10: Problems Framework – Ferry (personal travel): problems and supply-side causes

Problem Theme	Transport Problem *Ferry – Personal travel*	Supply Side Cause(s)
Concern over environmental impact of travel	I am concerned about the environmental impact of travelling by ferry	- Most vessels are currently only replaced when they are 30+ years old, so this is a long-term problem - The construction of ferries and ferry terminal infrastructure has environmental impacts - The large majority of vessels in the HITRANS region use fossil fuels, generating significant greenhouse gases and other pollutants
Cost of travel and affordability	It is too expensive to travel as a foot passenger	- Commercially set fares / fares benchmark on the Pentland Firth - Fare levels set by A&BC, Highland and Orkney for services under their control – fares balance passenger needs with a degree of cost recovery - Fare levels set by Transport Scotland for CHFS and NIFS – fares balance passenger needs with a degree of cost recovery - Fare types and concessionary arrangements - Limited range of income-based concessions - Multi-journey books require significant up-front outlay
	It is too expensive to take my car / vehicle on the ferry	- Commercially set fares / fares benchmark on the Pentland Firth and Gourock-Dunoon - Fare levels set by A&BC, Highland and Orkney for services under their control – fares balance passenger needs with a degree of cost recovery - Fare levels set by Transport Scotland for CHFS and NIFS – fares balance passenger needs with a degree of cost recovery - Fare types and concessionary arrangements - Limited range of income-based concessions - No regular user / season ticket fares on CHFS and NIFS - Multi-journey books require significant up-front outlay
	It is too expensive to book accommodation onboard (Kirkwall – Aberdeen and Kirkwall - Lerwick only)	- Cabin charges, which are required to support both some cost recovery and balance demand - These are overnight sailings only which necessitate the use of a cabin for many people
Integration of travel between modes	I have to pay multiple fares for one journey	- Fares are paid individually to the ferry operator(s) and connecting transport companies (with some exceptions) - Very few bus services operate over the ferry service
	Ferry arrival / departure times do not align with rail services	- Ferry departure and arrival times determined by customer demand, berth availability, vessel overnight location, crewing hours and, in some cases, tides - Rail timetabling is complex, particularly on the West Highland, Far North and Kyle Lines. Need for trains to meet in loops and, for West Highland, split and join at Fort William and Crianlarich and peak hour unit availability in the Central Belt - There are many constraints which make this difficult in places

Problem Theme	Transport Problem *Ferry – Personal travel*	Supply Side Cause(s)
	Ferry arrival / departure times do not align with bus and coach services	- Buses generally cannot wait for a delayed ferry due to the requirement to maintain their timetable - Ferry arrival and departure times can vary by day, making it difficult to plan bus services, where the requirement is generally for a 'clockface' arrangement - 'Thin' / seasonal markets mean that bus companies cannot profitably connect with every ferry service
	The bus does not wait if my ferry is late	- Bus company has to maintain timetable to avoid possible sanction - This would cause a knock-on delay from late running service (e.g., next service delayed or cancelled).
	I can't leave my car at the ferry terminal	- Limited long-stay parking provision - Parking on street in the surrounding area is less secure or limited waiting restrictions apply
	I cannot take my car on the ferry	- Lo-Lo vessel with deadweight or crane weight restriction - Passenger only vessel
Journey times	The journey time is too long	- Check in times at ferry terminals - Ferry routes and ports - Vessel operating speed - Services shared between multiple islands, making for circuitous routes and long journey times
Journey time reliability	The route(s) I use have a tidal timetable	- Choice of vessel - Location of ports / routes
Personal accessibility	I find it difficult / am unable to travel on the ferry due to a disability	- Lack of step free access to passenger lounge on some vessels - Variable standards of provision with waiting rooms and accessible toilets **NorthLink** - Availability of suitable accommodation on a sailing.
Booking and journey planning	I find travel disruption information poor / unreliable / out-of-date	- Operational choices in fast moving environment Insufficient real time information boards at strategic points on the road network - Lack of Wi-Fi and / or 3/4/5G in remote rural areas to access disruption information
	I am unable to book ferry trips far enough in advance	- Current timetable production and approval process - In house sign off (e.g., Transport Scotland, Orkney Islands Council etc) for timetables required before publication
	I find it problematic booking ferry tickets regularly	- Lack of electronic tickets - Lack of vehicle capacity means booking is often required - Short duration of multi-journey tickets - Lack of user-friendly online booking systems – with ease of making changes / cancellations etc.
	I cannot book combined ferry and bus / rail tickets	- Lack of integrated ticketing – different ticketing systems, revenue reconciliation etc

Problem Theme	Transport Problem *Ferry – Personal travel*	Supply Side Cause(s)
Capacity	I sometimes find it difficult to book a passenger space on the ferry (note that this is on the whole very rare – concentrated on very occasional peak season sailings or event related issues on a handful of routes)	- Demand exceeds vessel passenger certificate
	I sometimes find it difficult / am unable to book my vehicle on the ferry	- Imbalance between demand for and supply of space for cars on the vehicle deck on some sailings - Restrictions in the deployment of mezzanine decks - Shared vessel with other islands - Vehicle deck capacity
	I sometimes find it difficult / am unable to book a cabin on the ferry (Kirkwall – Aberdeen / Lerwick only)	- Imbalance between demand for and supply of cabins on some sailings - Number of cabins - Preference for sole use cabins can mean low bed / cabin occupancy rates
	I find it difficult / am unable to book my car on the ferry and a cabin	- As above
Comfort	I don't find the ferry comfortable	- Sea conditions - Vessel design (internal and external) - 'Heritage' fleets not to modern standards for passenger comfort
Integration between services	I cannot connect between two ferry services on the same day	- Drydock / refit period timetables - Lack of 7-day sailings - Timetable design and vessel overnight location - Value for money decision by operator / funder - Vessel availability and crew resourcing
Reliability	The ferry is sometimes cancelled	- Absence of replacement vessels - Ageing vessels leading to more frequent breakdowns and longer refit periods - Climate change leading to increasing weather events - Crewing issues - Weather
	The ferry is sometimes diverted to another port	- Ship-shore interface (mainly an issue on CHFS during drydock period or when fleet is cascaded to deal with a breakdown) - Weather

Problem Theme	Transport Problem *Ferry – Personal travel*	Supply Side Cause(s)
	The ferry is sometimes leaves and arrives late	- Ageing vessels leading to more frequent breakdowns and longer refit periods - Climate change - Crewing issues - Tides - Turnaround times, particularly in peak season - Weather
Timetables	I can't travel on the day I want to travel	- Timetable – absence of 7-day service - Drydock / refit periods - Value for money decision by operator / funder - Vessel availability and crew resourcing
	I can't travel at the time I want to travel - weekday	- Timetable design and vessel overnight location - Vessel availability and crew resourcing - Drydock / refit periods - Value for money decision by operator / funder
	I can't travel at the time I want to travel - weekend	- Timetable design and vessel overnight location - Vessel availability and crew resourcing - Drydock / refit periods - Value for money decision by operator / funder
	I can't get to / return from early morning / late evening flights, shift-work, social events etc	- Timetable design and vessel overnight location - Length of ferry operating day, driven by crew hours - Value for money decision by operator / funder
	There is insufficient time between sailings to enable a meaningful day return trip between my community and the nearest major service centre	- Timetable design and vessel overnight location - Vessel and crew resourcing - Crossing time / vessel speed - Onward transport connections
	I cannot travel from Orkney to Aberdeen or Shetland when I want to / the departure times are unsociable	- No daily connections between Shetland and Orkney - No daily connections between Orkney and Aberdeen - Late evening departures from Hatston a product of the timetable - Requirement for a cabin for many when travelling from Orkney

Table A11: Problems Framework – Ferry (personal travel): Societal consequences

Consequences of a **Ferry (personal travel) based** problem that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Adds to cost of island / peninsular life - Cost of ferry travel particularly significant for lower income households and can comprise a significant component of disposable income (with consequential impacts for some affected groups who are indirectly discriminated against in their ability to access services which can only be reached on the mainland) - Additional overnight accommodation / subsistence costs in the event of a timetable that does not allow the necessary connections to be made or as a result of ferry cancellations (although a benefit to providers) - Additional cost of taking a car or paying for a taxi if public transport connections do not allow for travel as a foot passenger - Delays due to weather or operational issues adds further lost time and leads to missed appointments - People may travel on days which are not their preference due to timetable / capacity constraints / cancellations creating inconvenience and adding to lost personal time - Stress / anxiety caused when trying to make connections **For NorthLink overnight services:** - Overnight discomfort / poor sleep if preferred sleeping accommodation not available - Lost time and inconvenience if travelling from Orkney due to late arrival / departure times - Anxiety caused by personal security concerns if unable to get a cabin, may be particularly problematic for some vulnerable groups	There are several potential responses, each of which may add to cost (particularly for short notice journeys), exacerbate capacity problems where these exist and / or have differential carbon impacts - People may take their car on the ferry for journeys they would have otherwise made by public transport had the connections worked - People may own a second car which they park on the Scottish or island mainland - People may fly instead of using the ferry - People may travel by longer / less direct ferry routes – e.g., South Uist to Glasgow via Barra - On peninsular communities, people may choose to drive for the full journey	- Cost of travel means some residents (particularly those in households of socio-economic disadvantage) do not see mainland family and friends or undertake social activities as much as they would like, particularly at short notice - Reduced labour market participation (e.g., higher unemployment or under-employment) - Reduced productivity through ineffective matching of jobs and labour - Poorer educational attainment - Higher cost of shopping through having to buy more goods locally (but potential net benefit for the island) - Reduced participation in sport and leisure due to cost and accommodation issues - Increased social isolation for some protected groups and associated impacts on health and wellbeing - Reduced island tourism - Impact on population retention and in-migration– has knock on impact on the island / peninsular economy and provision of public services - Potential implications on attending heath appointments in Inverness, Aberdeen or Glasgow or other regional settlements - Equalities impacts for those groups who will not travel without a cabin for health / personal security reasons (overnight NorthLink services only)

Table A12: Problems Framework – Ferry (freight): problems and supply-side causes

Problem Theme	Transport Problem *Ferry - Freight*	Supply-Side Cause(s)
Concern over environmental impact of travel	I am concerned about the environmental impact of travelling by ferry	- The majority of vessels in the HITRANS region use fossil fuels, generating greenhouse gases and other pollutants. This includes the two dedicated NorthLink freighters - Most vessels are currently only replaced when they are 30+ years old, so this is a long-term problem The construction of ferry terminal infrastructure has environmental impacts
Cost of travel and affordability	It is too expensive to take freight on the ferry	- Freight schedule of rates specified by Scottish Government - Freight schedule of rates specified by A&BC, Highland and Orkney Islands Councils - Lack of drop-trailers - Lack of bulk and / or commodity related discounts
	It costs more on a per mile or per lane metre basis to take freight from my island on the ferry than it does from other islands	- Freight schedule of rates specified by Scottish Government – contains historic legacy fares - Freight schedule of rates specified by A&BC, Highland and Orkney Islands Councils – contains historic legacy fares - Differing basis of tariff - Inconsistent application of drop trailers - Differing classifications of 'freight' - Differing discounts and surcharges - Remaining Lo-Lo routes – commodity-based fares
Journey time reliability	The NorthLink freighters sometimes leave and arrive late	- Weather disruption - Operational issues - Freight vessels more prone to disruption due to inferior seakeeping
Capacity	There is not sufficient capacity for freight on Ro-Pax	- Vehicle deck size - Imbalance between demand for and supply of space for commercial vehicles and freight on the vehicle deck on some sailings - Inability to fit high-sided vehicles under the mezzanine decks on some vessels - On NorthLink, Ro-Pax vessels the preferred service for time sensitive freight
	There is not sufficient capacity for freight on the NorthLink freight vessels	- Vehicle deck size - Imbalance between demand for and supply of space for commercial vehicles and freight on the freight vessels on some sailings
Reliability	The ferry is sometimes cancelled	- Weather - Climate change leading to increasing weather events - Crewing issues - Ageing vessels leading to more frequent breakdowns and longer refit periods

Problem Theme	Transport Problem *Ferry - Freight*	Supply-Side Cause(s)
	The ferry is sometimes diverted to another port	- Weather - Ship-shore interface (mainly an issue on CHFS during drydock period or when fleet is cascaded to deal with a breakdown)
	The ferry is sometimes leaves and arrives late	- Weather - Climate change - Tides - Turnaround times, particularly in peak season - Crewing issues - Ageing vessels leading to more frequent breakdowns and longer refit periods
Timetable	I can't move freight on the day I want to	- Timetable – absence of 7-day service - Vessel availability and crew resourcing - Drydock / refit periods - Value for money decision by operator / funder
	I can't move freight at the time I want to	- Timetable design and vessel overnight location - Vessel availability and crew resourcing - Drydock / refit periods - Value for money decision by operator / funder
	There is insufficient time between sailings to enable a day return trip between the ferry terminal and the freight distribution centre	- Timetable design and vessel overnight location - Vessel and crew resourcing - Crossing time / vessel speed

Table A13: Problems Framework – Ferry (freight) problems: Societal consequences

Consequences of a **Ferry (freight) based** problem that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Cost of moving freight by ferry a significant additional cost to exporting from, or importing to island / peninsular communities, affecting commercial viability and / or the price charged to end user - with implications for relative economic and social disadvantage of each island / peninsular community and its freight dependent businesses relative to the Scottish mainland Inequalities between islands / peninsular communities in terms of	- No significant issues here – goods which travel by ferry very unlikely to be suitable for air freight	- The current costs and logistics of moving goods from and to island and peninsular communities may place a constraint on the growth of existing businesses or the formation of new businesses, affecting the economic vitality and long-term sustainability of islands / peninsular co relative to the Scottish mainland - High costs and / or inefficiencies in the movement of goods can feed through into a higher cost of living in island and peninsular

Consequences of a **Ferry (freight) based** problem that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
the tariff paid - Inequalities between hauliers in terms of the tariff paid - Delays and cancelations affect supply chain efficiency and the value of some time-sensitive goods in transit will reduce with delays - Production day shortened on days when vessels leave early / timetable inconsistent between days		communities - At the margin, a haulage firm may choose to leave the market. This can leave an island / peninsular community dependent on an outside haulier (if such a haulier is willing to serve the island / peninsular community at all), which can increase costs and reduce local choice and service

Table A14: Problems Framework – Air travel: problems and supply-side causes

Problem Theme	Transport Problem *Air travel*	Supply-Side Cause(s)
Concern over environmental impact of travel	I am concerned about the environmental impact when I travel by air	All of the aircraft serving the HITRANS region (for inter-island and longer distance flights) use fossil fuels, generating greenhouse gases
Cost of travel and affordability	I find that the air fares are too expensive / unpredictable, particularly for short notice trips	- For inter-island PSO services (Orkney and Argyll & Bute), maximum fares set by the local authority – fares balance passenger needs with a degree of cost recovery – in Orkney fares are set to offer preferential rates for isle-based journeys, so much higher fares starting a journey from the Orkney Mainland. Also, preferential fares for staying over in the isles that do not have an equivalent daily ferry service (North Ronaldsay and Papa Westray). - For Transport Scotland PSO routes, maximum fare set by Transport Scotland – reflects a balance of passenger needs with a degree of cost recovery - For Highland PSO route, maximum fare set by The Highland Council – reflects balance of passenger needs and a degree of cost recovery whilst trying to grow the demand for the service. - For all other flights, commercially set fares reflecting a yield management approach - Only one provider at present on almost all routes so there is a monopoly
	As a third sector organisation / business, we do not have access to the Air Discount Scheme	- Regulatory issues (state aid)
	If I cancel / change my booking I incur a cost	- Commercial decisions of operator
Integration of travel between modes	There is no direct bus connection between my home and the airport / airfield I use most regularly.	- No dedicated airport bus (vehicles and service) and / or connections to the airport bus service

Problem Theme	Transport Problem *Air travel*	Supply-Side Cause(s)
	The bus connection between my home and the airport / airfield I use most regularly does not reliably align with flight times, including first and last departures	- Commercial decisions of operator or other use for vehicle and driver set by Public Service Contract (e.g., school transport) - Single driver operating day - Non-clockface bus timetable - Short-notice changes to air timetables
	I find it difficult to connect for onward travel from my destination airfield / airport	- No dedicated airport bus - Limited active travel options from airport / airfield
Journey information	For inter-island services, I do not know if my flight is going to be on time	- Flights can be affected by weather / visibility and the schedule altered / services cancelled at short notice to ensure that the flight can be undertaken (e.g., North Ronaldsay) - Climate change leading to increasing weather events Information is provided by personal phone calls, rather than apps etc. given the low travel volumes
Personal accessibility	I find it difficult / am unable to travel on the local authority inter-island air services due to mobility issues	- Design of aircraft used to provide the service - Infrastructure and operational constraints which drive the aircraft specification
Capacity	I am unable to get a seat on the plane at the time / on the day I want to travel	**Orkney and Argyll & Bute inter-island services:** - The aircraft which operate the service can carry a maximum of eight passengers and there are also weight restrictions which can reduce this number when carrying cargo to the islands - School travel (children on Sundays and Monday AMs and teachers daily to Sanday, Stronsay and Westray and weekly to Eday, North Ronaldsay and Papa Westray) and service providers to the islands use a significant proportion of the available capacity - Routes in Orkney are indirect (due to two islands sharing much of the departures), which can lead to the flight overall being fully booked but empty seats on specific legs` **Other air services** - Combination of timetables and aircraft used insufficient to meet demand - Commercial decision - operators should respond to this problem
Comfort	I don't find the Argyll & Bute and / or Orkney inter-island flights comfortable	- Design of aircraft used to provide the service - Infrastructure and operational constraints which drive the aircraft specification
Connectivity	My island no longer has an air connection (e.g., Skye, Hoy etc) The air connection on my island is threatened (e.g., Eday)	- Landside human resources on island - Low demand - Difficulty in securing air crew on the island in the context of such an infrequent service and other service constraints
	The range of destinations available from the airport I most regularly use is limited	- Commercial decisions of operators - Route specifications in public service contracts

Problem Theme	Transport Problem *Air travel*	Supply-Side Cause(s)
Reliability	Flights are sometimes cancelled	- Weather disruption / poor visibility - Operational issues - Crewing issues
	Flights are sometimes late	- Weather disruption / poor visibility - Operational issues - Crewing issues
	Inter-island flights are sometime brought forward	- Proactive response of operator to avoid cancellations due to poor weather or visibility
Timetables	I am unable to make a day return trip by air to / from all Scottish Mainland Airports in all timetable periods	- COVID-19 is affecting timetables in the short term - Commercial decisions of operator on services provided - Day returns to Inverness have been particularly scaled back and have been borderline viable for a number of years, and pre-dating COVID - e.g., Orkney presently has a single rotation some days of the week.
	I can't travel on the day I want to travel	- Lack of seven-day services on some routes - Aircraft, pilot and island human resources
	I can't undertake a meaningful day trip to / from Orkney mainland / Argyll & Bute on the inter-island air service on some days	- Current timetable - Aircraft, pilot and island human resources

Table A15: Problems Framework – Air-based travel problems: Societal consequences

Consequences of an **air-based** problem that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Adds to cost of living, particularly in islands - Adds to cost of doing business in the HITRANS region, particularly in islands. This places businesses at a comparative disadvantage - Cost of air travel particularly significant for lower income households and can comprise a significant component of disposable income - Additional overnight accommodation / subsistence costs in absence of early / late flights (although a benefit to providers) - Delays due to weather or operational issues adds further lost	- People may take the ferry instead of flying due to lack of seats or cancellation of flights – this will result in a different level of carbon generation and may cost less, especially if traveling at short notice - Illness due to seasickness if taking the ferry instead - When people travel by car (own or hired) or taxi to / from the airport rather than take the bus, they generate avoidable car kilometres with associated impacts (energy usage, emissions, noise, collisions)	- Cost of travel means some residents do not see family and friends or undertake social activities as much as they would like, particularly at short notice - Also applies to groups who have some protected characteristics making air travel difficult to access and / or unaffordable - Increased social isolation for and associated impacts on health and wellbeing - Reduced island tourism

Consequences of an **air-based** problem that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
time and leads to missed appointments - People may travel at times or days which are not their preference due to capacity constraints / cancellations creating inconvenience and adding to lost personal time		- Impact on population retention and in-migration - Potential implications on attending heath appointments on the - Scottish or island mainland - Additionally, for inter-island travel: - High school students do not get to return home on all of the weekends when they are scheduled to do so - Reduced community participation in tertiary education and training, - Reduced community participation in business, leisure, social, cultural and sporting activities - Equalities issues when vulnerable groups cannot travel by air

Table A16: Problems Framework – Other road based travel: problems and supply-side causes

Problem Theme	Transport Problem *Other Road-Based Travel*	Supply-Side Cause(s)
Concern over environmental impact of travel	I am concerned about the environmental impact when I travel by car or taxi	- High ongoing use of fossil fuelled vehicles generating greenhouse gases and other pollutants - Embedded carbon in EVs - Absence of alternatives to car use for many
	I am concerned about environmental impacts when I move freight by road	- High ongoing use of fossil fuelled vehicles generating greenhouse gases and other pollutants - Embedded carbon in EVs - Absence of alternatives to car use for many
Cost of travel and affordability	The cost of driving is too high for me	- Higher fuel prices in rural areas, particularly islands
	I cannot afford an electric vehicle	- New EV prices are higher than petrol / diesel equivalent and low supplies of second hand EVs mean they are unaffordable for many at present
	The cost of using a taxi is too high for me	- Tariff structure set by respective local authorities (covering mainland areas) - Higher costs during travel at anti-social hours - Absence of competition to traditional taxi model in much of the HITRANS region – e.g., Uber-type operations
Fuel / power issues	I cannot charge an electric vehicle	- Lack of off-street parking at home / flat based accommodation makes home charging difficult - Absence of suitable public EV charging infrastructure

Problem Theme	Transport Problem *Other Road-Based Travel*	Supply-Side Cause(s)
	I have no alternative but to use petrol / diesel vehicles	- Cost of EVs - Lack of alternative fuel technologies on heavier vehicles - Absence of suitable public EV charging infrastructure
Journey information	I do not know if there are incidents on the road when I set off	- Limited real time traffic information other than that provided by app, local radio etc - Android Auto / Apple CarPlay can be affected by poor / no phone signal
Journey quality	I cannot park where I want to park	- Lack of disabled parking bays and increasing number of blue badge holders - Limited enforcement of parking regulations restricts peoples' ability to park - Limited parking for motorhomes - Limiting parking in peak visitor season
	I find the quality of the road surfaces poor	- Level of road maintenance - Increasing weather incidents linked to climate change - Many roads not designed for high volumes of summer visitation
	I do not think there are enough rest areas on the roads I use	- Few formal HGV parking / rest areas with appropriate facilities
Journey times	Journey times by road are long across the region with low average speeds	- Low average speeds on the main routes, relative to comparable A class roads - Lengthy sections of single-track roads with passing places - Limited overtaking opportunities due to single-carriageway roads and poor sightlines, road alignment and geometry - Seasonal tourist traffic - Several of the main trunk routes (e.g., A82, A96, A85, A9 north of Inverness etc) have stretches of 30mph passing through communities - Mix of local and strategic traffic, high proportions of HGVs, and platooning (or convoys) of vehicles often associated with ferry traffic - Congestion around Inverness-
Journey time reliability	Journey times by road are variable even when there are no incidents	- Limited overtaking opportunities due to single-carriageway roads and poor sightlines, road alignment and geometry - Mix of local and strategic traffic, high proportions of HGVs, and platooning (or convoys) of vehicles often associated with ferry traffic - Lengthy sections of single-track roads with passing places - Congestion around Inverness - Seasonal tourist traffic

Problem Theme	Transport Problem *Other Road-Based Travel*	Supply-Side Cause(s)
	Journey times by road can be very long when there is an incident / road works that require a diversion	- Long diversionary routes due to local geography / sparse road network, particularly for key trunk routes such as the A82 - Use of these routes as a diversion impacts regular users of these routes - Climate change leading to increasing weather events - Geological weaknesses lead to rock and debris falls, e.g., A83 Rest & Be Thankful, A890 Stromeferry etc
Personal accessibility	I am unable to access taxi services due to disability	- Availability of fully accessible taxis, particularly in rural areas and towns - Lack of text-based booking options for those with hearing difficulties
Personal security	I do not feel secure travelling by taxi	- Perception of taxi drivers
Travel safety	I am concerned about the risk of road accidents	- Traffic speeds and enforcement of speed limits - High volumes of (platooned) HGVs, particularly on main trunk roads into the HITRANS region and near ferry terminals - Presence of unprotected right turns and right turns from side road onto busy A roads - Road geometry – horizontal and vertical alignment - Road surfacing - Winter road treatment regime (including early morning / late night) - Animals (deer) on the roads - HGVs using inappropriate roads - Junctions perceived as dangerous - Dangerous overtaking by other road users, in part due to limited overtaking opportunities - High speeds when 'racing' to catch a ferry - Limited understanding of how to use single track roads amongst visitors to the region
	I find driving on the region's roads intimidating	- High volumes of (platooned) HGVs, particularly on main trunk roads into the HITRANS region and near ferry terminals - Presence of unprotected right turns and right turns from side road onto busy A roads - Winter road treatment regime (including early morning / late night) - Dangerous overtaking by other road users, in part due to limited overtaking opportunities - High speeds when 'racing' to catch a ferry - Limited understanding of how to use single track roads amongst visitors to the region
Connectivity and network coverage	There is a lack of taxis, including accessible taxis, where I live / want to travel	- Council licencing arrangements, including lack of licencing arrangements covering the isles - Economics of operating taxi services in rural areas

Table A17: Problems Framework – Other road-based travel problems: Societal consequences

Consequences of **other road-based** problem that…		
…negatively affect a journey which is still made by this mode (people and freight)	…stop people or goods travelling by more sustainable modes, or their preferred mode	…stop people making the trips they'd like to make, or goods being moved
- Higher car operating costs in rural areas (particularly islands) adds to already high cost of rural life - Cost of car ownership / taxi use (particularly significant for lower income households) and can comprise a significant component of disposable income - Cost of car ownership and uses means people may have to rely on lifts reducing independence and increasing reliance on others and inequalities of outcome - Long journey times contribute to lost personal and productive time - Long journey times by road across the region affect supply-chain costs and hence costs to end consumers - Variable journey times have to be factored into trips for appointments, leading to lost time when this 'contingency' is not required - Anxiety when travelling to a schedule caused by variable journey times - Delays due to incidents on the road network lead to lost time, missed appointments, missed ferries and impacts on supply-chains and the value of time sensitive freight - Illegal use of disabled parking spaces adds to travel difficulties faced by blue badge holders - Anxiety when travelling by taxi - Anxiety over risk of being involved in a traffic accident and intimidation by HGVs in particular - Absence of rest areas for HGVs can increase the risk of accidents and generate nuisance parking - Longer journey times for existing users of diversionary routes when these are required leading to lost personal and productive time - Damage to vehicles due to surfacing and maintenance - Misuse of single track roads increase the risk of accidents and generate negative impacts on local communities	- Low take up rate of non-petrol / diesel cars and commercial vehicles, particularly amongst lower income groups (lack of fairness in opportunities to travel more sustainably) - High cost of car ownership and use can however drive more sustainable travel choices through making people car share, or using public transport or active travel instead - Parking issues at stations may generate avoidable car kilometres with associated impacts (energy usage, emissions, noise, collisions) as people drive to their destination or get dropped off / picked up potentially generating a double trip - Limited use of rail to move freight to / from or though the region contributes to HGV kilometres	- Prohibitive cost of car ownership and use (and inability to use or afford taxis), combined with absence of public transport or active travel options may bring: - Reduced community employment participation reducing job opportunities and earning potential - Labour market efficiency impact if people are excluded from matched jobs - Reduced community participation in tertiary education and training - Reduced community participation in leisure, social, cultural and sporting activities - Inability to attend health appointments - Increased social isolation and associated impacts on health and wellbeing - Perceptions of long journey times by road impact contributes to lower levels of tourism and business investment in the area, lower levels of in-migration and higher levels of people moving out of the area

Table A18: Other non-user problems

Other non-user problems	Cause of problem	Consequence of problems
The operation and development of the region's transport networks impacts or may impact biodiversity, geodiversity, flora & fauna, soil, water, cultural heritage, and landscape	- Resource usage - New construction - Emissions and pollution	- Health and wellbeing impacts - Negative impacts on biodiversity, geodiversity, flora & fauna, soil, water, cultural heritage, and landscape
Traffic is a blight on my home / work / local community	- Major routes such as the A82, A83, A85. A96 and the A9 north of Inverness route through my community causing noise, vibration, pollution and safety concerns - Speed limits in these areas	- Health and wellbeing concerns in the affected communities - Property blight
Development patterns can lead to car dependency	- Land allocations - Planning system more generally	- High levels of car use if development does not embed sustainable travel behaviours - Perpetuates inequalities
People may feel they cannot rely on local bus service in the long term	- Bus services have been reduced over time due to cost and human resource issues	- People feel they cannot make a commitment (work, education) which depends on the bus service, impacting on their life opportunities and disproportionately affecting protected characteristics groups and people in low-income households

A.3 Step 5: Define Transport Planning Objectives

For each of the transport problems identified above, the table below sets out a Transport Planning Objective (TPO) developed in response to each problem. These TPOs are then used as the basis for setting Strategy Objectives (Step 6 in the main body of the report). They also provide a foundation for the types of issues which will be considered in the options appraisal with respect to the Strategy

Table A19: Transport problems and Transport Planning Objectives

Problem Theme	Transport Problem	TPO
Walking and Wheeling		
Integration	Walking and wheeling links to my local bus stop / railway station / ferry terminal / airfield are poor	Improve walking and wheeling links to bus stops, rail stations, ferry terminals and airfields across the region
Journey quality	I don't think my local environment is suitable for walking and wheeling	Improve the physical environment and infrastructure for those walking and wheeling
Journey times	Walking takes too long	Improve the directness of walking and wheeling routes
Lack of awareness of travel options	I do not know where walking routes are / do not feel confident using them	Improve signing, information, and promotion of walking & wheeling routes for all groups
Personal accessibility	Walking is not a realistic option for me because of a disability	Make walking and wheeling accessible to people of all abilities
Personal security	I sometimes do not think it is secure enough for me to walk	Address the personal security barriers which stop people walking & wheeling more
Travel safety	I sometimes do not think it is safe enough for me to walk	Reduce conflicts between walkers and wheelers and general traffic and the perceived intimidation of walkers and wheelers by general traffic
Cycling		
Cost of travel and affordability	I cannot afford to own / maintain / use a bike suitable for me	Widen access to cycle usage to enhance affordability for all groups and children
Integration of travel	Cycling links to my local railway station / ferry terminal / airfield are poor	Improve cycling links to bus stops, railway stations, ferry terminals and airfields across the region
	I cannot use my bike to take the bus	Make bus travel accessible to all in the region, including those with prams, bikes etc
	I cannot always take my bike on the train	Increase opportunities for bike / train travel
	Cycle parking options at the stations I use are poor	Improve facilities at stations for cyclists, including secure and adequately sized parking Increase opportunities for bike / train travel
Journey quality	I do not think my local environment is suitable for cycling	Improve the physical environment and infrastructure for cyclists
	There is nowhere for me to securely park a bicycle	Improve cycle parking provision (and security) for those wishing to cycle
	I do not like cycling up hills	Reduce the impact of gradients as a deterrent to cycling
	I need to be presentable at work	Improve workplace facilities for cyclists
Journey times	Journey times by bike are too long	Improve cycle routes to provide more direct routes

Problem Theme	Transport Problem	TPO
Lack of awareness of travel options	I am not aware of cycling opportunities in the HITRANS region	Improve signing, information and the promotion of cycling routes in the HITRANS region for accessibility by all groups / users
Personal Accessibility	I cannot use a standard bicycle due to disability	Make cycling accessible to all
Personal security	I do not think it is secure enough for me to travel by bike	Address the personal security barriers which stop people cycling more including for age and gender groups
Travel safety	I do not think it is safe enough for me to travel by bike	Improve cycling provision to reduce conflicts between cyclists and general traffic and the intimidation of cyclists by general traffic
Bus		
Concern over environmental impact of travel	I am concerned about the environmental impact of travelling by bus	Reduce the environmental impacts associated with the operation of the bus fleet across the region
Cost of travel and affordability	I cannot afford to travel regularly by bus	Reduce the impact on households' disposable income of travelling by bus particularly for households with fewer transport alternatives, those affected by socio-economic disadvantage and in remoter areas
	Travelling by bus uses a high proportion of my disposable income	Reduce the impact on households' disposable income of travelling by bus particularly for households with fewer transport alternatives, those affected by socio-economic disadvantage and in remoter areas
Integration of travel between modes	I cannot realistically take a bus to catch the train	Improve the integration between bus and train services
	I have to buy two tickets to travel by bus and rail	
	Integration between my local bus and train services is poor	
	I have to buy two tickets to travel by bus and ferry	Improve the integration between bus and ferry services
	Integration between buses and ferries is poor	
	Integration between buses and air services is poor	Improve the integration between bus and air services
	Switching between modes is difficult for me due to disability	Improve the integration between bus and train, ferry and air services for people with access and mobility difficulties
Journey information	I do not know if my bus is going to be on time	Improve the real time bus information and its accessibility available to passengers
	I cannot access bus service information	Make bus service information accessible to all
Journey quality	I am exposed to weather at bus stops	Improve the waiting environment / experience at bus stops for all users
	Travelling by bus does not feel like a high-quality experience	Improve the perceptions of the quality of public transport across the region
Journey times	It takes a long time to travel by bus, particularly compared to travel by car	Reduce bus journey times between key settlements and areas
	I have to change buses or between bus and train which makes my journey long	Reduce the number of connections required when travelling by public transport
	Journey times by bus are not reliable	

Problem Theme	Transport Problem	TPO
Journey time reliability / punctuality	The bus is sometimes late to arrive and I have a longer wait at the stop	Improve the reliability of bus journey times, including improving resilience with respect to more frequent severe weather linked to climate change
Lack of awareness of travel options	I am not aware of the bus services available	Improve bus service information and promote bus use across the region for all groups / users
Personal Accessibility	I find it difficult to, or am unable to travel on the bus due to a disability	Make bus travel accessible to all in the region, including those with disabilities, wheelchairs, mobility issues, prams, bikes etc
Personal security	I do not feel secure travelling on the bus	Improve actual and perceived personal security on the bus networks
	I do not feel secure waiting at bus stops	
Travel safety	The walking route to my bus stop does not feel safe	Provide safe and accessible routes to bus stops across the region
Comfort	I do not find bus travel comfortable	Improve passenger comfort across the region's bus network for all users
Connectivity and network coverage	There are no bus services where I live	Widen coverage of the bus network across the region by geography and across the day
	There are bus services but they do not go where / when I want to go	
Integration between services	I have to change buses to get where I want to go	Provide more direct connections across the region
	I have to buy two tickets to travel by different bus operators	Make bus travel / ticketing as seamless as possible
	Integration between my local and long-distance bus is poor	
Service reliability / cancellations	The bus sometimes does not show up	Improve the certainty of bus travel across the region, including improving resilience with respect to more frequent severe weather linked to climate change
	The school bus sometimes doesn't show up	
Timetables	The bus service is not frequent enough	Reduce the inconvenience caused by infrequent bus services
	There is no bus at the time I want to travel	Widen coverage of the bus network across the region by geography and across the day
	I can't travel by bus for a regular working day	
	I can't get to early morning appointments / shift work or attend late night social events / shift work by bus	Widen access to bus services across the day
	I cannot travel by bus on one or more days per week	Widen access to bus services across the week
Train		
Concern over environmental impact of travel	I am concerned about environmental impacts when I travel by train	Reduce the environmental impacts associated the operation of the railway network across the region
Cost of travel and affordability	I can't afford to travel regularly by train	Reduce the impact on households' disposable income of travelling by train, particularly for households with fewer transport alternatives and those with socio-economic disadvantage
	Travelling by train uses a high proportion of my disposable income	
Integration of travel between modes	I have to buy two tickets to travel by rail and bus	Improve the integration between bus and train services
	Integration between my local train and bus services is poor	
	Ferry arrival / departure times do not align with rail services	Improve the integration between train and ferry services

Problem Theme	Transport Problem	TPO
	Switching between modes is difficult for me due to disability	Improve the integration between train and bus and ferry services for people with access and mobility difficulties
Journey quality	Travelling by train does not feel like a high-quality experience	Improve the perceptions of the quality of public transport across the region
	My local station has poor facilities	Improve facilities at stations across the region
Journey times	I find journey times by train across the region to be too long	Reduce journey times by train within the region and to destinations outside the region
	I have to change trains or between train and bus which makes my journey long	Reduce the number of connections required when travelling by public transport
Journey time reliability / punctuality	Journey times by train are not reliable	Improve the reliability of rail journey times, including improving resilience with respect to more frequent severe weather linked to climate change
	The train sometimes leaves and arrives late	
	The train is sometimes cancelled	Reduce the number of train cancellations across the region including those caused by weather incidents linked to climate change
Personal Accessibility	I find it difficult to, or am unable to travel by train due to a disability	Make train travel accessible to all in the region, including those with disabilities, wheelchairs, mobility issues, prams, bikes etc
Personal security	I do not feel secure travelling by train	Improve actual and perceived personal security on the rail network for all users
	I do not feel secure at railway stations	
Comfort	I don't find train travel comfortable	Improve passenger comfort on the region's trains for all users
Capacity	I occasionally cannot get a seat on the train	Increase the capacity of rail services, particularly in peak summer
Connectivity and network coverage	There are no railway stations near where I live	Improve access to, and coverage of the rail network
	There are train services, but they do not go where I want to go	
Integration between services	I have limited time to make a connection between two infrequent rail services, particularly if one service is delayed	Increase connection time between trains Improve the reliability of rail journey times
Timetables	The train service is not frequent enough	Reduce the inconvenience caused by infrequent train services
	I can't travel by train for a regular working day	Widen access to rail services across the day
	I can't get to early morning appointments / shift work or attend late night social events / shift work by train	
	I cannot travel by train on a Sunday	Widen access to rail services across the week
Ferry – Passengers and Cars		
Concern over environmental impact of travel	I am concerned about the environmental impact of travelling by ferry	Reduce the environmental impacts of the operation of the ferry networks across the HITRANS region
Cost of travel and affordability	It is too expensive to travel as a foot passenger	Reduce or remove the cost-based barriers to travel by ferry, particularly where ferry services are essential for day-to-day travel and for groups with socio-economic disadvantage
	It is too expensive to take my car / vehicle on the ferry	
	It is too expensive to book accommodation onboard (Kirkwall – Aberdeen / Lerwick only)	

Problem Theme	Transport Problem	TPO
Integration of travel between modes	I have to pay multiple fares for one journey	Improve the integration between ferry and bus and train services
	Ferry arrival / departure times do not align with rail services	
	Ferry arrival / departure times do not align with bus and coach services	
	The bus does not wait if my ferry is late	
	I can't leave my car at the ferry terminal	Provide improved active travel and / or public transport connectivity to ferry terminals Increase car parking provision at ferry terminals
	I cannot take my car on the ferry	
Journey times	The journey time is too long	Reduce journey times by ferry within the region and to destinations outside the region
Journey time reliability	The route(s) I use have a tidal timetable	Reduce tidal constraints on ferry timetables
Personal accessibility	I find it difficult / am unable to travel on the ferry due to a disability	Make ferry travel accessible to all in the region, including those with disabilities, wheelchairs, mobility issues, prams, bikes etc
Booking and journey planning	I find travel disruption information poor / unreliable / out-of-date	Make ferry travel easy for all, minimising time and effort spent organising travel and ensuring information can be accessed by all groups
	I am unable to book ferry trips far enough in advance	
	I find it problematic booking ferry tickets regularly	
	I cannot book combined ferry and bus / rail tickets	
Capacity	I sometimes find it difficult to book a passenger space on the ferry (note that this is very rare – concentrated on very occasional peak season sailings or event related issues on a handful of routes)	Provide end-to-end travel options which allow people to travel across the HITRANS region when they need to or wish to travel
	I sometimes find it difficult / am unable to book my vehicle on the ferry	
	I sometimes find it difficult / am unable to book a cabin on the ferry (Kirkwall – Aberdeen / Lerwick only)	Provide end-to-end travel options which allow people to travel between Orkney and Shetland / Scottish mainland when they need to or wish to travel
	I find it difficult / am unable to book my car on the ferry and a cabin (Kirkwall – Aberdeen / Lerwick only)	
Comfort	I don't find the ferry comfortable	Improve passenger comfort on the region's ferries for all users
Integration between services	I cannot connect between two ferry services on the same day	Improve the integration between connecting ferry services
Reliability	The ferry is sometimes cancelled	Increase certainty of ferry travel, including improving resilience with respect to more frequent severe weather linked to climate change
	The ferry is sometimes diverted to another port	
	The ferry is sometimes leaves and arrives late	
Timetables	I can't travel on the day I want to travel	Widen access to ferry services across the week
	I can't travel at the time I want to travel - weekday	Widen access to ferry services across the day
	I can't travel at the time I want to travel - weekend	
	I can't get to / return from early morning / late evening flights, shift-work, social events etc	

Problem Theme	Transport Problem	TPO
	There is insufficient time between sailings to enable a meaningful day return trip between my community and the nearest major service centre	Provide appropriate end-to-end connectivity which allows people to travel to, from and between islands and peninsular communities in the HITRANS region when they need to or wish to travel
	I cannot travel from Orkney to Aberdeen or Shetland when I want to / the departure times are unsociable	Provide end-to-end travel options which allow people to travel between Orkney and Shetland / Aberdeen when they need to or wish to travel, including provision of connecting services from the isles
Ferry - Freight		
Concern over environmental impact of travel	I am concerned about the environmental impact of travelling by ferry	Reduce the environmental impacts associated with the operation of NorthLink ferry and freight services to Orkney
Cost of travel and affordability	It is too expensive to take freight on the ferry	Reduce the cost of business for those exporting from or importing to the HITRANS region
	It is costs more on a per mile or per lane metre basis to take freight from my island on the ferry than it does from other islands	Reduce the inequalities between islands and peninsular communities within the HITRANS region
Journey time reliability	The NorthLink freighters sometimes leave and arrive late	Increase certainty of ferry travel, including with respect to more frequent severe weather linked to climate change
Capacity	There is not sufficient capacity for freight on Ro-Pax ferry services	Provide transport which allows freight to move within, to and from island and peninsular communities with the HITRANS region when it needs to travel
	There is not sufficient capacity for freight on the NorthLink freight vessels	
Reliability	The ferry is sometimes cancelled	Increase certainty of ferry travel, including improving resilience with respect to more frequent severe weather linked to climate change
	The ferry is sometimes diverted to another port	
	The ferry is sometimes leaves and arrives late	
Timetable	I can't move freight on the day I want to	Widen access to ferry services across the week
	I can't move freight at the time I want to	Widen access to ferry services across the day
	There is insufficient time between sailings to enable a day return trip between the ferry terminal and the freight distribution centre	Provide appropriate end-to-end connectivity which allows freight operators to travel to, from and between islands and peninsular communities in the HITRANS region when they need to or wish to travel
Air		
Concern over environmental impact of travel	I am concerned about the environmental impact when I travel by air	Reduce the environmental impacts associated with the operation of air services to, from and within the HITRANS region
Cost of travel and affordability	I find that the air fares are too expensive / unpredictable, particularly for short notice trips	Remove the cost-based barriers to travel on air services to, from and within the HITRANS region Reduce / remove cost uncertainty of travel using air services to, from and within the HITRANS region
	As a third sector organisation / business, we do not have access to the Air Discount Scheme	Remove the cost-based barriers to travel on air services to, from and within the HITRANS region
	If I cancel / change my booking I incur a cost	

Problem Theme	Transport Problem	TPO
Integration of travel between modes	There is no direct bus connection between my home and the airport / airfield I use most regularly.	Improve the integration between air and bus services
	The bus connection between my home and the airport / airfield I use most regularly does not reliably align with flight times, including first and last departures	
	I find it difficult to connect for onward travel from my destination airfield / airport	Improve the integration between air and land-based modes of transport
Journey information	For inter-island services, I do not know if my flight is going to be on time	Improve the availability and accessibility of information regarding flight status
Personal accessibility	I find it difficult / am unable to travel on the local authority inter-island air services due to mobility issues	Make inter-island air services accessible and convenient to all groups with protected characteristics
Capacity	I am unable to get a seat on the plane at the time / on the day I want to travel	Provide end-to-end travel options which allow people to travel across the HITRANS region when they need to or wish to travel
Comfort	I don't find the Argyll & Bute and / or Orkney inter-island flights comfortable	Make travel by air as comfortable as possible for all users
Connectivity	My island no longer has an air connection (e.g., Skye, Hoy etc)	Provide appropriate air connectivity based on connectivity requirements and within operational and commercial constraints
	The range of destinations available from the airport I most regularly use is limited	
Reliability	Flights are sometimes cancelled	Improve the resilience and reliability of the air service, including with respect to more frequent severe weather linked to climate change
	Flights are sometimes late	
	Inter-island flights are sometime brough forward	
Timetable	I am unable to make a day return trip by air to / from all Scottish Mainland Airports in all timetable periods	Provide air connectivity which allows people to travel between the HITRANS region and other Scottish / UK airports when they need to, or wish to travel
	I am unable to make a meaningful day return trip to London from Inverness Airport	
	I can't travel on the day I want to travel	Widen access to air services across the week
	I can't undertake a meaningful day trip to / from Orkney mainland / Argyll & Bute on the inter-island air service on some days	Provide appropriate end-to-end connectivity which allows people to travel to, from and between islands and peninsular communities in the HITRANS region when they need to or wish to travel
Other Road-Based Travel		
Concern over environmental impact of travel	I am concerned about the environmental impact when I travel by car or taxi	Reduce the environmental impacts associated with cars and the taxi fleet
	I am concerned about environmental impacts when I move freight by road	Reduce the environmental impacts associated with commercial vehicles
Cost of travel and affordability	The cost of driving is too high for me	Provide alternatives to car use which are accessible and affordable to all
	I cannot afford an electric vehicle	Widen access to, and facilities for, EV ownership and use
	The cost of using a taxi is too high for me	Remove the cost-based barriers to travel by taxi for essential travel
Fuel / power issues	I cannot charge an electric vehicle	Widen access to, and facilities for, EV ownership and use
	I have no alternative but to use petrol / diesel vehicles	Widen access to, and facilities for, non ICE-powered commercial vehicles

Problem Theme	Transport Problem	TPO
Journey information	I do not know if there are incidents on the road when I set off	Improve the provision of real time traffic information and access to it across the network
Journey quality	I cannot park where I want to park	Provide appropriate parking opportunities, and manage and enforce these effectively
	I find the quality of the road surfaces poor	Improve the quality of the roads across the region
	I do not think there are enough rest areas on the roads I use	Provide safe parking and rest areas for commercial vehicles on key routes
Journey times	Journey times by road are long across the region with low average speeds	Improve journey times on the road network
Journey time reliability	Journey times by road are variable even when there are no incidents	Improve journey time reliability on the road network
	Journey times by road can be very long when there is an incident / road works that require a diversion	
Personal accessibility	I am unable to access taxi services due to disability	Widen access to taxi services for all
Personal security	I do not feel secure travelling by taxi	
Travel safety	I am concerned about the risk of road accidents	Improve road safety and the perception of road safety across the region
	I find driving on the region's roads intimidating	
Connectivity and network coverage	There is a lack of taxis where I live / want to travel	Widen access to taxi services for all
Non-User Problems		
-	The operation and development of the region's transport networks impacts or may impact biodiversity, geodiversity, flora & fauna, soil, water, cultural heritage, and landscape	*This issue will be covered within the Environment STAG Criterion during options appraisal and strategy development* *Opportunities will though be sought during promotion of new schemes for improvements to the public realm and the use of nature based solutions to enhance local biodiversity.*
-	Traffic is a blight on my home / work / local community	Reduce the impact of road traffic on communities across the region
-	Development patterns can lead to car dependency	Ensure new development embeds more sustainable locations to enable a reduced need to travel and support more sustainable modes of transport
-	People may feel they cannot rely on local bus service in the long term	Improve the financial sustainability of public transport in the region