ZetTrans Regional Transport Strategy

Draft Case for Change Report

On behalf of ZetTrans

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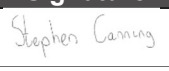
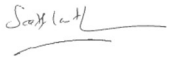
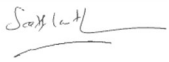
Prepared by:	Stephen Canning	Senior Associate		20/01/2022
Reviewed by:	Scott Leitham	Director, Transport Planning		20/01/2022
Approved by:	Scott Leitham	Director, Transport Planning		20/01/2022
For and on behalf of Stantec UK Limited				

Revision	Date	Description	Prepared	Reviewed	Approved
V2.0	10/2/2022	Update following SEA and EqIA inputs and comments from ZetTrans	RMT	SC	SL
V3.0	14/3/2022	Update following ZetTrans Board comments			

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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 ZetTrans RTP is the statutory RTP for the Shetland Islands and is responsible for the provision and maintenance of public transport services in Shetland, whilst also supporting the case for improvements to air and ferry services to the Scottish mainland.

1.1.3 The current ZetTrans RTS was first published in 2008 and was refreshed in 2017-18 to cover the period 2018-28. The Transport (Scotland) Act states that RTPs should keep their RTS under review and modify or create a new one as necessary. Whilst the current RTS runs to 2028, given wider socio-economic changes and the evolving policy environment, there is a recognition that a new RTS is now required. ZetTrans has therefore commissioned Stantec UK Ltd to produce this new RTS.

1.1.4 The new RTS will set the strategic framework for the development of transport, both within Shetland and to / from the Scottish mainland over the next 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 Shetland.

1.1.5 This document forms the 'Case for Change' report for the ZetTrans RTS.

1.2 Approach

1.2.1 The new RTS is being developed in line with the principles of the refreshed Scottish Transport Appraisal Guidance (STAG) and consists of three phases:

- **Stage 1: Initial Appraisal: The Case for Change** – this stage includes the:
  - Analysis of the transport problems, issues, constraints, and opportunities in Shetland including its external connections.
  - Establishment of Transport Strategy Objectives which reflect the above problems.
- **Stage 2: Preliminary Appraisal** – this stage involves the generation, development and appraisal of a long-list of transport options against the:
  - Vision and Transport Planning Objectives (TPOs)
  - STAG Criteria
    - Environment
    - Health, Safety and Wellbeing
    - Economy
    - Equality and accessibility

- Established Policy Directives
- Feasibility, Affordability and Public Acceptability
- Sustainable Investment Hierarchy and Sustainable Travel Hierarchy
- Risk and uncertainty
- Strategic Environmental Assessment (SEA) and Equalities Impact Assessment (EqIA) Criteria.

- **Stage 3: RTS Document** – this will collate the outputs of the above tasks into a Strategy and an associated Delivery Plan.

1.2.2 A multi-stage Strategic Environmental Assessment (SEA) and Equality Impact Assessment (EqIA) of the Strategy will also be undertaken in parallel with the above activities. The SEA Scoping Report and EqIA Framing Note set out the outcomes from the initial stages of these elements and include key environmental and equalities issues which need to be addressed within the RTS as well as the environmental and equalities criteria framework for assessment.

1.2.3 The outcomes from the initial stages of these elements (the scoping stage) are set out within the SEA Scoping Report and EqIA Framing Note. These set out the environmental and equalities issues which the emerging RTS needs to take account of as well as an assessment framework and methodology which will be used to assess any potential environmental / equalities impacts of the emerging RTS during the RTS development process.

1.3 Case for Change Report

1.3.1 This report sets out the findings from Stage 1: Initial Appraisal: The Case for Change. It is split into two parts as follows:

- **Part 1 (Chapters 2 to 5)** - provides the baseline and a background to Shetland and its transport network, establishing the overall context within which the RTS is being developed.
  - **Chapter 2** provides the 'story of Shetland', highlighting the role which transport has played in shaping the economy and society of the islands.
  - **Chapter 3** profiles the transport supply-side in Shetland – i.e. the networks, assets and human resources used to deliver the transport services.
  - **Chapter 4** considers the movement of people and goods in Shetland – it is effectively a review of the network from the user perspective in terms of origins and destinations, travel volumes, capacity (where relevant) and reliability.
  - **Chapter 5** considers the potential future context in terms of land-use development; innovation in the transport sector and the potential impact on transport supply; and travel behaviour change, including the potential long-term impacts of COVID-19.
- **Part 2 (Chapters 6 to 9)** - set out the substantial elements of the Initial Appraisal: The Case for Change Report and form the **core part of this stage of the RTS**.
  - **Chapter 6** sets out the direction of national transport policy, which in turn will inform the strategic direction of this RTS.
  - **Chapter 7** provides a summary of the results of the consultation and engagement undertaken to inform this Case for Change Report.
  - **Chapter 8** sets out the strategy objectives and the problems and opportunities identified through the analysis set out in Part 1 and the programme of public and stakeholder engagement.
  - **Chapter 9** provides a brief overview of next steps.

1.3.2 The ‘Case for Change’ report is based on a combination of primary research (e.g., a resident survey and stakeholder engagement), desk-based analysis and incorporation of the significant previous body of appraisal, business case and research work undertaken in Shetland.

1.3.3 This report is accompanied by proportionate SEA and Equalities Duties Assessment Reports which consider how the equalities and environmental issues identified at Scoping stage have been taken into account to date and provide recommendations to inform future stages of RTS development. Whilst relevant evidence is incorporated within this report, the majority of the supporting evidence base around environmental and equalities issues is contained within these accompanying reports and they should therefore be read in conjunction with this document.

1.3.4 The ‘Case for Change’ has been informed by an extensive literature review – the documents included in this review are listed in **Appendix A**.

Part 1

Baseline, Background and Context

2 The Story of Shetland

2.1 Overview

2.1.1 The Shetland Islands have a unique story and in many respects are unlike any other local authority in Scotland or indeed the United Kingdom. The geography, topography, history, culture and economic structure of Shetland mean that the delivery of transport infrastructure and services is much more challenging than elsewhere in Scotland, and also much higher profile. In defining the backdrop to this RTS, it is therefore important to set out the 'story of Shetland', highlighting the role which transport has played in shaping the economy and society of the islands.

2.1.2 Where appropriate, Shetland is compared to the Orkney Islands, the Outer Hebrides and the Scotland averages.

2.2 Recent History

2.2.1 The discovery of North Sea oil in the early 1970s fundamentally changed the economy and society of Shetland. In understanding Shetland today, it is important to understand this change.

The discovery of oil

2.2.2 Until the early 1970s, Shetland was dominated by crofting-based agriculture (sheep farming), fishing, subsistence craft industries (knitwear) and a nascent tourist trade. Like many island archipelagos around the UK, economic insecurity was prominent, and population decline a pervasive problem.

2.2.3 The 1971 discovery of the extensive Brent and Ninian oil fields in the North Sea off the east coast of Shetland fundamentally changed the economic structure of the islands. The oil majors Esso and Shell opened negotiations with the UK Government to develop these fields. An agreement was concluded with the Council to land this oil at a new terminal at Sullom Voe in the north of Shetland mainland for an agreed royalty per barrel. The first oil was piped to Sullom Voe through the Brent pipeline in November 1978, promptly followed by Ninian in December 1978.

2.2.4 It was recognised at the time that the discovery of oil provided an opportunity to transform the economy of the islands, but at the same time posed a threat to the traditional way of life in Shetland. Shetland however had the advantage of a local authority specific to the islands (Zetland County Council until 1975 and thereafter Shetland Islands Council) and thus a strong interventionist policy was followed to maximise the benefits of oil and mitigate the risks associated with it.

2.2.5 When approval was granted to land oil in Shetland, Zetland County Council prepared an Interim County Development Plan in 1973. This outlined policies to manage the spatial development of the islands in the oil age, protect and promote existing industries and maintain social cohesion. The Plan acted as a blueprint for the Zetland County Council Act 1974, which provided the Council with the ability to take any action it considered necessary or desirable for controlled development of the coastal or harbour area.[1]

[1] Archie E. Hill, Dr Carole L Seyfrit and Dr Mona J E Danner (1998) Oil development and social change in the Shetland Islands 1971-1991, Impact Assessment and Project Appraisal, 16:1, 15-25, DOI: 10.1080/14615517.1998.10590183.

Key Point: The arrival of oil in Shetland gave rise to two fundamental changes which affect the island group to this day: (i) it provided the Council with a substantial oil fund to invest in projects for the common good of the islands, including protecting and developing local industries and cultural heritage; and (ii) it provided a legislative basis for an interventionist policy approach, with the Council fulfilling a major role in spatial planning, infrastructure investment and service delivery.

The oil years – 1978-2012

2.2.6 From the mid-1970s the Council generated a large surplus from oil related income[2] which was invested and used to fund capital projects. From a transport perspective, this included investment in a high quality 'major' road network; a modern and efficient Ro-Ro ferry fleet; restoration of Scatsta Airport; the purchase of aircraft to operate the inter-island air services; and the delivery of public transport services at a high frequency over a long operating day and for comparatively low fares.

2.2.7 The scale of capital expenditure is shown in Figure 2.1 below:

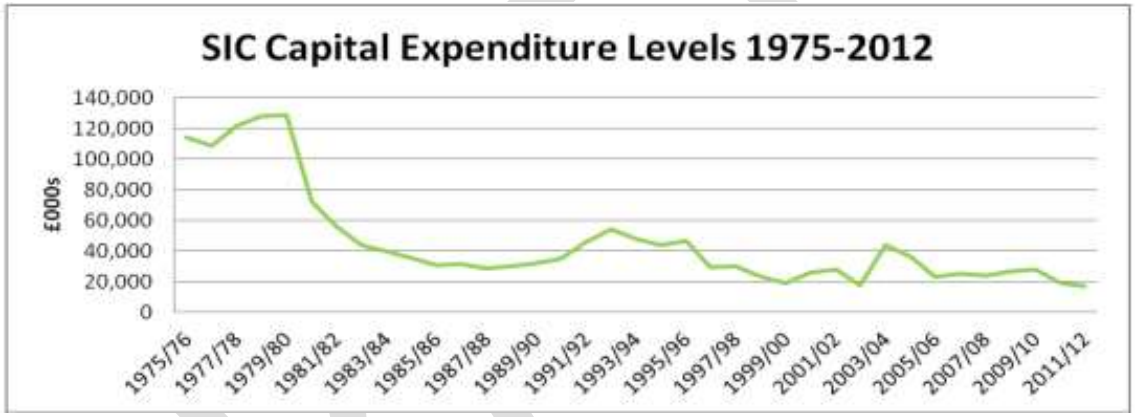


Figure 2.1: Capital Expenditure, 1975/76-2011/12[3]

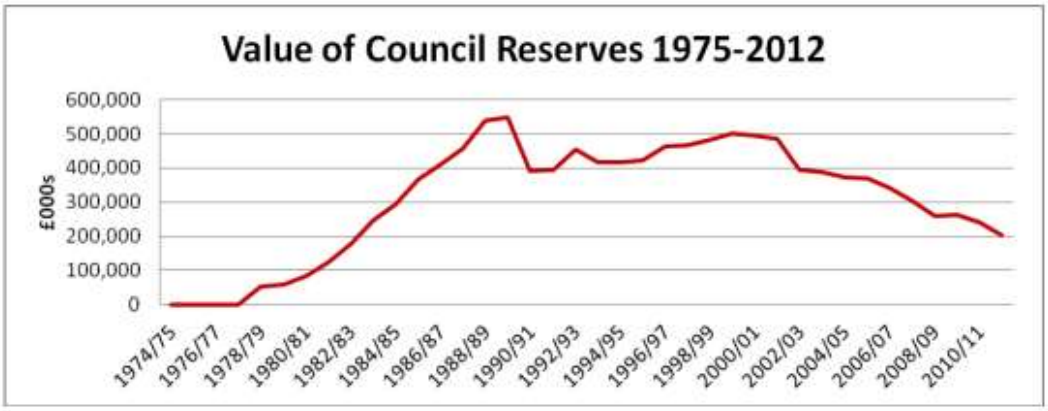
2.2.8 The above Figure 2.1 shows that the Council's capital expenditure averaged £100m per annum in the second half of the 1970s and £40m per annum in the 1980s.[4]

2.2.9 Oil related income reduced from the late 1980s to a very low level by the late 1990s. By the mid-1990s, capital spending was in excess of oil related income meaning that the oil reserve was being depleted (even though capital spending reduced to an average of £28m in the 2000s and an average of circa £10m by the dawn of the 2010s). By the mid-2000s, revenue spending was also in excess of the available funds and this shortfall was being funded from the reserve, as is shown in Figure 2.2 below:

[2] Between 1974-75 and 2011-12, the Council received direct net income of approximately £1.6 billion (2012 prices, circa £2bn in 2020 prices) as a result of the oil industry's presence in Shetland (Long-Term Financial Plan 2015-2050 (Shetland Islands Council, 2012), p.7). To put this sum in context, Shetland Islands Council's share of the Scottish Government's annual settlement to local authorities for 2021/22 is £90m (https://www.gov.scot/news/gbp-11-6-billion-for-local-councils/).

[3] Long-Term Financial Plan 2015-2050 (Shetland Islands Council, 2012), p.9

[4] Long-Term Financial Plan 2015-2050 (Shetland Islands Council, 2012), p.9



Note: Steep decline in 1990-91 represents Shetland Charitable Trust reserves being separated from the Council's reserves for reporting purposes.

Figure 2.2: Council Reserves, 1975-2012

2.2.10 In the decade between 2003 and 2013, the Council was therefore running an unsustainable deficit which was funded from reserves and surpluses on e.g., harbour activities. Had this position continued, the oil-based reserves built up by the Council would have been depleted within a decade (it was estimated in 2013 that these reserves would be wholly depleted by 2017).

2.2.11 The **transport legacy** of the oil era is therefore threefold:

- From a **resident / business** perspective, people have built their lives around the high-quality connections and services available to them. With few exceptions, there are no significant impediments to travelling within Shetland beyond the cost of owning and running a vehicle and, for most island residents, the cost of a ferry fare.
- From a **spatial planning perspective**, the high-quality connectivity across the archipelago has led to a concentration of the economy and services in Lerwick. This is the primary driver of resident / business travel as described above.
- From a **Council perspective**, the accelerated capital spending of the 1970s and 1980s has created a significant asset base and revenue costs associated with operating services. The challenge for the Council is meeting the ongoing revenue costs associated with this and also the implied capital costs of replacing life expired assets, particularly when set against significantly reduced income.

Key Point: The sustained high level of investment in infrastructure and the commitment of revenue funding to deliver frequent public transport services over a long operating day has shaped current travel behaviour in Shetland. From the Council perspective, it has also created a significant asset and revenue cost base, which is presenting a challenge in terms of funding asset replacement and maintaining current service levels.

The post-oil era – 2013-present

2.2.12 As oil income reduced to almost zero and the Council's reserves were depleting at a rapid rate, a wide-ranging review was undertaken to address the issue of the 'structural' deficit. In recognition of this and also in light of reductions in grant income from the Scottish Government, the Council took a different direction from 2013, cancelling or delaying capital investment and introducing service reductions. For example, on the Bluemull Sound (Fetlar and Unst), Whalsay and Yell Sound ferry routes, the weekend sailing schedule was significantly reduced.

2.2.13 The Council now focuses on operating a sustainable budget and the policy is to maintain the capital value of the reserves by only drawing on the return on these reserves for investment.

The Council's Medium-Term Financial Plan 2020-26 highlights that both revenue and capital budgets are fully allocated, with limited scope for further investment or service improvements without provision of additional external funding.

What does this mean for the future of transport in Shetland?

2.2.14 As has been explained, the history of Shetland over the last half-century has shaped transport supply and travel behaviour in a unique way. This in turn has defined the spatial distribution of population in Shetland and the functioning of its society and economy. The RTS must therefore balance a set of competing behaviours and outcomes, as follows:

- **Communities in Shetland have built their lives around the high-quality and comparatively (if not in absolute terms) low-cost transport connections**. Indeed, many communities' express concerns that even current connectivity is insufficient to meet their needs. Commuting is common and there is a concentration of employment, services and leisure opportunities in Lerwick.
- Emerging policy is however prioritising a **reduction in travel** or, where a journey has to be made, that it is made by active modes or public transport (in that order). This gives rise to several challenges in the Shetland context, most notably the **cost of serving a highly rural and dispersed population**, the risk of **deepening inequalities** and the economic impact of reversing decades of **centralisation**. If a 'just transition' is not achieved, Shetland's economic performance will be diminished and inequalities will widen.
- Underpinning all of this is **cost**. The Council:
  - faces significant **legacy maintenance costs** for capital investment made in the 1980s-2000s;
  - has a **capital budget which is insufficient** to meet asset replacement needs;
  - has **insufficient revenue funding** to provide viable sustainable alternatives to the private car, bus services to meet every inter-island ferry for example; and
  - requires **additional capital funding** to support, for example, active travel improvements and electric vehicle infrastructure **if desired changes in travel behaviour are to be realised**.

2.2.15 The RTS is seeking to provide a framework within which these challenges can be addressed and, where appropriate, reconciled.

2.3 Demographics

2.3.1 Demographics (the size, distribution and characteristics of a population) are often seen as a barometer of the economic health and attractiveness of an area. Locations with a stable or growing working age population are considered to be in better economic health than those with a declining and / or ageing populace. However, demographics assume a particular importance in islands which are largely self-contained entities – this is especially the case with Shetland given its distance from the neighbouring Orkney Islands and the Scottish mainland. A long-term challenge faced by islands across Scotland has been depopulation, particularly amongst younger and more skilled individuals.

Population

2.3.2 The National Records of Scotland (NRS) mid-year population estimates records the Shetland population as **22,870** in 2020. The long-term trend in population is shown in Figure 2.3 below:

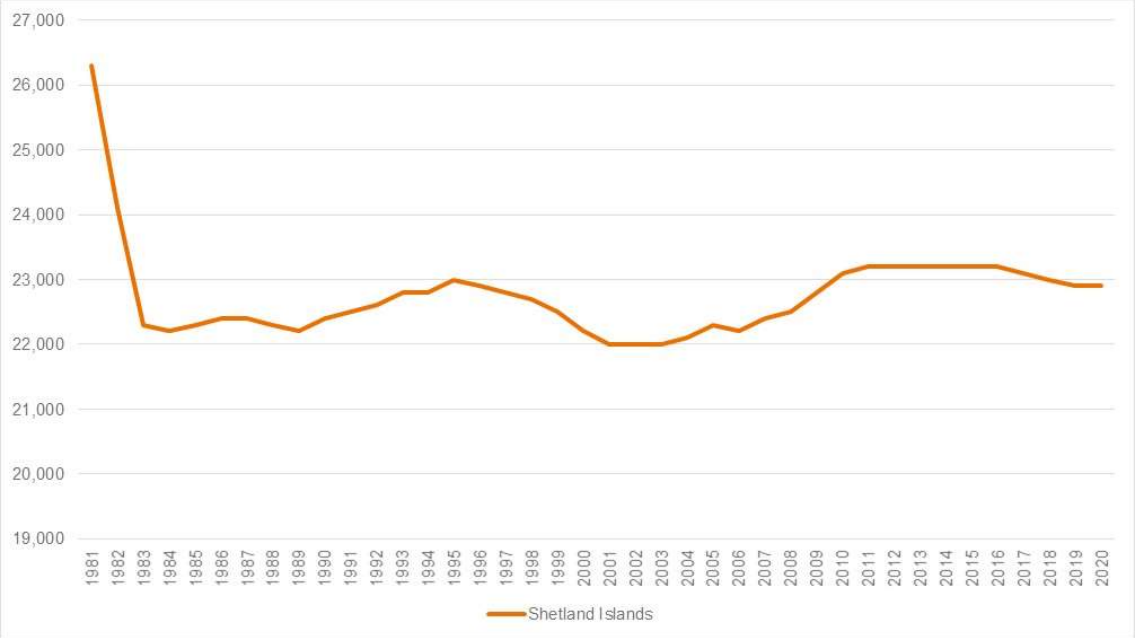


Figure 2.3: Shetland Islands population 1981-2020 (Source: NRS mid-year population estimates 2020)

2.3.3 The population of Shetland has been broadly stable since the early 1980s. In proportional terms, it has grown 3% between 1983 and 2020, although in absolute terms this has only accounted for a growth of circa 600 people. By way of context, the Scottish population has grown by 6% over this period.

2.3.4 The significant decline in population between 1981 and 1983 was a direct result of the completion of Sullom Voe Terminal. The terminal was built between 1975 and 1981, with over 6,000 people employed at its height.

Key Point: The Shetland population has been broadly stable over a long time period, partly as a result of good employment and career prospects. This broad stability compares to, for example, Eilean Siar, which witnessed an 18% reduction in its population over the same period.

Age Profile

2.3.5 The distribution of the population by age band is also a key indicator of the economic vitality of an area. Areas with aging populations tend to have a higher dependency ratio[5], which places pressures on service delivery. The age profile of the Shetland population together with the comparator areas of the Orkney Islands, Outer Hebrides and Scotland overall is shown in Figure 2.4 below:

[5] The dependency ratio is a measure of the number of dependents aged zero to 14 and over the age of 65 compared with the total population aged 15-64.

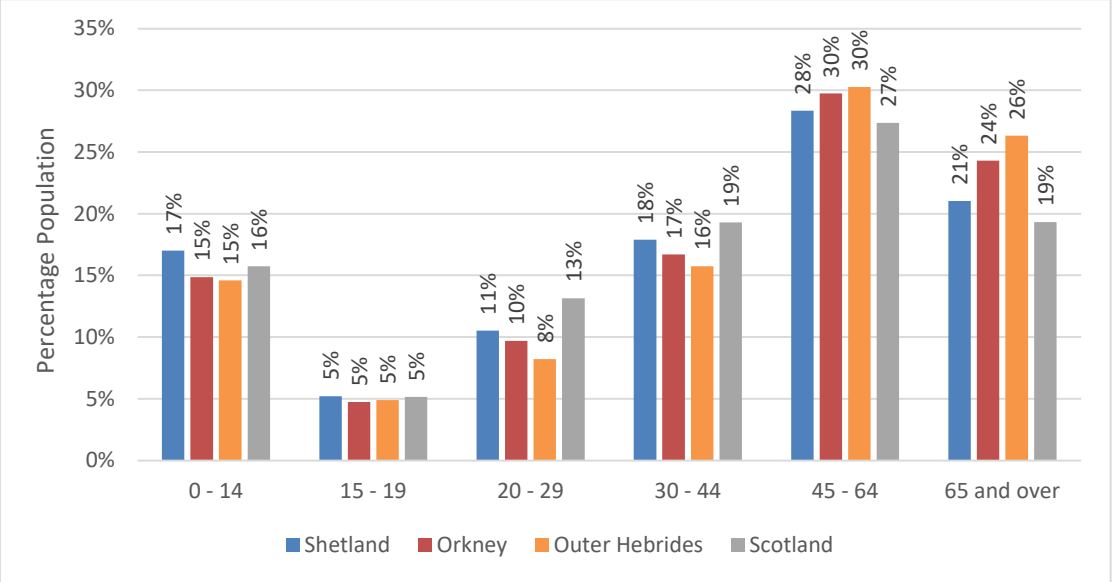


Figure 2.4: Age breakdown (Source: 2020 Mid-year population statistics, NRS)

2.3.6 The main points from Figure 2.4 above are as follows:

- Shetland's demographics are more favourable than the other two island local authorities in Scotland, with a larger proportion of children and fewer residents aged over 45. That said, the age profile of Shetland residents aligns with the wider Scottish (and indeed Western European) trend of an aging population, with almost half of the residents of the archipelago being aged 45 or over.
- Unusually for an island group, the population profile broadly mirrors the Scotland average. However, only 29% of Shetland residents are aged 20-44, compared to 32% for Scotland as a whole, pointing towards the island out-migration trend common amongst these cohorts.
- It is important to note that the number of children born in Shetland can be under-recorded in official data. Women expecting their first child or who have potential complications with their pregnancy may be sent to Aberdeen Maternity Hospital to give birth, and thus Aberdeen rather than Shetland can be recorded as the place of birth.

Key Point: Shetland overall has an aging population, with almost half of its residents aged 45 or over. However, the age distribution of the population is not dissimilar to that of Scotland overall and is more favourable than the Orkney Islands and also the Outer Hebrides.

Migration

2.3.7 Migration has historically been an important feature of island demographics, principally in terms of younger people leaving and, more recently for many Scottish islands and rural areas, lifestyle-based in-migration amongst older cohorts. However, it assumed a particular importance in Shetland during the oil years, where migration to the islands amongst younger age cohorts was prominent. Migration data at the local authority level are only available from 2009-10 and the picture in relation to Shetland is shown below in Figure 2.5:

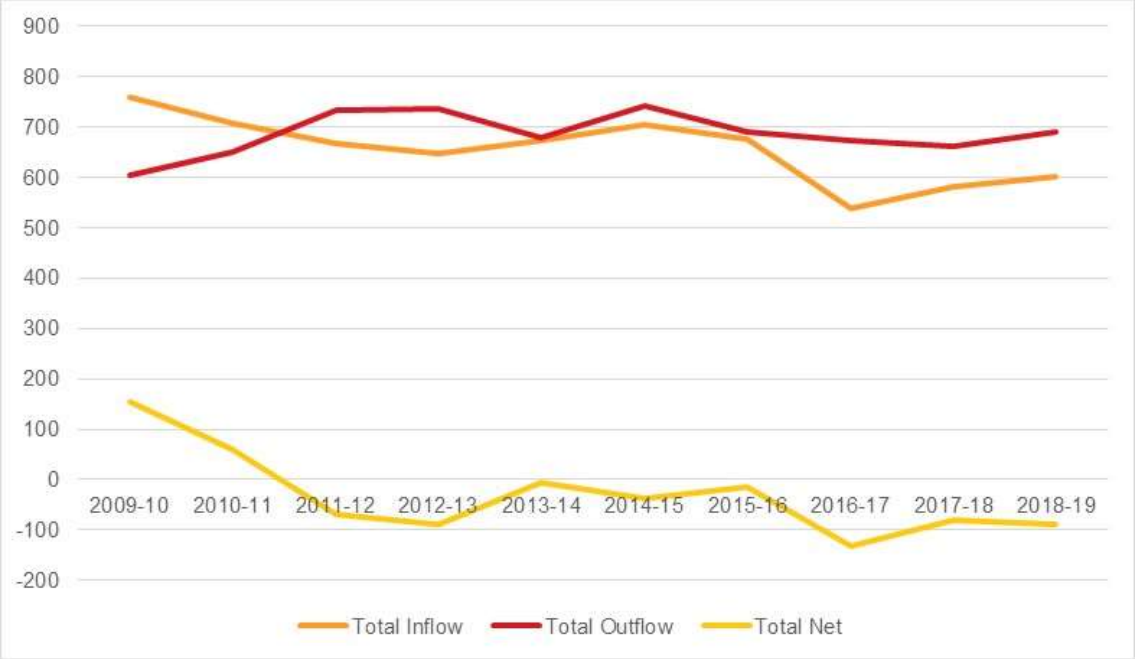


Figure 2.5: Shetland Migration 2009-10 – 2018-19 (Source: 2020 Local Area Migration Indicators, ONS)

2.3.8 Whilst small in absolute numbers, Shetland has witnessed continuous net out migration since 2011-12 and a reduction in total population of around 300 people over the 2009-10 to 2018-19 period. This has accounted for a reduction of just over 1% of the total population. The underlying data show that almost 90% of migration to and from Shetland is from within the UK.

2.3.9 As the data only run to 2018-19, they do not capture any potential impacts from the United Kingdom's withdrawal from the European Union on 31st January 2020. However, consultation with tourism and accommodation providers suggested that there has been a reduction in EU labour in this sector, creating vacancies in the hospitality sector which are proving difficult to fill.

2.3.10 Whilst there has been net out-migration in recent years, it is essential to note that **these data do not account for transient labour, which is a major feature of Shetland's demographics**. For example, at the peak of the construction of the Shetland Gas Plant at Sullom Voe[6], there were 2,000 transient workers in Shetland, temporarily increasing the permanent population by around 10%. This labour was accommodated in hotels and temporary 'floatels' (accommodation barges and chartered ferries) berthed in Lerwick and Scalloway. Whilst perhaps not of the same scale, there is again likely to be an increase in transient population associated with the construction of the Viking wind farm development.

Key Point: Since 2011-12, there has been net out-migration each year (to 2018-19), leading to a 1% cumulative reduction in the overall population. However, migration data do not record transient labour – this is a major feature of demographics in Shetland and can lead to large short-term increases in population, such as during the construction of the Shetland Gas Plant between 2010-16.

Population Distribution

2.3.11 Key points of note are as follows:

[6] The project commenced in the first half of 2010 and was completed in May 2016.

- Around one third of Shetland's population lives in Lerwick (30% in 2016)[7], highlighting its importance as the major residential, commercial and service centre for the islands.
- More widely, the population is heavily skewed towards the south of the islands, with circa 60% living south of a line running from Burra to Tingwall to Lerwick. North and West Mainland are much more sparsely populated.
- The 2011 Census (albeit now somewhat outdated) recorded 13% of Shetland's population living on the nine islands served by the Council funded air and ferry services.

2.3.12 The relatively sparse population overall and its uneven distribution – concentrated on Lerwick and, to a lesser degree, South Mainland – can make both transport and wider service delivery challenging.

Key Point: Shetland's population is heavily concentrated in Lerwick, with almost one third of all island residents living in the town. Outwith this settlement, much of the rest of the population lives in Central and South Mainland, skewing its distribution towards the south of the archipelago. The relatively sparse population overall and its uneven distribution can make transport and wider service delivery challenging.

Population Projections

2.3.13 The National Records of Scotland produced a 20-year local authority population forecast in 2018. This forecast suggests that the population of Shetland will decline by 4% between 2018-38 compared to a 2% increase in the Scottish population overall. Figure 2.6 below shows the distribution of the forecast population change for Shetland, the comparator areas and Scotland overall:

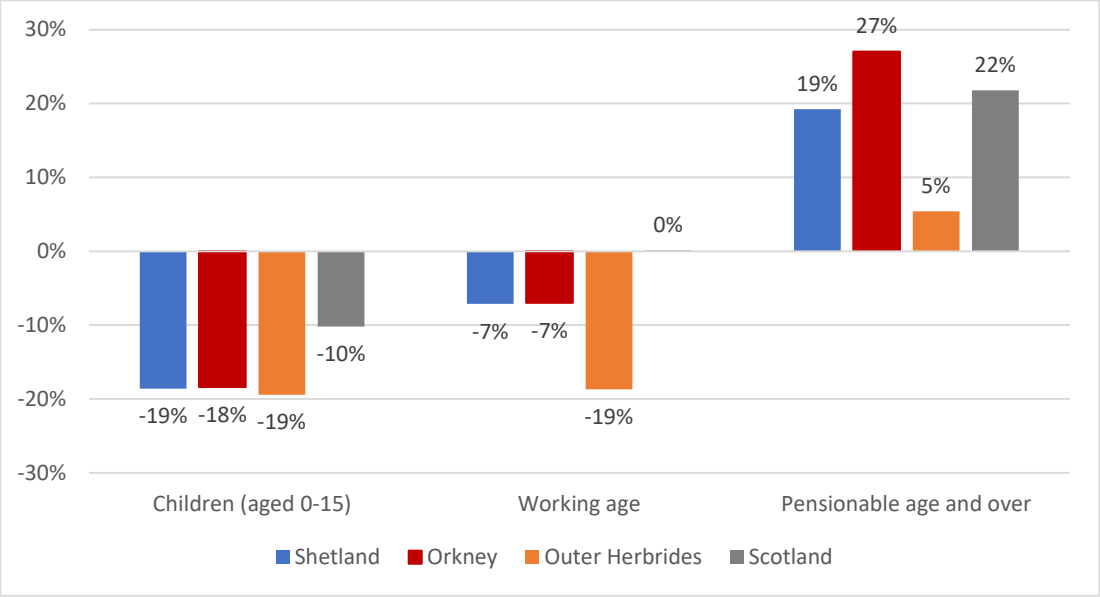


Figure 2.6: 20-year population projections by age group, 2018-based (Source: National Records of Scotland)

2.3.14 The main points from the above Figure 2.6 are as follows:

- The forecasts for Shetland are not positive – the number of children is anticipated to reduce by one fifth and the working age population by 7%. Conversely, the proportion of residents of pensionable age is expected to increase by one fifth. This implies an increase in the

[7] National Record Scotland, Mid-Year population Estimates for Settlement 2016

dependency ratio, meaning that fewer working people are having to support a growing aging population.

- The picture in Shetland is not dissimilar to Orkney and is better than the Outer Hebrides. Overall, however, Shetland's population characteristics will be less positive than the national average, putting pressure on local service delivery with particular implications for the provision of health and care services. Attracting more younger people and families to live in Shetland will be important.

2.3.15 This is particularly significant in Shetland because it is effectively a closed labour market in terms of day to day travel (e.g., if the employment based remains the same but the economically active population declines, vacancies are likely to increase / productivity decline. An equivalent set of forecasts to 2040 from Experian suggests a similar outcome. Whilst this dataset suggests that the Shetland population will only decline by 2%, it forecasts a bigger reduction in the working age population (-10%) and a larger growth in those '65 and over' (29%).

Key Point: Demographic forecasts for Shetland are not positive. The period 2018-38 is forecast to see a 4% reduction in total population and a significant aging of the population. This will put pressure on local service delivery, with a smaller pool of working age residents supporting a larger retired population.

2.4 Industrial Structure

2.4.1 The industrial structure of Shetland over the past 50-years has been shaped directly by the oil industry, its supply-chain and the enabling investment in infrastructure (e.g., harbours, roads etc) which has supported the growth of other industries in the islands.

Employee Jobs by Industry

2.4.2 Figure 2.7 below shows the percentage employee jobs by industry in 2019 for Shetland, the comparator local authorities and Scotland overall. It is important to note here that Shetland is a very 'open' economy in that it is heavily influenced by macroeconomic factors such as the oil price, prevailing fish and livestock prices, one-off construction projects and policy changes such as Brexit. Its industrial structure is therefore volatile, and can change rapidly over a short period, such as when the Shetland Gas Plant was being built.

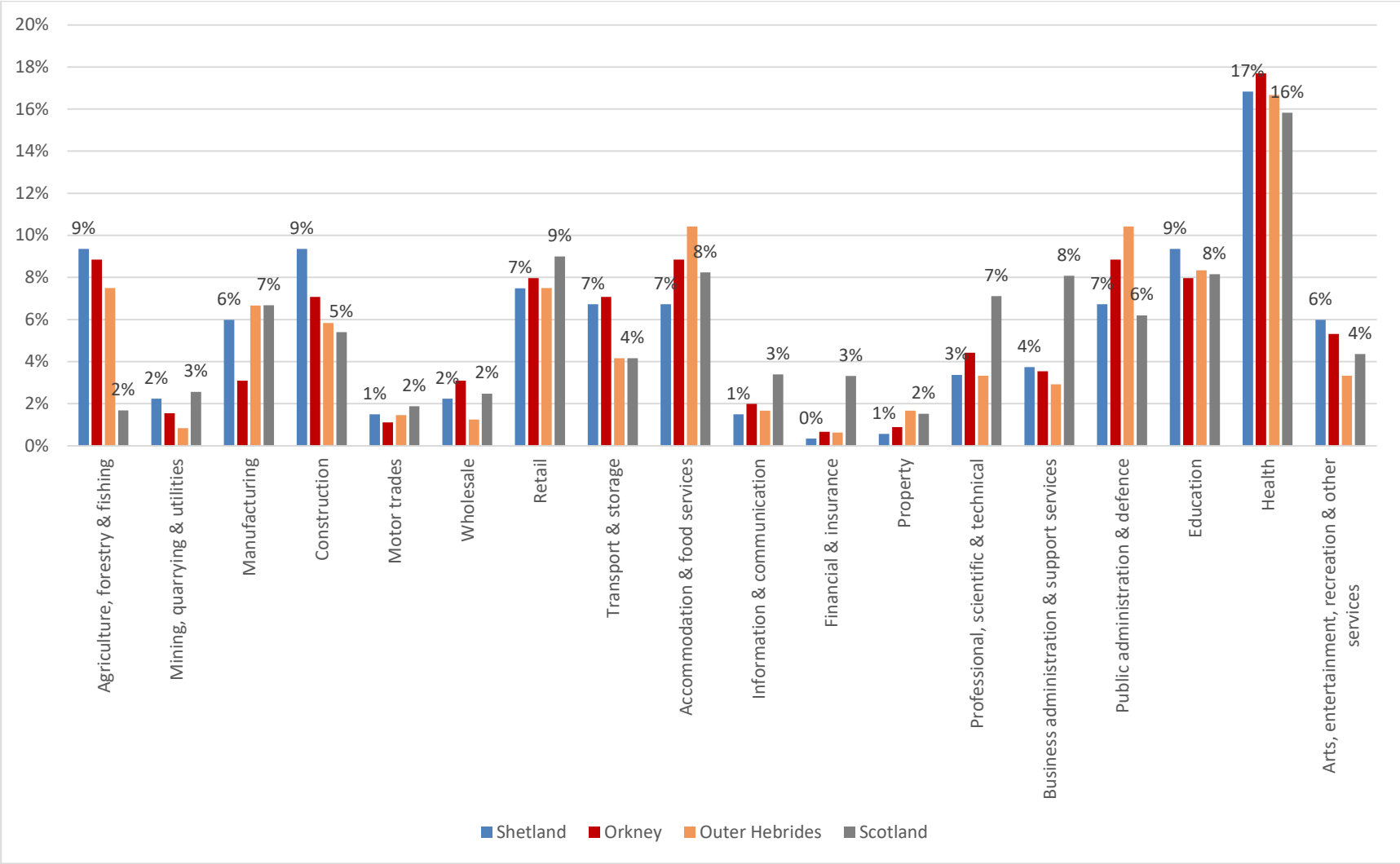


Figure 2.7 Percentage Employee Jobs by Industry 2019 (Source: BRES 2019)

2.4.3 The main points of note from the above Figure 2.7 are as follows:

- Almost **one tenth of Shetland jobs are in the primary sector** (agriculture, forestry and fishing) – this is almost five times the Scotland average and is also (marginally) greater than Orkney and the Outer Hebrides.
  - Fishing and aquaculture represent a significant proportion of this employment, with Shetland being a major net exporter of seafood. Shetland accounts for around three quarters of all mussel production in Scotland (2017)[8] and one quarter of all salmon production (2016)[9]. Shetland collectively (and indeed Lerwick individually) also recorded the second largest fish landings by tonnage and value in the UK in 2019 and is the UK's largest pelagic (largely mackerel) port.[10]
  - Shetland also has a major presence in sheep farming, with *Shetland in Statistics* recording 285,000 sheep on the island in 2017.[11] The Council Economic Development team noted that the market for Shetland lamb is currently very strong.
  - It is important to note here that the combined Shetland seafood and sheep exports are additive to Orkney livestock (predominantly cattle) exports and thus put significant pressure on ferry freight capacity on the Aberdeen – Kirkwall / Lerwick route.
- **Construction** employment is also well above average in Shetland. The 2019 figures will to some extent capture the residual effects of the Shetland Gas Plant build (and the catch-up in delayed projects as a result of that development). However, the Viking Energy development is now at the construction phase and there is generally a strong pipeline of construction activity in the islands, although this is set against a tight labour market (see Section 2.5.4).
- The high-level of construction activity, a well-established industrial base and significant export volumes is reflected in an above average proportion of employment in '**Transport and Storage'** (7% compared to 4% for Scotland overall) and **'manufacturing'** employment broadly in line with the national average. Shetland has an advanced logistics industry and also significant manufacturing capability in areas like fabrication and small vessel repairs.
- By the BRES measure, **one-third** of employee jobs in Shetland are in the **public sector** (i.e., 'Health' = 17%, 'Education' = 9% and 'Public administration and defence' = 7%). A relatively high concentration of employment in the public sector is to be expected given that Shetland is an administratively self-contained entity – e.g., it has its own Council, health board, BBC radio station etc.
- **'Accommodation and Food Services'** account for a comparatively smaller proportion of employment (7%) than the Scotland average, and much smaller than the equivalent figures for Orkney and the Outer Hebrides. This reflects a comparatively smaller tourism sector, which has to some extent been limited by the cost of getting to Shetland and crowded out by the high-levels of business tourism associated with major projects. Engagement with Visit Scotland other tourism providers did however highlight aspirations to grow this market in the coming years, with both general and cruise tourism expanding in recent years.

[8] Mussel production by Scottish marine region (Shetland in Statistics, 2017), p. 22.

[9] Salmon production by Scottish marine region, tonnage and value (Shetland in Statistics, 2017), p. 30

[10] UK Sea Fisheries Statistics 2019 (Marine Management Organisation, 2020), p.31.

[11] Number of livestock in Shetland (Shetland in Statistics, 2017), p. 31.

Key Point: Shetland is a very 'open' exporting economy. Whilst the public sector is the largest employer overall, Shetland has significant concentrations of employment in the primary sector (predominantly fishing, but also sheep farming), construction and manufacturing, all of which is underpinned by a large 'Transport and Storage' sector. Tourism is emerging as an important industry, but it remains much smaller than national and comparator averages.

Economic Performance and Value Added

2.4.4 Detailed information on the structure and performance of an economy at the regional or sub-regional level is rarely available. However, Shetland Islands Council regularly commissions the production of economic accounts for the islands based on input-output tables. This a labour intensive and complex process but produces a level of detail rarely seen below the national level. There is therefore value in summarising the key points emerging from the regional accounts, as they provide an in-depth insight into the Shetland economy.

- Shetland's Gross Regional Domestic Product (GRDP[12]) in 2017 was **£584.4m**, amounting to **£25,443 per capita**. This is 0.48% higher than the Scottish average – i.e., an average Shetland resident is marginally more productive than an average Scottish resident. Moreover, **between 2011 and 2017, there was a £47.8m increase in GRDP in real-terms**, highlighting increased productivity in Shetland.
- In terms of sectoral contributions to the economy – in descending order, the five sectors in Shetland which account for the most
  - **employment** are: schools, construction, retail, social work and public administration;
  - **value added** are: aquaculture, retail, public administration, construction and schools; and
  - **output** are: aquaculture, fish processing, public administration, retail and construction.
- On average, **household expenditure** in Shetland in 2017 was £36,374 per annum, of which £22,030 was spent within the islands.
- The value of exports from Shetland in 2017 was £597.6m and the value of imports £422.7m, **a trade surplus of £175m**. This is an important finding – very few small islands (indeed even the UK overall) – record trade surpluses. This highlights the major economic contribution of Shetland to Scotland and the importance of connecting producers in Shetland to markets in Scotland, the rest of the UK and Europe. Indeed, over the 6-year period 2011-17, export growth in real terms has outstripped import growth (1.75% versus 0.75%).
- **Aquaculture and fisheries account for almost 40% of total exports**, further highlighting the importance of high-quality and reliable transport services for these time sensitive products.
- As noted in the previous section, **the tourism sector is growing** in Shetland, with the value of tourism at **£36m** in 2019 compared to £23m in 2017.

2.4.5 The Council Economic Development department noted that Shetland has, like much of the country, suffered from the effects of Brexit. The lack of frictionless trade with the European Union has added costs to businesses but it was noted that this has now settled down to some extent, although HIE point out that some companies have adapted and are now more focused on the UK market.

[12] GRDP measures the size of a region's economy – it is the aggregate of all Gross Value Added (the measure of the value of goods and services produced in an area) of all resident producer units in the region.

2.4.6 The Council also explained that Shetland has weathered COVID-19 relatively well, but that the spike in global commodity prices in 2021 and the weakness of Sterling has presented some cost challenges for local firms.

2.4.7 Despite these challenges, the forward outlook is considered to be robust. As well as the ongoing strength of the agriculture and aquaculture industries, tourism is growing strongly (VisitScotland noted that visitor spend increased from £23m in 2017 to £36m in 2019), the Viking wind farm development and connector cable are being delivered and there are opportunities related to decommissioning, space technology and decarbonisation

Key Point: The Shetland Regional Accounts confirm the economic importance of the islands to Scotland and the UK more generally. Productivity is higher than the Scottish average and the islands record a large trade surplus. Given almost all trade from Shetland is in the movement of physical and often time sensitive goods, this further highlights the importance of frequent, reliable and high-quality transport links.

2.5 Labour Market

2.5.1 Having profiled the industrial structure of Shetland, this section considers its labour market.

Economic Activity and Unemployment

2.5.2 The economic activity rate is a critical indicator of the economic wellbeing of an area from a residents' perspective – areas with comparatively lower rates of economic activity tend to perform less well. For clarity:

- The **economically active** are those aged 16-64 who are either in employment or defined as unemployed and seeking work using the International Labour Organisation (ILO) definition.
- The **economically inactive** are those aged 16-64 who are neither in employment nor unemployed (on the ILO measure). This group includes people who are caring for their family or retired.

2.5.3 Figure 2.8 below shows the economic activity rate in Shetland over the 2010-2020 period, with the Scotland average shown for comparison purposes:

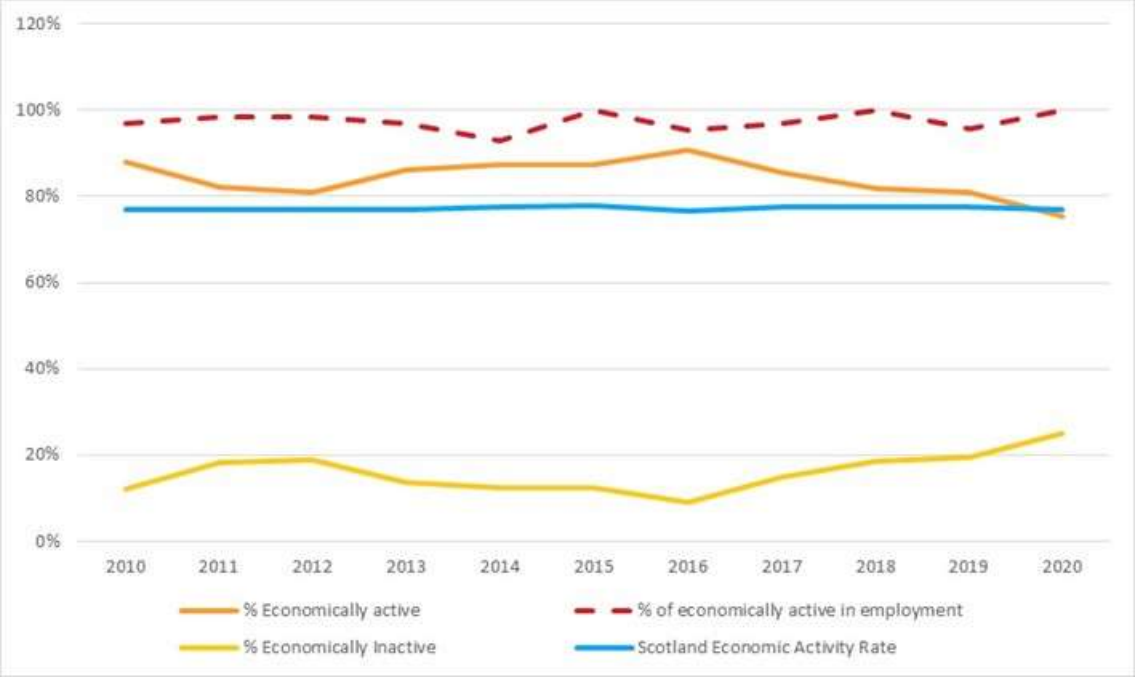


Figure 2.8: Shetland economic activity rate 2010-2020 (Source: ONS Annual Population Survey, 2021)

2.5.4 The main points of note from the above Figure 2.8 are as follows:

- Over the period 2010-2020, Shetland has typically had a higher economic activity rate (84% on average) than Scotland overall. This is common in island communities. There was a significant drop-off in levels of economic activity in 2020, which may in part relate to people leaving the labour market or indeed Shetland altogether during the COVID-19 pandemic.[13]
- Shetland has achieved a state of near 'full employment' for the last ten years. Whilst positive from a resident perspective, it means there is very little slack within the labour market to absorb increases in demand, leading to potential labour / skills shortages.
    - This is confirmed by job density[14] data for 2019, which notes Shetland as having a job density 1.10 – i.e., there are 1.10 jobs for every resident of the island, so more jobs than people. Shetland is therefore dependent on in-migration to meet its labour-supply needs but as noted in Section 2.3, the islands have experienced net out-migration since 2011-12.

2.5.5 It should be noted that both the Council Economic Development department and HIE highlighted the tight labour market as the major challenge facing Shetland at present from an economic perspective, with particular issues with respect to driver shortages identified.

[13] Note that the 2020 data has a relatively high confidence interval (11.5) and thus there is significant uncertainty around the accuracy of the data.

[14] The ratio of total jobs to population aged 16-64.

Key Point: Shetland has a healthy labour market in that it has both high rates of economic activity and near full employment. However, from a business perspective, there is insufficient labour to fill all of the vacancies on the island, which acts as a drag on productive capacity. Shetland is therefore dependent on migrant labour, but the archipelago has been experiencing net out-migration since 2011-12. Attracting people to live in Shetland will therefore be essential, particularly when set against a forecast decline in population.

Location of Employment

2.5.6 As with the population distribution, employment in Shetland is highly centralised. 53% (4,808) of all Full-Time Equivalent (FTE) jobs are located in Lerwick, which expands to almost two-thirds of jobs when neighbouring Scalloway and Tingwall are included. While COVID-19 may have resulted in some decline in daily commuting, Lerwick remains the overwhelming service centre for the archipelago. This highlights the importance of good transportation links to connect labour to employment.[15]

Key Point: Almost two-thirds of jobs are based in the Lerwick – Tingwall – Scalloway triangle, highlighting the importance of effective connectivity between jobs and labour.

2.6 Households

2.6.1 This section profiles pertinent data in relation to households in Shetland.

Property

2.6.2 Shetland in Statistics 2017 noted that there were **11,173** houses on Shetland, of which 8,583 were private and 2,487 local authority / housing association.[16] With a population of 23,080, this gave rise to an average household size of 2.1 persons in 2017.

2.6.3 The average price of a house in Shetland in 2019-20 was **£158,957**, which is somewhat lower than the Scottish average of £182,357. The change in property prices in Shetland and the comparator areas over the period 2009-10 to 2019-20 is shown in Figure 2.9 below:

[15] Shetland Employment Survey 2017 (Shetland Islands Council, 2017), p.8.

[16] Total domestic properties (Shetland in Statistics, 2017), p. 57.

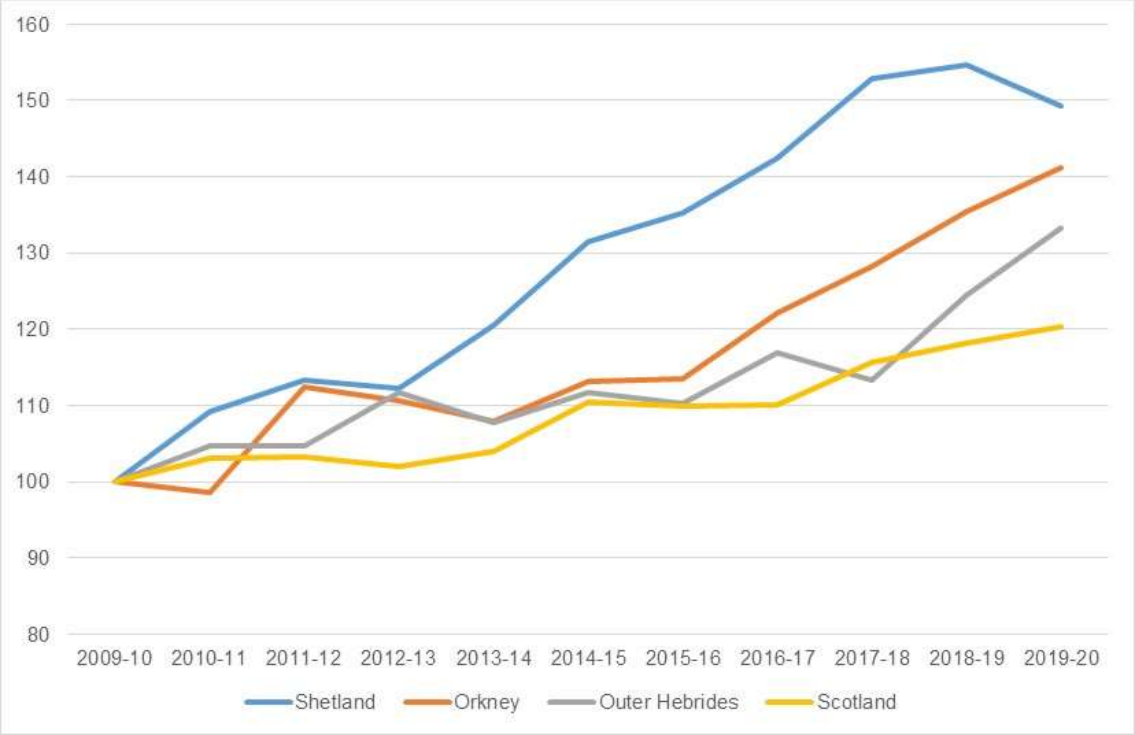


Figure 2.9: Change in property prices for Shetland and comparator areas 2009-10 to 2019-20 (2009-10 = 100) (Source: Registers of Scotland)

2.6.4 Whilst average house prices in Shetland lag the national average, they have been growing much more strongly over the last decade or so. Indeed, the average price of a house in Shetland is now circa 50% more than it was in 2009-10.

Key Point: House prices in Shetland lag the national average but have grown very strongly (circa 50%) between 2009-10 and 2019-20.

Second Home Ownership

2.6.5 An emerging issue in islands and rural areas across Scotland in recent years has been growing second home ownership. This has been a particular issue on the west coast of Scotland (e.g., Mull, Harris, Skye etc) where large numbers of properties are either second homes or holiday lets, increasing house prices and making it harder for local young people to get a foot on the property ladder, thus driving out-migration.

2.6.6 Of the 11,173 houses in Shetland in 2017, **675 were second homes (6% of the total)**. This is significantly lower than on the west coast and Orkney, likely reflecting the extra time and cost of getting to and from Shetland, both for second homeowners and visitors. Nonetheless, there has been a 13% increase in second home ownership in Shetland between 2017-20 (from 675 to 765) and thus it could become an issue in the future with potential challenges in terms of housing provision / availability, quality, and homelessness.

Key Point: High levels of second home ownership are not a major issue in Shetland at present, with only 6% of properties being second homes or holiday lets, compared to for example Tiree where a third of homes are second homes and Arran where the figure is over a quarter.

Car Availability

2.6.7 As will be explained in Chapter 3, access to a car is currently essential for many journeys in Shetland, particularly for those living or travelling outwith the Lerwick area. Figure 2.10 below shows household car availability for Shetland, the comparator areas and the Scotland average:

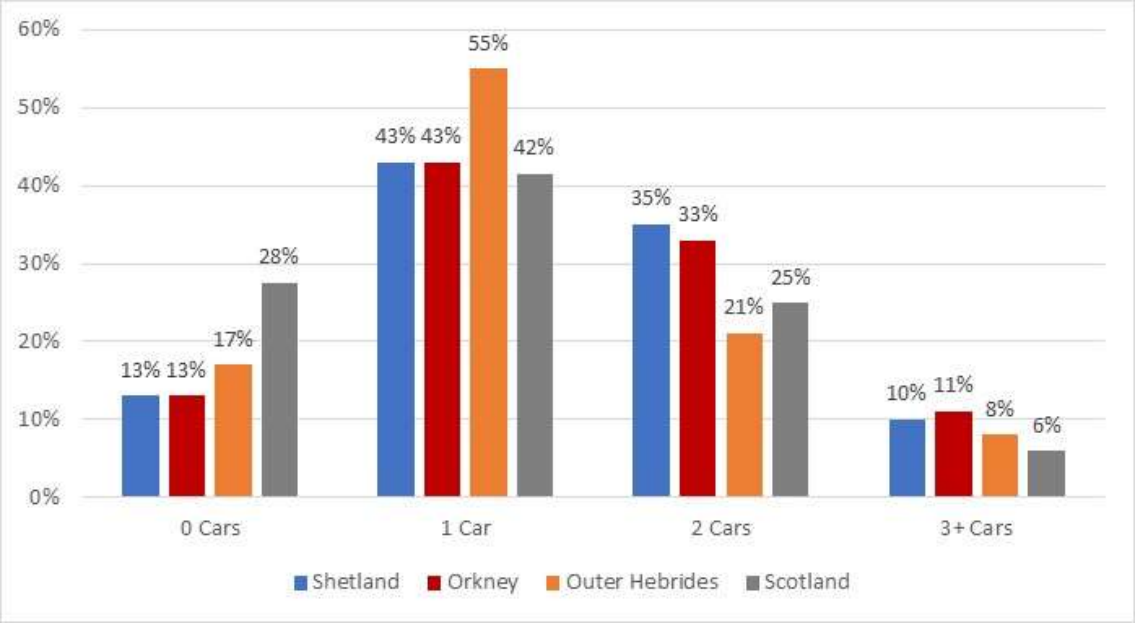


Figure 2.10: Household car availability (Source: Scottish Household Survey, 2019)

2.6.8 It is evident from Figure 2.10 that **Shetland has very high levels of car availability**. 45% of households have access to two or more cars (compared to 31% for Scotland, 44% for Orkney and 29% for the Outer Hebrides). Similarly, only 13% of households in Shetland have no access to a car, compared the Scotland average of 28%. It is highly likely that many of these 'no car available' households are located in Lerwick.

2.6.9 There were also circa 900 registered vehicles per 1,000 people in Shetland in 2019 – i.e., 9 in every 10 people own a car. This is broadly equivalent to Orkney, but much higher than the Scotland average, where the figure is closer to 7-in-10.

Key Point: Access to a car is essential for making many journeys in Shetland, particularly for those living or travelling outwith the Lerwick area. Shetland therefore has the highest household car availability in Scotland, with 9-in-10 residents owning a vehicle.

Income

2.6.10 Figure 2.11 below shows the median annual pay of Shetland residents, together with those of the comparator local authorities and Scotland overall:

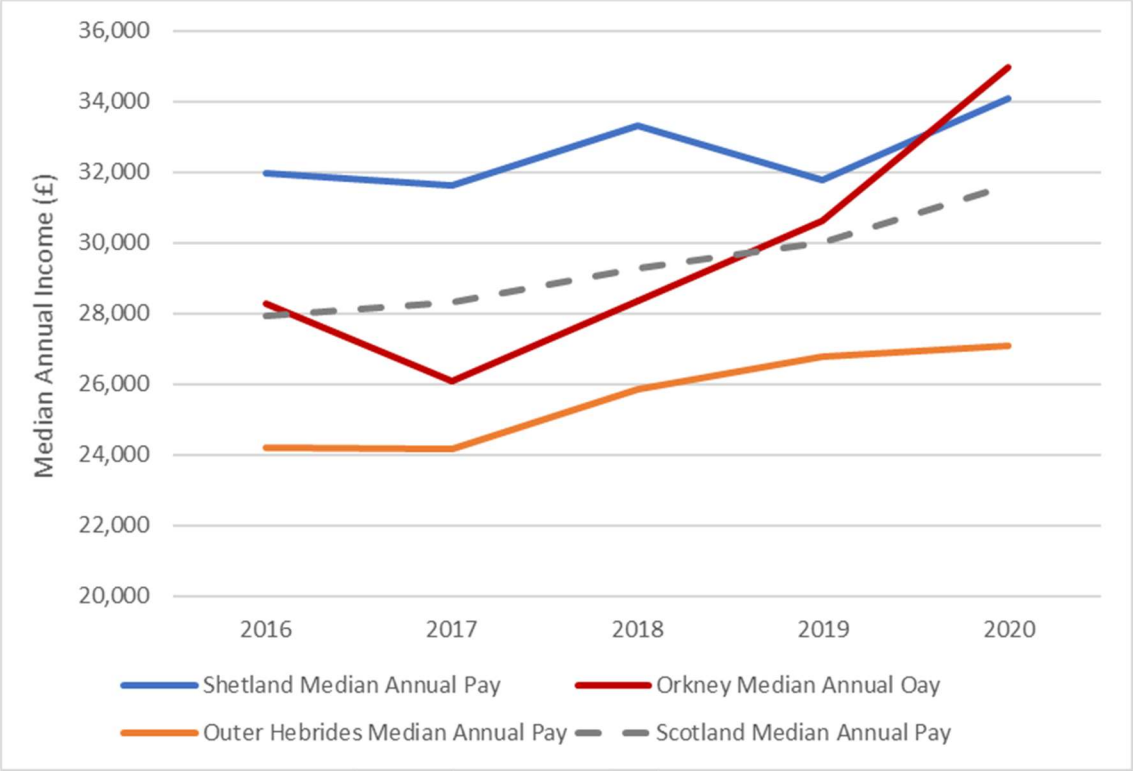


Figure 2.11: Resident median annual income 2016-2020 (Source: Annual Survey of Hours and Earnings (ASHE))

2.6.11 The main points of note from the above Figure 2.11 are as follows:

- Median annual income in Shetland is higher than the average for Scotland overall, albeit the differential has narrowed from circa £4,000 per annum in 2016 to £2,000 per annum in 2020. This pay differential is to be expected given a position of near full employment in Shetland.
- Despite the economic success of Shetland, its rate of income growth since 2017 has lagged neighbouring Orkney, and indeed the median pay of Orcadians exceeded Shetlanders in 2020 (although this could in part relate to the differential impacts of COVID-19 and Brexit on the two economies).
- As Shetland, Orkney and the Outer Hebrides are effectively 'closed' systems from an employment perspective, median workplace and resident incomes are similar.

Key Point: Median resident incomes in Shetland are high compared to the national average, although the gap has reduced in recent years. High incomes reflect the buoyant economy and near full employment in the islands.

Cost of Living

2.6.12 Whilst income in Shetland is comparatively high, the cost of living is similarly high. Research conducted by HIE in 2016, found that the minimum income required in a remote island settlement is far higher than elsewhere in the UK. Factors driving additional costs for households in Shetland compared to the rest of the UK include:

- higher prices in supermarkets and other stores than those charged in urban areas;
- longer commuting distances compounded by higher fuel prices;
- higher heating costs driven by lack of access to mains gas and the severe climate;

- delivery charges for goods ordered from elsewhere; and
- the additional cost of occasional trips to the Scottish mainland.

2.6.13 Moreover, remote small settlements in Shetland can have additional costs associated with, for example:

- additional ferry costs for inter-island travel, particularly given the commuter nature of islands such as Bressay, Whalsay and Yell;
- the additional cost of buying groceries in more expensive local stores (or from the mainland if there is no local shop); and
- higher heating bills associated in some cases with older housing.[17]

2.6.14 As part of their research, HIE sought to identify a 'Minimum Income Standard' (MIS) for different remote and rural areas of Scotland. The MIS stems from a UK-developed research approach to identify what incomes different types of households require to reach a socially acceptable living standard. The research identified the required MIS for different household types and settlements in the Northern Isles (Orkney and Shetland) and its relationship to the MIS in 'urban UK'. This is summarised in Table 2.1 below for a single person household and a pensioner couple.

Table 2.1: Northern Isles MIS compared to the average for 'Urban UK'[18]

	Town	Remote small settlement – accessible to town	Remote small settlement – Inaccessible to town	Remote small settlement – remote from town
Single person, excluding rent	+27.2%	+34.8%	+57.0%	+64.5%
Pensioner couple, excluding rent	+19.8%	+19.3%	+21.3%	+34.6%

2.6.15 Whilst the HIE work does not provide a comparison for working age families, it is nonetheless clear from the above table that the cost of living in Shetland (and Orkney) significantly exceeds that of a typical UK urban settlement. Even in Lerwick, the MIS for a single person or pensioner is one fifth to one quarter higher than in a typical UK urban settlement, albeit cheaper rents / mortgage payments may offset this to some degree.

2.6.16 Perhaps the most significant cost differential faced by Shetland residents is the cost of travel – there are three components to this:

- **Trips to and from the Scottish mainland** are generally more expensive than for any other island in Scotland (even with 'Islander' ferry fares and the Air Discount Scheme), which is primarily a factor of Shetland's distance from the mainland.
- For **car-based travel in Shetland**, fuel prices are generally higher than in the Scottish mainland. The UK Government introduced a 5p fuel rebate scheme in 2012 for several islands including Shetland, but the average price per litre remains above the Scottish average. In addition, given the road network in Shetland consists of single track roads with frequent changes in gradient and curvature, fuel consumption and maintenance costs are likely to be higher.
- As previously noted, **commuting to Lerwick from island communities** is common, and this typically involves taking a car on the ferry given the paucity of public transport options on the mainland side.

[17] A Minimum Income Standard for Remote Rural Scotland – A Policy Update (HIE, 2016), pp. 3-4.

[18] A Minimum Income Standard for Remote Rural Scotland – A Policy Update (HIE, 2016), pp. 39-40.

Key Point: Despite higher median incomes, the cost of living in Shetland is considerably greater than on the Scottish mainland, as evidenced by the HIE 'Minimum Income Standard' research. There are various reasons for this, but transport is a major contributor given: the high costs of occasional trips to and from the Scottish mainland; comparatively high fuel costs; and, for isles residents, ferry fares for those travelling to Shetland mainland, particularly for regular commuters.

Deprivation

2.6.17 The Scottish Government produces the Scottish Index of Multiple Deprivation (SIMD)[19] which is the official measure of relative deprivation for small areas in Scotland. The SIMD measures deprivation at datazone level and is made up of eight separate domains (or types) of deprivation namely: income; employment; health; education; access to services; community safety; physical environment; and housing. Each datazone in Scotland is assigned a score across each of these domains and then assigned a corresponding rank. This rank is used to place data zones into one of five quintiles ranging from 0-20% (i.e., 20% most deprived data zones) to 80-100% (i.e., 20% least deprived data zones). The generally accepted point at which an area is defined as 'deprived' is when it is classified in the highest quintile.

2.6.18 Taking the index as a whole, there are no datazones in Shetland in the '20% most deprived', although there are two datazones in Lerwick in the second quintile (21%-40%). However, Figure 2.12 below shows the level of deprivation in the 'geographic access to services'[20] domain only:

[19] Source of SIMD 2020: Scottish Government website (https://www.gov.scot/publications/scottish-index-of-multiple-deprivation-2020v2-ranks/)

[20] The 'access' domain considers: (i) drive times to a GP surgery; Post Office; retail centre; primary school; secondary school; and petrol station and (ii) public transport times to a GP surgery; Post Office; and retail centre.

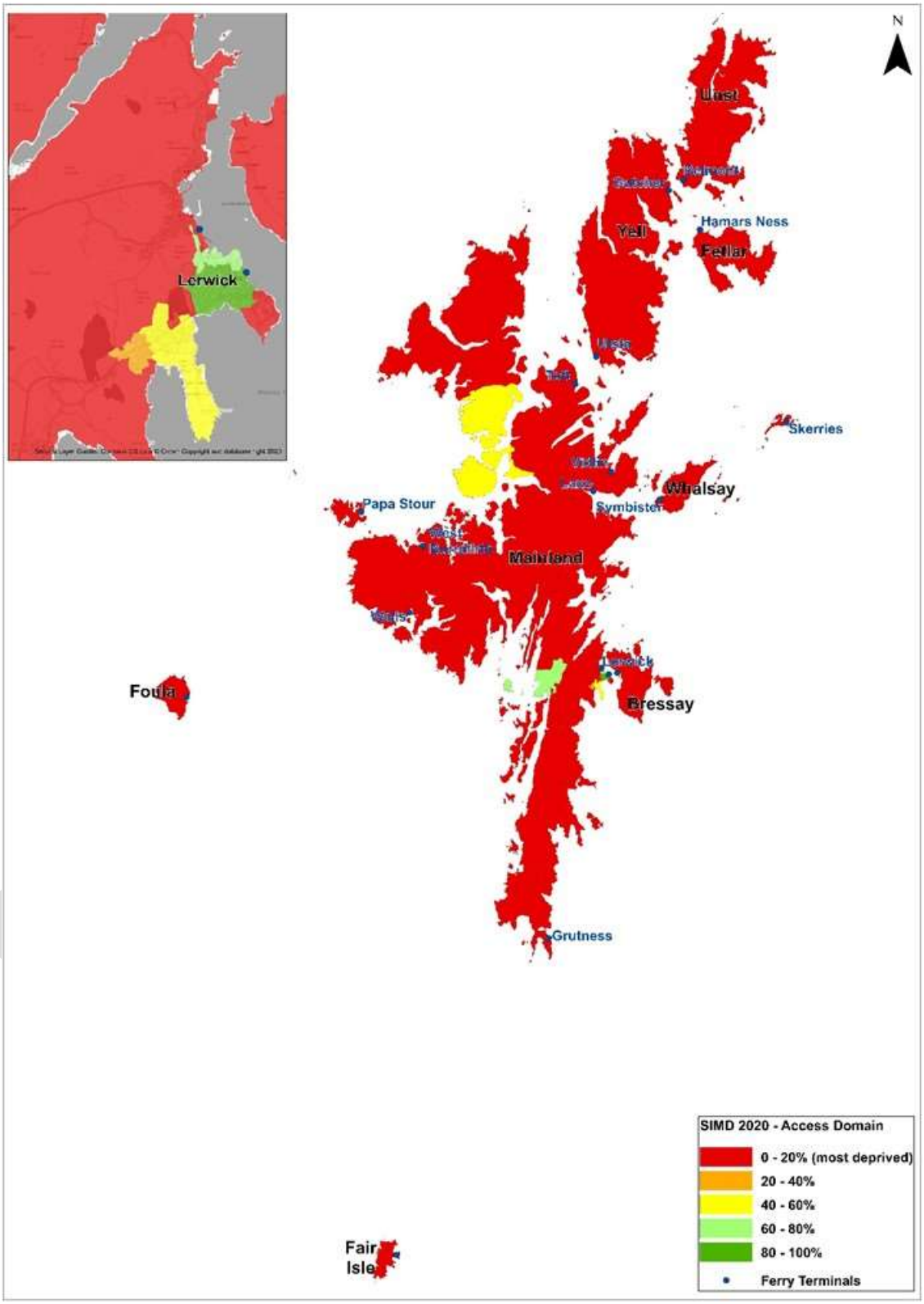


Figure 2.12: Deprivation by 'geographic access to services' domain (Source: SIMD, 2020)

2.6.19 Whilst overall deprivation is low, it can be seen from the above Figure 2.12 that almost of Shetland is in the 20% most deprived from the perspective of geographic access to services. Moreover, these indicators do not account for services which are off-island and for which travel

to the Scottish mainland is required, e.g., Aberdeen Royal Infirmary, a major shopping centre etc.

2.6.20 It is important to note that, whilst Shetland is not categorised as income deprived, the income indicators in SIMD do not take account of the high cost of living in Shetland.

Key Point: Whilst Shetland is not categorised as 'deprived' in the context of multiple deprivation, almost all of the archipelago is in the 20% most deprived in terms of the 'geographic access to services' domain. This highlights the importance of improving both internal Shetland connectivity and that to the Scottish mainland.

2.7 Education

2.7.1 The transport network plays an integral role in facilitating educational travel across Shetland – this is set out for nursery and primary, secondary and island-based education below:

Nursery and Primary

2.7.2 In 2017, there were 22 local authority nurseries and 30 primary schools in Shetland. Given the young age of the children, primary education is largely locally delivered with most mainland settlements and islands having a primary school, as is shown in Figure 2.13.. It is noted that the primary school is within the junior school in some locations, and these are highlighted below for clarity.

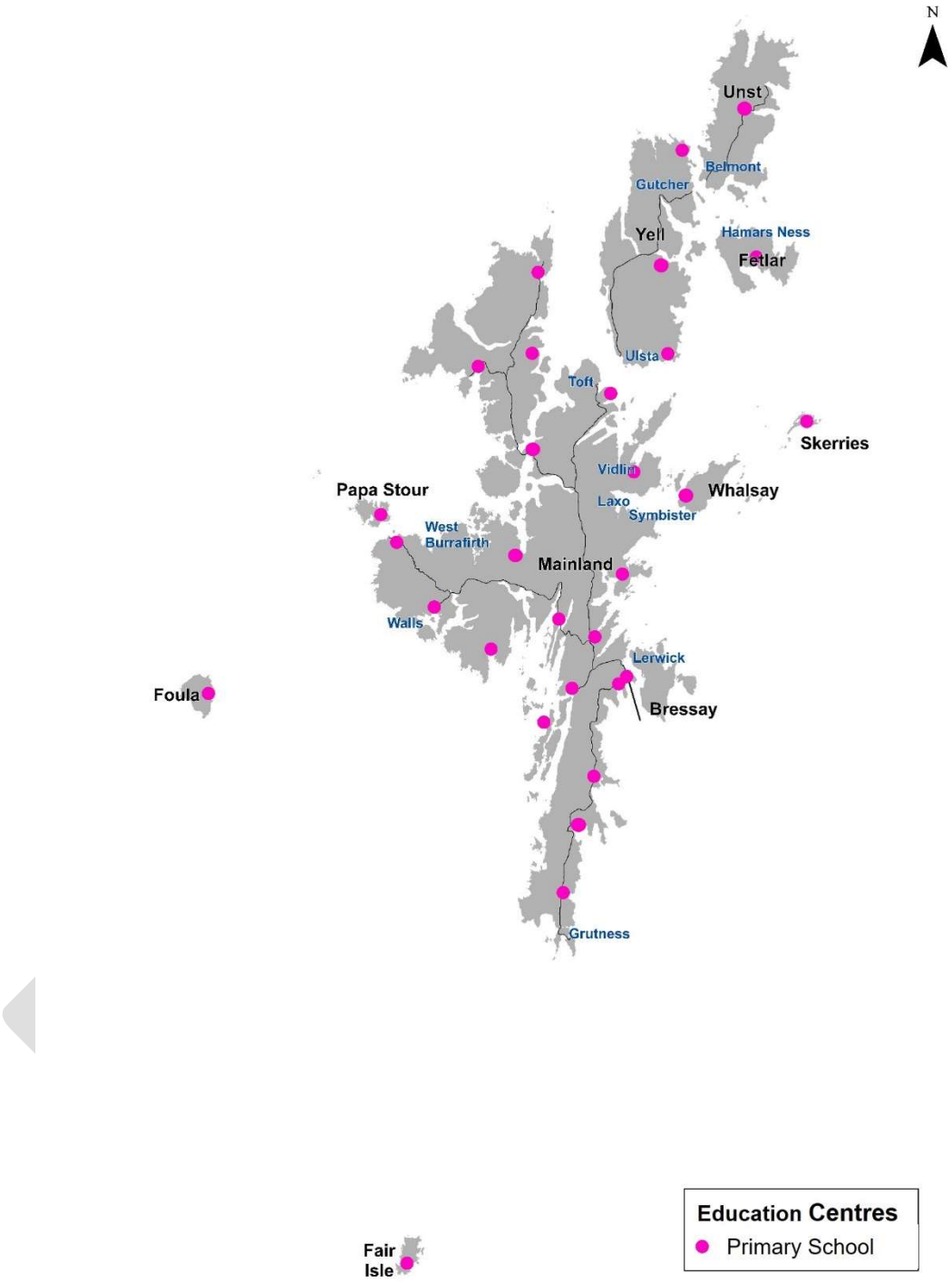


Figure 2.13: Shetland primary schools

2.7.3 Locally focused education means that schools have relatively small rolls, with only seven primary schools in 2017 having a roll of greater than 100, the largest being Bell's Brae in Lerwick, with 293.[21] There were 1,897 children enrolled across all primary schools, an average of 86 children per school.

[21] Primary education school rolls (Shetland in Statistics, 2017), p. 64.

2.7.4 In terms of travel to school, the Council has a statutory responsibility to provide and finance the transport of school pupils who live specified distances from school. The statutory qualifying distance for pupils aged under eight is two miles, and for those eight years and over is three miles. However, given winter weather, limited daylight and isolated pick-up points, the Council provides additional transport during the winter period and will extend or divert transport as far as possible whenever a pupil who is entitled to transport has more than half a mile walk to a pick-up point.[22]

2.7.5 The provision of primary school transport therefore is a significant logistical exercise for the Council and also comes at a considerable cost. Moreover, there is a particular challenge of providing transport meeting regular school start times whilst also facilitating access to breakfast clubs and after school groups, for which there is no statutory responsibility and thus implies an inequality (it is understood that the Childcare Strategic Working Group– of which ZetTrans is a member - is examining this issue independently of the RTS). However, it also provides a foundation for the wider Shetland bus network.

Key Point: Given the age of the children, primary education tends to be delivered at a largely local level, with 22 local authority nurseries and 30 primary schools across Shetland. The Council's statutory obligation to provide school transport gives rise to a significant and costly logistical exercise, although school bus contracts enable the operation of a wider network through the support of a larger number of operators.

Secondary Education

2.7.6 As is common in Scotland's Island communities, there are two types of secondary school:

- standard secondary schools offering S1-S6; and
- junior high schools, typically offering S1-S4.

2.7.7 The concept of the junior high is to allow younger secondary age pupils to attend a local school, removing the need to travel a long distance every day or board at Anderson High.

2.7.8 There are two standard high schools in Shetland (Anderson High in Lerwick and Brae High) and five junior highs, three of which are on islands (Aith, Baltasound, Mid Yell, Sandwick and Whalsay). In 2017, there were 1,340 pupils enrolled across the seven schools, although 65% of these pupils were at Anderson High in Lerwick.[23]

2.7.9 The school transport requirements of secondary schools are similar to primary schools and thus additive to the demand on bus services.

Key Point: There are two standard high schools and five junior highs across Shetland. School bus provision is additive to that for primary schools.

Island-Based Education

2.7.10 The nine island communities of Shetland served by the Council add an extra dimension to the provision of school travel and education services more generally.

[22] https://www.shetland.gov.uk/schools/school-transport

[23] Secondary education school rolls (Shetland in Statistics, 2017), p. 65.

School Travel

Primary Education

2.7.11 Of the nine islands, only Bressay does not have a primary school (closed in 2014), although Skerries Primary School is currently mothballed as there are no children on the island. Children from Bressay go to Bell's Brae Primary School in Lerwick and receive free ferry travel for that return journey.

Secondary Education

2.7.12 In terms of secondary education, children from Unst, Whalsay and Yell attend their respective Junior Highs from S1-S4. Fetlar secondary school pupils are within the catchment for AHS. While some travel to Baltasound, they are not entitled to school transport as this is outside of catchment. Children who stay on for S5 and S6 travel into Anderson High in Lerwick on a Sunday or Monday and board there for the week.

2.7.13 For Fair Isle, Foula, Papa Stour and Skerries, children will complete their entire secondary studies at Anderson High and will board in the hostel from S1-S6. Travel home arrangements vary – it is understood that:

- Papa Stour and Skerries children travel in on a Sunday evening by ferry and return home on a Friday afternoon.
- Due to the reliability issues with the transport connections, Fair Isle and Foula children only return home every three weeks, flying home on the Friday afternoon and back into Lerwick on the Monday morning (this can require an early finish on a Friday and a late start on a Monday). There is however a weekend flat attached to the accommodation building at Anderson High which parents have use of should they wish to visit.

2.7.14 Bressay children travel daily to Anderson High.

2.7.15 Research undertaken by Stantec on other studies has highlighted that the requirement for children to live off-island for most the week can be a push factor to people leaving the isles and a deterrent to in-migration. This is a particular issue in Fair Isle and Foula where children as young as eleven can be away from home for several weeks at a time.

Key Point: The requirement for isles children to attend and board (Bressay excepted) at Anderson High School in Lerwick for part or all of their school career means that the inter-island air and ferry services are an integral component of the school transport mix.

Delivering Education

2.7.16 On the larger islands (Unst (and Fetlar by extension), Whalsay and Yell) education is delivered as per Shetland mainland, with teachers either resident on the island or able travel in on the high frequency ferry services.

2.7.17 On the smaller islands with a primary school, there is generally a resident teacher. However, McCrone cover[24] is typically provided by a visiting specialist or supply-teacher, whilst primary school children also make occasional organised trips to Shetland mainland to mix with their peers.

[24] The McCrone Agreement is an agreement on Scottish teacher's pay and conditions. A key part of this agreement was a reduction in class contact time to provide teachers with additional preparation time. This is colloquially known as 'McCrone cover' and requires class teachers to be given 2.5 hours per week non-class contact time. It is understood that, in islands such as Fair Isle, this is provided in larger blocks as it would be impractical to provide it on a weekly basis.

2.8 Health

2.8.1 The internal Shetland transport network together with onwards connections to the Scottish mainland are also essential from the perspective of healthcare delivery in Shetland.

On-Island Healthcare Provision

General Practice

2.8.2 Figure 2.14 below shows the distribution of hospitals and local health centres in Shetland:

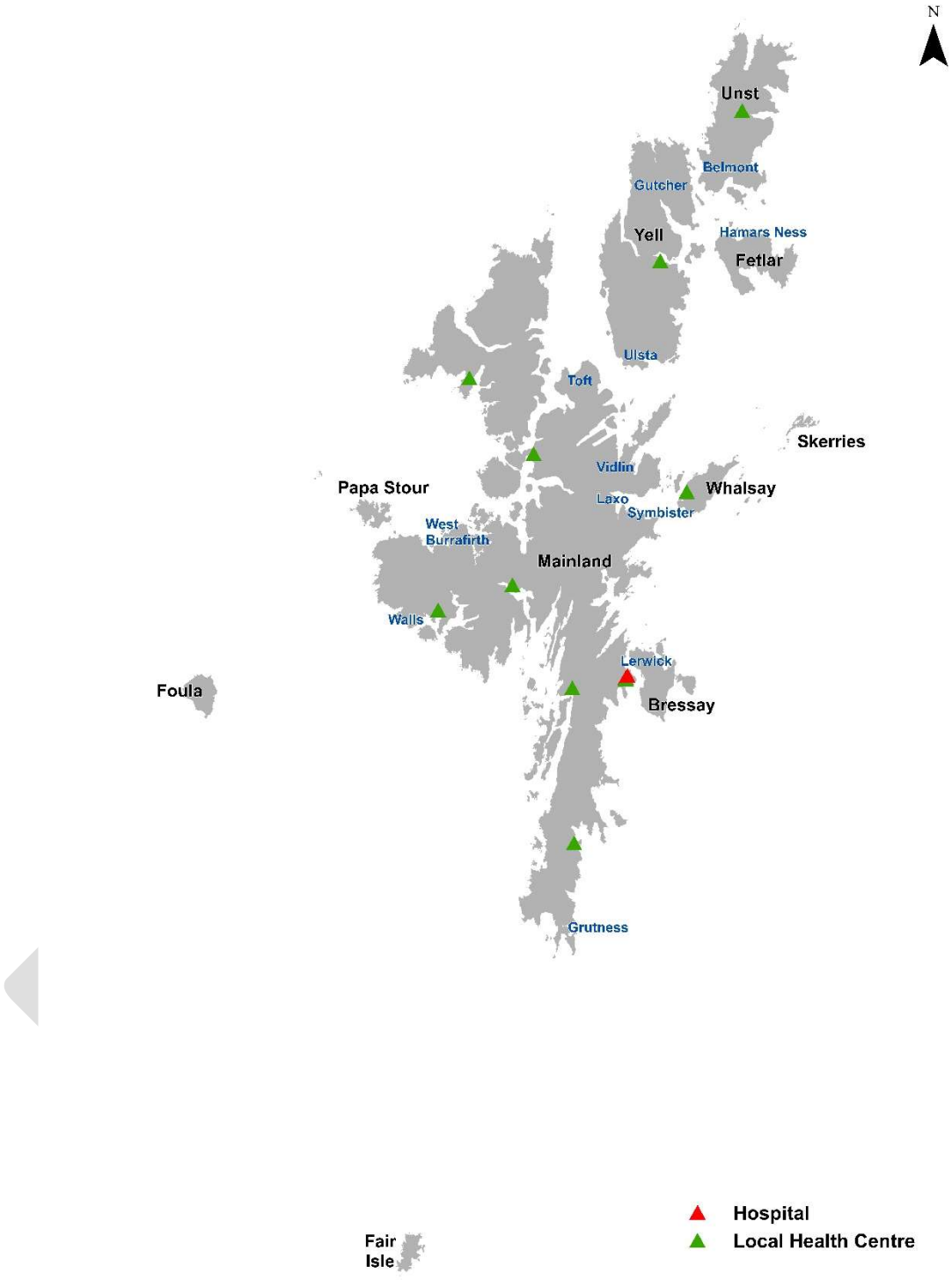


Figure 2.14: Hospitals and local health centres on Shetland

2.8.3 As can be seen from Figure 2.14 above, there is generally at least one medical practice per area of Shetland (e.g., South Mainland, West Mainland etc) and on the larger islands (Unst, Whalsay and Yell). Smaller island communities tend to have a resident District Nurse and are served by their nearest practice, e.g., Whalsay for Skerries and Levenwick for Fair Isle – in most cases, the GP will make periodic visits to the island rather than patients having to travel to the mainland. For example, the Levenwick GP visits Fair Isle once every six weeks, weather permitting, with allied health professionals visiting on an *ad hoc* basis. Given the island

geography and the nature of healthcare provision in Shetland, there are some inequalities in terms of the ease of accessing health care services across the archipelago which is likely to particularly impact those using services more frequently e.g., older age groups / the disabled.

Hospitals

2.8.4 The main hospital in Shetland is Gilbert Bain in Lerwick, which provides 56 staffed beds and two operating theatres.[25]

2.8.5 Whilst the hospital can cater for most care needs, more complex treatments and operations take place on the Scottish mainland, typically in Aberdeen.

Emergencies

2.8.6 Standard ambulance / emergency procedures are in operation across Shetland. Where an emergency occurs on an island, a regular or contracted ambulance will take the casualty to the ferry and they will be picked-up by a regular ambulance on the mainland. Ferry crews are typically available on a call-out basis where required.

2.8.7 The air ambulance typically flies into Tingwall. However, where a person urgently has to attend hospital, H.M. Coastguard will scramble their helicopter from Sumburgh. The helicopter will generally fly to Tingwall but, where the casualty's life is at risk, the helicopter will land at Clickimin, which is close to Gilbert Bain Hospital. On very rare occasions, a decision may be taken to fly a patient directly to the Scottish mainland.

Key Point: The Shetland internal transport network, particularly its air and ferry services, play an important role in connecting island residents to their local GP practice and Gilbert Bain hospital in Lerwick. They also facilitate the movement of staff to island communities.

Air and ferry services to the Scottish mainland are essential in providing onward patient transport to Aberdeen for more complex treatments and operations.

Physical Activity and Obesity levels

2.8.8 Physical activity levels in Shetland are slightly lower than the national level. According to the Scottish Health Survey, 62% of adults in Shetland met the recommended daily physical activity levels between 2016-19 compared to 65% across Scotland as a whole[26]. The equivalent figures for Orkney and the Outer Hebrides were 61% and 67% respectively.

2.8.9 The lower levels of physical activity in Shetland likely contribute to poorer health outcomes across some measures compared to Scotland as a whole. For example, data on obesity levels suggests that there are higher proportions of both adults and children categorised as obese or overweight in Shetland compared to the Scottish average. According to the Scottish Health Survey, among the adult population in Shetland, 68% were either obese or overweight between 2016-19 compared to 65% across Scotland. Similarly, data from The Child Health Systems Programme School System shows that 25% of Primary 1 children in 2017/18 in Shetland were either at risk of obesity or at risk of being overweight compared to just 13% at the national level.

[25] https://en.wikipedia.org/wiki/Gilbert_Bain_Hospital

[26] Scottish Health Survey, 2020

2.8.10 Levels of physical activity and obesity as well as broader health outcomes also differ across Shetland, with some locations performing less well than others and resultant issues in terms of health care provision.

2.8.11 The delivery of suitable walking and cycling routes and facilities can help to encourage physical activity and could have a positive impact on health outcomes within the archipelago.

Key Point: Shetland has lower levels of physical activity than the Scottish average and higher levels of obesity. Transport provision can play a role in helping to reduce these inequalities through the delivery of active travel routes and facilities.

2.9 Wider Service Delivery

2.9.1 Service delivery in Shetland (e.g., social care, waste collection, social housing construction and maintenance etc) takes place largely as per the Scottish mainland. Bespoke approaches are required in the smaller islands – these are reported in several of the background reports cited in the literature review in **Appendix A** and are thus not set out in detail here.

2.9.2 In terms of the movement of goods, Shetland has a highly sophisticated supply-chain and disproportionately large haulage sector for an island of its size (reflective of its export-focused economy). The supply-chain is built around the NorthLink Ferries service – more detail is again available in the background reports included in Appendix A.

2.10 Summary

2.10.1 This chapter has set out in detail the 'story of Shetland' in terms of the recent economic history of the archipelago, its current socio-economic profile and the relationship which it has with transport infrastructure and services.

2.10.2 The modern economy of Shetland has been shaped by the discovery and commercialisation of North Sea oil in the 1970s, both directly in terms of oil-related activity and indirectly in terms of investment in modern infrastructure which has facilitated other industries. Whilst the role of oil in the economy is now much diminished, it has bequeathed a legacy of a skilled and highly productive workforce, an advanced supply-chain and a high value export economy where 'full employment' has been the norm more often than not. By any and every objective means, Shetland is punching well above its weight.

2.10.3 However, Shetland also has its challenges. First and foremost, despite long-term population stability, it is an aging population and two separate forecasts suggest that the trend increase in the average age of Shetland residents will accelerate sharply over the next 20-years, set against a forecast 2%-4% reduction in the population overall. If realised, this will increase the dependency ratio of the islands, making service delivery more difficult and expensive, weakening productivity and making it harder to fill posts, particularly given that there are currently more jobs than working age population in Shetland.

2.10.4 Moreover, Shetland's location remote from the Scottish mainland means that the cost of living is high despite higher median incomes than the national average. This is compounded by economic centralisation in Lerwick, which means that those living outwith the town often have to travel there for employment, personal business and leisure, giving rise to a degree of 'forced car ownership' and the costs that come with it.

2.10.5 Shetland's island communities also each have their own challenges. This is particularly true for the smaller and more remote communities such as Fair Isle, Foula, Papa Stour and Skerries, which regularly have to overcome significant economic and transport barriers to remain viable. Others such as Yell, Unst and Whalsay have potential to grow, but require the enabling infrastructure and services to do so.

2.10.6 For the Council, the maintenance and asset replacement burden associated with investment in the 1980s-2000s weighs heavy, whilst residents have become accustomed to infrastructure and services which the Council's revenue budget continues to support, but not without difficulty.

2.10.7 Whilst transport is an important component of any island economy, there is no place where this is more the case than the Shetland Islands. The provision of **frequent, affordable and reliable** transport connections will be essential in retaining and attracting population, maintaining high productivity and promoting and sustaining the economic viability and special character of Shetland's communities.

2.10.8 It is to the functioning and use of the island's transport services that this 'Case for Change' now turns.

3 Transport Supply-Side

3.1 Overview

3.1.1 In order to provide context for the analysis of transport problems and opportunities which follows in 'Part 2' of this 'Case for Change' report, this chapter profiles the transport supply-side in Shetland – i.e., the networks, assets and human resources used to deliver the transport services. It should be noted that this is a summary level commentary rather than a detailed review of all aspects of transport in Shetland. The background papers referenced in Appendix A provide significant further detail if required.

3.1.2 The chapter is split into three sections:

- **External connections:** Serco NorthLink and Loganair connections to the Scottish mainland.
- **Inter-island connections:** travel between Shetland mainland, the nine inhabited islands served by Council and ZetTrans funded transport services.
- **Intra-island, Shetland mainland and Lerwick connections.**

3.2 External Connections

3.2.1 External connectivity to the Scottish mainland and the Orkney Islands is provided by a combination of Serco NorthLink ferry services and Loganair flights, each of which is profiled below.

Northern Isles Ferry Services

3.2.2 Shetland's seaborne transport connections to the Scottish mainland are delivered through the Northern Isles Ferry Services (NIFS) contract, a Scottish Government funded Public Service Contract (PSC) for the delivery of passenger and freight ferry services between the Shetland Islands and the Scottish mainland and Orkney Islands.

Routes

3.2.3 The NIFS ferry services consist of four routes

- Aberdeen – Lerwick
- Aberdeen – Kirkwall
- Kirkwall – Lerwick
- Stromness - Scrabster

3.2.4 These routes are shown in Figure 3.1 below:

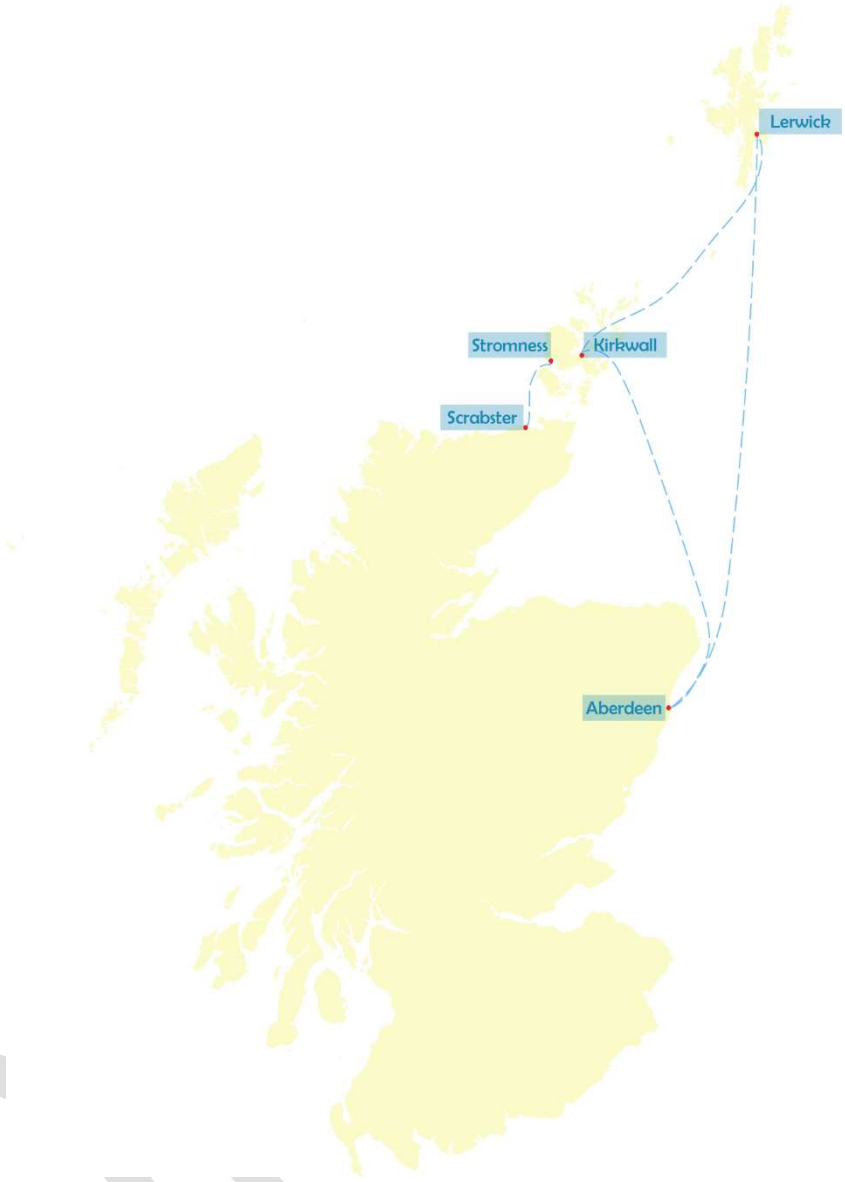


Figure 3.1: NIFS Ferry Routes

3.2.5 The sea distances from Shetland are as follows:

- Lerwick – Aberdeen = 216 miles
- Lerwick – Kirkwall = 115 miles
- Kirkwall – Aberdeen = 154 miles[27]

3.2.6 The Aberdeen – Kirkwall / Lerwick (AB-KI-LE) route is evidently the main focus of this RTS and its primary characteristics are as follows:

- The core part of the AB-KI-LE Ro-Pax route is Aberdeen – Lerwick (both directions). The vessel additionally calls at Kirkwall:

[27] https://www.northlinkferries.co.uk/booking-info/our-routes/

- Northbound: 3 nights per week in winter[28] and 4 nights per week in summer.[29]
- Southbound: 2 nights per week in winter and 3 nights per week in summer.

- On nights where there is a Kirkwall call, it is possible for passengers travelling from Lerwick to the Scottish mainland to make use of NorthLink's 'land bridge' ticket. This ticket involves disembarking the ferry in Kirkwall and travelling to the Scottish mainland via Stromness – Scrabster the next morning (with an overnight bed and breakfast stay on the MV *Hamnavoe* offered).
- The freighters operate an equivalent route, although the structure of the timetable is different, as will be explained in the next section.

3.2.7 It should be noted that, as part of the NIFS STAG appraisal (Transport Scotland, 2016), a range of potential alternative mainland ports were considered for the AB-KI-LE service, including Peterhead, Invergordon, Scrabster and Rosyth. However, all of these scored poorly in terms of the appraisal and had a very low level of public acceptability in Shetland and were therefore discounted from further consideration at the 'Initial Appraisal – Case for Change' stage.

Bergen Ferry

3.2.8 Shetland was also previously served by a weekly commercial ferry service from Lerwick to Bergen by the Faroese firm Smyril Line using the ferry MV *Nörrona*. This service commenced in 2002 but was withdrawn in 2007. There however remains a long-term aspiration in Shetland for the return of this service.

Vessels

3.2.9 The NIFS routes are served by a fleet of five vessels, three Ro-Pax (passenger and vehicle) vessels and two freight ferries. Shetland is typically served by the two freighters and the two larger sister ship Ro-Pax vessels, MV *Hjaltland* and MV *Hrossey*. A summary of key characteristics of these vessels is provided in Table 3.1 below:

Table 3.1: NIFS Vessels

	MV *Hjaltland* and MV *Hrossey*	MV *Hamnavoe*	MV *Helliar*	MV *Hildasay*
Type	Ro-Pax	Ro-Pax	Freighter	Freighter
Year Built	2002	2002	1997	1999
Length Overall (m)	125	112	122	122
Beam (m)	20	18.5	19.8	19.8
Draught (m)	5.4	4.4	6.2	6.2
Passenger Capacity	600	600	12	12
Vehicle capacity	125	95	-	-
Lane meterage	470	450	885	885
Cabins	117	16	6	6
Speed (kts)	24	19	17	17

3.2.10 All five vessels are owned by Caledonian Maritime Assets Ltd (CMAL), the Scottish Government's marine asset owning company, and leased to the operator of the NIFS contract, Serco NorthLink, for the duration of its term.

[28] For 2021/22, the winter timetable is defined as 1st November 2021 to 28th March 2022.

[29] For 2021, the summer timetable is defined as 29th March to 31st October 2021.

3.2.11 Key points of note in relation to the vessels are as follows:

- The overall constraining factor in the design of the current NIFS fleet is the size of vessel which can be accommodated within the current infrastructure at Aberdeen Harbour. At 125m length overall (LOA), the two Ro-Pax vessels and indeed the freighters are towards the maximum size of vessel which can currently operate from the existing infrastructure, although the harbour itself could accommodate vessels up to 142m LOA.
- Services to and from the Shetland Islands are operated overnight and thus both MV *Hjaltland* and MV *Hrossey* are equipped with 117 cabins and sleeping 'pod' lounges. The two freighters also have six two-berth cabins onboard for those making the journey on the vessels.
- As explained above, the timetable for the Aberdeen – Kirkwall / Lerwick service is shaped by the requirements of both time sensitive freight and other user groups such as island residents, tourists etc. To this end, both MV *Hjaltland* and MV *Hrossey* are capable of operating at speeds of up to 24 knots, allowing the timetable to be maintained on evenings when there is an Orkney call albeit with a slightly earlier departure time from Lerwick and Aberdeen. The freight vessels cannot operate at this speed and therefore tend to leave earlier and / or arrive at their destination later, meaning that there is a supply-chain preference for time sensitive freight to go on the Ro-Pax vessels.
- Analysis undertaken as part of the NIFS STAG Appraisal (Transport Scotland, 2016) found that the freight vessels are less reliable and much less punctual in inclement weather (which may increase due to climate change), with a higher proportion of cancellations and late arrivals.

3.2.12 It should be noted that:

- Transport Scotland is currently considering options for replacing the current NIFS freighters. Whilst the design and business case are still in preparation, it is possible that these new vessels will be 'freight plus' – i.e., freight vessels with the scope for carrying up to 200 passengers, with 60 cabins, pods and reclining seats.
- The new Aberdeen South Harbour (ASH) is scheduled for completion in October 2022. Whilst there is as yet no commitment to relocate the NIFS services to ASH, and several practical challenges in doing so, the completion of the harbour will offer potential future opportunities to explore the deployment of larger vessels on the Shetland run. This could include opportunities for new infrastructure within the existing Aberdeen Harbour, allowing it to cater for larger vessels.

Key Point: The current NIFS vessels are designed to fit within the current Aberdeen Harbour, with the Ro-Pax vessels specifically ordered for the characteristics of this route. Transport Scotland is currently considering options for replacing the current NIFS freighters with 'freight plus' vessels.

Timetable

3.2.13 There are separate timetables for the Ro-Pax ferries and freighters, each of which are set out below.

Ro-Pax Vessels

3.2.14 The Aberdeen – Kirkwall / Lerwick Ro-Pax timetable is structured around a range of user requirements, including time sensitive freight – specifically seafood – which has to be in the Central Belt of Scotland for late morning, facilitating onward shipment to England and Europe. A summary of the timetable in each direction is provided in Table 3.2 and Table 3.3 below:

Table 3.2: Aberdeen – Kirkwall / Lerwick timetable (southbound)

	Dep Lerwick	Arr Kirkwall	Dep Kirkwall	Arr Aberdeen
Kirkwall call	17:30	23:00	23:45	07:00
No Kirkwall call	19:00	-	-	07:00

Table 3.3: Aberdeen – Kirkwall / Lerwick timetable (northbound)

	Dep Aberdeen	Arr Kirkwall	Dep Kirkwall	Arr Lerwick
Kirkwall call	17:00	23:00	23:45	07:30
No Kirkwall call	19:00	-	-	07:30

3.2.15 The key points in relation to the Ro-Pax timetable are as follows:

- When there is a Kirkwall call in the southbound direction, the ferry leaves Lerwick at 17:30 so as to maintain the essential 07:00 arrival into Aberdeen. This also allows the ferry to arrive and depart Orkney before midnight, meeting onward public transport connections, whilst also balancing fuel, speed and cost considerations. Given check-in times and, for some Shetland residents and businesses, travel to Lerwick, the 17:30 departure can lead to a shortened production or working day.
- In the northbound direction, the ferry is scheduled to arrive into Lerwick at 07:30. Whilst the exact arrival time into Lerwick is not as critical as that into Aberdeen, it nonetheless facilitates the local supply-chain in terms of early delivery to businesses. It also provides haulage firms with a full working day between sailings to disembark and unload trailers and prepare the next consignments for shipment south.
- When there is a Kirkwall call in the northbound direction, the ferry departs Aberdeen at 17:00 so as to provide a reasonable (23:00) arrival time into Kirkwall. The engagement flagged that the 17:00 departure time provides a shorter day on the Scottish mainland, particularly for Shetland residents travelling back from the Central Belt. The vessel also needs to maintain a high-speed of circa 22 knots to maintain the Aberdeen – Kirkwall timetable.
- Southbound and northbound Kirkwall calls are never on the same evening.

3.2.16 It should be noted that the 2016 NIFS STAG Appraisal considered a wide range of potential additional sailing options (e.g., day sailings to Aberdeen, Kirkwall and Scrabster; a three-sailings in 48-hours timetable etc) within the parameters set by the existing timetable. However, the analysis highlighted that the distances in question mean that either: (i) additional sailings cannot be delivered within the available time; or (ii) they would present an unacceptable risk to the delivery of the current timetable; and / or (iii) departure and arrival times would be unsuitable for passengers.

Key Point: The NorthLink Ro-Pax timetable serves a variety of markets including freight, island residents and visitors, balancing a range of demands, which necessarily requires a degree of compromise between user needs. The ferry will leave earlier on evenings with an Orkney call – this can be unpopular with Shetland residents and businesses as it shortens the working / production day but is an essential trade-off in maintaining the service to Orkney. There is very limited scope with the current assets for operating additional services whilst reliability maintaining the essential overnight sailing.

Freighters

3.2.17 The freight timetable for the two freight vessels does not have the same broadly repeating daily pattern as the Ro-Pax vessels, rather it is tailored to meet specific commodity flows from both Shetland and Orkney. The peak timetable shown in Table 3.4 below delivers twelve sailings per week. There is also a separate off-peak schedule January – May when demand is lower

and a livestock timetable in September and October to meet agricultural demand for livestock transport.:

Table 3.4: Serco NorthLink freight timetable[30]

Day	Route	Dep. Time	Arr. Time	Route	Dep. Time	Arr. Time
	Vessel 1			***Vessel 2***		
Monday	KIAB	20:00	06:00	LEAB	18:00	08:00
Tuesday	ABKILE	15:00	10:00	Layover AB	-	-
Wednesday	LEAB	18:00	08:00	ABLE	18:00	08:00
Thursday	ABLE	18:00	08:00	LEAB	18:00	08:00
Friday	LEAB	18:00	08:00	ABKILE	15:00	10:00
Saturday	ABLE	18:00	08:00	LEKIAB	17:00	11:00
Sunday	Layover LE	-	-	ABKI	18:00	06:00

3.2.18 The following points should be noted from the above Table 3.4:

- On a Monday, one of the freight vessels is dedicated to the Kirkwall – Aberdeen run, arriving into Kirkwall at 06:00 and departing again at 20:00. This sailing is specifically to accommodate the movement of livestock from Orkney to Aberdeen, with Monday being the main sale day at the Orkney Auction Mart.
- The balance of freighter services is in favour of Shetland, with seven of the twelve sailings operating directly between Lerwick and Aberdeen or vice versa. This highlights the high volumes of freight moving to and from Shetland.
- There are two sailings per week between Kirkwall – Lerwick and one sailing from Lerwick – Kirkwall. These are important in facilitating Orkney and Shetland freight movements, in particular the movement of waste from Orkney for use in the Shetland waste to heat energy plant.
- There are no freight sailings to or from Shetland on a Sunday, largely reflecting reduced demand on that day as there is little to no seafood production and harvest on Sundays. There are however sailings from Lerwick on Sundays during the operation of the livestock timetable.

Key Point: The NorthLink freight timetable does not follow the largely repeating pattern of the Ro-Pax timetable, rather it is tailored to meet the needs of specific freight flows. The timetable can be slightly flexed to reflect demand, with an off-peak schedule operated January-May and a livestock timetable in September and October.

Fares

3.2.19 Fares on the NIFS services are set by Transport Scotland through the PSC.

Passenger, Vehicle and Cabin Fares

3.2.20 A summary of passenger, vehicle and cabin fares (using an 'Inner 4 Berth' and 'Outer 2 Berth' as an example) is provided in Table 3.5 below:

[30] https://freight.northlinkferries.co.uk/timetables/ - 1st November to 23rd December 2021

Table 3.5: Serco NorthLink passenger fares - 2021[31]

	Lerwick - Aberdeen			Lerwick - Kirkwall		
	Low Season	***Mid-Season***	***Peak-Season***	***Low Season***	***Mid-Season***	***Peak-Season***
Adult Single - Islander	£15.51	£19.60	£23.80	£10.01	£11.76	£14.18
Adult Single - Visitor	£22.75	£29.50	£35.50	£14.70	£17.25	£20.85
Car - Islander	£63.00	£79.80	£84.00	£36.40	£52.50	£59.50
Car - Visitor	£93.00	£118.00	£124.00	£55.00	£78.00	£88.00
Inner 4-berth	£76.00	£107.00	£118.00	£76.00	£107.00	£118.00
Outer 2-berth	£79.00	£110.00	£121.00	£79.00	£110.00	£121.00
Sleeping Pod	£18.00	£18.00	£18.00	£18.00	£18.00	£18.00

3.2.21 The following points should be noted in relation to the above Table 3.5 and indeed fares generally:

- Fares on NorthLink services differ by season, with low[32], mid[33] and peak[34] season fares. Island residents receive a 30% discount on standard NorthLink passenger and vehicle fares and a 20% discount on cabins. This discount can be extended to up to three nominated households and is only valid at certain times of the year (in 2022, this is 7th January-14th June and 1st September-17th December)[35].
- Cabin prices are the same irrespective of which leg of the journey a passenger is making (i.e., Aberdeen – Lerwick, Aberdeen – Kirkwall or Kirkwall – Lerwick).
- On the Kirkwall – Lerwick leg, cabins will only typically be purchased for northbound travel as that leg is overnight, although some passengers travelling southbound to Orkney will take a cabin for a range of reasons, including comfort. The same applies to the Aberdeen – Kirkwall leg of the northbound sailing.
- Concessions receive a 10% discount on passenger and vehicle fares, with Shetland residents holding the National Entitlement Card entitled to four free single passenger fares per annum.

3.2.22 It has long been recognised that fares on the NIFS services – particularly on the Aberdeen – Lerwick route – are very high in absolute terms. This contributes to the high cost of living in Shetland and has a disproportionate impact on those on lower incomes. The Scottish Government has committed to introducing a modified version of the Road Equivalent Tariff (RET) fares system for passengers and cars as per the west coast of Scotland. However, due to a legal challenge and concerns surrounding state aid on the Kirkwall – Aberdeen leg, RET has not yet been introduced. A 20% reduction in passenger and car fares was introduced on 30th June 2018.

[31] https://www.northlinkferries.co.uk/booking-info/islander-information/islander-fares/

[32] In 2021, 7th January – 23rd March and 1st November – 17th December.

[33] In 2021, 1st – 6th January 24th March – 14th June, 1st September – 31st October and 18th December – 31st December.

[34] In 2021, 15th June – 31st August

[35] Family and Friends Discount Terms | NorthLink Ferries

Key Point: The NIFS fares are set by Transport Scotland through the PSC. Key features include seasonal pricing variations and islander discounts. There remains an aspiration to introduce a 'modified RET' fare on the Aberdeen – Kirkwall / Lerwick route, but this has not yet progressed on the Orkney leg due to a legal challenge and concerns over state aid.

Freight Fares

3.2.23 As with passenger fares, freight fares are defined in the PSC for the NIFS services. Key points are as follows:

- NorthLink freight fares are based on a rate per incremental lane metre (LM). Unlike other ferry networks in Scotland, there is not a length threshold at which a vehicle is classified as 'commercial', rather this is defined by NorthLink's conditions of carriages. The rate charged per LM on a particular crossing is a flat rate so that a 10 metre CV travelling on a particular route has a fare exactly double that of a 5 metre CV.
- There is an advanced booking rate and a '3-day premium rate'. The advanced booking rate offers a 10% reduction in the cost per LM for self-propelled trailers and 16% for drop trailers.
- NorthLink operate a 'drop trailer' service, whereby the commercial vehicle trailer travels without the tractor unit. This offers hauliers a saving in terms of the LM charge but also avoids loss of productive time for the tractor unit and driver on the long crossing.
- As would be expected given the length of the crossing, the tariff per nautical mile is higher on the Aberdeen – Lerwick route than anywhere else in Scotland.

3.2.24 It should be noted that Transport Scotland commenced a review of ferry freight fares in 2014 but has yet to introduce a new fares regime for commercial vehicles. Our understanding of this commitment is that this would be completed in the term of the next Clyde and Hebrides Contract which ends in 2024.

Key Point: The basis of NorthLink's freight fares is broadly equivalent to that on other ferry networks in Scotland, with CVs being charged by the incremental LM. By virtue of distance, the tariff per LM on the Aberdeen – Lerwick route is higher than anywhere else in Scotland.

Method of Delivery

3.2.25 The NIFS services are currently operated by Serco NorthLink Ferries on a Transport Scotland let PSC which runs from June 2020 to June 2026. The routes, timetables, vessels and service requirement are all largely specified within the contract.

3.2.26 The NIFS contract operates on a broadly net-cost basis (although there is a subsidy 'clawback' mechanism – see below), which means that the operator provides a forecast subsidy requirement and assumes all revenue risks except for market entry and fuel prices (although note that this arrangement is suspended during the COVID-19 pandemic). Changes of scope (e.g., new routes, services etc) are agreed with the operator and represent a change to the financial base case. The subsidy is paid in its entirety by Transport Scotland and there is a 'clawback' mechanism provision included, whereby proportions of profit over certain thresholds are recovered by Transport Scotland) as per the contract agreement.

3.2.27 As CMAL is a publicly owned company, capital funding for new tonnage is provided by central government, either directly via a capital grant or through the long-term funding of loan repayments or leases.

3.2.28 All of the ports into which services are operated are local authority or trust owned, and thus there is no requirement for an equivalent to CMAL from the infrastructure perspective.

3.2.29 Neither ZetTrans nor Shetland Islands Council have any responsibility for or control over the NIFS contract. They are however stakeholders and are consulted on the specification and operation of the contract at appropriate junctures.

Key Point: The NIFS services are defined in a tightly specified PSC by Transport Scotland. They are operated on a net-cost basis, whereby the operator assumes the revenue risk outwith certain specified items. CMAL own the vessels.

External Air Services

3.2.30 Shetland's scheduled air connections to the Scottish mainland are currently delivered by Loganair on a commercial basis. A brief profile of these services is set out below.

Routes

3.2.31 Whilst Shetland has three airports (two currently operational), it is Sumburgh, at the southern tip of the island archipelago, from which scheduled external flights arrive and depart. As an entirely commercially run network, the routes offered to and from Shetland and the frequency of service vary in line with market demand and operational requirements.

3.2.32 As would be expected, flight schedules were and remain significantly reduced during the period of the COVID-19 pandemic. Table 3.6 below summarises the typical (i.e., 2019, pre-pandemic) flight schedule operated from Shetland:

Table 3.6: 'Typical' Shetland flight schedule[36]

Destination	Duration (mins)	No. of Flights
Aberdeen	60	Up to 5 flights per day
Bergen	60	Summer only – 1 flight on Wednesdays and Saturdays
Edinburgh	90	Up to 3 flights per day
Glasgow	90	Up to 2 flights per day
Inverness	105 (via Kirkwall)	Up to 2 flights per day, with stop in Kirkwall
Kirkwall	40	Up to 2 flights per day
Manchester	95	1 flight on Saturday

3.2.33 The following points should be noted from Table 3.6:

- The high frequency of flights to / from Aberdeen highlights its role as Shetland's mainland 'service centre', particularly for health-related appointments and leisure travel. There is also a historic oil and gas connection between the isles and Aberdeen, although many oil workers arrived on charter flights to Scatsta in the north of Shetland mainland.
- The three flights per day service to Edinburgh allows for a morning, afternoon and evening connection, thus allowing a meaningful (if long) day return trip to be made to the Scottish mainland.
- Inverness has always been less of a focus for Shetland-based travel and thus flights to the Highland capital are via neighbouring Orkney, although there were direct connections in the past.

[36] https://www.shetland.org/visit/plan/getting-to-shetland/flight

- The Bergen summer connection supports tourism and Shetland's historic connections to its Nordic neighbour.

3.2.34 Overall, for an island group of its size, Shetland is actually relatively well-served in terms of the frequency and destinations of flights. Moreover:

- Loganair has recently expanded its route network, flying to many of the regional airports previously served by FlyBe. As a result, through flights with Loganair are now available to a wide range of UK destinations including London Heathrow, Birmingham, Manchester, Norwich and Southampton and to selected European destinations such as Oslo, Stavanger and Esbjerg.
- It has also established code share agreements with several global airlines operating from Glasgow and Edinburgh, including British Airways, Air France, Emirates, KLM, Qatar Airways, Turkish Airlines and United Airlines.[37] These agreements allow Shetland residents and those travelling to the isles to book all connections in the one place, fly on multiple airlines on a single ticket and provides protections in the event of delay. It also increases the visibility of Shetland nationally and internationally.

3.2.35 The above said, the aviation market in Shetland is relatively marginal and subject to the same commercial challenges encountered by the industry more generally. This was highlighted by the brief period of competition between Loganair and FlyBe, who entered the Shetland market in September 2017 offering three return flights per day to Aberdeen and one each day to Glasgow and Edinburgh[38]. The introduction of competition dramatically reduced fares, but also threatened the commercial viability of both operators before FlyBe withdrew in January 2018.[39] The challenges with a commercial operation were also apparent when the COVID-19 pandemic struck, with air services to Scottish islands reducing in frequency in a way that government funded ferry services did not. This highlights the vulnerability of Shetland's air service.

Key Point: Shetland benefits from a high-quality air service offered by a long-established and highly respected airline, but such services are also subject to change based on commercial and operational needs and vulnerable to the wider macro trends that impact the aviation industry.

Aircraft and Airports

Aircraft

3.2.36 As a commercial operation, aircraft deployment is determined entirely by the operator, which leases / owns its fleet. Loganair historically operated 34-seat Saab 340 turboprop aircraft on its Sumburgh routes, later introducing the larger 50-58 passenger Saab 2000 turboprop aircraft. However, the company is in the process of phasing out its Saab fleet, with the Saab 2000 already replaced by the ATR-42 (48 passengers) and ATR-72 (72 passengers) turboprop aircraft. Aircraft size is limited by the length and width of the runway at Sumburgh.

Airports

3.2.37 Sumburgh Airport is owned by Highlands and Islands Airports Limited (HIAL), a Non-Departmental Public Body, wholly owned by Scottish Ministers. Of the Scottish destinations served directly from Shetland, HIAL also owns Dundee, Kirkwall and Inverness, whilst Aberdeen, Edinburgh and Glasgow are commercially operated.

[37] https://www.loganair.co.uk/contact-us/travel-trade-support/our-airline-partners/

[38] https://www.shetland.org/blog/former-airline-partners

[39] https://www.shetlandtimes.co.uk/2017/12/07/breaking-claims-flybe-pulled-shetland-route

Fares

3.2.38 The fares on the Loganair services from Sumburgh are set on a commercial basis aimed at maximising yield / revenue per flight by matching demand and seat availability as closely as possible. There are three fare categories:

- Fly
- Fly Flex
- Fly Flex +

3.2.39 There is an increase in the price between each category but with incremental benefits in each ticket type in terms of flight extras and ticket flexibility.

3.2.40 Fares in the aviation industry are largely driven by demand, and in particular the economies of scale offered by larger aircraft (assuming the seats can be sold). This is a challenge in Shetland where the market itself is small and the aircraft used have also been historically small, although the introduction of the Saab 2000 fleet followed by the ATR-72s has addressed this to some degree. The absolute level of fares can therefore often be prohibitive for Shetland residents, particularly for short notice travel at peak times. This is particularly the case for those on lower incomes and families travelling together.

3.2.41 Island residents' benefit from the Air Discount Scheme (ADS), which provides Shetlanders with a 50% discount on the pre-tax air fare. Business travel is not eligible for ADS, although registered third sector organisations who have employees / volunteers that have their permanent or main residence in an eligible area do benefit from ADS.[40]

Key Point: Air fares to the Scottish mainland are set on a commercial basis, although island residents do benefit from the Air Discount Scheme. Shetland is overall a relatively low volume market served by comparatively small aircraft, which means that the absolute level of fares can be prohibitive for Shetland residents, particularly for short notice travel at peak times.

Transport Integration

3.2.42 Sumburgh Airport is 25 miles south of Lerwick, the main settlement in Shetland and thus onward transport connections are important.

Sumburgh – Lerwick bus service

3.2.43 Bus service 6 provides a regular connection between Lerwick and Sumburgh. The service runs seven days a week and the weekday frequency was increased from seven to 14 services per day in August 2020. However, the timetable is not clockface (i.e., services do not run at a consistent time each hour) and overall journey times are considerably longer than the equivalent journey by car (58 minutes between Lerwick and Sumburgh compared to approximately 34 minutes by car). In addition, where the airline makes changes to flight times, making the corresponding changes to the bus times is not always straightforward and / or can take time to implement due to wider demands across the bus network. This can therefore lead to connectivity issues.

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

Table 3.7: Bus Service 6 – Lerwick to Sumburgh

	Day	First Departure	First Arrival	Last Departure	Last Arrival	Number of services per day
Lerwick to Sumburgh	Weekday	05:30	06:28	17:10	18:08	14
	Saturday	05:30	06:28	17:10	18:18	9
	Sunday	09:15	10:15	18:45	19:45	5
Sumburgh to Lerwick	Weekday	06:40	07:47	20:00	20:57	14
	Saturday	06:40	07:47	20:00	20:57	9
	Sunday	11:55	12:55	20:00	21:00	5

Car hire

3.2.44 Sumburgh Airport has several on-site car hire companies. It is understood from engagement that car availability in peak season can at times be pressured, albeit this has been less of an issue during the period of the COVID-19 pandemic.

Car parking

3.2.45 Sumburgh Airport has a single large car park outside of the main terminal building. Parking is free for the first two hours and is then £3 per 24-hours thereafter. There are exemptions for inter-island and NHS passengers, as well as Blue Badge holders. In terms of the latter, in order to enable Blue Badge holders to take their badge with them on the flight, there is an arrangement in place with HIAL whereby people can present their badge and vehicle details to staff to validate their entitlement rather than leaving their badge in their car.

3.2.46 It is noted that since the introduction of parking charges at the airport, an informal car park close to the site has arisen with people choosing this location in order to avoid charges.

Key Point: Sumburgh Airport is well connected to Lerwick by bus, with a seven-day per week service on a broadly hourly frequency on weekdays, although the service is scaled back at weekends, particularly Sundays. Bus journey times are however uncompetitive with the car.

3.3 Inter-Island Connections

3.3.1 This section focuses on the inter-island ferry and air services connecting the islands of Bressay, Fair Isle, Fetlar, Foula, Papa Stour, Skerries, Unst, Whalsay and Yell to Shetland mainland.

Inter-Island Ferry Services

3.3.2 The inter-island ferry services were the subject of an extensive Strategic Business Case in 2016, with follow-up Outline Business Cases for Fair Isle and Whalsay in 2019 and 2020. This summary of the supply-side is therefore intended to be succinct, with detailed background information available in the SBC and its supporting papers (referenced in Appendix A).

Routes

3.3.3 Shetland was an early Scottish adopter of the Norwegian roll-on, roll-off (Ro-Ro) and short-sea crossing concepts, developing a modern and high-quality network throughout the late 1970s and early 1980s. A fleet of efficient modern vessels was built, Ro-Ro conversions of ferry terminals undertaken, and advanced radio controlled berthing systems were adopted to avoid the requirement for shoreside staff. The Council also had an active programme of vessel

replacement in place with four new vessels bought between 2002 and 2004. This capital investment programme was allied with revenue funding to provide seven-day services and operating days of up to 18 hours (and through the night standby) on several of the short routes (see below).

3.3.4 However, funding difficulties led to a significant retrenchment of services in 2013, with the ferry service revenue budget reduced by a quarter. This led to the scaling-back of services on some routes, particularly at the weekend, and a pause in the capital programme, meaning that no new vessels have entered service since 2004. Nonetheless, the Shetland inter-island services, at least on the short Ro-Ro routes, continue to offer a level of service unparalleled elsewhere in Scotland.

3.3.5 The ferry network consists of seven Ro-Ro routes and two lift-on, lift-off (Lo-Lo) routes, nine routes in total. These are shown on the map below, Figure 3.2:

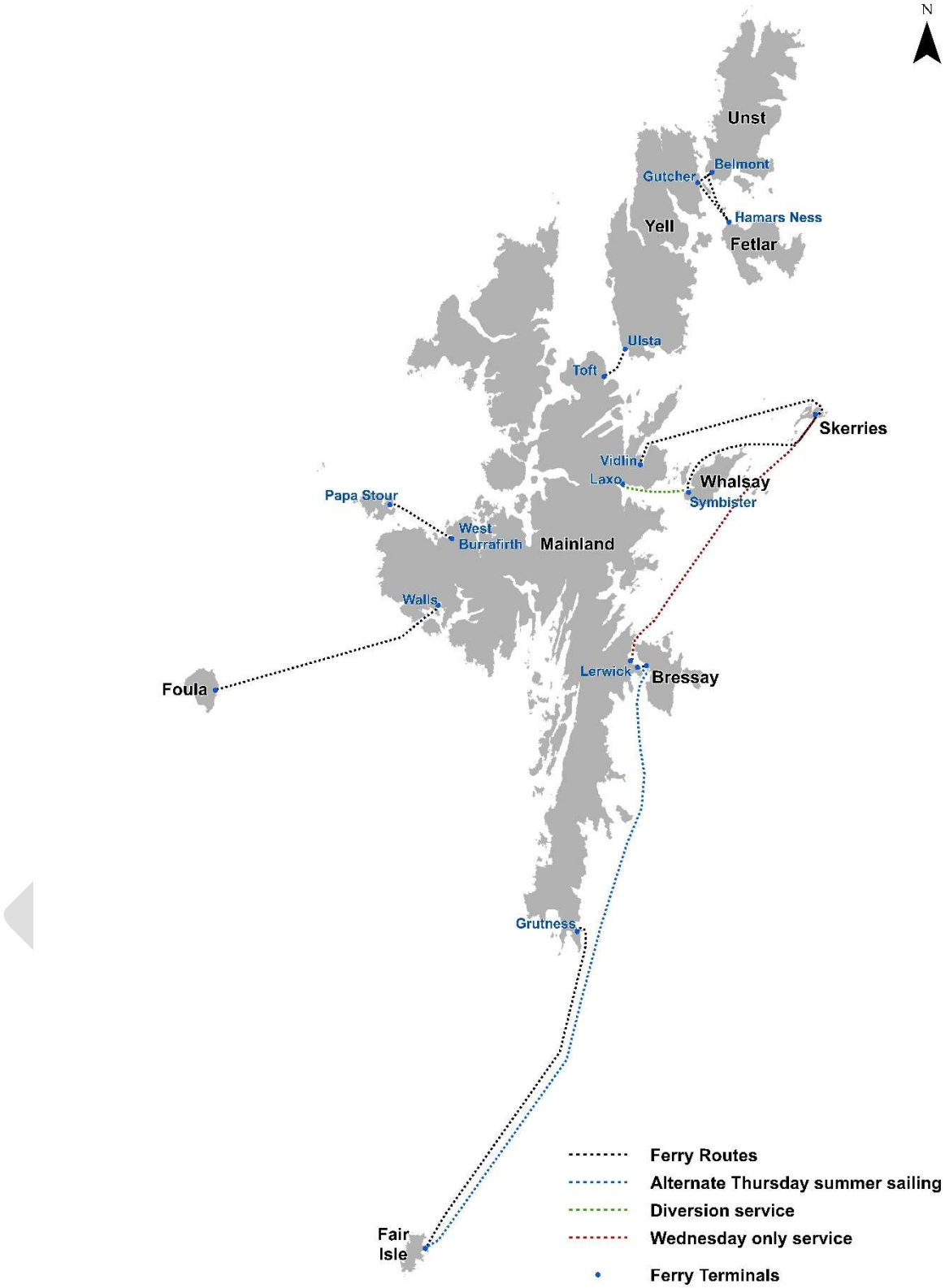


Figure 3.2: Shetland inter-island ferry network

3.3.6 The main points of note from the above map are as follows:

- The routes to Yell, Whalsay, Bressay and Unst & Fetlar (collectively known as the Bluemull service) accounted for 99% of total passenger and car carryings in 2019, the last full pre-COVID-19 year. These routes serve the most populous islands (Fetlar aside) and form the core of the Ro-Ro network.
- The Bluemull Sound route operates as a triangular service between Gutcher (Yell), Belmont (Unst) and Hamars Ness (Fetlar). The balance of connections is however on the Gutcher – Belmont route, which connects the two more populous islands of Yell and Unst.
- The core Whalsay service operates between Symbister and Laxo, although a mainland diversion port is maintained at Vidlin as the crossing to Laxo is prone to disruption during periods of south-easterly winds.
- The Skerries vessel is based in and crewed from Whalsay and thus the first sailing of the day is from Symbister to Skerries and the reverse in the evening. These services will frequently operate without passengers and thus are often just positioning runs (there are five sailing days per week, four days operating to and from Vidlin and one to / from Lerwick). There is a long-standing ambition in Skerries for an island-based vessel.
- Papa Stour to West Burrafirth is also a Ro-Ro route, although the very low population of Papa Stour means that this island is only served four days per week.
- The islands of Fair Isle and Foula are served in a very different way to the other seven islands. Both routes continue to operate on a Lo-Lo basis[41], Fair Isle using a vessel-based crane and Foula a shoreside crane. Both vessels are crewed from the respective islands – this is an essential feature of the service as the long and exposed crossings mean that the services are subject to significant disruption. An island-based crew provides the flexibility to depart from the timetable and operate services when the weather permits. Both vessels are removed from the water overnight to avoid the risk of damage from large swells.

3.3.7 The SIITS SBC work explored the case for other potential routes and connections but concluded that the current design of the network maximises the number of connections that can be reliably offered.

Key Point: The Shetland internal ferry network is based around the principle of Ro-Ro services operating on the shortest possible sea crossing. Four routes (Bressay, Bluemull Sound, Whalsay and Yell Sound) account for almost all passenger and car carryings. However, the services to Fair Isle, Foula, Papa Stour and Skerries provide essential lifeline connections for those islands.

Assets

Vessels

3.3.8 The main characteristics of the Shetland fleet are summarised below in Table 3.8:

[41] It should be noted that the preferred option emerging from the Fair Isle Outline Business Case is the conversion of the route to Ro-Ro.

Table 3.8: Shetland internal ferry fleet

	Dagalien	Daggri	Bigga	Geira	Linga	Hendra	Filla	Leirna	Snolda	Good Shepherd IV	New Advance	Fivla
Primary Route	Yell Sound	Yell Sound	Bluemull Sound	Bluemull Sound	Whalsay	Whalsay	Skerries	Bressay	Papa Stour	Fair Isle	Foula	Relief
Type	Ro-Ro	Ro-Ro	Ro-Ro	Ro-Ro	Ro-Ro	Ro-Ro	Ro-Ro	Ro-Ro	Ro-Ro	Lo-Lo	Lo-Lo	Ro-Ro
Passenger Certificate	Euro B	Euro B	Class IV, VI and VIA	Class IV, VI and VIA	Euro B (restricted)	Class IV, VI and VIA	Euro B	Class IV	Class VIIIA	Workboat	Workboat	Class IV, VI and VIA
Year Entered Service	2004	2004	1991	1988	2002	1982	2003	1992	1983	1986	1996	1985
Length Overall (m)	65.4	65.4	33.0	30.0	36.2	33.6	35.5	32.5	24.4	18.3	9.8	30.0
Beam (m)	13.8	13.8	10.1	9.0	10.8	9.4	9.0	10.7	7.0	5.8	4.1	9.0
Draught (m)	3.7	3.7	2.6	2.6	3.2	2.6	3.1	2.0	3.4	2.6	1.7	2.6
Passenger Capacity	95/144	95/144	46-96	46-96	95	50-95	30	80-124	12	12	12	46-96
Vehicle capacity	31	31	14	10	18	12	8	19	6	1	1	10
Operational Speed (kts)	10.5	10.5	11.0	9.5	10	9.5	9.5	9.5	9.0	7.0	8.0	9.5

3.3.9 The following points should be noted from the above Table 3.8:

- The typical assumed life of a vessel in Scottish waters is 30-years, albeit many vessels across Scotland are now much older than this. Between the mid-1980s and mid-2000s, the Council was replacing a vessel every two years on average, providing a modern fleet with which to operate the network. However, no new vessels have entered service since 2004 due to financial constraints, an issue which the Council is in ongoing dialogue with the Scottish Government about. There is however an increasingly important requirement for a funded vessel replacement programme.
- All vessels are awarded a passenger certificate using either the UK Maritime and Coastguard Agency (MCA) system of Class I to Class VI(A) for passenger vessels built before 2010 or the Euro A-D system for inshore vessels.[42] The passenger certificate determines permitted use, including the number of passengers and required crew. Several Shetland vessels have multiple certificates, allowing passenger and crew numbers to be scaled down in winter.

[42] https://www.gov.uk/guidance/vessel-classification-and-certification

- The Yell Sound vessels, the MV *Dagalien* and MV *Daggri*, are by some distance the largest vessels in the fleet, almost double the length overall of the next largest vessel. These sister ships provide a scheduled service between Toft and Ulsta, catering for the car and significant commercial vehicle traffic on the route. They are too large to routinely serve any other route in Shetland.
- The Fair Isle and Foula vessels – MV *Good Shepherd IV* and MV *New Advance* – are both classified as 'workboats', which means they can carry a maximum of 12 passengers and can be no longer than 24m LOA.[43] This classification works well for Fair Isle and Foula - both vessels are crewed from the respective islands and any move away from workboat status would require a significant increase in crew qualification requirements, which could only be gained through sea time on a qualifying vessel (meaning crew would spend long periods away from the island where they hold multiple essential jobs, operating the ferry and providing fire cover at the airfield for example).
- MV *Filla* was built to support the movement of salmon from fish farms on Skerries, with two refrigerated holds and a ten-tonne cargo freshwater tank. However, shortly after entering service, the Skerries salmon industry ceased operation and thus MV *Filla* is now over-specified for the route and expensive to operate.
- The SIITS SBC and OBC work has identified the Fair Isle vessel MV *Good Shepherd IV* and the secondary Whalsay vessel MV *Hendra* as the immediate priorities for replacement.
- The more modern vessels in the fleet are fully accessible, some with lifts. However, the older vessels, particularly those built before 2000, are not typically accessible, with the passenger lounge in many cases being below the waterline (and thus accessed by steep steps). On most routes, passengers can remain in their car but this nonetheless falls short of required accessibility standards. On the Fair Isle and Foula routes, access to the vessels is challenging and can be undignified.
- It should be noted that all vessels in the fleet have a stated vehicle or 'Passenger Car Unit' (PCU) carrying capacity, defined when the vessel was built. However, the size of the average car has been increasing in recent years, particularly in Shetland where pick-up and SUV type vehicles are fairly common. The actual carrying capacity of the vessels is therefore often less than the stated capacity – for example, the primary Whalsay vessel MV *Linga* can only accommodate 16-cars despite being advertised as having space for 18.

Key Point: Due to financial constraints, no new vessels have entered service since 2004, and there is an urgent need for a funded vessel replacement programme in Shetland. This provides an opportunity to decarbonise transport in Shetland as well as addressing other issues such as accessibility.

Landside Infrastructure

3.3.10 As noted, seven of the nine internal Shetland ferry routes are Ro-Ro, and thus work off linkspans. The Council has invested in radio controlled linkspans for its Ro-Ro fleet and thus there are no shoreside staff at any port, rather the linkspan is controlled from i) a deckhand from the car deck when arriving at the terminal and ii) from the bridge of the vessel (where available) when departing the terminal.

3.3.11 Of the two Lo-Lo routes:

- Fair Isle uses a vessel-based crane for loading and unloading, although the 1.5 tonne weight limit imposes a significant constraint on the type of goods which can be shipped. At the end of the operating day, the vessel is winched out of the water and placed in a 'noust'

[43] Note that the Papa Stour ferry, MV *Snolda*, is also limited to 12 passengers, but this is due to insufficient watertight sub-division below the waterline.

(a sheltered 'berth' carved out of the rock face) to protect it from the large swells which enter North Haven harbour in Fair Isle.

- In Foula, a shore-based crane is used to load and unload the vessel. The MV *New Advance* is also withdrawn from the water at the end of the operating day through the use of a large set of davits (the largest of their type in the world when originally manufactured). Ham harbour in Foula is highly prone to siltation and is very constrained in terms of draught.

3.3.12 There is a proposal to create new linkspan ferry terminals at North Haven and Grutness, together with a new slipway and widened noust as part of the vessel replacement programme for the Fair Isle route.

Crew

3.3.13 Almost all of the Shetland internal ferry crew are shore-based and work defined shift systems which vary by route. Crew serving all islands except Foula are employed on Council contracts and terms and conditions rather than seafarer terms and conditions. The Foula crew are contracted by the operator and although they may be on terms and conditions similar to Shetland Island Council, they are not tied to council conditions. Being employed on council contracts rather than seafarer terms and conditions has created challenges of crew retention due to competition from other sectors, for example, from oil and gas, NIFS services, and the aquaculture industry.

3.3.14 It is also worth noting that there have been challenges with crewing during COVID-19 because of crew members having to isolate which has led to services being reduced.

3.3.15 The Shetland crewing model is very lean, with highly efficient vessel design minimising the number of crew required. The ferry service is nonetheless a major employer, providing well-paid and secure jobs for residents of Shetland mainland and the isles.

Timetables

3.3.16 Table 3.9 below shows the number of daily connections by route. It should be noted that:

- the table includes request calls;
- the number of connections is based on the summer timetable (non-sailing days in winter are highlighted orange and days with fewer sailings referenced in a footnote); and
- The number of sailings in each direction are the same on all routes except Bluemull Sound, and thus only one direction is shown. On the triangular Bluemull Sound route, the sailings are broken down by leg.

Table 3.9: Number of single leg sailings per day, summer timetable

Route	Leg	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Yell Sound	Ulsta – Toft	21	25	25	25	25	16	15
	Gutcher – Belmont	26	27	27	27	27	20	15
	Belmont – Gutcher	20	23	23	23	23	16	17
	Gutcher – Hamars Ness	3	4	4	4	4	1	3
	Hamars Ness – Gutcher	7	8	8	8	8	5	1

Route	Leg	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Bluemull Sound[44] [45]	Belmont – Hamars Ness	6	6	6	6	6	5	2
	Hamars Ness – Belmont	1	2	2	2	2	1	4
Whalsay	Symbister – Laxo	17	18	17	18	18	11	11
Bressay	Bressay – Leriwck	20	20	20	20	22	20	16
Papa Stour	West Burrafirth – Papa Stour	0	0	2	0	2	2[46]	1
Skerries	Skerries – Vidlin	1	0	0	0	3	1	2
	Skerries – Lerwick	0	0	1	0	0	0	0
Fair Isle	Fair Isle - Grutness	0	1	0	1[47]	0	1	0
Foula	Foula – Walls	0	1	0	1	0	1	0

3.3.17 The main points of note from the above Table 3.9 are as follows:

- The core network of short Ro-Ro routes (Yell Sound, Bluemull Sound, Whalsay and Bressay) offer a large number of connections across the day, although the frequency for Fetlar is lower given its smaller population. These routes also provide a long operating day, with services commencing between 06:00-07:00 and typically operating through to 23:00-00:00, and later on a Friday and Saturday on the Bressay route, although it is noted that on the Yell and Bluemull Sounds routes, the later ferries are booking only.
- The high service frequency and long operating days on these routes has facilitated significant commuting and has closely inter-twined these islands with Shetland mainland in terms of both their economy and service delivery.
- The service frequency on Yell Sound, Bluemull Sound and Whalsay does however reduce significantly at the weekend, although the length of operating day remains broadly the same or longer. This is a product of the aforementioned 2013 service reductions, where the second vessel on the route no longer operates at the weekend. A consequential impact of this has been a marginal reduction in service frequency on some weekdays (e.g., Whalsay on a Monday and Wednesday and Yell Sound on a Monday) to facilitate drills and maintenance which were previously undertaken at the weekends.
- The services to Fair Isle, Foula, Papa Stour and Skerries are of a more lifeline nature and in all cases are less than daily, with Fair Isle reducing to a single weekly service in winter and Foula twice weekly.

[44] Only direct sailings on each leg are counted. However, there will be a significantly higher number of indirect sailings from e.g. Gutcher to Hamars Ness via Belmont.

[45] Note that marginally fewer crossings operate on the Bluemull Sound route in winter, e.g., 24 rather than 26 sailings between Gutcher and Belmont on a winter Monday.

[46] Note that there is only one return sailing on a winter Saturday

[47] Travels to Lerwick on alternative Thursdays

Key Point: The high frequency services over a long operating day on the core network of short Ro-Ro routes (Bressay, Bluemull Sound, Whalsay and Yell Sound) has led to the economy and society of these islands becoming close inter-twined with that of Shetland mainland. The services to Fair Isle, Foula, Papa Stour and Skerries are of a more 'lifeline' nature, targeted at providing essential connectivity to these islands.

Transport Integration

Connecting bus services

3.3.18 The main Shetland inter-island ferry network was largely designed to facilitate car-based travel, emerging as it did from the Ro-Ro concept in the 1970 and 1980s. Bus connections – either through travel on the ferry or connecting busses at the mainland terminals – have historically been something of a secondary consideration.

3.3.19 Connecting bus services at ferry terminals will be considered in Section 3.4. However, it is worth noting here that there is a single daily bus service from Cullivoe in Yell to Lerwick which travels on the Yell Sound ferry – this is known as the 'North Isles Integrated Service'. The service:

- Departs Cullivoe at 08:20; picks up passengers arriving at Gutcher from Belmont at 08:40; travels on the 09:15 ferry departure from Ulsta to Toft; and arrives in Lerwick (Tesco) at 10:26.
- Returns from Lerwick (Tesco) at 14:20; travels on the 15:25 ferry departure from Toft – Ulsta; drops passengers to Gutcher at 15:12 for the 15:15 departure to Belmont and arrives at Cullivoe at 16:27.[48]

3.3.20 It is noted the Belmont to Gutcher section of the route is served by a vehicle which travels on the ferry from Belmont in the morning to drop passengers at Gutcher and returns on the ferry (empty) to Unst, with the reverse happening in the afternoon. This is because the passengers using this service are typically elderly and the Bluemull vessels have inaccessible passenger lounges for those with mobility limitations.

3.3.21 There is also a Tuesday 'Bressay Shopper' service (No. 41), which serves various stops on Bressay before travelling on the ferry and serving Tesco and the Co-Op in Lerwick. This service departs Bressay at 10:08 (10:30 ferry) and returns from Lerwick at 13:00 (14:30 ferry).[49]

3.3.22 There are no other scheduled buses which travel on the ferry service. This is likely to be a product of the low demand, long journey times to Lerwick from most islands and, potentially, the impact of available vehicle deck lane meterage on the ferry.

Key Point: The Shetland ferry network has historically been built around car-based travel and thus there are few through bus services (in terms of travelling on the ferry) to Lerwick.

Ticketing

3.3.23 It should be noted that, at present, there is no integrated ticketing solution for bus and ferries. Separate tickets require to be purchased and there is no discount for a multi-leg journey. The exception to this is the North Isles Integrated service where only the bus fare is paid.

[48] https://www.zettrans.org.uk/site/assets/files/1084/north_isles.pdf

[49] https://www.zettrans.org.uk/site/assets/files/1084/lerwick_and_scalloway.pdf

Parking

3.3.24 The majority of Shetland ferry terminals have small formal or informal car parks, all of which are free of charge and have no limited waiting restrictions. These are generally well-subscribed and often over-subscribed due to:

- Island residents parking at the ferry terminal and travelling as a foot passenger on the ferry.
- Island residents leaving their 'mainland' or 'island' car at the terminal because they do not wish to take their car on the ferry due to cost or are regularly unable to secure a space for their vehicle. Laxo is a good example of where this happens.
- Those travelling to the isles for work or leisure travelling on foot or car sharing, thus using the ferry terminal car parks as informal 'Park & Ride' sites.

Fares

3.3.25 The Council has sole responsibility for determining how fares are set and the level of those fares. There are no set fares increase mechanism and there is also no restriction on increases / decreases in fares. However, any significant changes require strong political consensus to implement.

3.3.26 ZetTrans completed the initial stages of a Public Transport Fare Policy Review in June 2021 in an attempt to rationalise the fares system on both buses and ferries. The work was undertaken in line with STAG and considered both base fare options (i.e., approaches to setting a base fare for bus, ferry and air travel) and fare product options (i.e., approaches to varying the base fare for different passenger groupings / journeys made).

3.3.27 The appraisal highlighted the competing priorities of tackling inequalities (e.g., via ferry vehicle fares) and supporting moves towards sustainable travel. The options which provided the largest social and economic benefits (i.e., discounts for all modes) also resulted in higher costs to the funder, negative environmental benefits, and issues around the feasibility of accommodating additional vehicle demand on internal ferries. The appraisal also found that reducing fares for bus and ferry passengers was likely to have a limited impact on modal shift because of the:

- Low absolute levels of current bus fares
- Low absolute levels of current ferry passenger fares compared to vehicle fares
- Limited frequency of service on many bus routes
- High levels of vehicle ownership
- Perception and reality that the car is essential for many trips in Shetland.

3.3.28 The work undertaken to date provides a good platform for progressing the Fares Policy Review. This would include:

- Further developing the base fare options to the point of actual fare levels.
- Defining the personal circumstance-based fare options. SIC are taking this forward to define and quantify specific potential target groups.
- Further consideration of appraisal techniques-notably scoring systems and assessing the impact on the economy.

- Inputting into the National Fares Review. In accordance with the Bute House Agreement (the SNP-Green power sharing deal) and STPR2, a wider review of public transport fares is planned.

Passenger and Car Fares[50]

- The Shetland network is unlike the majority of other Scottish ferry routes in that it broadly operates on a system of flat fares. For passengers on the shorter routes (Unst / Fetlar, Yell, Whalsay and Bressay) a flat return fare of £6 is applied (£3 each way). There is also a multi-journey rate which reduces this to £2.50 each way. Previously, this rate was accessed through the purchase of multi-journey ticket books. However, these were removed during COVID-19 and an account system is now in place whereby those who have an account card are billed in arrears for their travel, with all travel priced at the multi journey rate.
- On the longer routes to Fair Isle, Foula, Papa Stour and Skerries, the passenger fare is double that on the shorter routes (£6 single). On the Fair Isle route only, visitors (non-Fair Isle residents) are charged a single fare of £18.
- OAPs and children up to the age of 19 pay a fare of £1.10 return on the short routes and £1.10 single on the longer routes. It should be noted that Shetland is unusual in applying 19 as the threshold for charging an adult fare (typically 15 on other ferry networks) – this likely reflects the essential nature of the ferry for travel.
- A broadly similar approach is adopted for cars. However, the differential between the short high-volume routes (£15 return) and long routes (£16 return) is much less than it is for passengers.
- Passenger and car fares in Shetland are lower in absolute terms than most other ferry networks in Scotland. This in part reflects the high intensity of use and the dependency of communities on the ferry services for access to employment, education, health and leisure opportunities. Despite this, the need to pay for ferry travel to the Shetland mainland introduces a relative disadvantage for island residents and businesses compared to those based on Shetland mainland.

Key Point: Ferry fares are set by the Council and represent a compromise between promoting the socio-economic wellbeing of the islands and cost recovery. The network operates a two-tier (short Ro-Ro route and longer distance routes) system of flat fares.

Commercial Vehicle Fares[51]

- The Council classifies commercial vehicles into three categories: commercial vehicles; tankers; and plant.
- CV fares on Shetland Islands Council services are determined by two factors:
  - Vehicle type: separate fare structures are in place for traditional CVs and tankers.
  - Vehicle length: different fares (rather than the more common rates per incremental lane metre) are in place for different ranges of vehicle length, with the length bandings depending on the vehicle type (5.51m-8.00m, 8.01m-12.00m and 12.01m-18.00m for commercial vehicles and up to and including 7.5m, 7.51m-10.00m and 10.01-16.00m for tankers).
- There is some inconsistency in how fares are presented. Whilst fares (for both CVs and tankers) for services to Bressay, Whalsay, Yell, Unst and Fetlar are published for return journeys, fares for services to Skerries and Papa Stour are published for single journeys. However, when the return fares are converted to a single journey equivalent, we see that

[50] https://www.shetland.gov.uk/ferries/ferry-fares

[51] https://www.shetland.gov.uk/ferries/ferry-fares/2

fares are equal on all routes so that a CV or tanker of a particular length travelling on any inter-island route will face the same fare. This flat fare structure is not seen on any other part of the Scottish ferries network.

- As a flat fare is charged regardless of the route, the fare per mile decreases as route length increases. This results in a significant spread in the fare per mile charged across the network with CVs on the longest route facing a fare per mile of £1.14 and CVs on the shortest route facing a fare per mile of £52.20.
- Fares for both CVs and tankers include VAT and include the driver.
- Shetland Islands Council does not offer concessions for CVs on any of its routes.

Key Point: A common system of flat fares is operated across all Ro-Ro routes. Unlike most networks in Scotland, the Shetland services charge by CV length band rather than the incremental lane metre.

Method of Delivery

Who owns the assets?

3.3.29 Shetland Islands Council owns all of the vessels and assets within the inter-island ferry network. Bressay and Lerwick ferry terminals, although owned by the Council, are within the Lerwick Port Authority area and dues are therefore paid for MV *Good Shepherd IV* (Fair Isle) and MV *Filla* (Skerries) when they berth in Lerwick. The Council does not pay dues for the Bressay ferry MV *Leirna* (costs are water loaded and pilot exemption only) but they do pay dues for any vessels relieving her in the event of a breakdown or for scheduled maintenance.

How are services procured?

3.3.30 The ferry services and marine infrastructure, with limited exceptions, are directly owned and operated by the Council. ZetTrans determines the level of service, fares, investment priorities etc.

3.3.31 The Foula ferry is owned by the Council but its operation is tendered and run by a private company, BK Marine.

Who funds the service?

3.3.32 The services, assets and infrastructure are funded by the Council. However, the Council receives a Grant Aided Expenditure (GAE) contribution from the Scottish Government and funds any remaining deficit (net of farebox revenue) through its annual budget or reserves. The Council's GAE contribution for Financial Year 2020/21 was 50.2%, or £6.5m.[52]

3.3.33 Despite recent (2013) savings associated with a reduction in services, the ferry service continues to operate at a significant deficit. The combined fares revenue and GAE contribution are well below annual operating costs, leaving an operating deficit of circa £5.5m per annum which has to be funded through the Council budget or drawn from reserves.

3.3.34 The above said, top-up funding was provided by the Scottish Government for financial years 2018/19 and 2019/20 as part of the ongoing 'fair fares' negotiations. The Scottish Government Budget for 2021-22 and 2022-23 committed to cover the full operating deficit of the Council ferries for this financial year, but it is unclear at present whether funding for future years has been committed.

[52] Scottish Government *Green* Book Grant Aided Expenditure 2020/21 data table – Roads & Transport tab.

Key Point: The Council owns, funds and directly operates all internal ferry services in Shetland, the only exception being the Foula route which is contracted to a private operator using a Council owned vessel. The ferry service operates at a deficit of over £5m per annum, although the Scottish Government has provided supplementary funding for financial years 2021-22 and 2022-23 to cover this shortfall.

Inter-Island Air Services

3.3.35 The inter-island air services fulfil the 'lifeline' passenger transport connection for the islands of Fair Isle and Foula, with the ferry largely meeting their supply-chain needs and occasional passenger travel. The inter-island air services were subject to a comprehensive Outline Business Case (OBC) which was completed in 2018 and informed the design of the 2020-24 contract. The main issues covered by the OBC included:

- the islands served;
- whether the mainland airfield for the inter-island services should be at Tingwall, Sumburgh or Scatsta; and
- the broad timetable (in terms of total weekly connections) to be offered.

3.3.36 The preferred option package emerging from the OBC has now been largely implemented and is reflected in the narrative below.

Routes

3.3.37 The inter-island air services connect the islands of Fair Isle and Foula to the mainland airfield at Tingwall, which is located to the north-west of Lerwick.

3.3.38 The islands of Papa Stour and Skerries were previously part of the inter-island air network but were withdrawn for the 2020-24 contract period due to very low demand (Papa Stour) and lack of appropriate Rescue and Firefighting Services (RFFS) at Skerries[53].

Aircraft and Airfields

Aircraft

3.3.39 The inter-island service is delivered by two Britten-Norman Islander (BN2) aircraft, which are owned by Shetland Islands Council and leased to the contracted operator. The BN2 Islander is a single pilot eight seat aircraft (nine if a passenger sits next to the pilot). The rugged and durable aircraft is ideally suited to the Shetland environment, particularly in terms of its 'Short Take-Off Landing' (STOL) capability which maximises the ability to use the short single runways on Fair Isle (508m) and Foula (548m).

3.3.40 The aircraft is operated under Visual Flight Rules (VFR) as opposed to Instrument Flight Rules (IFR). In short, these rules impose a set of regulations which require the pilot to operate the aircraft in weather conditions generally clear enough to see where the aircraft is going. There are specific minima which have to be adhered to, such as the minimum height from which the runway should be visually identifiable on an approach for landing. This imposes significant weather-related and hours of daylight restrictions on the service and there is a risk that the former could be further exacerbated due to an increase in severe weather events associated with climate change.

[53] The Skerries service had been suspended since 2015 due to lack of appropriate RFFS but the slots in the timetable were maintained in the event that RFFS cover could be provided in future. However, the decision was taken to withdraw the Skerries route from the 2020-24 contract and reallocate the timetable slots to Fair Isle and Foula.

3.3.41 The OBC confirmed that the BN2 Islander remains the most appropriate aircraft for the service and also ruled out the adoption of navigational aids given their likely limited benefit and the additional pressures that instrument-based flying would put on a single pilot operation.

3.3.42 It should be noted that the two aircraft are not particularly suitable for Persons of Reduced Mobility (PRM). Whilst PRM can be accommodated, the aircraft fall below current accessibility standards.

Key Point: The inter-island air services is operated by two Britten-Norman Islander aircraft. These aircraft are owned by the Council and leased to the contracted operator. The aircraft are operated by a single pilot under Visual Flight Rules, meaning the service can only operate in weather conditions clear enough to see where the aircraft is going. This imposes restrictions on the service which may be further exacerbated due to changes in weather patterns associated with climate change.

Airfields

3.3.43 **Tingwall** airfield is the base for the inter-island service and is owned and operated by the Council. Its status as the base for the service was confirmed in the Air OBC, which ruled out both Sumburgh and Scatsta as alternatives based on the overall poorer level of connectivity that they would offer to passengers, amongst other issues.

3.3.44 Tingwall has a single runway of circa 750m in length as well as a hangar for the aircraft, a control tower, a small passenger terminal building, a fire tender and an AvGas fuelling facility. It is licenced by the Civil Aviation Authority and also serves a small number of other users including the Scottish Ambulance Service, H.M. Coastguard, the General Lighthouse Authority and private light aircraft.

3.3.45 **Fair Isle** has a single gravel runway of 508m in length. The island airstrip is licenced by the National Trust for Scotland as the owners of the island. **Foula** likewise has a single gravel runway of 548m – this is not currently licenced and thus the decision to fly there is informed by a risk-based assessment undertaken by the operator. The Air OBC recommended the licencing of Foula and indeed it was noted by the operator as part of that study that licencing may become mandatory in the future in any case.

Key Point: Tingwall was confirmed as the mainland base for the inter-island air service in the Air Services Outline Business Case in 2019. Of the three airfields in the network, only Foula is not licenced.

Human Resource

3.3.46 The Shetland operation is run by three pilots, with an engineer, a customer service representative and check-in / baggage handler employed at Tingwall. In addition to this, there are Rescue and Fire Fighting services and council employees involved in the day-to-day running of the airport overall.

3.3.47 During the summer months, the three pilots are required to manage the schedule, and there have been occasions where a fourth pilot has been required to cover sickness and leave.

3.3.48 On days where the weather is likely to prevent any rotations during that day, pilots are stood down (although they remain on standby), with their hours banked for later use, if need be, particularly in terms of clearing backlogs.

Timetable

3.3.49 The number of rotations (return connections) by day of week and season are shown in Table 3.10 below:

Table 3.10: Fair Isle and Foula connections by day of week, summer 2021[54] and winter[55] 2021/22[56]

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Fair Isle - Summer	3	1	3	3	2	1[57]	13
Fair Isle - Winter	3	1	2	2	2	0	10
Foula - Summer	2	3	2	2	3	1[58]	12
Foula - Winter	1	2	2	0	3	0	8

3.3.50 The main points of note from the above Table 3.10 and indeed more generally are:

- It is important to note overall that, whilst there is a published timetable which is adhered to as best as possible, maintaining this timetable in the Shetland environment is extremely challenging. The Air OBC noted that, in 2017, 33% of both Fair Isle and Foula flights were cancelled.[59] There is therefore significant flexibility in the operation of the service, which will take advantage of weather windows when the timetable cannot be maintained.
- In the summer timetable, three flights per week to Fair Isle and two to Foula are designated as 'operational contingency flights' and will only be operated if there is a reason to do so, such as catching-up on a disruption-related backlog.
- In the winter timetable, there are scheduled cargo flights to both Fair Isle and Foula on a Thursday (not listed in the above table). The inclusion of these flights reflects the fact that the ferry service to both islands operate very infrequently in winter (two return sailings per week to Foula and one to Fair Isle) and is subject to extensive disruption. When operated in cargo mode, the seats on the BN2 Islander can be taken out to provide additional space for small items of cargo such as day-to-day consumables, medicines etc.
- On most weekdays in summer and winter, it is possible to make a day-return trip from the island to Shetland mainland, the exceptions being Tuesday in summer and winter in Fair Isle and winter Monday and Thursday in Foula. There are no weekend services outwith a single Saturday rotation to each island between May and October. With no weekend ferry services in winter, both islands are effectively cut-off from Shetland mainland from Friday afternoon to Monday morning (assuming the flights operate on those days).

[54] https://airtask.com/userassets/documents/Summer_TT_2021_Op_Cont_added.pdf

[55] For the purposes of this table, the winter timetable for the period 15th November 2021 – 14th January 2022 has been used. This can be considered the 'core' winter timetable, when daylight hours at their shortest and thus presents the most appropriate contrast with the summer timetable.

[56] https://airtask.com/userassets/W21-22.pdf

[57] 8th May – 2nd October only

[58] 8th May – 2nd October only

[59] SIITS Air OBC (Shetland Islands Council and Stantec, 2018), p. 26.

Key Point: Whilst there is a published timetable for the air services, the weather makes maintaining that schedule very challenging. The air service is operated with a high-level of flexibility, working around weather windows to ensure the maximum number of services for passengers. There are no flights to either Fair Isle or Foula at the weekend (except summer Saturdays) – with no weekend ferry service during winter, these islands are cut-off from Friday afternoon to Monday morning.

Transport Integration

3.3.51 There is dial-a-bus service (Service 90) which connects Tingwall Airport with the Viking Bus Station in Lerwick.[60]

3.3.52 There is a small car park at Tingwall airport where some island residents leave their 'mainland' car. There are also a range of informal car shares associated with this.

Fares

3.3.53 ZetTrans, on behalf of the Council, is responsible for setting the maximum fares through the tendering process. These fares typically reflect a balance between supporting the socio-economic wellbeing of each island and achieving a degree of cost recovery. Whilst ZetTrans sets the maximum fares, the operator can offer lower or other fare types so long as they do not exceed the contractual maximum. The fares are reviewed each April and are summarised in Table 3.11 below:

Table 3.11: Inter- Island air service adult fares[61]

	Fair Isle	Foula
Economy – Single	£49.33	£46.15
Economy – Return	£93.95	£88.64
Resident - Return	£46.00	£46.00

3.3.54 The following points should be noted from the above Table 3.11 and in relation to the inter-island air fares more generally:

- The 'Economy' fares apply to non-island residents. There does not appear to be a clear relationship between the single and return fares, with a return being 5% cheaper than two singles for Fair Isle and 4% for Foula.
- 'Child' (2-6) fares are half the adult fare and 'Youth' (17-24) fares are 66% of the adult fare.
- Resident fares are the same for Fair Isle and Foula and are return only. In Fair Isle, the fares are slightly less than half of the 'Economy' fare and in Foula slightly more than half of the 'Economy' fare. Whilst heavily discounted, these fares are almost four times the level of a return ferry fare and can account for a significant proportion of an island resident's income. This is particularly the case for those on lower incomes.

[60] https://travel.shetland.org/desktop_bus_journeys.php?busroute=90&date=December%2001%202021

[61] https://airtask.com/userassets/Fares_2021.pdf

Key Point: The maximum fare which can be charged is set by ZeTtrams through the tendering process. The fares represent a balance between supporting the socio-economic wellbeing of the islands and the requirement for a degree of cost recovery.

Method of Delivery

3.3.55 The method of delivery for the inter-island air services is as follows:

- The Shetland inter-island air services are operated through the letting of a Public Service Obligation (PSO) contract, whereby an operator bids to run the services on an exclusive basis for a fixed contract period (currently 1st April 2020 to 31st March 2024). It is a net cost contract, with the operator assuming the revenue risk. The contract is let by ZetTrans.
- Both aircraft (G-SICA and G-SICB) are owned by Shetland Islands Council. It is considered that the separation of aircraft ownership and aircraft operator has worked well for the Council in that the fleet was upgraded by the public sector, whilst the tender is able to be open and non-discriminatory.
- The successful tenderer is provided with access to the two aircraft subject to the provision of satisfactory hull insurance. There is no lease charge to the operator for use of the aircraft.
- Shetland Islands Council directly owns and operates Tingwall airport and provides grant payments of circa £15,000 per annum to the trusts which operate Fair Isle and Foula air strips.
- Whilst the services, assets and infrastructure are funded by Shetland Islands Council (with ZetTrans having the duty to procure transport services with the net cost met by the council), a specific Grant Aided Expenditure (GAE) increment is provided to the Council by the Scottish Government in its annual budget. The Scottish Government *Green Book*, which sets out the detailed distribution of the Local Government Finance Settlement, includes a Local Authority Service GAE (LASG)[62] which recognises that Shetland Islands Council is responsible for the funding of the inter-island air services. This GAE is expenditure based, so that if the Council's proportion of expenditure relative to other local authorities reduces so does the Council's share of GAE. It is important to note that the two main GAE variables are outwith the control of councils - namely the overall size of the GAE quantum which is determined by Scottish Ministers, and the Council share of that quantum which varies depending on the actual expenditure of all local authorities within the air service GAE calculation. The GAE for air services amounted to £722k in FY2020/21. Any deficit over and above this is funded by the Council.

Key Point: The inter-island air service is procured by ZetTrans and paid for by the Council, which also owns the aircraft and Tingwall airfield and provides a grant to the trusts which run Fair Isle and Foula airstrips. Whilst the GAE mechanism provides Scottish Government funding towards the air service, this is not sufficient to cover the subsidy and thus services are operated at a net cost to the Council.

3.4 Intra-island, Shetland mainland and Lerwick Connections

3.4.1 Having detailed the external and inter-island transport connections, this section focuses on land-based transport within Shetland itself. In keeping with the previous sections, each mode (active travel, bus / demand responsive transport and road) is profiled in turn. In doing this, intra-island, Shetland mainland and Lerwick connections are split out where appropriate.

[62] The other recipients of this funding are Shetland Islands Council, Highland Council and Argyll & Bute Council.

Active Travel

3.4.2 In line with the *Sustainable Travel Hierarchy*[63], active travel is assuming an increasingly significant role in Shetland, particularly for short journeys. Indeed, ZetTrans published its first Active Travel Strategy 2021-26 in March 2021.

Routes

3.4.3 Shetland's formal active travel routes as well as the Core Paths which are predominantly focused towards leisure travel are shown in Figure 3.3 below:

[63] National Transport Strategy 2 (Transport Scotland, 2020), p. 5.

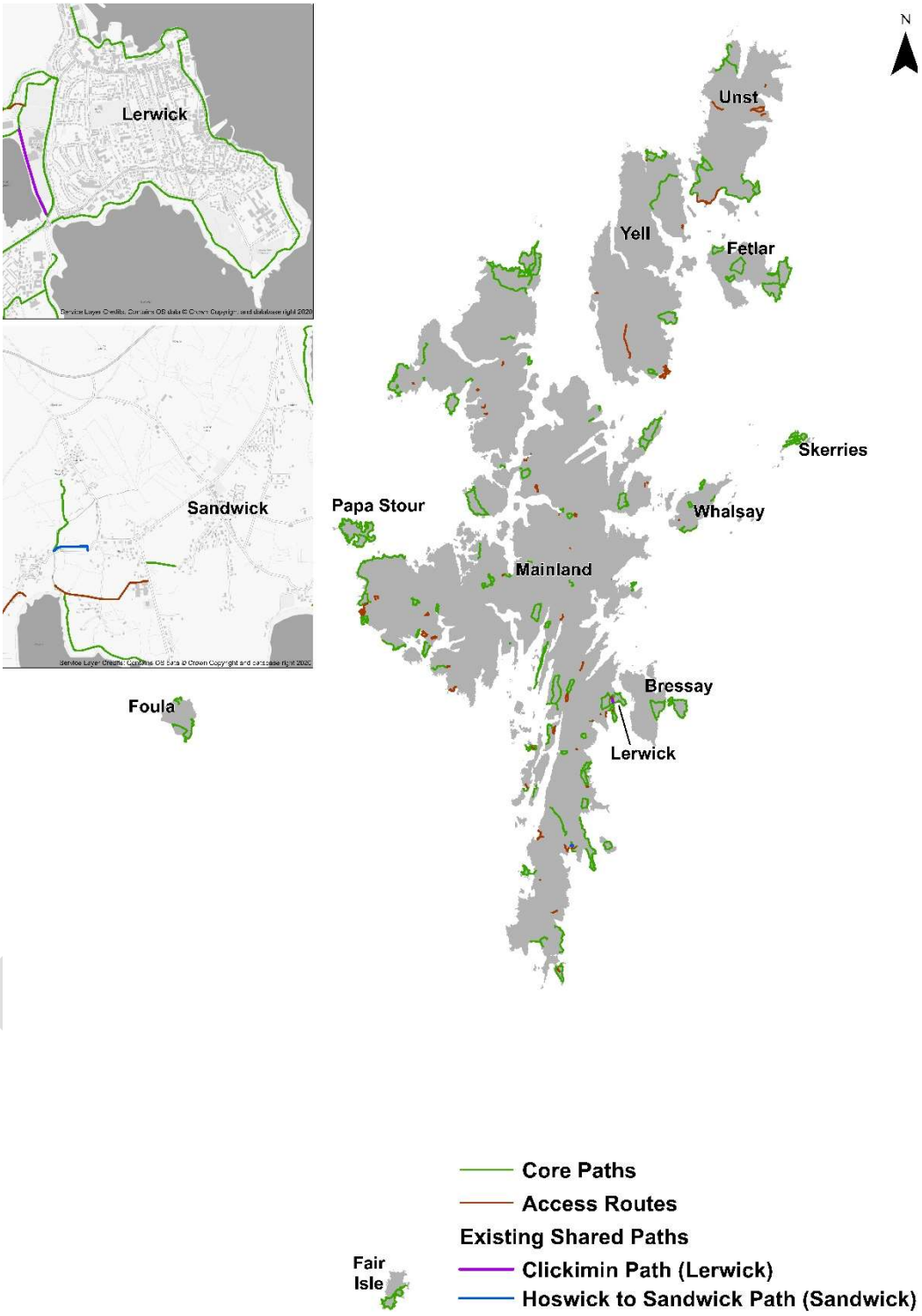


Figure 3.3: Shetland active travel network

3.4.4 The main points of note from the above Figure 3.3 are as follows:

- The UK National Cycle Network (NCN) does not extend to Shetland. The NCN provides a consistent UK-wide network of signed paths and routes for walking, cycling and wheeling, providing users with confidence in the safety and appropriateness of the route. NCN Route 1 runs from Dover in Kent to Tain, 35 miles north of Inverness. Until summer 2020, this route extended to John O'Groats, Orkney and then north to Shetland, with the Shetland

part of the route covering Sumburgh – Lerwick – North Mainland – Yell and Unst. However, the implementation of a 2018 review by Sustrans de-designated the route north of Tain on safety grounds.[64] This was a disappointing development for Shetland as it terminated the only advertised continuous north-south active travel route through the archipelago.

- Shetland has a reasonably well-developed 'core path'[65] network. However, as can be seen from Figure 3.3, most of these routes are circular and primarily intended for leisure rather than travel to a destination.
- Whilst there are a number of good quality and attractive paths in Shetland, such as the Clickimin Path and the Hoswick to Sandwick Path shown in the above Figure 3.3, current provision is uneven and quality variable. Moreover, there are few connections between the good quality paths, which are often interrupted by busy road crossings, wide junctions and narrow footways, whilst the absence of dropped kerbs is also an issue.
- In rural areas, many roads accessing and within local settlements do not have footways, making it difficult to walk and cycle safely, particularly during inclement weather and in the winter when the daylight hours are shortest.
- It should be noted that Visit Scotland and its partners are exploring the case for a long-distance north-south path in Shetland, but this is only at feasibility stage currently.
- The relatively limited extent of the active travel network in Shetland is likely to have a particular impact on those who do not own or have access to a car and therefore who have more limited alternative means of transport.

Key Point: The active travel network in Shetland is currently limited, particularly with the de-designation of NCN1 by Sustrans in 2018. The majority of existing routes are leisure related and in rural areas many roads do not have footways alongside them. These issues were recognised in the Shetland Active Travel Strategy 2021-26, which sets out a series of actions intended to begin addressing them. **The RTS should align with the Active Travel Strategy and the options set out within it.**

Method of Delivery

3.4.5 Both the council and ZetTrans are involved in the delivery of active travel routes and facilities in Shetland, with the delivery process requiring partnership working with a wide range of stakeholders, including Sustrans.

3.4.6 ZetTrans is leading on the delivery of Shetland's Active Travel Strategy with a multi-agency Active Travel Group consisting of a partnership of stakeholders contributing to the process.

3.4.7 There are also a wide range of funding sources which ZetTrans and the Council can bid into for money to deliver active travel infrastructure and / or policies, including *Places for Everyone* and *Smarter Choices, Smarter Places* amongst others.

3.4.8 ZetTrans has managed the bidding process for the majority of external funding for the delivery of the strategy. ZetTrans has access to Sustrans partnership funding of 100k annually for 3 years and can also apply for funding via Transport Scotland's RTP Active Travel Fund on an annual basis.

[64] https://www.theguardian.com/travel/2020/jul/19/national-cycle-network-sustrans-cuts-quarter-uk-routes-safety-grounds

[65] Core paths are paths, waterways or any other means of crossing land to facilitate, promote and manage the exercises of access rights under the Land Reform (Scotland) Act 2003, and are identified as such in access authority core paths plan.

Bus

3.4.9 Whilst the car is currently the dominant mode of transport in Shetland, bus services fulfil an essential role in facilitating travel to employment, education and leisure opportunities.

Routes

3.4.10 The Shetland bus network is shown in Figure 3.4 below:

Figure 3.4: Shetland bus network

3.4.11 The bus network largely follows the core road network, with diversions into smaller settlements. The islands of Whalsay, Skerries, Papa Stour, Foula and Fair Isle have no bus services, with

onward connectivity from the ferry terminal / airfield by private car or informal lift share agreements.

3.4.12 Although not visible from the map, the Shetland bus network is largely of a 'hub and spoke' nature, with the majority of services starting / terminating in Lerwick, either at Tesco or the Viking Bus Station.

Key Point: The Shetland bus network operates on a largely 'hub and spoke' basis from Lerwick, reflecting the dominance of the town as the island's major service centre.

Assets

3.4.13 The asset position can be summarised as follows:

- All bus vehicles are privately owned, with the Council contracting dedicated school transport services, additional support needs, school transport and adult social work transport and ZetTrans contracting public transport timetabled and demand responsive services.
- The Council is responsible for the provision and maintenance of bus stops.
- ZetTrans maintains a webpage and travel app which provides timetables and live bus, ferry and inter-island air service information.

3.4.14 It should be noted that while all public bus vehicles adhere to current accessibility regulations, many vehicles and bus stops are not suitable for persons of restricted mobility (PRM), a key issue which needs to be considered in this Strategy. The ability to carry bikes is also limited.

Key Point: Whilst bus services are delivered by private companies, it is effectively a public bus network in all but name given that all services are subsidised and the Council provides the infrastructure. A key issue to be considered in this Strategy is the relatively poor on-bus and at-stop facilities for PRM.

Timetables

3.4.15 The Shetland bus network is complex, reflecting the challenge of providing an essential service to an area of low population density outwith Lerwick, with consequential low demand. This complexity is reflected in the timetables. There are a small number of 'conventional' bus routes which operate 6-7 days per week to a fixed and largely frequent and regular ('clockface') timetable. These routes are summarised in Table 3.12 below:

Table 3.12: Primary Shetland bus services – timetable[66]

No.	Route	Days of Operation	Typical Services per day in each direction	First bus to Lerwick	Last bus from Lerwick
1	Lerwick town service	Mon-**Sat**	9	08:25	16:30
4	Lerwick **– Scalloway**	Mon-**Sun**	12[67]	07:**28**	21:20[68]
6	Lerwick **– Sumburgh**	Mon-Sun	14	06:40	21:08[69]
9	Lerwick **– Walls**	Mon-**Sat**	5	07:00	21:20

[66] https://www.zettrans.org.uk/site/assets/files/1084/north_mainland.pdf

[67] Note that there are only 4 services a day in each direction on a Sunday

[68] There is a 23:00 service from Lerwick on a Friday and Saturday.

[69] There is a 23:00 service from Lerwick on a Friday and Saturday.

No.	Route	Days of Operation	Typical Services per day in each direction	First bus to Lerwick	Last bus from Lerwick
19	Lerwick **– Vidlin**	Mon-Sat	3	08:14	17:05
21	Lerwick – Hillswick via Brae	Mon-Sat	2-**3**	10:15	17:15
23	Lerwick – **Toft via Brae**	Mon-Sat	6-**7**	06:40	21:10[70]
24	Lerwick **– Cullivoe**	Mon-Sat	1	08:20	14:20

3.4.16 The main points of note from the above Table 3.12 are as follows:

- The 'core' bus network provides at least a handful of daily connections from the main settlements in Shetland mainland to Lerwick. However, with the exception of Scalloway, the second largest settlement in Shetland, and South Mainland, where Sumburgh Airport is located, service frequency is low, with a less than hourly service. Despite the limited frequencies, the majority of bus services do operate over a relatively long day, often in the region of 14-hours.
- There are very few timetabled services operating on a Sunday, with only service 4 and service 6 in operation.
- The Lerwick town service (No.1) connects all of the main attractions around the town, including the town centre, Gilbert Bain Hospital, Shetland College, Tesco and Holmsgarth Ferry Terminal. However, service frequency is hourly, which is low for an 'urban' service.
- Yell (and Unst through connection at Gutcher) are the only islands with a Monday to Saturday through bus service to and from Lerwick (the North Isles Integrated Service introduced previously), although there is only one service per day in each direction.
- There are a small number of daily bus services which connect with arriving ferries including at Gutcher, Ulsta, Toft, Vidlin, Laxo, Grutness, West Burrafirth, and Walls Pier. Hamar's Ness also has a dial-a-ride service that serves every ferry arrival/departure dependent on bookings. However, the majority of ferries do not connect with a bus increasing the car dependency of island-residents.
- There are bus services scheduled to connect with the Fair Isle and Foula ferries, but such connections are largely nominal given the low (occasionally zero) passenger numbers and the frequent departure of these ferry services from their published timetable. There is one service (Service 18) which operates from West Burrafirth for those travelling to and from Papa Stour on a dial-a-ride basis on Wednesdays, Fridays, and Saturdays.
- The lack of bus services in some locations / at specific times is likely to have a particular impact on those who do not own or have access to a car and therefore have more limited alternative means of transport and is a contributing factor in levels of 'forced car ownership'.

3.4.17 Outwith these 'core' routes, the network consists of a mix of different services including:

- **Scheduled Monday-Friday or Saturday connector services** which feed into the 'core' bus routes, for example the No. 7 Quendale and Bigton service, which feeds into the No.6 Sumburgh – Lerwick service. These tend to be limited to a small number of services per day.
- **Monday-Friday dial-a-ride services** to meet a specific need, for example the No. 90 service from Lerwick to Tingwall Airport.
- **Non-daily scheduled services** to provide access to Lerwick for shopping and personal business, the aforementioned Tuesday only No.41 'Bressay Shopper' service.

[70] The 21:10 service is replaced by a 21:40 service on the Friday.

- **Non-daily dial-a-ride services** which either act as feeder services to 'core' bus services or connect the most rural areas of Shetland to the nearest service centre.

3.4.18 From an isle's perspective, it should be noted that:

- Unst and Yell have scheduled if infrequent intra-island bus services Monday to Saturday, supplemented by a small number of dial-a-ride services.[71]
- Fetlar has three (to Hamars Ness) and four (from Hamars Ness) daily demand responsive bus services (No. 29) linking Funzie, Houbie and Hamars Ness, with the bus connecting with departing and arriving ferry services.[72]
- There is a single 'Bressay area' service (No.42) which operates on a scheduled footing for the morning journeys and dial-a-ride basis for the lunchtime returns on a Monday, Wednesday and Friday. This is in addition to the Tuesday 'Bressay Shopper' service (No. 41), which travels on the ferry to Lerwick.[73]
- There are no other intra-island bus services.

3.4.19 It is worth noting that the timetable information is not easily digestible from the perspective of a casual or infrequent user of the bus services. Whilst the ZetTrans travel app does provide daily scheduled bus information, it does not incorporate a journey planner and thus can be difficult to use when an interchange is required. This issue likely amplifies the issue of low frequency, as infrequent users may be put off using the bus in case they misinterpret the information and then have several hours wait for the next bus (if there is a next bus at all).

Key Point: The Shetland bus network is built around eight core scheduled routes. However, on several of these routes, service frequency is low. Outwith the core network, there is a mixture of scheduled non-daily services, feeder services to the main routes and timetabled dial-a-ride services.

Fares

3.4.20 All bus fares in Shetland are charged as singles. The fare information presented on the ZetTrans website is split by area of operation (South Mainland, North Mainland etc) with fares from Lerwick to each 'major' settlement. These fares increase with distance travelled as follows:

- Base Fare (also covers all journeys within Lerwick)
  - + 0.0-2.5 miles + £0.20
  - + 2.6-5.0 miles + £0.40
  - + 5.1-7.5 miles + £0.60
  - + 7.6-10.0 miles + £0.80
  - + 10.1-15.0 miles + £1.10
  - + 15.1-20.0 miles + £1.40
  - + 20.1-25.0 miles + £1.70

[71] https://www.zettrans.org.uk/site/assets/files/1084/north_isles.pdf

[72] https://www.zettrans.org.uk/site/assets/files/1084/north_isles.pdf

[73] https://www.zettrans.org.uk/site/assets/files/1084/lerwick_and_scalloway.pdf

- + 25.1-30.0 miles + £2.00
- + 30.1-35.0 miles + £2.30
- + 35.1-40.0 miles + £2.60
- + 40.1-45.0 miles + £2.90
- + 45.1-50.0 miles + £3.20

3.4.21 It is noted that the above breakdown of fares is not included on the website. Fares between points on the route are also not listed.

3.4.22 It should be noted that, despite the bus and internal ferry services being operated by the Council or ZetTrans, there is no integrated ticketing between modes or discounts for multi-leg journeys by either bus or bus-ferry or bus-air combinations. There are also no multi-journey tickets available for buses- all tickets are singles.

Key Point: All bus fares in Shetland are charged as singles and are distance-based. There are no multi-journey tickets for bus travel or integrated ticketing with e.g., Council operated ferry services.

Method of Delivery

3.4.23 The Shetland bus network is, to all intents and purposes, a franchised / contracted model. There are no commercial bus services anywhere in the islands and thus services are secured through ZetTrans through a framework, currently contracting with 15 private bus / taxi operators to provide a specified level of service (e.g., timetables, fares etc) for a defined subsidy.[74]

3.4.24 Although ZetTrans funds all bus services in Shetland, there is no common vehicle standard or branding on the buses.

3.4.25 One future issue from a delivery perspective could potentially be **driver availability**. It is understood that there are sufficient drivers in Shetland to deliver services at present, but the workforce is aging and difficulties in the recruitment of bus drivers has been an issue across Scotland.

Road

Network

3.4.26 The Shetland road network is shown in Figure 3.5 below:

[74] https://www.zettrans.org.uk/contact/bus-services

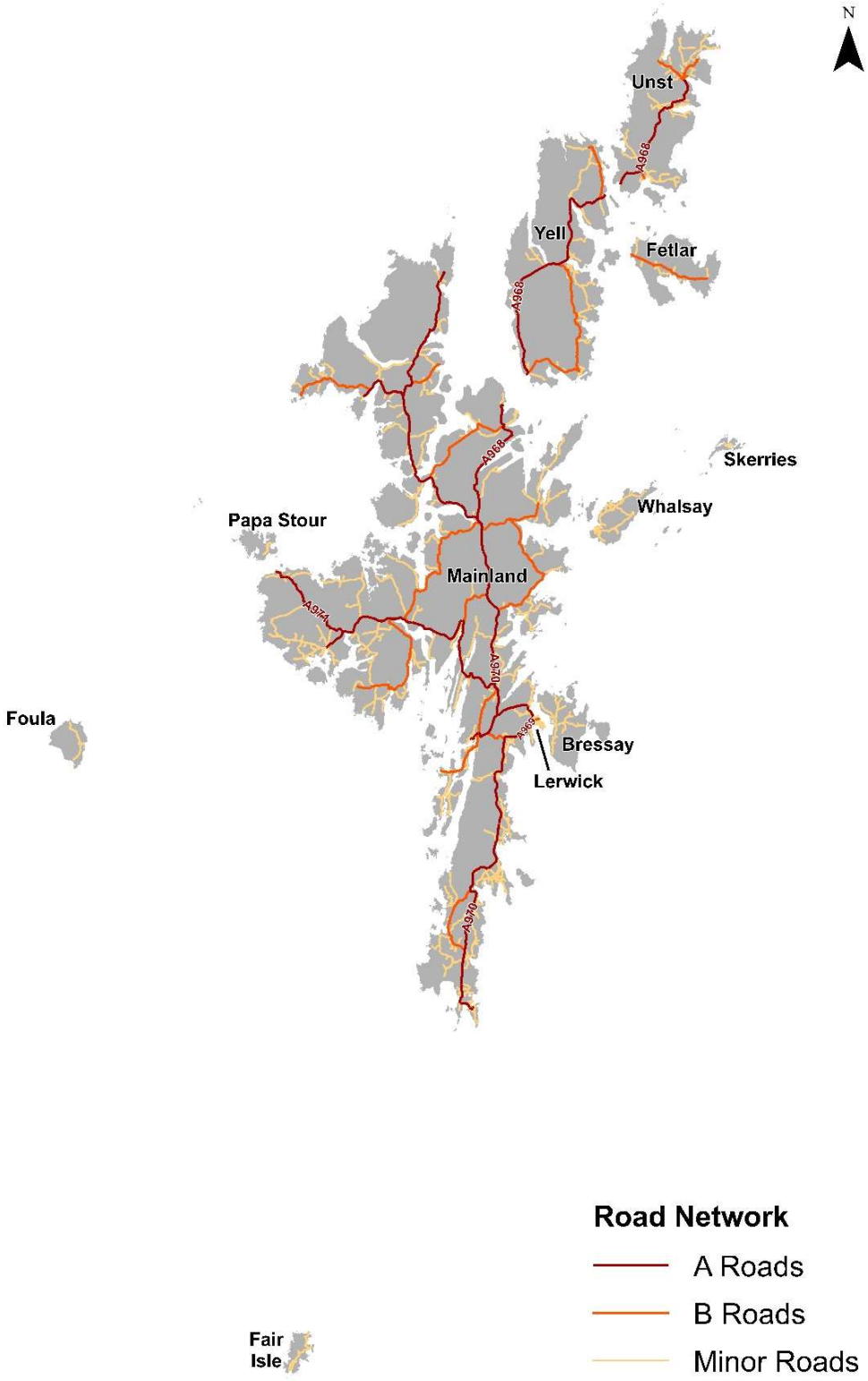


Figure 3.5: Shetland road network

3.4.27 The A970 is the main spinal route connecting Sumburgh Airport with Lerwick, Brae and North Mainland. Other key roads include the A968 from Hillside to Toft, Yell and Unst and the A971 from Tingwall to Walls and Sandness. There also several B-roads to main settlements, several of which are loops off of the core A-Roads.

3.4.28 The main road network in Shetland is built to a very high standard of single carriageway, with excellent sight lines and the ability to maintain relatively high average speeds. This is uncommon in Scottish islands, particularly in areas where the population is sparse and is a legacy of the oil-fund related investment in infrastructure.

3.4.29 Several of the B-roads reduce to single track with passing places, as is common in Scottish islands, but these are nonetheless generally engineered to a high standard.

3.4.30 The only road which attracted significant comment during the engagement was the B9082 from Cullivoe to the A968 just west of Gutcher on Yell. Whilst a reasonable quality single track road with passing places, it is deemed sub-standard for use by the large commercial vehicles in the fishing and aquaculture industries moving produce to Lerwick for export.

3.4.31 From a resilience perspective, it should be noted that there is no alternative route to the 0.6 mile stretch of the A970 between the junction with the B9071 and A968 at Hillside. In the event that this section of road is closed for any reason, it effectively splits Shetland in two, cutting off North Mainland and the North Isles from Lerwick.

Key Point: The core Shetland road network is engineered to a very high standard and allows for relatively higher average speeds. There is one section of the network – a 0.6 miles stretch of the A970 – where there is no diversion route in the event of a closure, effectively splitting Shetland in two for the duration of any closure.

Parking

3.4.32 The majority of formal marked-bay and off-street parking on the island is in Lerwick, although there are small car parks in other settlements such as Scalloway and at ferry terminals.

3.4.33 There is no charged parking in Shetland (except Sumburgh Airport, (which is owned by HIAL), and Victoria Pier Car Park in Lerwick, which is owned by Lerwick Port Authority). With the exception of the Esplanade in Lerwick and the car park below Fort Charlotte, there are also no waiting restrictions in Shetland. Parking in these two areas is managed through a parking disc scheme, with a 45 minutes / no return within one hour restriction on the Esplanade and a maximum stay of two hours at the car park below Fort Charlotte.[75] There is currently no dedicated parking enforcement i.e., no traffic wardens, although the police can take action if they identify any wrongdoing.

3.4.34 There are several formal and informal 'park & ride' sites around Shetland, which are used by motorists looking to car share for longer journeys to e.g., Sullom Voe. Some of these sites, for example that at the turn-off of the A970 for Scalloway are lined and marked, whereas others are gravel only. These sites are not managed or charged.

Key Point: There are no significant barriers to parking in Shetland, with few charged car parks or waiting restrictions.

Electric Vehicle Charging

3.4.35 Figure 3.6 below shows the location of EV charging points across Shetland:

[75] https://www.shetland.gov.uk/roads-travel-parking/lerwick-parking-disc-zone

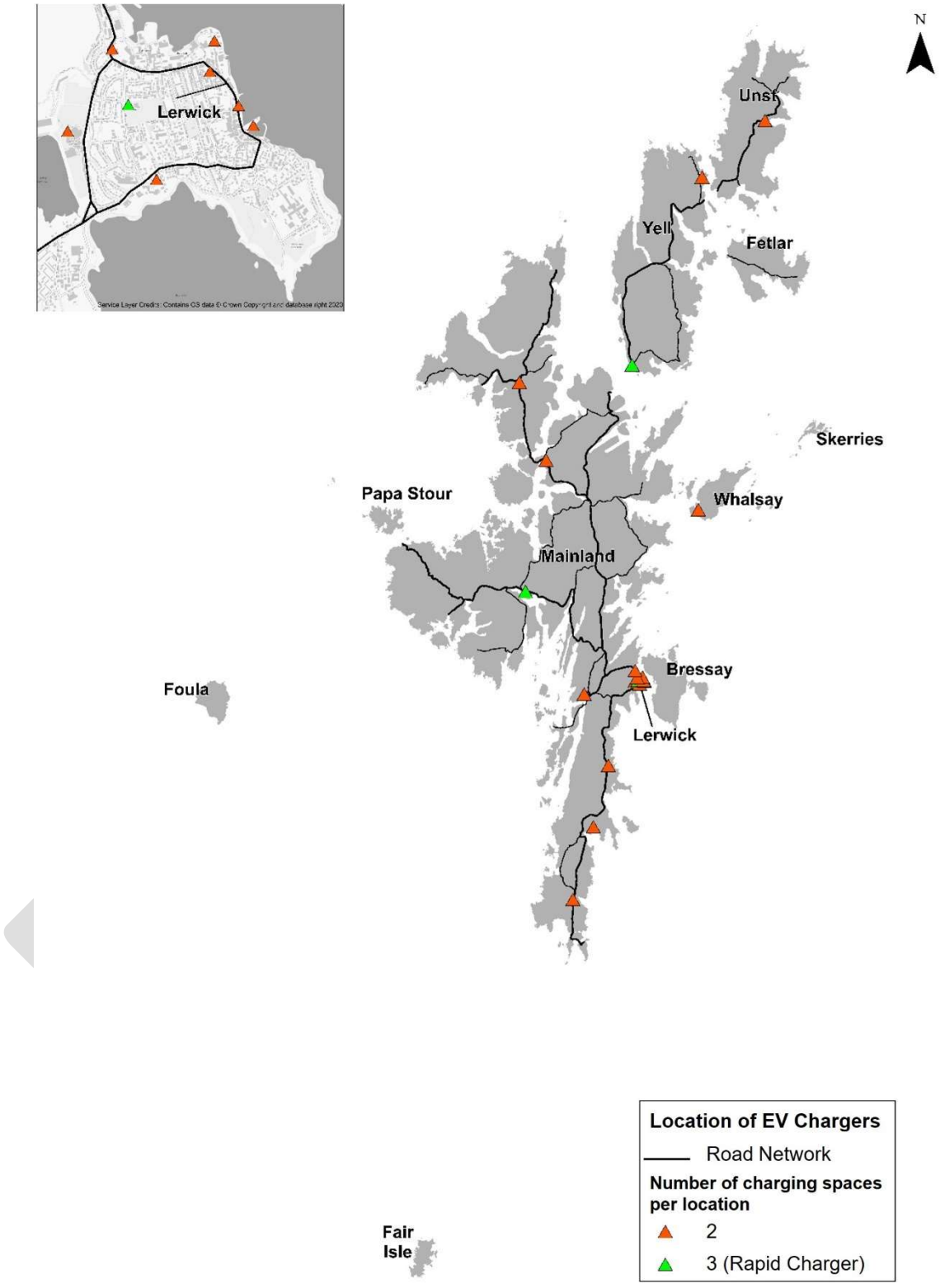


Figure 3.6: Location of EV Charging Points

3.4.36 Figure 3.7 below shows the number of electric vehicle charging points per 1,000 people in Shetland, Orkney, the Outer Hebrides and Scotland:

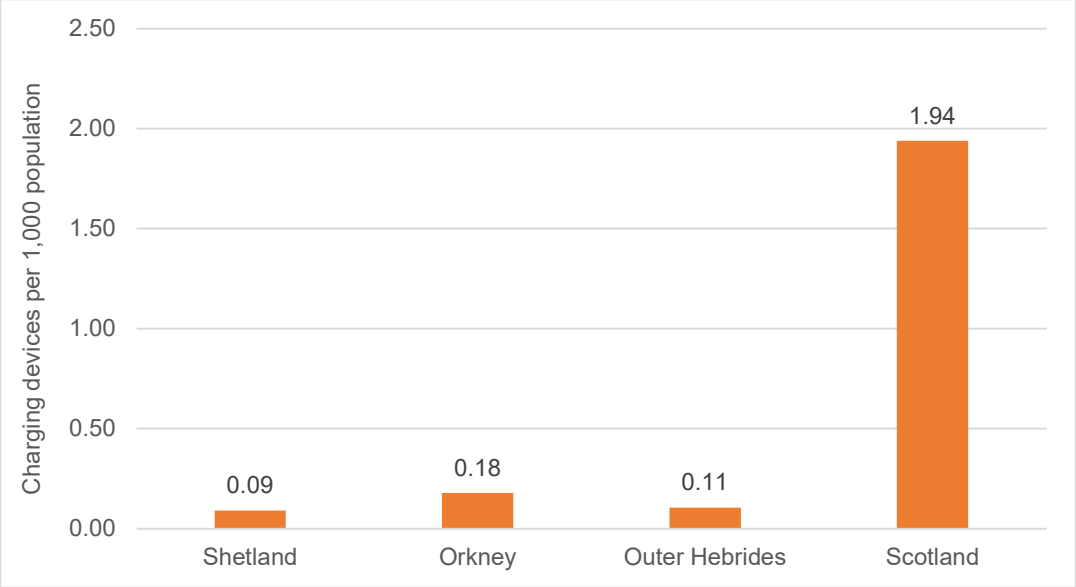


Figure 3.7: Number of electric vehicle charging points per 1,000 people

3.4.37 Shetland has fewer charging points per head of the population (0.09) than Orkney (0.18), the Outer Hebrides (0.11) and Scotland (1.94). In addition, whilst 25% of chargers in Orkney and the Outer Hebrides and 26% of those in Scotland are rapid chargers, just 10% of those in Shetland fall into this category.

3.4.38 EV chargers are currently free at the point of use.

Key Point: The Shetland Islands are some ways behind Scotland overall and indeed other island authorities in terms of providing the enabling infrastructure for the transition to EVs. **Further information on EVs is provided in Chapter 5.**

Method of delivery

3.4.39 The following points should be noted in relation to the road network:

- Capital investment in, and the maintenance of, the road network is the responsibility of Shetland Islands Council as the statutory roads authority. There are no trunk roads in Shetland and thus no interface with Transport Scotland on road-related matters.
- Almost all formal on and off-street parking in the island is provided by the Council. Parking is nominally enforced by Police Scotland, but as is common across the rest of the country, the Police will only typically intervene in instances of dangerous parking.
- From an EV charging perspective, ChargePlace Scotland is Scotland's national EV charging network. It is owned and developed by the Scottish Government and funded in partnership through a grant from local authorities and other organisations. It has allocated grants to local authorities and other bodies across Scotland to install EV charging points. This has assisted in encouraging EV adoption. However, consultation with local authorities on other studies has found that the current approach to provision is piecemeal. Different local authorities have progressed with infrastructure roll-outs at different rates, but most have no clear overarching strategy or supporting plan, rather they simply respond to calls for funding when they are made. There are also issues of different charger types, no clear plan for dealing with equipment obsolescence and replacement, and little in the way of clarity on the future tariff structure, with local authorities again adopting different approaches.

Key Point: The Council has sole responsibility for the road network in the islands and is also the main provider or parking facilities. Parking enforcement remains in control of Police Scotland and is thus very limited.

Taxis

3.4.40 As is common across the UK, the taxi industry is commercial in nature, with the Council only fulfilling a licencing role.

3.4.41 There are as yet no ride-hailing companies such as Uber or Lyft operating in Shetland.

3.4.42 Overall, the number of available wheelchair accessible taxis is relatively low, with three wheelchair accessible taxis and two wheelchair accessible private hire cars recorded as licensed in 2021.

4 Movement of People and Goods in Shetland

4.1 Overview

4.1.1 This chapter considers the movement of people and goods in Shetland – it is effectively a review of the network from the user perspective in terms of origins and destinations, travel volumes, capacity (where relevant) and reliability. The chapter is again split into three sections as per the review of the transport supply-side:

- **External connections:** Serco NorthLink and Loganair connections to the Scottish mainland.
- **Inter-island connections:** travel between Shetland mainland the nine inhabited islands served by Council and ZetTrans funded transport services.
- **Intra-island, Shetland mainland and Lerwick connections.**

4.1.2 In reading this chapter, it should also be noted that:

- It is a summary level commentary rather than a detailed review of all aspects of transport demand in Shetland. Data are presented at an aggregate level commensurate with a strategy.
- The availability and quality of travel data varies by mode – where there are weaknesses in the data, these are highlighted.

4.2 External Connections

4.2.1 This chapter considers the usage of both the external air (Loganair) and ferry (NorthLink) services from Shetland to Orkney and the Scottish mainland. In most Scottish islands, the ferry is by some distance the dominant mode of external travel, with the air service providing high speed connectivity to destinations further away. However, the distance of Shetland from the Scottish mainland means that the use of these two modes of travel is much more balanced. In 2019, NorthLink carried circa 149,000 passengers on its Lerwick – Aberdeen and Lerwick – Kirkwall legs[76], whilst 186,000[77] terminal passengers were recorded at Sumburgh travelling to or arriving from Aberdeen, Edinburgh and Glasgow (the three volume destinations). Both modes of travel therefore play an integral role in meeting the connectivity needs of the islands.

Northern Isles Ferry Services

Resident Destinations

4.2.2 The resident survey identified **'Aberdeen / North-East Scotland'** as the most common destination of Shetland residents. 43%[78] of resident respondents noted that, when making a trip on NorthLink, they are 'always or nearly always' (19%) or 'mostly' (24%) travelling to 'Aberdeen / North-East Scotland'. This aligns with both the stakeholder engagement and the resident survey undertaken as part of the NIFS STAG Appraisal, which found that 32%[79] (n=122) of Shetland residents survey identified 'Aberdeen / North-East Scotland' as their 'most frequent final destination'.[80]

[76] Scottish Transport Statistics 2020, Table 9.15 (Transport Scotland, 2021).

[77] Scottish Transport Statistics 2020, Table 8.2 (Transport Scotland, 2021).

[78] Note – this figure is not weighted for journey frequency.

[79] Note – this figure is not weighted for journey frequency.

[80] Northern Isles Ferry Services STAG Appraisal, Pre-Appraisal and STAG Part 1 Appraisal (Transport Scotland, 2018), p. 27.

4.2.3 As noted in Chapter 2, Aberdeen is the 'regional' service centre for Shetland and it is thus unsurprising that it is the main destination for Shetland residents using the ferry. For example, several more complex hospital procedures are referred to Aberdeen, whilst its retail offer is popular amongst Shetland residents.

4.2.4 Other points of note from the survey in terms of origins and destinations are as follows:

- There is only very occasional travel to Orkney and the wider Highlands and Islands by Shetland residents. Inverness is not a significant destination or service centre for Shetland, particularly when compared to the Orkney Islands and the Outer Hebrides, for which it is their primary regional centre.
- 'Edinburgh and the Lothians / Fife / Falkirk / Scottish Borders' is the next most common destination after the north-east, with 20% of resident respondents 'always or nearly always' (9%) or 'mostly' (11%) travelling to this area (likely Edinburgh rather than the wider area).
- Shetland's links with the Glasgow conurbation are historically less prominent than e.g., the Outer Hebrides, and indeed the resident survey suggests that there is a higher level of travel to the 'Rest of the UK' than Scotland's largest city.

Key Point: Aberdeen is the primary destination for Shetland residents using the ferry, highlighting its role as Shetland's regional service centre.

Carryings

4.2.5 The analysis which follows shows the trend in passenger, car and CV carryings[81] on the NorthLink services between 2010-2020. In order to understand the pattern of demand to / from Shetland, it is necessary to consider the individual Lerwick – Aberdeen, Kirkwall – Aberdeen and Lerwick – Kirkwall routes. It should be noted that:

- all carryings shown are the total for that route leg (i.e., the combined two-way flow); and
- cabin and sleeping pod data are not regularly reported in the public domain and thus are not reported here (although the NIFS STAG Appraisal has some commentary on this aspect of the service and these data are reported to ZetTrans on a quarterly basis).

Passenger Carryings

4.2.6 Figure 4.1 below shows total passenger carryings on the Aberdeen – Kirkwall / Lerwick route for the period 2010-2021.

It should be noted the NorthLink 'Landbridge' offer provides a special ticket price covering travel from Lerwick to Kirkwall and onward travel on the Stromness – Scrabster route the next morning. This special rate also applies on the journey from Scrabster – Stromness and on the journey from Kirkwall to Lerwick when made on the same day.[82] It should therefore be noted a proportion of traffic on the Lerwick – Kirkwall route will be making this movement. The Stromness – Scrabster route is not shown on the figures which follow but, for context, total passenger carryings on this route in 2021 were 108,008.[83]

[81] It should be noted that, in the interests of brevity, coach carryings are not reported in this section. Coach traffic is dwarfed by wider route carryings, particularly commercial vehicle carryings, and are a relatively steady over time at circa 200 per annum.

[82] https://www.northlinkferries.co.uk/booking-info/offers/landbridge/

[83] https://www.northlinkferries.co.uk/wp-content/uploads/2022/01/2021-Annual-Carryings.pdf

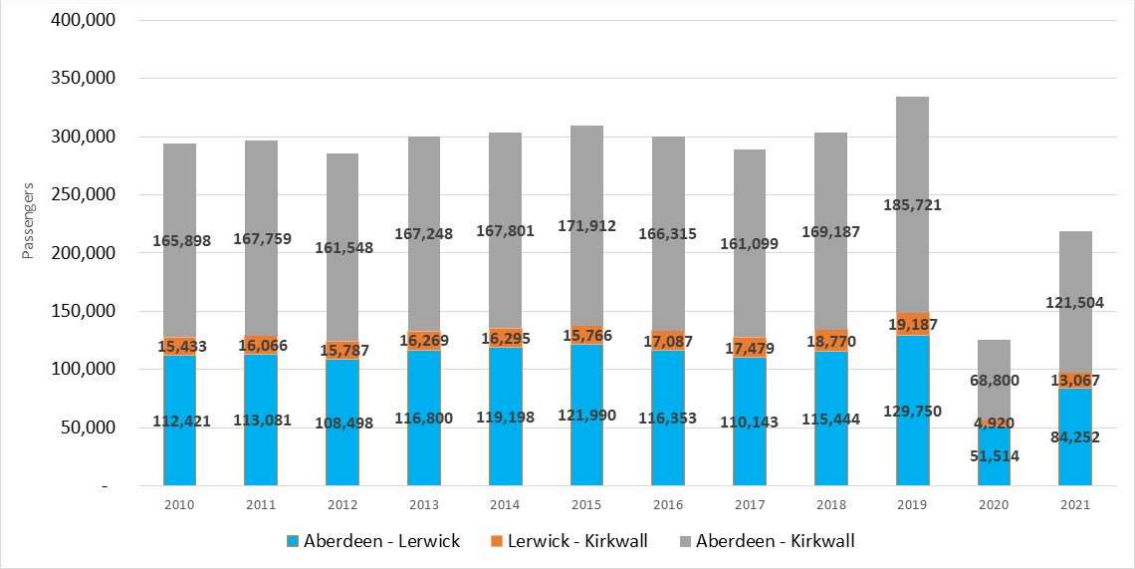


Figure 4.1: Aberdeen – Kirkwall / Lerwick passenger carryings (Source: Scottish Transport Statistics, 2020 and NorthLink 2021 carryings data)

4.2.7 Passenger carryings on the Aberdeen Kirkwall – Lerwick route have been broadly steady over a long period, totalling circa 160,000-170,000 per annum. There was a significant uplift in growth in 2019, when 186,000 passengers were carried but this was obviously short-lived as the COVID-19 pandemic reduced carryings to below the 70,000 mark. There was though a strong recovery in 2021, bearing in mind that travel restrictions were in place for the first third of the year.

4.2.8 As would be expected, Aberdeen – Lerwick is the dominant route, accounting for an average of 70% of all passengers across the 2010-2020 period. It is this route which largely drives the demand for sleeping accommodation.

Key Point: Passenger traffic on the Aberdeen – Kirkwall / Lerwick route was broadly steady over the 2010-2018 period. There was a one-off year of strong growth in 2019 followed by a collapse in demand in 2020 as COVID-19 related travel restrictions were introduced, although there has been a strong recovery in 2021.

Aberdeen – Lerwick is the dominant route leg, accounting for 70% of all passengers carried on average.

Car Carryings

4.2.9 Figure 4.2 below shows the equivalent data for car carryings:

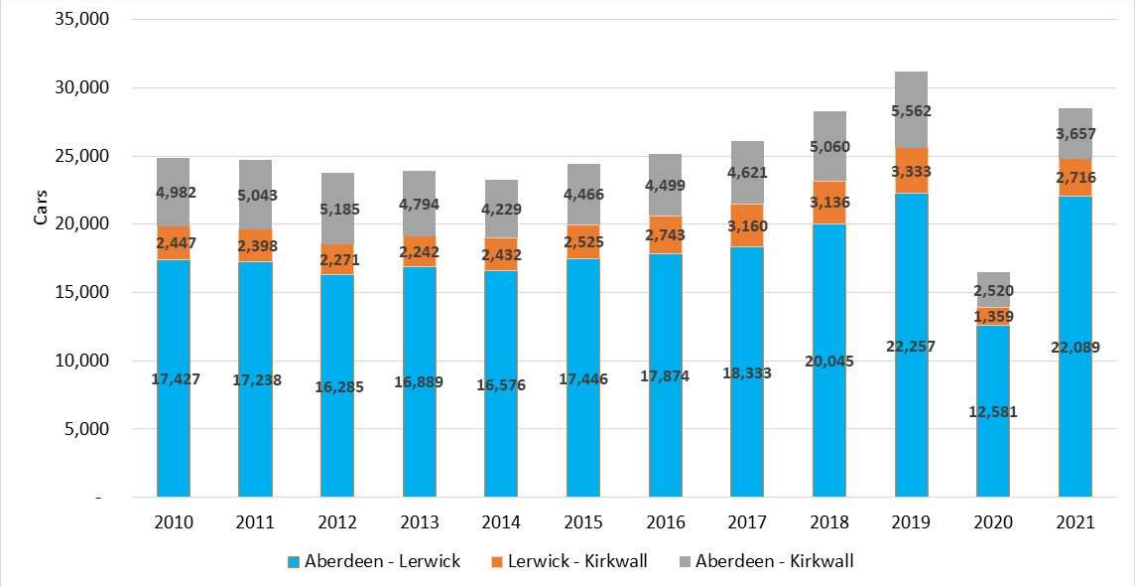


Figure 4.2: Aberdeen – Kirkwall / Lerwick car carryings (Source: Scottish Transport Statistics, 2020 and NorthLink 2021 carryings data)[84]

4.2.10 Car carryings were broadly steady between 2010 and 2016, averaging circa 25,000 per annum. There was a steady year-on-year growth on all route legs between 2017 and 2019. The effect of the COVID-19 pandemic can be clearly seen in the 2020 carryings figures, which reduced to around half of their 2019 level. However, carryings recovered to close to their 2019 level in 2021 despite travel restrictions in the early part of the year.

4.2.11 As would be expected, Aberdeen – Lerwick is the dominant route, accounting for an average of 71% of all cars across the 2010-2020 period.

Key Point: Car carryings were broadly steady over the 2010-2016 period but grew strongly thereafter until the COVID-19 pandemic struck. As with passengers, the Aberdeen – Lerwick route accounts for over two thirds of all demand on the triangular route.

Commercial Vehicle Lane Metres

4.2.12 As explained in Chapter 2, Shetland is a major exporter of goods including seafood and livestock and also relies on imports to meet day-to-day and one-off project needs. As a result, it has a large freight sector which generates significant and often concentrated demand. Figure 4.3 below shows total commercial vehicle (CV) lane metres (LM) carried over the 2010-21 period:

[84] For reference, car carryings on the Stromness – Scrabster route in 2021 were 34,556.

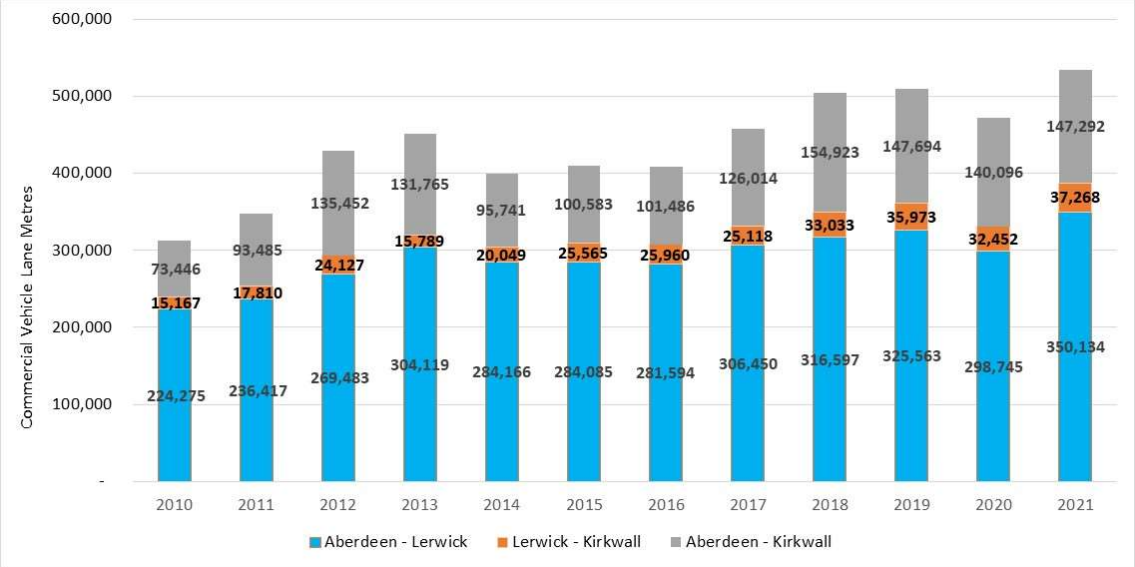


Figure 4.3: Aberdeen – Kirkwall / Lerwick CV LM carryings (Source: Operator performance data)[85]

4.2.13 The following points are of note from the above Figure 4.3:

- The Aberdeen – Lerwick freight market is large and has been growing strongly over a long period, peaking in 2019 with the carriage of 325,000 lane metres, which was driven by project cargo and modal shift from Streamline (i.e., from lift-on, lift-off containers to Ro-Ro).
- To provide some indication of the scale of the freight movement, if it is assumed that a standard car length aligns with the UK average of 4.4m[86], Aberdeen – Kirkwall / Lerwick freight traffic in 2019 accounted for the equivalent of 116,000 cars (there were 31,152 cars carried on this route in 2019).
- Despite the presence of a commercial operator on the Pentland Firth as well as the NorthLink Stromness – Scrabster service, freight lane meterage on the Aberdeen – Kirkwall route has also grown, more than doubling between 2010 and 2019. Most of this will be livestock bound for Aberdeenshire and neighbouring areas. However, livestock volumes have been relatively steady over this period, with the key drivers of growth being modal shift from Streamline, project cargo (e.g., schools, piers, hospitals), oil and gas and seafood.
- The Kirkwall – Lerwick route accounts for only 6% of route freight movements on average. However, it has also been growing strongly in recent years and is an important freight link between Orkney and Shetland, particularly in terms of the transfer of waste product from Orkney for use as fuel in the Shetland power station.
- Freight has been much more resilient than passenger and car demand during the pandemic.

[85] For reference, CV LM carryings on the Stromness – Scrabster route in 2021 were 59,652.

[86] https://www.nimblefins.co.uk/cheap-car-insurance/average-car-dimensions

Key Point: Freight traffic on the Aberdeen – Kirkwall / Lerwick route has grown very strongly over the 2010-2020 period and accounts for a much larger proportion of lane metres than car traffic on the ferry.

Carryings Trend

4.2.14 The 2010-2021 trend in the respective carrying types on the Aberdeen – Kirkwall / Lerwick route is shown in Figure 4.4 below:

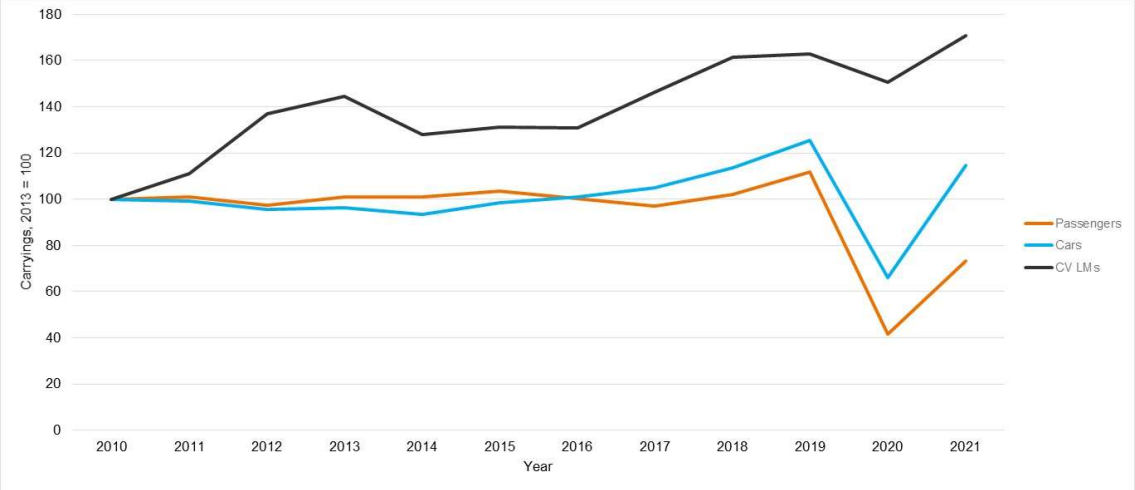


Figure 4.4: Aberdeen – Kirkwall / Lerwick 2010-2021 trend by carrying type (2010=100)

4.2.15 The following points should be noted from the above Figure 4.4:

- In contrast to the general trend in Scottish road freight which has been fairly flat, the volume of CV lane metres carried by NorthLink has increased very significantly over the 2010-2020 period. Freight carryings in 2018 and 2019 were over 60% above the 2010 base and remained 51% above the 2010 level even after the onset of the COVID-19 pandemic. This growth has largely been driven by project cargo and the carrying of former Streamline traffic.
- Car traffic had also grown strongly prior to the pandemic and in 2019 was 25% above its 2010 level.
- This robust growth in motorised traffic has been set against a largely static supply-side in terms of e.g., vessels, timetables etc. It should though be noted that there was a significant over-supply of lane metres in 2012, which led to the introduction of the off-peak freight timetable in 2013. There is therefore scope to increase off-peak LM capacity.
- Passenger traffic had demonstrated modest growth pre-pandemic but was impacted by competition from Loganair and Flybe. It dropped off to around 40% of its 2010 level in 2020 as the pandemic took hold.

Key Point: The picture on NorthLink services between 2010 and the onset of the pandemic has been one of growth. This was particularly the case for CV LMs, which grew exceptionally strongly over the period, with carryings in 2019 being circa 60% up on the 2010 base. This growth, combined with more modest but nonetheless significant car growth, has been set against a largely static supply-side in terms of vessels and the timetable.

Seasonality

4.2.16 As with most ferry routes around Scotland, the Aberdeen – Kirkwall / Lerwick route is characterised by marked seasonality. Whilst the summer / winter differential for passenger and car traffic to and from Shetland is less than it is in say Lewis or Mull, it has a much more pronounced freight peak associated with the large livestock season. Figure 4.5 below shows the percentage monthly share of total 2019 demand by carrying type for the Aberdeen – Kirkwall / Lerwick route:

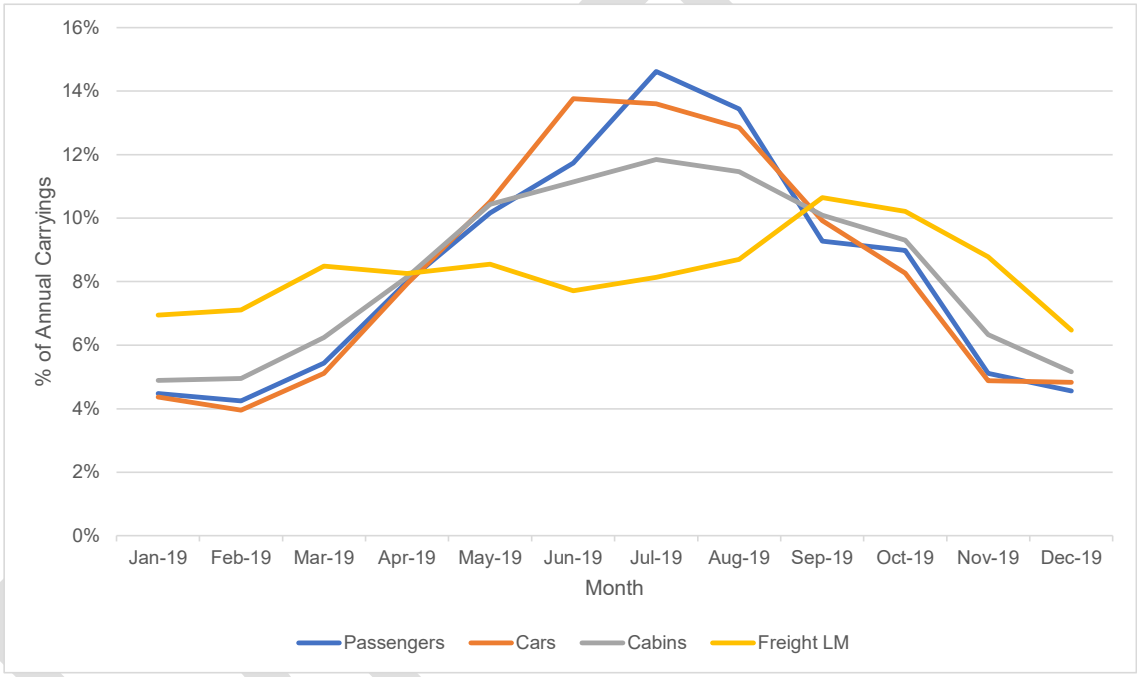


Figure 4.5: Aberdeen – Kirkwall / Lerwick monthly share of annual demand by carrying type, 2019 (Source: NorthLink Ferries)

4.2.17 The main points of note from the above Figure 4.5 are as follows:

- As would be expected, passenger demand is heavily concentrated in the summer months. Two thirds of all passengers are carried between April and September, with 40% travelling in the peak summer months (June, July and August). Only 18% of passengers travel in the 'deep winter' months of November to February inclusive and thus the vessels are both drydocked over this period.
- As cars and cabins are a derived demand, the pattern of that demand largely follows that of passengers. To some extent, cabins decouple from passengers and cars in the peak summer period, which may suggest that cabin capacity is close to being fully utilised in these months.
- The pattern with freight is entirely different to that of passenger of movements. CV LM carryings are broadly consistent across the year, with most months accounting for 6%-9% of the total. However, September and October account for a combined 21% of total freight movements, the increase driven by the livestock season. Whilst in percentage terms, this

is a relatively small difference, it is a major increase in absolute terms, an extra 10,000 LM in September compared to August.

Key Point: The Aberdeen – Kirkwall / Lerwick route demonstrates carryings seasonality seen on other routes in Scotland, with around two thirds of passenger, car and cabins carryings being between April and September. The freight situation is however unique, with a major increase in absolute terms in September and October to accommodate the Shetland and Orkney livestock seasons.

Capacity

4.2.18 As will be detailed in Chapter 7, the availability of vehicle deck (car and freight) and cabin capacity were recurring issues in the resident survey and stakeholder engagement. Ferry capacity is however a complex issue and this section therefore attempts to set out some of the intricacies around this topic.

4.2.19 It should be noted that detailed capacity analysis requires the review of sailing-by-sailing data to be sufficiently robust. This is too detailed an exercise for a Strategy document of this nature and thus our approach here is to summarise the main findings from the Northern Isles Ferry Services STAG Appraisal which incorporated the sailing-by-sailing analysis outlined above.

What is meant by capacity?

4.2.20 The 'supply' of capacity is effectively determined by the available passenger spaces, vehicle deck lane meterage (on both freight and passenger vessels), cabins and sleeping pods on each leg of the Aberdeen – Kirkwall / Lerwick route each day. It should be noted that Shetland's overall car carrying capacity is shared with Orkney on nights when there is a Kirkwall call.

4.2.21 There are four components to the demand for capacity on the NIFS services – the ability to:

- travel **as a passenger** on the ferry, which is defined by the passenger certificate of the vessel;
- secure a **space on the ferry for a car or CV**, which is determined by the available lane meterage and the mix of traffic being carried on any given sailing;
- secure **sleeping accommodation**, for which there are various options and price points; and
- for **freight customers, securing a space on the preferred Ro-Pax vessel** on any given day, although noting that the majority of freight is booked onto and travels on the freighters.

4.2.22 Analysis of carryings data and survey analysis (both for this Strategy and the NIFS STAG) highlights that securing a passenger space is rarely if ever a problem, whilst sleeping accommodation in terms of pods is almost always available. **The key capacity 'issues' therefore are securing a vehicle deck space, sole occupancy cabin and, for freight customers, space on the Ro-Pax vessel where this is desired.** The availability of cabin space is also likely to affect some equality groups more than others, with certain groups likely to be less willing to travel without a cabin due to concerns around safety and security.

4.2.23 Survey analysis has highlighted that, for most Shetland passengers, securing a sole occupancy cabin is considered essential, whilst getting a car booking is also important. For each of these segments (i.e., car and cabin; cabin, no car; and car, no cabin), the ability to secure a booking in both directions will be integral to their willingness to make the journey. The resident survey found that if a person's preferred sailing was fully booked, 60% (n=269) would 'always or nearly always' (29%, n=130) or 'mostly' (31%, n=139) use an alternative sailing. A smaller number would fly instead or not make the journey at all. The availability of a person's requirements in totality is therefore an important factor in determining whether a journey is made on a particular sailing.

4.2.24 Freight customers will still travel on the freighters if the Ro-Pax is fully booked, but the latter vessel is preferred as it is faster, more reliable and arrives in Aberdeen earlier in the morning. In the winter, more freight travels on the Ro-Pax vessels due to lower non-freight demand and the operation of the off-peak freight timetable.

How is capacity managed?

4.2.25 It is important to note at the outset that, without new or additional vessels, **the supply of capacity across the week is largely fixed**. The NIFS STAG found that the length of the crossing to Shetland and the critical requirement for reliability and resilience means that the timetable is essentially fixed.

4.2.26 The operator, Serco NorthLink Ferries, therefore has to balance the competing demand for space on sailings as best as possible. However, they have few options for doing this, because:

- The terms of the contract mean that the **operator cannot easily prioritise one market segment over another**, for example, residents over visitors or freight over residents. Booking is on a first come, first served basis and, in keeping with the lifeline nature of the route, travel can be cancelled without penalty up to the point of sailing. Serco NorthLink note that the 'booking-to-travel' window in Shetland is currently around six weeks.
- The contract also provides **limited to no scope to modify fares** to reflect demand.
- There is **no surcharge for cabin under-occupancy**. This means that on a given evening, all cabins can be fully booked but bed occupancy can be below 50% through, for example, single occupancy of an 'Inner 4-berth' cabin.

4.2.27 In addition, the operator is required to hold eighteen spaces for 'just-in-time' freight traffic on the Ro-Pax vessel on days where there is no corresponding freight vessel sailing. Assuming an average vehicle length of 13.6m (for a drop trailer), this would consume 245m of the 470m available on MV *Hjaltland* and MV *Hrossey*, 52% of the total lane meterage.

4.2.28 It should also be noted that a proportion of commercial traffic to Orkney will travel on the Aberdeen – Kirkwall route rather than across the Pentland Firth (which has ample freight capacity) because the price and distance by road makes the latter less attractive.

4.2.29 It was acknowledged through the stakeholder engagement that the operator does a good job of managing these competing demands with the means available to them, particularly in terms of moving time sensitive freight and accommodating essential last-minute resident travel.

Key Point: The supply of capacity on any given day is largely fixed by the available vessels and timetable, which cannot be easily amended. The operator also has very few levers for managing or changing the nature of demand and thus is faced with balancing the competing priorities of different sectors.

What are the capacity challenges?

4.2.30 From a **user** perspective, the following points were recorded in the NIFS STAG Appraisal, with additional points from recent engagement and data analysis also included:

- Vehicle utilisation on the Lerwick–Kirkwall–Aberdeen (and reverse) services tends to demonstrate moderate year-round utilisation, with significant peaks in the summer months. In July and August 2014/15, the car deck load factor peaked at >=90% on 24% of sailings. Although car-based loadings varied significantly across the year, freight carryings demonstrated much less variability meaning that the average monthly vehicle deck load factor did not drop below 60% in that year.
- Accommodation utilisation is extremely peaky, with very high levels of utilisation experienced throughout the summer months. For sailings in July and August 2014, the

proportion of cabins sold peaked at >=90% on 77% of sailings, i.e., more than three quarters of sailings were at or approaching capacity during this period. Note though that the level of bed rather than cabin occupancy was far lower than this. Between November 2014 and March 2015, at least half of the sailing legs had fewer than half of the cabins sold. NorthLink did however note that there is likely to be a growth in shoulder period demand post-COVID-19.

- The service appeared to be broadly accommodating the overall level demand in 2014/15. The highest utilisation sailings tended to be the direct connections from Lerwick–Aberdeen, which suggests that Shetland residents do not wish to travel via Kirkwall where possible. However, it is important to note that, pre-pandemic, car and particularly freight demand was growing strongly, meaning that the available capacity is now under increased pressure, an issue which came through strongly in engagement with freight stakeholders.
- There is very limited scope for expansion of travel, particularly in the summer months. This could impact both on resident travel and inbound tourism, which is a defined growth area for Shetland. Serco NorthLink noted in the engagement that the issue is not capacity *per se* but the days on which it is available – capacity problems most regularly occur when there is only a single Ro-Pax sailing south, such as on a Tuesday and Thursday (only during operation of the off-peak freight timetable, which is aligned with prevailing demand).
- Freight demand is seen to be well managed and accommodated appropriately. However, the stakeholder consultation undertaken as part of this strategy development exercise highlighted that the significant recent growth in freight demand as a result of project traffic is now presenting capacity challenges.

4.2.31 From an **operator** perspective:

- Given the largely fixed supply-side and the pre-pandemic growth trend, the operator must actively and regularly balance the competing demands for carriage and do so with very few levers to manage demand. It can be argued that this is not strictly within the remit of the operator (and is not something a commercial ferry company would do) but it is something which Serco NorthLink does to best support the communities which they serve.
- Major projects and events can be planned without the organisations wanting to move goods / people engaging in dialogue with the operator, which creates a challenge in managing these demands. NorthLink is however very proactive in engaging with stakeholders to understand their requirements and aligning supply accordingly, for the Viking Energy development for example.
- The full introduction of reduced fares on a Road Equivalent Tariff (RET) variant basis would potentially add to the capacity challenges faced.

Key Point: Capacity challenges were clearly identified in the NIFS STAG Appraisal and will have worsened over time given the general growth in demand (particularly freight demand) pre-pandemic. The 'booking to travel' window for Shetland residents is now around six weeks, although urgent travel is almost always accommodated.

Reliability

4.2.32 Reliability is an essential component of the NIFS services, particularly for some time sensitive freight, much of which is being trans-shipped to England and Europe on the same day that it arrives in Aberdeen. There are two components to reliability, **cancellations and punctuality**, each of which are now considered in turn.

Cancellations

4.2.33 Figure 4.6 below shows monthly cancellations on the Aberdeen – Kirkwall – Lerwick route split by the passenger vessels and freighters:

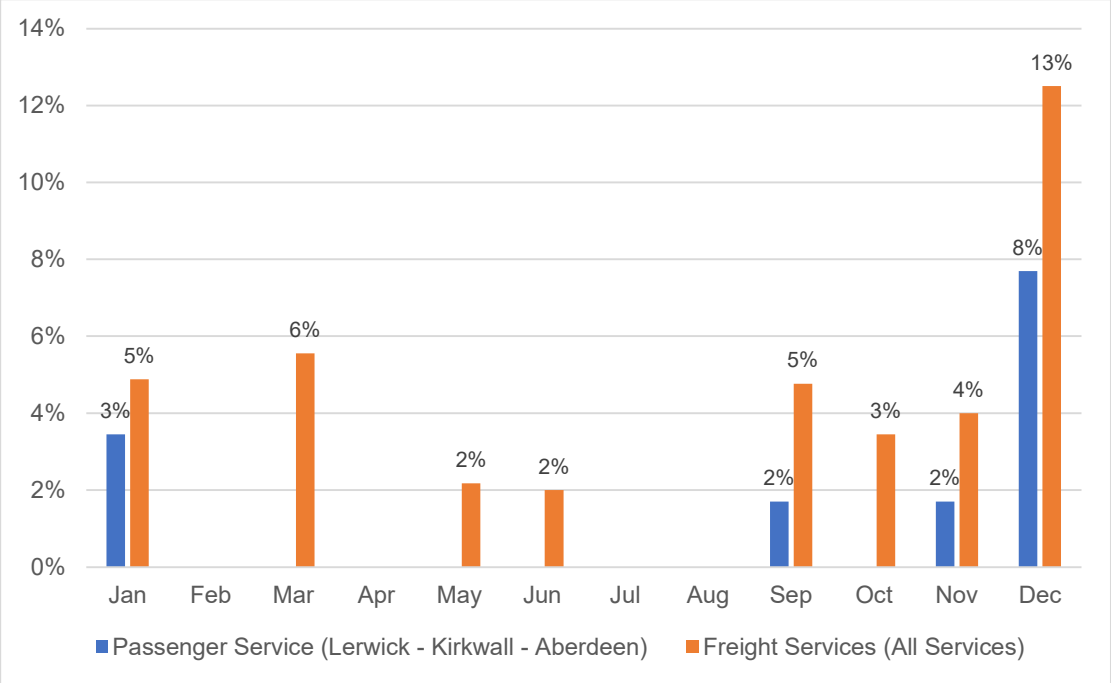


Figure 4.6: % of monthly sailings cancelled 2019 (Source: NorthLink Ferries)

4.2.34 The main points from the above Figure 4.6 are as follows:

- Overall, the NorthLink services are very reliable, particularly given the challenging waters in which they operate. In 2019, NorthLink operated 1,283 sailings on the ABKILE route, with 27 sailings being cancelled, a cancellation rate of just 2.1%.
- The Ro-Pax vessels are more reliable than the freighters, with a cancellation rate of just 1.2% (8 sailings) in 2019, compared 3.1% (19 sailings) on the freighters.
- As would be expected, the majority of cancellations are in the winter months when the weather is at its most challenging.

Key Point: The NorthLink services are overall highly reliable, with only 2.1% (27 sailings) cancelled in 2019, the majority of which were in the winter months. The Ro-Pax vessels are more than twice as reliable as the freighters, with a cancellation rate of just 1.2% in 2019.

Punctuality

4.2.35 The equivalent figure for punctuality is shown below in Figure 4.7:

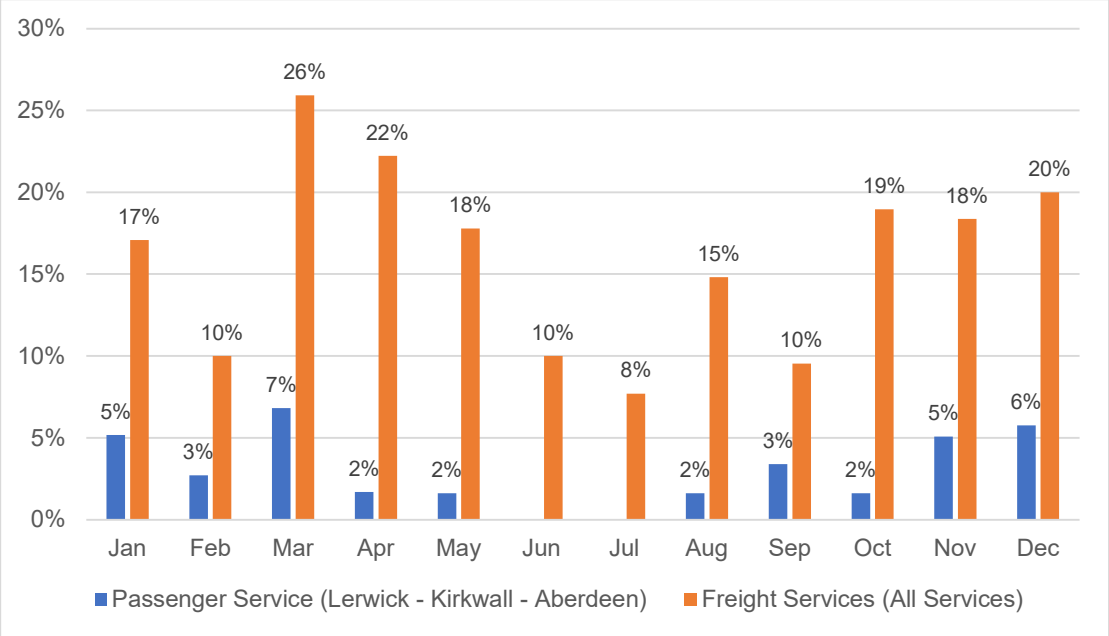


Figure 4.7: % of monthly sailings delayed[87] [88] in 2019 (Source: NorthLink Ferries)

4.2.36 The main points from the above Figure 4.7 are as follows:

- In 2019, a total of 114 sailings were late, 8.9% of the total.
- Late sailings were dominated by the freighters, with 15.8% (95 sailings) of all freight sailings running late. As well as weather conditions, the freight vessels are regularly held to accommodate traffic presenting late. In addition, sailings with low load factors impact on the vessels' sea handling. The equivalent figure for the Ro-Pax vessels is just 2.8% (19 sailings).
- The majority of late sailings are again heavily concentrated in the winter months.
- The NIFS STAG Appraisal noted that the main problem with the freighters is that they cannot maintain the required service speed in inclement weather. However, the alternative would be to cancel these sailings.

Key Point: The Ro-Pax vessels are much more reliable than the freighters, with just 2.8% of sailings in 2019 running late compared to 15.8% for the freighters.

External Air Services

4.2.37 As external air travel to and from Shetland is operated on an entirely commercial basis, there are limited data available in terms of demand. Nonetheless, data from Scottish Transport Statistics and the Civil Aviation Authority do provide a useful indication of the position of the aviation market in Shetland.

[87] Note that there are different levels of 'lateness' for the Ro-Pax vessels and freighters. For the Ro-Pax vessels, Level A Lateness is defined as 30-60 minutes later than the published timetable and Level B Lateness over 60 minutes later than the published timetable. For the freighters, Level A Lateness is 45-60 minutes later than published Timetable and Level B Lateness over 60 minutes later than the published timetable - https://www.northlinkferries.co.uk/wp-content/uploads/2021/02/Performance-Monitoring-CY8.pdf

[88] Note that the monthly performance data do not split out the different 'levels' of lateness.

4.2.38 It should be noted that that this section is focused on aircraft movements to / from Sumburgh as the sole airport currently used for external flights. Scatsta is currently mothballed (it closed to all operations on 30th June 2020) and prior to that was used only for charter flights.

Aircraft Movements

4.2.39 The Civil Aviation Authority (CAA) collects data on all aircraft movements into and out of UK airports, with movements split by category (e.g., air transport, private military, test and training etc). The 'fixed wing air transport' (i.e., aeroplanes as opposed to helicopters) data have been extracted for Sumburgh and are presented in Figure 4.8 below

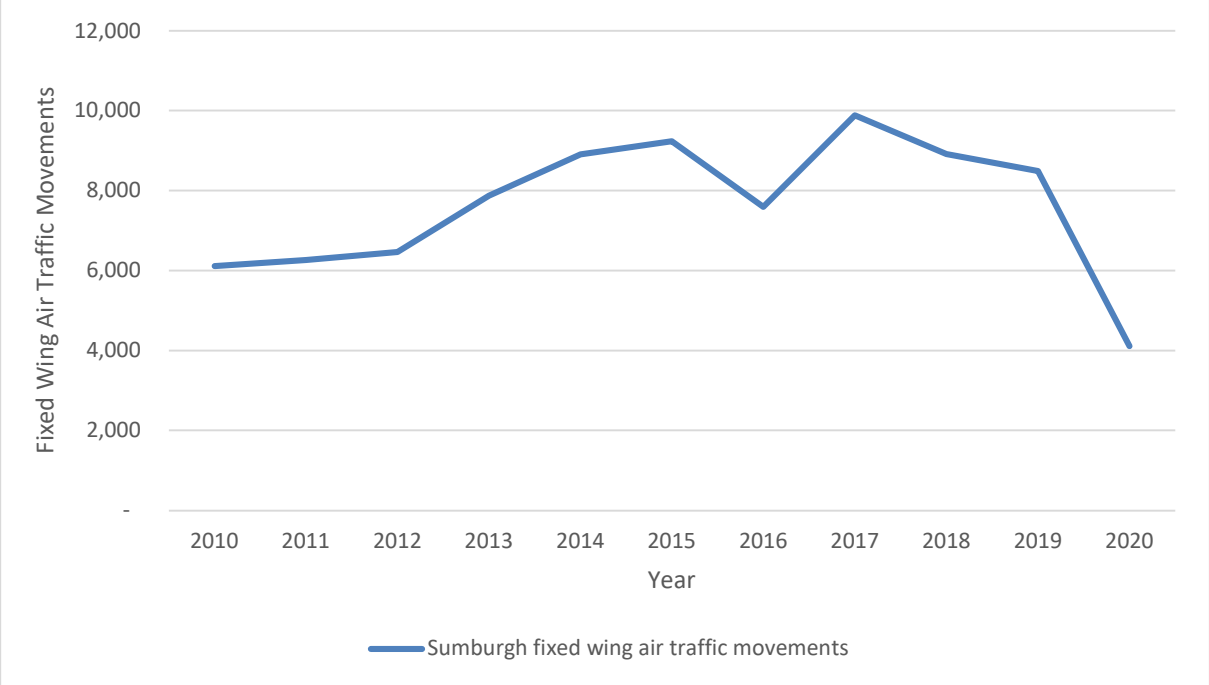


Figure 4.8: Sumburgh fixed wing air traffic movements[89] (Source: CAA UK Airport Annual Data, Table 19)

4.2.40 The main points of note from the above Figure 4.8 are as follows:

- There was a significant growth in the number of air traffic movements to / from Sumburgh between 2010 and 2015. This will in part relate to the growth in Loganair flights but may also reflect the high volume of charter flights into Shetland in that period due in part to the delivery of the gas plant.
- Following a sharp drop in aircraft movements in 2016, 2017 recorded almost 10,000 movements. This is in a large part due to the entry of FlyBe into the Shetland market in September 2017 to compete with Loganair.
- The impact the COVID-19 pandemic can be clearly seen in the graph, with total air traffic movements in 2020 reducing to less than half of their 2019 level.

[89] Air traffic movements are defined as landings or take-offs of aircraft engagement in the transport of passengers, freight or mail on commercial terms. All scheduled movements, including those operated empty, loaded charter and air taxi movements are included.

Key Point: Fixed wing air traffic movements to / from Sumburgh had shown strong if uneven growth between 2010 and 2019, but the COVID-19 Pandemic led to a significant reduction in the number of flights. It is not yet clear what the post-COVID-19 aviation market in Shetland will look like.

Terminal Passengers

4.2.41 Sumburgh recorded 267,000 terminal passengers in 2019, the last full pre-pandemic year. This was almost double the 2010 level of level of passengers (139,000) and likely reflects the overall growth in air traffic movements. However, given that many of the terminal passengers at Sumburgh will be oil-related (transferring from fixed wing to rotary aircraft), a better way to understand the resident aviation market is to consider passengers travelling between Sumburgh and the primary Scottish airports, Aberdeen, Edinburgh and Glasgow[90] - this is summarised in Figure 4.9 below:

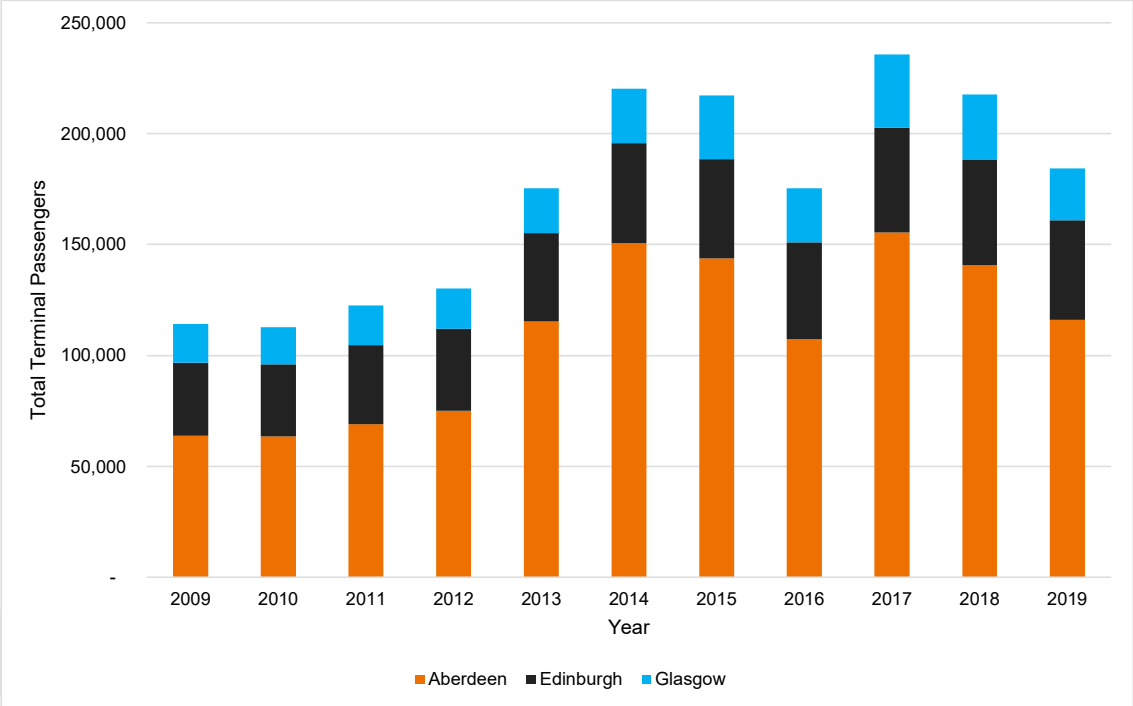


Figure 4.9: Sumburgh terminal passengers travelling to / from Aberdeen, Edinburgh and Glasgow 2009-2019 (Source: Scottish Transport Statistics 2020, Table 8.2)

4.2.42 The main points of note from the above Figure 4.9 are as follows:

- Aberdeen is by some distance the primary origin / destination for those flying between Shetland and the Scottish mainland. Of the total Sumburgh terminal passengers flying to / from the above listed destinations, 61% on average were flying to / from Aberdeen. Moreover, the number of terminal passengers travelling to / from Aberdeen almost doubled over the period 2009-19. As with the ferry service, the dominance of Aberdeen highlights its role as the regional service centre for Shetland and the oil industry related travel between the two areas.
- Edinburgh is the next most common destination accounting for around one quarter of the above movements. Likewise, Edinburgh movements have grown strongly and were some

[90] Note that Scottish Transport Statistics reports CAA data which records journeys between Sumburgh and Inverness, but these are negligible and thus excluded from the analysis. Trips between Sumburgh and Kirkwall are not recorded in the CAA data.

36% larger in 2019 compared to 2009. Growth was however much less than that to Aberdeen.

- Only around 15% of movements are to / from Glasgow. In contrast to e.g., the Outer Hebrides, there have never been strong historic linkages between Shetland and Glasgow and this is reflected in its lesser share of air (and ferry movements).

4.2.43 In addition to destinations, there are small flows to Kirkwall (not recorded), Inverness (figures peaked at 4,200 in 2012 but fell to 200 in 2019), other UK airports, including Manchester[91] (1,697 in 2019) and Europe (assumed to be Bergen, 1,778 in 2019).[92]

4.2.44 The dominance of Aberdeen as a destination was confirmed in the resident survey, which found that 23% of respondents 'always or nearly always' travel to Aberdeen and 28% 'mostly' do so. As per the terminal passenger's data, Edinburgh was the next most popular destination followed by Glasgow, with negligible movements to all other destinations.

Key Point: Sumburgh – Aberdeen is the volume route into / out of Shetland, accounting for almost twice the number of terminal passengers to / from Edinburgh and four times that from Glasgow. There are however several smaller volumes but important connections operated from Shetland, including Kirkwall and Bergen.

Capacity

4.2.45 Given the commercial nature of the industry, airlines do not publish data on seat utilisation and thus there are no formal data on capacity issues. However, the resident survey asked whether there were any occasions in 2019 where a person was unable to book their preferred flight. Of the 467 respondents to this question, 63% (n=294) reported that they had been unable to book on their preferred flight on at least one occasion (14% frequently (n=41), 44% occasionally (n=205) and 5% (n=23) following periods of disruption only).

4.2.46 The survey suggests that the most common response when a flight cannot be booked is to travel on an alternative flight, although some respondents take the ferry instead and a handful choose not to travel.

Key Point: Whilst there is no formal measure of flight capacity utilisation and latent demand, two thirds of respondents to the resident survey noted that they could not book on their preferred flight on at least one occasion in 2019. Approximately 1 in 7 respondents noted that this was a frequent occurrence.

Reliability

4.2.47 As with capacity, there are no formal datasets of flight reliability from Sumburgh. However, the aviation tracker and flight data website www.flightera.net collects information on flight delays, 'airport on-time' statistics and airline information from a variety of sources to estimate punctuality. It is estimated that 25% of Sumburgh flights (0.4 flights per day) are delayed, with an average delay time of 32 minutes.[93] A glance at specific flight numbers highlights that there are significant variations around this average, with some flights almost always operating on time and others more regularly delayed or delayed for a longer period of time on average.

4.2.48 In the resident survey, 60% (n=297) of respondents noted that they do not make as many journeys by air as they would wish to. Reliability (both cancellations and delays) was second

[91] Assumed to be inter-lining on the Loganair network.

[92] Terminal passenger traffic by origin and destination 2019, STS Table 8.6 (Transport Scotland, 2020)

[93] https://www.flightera.net/en/airport/Sumburgh/EGPB#about – as 09:00 on 5th January 2022.

only to cost as the main perceived barrier to travelling by air more often, with 75% (n=217) of respondents citing this as an issue (30% (n=86) major factor, 45% (n=131) minor factor).

Key Point: Whilst data on reliability are incomplete, there is evidence both through flight data websites and the resident survey that reliability (both cancellations and punctuality) can be an issue for Shetland residents making an air journey.

4.3 Inter-Island Connections

4.3.1 The inter-island transport network – both air and ferry – has been subject to a significant body of appraisal and business case related work through the Shetland Inter-Island Transport Study - https://www.shetland.gov.uk/downloads/download/396/siits-supplementary-information. The content in this section will therefore be relatively light touch drawing out the main recent trends, with further material available in the SIITS reports.

Inter-Island Air Services

4.3.2 As explained in Chapter 3, the inter-island air services were subject to a comprehensive OBC in 2018, the outcomes of which involved withdrawal from the Papa Stour and Skerries routes and enhanced services to Fair Isle and Foula. The air service is the main mode of passenger travel for these two islands, with the ferry fulfilling a largely supply-chain role.

Carryings

4.3.3 Figure 4.10 below shows the trend in passenger numbers and aircraft movements at Tingwall, the Shetland mainland base for the inter-island air service. It should be noted that these data include all passengers / aircraft movements at Tingwall (by way of context, the inter-island air service accounted for 74% of all aircraft movements in 2016/17):

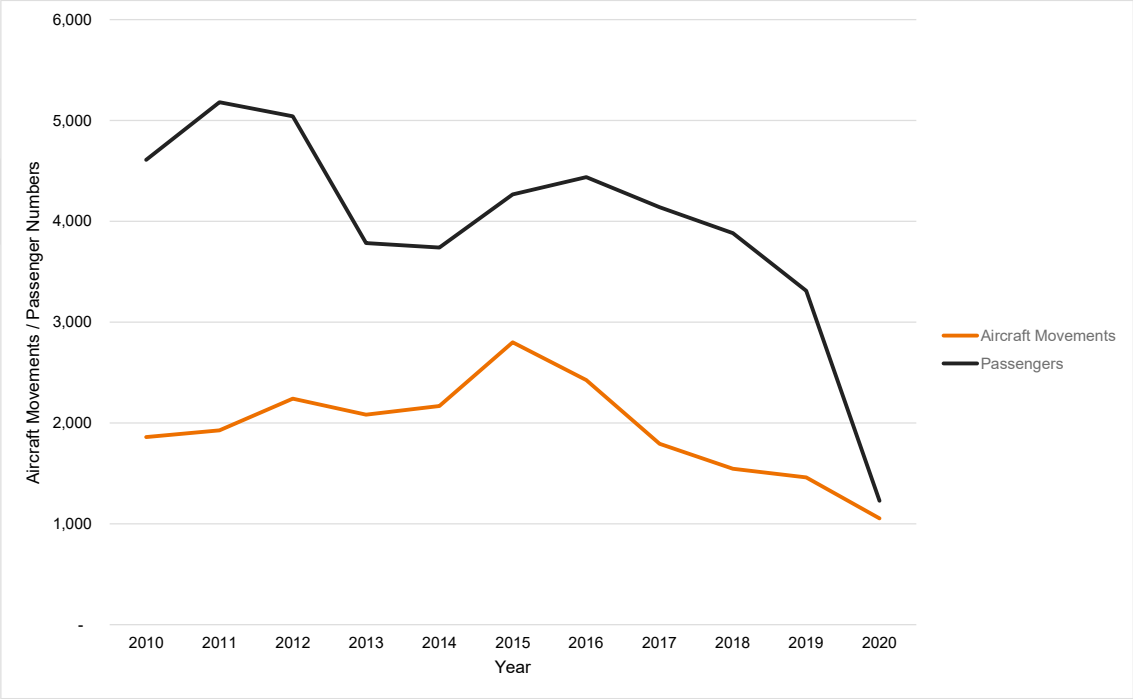


Figure 4.10: Aircraft movements and passenger numbers through Tingwall Airport 2010-2020 (Source: CAA UK Airport Annual Data)

4.3.4 The main points of note from the above Figure 4.10 are as follows:

- There was a steady decline in both aircraft movements and passenger numbers at Tingwall between 2010 and 2020. The suspension of the Skerries service from autumn 2015 onwards followed by the permanent withdrawal of the Skerries and Papa Stour services from the commencement of the 2020 contract will have contributed to this. However, the effect will have been marginal as Fair Isle and Foula have always been the volume routes.
- The very small populations of the islands served together with some of the challenges around making a journey (i.e., reliability, frequency etc) mean that overall passenger numbers are very low. There were slightly fewer than 3,500 passengers at Tingwall in 2019, the last full pre-pandemic year.
- For context, in 2017 (the last year for which published route-level data are available), there were 2,812 passengers on the Fair Isle route; 1,246 on the Foula route; 66 on the Papa Stour route; and none on the suspended Skerries route. Freight volumes were 45 tonnes to Fair Isle; 23 tonnes to Foula and one tonne to Papa Stour.[94]
- The Fair Isle Bird Observatory Fire in March 2019 may have contributed to a decline in numbers in this year compared to previous years.
- The effect of the COVID-19 pandemic on passenger numbers can be clearly seen. The restriction of travel to essential journeys limited discretionary travel and also meant that there was no tourism season in Fair Isle in 2020.

Key Point: Passenger numbers on the inter-island air services are dominated by the Fair Isle and Foula routes, which accounted for 98% of all passengers in 2017. Air is the primary mode of passenger transport for these islands, with the ferry predominantly fulfilling a supply-chain role. Air passenger numbers and aircraft movements have though been declining in recent years, with a major reduction in demand associated with the COVID-19 pandemic.

Capacity

4.3.5 Whilst the BN-2 Islander aircraft are limited to 8-9 passengers, the Air OBC found that load factors are on average below the capacity of the aircraft. Whilst there can be capacity pinch points during e.g., the peak tourist season in Fair Isle or following on from disruption, lack of seat availability is not a regular problem.

4.3.6 The above said, the household survey carried out as part of the Fair Isle OBC found that almost all residents who made a journey by air in 2019 experienced at least one occasion where they could not obtain a booking. 48% (n=10) noted that this happened on 2-3 occasions – capacity problems were almost exclusively during the island tourist season. The operator, Airtask, noted that they had piloted the concept of a 'virtual second aircraft' (i.e., pressing the second aircraft into operation where booked passengers exceeded aircraft capacity). The concept proved to be a difficult one to realise in practice as a number of passengers were booking multiple flights and not turning up (there is no penalty for doing this and payment is not taken until the passenger presents for carriage).

4.3.7 The capacity benefit of the refocusing of the timetable on Fair Isle and Foula only from 2020 is not yet understood due to the pandemic-related disruption to regular travel.

[94] Air Services OBC Final Report (ZetTrans, 2019), p. 25.

Key Point: Overall, average aircraft load factors are generally below the capacity of the aircraft. However, specific research in Fair Isle found that certain flights can be challenging to book and that most households have experienced occasions where they cannot secure a booking. The capacity impact of refocusing the air service on Fair Isle and Foula only will not be understood until travel patterns settle post-pandemic.

Reliability

4.3.8 The operational parameters within which the Shetland inter-island air service is delivered make reliability a defining feature of the service. These parameters include:

- highly challenging topography in both Fair Isle and Foula, which impose constraints on the Visual Flight Rules (VFR[95]) minima under which the service is operated, particularly given that it is a single pilot operation;
  - Fair Isle in particular is subject to frequent haar (summer sea fog) which can make VFR flying impossible;
- the location of the airstrips and absence of cross-runways make the service more susceptible to wind shear; and
- winter daylight in Shetland is very limited and, in the absence of runway lighting or other navigational aids, all flights have to be completed in daylight hours.

4.3.9 The constraints on the Shetland service means that it can only deliver around 650 operating hours per annum with its two aircraft, which compares to 1,400 hours per annum in the two-aircraft Orkney inter-island network. Central to the planning of the timetable is the ability to respond flexibly to weather windows and other circumstances. If the schedule is too dense, this would leave little time for recovery from weather-related service outages and would thus impact on the reliability of the entire service.

4.3.10 The scale of the reliability challenge is shown by Table 4.1 below, which sets out the number of flights operated on the Fair Isle and Foula routes in 2017 (the last year for which route-by-route data are available):

Table 4.1: Number of Flights 2017 (Source: Shetland Islands Council)

Days in 2017 when there was…	Fair Isle	Foula
…no scheduled flight	75	151
…extra flights (on scheduled & unscheduled flying days)	19	17
…fewer than scheduled flights	145	84
…match with schedule	126	113

4.3.11 The key points of note from the above Table 4.1 are as follows:

- The Fair Isle service operated to timetable on 126 days in 2017. However, there were 145 days on which there were fewer than the scheduled number of flights operated. In most cases, this was due to adverse weather (see below).
- The Foula service displayed a similar pattern, with 84 days on which there were fewer than the scheduled number of flights.

[95] Visual Flight Rules mean that the aircraft is operated through line of sight. In a VFR setting, the aircraft is intended to operate in weather conditions generally clear enough to allow the pilot to see where the aircraft is going.

- Conversely, the flexibility of the service is highlighted by the number of days on which extra flights were operated, 19 days for Fair Isle and 17 for Foula.

4.3.12 Table 4.2 below develops the above analysis by establishing the number of cancellations by island in 2017. Note – each cancellation listed is for a 'rotation', or a return journey.

Table 4.2: Rotation Cancellations by Island, 2017 (Source: Shetland Islands Council)

	Fair Isle	Foula
Weather	159	92
No passengers presenting	34	23
Technical	0	0
Total	**193**	**155**
Approximate Scheduled Rotations	584	344
Approximate Cancellation Rate	33%	33%

4.3.13 In summary, around one third of Fair Isle and Foula rotations were cancelled in 2017. Some 82% of the Fair Isle cancellations and 60% of the Foula cancellations were due to adverse weather. In the Fair Isle household survey, almost all respondents highlighted reliability as a factor in their making fewer journeys to Shetland mainland than they would otherwise like to do, with 79% (n=11) highlighting it as a 'major factor'. The challenges associated with operating the air service are however widely understood by island residents.

Key Point: The operating conditions for the Shetland inter-island air services mean that they are highly prone to weather-related disruption, with around one third of all flights from Fair Isle and Foula cancelled in 2017. Whilst a significant level of disruption, the challenges associated with operating the air service are well understood by island residents and the service itself is operating towards the maximum possible given available resources.

Inter-Island Ferry Services

4.3.14 When considering the inter-island ferry services, it is important to split-out the high-volume and high-frequency Ro-Ro routes (Bluemull Sound, Bressay, Whalsay and Yell Sound) from the 'connectivity-focused' services to the islands of small population (Fair Isle, Foula, Papa Stour and Skerries). In keeping with the high-level approach outlined above, carryings data are drawn from Scottish Transport Statistics rather than built-up from individual logbook records.

Carryings – High Frequency Ro-Ro Routes

4.3.15 Scottish Transport Statistics only started recording figures for Bluemull Sound in 2019 and thus the time series used is 2012-2019. For context, Table 4.3 shows the total passenger, car and commercial vehicle carryings on each of the selected routes in 2019:

Table 4.3: 2019 passenger, car and CV carryings on selected routes (Source: Scottish Transport Statistics Table 9.16, 2020)

	Passengers	Cars	Commercial Vehicles
Bluemull Sound	145,100	75,100	3,800
Bressay	190,800	68,000	1,700
Whalsay	164,500	79,300	1,900
Yell Sound	268,700	139,400	9,900

4.3.16 The main points of note from the above Table 4.3 are as follows:

- Yell Sound is by some distance the busiest route. Yell is amongst the most populous of the isles and the route also accommodates those travelling from Unst and Fetlar to all other locations.
- Despite its comparatively small population, the Bressay route has the second highest number of passenger carryings and its car carryings are not materially different from Whalsay and Bluemull Sound. This reflects the close proximity of the island to Lerwick and the essential role that the ferry service plays in connecting Bressay residents to almost all service, retail and leisure opportunities.
- Yell Sound has significant CV carryings, primarily associated with the large aquaculture industry and fish landings on the island. There are also CV carryings on Unst associated with the Spaceport. CV carryings on Bressay are likely associated with the fish factory on the island. Note that there is limited publicly available trend data on CV carryings.

Key Point: Yell Sound is by some distance the busiest crossing on the inter-island network, and the only route with significant CV carryings. Nonetheless, volumes are high across all five routes relative to population size. This highlights the importance of travel in Shetland, particularly to Lerwick for freight and accessing services, retail and leisure opportunities.

Passengers

4.3.17 Figure 4.11 below shows the trend in passenger carryings on the Bluemull Sound, Bressay, Whalsay and Yell Sound routes between 2012 and 2019:

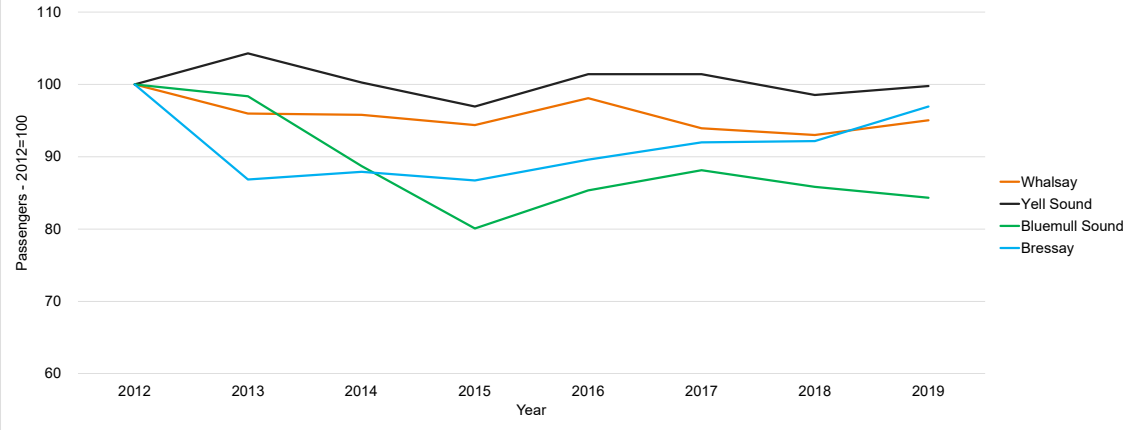


Figure 4.11: Trend in passenger carryings on selected Ro-Ro routes, 2012=100 (Source: Scottish Transport Statistics Table 9.16, 2020)

4.3.18 The main points of note from the above Figure 4.11 are as follows:

- As explained in Chapter 3, a programme of service reductions was introduced in 2013 to stem the financial losses being faced by the Council. The main impact of these service reductions was to reduce the weekend service to a single vessel on the Bluemull Sound, Whalsay and Yell Sound routes. This led to an immediate reduction in passenger numbers on all routes except Yell Sound.
- Given the 2013 service reductions and either largely static or declining island populations, there has been no growth in passenger numbers over the 2012-19 period, with Bluemull Sound carryings reducing significantly.

- Bressay carryings are near their 2012 level in part because the route did not witness the same scale of service reductions and in part because of the reduction of local services, including the closure of the school.

Key Point: Passenger carryings on the main Ro-Ro routes in 2019 are below their 2012 level, although marginally so in the case of Yell Sound. This has been primarily driven by the 2013 service reductions but static or declining island populations will also have been a factor.

Cars

4.3.19 The equivalent trend data for cars is presented in Figure 4.12 below:

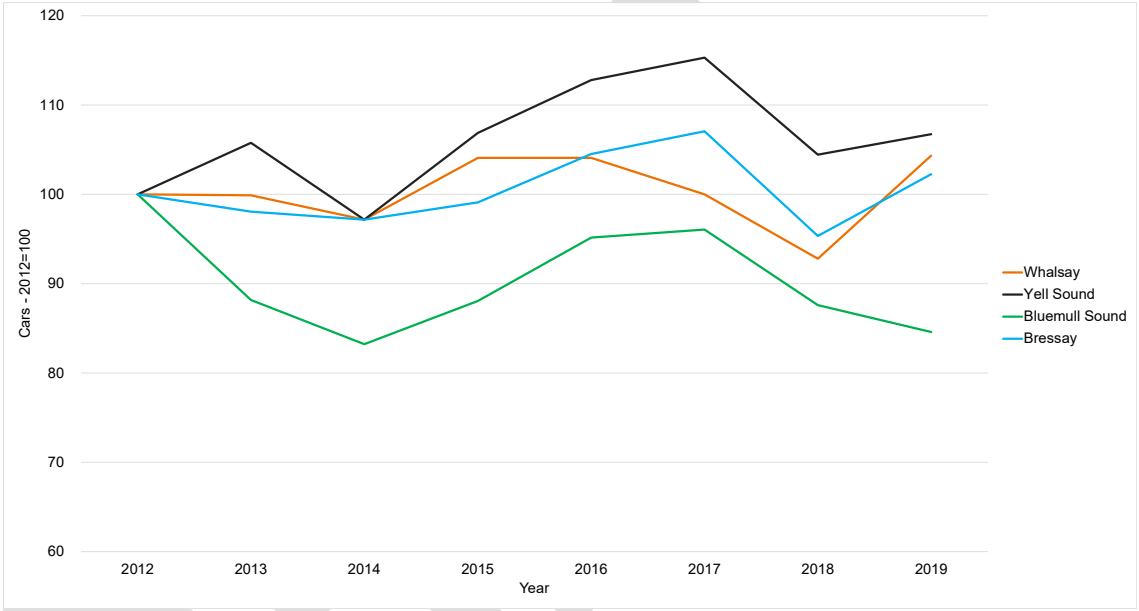


Figure 4.12: Trend in car carryings on selected Ro-Ro routes, 2012=100 (Source: Scottish Transport Statistics Table 9.16, 2020)

4.3.20 The main points from the above Figure 4.12 are as follows:

- Unlike passengers, car carryings have grown on all routes except Bluemull Sound. Whilst the 2013 service reductions led to carryings on all routes falling below their 2012 level, only Bluemull Sound has failed to recover from this.
- Yell Sound has grown particularly strongly and was 7% above its 2012 level in 2019.
- The reduction in passenger numbers and increase in car carryings means that more passengers are now travelling in a car than did so in 2012.

Key Point: Unlike passenger carryings, car carryings have grown on the main Ro-Ro routes between 2012-19 (with the exception of Bluemull Sound). This means that more passengers are now travelling in a car than did so in 2012, which is against the direction of current policy.

Carryings – Islands of Small Population

4.3.21 The 2019 passenger and vehicle carryings on routes to the islands of small population are shown in Table 4.4 below:

Table 4.4: 2019 passenger and car carryings on islands of small population routes (Source: Scottish Transport Statistics Table 9.16, 2020)

	Passengers	Cars
Fair Isle – Grutness / Lerwick	500	100
Foula - Walls[96]	85	12
Papa Stour – West Burrafirth	3,000	1,200
Skerries – Vidlin / Lerwick	4,200	1,800

4.3.22 The main points of note from the above Table 4.4 are as follows:

- Passenger and car carryings on these routes are far lower than the short and high frequency Ro-Ro routes. The ferry service for these islands is predominantly (although not exclusively) focused on delivering essential travel needs and facilitating the island supply-chain. Indeed, the Fair Isle, Foula and Papa Stour routes are limited to 12 passengers on any sailing.
- On the Fair Isle and Foula routes, the vessels are restricted to carrying 1-2 cars, which must be craned on, and thus there is a firm cap on capacity.
- There is next to no conventional commercial traffic to these islands. Indeed, in Fair Isle and Foula, all commercial traffic is loose freight craned onto the vessel.

Key Point: The carryings profile of the 'islands of small population' routes differs significantly from the short and high-volume Ro-Ro routes. The role of the ferry service is to meet essential travel and supply-chain needs rather than regular 'travel' needs.

Vehicle Deck Capacity – High Frequency Ro-Ro Routes

4.3.23 As previously noted, the Shetland model of short high-frequency Ro-Ro routes means that Shetland mainland ferry terminals, with the exception of the Bressay – Lerwick route, are often in remote locations and distant from Lerwick. With limited bus connections (see Chapter 3), car is the dominant mode of onward travel for ferry users. Moreover, given the cost of travel by ferry, many island residents will take a car on the ferry so that they can maximise the amount of business they can do in Lerwick in one day and also bring goods back with them to their home island. Similarly, with limited on-island public transport connections, most visitors arrive by car and almost all freight moves by road. These factors make the availability of vehicle deck capacity on the high frequency Ro-Ro routes essential.

4.3.24 Two specific points should be noted in relation to capacity:

- There is no *systematic* recording of short-shipped traffic (vehicles which presented for carriage but could not get on the ferry) or latent demand (those who tried and failed to get a booking), although some informal recording takes place.

[96] Carryings figures provided directly by operator BK Marine.

- The stated vehicle carrying capacity of most of the Shetland vessels is greater than what they can now actually carry due to the increase in the average size of cars over time, particularly in Shetland where pick-up type vehicles are more prevalent than elsewhere in Scotland.

Weekdays

4.3.25 The SIITS study found that there is plentiful capacity across the day on all routes to move all traffic required. However, the Shetland network is more commuter orientated than most others in Scotland thus demand tends to be clustered around certain peak sailings. The point at which a sailing is defined as 'high utilisation' is where the vehicle-deck is more than 85% full – in such circumstances, it may not be possible to accommodate additional vehicles depending on the size of vehicles carried and their layout on the deck.

4.3.26 The SIITS study provides in-depth route-by-route capacity analysis, but there is contextual benefit here in terms of identifying the 'top 3' sailings by utilisation on each route and in each direction, which are summarised in Table 4.5 below:

Table 4.5: 'Top 3' sailings by weekday vehicle deck utilisation on selected Ro-Ro routes (Source: SIC Ferries 2019 Logbooks)

Direction	Departure Time	No. sailings >85%	% sailings > 85%	Direction	Departure Time	No. sailings >85%	% sailings > 85%
Bressay							
Bressay - Lerwick	10:30	45	18%	Lerwick - Bressay	17:15	57	22%
	08:30	34	13%		15:30	16	6%
	15:00	18	7%		10:00	8	3%
Bluemull Sound (Unst to Yell)							
Belmont - Gutcher	08:25	188	73%	Gutcher - Belmont	11:50	65	25%
	13:45	97	38%		09:35	63	32%
	16:00	82	41%		08:40	51	20%
Whalsay (Symbister-Laxo)							
Symbister - Laxo	09:15	176	74%	Laxo - Symbister	16:15	160	67%
	10:30	154	66%		17:55	159	66%
	07:50	131	56%		17:00	141	59%
Yell Sound							
Ulsta - Toft	16:00	248	17%	Toft - Ulsta	10:45	198	34%
	09:15	255	14%		09:15	248	22%
	07:45	247	14%		16:30	245	22%

4.3.27 The following points should be noted from the above Table 4.5:

- The Bressay route is the least capacity constrained of the main Ro-Ro routes, which is a consequence of its comparatively smaller population and larger vessel (19 passenger car units) and the fact that most journeys will be to Lerwick where people can reasonably travel as a foot passenger. Nonetheless, the tidal nature of traffic on the route is evident, with 13% of 08:30 sailings from Bressay being categorised as high utilisation and 22% of 17:15 sailings in the opposite direction being likewise classified.
- The Symbister – Laxo route demonstrates the most significant weekday capacity pressures, which are clearly associated with commuting patterns. This issue was

considered in significantly more depth in the Whalsay OBC, which confirmed the extent of the capacity problem.

- The Gutcher – Belmont route also has several high utilisation sailings, but these are more evenly spread across the day. There are different reasons for high utilisation on different sailings including: high commuter volumes (e.g, 08:25 Belmont - Gutcher); routing via Hamars Ness (e.g., 16:00 Belmont - Gutcher); or use of MV *Geira*, the smaller of the two vessels (e.g., 08:40 Gutcher – Belmont).
- The Yell Sound route has fewer high utilisation sailings than neighbouring Bluemull and Whalsay as a result of having the two largest vessels in the fleet and the highest number of connections. However, there are evidently capacity pressures on certain sailings and it is understood that aquaculture related CV traffic on the route can regularly lead to certain sailings being full to capacity.
- Note that these utilisation figures include refit periods where smaller vessels are sometimes employed on the route. For example, on the Bressay route, MV *Leirna* is replaced by the much smaller MV *Fivla* in June.

Key Point: Overall, it is evident that each of the high-volume Shetland Ro-Ro routes does suffer from capacity challenges at certain points of the day. The Whalsay and Bluemull Sound routes are particularly affected. Much of this is driven by commuting volumes, but it also reflects the concentration of economic activity in Lerwick, meaning island residents must travel for most employment, personal business, retail and leisure opportunities. There is also a high-volume of aquaculture and fishing related freight traffic travelling from Yell.

Weekends

4.3.28 Equivalent analysis for weekend sailings highlights a similar pattern, with mid-morning sailings from the island and late afternoon sailings back to the island typically being the most pressured. The problem is again most acute on the Whalsay route. The weekend capacity challenges are however largely a product of the 2013 service reductions, with the Bluemull Sound, Whalsay and Yell Sound routes being reduced to a single vessel service.

Vehicle-Deck Capacity – Islands of Small Population

4.3.29 Vehicle-deck capacity on the 'islands of small population' routes is not a problem in the same way that it is on the higher volume routes. The capacity challenges relate more to:

- On the Fair Isle, Foula and Papa Stour routes, the passenger certificate of the vessels limits them to 12 passengers each. This is almost always sufficient, but there are occasions particularly in the summer months on the Papa Stour route where that limit is reached and the next sailing may not be for several days. Note, however, that these low capacities could impose a constraint on tourism growth.
- The Fair Isle and Foula vessels both have restrictive deadweight limitations and thus can only carry a certain volume of freight. Moreover, the lifting capacity of the vessel-based cranes imposes a limitation on the weight of goods which can be accommodated.
- The Fair Isle and Foula vessels are also limited to carrying 1-2 cars and cannot accommodate heavy plant, meaning charter vessels are required to bring such equipment to these islands.

Key Point: The capacity challenges on the 'islands of small population' routes are different to those on the main Ro-Ro routes. Limitations in terms of passenger numbers, deadweight and crane capacity limit the number of people and the volume and size of goods that can be carried. With long gaps – sometimes several days – between sailings, these limitations can act as a constraint on island life.

Reliability

4.3.30 Reliability statistics for the Shetland internal ferry services are not systematically recorded and reported in the public domain, rather they are built-up from individual logbook records. Key points in relation to reliability drawn from the SIITS study are as follows:

- The network of short Ro-Ro routes in Shetland was established to minimise sea time and thus most routes are short and in relatively sheltered waters. The one major exception to this is Whalsay, where the Laxo – Symbister route is exposed to south-easterly winds, which can lead to the cancellation of sailings. To mitigate against this, a diversionary port is maintained at Vidlin, which allows the service to reroute if the Laxo crossing is stormbound.
- In contrast, the Fair Isle and Foula routes involve crossing large expanses of open water in vessels less than 24m length overall. The Fair Isle route in particular involves crossing the 'Roost', one of the most challenging stretches of water in Europe where the North Sea and Atlantic Ocean converge. Whilst the Fair Isle and Foula routes nominally run to a timetable, there is considerable operational flexibility to vary this timetable to work within weather windows. As both the MV *Good Shepherd IV* (Fair Isle) and MV *New Advance* (Foula) are crewed from the respective islands, there is flexibility to operate services earlier or later on the same day or on different days in accordance with the weather.
- The Skerries route is also highly exposed, particularly when making the long crossing to Lerwick. This route is operated by the more modern vessel MV *Filla* and is thus less prone to disruption than the Fair Isle and Foula services. However, unlike Fair Isle and Foula, the vessel is not crewed from Skerries, rather it lies overnight in Symbister and is crewed from Whalsay. The Skerries community does not therefore benefit from the operational flexibility to respond to weather windows – it is a key aspiration of island residents for the ferry to be based in the island.

4.3.31 The Shetland fleet is maintained to a very high standard and mechanical breakdowns are generally uncommon. Where this does occur, the spare vessel MV *Fivla* can be brought into service to provide resilience. Annual planned maintenance periods reduce route capacity but such maintenance is generally undertaken at off peak times.

Key Point: The design of the Shetland network means that the main routes are, on the whole, highly reliable, with short, sheltered crossings. The one exception to this is the Laxo – Symbister (Whalsay) route, but there is a workaround for that with the Vidlin diversion. Fair Isle, Foula and, to a lesser degree, Skerries suffer more from weather-related reliability issues. However, the presence of an island-based crew on Fair Isle and Foula provides significant timetable flexibility, ensuring that the services can be responsive to weather windows.

4.4 Intra-Island, Shetland Mainland and Lerwick

4.4.1 This final section considers active travel, bus and road travel within the isles, Shetland mainland and Lerwick.

Active Travel

4.4.2 According to the Scottish Household Survey, walking was the main mode of travel for 19% of journeys in Shetland in 2019 and cycling was the main mode for 1% of journeys. This compares to 22% and 1% respectively for Scotland as a whole. Given the geography, topography and infrastructure in Shetland, it is highly likely that the majority of active travel trips are in Lerwick, with people walking from their home to employment and amenities in the town centre.

4.4.3 The results of the Internal Transport Survey undertaken to inform this stage of the RTS replicate this pattern, as is shown in Figure 4.13 below:

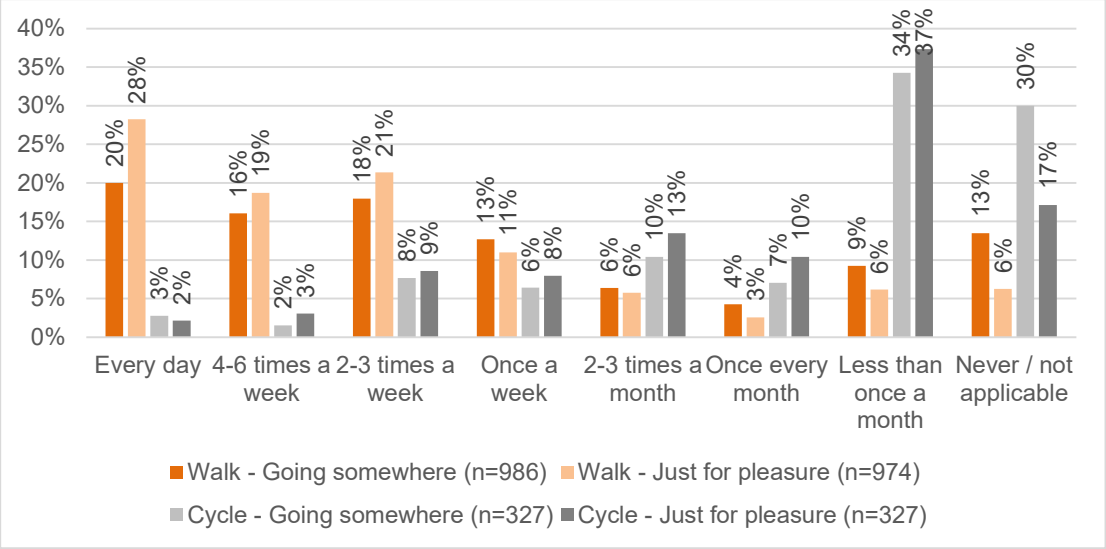


Figure 4.13: Internal Transport Survey: Levels of walking and cycling

4.4.4 The survey results broadly align with the SHS data and suggest that walking is a common mode of travel, both for leisure and for specific purposes. Walking and cycling rates are however higher for leisure-based activities / keep fit as opposed to for the purpose of going somewhere e.g., employment, shopping, or visiting friends.

Key Point: Whilst there is relatively high active travel participation in Shetland compared to the national average, the geography, topography and infrastructure in the isles means that much of this is likely to be intra-Lerwick. The internal survey suggests that walking and cycling for leisure are more common than for a specific purpose.

Bus

4.4.5 Figure 4.14 below shows total bus patronage split by passenger type from financial year 2015/16 (FY15/16) to FY20/21. Note that the figures for FY19/20 will be slightly depressed by the onset of the COVID-19 pandemic – bus passenger levels across Scotland began declining in early to mid-March (the last month of the financial year); dropped steeply following the first 'work from home' announcement on 16th March 2020; and fell further again when the first national lockdown commenced on 23rd March 2020.

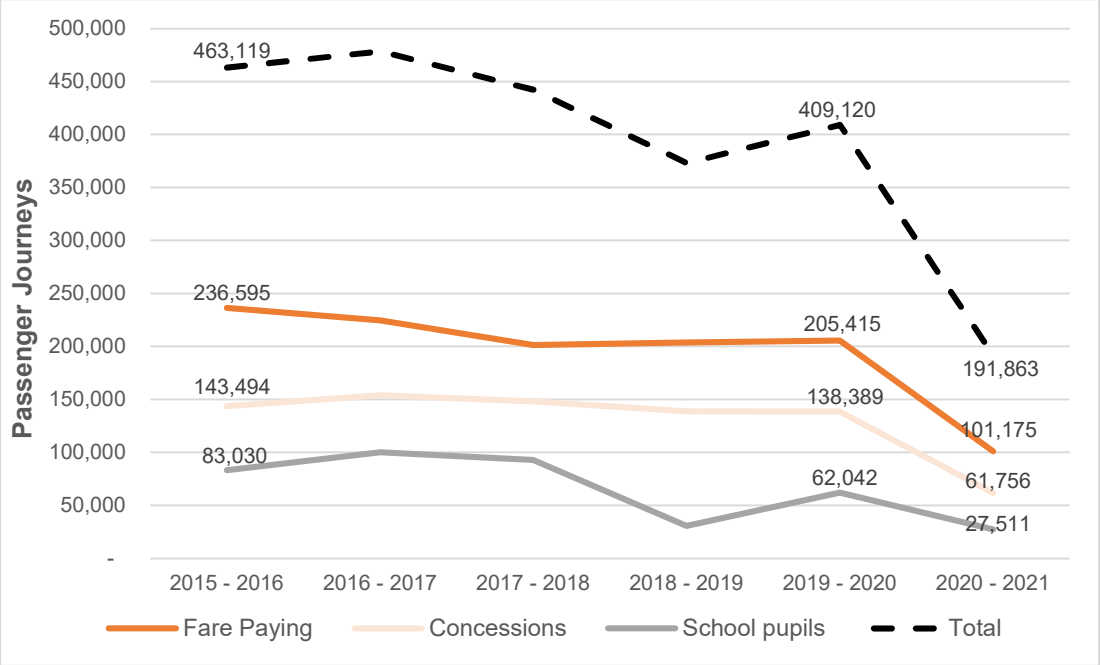


Figure 4.14: Bus Patronage 2015/16-2020/21 (Source: Shetland Islands Council)

4.4.6 The main points from the above Figure 4.14 are as follows:

- There was a gradual decline in bus patronage overall and for each passenger type between FY2015/16 and FY2019/20. Perhaps most importantly, fare paying passengers reduced by almost 12% over this period – as all services are funded by the Council, subsidy per passenger and hence overall will have increased.
- Concessionary passengers have remained broadly steady, with funding for these passengers met by the Scottish Government. The number of concessionary passengers will increase from 31st January 2022 due to the introduction of free travel for under 22s. This has the potential to particularly impact some services. For example, it is anticipated that there will be an increase in the number of children using the service 6 to Anderson High School as those who currently are not entitled to school transport switch to using the service.
- School passengers have reduced quite significantly in number. This in part reflects a change in provision with children transferred from the public bus to dedicated school transport. This occurred in 2018/19 because of capacity constraints on some services and during 2020/21due to the need to socially distance. It is likely therefore that numbers will slightly rebound in the future albeit there will be ongoing year on year fluctuations.
- As with bus services across Scotland, the COVID-19 pandemic led to a major reduction in patronage, a reduction of 53.1% between FY19/20 and FY20/21.

Key Point: Bus patronage in Shetland has been in decline in recent years. Of particular importance has been a reduction of circa 12% in fare paying passengers between FY15/16 and FY19/20, increasing the subsidy per passenger and thus the overall cost to the Council.

4.4.7 In 2019/20, five routes accounted for over 70% of total passenger carryings, as can be seen in Table 4.6 below:

Table 4.6: Bus Services with the highest patronage in 2019/20 (Source: Shetland Islands Council)

Service	Route	Number of Passengers 2019/20	Proportion of total passengers in 2019/20
6	Lerwick to Sumburgh	99,145	24%
4	Lerwick to Scalloway	64,301	16%
1	Lerwick Town Service	60,999	15%
23	Lerwick to Toft / Mossbank	42,982	11%
9	Lerwick to Walls	26,997	7%
	Total	**292,424**	**73%**

4.4.8 The main points from the above Table 4.6 are as follows:

- The airport service (No. 6) accounts for almost a quarter of all bus passengers in Shetland. As well as serving the airport, this bus also provides connectivity for several of the larger communities in the south of Shetland. Its seven-day operation and relatively high frequency make it as close to a Central Belt inter-urban bus service as exists in Shetland.
- A further 31% of patronage is concentrated in the Lerwick – Scalloway corridor (16% Lerwick – Scalloway and 15% Lerwick Town Service).
- With 55% of passengers shared between three routes, patronage on the remaining routes in Shetland is very thin, highlighting the financial pressure on the public sector associated with operating bus services in Shetland.

Key Point: 73% of all bus passengers in Shetland are carried on six routes, with three routes accounting for over half of all passengers. Patronage on remaining routes is thin, highlighting the commercial and financial challenges with operating bus services in Shetland and limited options available to passengers.

Road

Vehicle Kilometres

4.4.9 Figure 4.15 below shows total traffic on all roads in the Shetland Islands Council area between 2009 and 2019.

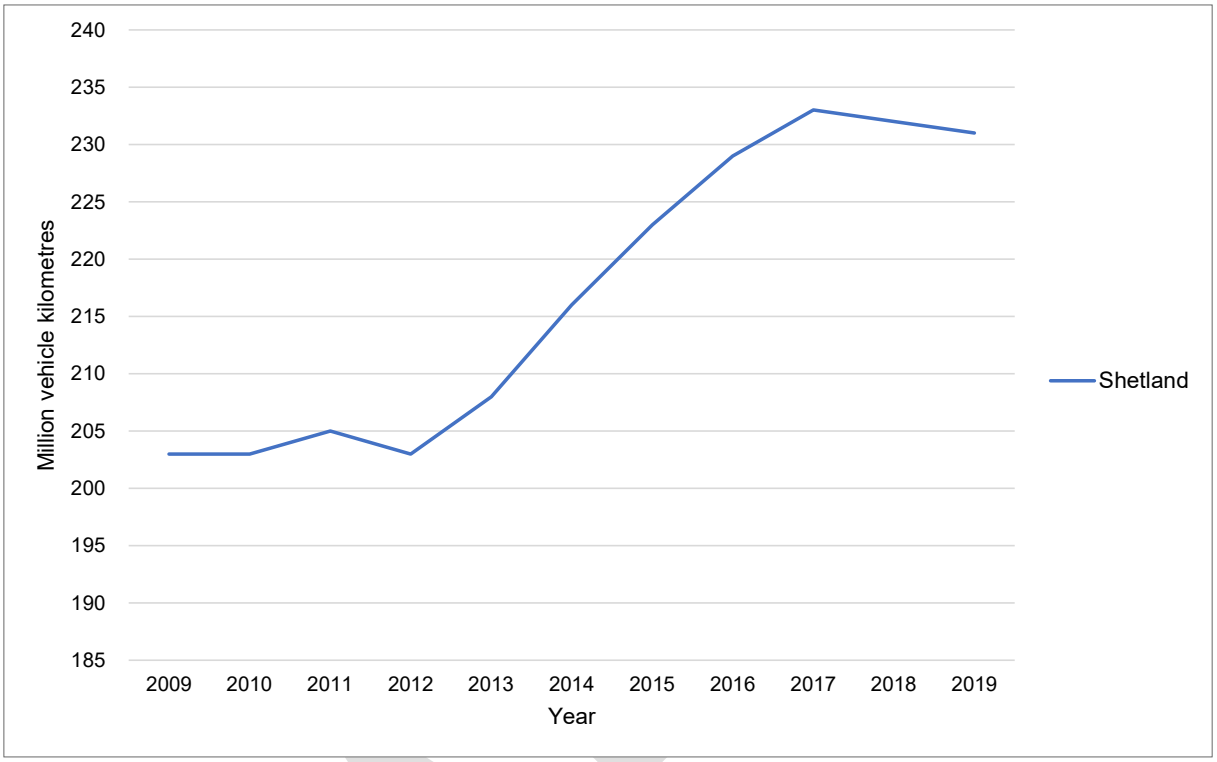


Figure 4.15: Traffic on all roads in Shetland 2010-2019 (Source: Scottish Transport Statistics 2020, Table 5.5)

4.4.10 Total vehicle kilometres (vkm) in Shetland have increased significantly between 2009 and 2019. Most of this growth occurred between 2012 and 2017, which broadly coincides with the construction of the Shetland Gas Plant at Sullom Voe. However, whilst vehicle kilometres reduced marginally following the completion of that project, they remain 28m vkm per annum above their 2009 level.

4.4.11 For context, Figure 4.16 below compares the Shetland and Scotland average trends in vkms, indexed to 2009:

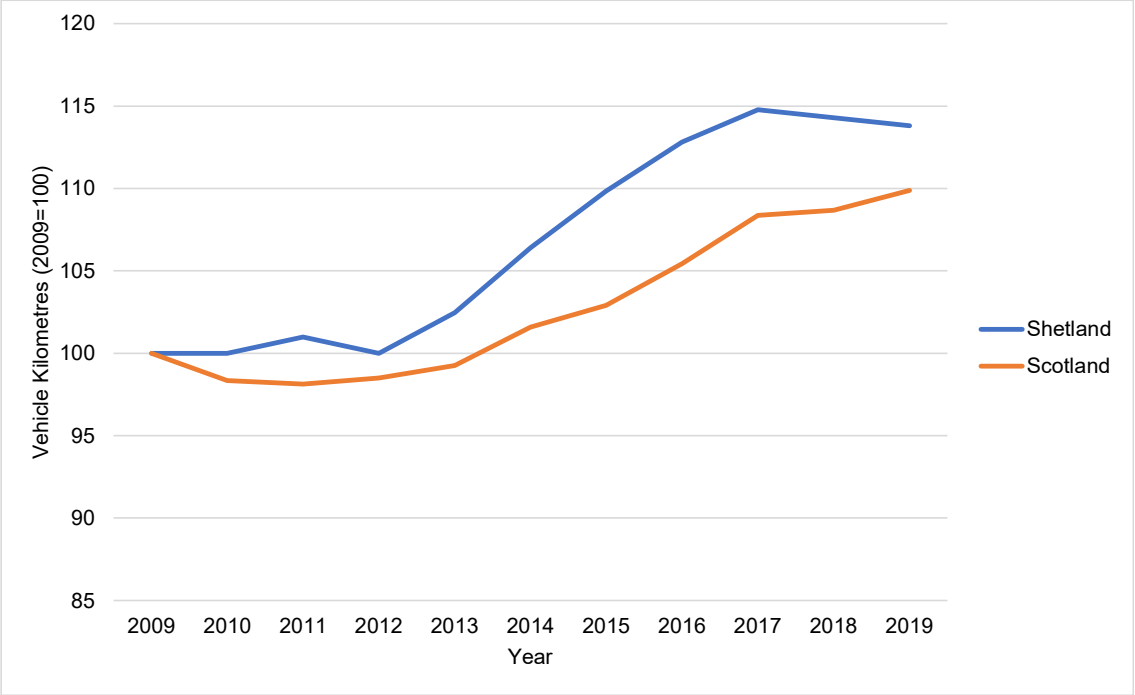


Figure 4.16: Index of traffic on all roads in Shetland and Scotland 2009-2019, 2009=100 (Source: Scottish Transport Statistics 2020, Table 5.5)

4.4.12 Vkms growth in Shetland has outpaced that of Scotland overall between 2009-19. Total vkms in Shetland are 14% higher in Shetland in 2019 compared to 2009, which contrasts with 10% for Scotland overall.

Key Point: Total vehicle kilometres in Shetland grew strongly between 2012 and 2017, likely driven in part by the construction of the new gas plant at Sullom Voe. In addition, vehicle kilometre growth in Shetland also outstripped the Scotland average over the same period (14% growth compared to 10%). This highlights the challenge facing Shetland in delivering the Scottish Government requirement to reduce vkms by 20% by 2030.

Accidents

4.4.13 Data from www.crashmap.co.uk highlighted that there were 225 road accidents in Shetland between 2010 and 2020, of which:

- 10 were fatal;
- 38 were serious; and
- 192 were slight.

4.4.14 Overall, this appears to be a relatively high level of accidents for a comparatively small population.

4.5 Travel-to-Work

4.5.1 The 2011 Census travel-to-work (TTW) data provides an indication of the main mode of TTW for the 30 datazones in Shetland. Whilst these data are now over 10-years old and home working will have increased significantly, they nonetheless provide a valuable snapshot of travel-to-work behaviour in Shetland.

4.5.2 Figure 4.17, Figure 4.18 and Figure 4.19 which follow are based on the workplace destination and show the percentage mode share for car, bus and active travel as a proportion of all land-based transport mode trips to the zone.

Car

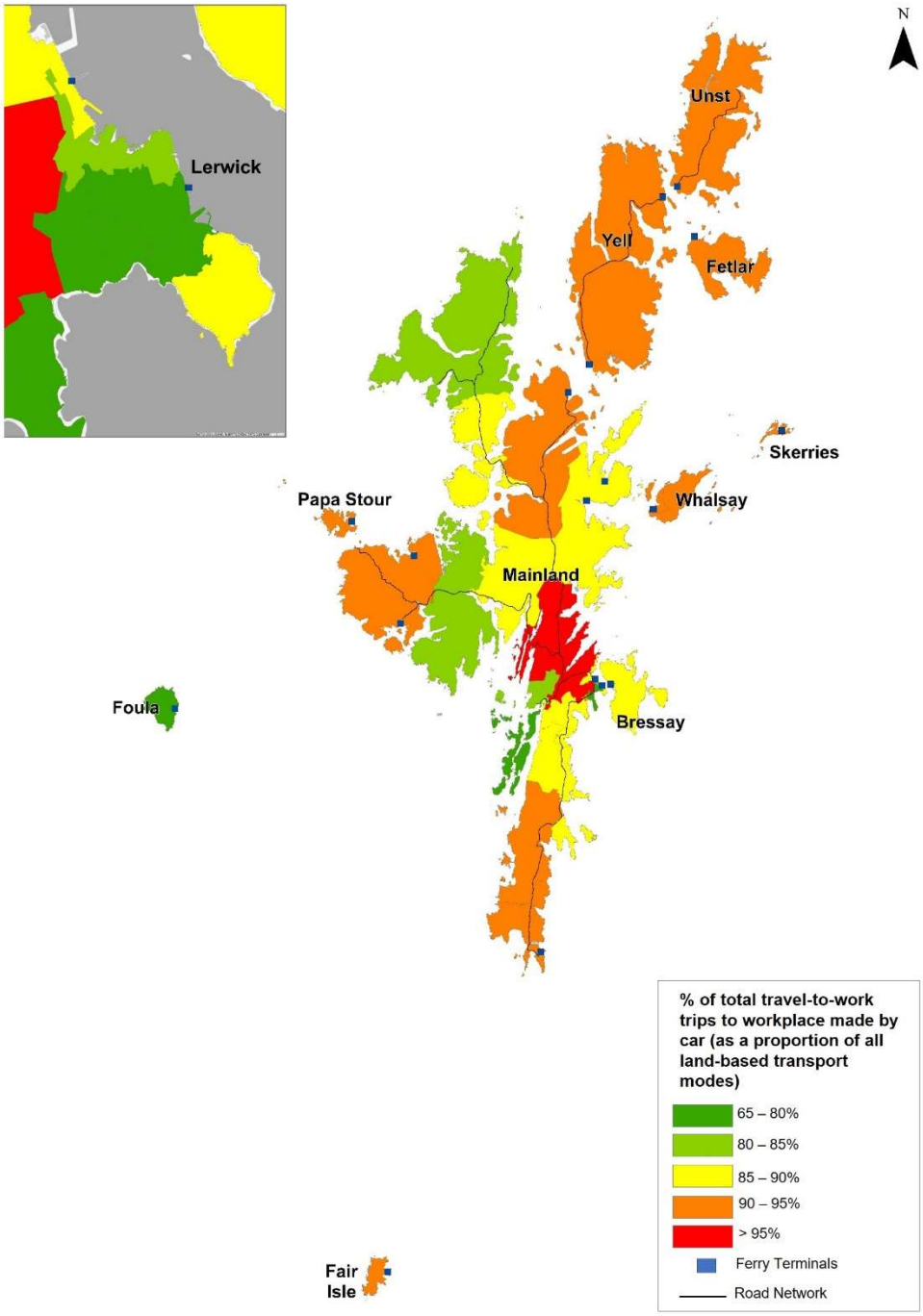


Figure 4.17: % of total travel-to-work trips to workplace made by car (as a proportion of all land-based transport modes) (Census 2011)[97]

[97] Percentages have been calculated using the total number of trips to workplace by car, bus, walking and cycling. It does not include trips undertaken by "other" modes (e.g., ferry and air) or working from home.

BUS

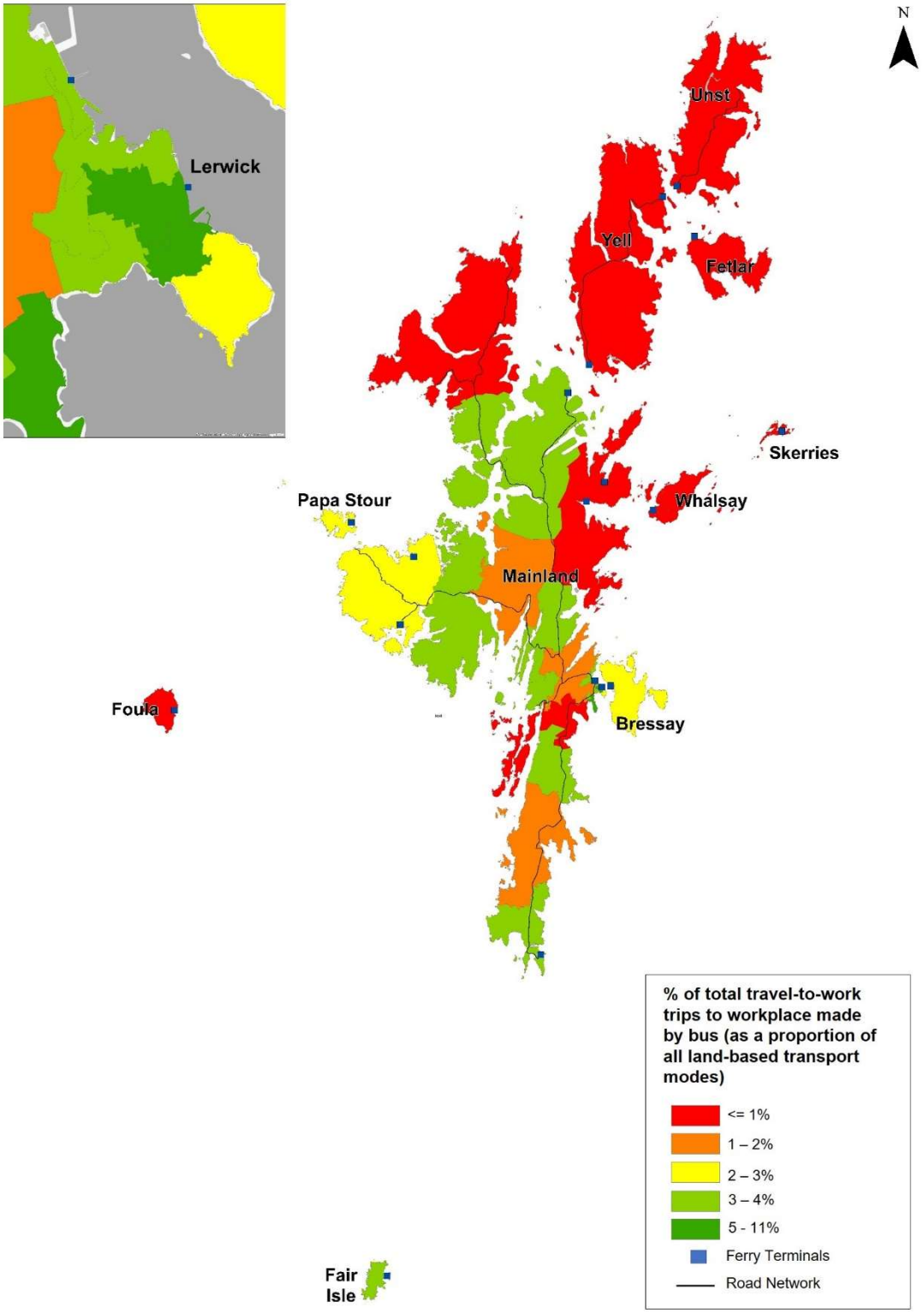


Figure 4.18: % of total travel-to-work trips to workplace made by bus (as a proportion of all land-based transport modes) (Census 2011)

Active Travel

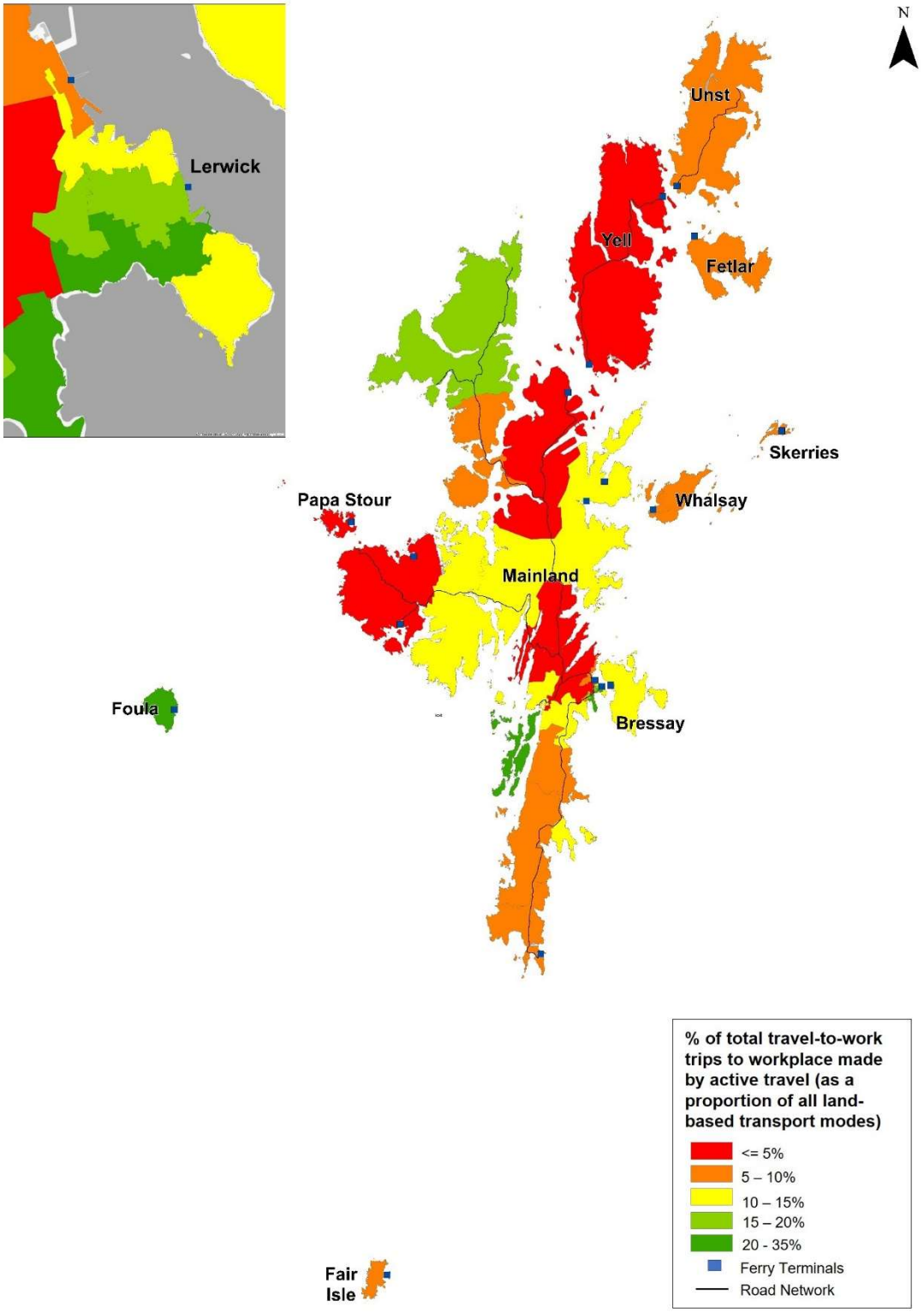


Figure 4.19: % of total travel-to-work trips to workplace made by active travel (as a proportion of all land-based transport modes) (Census 2011)

Key Point: The above Figure 4.17, Figure 4.18 and Figure 4.19 highlight the dominance of the private car as the main mode of travel-to-work in Shetland, particularly outwith Lerwick.

4.6 Next Steps

4.6.1 Having profiled the society and economy of Shetland and the transport supply and demand sides, the final baselining section sets out the potential future context within which this RTS will be developed.

5 Future Planning Horizon

5.1 Overview

5.1.1 The transport baseline established in the previous two chapters in many respects reflects a pattern of travel behaviour in Shetland that has been dominant since the late 1970s. The last five decades have seen increasing centralisation of employment and services in Lerwick, the growth in car ownership and the establishment of strong commuting flows from across Shetland, including the isles. The only exceptions to this are the smaller islands such as Fair Isle and Foula, which continue to be served largely as they have always been. The response to the growth and cementation on these travel behaviours has generally been based on 'predict and provide' adding additional capacity where problems began to emerge, the introduction of the new Yell Sound ferries in 2004 for example.

5.1.2 However, a combination of policy evolution in the face of the climate emergency, technological advances and, more recently, the COVID-19 pandemic, has led to a fundamental rethink on future mobility and travel behaviour. This Strategy covers the period 2022-2042, over which time the full impact of COVID-19 behavioural change will be realised, the registration of new petrol and diesel vehicles will be banned, and mobility will continue to respond to technological change. It is therefore important to set out these future challenges and, through the Strategy, consider how ZetTrans will respond to them.

5.1.3 Three factors have been identified which need to be taken into consideration:

- **Land Use Planning:** transport demand is closely related to land-use and it is important to consider the wider planning context and the extent of development planned within Shetland over the horizon covered by the RTS.
- **Transport Innovation**: new technologies are offering the potential to disrupt the traditional transport systems by providing new ways of accessing and operating transport networks and services.
- **Travel Behaviour Change:** the COVID-19 pandemic has accelerated a number of already established long-term trends in travel behaviour which will have repercussions for how and when people want to travel.

5.1.4 These three components of potential future change are explored in detail in the remainder of this chapter.

5.2 Land-Use Planning and Economic Development

5.2.1 Chapter 2 set out in some detail the economic challenges facing Shetland – to summarise, these include:

- a **forecast population decline of 2%-4%** of the population by 2038;
- a general **aging of the population**; and
- a **tight labour market**, whereby there are insufficient island residents to fill the jobs on offer, which acts as a **drag on productivity**.

5.2.2 The Council and its partners such as HIE are responding to these challenges through land-use and economic development planning, which is intended to encourage people to live and work in Shetland. This section summarises some of the main developments which will take place over the new RTS horizon.

5.2.3 There are three tiers to land-use planning in Scotland. At the strategic level, the Scottish Government defines a National Planning Framework, which guides the type and location of

strategic developments in support of national policy. At the regional level, there is the indicative Regional Spatial Strategy and a Shetland Local Development Plan, which shapes the pattern of resident, commercial and infrastructure development in Shetland.

National Planning Framework 4

5.2.4 The Scottish Government is currently consulting on its new Draft National Planning Framework 4 (NPF4), which sets out proposed priorities and policies for the planning system up to 2045. The document aims to support the Scottish Government's commitment to deliver net zero greenhouse gas emissions by 2045 and sets out a Spatial Strategy focused around the development of sustainable, liveable, productive, and distinctive places.

Strategic Developments

5.2.5 Five geographic action areas are identified with Shetland included in the 'North and west coastal innovation' area for which the following actions are identified:

- create carbon-neutral coastal and island communities
- support the blue and wellbeing economies
- protect and enhance blue and green infrastructure
- strengthen resilience and decarbonise connectivity

5.2.6 The document also sets out priorities for different areas of Scotland as well as a series of nationally important developments to support the delivery of the Spatial Strategy. Those with particular relevance for Shetland include:

- Development of **'20-minute neighbourhoods'**, a concept based on living locally giving people the ability to meet most of their daily needs within a 20-minute walk from home, with safe cycling and local public transport options. In terms of equalities, this has the potential to provide benefits for some protected characteristic groups, including those with socio-economic disadvantage and young people. The draft NPF4 acknowledges that a bespoke and flexible approach to this concept will be required in islands, for example by identifying service hubs in key locations with good public transport connections. However, the important point here is that the concept is focused on **reducing the need to travel**.
- The proposal to develop an **'Island Hub for Net Zero'**. This concept supports proposed developments in the Western Isles, Shetland and Orkney for renewable energy production, renewable hydrogen production, infrastructure and shipping, and associated opportunities in the supply-chain for fabrication, research, and development. This presents an opportunity for the decarbonisation of transport in Shetland.
- Investment and further **development of sea ports** in Shetland, with **Dales Voe (Lerwick), Cullivoe (Yell)** identified as strategic sites where new infrastructure and repurposing of land will help to shift industrial activity towards supporting the offshore renewables sector.
- Realisation of the **Shetland Space Innovation Campus** in Unst.
- Continued development of the **aquaculture sector**, which is of integral importance to the Shetland economy, as detailed in Chapter 2.
- Targeted investment in **tourism infrastructure**, a target growth sector for Shetland with visitor spend having increased from £23m per annum in 2017 to £36m per annum in 2019[98].
- Delivery of a **net zero islands air network**, **decarbonised ferry services and consideration of the potential role of fixed links**.

[98] Visit Scotland 2019 Visitor Survey.

- Consideration of the Northern Isles (Orkney and Shetland) as a hub for **future shipping using long-distance trade routes**.
- Improved **physical and digital infrastructure, including broadband, EV charging infrastructure and new active travel routes**.[99]

5.2.7 The transport sector will play an important role in facilitating these aspirations.

Key Point: From a Shetland perspective, the main thrust of the Draft NPF4 is on taking measures to achieve net zero, whilst supporting the socio-economic development of the islands. Central to this is a desire to reduce travel through the development of '20-minute neighbourhoods', acknowledging that a bespoke approach to this will be required in Shetland. Where a journey does have to be made, NPF4 is clearly highlighting that the journey should be made sustainably, with aspirations for improved EV infrastructure, investment in active travel and decarbonisation of the air and ferry fleet.

Residential Development

5.2.8 Annex B of the NPF4 Consultation Draft sets out the 10 year Minimum All Tenure Housing Land Requirement (MATHLR) for each local authority in Scotland. The housing targets (known as the Housing Land Requirement) in the Local Development Plan (LDP) should at least meet this 10-year MATHLR. Table 5.1 below shows the MATHLR for Shetland as well as the percentage increase on the existing housing stock that these housing allocations represent.

Table 5.1: Proposed 10 year Minimum All Tenure Housing Land Requirement for Shetland (Source: Draft NPF4)

Area	Proposed MATHLR	Total Dwellings 2020[100]	% of total dwellings
Shetland	850	11,374	7%

5.2.9 The proposed MATHLR implies a significant increase in the housing stock in Shetland over the next decade, which will be an important contributor to supporting the retention and growth of the population.

Shetland Local Development Plan

5.2.10 Shetland's current LDP was adopted in 2014 and the Council is currently preparing its LDP2 which will reflect the policies and principles set out in NPF4. To inform the development of LDP2, the Council conducted a Call for Sites in the summer of 2019. A Call for Sites is a process through which developers and landowners submit development sites which they believe are suitable for inclusion in the LDP2. While proposals for sites across Shetland were welcome, the Council specifically identified areas of land described as 'Preferred Areas for Growth' (PAFG). These PAFG were located in 21 settlements across Shetland. These settlements were selected because they predominantly have:

- a higher demand for housing
- community facilities in close proximity

[99] Draft National Planning Framework 4 (Scottish Government, 2021), pp. 12-18.

[100] https://statistics.gov.scot/slice?dataset=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fhousehold-estimates&http%3A%2F%2Fpurl.org%2Flinked-data%2Fsdmx%2F2009%2Fdimension%23refPeriod=http%3A%2F%2Freference.data.gov.uk%2Fid%2Fyear%2F2020&http%3A%2F%2Fstatistics.gov.scot%2Fdef%2Fdimension%2Findicator%28dwellings%29=http%3A%2F%2Fstatistics.gov.scot%2Fdef%2Fconcept%2Findicator-dwellings%2Ftotal-dwellings

- a higher number of houses built in the last 15 years and a denser settlement pattern compared to other locations

5.2.11 The PAFG are set out in Table 5.2 below. Through the RTS, there is an opportunity to ensure that sustainable transport options are incorporated within new well-placed developments.

Table 5.2: Settlements containing the 'Preferred Areas for Growth'

Area	Settlements
South Mainland	Toab, Dunrossness, Bigton, Levenwick, Sandwick, Cunningsburgh, Gulberwick
Lerwick & Bressay	Lerwick
Central Mainland	Scalloway, Hamnavoe, Tingwall, Gott, Whiteness, Weisdale
West Mainland	Bixter, Aith, Walls
North Mainland	Voe, Brae, Mossbank, Hillswick

5.2.12 In addition to general residential and commercial development:

- The Council has produced a masterplan for the **redevelopment of a site on the Knab Peninsula**, immediately to the south of Lerwick town centre. This site will have the capacity to deliver 120 to 140 new homes, small business and other commercial space. If realised, it will go some way towards meeting the Council's housing requirement, which will be defined in its LDP2. It is supported by the Islands Growth Deal.[101]
- There is also a **masterplan for North Staney Hill**, the large hill overlooking Lerwick from the west, which was adopted as Supplementary Planning Guidance in March 2018. The masterplan incorporates four clusters of housing (350 social housing units in total), a new through road, and open and green space development. As with the Knab site, its realisation would go some way towards meeting the housing requirement which will be expressed through LDP2.[102]
- The Council has also adopted the use of **'Local Place Plans' (LPP)**, a new type of plan which will provide local bodies with an opportunity to formulate proposals for the development and use of land in the place where they live. The first of these LPPs is the pilot Scalloway Local Place Plan. The LPP concept could lead to more local decision making and it is important that the RTS recognises this in the context of local projects such as active travel improvements.
- Following the delivery of the Shetland's Active Travel Strategy (2021-2026), ZetTrans is developing 'walkability' and 'cyclability' settlement audits (including all ability access and placemaking) across Shetland. These will provide plans detailing prioritised active travel interventions.

[101] The Knab, Lerwick – Masterplan Report (Shetland Islands Council, 2019), p. 12.

[102] https://www.hjaltland.org.uk/properties/developments/north-staneyhill

Key Point: The emerging Shetland LDP2 is clustered around existing settlements, building on the concept of local living in the Draft NPF4. This is supplemented by two significant masterplan sites in Lerwick, further concentrating development in the town. This highlights the requirement for strengthening transport provision on existing corridors over the duration of the Strategy period.

5.3 Transport Innovation

5.3.1 There are several **technological developments** in the transport sector which have the potential to fundamentally change how people use transport in their day-to-day activities. There are four main areas of transport innovation that are relevant to the RTS, namely:

- **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 vehicle ownership are replaced.
- **Mobility as a Service (MaaS):** based on buying packages of travel and shared mobility solutions to integrate travel with potential implications for travel behaviours.
- **Automation:** both in terms of public transport (conventional and on-demand) and personal transport.

5.3.2 This section provides an overview of each of the above and considers their potential implications for the ZetTrans RTS.

Alternative Fuels

5.3.3 The transport sector in Scotland is responsible for over 30% of CO_2 emissions, with road transport accounting for the highest proportion of this. In addition to background car traffic in Shetland, there are significant maritime and aviation emissions. The Scottish Government is aiming to phase out the sale of new petrol and diesel cars by 2030. There are also diminishing supplies of available fossil fuels from which petrol and diesel originate. With this in mind, this section provides a brief overview of alternative fuels, including electricity, hydrogen, and biofuels (bioethanol and biodiesel) and their potential application within the transport sector.

Electric Vehicles

5.3.4 Electric Vehicles (EVs) are currently viewed as the future of road transport as there are various models currently on the market and on the road. There are various types of Electric Vehicles (EVs) but they can broadly be split into All-Electric Vehicles (AEV) and Hybrid Electric Vehicles (HEV) which operate in part through another energy supply. Currently, the most common EVs are:

- **Battery Electric Vehicles (BEV):** An AEV which runs on electricity drawn from the electricity grid which is stored in the battery and powers one or more electric motors. Vehicles can be partly charged through regenerative braking (whereas internal combustion engine (ICE) vehicles lose energy when braking).
- **Plug-in Hybrid Electric Vehicles (PHEV):** An HEV which uses batteries to power an electric motor and petroleum or an alternative fuel to power the ICE.

5.3.5 Electric bikes (e-bikes) have also now emerged as a genuine alternative mode to the private car for some journeys. The assistance provided by the battery lets the user cover longer distances making trips that were only viable for seasoned cyclists more accessible to a wide range of people. The availability of adapted cycles for different abilities further opens up the

market. In addition, e-cargo bikes are also becoming a potential option for last-mile freight logistics and deliveries, albeit this is concentrated in urban areas.

5.3.6 There are numerous benefits to EV implementation:

- **Environmental benefits:** Lower levels of noise and air pollution in addition to fuel sources being greener than fossil fuels. They are more efficient vehicles, i.e., electric motors have higher energy efficiency between obtaining energy to when it is exerted via movement. They can also regain kinetic energy through regenerative breaking which does not occur in traditional ICE vehicles. However, the whole life carbon costs of an EV need to be considered in this context.
- **Social benefits:** Less noise and air pollution benefits people's health as well as plant-life and animal habitats.
- **Financial benefits:** lower vehicle excise duty and exemption from some other charges, maintenance costs and running costs (at present).
- **Future benefits:** The cost of car batteries is declining which could facilitate greater adoption of EVs. Technological advancements are positive; thus, it is anticipated that future EVs will have lower climate implications than the ones on the market today.

5.3.7 However, there are still many factors hindering the uptake of EVs. Despite the financial benefits outlined above, the price of an EV still remains high compared to ICE vehicles. This restricts market uptake and introduces an inequality whereby those on lower incomes are either excluded from the market or are disproportionally affected due to a higher proportion of their income being spent on EV ownership. In effect, if investment is not made in sustainable public transport options as well as EV infrastructure, there is a risk that the issues associated with 'forced car ownership' could be exacerbated.

5.3.8 In addition, while EV technology is developing, range anxiety is still prevalent due to battery capabilities and a developing charging infrastructure. This would of course be a lesser issue in Shetland, where its self-contained geography would lend itself to even relatively short-range EVs. However, as explained in Chapter 3, Shetland has relatively few EV chargers, both in absolute terms and per head of the population, meaning that range anxiety does still exist. There is also the potential for reliability issues whereby the grid may fail to deliver the necessary electricity on demand at times of peak usage.

5.3.9 Furthermore, although EVs can be beneficial in some cases for passenger cars and light goods vehicles, they are not suitable across all modes within the sector at present. It should though be noted that a hybrid electric Cessna Skymaster aircraft was trialled in the Orkney Islands in 2021 with a view to the ultimate retrofitting of the Britten-Norman Islander aircraft which deliver the Orkney inter-island air service (and indeed other short-haul aircraft).[103] This shows that there are opportunities for air (and ferry) services around electrification, but the impracticality of electrification for large carriers remains unless there are significant advances in battery technology.

[103] https://www.bbc.co.uk/news/uk-scotland-north-east-orkney-shetland-58177865

Key Point: The mass adoption of EVs appears to be the general direction of policy at present. Shetland, with its self-contained geography, is in many respects well-suited to EV adoption, although the charging infrastructure in the islands remains very limited, and there may be implications for the local electricity grid. Pure electric technology may though be less applicable for ferries and aircraft, particularly on the high-frequency short Ro-Ro routes on the Shetland internal network.

Hydrogen

5.3.10 Hydrogen can be used to power fuel cells in vehicles. These produce electricity through a chemical reaction between oxygen and hydrogen. The oxygen comes from the ambient air and the hydrogen comes from high pressure tanks within the vehicle which can be refilled at hydrogen fuel stations in much the same way as petrol and diesel. The electricity generated in the fuel cell is used to either power the vehicle directly or charge a battery which stores the energy until it is needed. The only result of this reaction is energy and water. There are no emissions. Fuel cells are also compact which make them ideal for portable application within road vehicles and they are already commercially available in some hydrogen powered vehicles.

5.3.11 However, due to a current lack of hydrogen refuelling infrastructure, they are not viewed as competitive compared to ICE vehicles or EVs until production and distribution infrastructure is commercially available.

5.3.12 Conversely, there is scope for hydrogen to be used within heavier vehicles (including buses at present) shipping and aviation as it can fuel longer distances and / or facilitate higher load capacities. Hydrogen fuel cells are already used in demonstration projects for trucks, trains, and commercial forklifts. Indeed, the European Union funded HySeas III project is the final stage in a three part research programme which is testing the integration of hydrogen fuel cells within a proven marine hybrid electric drive system. It is also being piloted in the neighbouring Orkney Islands on the Council owned MV *Shapinsay*, which runs the Kirkwall – Shapinsay route.

5.3.13 It should be noted that the ongoing 'Opportunity for Renewable Integration with Offshore Networks' (Project ORION) is underway in Shetland with the aim of:

- producing local wind-powered green hydrogen in Shetland by 2025;
- reducing emissions, targeting net-zero by 2030;
- creating and sustaining up to 500 net-zero jobs by 2030; and
- creating a buoyant and diverse economy for Shetland by 2035.[104]

5.3.14 In keeping with its energy-related past, Shetland has an opportunity to be leader in the field of local hydrogen production.

Key point: Hydrogen could be another potential transport energy source for Shetland in the future. Whilst there is little in the way of hydrogen refuelling infrastructure in Shetland at present, Project ORION aims to ensure that Shetland has a prominent role in producing wind powered green hydrogen by the middle of this decade. Whilst mass use in cars may be a more distant prospect, there are potentially shorter-term opportunities in terms of greening the Council's ferry fleet.

Biofuels

5.3.15 Biofuels are produced from renewable organic materials and have recently been used as alternative fuels for cars. There are two main types:

[104] https://www.orioncleanenergy.com/

- **Bioethanol:** This is made from corn and sugarcane which forms an alcohol. This is classed as a carbon neutral fuel as emissions produced in the production process are removed from the atmosphere by the crops photosynthesising.
- **Biodiesel:** This is made up of animal fats and vegetable oils. The process recycles unusable waste products such as cooking oil, which is the most popular choice for the cars that are solely fuelled by biodiesel.

5.3.16 Biofuels are rarely used as the sole fuel to power a car, although they are frequently blended with other fuels like petrol and diesel to 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.

Electro-Fuels

5.3.17 These fuels are electricity-based gases or liquids which can be used within an ICE and can be produced via renewable electricity production. However, they are not considered to be a cost-effective alternative to fuel the transport sector due to the inefficient and expensive production process and they would require much higher levels of electricity generation than are currently available. Despite this, there is scope to develop the technology for the purposes of the aviation sector if strict sustainability criteria are enforced during production.

Tax Revenue and Implementation

5.3.18 As alternative fuels offer environmental benefits, there are some financial incentives to help persuade their uptake by consumers. To a consumer, this is an attractive prospect as they can save money in the long-term whilst feeling like they are reducing their carbon footprint and contributing to mitigation of climate change. However, the greater the uptake of these alternative fuels means there are fewer people purchasing and being taxed on traditional fuels like petrol and diesel. Thus, there would be a significant loss of tax revenue to the Exchequer which helps maintain the quality and upkeep of the road network.

5.3.19 There are alternative schemes that could replace the loss of fuel tax revenue, one of which is road-user charging. This is where people are charged depending on their use of a road or roads within an area which is part of the scheme. Road user charging can take multiple forms;

- 1) Area Licencing Scheme (vehicles using roads within a specific area and time pay a fee, usually related to vehicle type)
- 2) Cordon pricing (toll stations at entry points to an area or city to charge people, usually higher charges for more polluting vehicles and at peak times)
- 3) Continuous charging system (charge vehicles for all travel in a defined area based on distance or time spent travelling)

5.3.20 However, there are issues with implementing road user charging, including:

- Drivers being disproportionately affected e.g., those who are employed in areas of charging, people on lower incomes, people who need to travel for health reasons.
- The complexity of monitoring the scheme may require technology e.g., cameras, sensors, video based, manual, fully electric, etc.
- Enforcing the scheme and obtaining money from road users.

Key Point: Road user charging in Shetland would be a challenging concept to introduce given that it would be solely to replace lost revenue from general taxation rather to address a specific problem. It could also give rise to significant equalities and spatial issues given that most employment and services are located in Lerwick. It is likely that any road user charging scheme could only ever be part of a wider Scottish or UK approach as opposed to a standalone Shetland scheme.

Implications of Alternative Fuels for Decarbonisation

5.3.21 Due to the abundance of alternatives discussed above, the decarbonisation of the transport sector is under way. However, potential issues can arise if we only consider how 'green' these fuels are during the day-to-day running of a vehicle, and not the entire lifespan of a vehicle or the production process of a fuel. If this is not acknowledged, then there is potential to miscalculate the progress to meet national climate targets or determine the actual impact of alternative fuels on the environment. With this in mind, issues which need to be considered include:

- The raw materials for EV batteries require mining for minerals and metals, namely lithium, manganese, copper, and nickel which can result in high levels of resource extraction and depletion in comparison to what is required for ICE vehicles.
- The manufacturing process of EVs can emit more CO_2 than ICE vehicle production. The global warming potential of BEVs is almost twice the impact of that of ICE vehicles due to battery-related and electronic component manufacturing.
- Some batteries in EVs have become a safety concern in terms of battery fires or the development of faults if they are damaged during a traffic collision for example.
- The 'end of life' of an EV battery can also have negative environmental impacts.
- Some alternative fuels require the production of electricity which can be via renewable or non-renewable sources.

Key Point: Whilst mass adoption of EVs appears to be the prevailing policy approach, it is important to consider the full-life CO_2 emissions of these vehicles rather than tailpipe emissions only.

Travel Behaviour and Decarbonisation

5.3.22 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; and
- charging issues and battery service life and cost of replacement.

5.3.23 Emerging technological advancements are attempting to combat these issues. However, by making alternative fuels readily available to replace fossil fuels, there will be no requirement for people to alter their travel behaviour, or attitude towards how they travel. For example, consumers may replace their current vehicle with an alternatively fuelled car without actually adjusting their lifestyle or travel habits. The user may rationalise travelling more frequently or for lengthier journeys as the vehicle is considered to be 'green', the 'rebound' effect. In turn, if all road users adopted this attitude, then alternative fuels could actually induce more road traffic and counteract some of the environmental benefits that it had offered in the first place.

5.3.24 In addition, people who have adopted an EV for environmental reasons are likely to be more conscious of their travel behaviours and reflect on their personal impact on the environment. However, some consumers may adopt EVs for the long-term financial benefits such as lower energy taxation. This consumer group are less likely to be thoughtful of how they use their EV.

5.3.25 Therefore, it is paramount that alongside the adoption of alternative fuels, there is an effort to adjust our travel behaviours to walking and cycling for short journeys and use of public transport where possible.

Implications for the ZetTrans RTS

Overall, the shift to alternative fuels presents a number of uncertainties which will need to be taken into consideration through the development of the new RTS. Whilst EVs appear to be 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? A shift to alternative fuels will also have implications for (UK) tax revenues which may require consideration of how we pay to use the road network.

There is also a need to decarbonise Shetland's internal ferry fleet. 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. Finally, there is a risk that the transition to alternative fuel sources is seen as a panacea to transport emissions and that people choose to use their car more often on this basis which would lead to other negative impacts such as congestion, delays and unreliable journey times. As such, 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.

Shared Mobility

5.3.26 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 removes the need for vehicle ownership and provides people with a wider range of 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 and communities with poor access to public transport.

Models of Shared Mobility

5.3.27 It is 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

5.3.28 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.

5.3.29 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

5.3.30 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.

5.3.31 This would enable provision of short-term access to electric, two-wheeled scooters similar to those available in cities across Europe. These are usually dockless and typically, users can 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 region.

Taxis, ride sourcing, demand responsive transport and community transport

5.3.32 Taxis are the most well-established form of shared mobility and are now being incorporated into online ride sourcing platforms which enable journeys to be booked online or through an app. The most well-known example of a ride sourcing provider is Uber which, like other similar operators, coordinates a fleet of private vehicles that offer users services that are uninterrupted, personalised, highly flexible and provide a door-to-door service which covers individual requests from place of origin to destination.

5.3.33 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.

5.3.34 Community and demand responsive transport services also 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.

5.3.35 There is also growing interest in technology-led solutions which replace fixed route bus services with demand responsive, flexible services. 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 improve the customer experience.

Car-pooling

5.3.36 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 Shetland. 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.

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

5.3.38 In Shetland, there are no formal car-pooling schemes. However, there are several informal schemes whereby colleagues meet at informal parking locations or at ferry terminals and car share for the remainder of their journey.

Car sharing

5.3.39 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.

5.3.40 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.

5.3.41 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 could 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 while users can drive outside the operating zone, they still have to drop off cars inside the operating area.

5.3.42 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.).

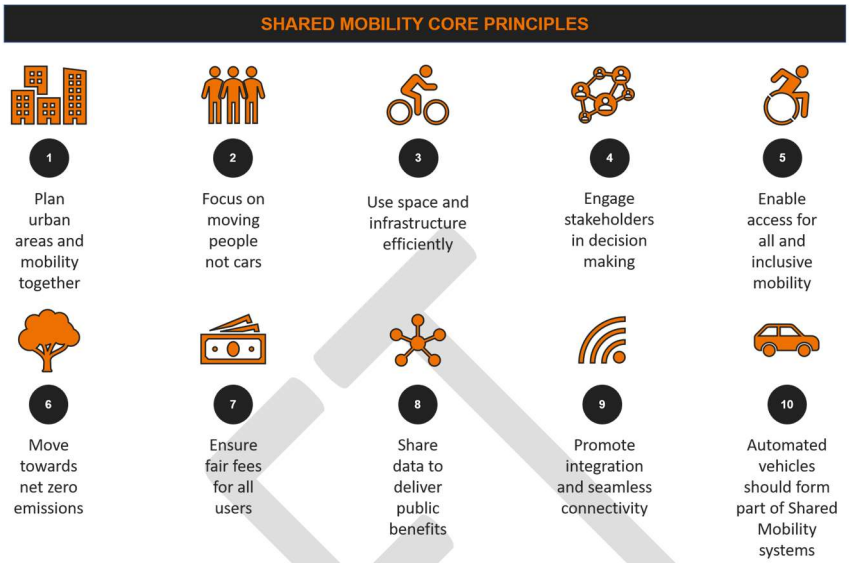
5.3.43 There are two main types of personal vehicle sharing which are:

- **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.

5.3.44 In Shetland, while car sharing is likely on an informal basis, currently, there are no formal car sharing or personal vehicle sharing schemes.

Delivering shared mobility

5.3.45 Shared mobility is already in existence in Shetland on an informal basis and 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.



5.3.46 To facilitate this, it is essential that Shared Mobility is developed in line with the principles set out in the figure inset 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

5.3.47 Mobility as a Service (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. MaaS could potentially support people with disabilities by allowing them access to information, opportunities to customise / request support for their journey, and potentially providing real–time remote support en route.

Core Characteristics

5.3.48 The fundamental components of MaaS 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 in-built;
- **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; and
- **user focused:** centred around demand from customers and personalised to their needs.

5.3.49 There are two types of payment model anticipated for MaaS:

- **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.
- **Pay-as-You-Go:** 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 – known as 'complex capping' - on their Oyster Card).

Delivering MaaS

5.3.50 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 provision 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;
- performance, monitoring, evaluation and ongoing improvement; and
- future proofing to accommodate innovations like autonomous vehicles.

5.3.51 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; and
- the most appropriate Governance models (e.g., public / private partnership, etc.)

Implications for the ZetTrans RTS

The concept of shared mobility could be of significant benefit to Shetland. As has been noted, Lerwick acts as the focal point for the islands and many journeys, particularly commuting journeys, are to the town. Given the cost of owning and running a car and, for the isles, the cost of ferry fares and the availability of vehicle-deck capacity, informal car-pooling arrangements have already become widely 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 for the construction of new ferries, reducing build and associated infrastructure costs and ongoing operating costs. Indeed, this idea was put forward as part of the Whalsay OBC.

However, the rural nature of Shetland with its highly dispersed population outwith Lerwick 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. 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 Shetland. The topography, climate and hours of daylight in the islands 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 Shetland, such as a MaaS platform, is that mobile phone reception and broadband speeds can be variable.

Automation

5.3.52 The automation of the transportation system refers to a myriad of technologies which range from automated car features to modifications across a transport network which integrates information and communication for different modes.

5.3.53 Though it is a vast topic, automation can generally be split up into **automated features** and **automated capabilities**. Automated features are already present in cars available on the market today, such as automatically regulating a safe distance to the vehicle ahead, lane assist technologies, blind spot detection or cameras and sensors when cars are reversing. The capability of an automated vehicle refers to several systems or automated features which collectively work together to conduct an overall task with little or no human intervention. This is an attractive concept as it has the potential to revolutionise the way people can be transported, i.e., 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. In addition, automated bus services would provide a major cost saving, allowing far greater bus-km to be operated for a given budget. The various levels of automation are at different stages of development and deployment into the transport system.

Connected Autonomous Vehicles (CAV)

5.3.54 An autonomous vehicle is one that is able to operate and perform functions without human intervention while connected vehicle technologies allow vehicles to talk to each other and to the infrastructure around them. The Society of Automotive Engineers (SAE) defines six levels of vehicle automation from no automation (the human is in complete control of the vehicle) to a fully automated vehicle (where the automated system performs the movement of the vehicle). These six stages are summarised in Table 5.3 below.

Table 5.3: Six stages of automation

	Level of automation	Description
The human monitors the driving environment	Level 0: No Automation	The driver performs all tasks even if aided by enhanced warning or intervention systems
	Level 1: Driver Assistance	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.
	Level 2: Partial Automation	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 that the driver will be engaged and perform the remaining tasks.

The automated system monitors the driving environment	Level 3: Conditional Automation	The automated vehicle system will undertake dynamic driving tasks with the expectation that the driver will be engaged and intervene where required.
	Level 4: High Automation	The automated vehicle system will undertake dynamic driving tasks and has the capability to intervene if things go wrong or there is a system failure. This level does not require human interaction in most circumstances but the option to manually override still exists.
	Level 5: Full Automation	The automated vehicle system will fully undertake dynamic driving tasks with no expectation that the driver will need to respond or intervene.

5.3.55 The technology which is currently available on the market mainly belongs to the category shown as *the human monitors the driving environment*. 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.

5.3.56 The other category – *the automated system monitors the driving environment* - 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 transportation to date. 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 higher category of automation will move from pilot projects to operational within the lifetime of the RTS.

Intelligent Transport Systems

5.3.57 Intelligent Transport Systems (ITS) use various technologies to monitor and predict use of the transport network and manipulate or redirect demand (via e.g., real time information and dynamic changes to the transport network) in order to reduce congestion or disruption. The development of autonomous and connected vehicles has brought new opportunities with regards to ITS through the availability of additional avenues for both monitoring and communication.

5.3.58 In Scotland, a range of ITS are used to help manage traffic on the trunk road and motorway network. In addition, ITS has also been utilised to improve the efficiency of the public transport network through the provision of information on real time arrival and departures, live tracking of bus location and information on seat availability.

Other Areas of Automation

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

- **Sea:** There is potential for seagoing 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 strategy and could provide opportunities in relation to both the NIFS and internal Shetland ferry services.
- **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 accommodate up to 100kg (220lbs) of post and as an Uncrewed Aerial Vehicle (UAV) was able to fly in poor weather conditions. This type of technology could be highly beneficial for islands such as Fair Isle, Foula, Papa Stour and Skerries.
- **Airborne inspections:** To observe vehicles prior to trips taking place to ensure there are no safety issues. This could assist workers at e.g., airports and ferry ports to carry out manual checks remotely.

Implications for the ZetTrans 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. 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.

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. This will disproportionally impact jobs which are low-skilled and low-paid, whereas there will be an increase in demand for jobs which are more highly-paid such as engineers and researchers.

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, 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.

5.4 Travel Behaviour Change

5.4.1 Whilst land-use changes and technological advances will change the way in which people travel over the Strategy period, there is a wider question of more general change in travel behaviour.

Long-Term Behavioural Change

5.4.2 It is important to note that the extent to which personal travel has been declining over the long-term. Figure 5.1 below shows trips per person per year from 1995 to 2019. It should be noted that the data are for England only as they are based on the long-running DfT National Travel Survey. Whilst the exact pattern of trip making in Shetland will of course differ, it is anticipated that the general trend will be similar:

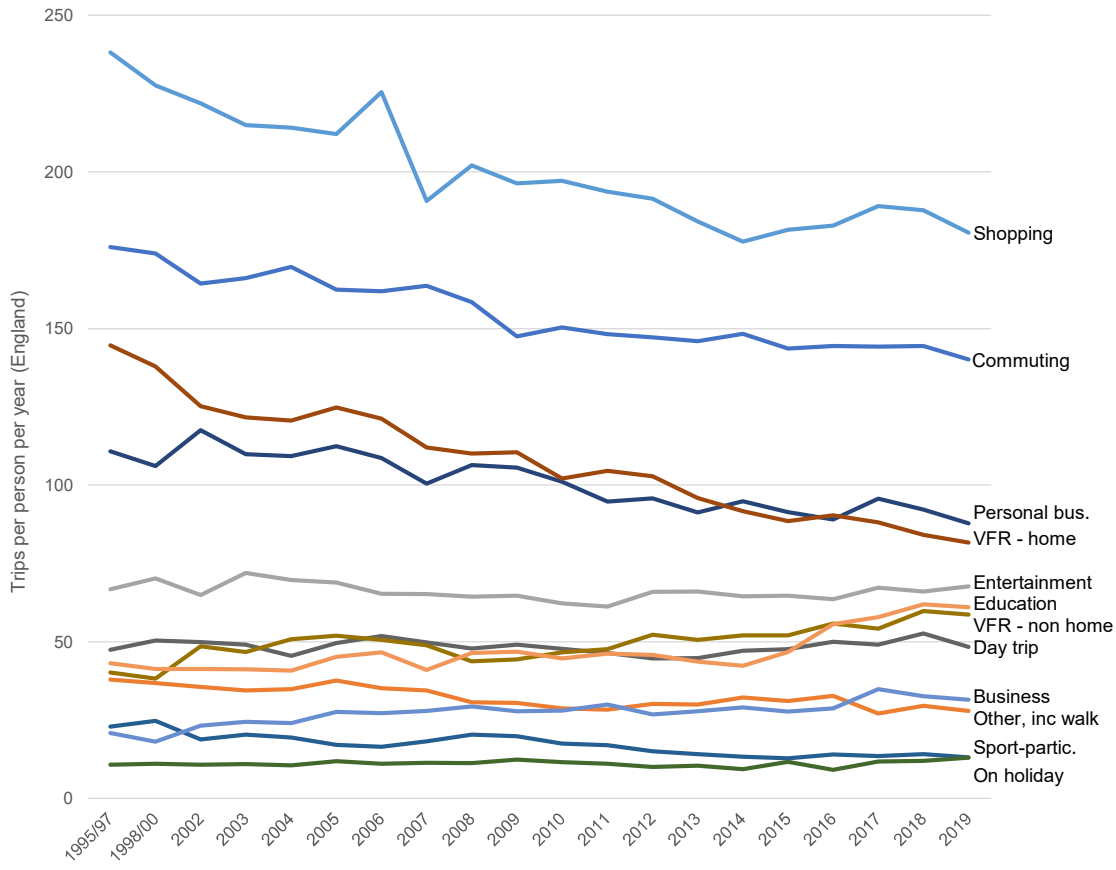


Figure 5.1: Trips per person per year 1995-2019, England (Source: DfT National Travel Survey)

5.4.3 Figure 5.1 shows that, on average, people are 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 has declined at a lower rate (7%) meaning that the average trip length has increased over this period. Reflecting this, average trip duration has also increased from 20 to 23 minutes. At the UK level, this reduction in travel per person has been offset by growth in population of 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.

Key Point: Whilst based on an English dataset, there is strong evidence to suggest that people are now making fewer trips per annum compared to the 1990s, with almost all of the main travel purposes having witnessed a decline. If repeated in Shetland, and aligned with a forecast reduction in population, this may imply a long-term downward trend in trip-making and thus the demand for transport services.

COVID-19 Related Behavioural Change

5.4.4 The COVID-19 pandemic has forced a sudden change in transport and wider societal behaviour. Whilst the completion of the vaccination and booster programme and the end of social distancing measures can be expected to restore pre-pandemic behaviour to some degree, the evidence suggests that it will accelerate the longer-term trend of a decline in trip making outlined above, particularly in commuting, business travel and 'high street' shopping. Table 5.4 below summarises these trends and anticipated impacts:

Table 5.4: Pandemic Impact on Travel Demand Trends

Description	Pre-Pandemic Trend	Pandemic Impact	Rationale
Online shopping	Growth	Compounded	Previously resistant online shoppers now more likely to shop online in future.
Working from home	Growth	Compounded	Employers and employees have seen that increased agile and flexible working is possible. There is also now an incentive for firms to reduce overhead costs by reducing their office estate footprint. Indeed, the link between the home and workplace has been weakened and could be broken completely.
Number of trips and distance travelled	Decline	Compounded	Commuting, business and shopping trips are all likely to reduce as a result of the above two impacts. This may have consequential implications for leisure trips as well, although it may be balanced by more spare time resulting from increased flexible working. Business trips can in particular be expected to reduce in number as many Shetland businesses and Scottish mainland businesses working in Shetland have developed effective remote working practices
Average trip lengths	Stable	Curtailed	There is likely to be a decline in average trip length with more people working at home and doing more of their daily activities locally, although opportunities for local retail, leisure etc in Shetland are less than on the Scottish mainland.
Mode – Car	Decline	Curtailed	Likely to remain the dominant mode and to be preferred for some trips that would previously have been undertaken by public transport.
Mode – Active travel	Stable	Compounded	More local trips and the exercise benefits are likely to offset any reduction in overall demand for travel possibly also generating growth in walking and cycling.
Mode – Bus	Decline	Compounded	Reduced overall travel and potentially willingness to use public transport will accelerate the decline in bus patronage.
Mode – Ferry and Air	Growth	Curtailed	Reduced overall travel and potentially willingness to use public transport will likely reverse recent growth trends.

5.4.5 Whilst post-vaccination recovery in demand can be expected, the evidence suggests that there will be a long-term downward pressure on some key components of travel demand, particularly a reduction in commuting for those in 'location independent' jobs.

5.4.6 There are a range of possible outcomes that these trends could facilitate which include:

- **Decentralisation** of services and amenities to local settlements with fewer located in Lerwick, although the economic prominence of Shetland's main town perhaps makes this unlikely.
- If the link between the home and workplace is weakened or broken, **increased demand to live in Shetland for lifestyle in-migrants and indeed in the isles by current Shetland mainland residents.**
- More **variable travel patterns around flexible and home working practices**. Reduced focus on weekday peak commuter periods and travelling into work five days a week.

- **Public transport networks become increasingly expensive to operate** as people choose alternative modes and there is less need to travel to centralised locations (i.e., Lerwick) which act as their focal point. This could lead to a **reduction in services** and may particularly impact the commercial aviation market connecting Shetland with the Scottish mainland which formerly attracted a high proportion of business users. The impact on travel to the Scottish Mainland is less clear as such travel is often non-discretionary.
- Those without access to private transport or with reduced mobility face **increased social exclusion** if the public transport network is cut back.
- **Increased demand for on-demand transport services and shared mobility** which can be used as and when needed. Traditional bus services either adapt to fill this role or are replaced by innovations.
- However, it is possible that a **strong demand for car ownership** remains as people choose to drive rather than use public transport for longer journeys, leading to the perception that car ownership offers better value for money than an on-demand model.

5.4.7 The public survey conducted to inform this 'Case for Change' asked respondents how their travel behaviour may change post-COVID-19. Key findings were as follows:

- **32%** (n=89) of residents noted that they will **use the bus less** than they did before the pandemic, (net change = -28%).
- **46%** (n=124) of respondents also noted that they expect to **drive less**, with only **12%** (n=32) indicating that they expect to drive more, (net change = -34%).
- **40%** (n=110) of residents noted that they will **walk more**, but only **10%** (n=28) noted that they will **cycle more**, (net change; walking = +34%; cycling = +6%).
- **27%** (n=121) of respondents noted that they expect to **fly less externally** in the future and **9%** (n=24) noted that **they will fly less internally**. It should be noted that for both external and internal flights the large majority, **57%** (n=258) and **63%** (n=38) respectively, noted that they will **fly about the same**. (Net change; external flights = -15%; internal flights = -9%).
- The majority of respondents to the survey noted that they would **travel on the NorthLink ferry about the same as they did previously**, although around **one fifth** (n=81) noted that they will **travel less often**, (net change = -11%).
- However, the survey suggests that the internal ferry network will be impacted more significantly, with **41%** (n=112) of respondents noting that they will **use the inter-island ferries less** often. This could be a reflection of increased home working and reduced commuting. (Net change = -36%).
- **20%** (n=53) of respondents noted that they **fully work at home now**, while another **23%** (n=63) noted that they **will work from home between 1-4 days a week**. This represents a **significant increase in expected home working** and may underpin the anticipated reduction in travel by car, bus and internal ferry.

Key Point: The resident survey highlights that Shetland residents think they will travel less post-COVID-19, predominantly due to increased home working and reduced business travel. This mirrors research for Scotland and the UK more generally and suggests that current transport services will be more expensive to maintain and, where such services are commercial, may be under threat from the reduced level of demand

Implications for the ZetTrans RTS

The impact of the COVID-19 pandemic is likely to accelerate a longer-term trend in reduced trip-making for most journey purposes. There may therefore be a need to consider different approaches to investment (e.g., providing improved travel opportunities and connectivity rather than catering for growth through a 'predict and provide' approach) and delivering transport services such as innovative solutions like

shared mobility and MaaS whilst at the same time ensuring that post-COVID-19 position does not widen existing inequalities in Shetland.

5.5 Next Steps

5.5.1 This chapter and the preceding three chapters have provided an extensive baseline of the socio-economic characteristics of Shetland, the particulars of transport supply and demand and the factors which could shape future transport solutions and travel behaviour. This completes Part 1 of the 'Case for Change; Part 2 now proceeds to set out that case in detail, starting with an overview of the emerging policy context and the parameters which it establishes for the new ZetTrans RTS.

Part 2
Case for Change

6 Policy Context and Strategic Environmental Assessment

6.1 Overview

6.1.1 Central to the requirement to produce a new RTS has been a significant evolution in the policy context. At the heart of this policy evolution is the over-riding objective of taking measures to reduce Scotland's contribution to climate change, ultimately contributing to the delivery of the Scottish Government's legislative commitment to deliver net zero greenhouse gas emissions by 2045.

6.1.2 This singular focus on emissions reductions represents a major shift in emphasis on the transport strategy work which has gone before, both in Shetland and nationally. In the past, transport planning and investment has typically been based on 'predict and provide', that is providing infrastructure and services to meet current and future demand and expanding provision where demand is not being met, the building of larger ferries for example. The emerging new approach is focused instead on reducing the need to travel, making better use of existing assets and, where a journey is required, ensuring that this is made by active travel or public transport.

6.1.3 In light of the above, this chapter sets out the direction of national transport policy, which in turn will inform the strategic direction of this RTS. More broadly, the RTS 'Case for Change' has been informed by a review of over 40 local, regional and national policy and strategy documents spanning transport, land-use and economic development amongst other areas. A full list of documents is included in **Appendix A**.

6.2 Where does the RTS sit within the policy context?

6.2.1 As the RTP for the Shetland Islands, it is the responsibility of ZetTrans to secure the provision and maintenance of public transport services in Shetland, whilst also supporting the case for improvements to air and ferry services to the Scottish mainland. Under the Transport (Scotland) Act 2005, each RTP is required to draw up a strategy for transport within its region. The RTS sits within a wider strategic transport and land-use framework, which governs how transport and development is delivered in Scotland. This is illustrated in Figure 6.1, which also includes some of the key policy documents of relevance.

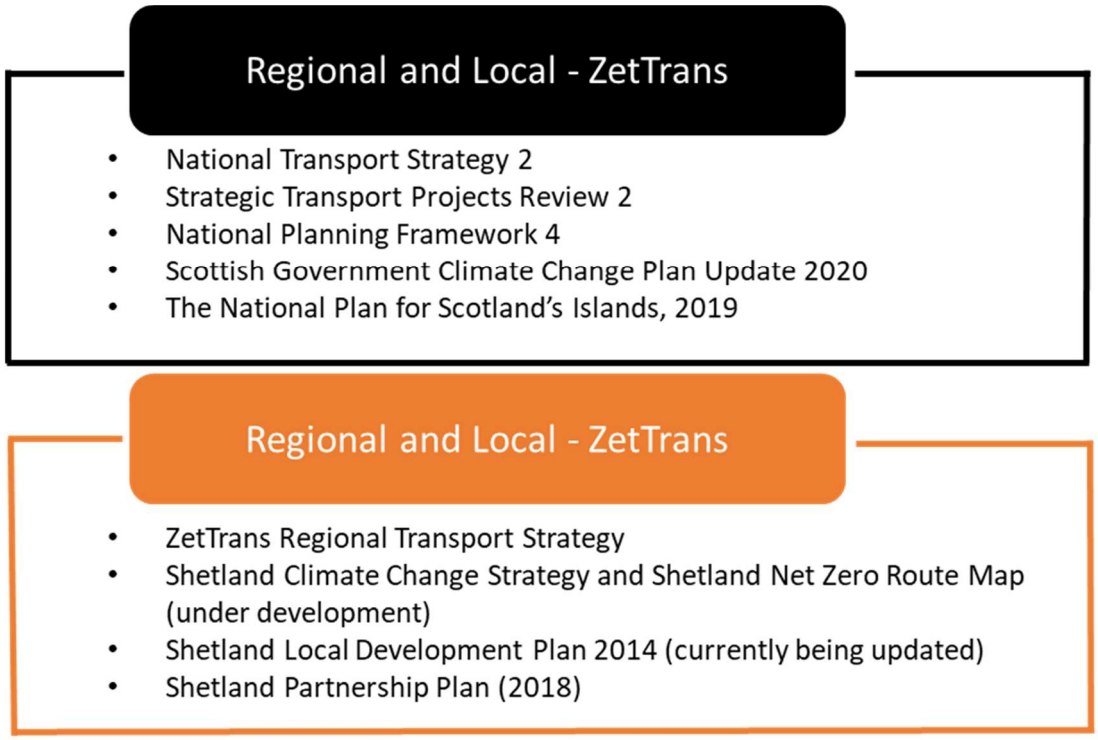


Figure 6.1: Where does the RTS sit within the policy context?

6.3 The new national transport policy context

6.3.1 The enacting of the Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 and its subsequent update in December 2020 combined with the publication of the National Transport Strategy 2 (February 2020) has fundamentally changed the approach to transport infrastructure and service planning in Scotland. These key developments and their relevance to the RTS are set out below.

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

6.3.2 The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 was an Act of the Scottish Parliament committing the Scottish Government to deliver net-zero emissions[105] by 2050.[106] The Act was amended by the Climate Change Plan Update published in December 2020, which brought forward the date of achieving net zero to 2045. It is important to note that delivering net-zero by 2045 is a **legal commitment** rather than just a statement of aspiration and thus carries a higher weight in future planning

6.3.3 Two interim targets have been developed to support the delivery of this aspiration:

- A **75%** reduction in greenhouse gas (GHG) emissions by 2030 relative to 1990 levels of carbon dioxide and 1995 levels of hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and nitrogen trifluoride.

[105] Net zero means that the amount of greenhouse gas emissions released into the atmosphere and the amount that is extracted through offsetting measures will add up to zero - https://www.netzeronation.scot/the-importance-of-net-zero

[106] https://www.legislation.gov.uk/asp/2019/15/contents/enacted

- A **90%** reduction in GHGs by 2040, again relative to the 1990/95 baseline.[107]

Implications for the RTS: Whilst the RTS will consider all facets of transport in Shetland, its over-riding focus will be on supporting the delivery of the Scottish Government's legal commitment to deliver net-zero by 2045 (and the interim targets which align with this).

6.3.4 The Climate Change Plan Update (2020) included a number of commitments of relevance to this Strategy to support a reduction in emissions and also a 'green' recovery from the COVID-19 pandemic – these are:

- an aim to **reduce vehicle kilometres travelled by car by 20%[108] by 2030**;
- a commitment to **phase out the need for new petrol and diesel cars and vans and for the conditions to be created to phase out the need for all new petrol and diesel vehicles in Scotland's public sector fleet by 2030**;
- a £120 million investment in **zero emissions buses**;
- an investment of £50m to create **active freeways**; and
- a £180m **Emerging Energy Technologies Fund** to support the development of hydrogen, carbon capture storage (CCS) and to add impetus to the development of 'Negative Emissions Technologies'.[109]

Implications for RTS: The Climate Change Plan Update (2020) sets demanding targets for the reduction of vehicle kilometres and the registration of new hydrocarbon vehicles, particularly in Shetland where travel by the private car dominates. However, it also provides a range of opportunities associated with new funding streams and initiatives that could bring additional investment to Shetland.

6.3.5 It is important to note that the 2019 Act embeds the principles of a 'Just Transition', which means reducing emissions in a way which tackles inequalities, or at least does not widen them. The 'Just Transition' stream of work is in its infancy, but in theory at least recognises that islands will have unique characteristics which have to be accommodated within the overall transition to net zero.

National Transport Strategy 2

6.3.6 In February 2020, Transport Scotland published its *National Transport Strategy 2* (NTS2) which set out a vision for Scotland's transport system over the next 20-years to 2040, including a statement of transport's contribution to achieving net zero by 2045. Its 'Vision' is:

- *"We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors".*[110]

6.3.7 The Vision is underpinned by four 'Priorities' and twelve 'Outcomes', as shown in Figure 6.2 below:

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

[108] Note the base year has not yet been confirmed by Transport Scotland.

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

[110] National Transport Strategy 2 (Transport Scotland, 2020), p. 5.

Figure 6.2: NTS2 Priorities and Outcomes (Source: NTS2)

6.3.8 The NTS2 establishes two 'hierarchies' which define the principles upon which 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 illustrated in Figure 6.3 below:

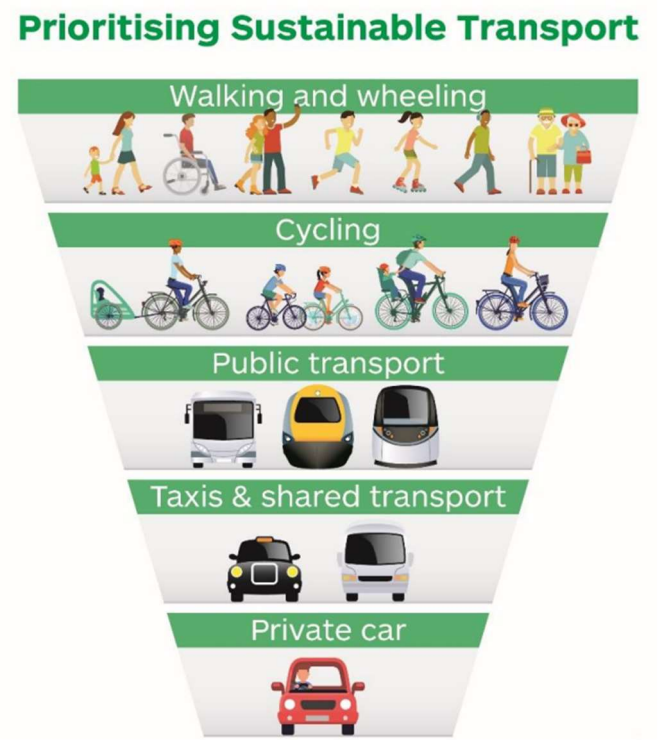


Figure 6.3: Sustainable Travel Hierarchy (Source: NTS2)

6.3.9 In summary, the Sustainable Travel Hierarchy prioritises walking and wheeling and cycling, with investment to support the single occupant private car being the lowest priority.

Implications for Strategy: Measures promoted through the Strategy, and which ultimately emerge from it, will promote active travel and public transport connections, whilst at the same time discouraging short, single car occupant journeys.

6.3.10 The **Sustainable Investment Hierarchy** establishes a structured set of steps to be followed when planning investment in transport infrastructure, as is illustrated in Figure 6.4 below:

Figure 6.4: Sustainable Investment Hierarchy (Source: NTS2)

Implications for Strategy: The implication of this hierarchy is that the expansion investment in new infrastructure should only be considered once a wider package of options to influence travel behaviour or manage demand have been implemented.

6.3.11 The first phase of the *NTS2 Delivery Plan 2020-22* has been published and is being implemented by Transport Scotland. There is however no statement of priorities beyond the end of March 2022.

Strategic Transport Projects Review 2 (STPR2)

6.3.12 STPR2 is an ongoing study which will set out the Scottish Government's transport investment programme over the next 20-years (2022-42), detailing how the government will deliver the vision, priorities and outcomes of the NTS2. The focus of STPR2 is on the 'strategic transport network', in this case air and ferry services from Shetland to Orkney and the Scottish mainland. It therefore provides context for the deliberations in this RTS in relation to air and ferry services to / from the Scottish mainland (and Orkney).

6.4 What is the role of the ZetTrans RTS?

6.4.1 The role of the ZetTrans RTS is to translate the national transport policy context into a set of Shetland-specific objectives, policies and actions which will contribute towards achieving net-zero, tackling inequalities, delivering economic growth and improving health and wellbeing.

6.4.2 The development of the RTS will align with emerging policy in Shetland, including the Shetland Climate Change Strategy and Local Development Plan 2 (LDP2), both of which are currently in preparation. It will also be informed by the significant body of research, appraisal and business case work which has been undertaken in recent years including, but not limited to, the:

- Shetland Inter-Island Transport Study (SIITS), a Strategic Business Case (SBC) considering the future development of internal air and ferry services in Shetland.
- Outline Business Cases (OBC) emerging from SIITS, including for the Fair Isle and Whalsay ferry services, the inter-island air service and the ferry service revenue options.
- Shetland Active Travel Strategy 2021-26.
- Northern Isles Ferry Services Scottish Transport Appraisal Guidance (STAG) study.
- Shetland Bus Network FBC.

6.4.3 Having established the policy context for the RTS, the next chapter summarises the main feedback from the stakeholder and public engagement exercise.

6.5 Strategic Environmental Assessment

6.5.1 A multi-stage Strategic SEA of the RTS along with an EqIA is being undertaken alongside the development of the RTS. The SEA Scoping Report set out the outcomes from the initial stages of these elements. A summary of the key issues identified in the SEA Scoping Report which need to be addressed within the RTS is provided in Table 6.1 below.

6.6 The Islands Deal

6.6.1 The Islands Growth Deal is a £100m investment in the future economic prosperity of Orkney, Shetland and the Outer Hebrides. The Heads of Terms Agreement commits to pursuing seven projects in Shetland:

- The **Shetland Clean Energy Project**, which is focused on the production of green hydrogen.
- **Dales Voe Ultra-Deep Water Port Project**, which aims to create a new facility with a minimum water depth of 24 metres, supporting oil and has decommissioning.
- The **Creative Islands Wellbeing Project**, which aims to establish new island networks of creative practice hubs and wellbeing innovation.
- The **Shell-volution Project**, which is focused on designing new and innovative ways to expand the low carbon and sustainable mussel farming sector in Shetland.
- **Shetland Space Innovation Campus**, which will build upon the emerging space offering across Shetland.
- The **Shetland Campus Redevelopment**, which will provide new learning opportunities for the people in Shetland, as well as other island groups.
- **Knab Redevelopment**, a new mixed-use site in the Knab area of Lerwick.[111]

The projects which are emerging from the Islands Growth Deal will have implications for the local transport network, both in terms of new infrastructure (e.g., the Knab Redevelopment) and impacts on existing infrastructure and services. These projects are currently making their way through the business case and assurance process and should align with this emerging RTS in terms of supporting the objectives expressed through it (and thus by extension they will support the National Transport Strategy 2).

[111] Islands Growth Deal Heads of Terms Agreement (Shetland Islands Council et al, 2021).

Table 6.1: Ta Key Issues Relevant to the SEA of the New RTS for the Shetland Islands

Grouped Baseline Topics	SEA Environmental Aspects	Key Issues
Air and Climate	Air Quality Climatic Factors	• The need to improve air quality for the benefit of human health and the environment. • The need to mitigate climate change including through promoting sustainable land use patterns and the decarbonisation of the transport sector. • The need to ensure that new development, including transport infrastructure and facilities, is resilient to adverse weather and adaptable to the effects of climate change. • The need to align with the national Update to the Climate Change Plan 2018-2032 (Scottish Government, 2020) and the emerging Shetland Climate Change Strategy.
Physical Environmental	Biodiversity, Geodiversity Flora & Fauna, Soil, Water, Cultural Heritage, Landscape	• The need to conserve and enhance biodiversity interests including sites designated for their ecological importance. • The need to maintain, restore and expand valued habitats and to safeguard protected species. • The need to protect and enhance green infrastructure assets. • The need to prioritise the redevelopment of previously developed (brownfield) land • The need to protect sites designated for their geological interest. • The need to protect and enhance the quality of water sources and the water environment • The need to locate new development including transport infrastructure away from areas of flood risk, and for such infrastructure to be resilient to flooding (and adverse weather more widely). • The need to protect and enhance cultural heritage assets and their settings. • The need to conserve and enhance landscape character and to protect visual amenity. • The need to protect and enhance the seascape character. • The need to protect and enhance local character, customs and traditions.
Social and Economic	Population (including relevant socio-economic issues), Health, Material Assets	• The need to align with and support the implementation of adopted and emerging relevant national policies, including NTS2 (Scottish Government, 2020), The National Islands Plan (Scottish Government 2019) and the emerging Strategic Transport Projects Review 2 (STPR2) and National Planning Framework 4 (NPF4). • The need to align with and support the implementation of current and emerging statutory Local Development Plan and other relevant regional and local policies applicable to the ZetTrans region. • The need to develop an integrated and efficient transport system which meets identified needs and supports population growth and enables in-migration and island population retention. • The need to develop an affordable and accessible transport system which provides connections between i) Shetland's islands and ii) the Scottish mainland. • The need to support the growth of key economic sectors and to deliver sustainable and inclusive economic growth. • The need to tackle deprivation and severance and to improve access to key amenities and economic opportunities for all demographic groups and communities.

Grouped Baseline Topics	SEA Environmental Aspects	Key Issues
		• The need to ensure transport services are demand responsive and provide convenient travel options. • The need to provide transport services appropriate to meet the needs of the projected ageing population • The need to provide transport services that enable participation and reduce rural isolation.

7 Consultation and Engagement

7.1 Overview

7.1.1 This section provides an overview of the stakeholder and public engagement activities undertaken to inform the development of this Case for Change Report. It includes an outline of the approach taken and a summary of the responses received. It should be noted that the material presented in this chapter relates to points made by consultees reflecting their views and perceptions of the main issues.

7.2 Stakeholder Engagement

7.2.1 To capture stakeholder views and help identify problems and opportunities, the following activities were undertaken:

- A series of one-to-one and group meetings were held with a core group of stakeholders via Microsoft Teams.
- Briefing Notes along with a request for comments were issued to a wider group of stakeholders.
- An RTS Sounding Board Group was established, and a workshop with the group was undertaken.

7.2.2 Further information on each of these is provided below.

One-to-one and Group Meetings

7.2.3 In total, 26 requests for stakeholder meetings were issued and 21 meetings were held with the following stakeholder groups:

- Ability Shetland
- Highlands and Islands Enterprise (HIE) Shetland
- Highlands and Islands Transport Partnership (HITRANS)
- National Farmers Union
- National Health Service Shetland
- NorthLink
- Northwards
- Serco
- Shetland Island Council Children's Services
- Shetlands Council Climate Change Strategy Team
- Shetland Island Council Community Health and Social Care
- Shetland Island Council Economic Development
- Shetland Island Council Environment and Estate Operations
- Shetland Island Council Roads
- Shetland Island Council Sport and Leisure
- Shetland Island Council Strategic Working Group for Childcare

- Shetland Island Council Transport Planning
- Shetland Tourism Association
- Visit Scotland
- ZetTrans Active Travel Group
- ZetTrans Fare Policy Review Reference Group

Briefing Notes

7.2.4 In total, 233 Briefing Notes were issued to a wider group of stakeholders. These included all Community Councils in Shetland; elected officials, including local councillors, MPs, and MSPs; 'neighbouring' authorities / RTPs, including Aberdeen City Council, Orkney Island Council, and Nestrans; Local Development Groups; local businesses; third sector and public organisations; and representatives from the transport industry.

7.2.5 The Briefing Notes included an overview of the project, a set of open questions designed to help consultees formulate their response, and a link / QR code to an online form / a dedicated project email address to which responses could be submitted. In total, 21 responses were received from the following stakeholder groups:

- Aberdeen City Council
- Aberdeen City and Shire Transport Partnership (Netrans)
- Bressay Community Council
- Cooke Aquaculture
- Councillor Moraig Lyall
- Cycling UK
- Delting Community Council
- Gord Shop / Bellis & Cummings Farm, Fetlar
- Island Vista
- Lerwick Community Council
- Malakoff Limited
- NatureScot
- Nesting and Lunnasting Community Council
- North Yell Development Council
- Ocean Kinetics Limited
- Sandness and Walls Community Council
- Sandwick Community Council
- Scottish Ambulance Service: North Region
- Shetland Amenity Trust
- Shetland Recreational Trust
- Stagecoach

Stakeholder Engagement: Response

7.2.6 This section provides an overview of the points raised by consultees during the one-to-one and group meetings and via the responses to the briefing notes. The discussion is broken down by mode, with problems and options identified separately.

Active Travel

Problems

7.2.7 There was agreement amongst stakeholders that walking, wheeling and cycling within Shetland, particularly for the purpose of getting somewhere (e.g., work or employment) is challenging. Key problems identified included:

- **A lack of safe walking, wheeling, and cycling routes which are segregated from traffic** - consultees noted that there are no signed cycle routes, no on road cycle routes which are physically segregated from traffic, and no signed walking / wheeling / cycling shared use paths. It was also noted that it should be borne in mind that disabled bikes are often larger and there is a need for appropriately designed facilities to accommodate these.
- **A general lack of signage on access routes** – one organisation noted the following with respect to signage: official Access Paths and Core Paths are not signed in towns and signage is only provided at the fence lines / access gates in rural areas; there is very little signage directing people to access routes in towns; and unofficial walking routes are often not signed or lit.
- **A lack of cycle signage on quiet routes –** it was noted by one organisation that the lack of signage on quieter routes means that people don't consider cycling to be an option, and therefore presume they will need to cycle on busier main roads.
- **Path around Clickimin Loch unsatisfactory** – one organisation noted that the shared path around Clickimin Leisure Centre and Anderson High School is unsatisfactory because it is not circular and is not signed as shared use throughout.
- **A lack of footways on many roads in rural areas.**
- **A lack of dropped kerbs** both in rural locations and within the main settlements.
- **Wide junctions which are poorly designed for pedestrians.**
- **Narrow and uneven footways and poorly sited street furniture** which act to restrict access, particularly for those with disabilities.
- **Poorly designed street furniture** – it was noted, for example, that contrast markings on street furniture have not been provided in some locations making it difficult for those with visual impairments.
- **Indiscriminate parking in Lerwick** which acts to restrict access.
- **A lack of cycle parking** – it was noted that there is no cycle parking in Lerwick town centre (apart from a decorative Shetland bike stands sign); at the main supermarket in Lerwick (Tesco), or at the Health Centre in Lerwick. It was noted that the lack of cycle parking not only makes bicycles vulnerable to theft but also means that cycles are not visible and therefore do not inspire others that cycling for an everyday journey might be an option.

- **A lack of facilities (e.g., showers, lockers, cycle parking etc) at workplaces** which further discourages use of active travel modes.

- **A lack of specific provision for cycles on board Serco NorthLink vessels** – while it is possible to book a cycle on NorthLink services, there is no specific provision for cycles on board and there is a lack of cycle parking at the Lerwick Ferry Terminal.

Opportunities

7.2.8 Green tourism / eco-friendly tourism was identified as a potential growth area and there was a broad recognition that there was a need to improve active travel options in order to help grow this market.

Options

7.2.9 Options identified with respect to active travel included:

- **Produce and deliver a joined-up active travel network for Shetland** (which includes cycle lanes physically separated from traffic on busy roads, cycle routes on quiet streets, closing residential roads to through traffic, 20mph zones, and off-road cycle paths) and deliver the network in a staged approach following 'Cycling by Design' design standards based on accessibility for all.

- **Speed restrictions / implementation of 20mph zones** – one consultee noted that 20mph should be made the default speed limit on residential streets and minor roads and more resources should be provided for increased enforcement.

- **Roll out School Streets** (an initiative to close streets to vehicle traffic near to schools during certain hours to encourage children to cycle to and from school) in Shetland and create safe cycle routes to connect to them.

- **Provide electric bike hire stations** - given the long distances involved, electric bikes were seen as a potential growth area and consultees anecdotally noted that demand for electric bike hire at facilities which currently offer this service had been strong.

- **Create local travel hubs** - in Lerwick, and in other communities across Shetland to promote, enable and connect shared transport, cycle hire, e-bike charging, safe walking routes, and transport information.

- **Provide park and stride and park and ride options** at existing informal car sharing car parks in order to encourage walking and cycling for part of the journey.

- **Provide discounts for those taking their bike on NorthLink Ferry services** – one consultee suggested there should be a discount or reward system for those taking a bike on the ferry as well as additional cycle parking providing at Lerwick Ferry Terminal.

- **More engagement with accessibility groups**

Bus

Problems

7.2.10 Key problems identified with respect to bus services included:

- **A lack of bus services in some locations** - it was noted that some communities in Shetland are not served by bus.

- **Poor service frequency** – this was identified as a particular issue in the north and west of the mainland. It was noted, for example, that people often have to spend longer than they wish in Lerwick because services are not sufficiently frequent.

- **Short operating day –** this was identified as an issue with respect to being able to access evening leisure activities and breakfast clubs / after school childcare provision.

- **Long journey times compared to car travel** - in part this is because of the long walk to the bus stop in rural locations and because services come off the main routes to serve smaller communities which adds to the overall journey time.

- **Poor integration with ferry and air services** – it was noted that the bus to Sumburgh is unable to wait for delayed flights and is therefore felt to be an unreliable option, particularly when travelling on the last flight back to Shetland.

- **A lack of direct connections to Sumburgh –** while it was recognised that there is a bus to Sumburgh, this only directly serves Lerwick and the south of the archipelago.

- **Long walks to the nearest bus stop** – bus stops are often located some distance from people's homes and footways are largely absent in rural locations

- **Poor accessibility of bus stops** – a number of issues with the accessibility of the bus stop itself were identified, including stops being on one side of road only; there being no footway at the stop or there being no dropped kerbs meaning wheelchair users have to wait on the carriageway; a lack of shelter or the shelter being too small to accommodate wheelchair users; and a lack of or poor-quality seating.

- **Poor / inconsistent accessibility of vehicles** - a large proportion of the services in Shetland use smaller vehicles which have less stringent requirements in terms of accessibility. Issues with inconsistency in provision were also identified. For example, while there is dedicated space for wheelchair users on larger buses, the size of the space varies which restricts access for some groups. In addition, across all services, a maximum of one wheelchair user can be accommodated at any one time which restricts the ability of wheelchair users to travel together / meet for social and other occasions.

- **Inconsistencies in driver behaviour and driving standards with respect to disabled users** - while most drivers are accommodating, it was noted that there are inconsistencies in both driver behaviour and driving standards with respect to disabled users, with some drivers more experienced than others.

- **A lack of consistent branding / livery** – several consultees noted that there is no consistent 'Shetland Bus' brand, with the network operated by a range of different vehicles and operators. This was felt to be a particular deterrent for visitors to the archipelago.

- **A lack of / poor quality information on bus services** – there was a general consensus that information on bus services is lacking / of a poor quality and this contributes to lower levels of use amongst certain groups, particularly tourists.

- **Inability to take bikes on buses** – the inability to take bikes on buses was identified as a problem by a large number of stakeholders. From an operational perspective, several issues were raised with respect to this, including the potential for bikes to take up wheelchair bays; safety issues where bikes are stored under / outside the vehicle; and the additional time required in the timetable to accommodate getting bikes on / off vehicles.

- **The need for greener technology** – it was recognised that there is a need for greener technologies in the bus market and that, given there are no commercially operated

services, a significant public investment would be required to achieve this. A number of associated issues were also identified, including the low re-sale value of existing vehicles, how new vehicles would be maintained, and contractual arrangements where council owned vehicles are used.

- **A lack of succession planning in the bus industry** - several of the bus operators are small family run operations and the lack of succession planning was identified as a key problem from an operational perspective, with at least one operator choosing to leave the industry in recent years due to retirement. This is a concern with respect to future contract revolutions given the size of the market.

- **A general lack of drivers / aging drivers** – this issue was identified as a problem both within the bus industry and more generally.

Options

7.2.11 Options identified with respect to bus services included:

- **A connectivity and demand audit** to help identify where frequency is poor and there is potential for high demand to assist in demonstrating the case for investment.

- **An accessibility audit of bus stops** and the development of a programme of investment to improve access and facilities.

- **Allowing people to take their bike on the bus** – allowing people to travel with their bike on the bus was seen as a way to better connect existing active travel facilities across the archipelago; encourage green tourism; make cycling part of everyday journeys; and reduce car dependency for longer journeys. Consultees identified the X62 Borders Bus service and the electric bus between Edinburgh, Dundee, Perth and Kinross as successful examples in this regard.

- **Improving information on bus services**, including the provision of real time information / an app-based tracking system. From an operational perspective, it was noted that the mainline services are now equipped with ticket machines which have GPS, however, there are some black spots in terms of digital connectivity which would impact the reliability of GPS bus tracking apps / real time information.

- **Developing and expanding formal channels of engagement** with the local community on bus services, including disabled users.

- **Ensuring disabled access is included within bus driver training**.

- **Developing mechanisms to encourage young people into the bus industry and driving profession** more generally, including, for example, an apprenticeship programme.

- **Ensuring any capital investment in new vehicles considers both potential future accessibility requirements and carbon reduction.**

Taxis

Problems

7.2.12 The following problems were identified with respect to taxis:

- **High cost** - There was a general consensus that taxis are high cost. Several council services noted that taxis are used as a last resort to provide access where there is no bus provision and that this results in significant costs at a service level.

- **Limited supply of accessible taxis** - a number of consultees noted that it can be difficult to secure accessible taxis at short notice. One consultee also highlighted that there is currently no mechanism to book taxis via text which restricts access for those with hearing issues.

- **Inconsistencies in terms of driver behaviour with respect to disabled users.**

Options

7.2.13 Options identified with respect to taxis included:

- Providing disability awareness training for taxi drivers

- Providing a text booking service

Internal Ferry

Problems

7.2.14 The following problems were identified with respect to internal ferries:

- **Vehicle deck capacity** – a lack of vehicle deck capacity was identified as an issue by a number of consultees, with Whalsay, and Bluemull Sound identified as being particularly problematic in this regard. Comments on this included:

  - In terms of the Whalsay ferry, capacity constraints were identified as a particular issue when the smaller ferry is used.

  - In part as a result of capacity issues, some residents choose to leave a car on the mainland.

  - A number of consultees noted that the lack of connecting bus services is a contributing factor to vehicle deck capacity constraints as a car is required for onward travel.

  - Demand from visitors contributes to vehicle deck capacity issues during holiday periods.

- **Cost** - the cost of travel was identified as an issue by a number of consultees. Comments on this included:

  - The cost of daily commuting was identified as particularly high when travelling from the Isles.

  - The financial barrier leads to inequalities in access both within the Isles and between the Isles and the Shetland mainland with those unable to afford travel missing out on opportunities. This inequality is replicated with external travel (see below), meaning that residents of the isles are in effect ‘hit twice’ with high travel costs.

  - In addition to the direct cost of travel, the cost and the time taken to travel to island communities reduces business productivity and significantly increases the cost of services on the islands contributing to the overall high cost of living.

- One group of consultees noted that while young people in Shetland receive four free ferry vouchers for travel to and from the Scottish mainland, this does not extend to inter island ferries.

- **Poor Service frequency / gaps in weekend timetables** – the large gaps in the Whalsay weekend timetable were identified as an issue with consultees noting that this results in extended days on the mainland, with people, for example, having to spend all day on the mainland rather than just the morning. Reduced frequency on Bluemull Sound at the weekend and gaps in the Unst timetable due to the requirement to serve Fetlar were also identified as issues. The latter was noted as being both a barrier to employment and a contributor to recruitment issues for business in North Yell.

- **Lack of integration with external flight timetable** – several consultees noted that the ferry times (e.g., Whalsay) do not meet the first flights from Sumburgh and therefore an overnight stay on the mainland is required when travelling by plane which contributes to the overall cost of external trips.

- **Lack of integration on the Bluemull Sound** - one consultee noted that the ferry timetables on the Bluemull Sound routes are not well integrated and that this leads to either insufficient time to make a connection comfortably or a long wait for the connecting service.

- **Poor reliability / punctuality** - was identified as an issue by a number of consultees. While there was a recognition that poor weather contributes to reduced reliability, the age of the vessels and the need for refits was also identified as a significant causal factor. A range of impacts associated with reliability were identified. For example, it was noted that there are school staff who work between schools in e.g., Yell and Unst and during the winter when the weather is poor teachers sometimes do not make lessons or have to leave early which restricts pupils' access to learning opportunities.

- **Inconsistent standard of facilities at ferry terminals** – one consultee noted that while there are accessible toilets at some locations, they are not suitable for all users and the standard of waiting facilities differs across the network.

- **Aging vessels emit high levels of carbon** - a small number of consultees noted that the current fleet of vessels emit high levels of carbon and that reducing carbon emissions should be an important consideration in any future investment in new vessels.

- **Lack of consultation on ferry services** – a number of consultees noted that there were few opportunities to provide input / feedback on the ferry timetables.

- **Ferry timetables difficult to understand** – this was felt to be particularly the case for visitors who are largely unfamiliar with the network.

- **Late publication of internal ferry timetable / opening of booking system** – one consultee noted that they were unable to book internal ferry trips far enough in advance due to the booking system not being open until the point at which the new timetables are issued. This was felt to be constraining the tourism market. To provide context here, while timetables are normally available online and open for bookings 6-weeks prior to the introduction of new timetables, due to uncertainties around restrictions, this period has been shorter during COVID-19.

Options

7.2.15 The following options were identified with respect to the internal ferry network:

- **Fixed links** – fixed links were seen as a solution to the above problems by many consultees. For some, fixed links were felt to be essential in order to sustain island populations. However, it is important to note that not all consultees raised this issue during the engagement process.

- **Providing more frequent crossings on the weekend to / from Whalsay and Bluemull Sound.**

- **Improving vehicle deck capacity.**

- **Providing a ferry to Fetlar on the weekend.**

- **Providing discounts or promoting taking bikes on inter-island ferries rather than the car.**

- **Publishing the timetable and opening the booking system 2-3 months in advance, at least for commercial bookings.**

- **More consultation with users on internal ferries, including disability groups.**

- **Extending free bus travel for under 22s to the internal ferry network.**

- **Introduction of a daily commuting fare on the inter-island ferry network.**

Internal Air

Problems

7.2.16 Problems identified with respect to internal air services included:

- **Cost** - the high cost of air travel compared to ferry travel was noted by several consultees. This was felt to place a particularly heavy financial burden on island residents.

- **Poor reliability** - several consultees noted that internal flights are frequently affected by the weather and there can be long periods, particularly during the winter, where there are no flights available. This is particularly problematic where there is a need to visit the island to undertake a particular service e.g., school visits.

- **Return flights brought forward** - Consultees also noted that flight times are often brought forward in order to provide connections within a weather window which can mean that the day on the island is shortened.

Road

Problems

7.2.17 Problems identified with respect to road travel included:

- **Long diversionary routes** - given that roads are single carriageway and that there is often only one route in and out of settlements, it was noted that maintenance activities and other disruptions, such as collisions, have the potential to lead to long diversionary routes. Two locations were identified where road resilience is a particular issue: A970 near Voe which links north and south mainland and the A970 south of Sandwick which links to Sumburgh Airport.

- **Increasing maintenance requirements on the strategic road network** – it was explained that, following significant investment during the oil boom, much of the strategic road network is now coming to the end of its design life and maintenance requirements are therefore increasing. Outwith the strategic network, it was also noted that the development of the aquaculture industry and the siting of aquafarms on routes which are unsuitable for high levels of traffic has increased maintenance requirements outwith the strategic network.

- **Increased risk of landslides at specific locations due to more severe weather** - several locations were identified where there is a potential for landslides (including the A970 south of Sandwick referred to above) and it was noted that, with more extreme weather conditions, there is the potential for increased risk of these events.

- **Improvements required on the A971 between the Murrister Quarry and Walls.**

- **Improvements required on the Cullivoe to Gutcher Road in Yell** – improvements on this connection have been approved and are being taken forward.

- **High cost of electric cars and lack of electric charging infrastructure –** it was generally agreed that there is a lack of electric vehicle charging infrastructure.

- **High speed of traffic –** there are several locations where there is a request for speed reduction from residents.

- **Lack of security / facilities at informal parking locations when car sharing.**

- **No single information source on road works.**

Options

7.2.18 The following options with respect to the road network were identified:

- **Provision of a single point of information on roadworks** – NHS Shetland noted that roadworks often result in delays when patients are travelling and, if this information was available centrally, it could be included in the information packs provided to patients thereby reducing delays. Information on roadworks in Shetland is available via the Scottish Roadworks Register but this could potentially be promoted more widely.

- **Improvements on the A971 between the Murrister Quarry and Walls and Cullivoe Road in Yell.**

- **Greater consideration of the impact of the development of aquafarms on the road network** and the provision of funding for the road development and maintenance where planning permission for such developments is provided.

- One consultee wished to see **wider use of community car schemes**.

External Ferry – Passenger / Car

Problems

7.2.19 The following problems were identified with respect to the external passenger ferry:

- **Cost** – there was agreement that the cost of external travel by both ferry and air is a key constraint. A range of impacts of this were identified including:

- **Reduced in-migration** – the high cost of travel inhibits visits to family / friends on the Scottish Mainland (and vice-versa) which was seen as a significant barrier to people moving to Shetland and was felt to contribute to issues with both the recruitment and retention of staff.

- **A constrained tourism market** with the majority of potential tourists priced out of trips to the archipelago.

- **Reduced participation of Shetlanders in activities on the Scottish mainland and resultant inequalities in access** - a range of examples were identified in this regard, including, for example, care experienced young people being unable to access events; Shetlanders being priced out of undertaking organised sports; and young people missing out on school trips. The financial barrier leads to inequalities in access both within Shetland and between Shetland and the Scottish mainland with those unable to afford travel missing out on opportunities. It was also noted that there is a further inequality within Shetland, with costs higher again for those living on the Isles who also have to contribute financially for internal transportation.

- Related to the above, in terms of sporting activities, it was also noted that while visiting teams can get a 50% discount on NorthLink services, the cost is still prohibitive for the majority of teams with the result that most do not travel to Shetland for events. As set out above, this situation was felt to be mirrored on a smaller scale for sports teams on the Isles.

- **Vehicle and cabin capacity** – there was agreement amongst consultees that there is a lack of vehicle and cabin capacity on external ferry services. Comments on this issue included:

  - **capacity is an issue on certain days due to concentrations of activity -** Serco NorthLink noted in the engagement that the issue is not capacity per se but the days on which it is available – capacity problems most regularly occur when there is only a single sailing south, such as on a Tuesday and Thursday.

  - **demand from visitors contributes to vehicle and cabin capacity issues** during holiday periods and high visitor numbers following the lifting of COVID-19 restrictions have contributed to issues in the most recent period.

  - restrictions on households sharing cabins contributed to significant issues with cabin capacity during the COVID-19 Pandemic.

  - the ability to more easily isolate from other passengers on the ferry as compared to on the plane and a desire to avoid public transport has contributed to both vehicle and cabin capacity issues during the COVID-19 Pandemic.

  - the **transport of freight on the passenger ferry contributes to vehicle capacity issues**. This is a particular problem during peak livestock season and during the most recent period when there have been significant issues with freight capacity.

  - **4-berth cabins are cheaper than 2-berth cabins because of their position on the ship and that this reduces overall capacity** as individuals / couples book 4-berths rather than 2-berths.

  - cabin capacity was identified as a particular problem for sports teams who travel in large groups and are often booking at relatively short notice and NHS teams organising patient transport.

- there is a requirement under the Northern Isles Ferry service contract for NorthLink to hold 18 spaces on the Ro-pax each day for just-in-time freight traffic and this **limits passenger numbers and cabin sales.**

- **Early departure from Aberdeen** - the early departure from Aberdeen at the weekend was raised by several consultees as a problem as it results in a much shorter day on the Scottish mainland and therefore reduces opportunities. For example, in terms of organised sports, it was noted that groups have to leave tournaments early because of the need to get back to Aberdeen ahead of the 5:00pm departure.

- **Orkney call** - while the availability of the Orkney call was valued, several consultees noted that the ship's arrival time into Orkney was not ideal when travelling for employment or leisure purposes.

- **Adjustments for those travelling with disabilities** – while provision for those with disabilities on NorthLink was recognised as very good, it was noted by one consultee that the waiting environment can be challenging for those with cognitive disorders / dementia.

Options

7.2.20 The following options were identified with respect to external ferries:

- **Reduced ferry fares for residents and / or travel vouchers**.

- **A later departure from Aberdeen at the weekend.**

- **Daytime sailings to Orkney and the Scottish mainland** – this, it was felt, would remove constraints around cabin capacity.

- **Larger vessels** – given the constraints in terms of vessel size at Aberdeen Harbour, the development of Aberdeen South Harbour at Nigg Bay was felt to be an opportunity in this respect.

- **Reinstating the Bergen Link** - there was a desire amongst of number of consultees to reinstating the Bergen link as a means to support tourism.

External Ferry - Freighters

Problems

7.2.21 The following problems were identified with respect to the freighters:

- **Insufficient freight capacity** – several comments were made in respect to this:

  - **Major capital works** on Shetland have had a considerable impact on freight capacity in the recent period. This includes the Viking development for which there has been a need to move significant tonnages of freight. There are further significant works planned in the future which will also impact capacity.

  - **Non time-sensitive freight can be left on the dock which leads to significant additional costs.**

  - **There is little resilience in the system**, with any delays or cancellations resulting in significant capacity issues.

- **There are issues with getting empty trailers back as these are considered low priority.**
- The issues with freight capacity **reduce productivity and restrict business growth.**

Options

7.2.22 The options identified with respect to freight included:

- **Increasing freight capacity through the introduction of an additional freight vessel.**
- **Enhanced planning and forecasting from the freight sector to avoid concentrations of activity on certain days.**
- **Engagement with NorthLink during the scheduling of island events and the planning of infrastructure works to help manage demand.**
- **Developing and expanding formal channels of engagement between SIC, ZetTrans and freight transport companies.**

External Air

Problems

7.2.23 The following problems were identified with respect to the external air service:

- **The cost of air fares** – the high cost of external air travel was identified as an issue by a large number of consultees.
- **The variability of air fares** - the variability of air fares was contrasted with the clear fare structure provided by NorthLink which was felt to be beneficial in planning and organising trips.
- **Inability to change / cancel flight bookings** - making any changes to flight bookings, including changing passenger information, requires at least 14 days' notice and carries a cost. This was identified as an issue by those organising group sporting activities due to the high likelihood of last minute changes due to fixtures being re-arranged / team members changing due to injuries etc.
- **Capacity** - LoganAir allocate a certain number of cheaper seats on each flight and it was noted by organised sports teams, that there are only a sufficient number of these cheaper tickets on flights to Aberdeen; for all other destinations there are not enough of these cheaper tickets to enable travel by the whole team which makes taking a flight to any other destination than Aberdeen unworkable for the purpose of organised sport.
- **Inability to make same day returns to some destinations** - stakeholders noted that the external flight timetable does not allow for same day returns to some locations which necessitates overnight accommodation and increases costs.

Options

7.2.24 The following options were identified with respect to external air transport:

- **Extending the timetable to facilitate later flights**.

- **Investing in a longer / wider runway at Sumburgh Airport to enable the introduction of larger planes in order to increase capacity and reduce costs**.

Sounding Board Group

7.2.25 As specified above, in addition to the one to one and group stakeholder meetings and the briefing notes, an RTS Sounding Board Group was established.

7.2.26 The purpose of this group is to provide a directional check / external challenge during the development of the RTS and to ensure the wider body of stakeholders would be broadly happy with the strategic direction.

7.2.27 The group includes elected representatives and officers from ZetTrans, SIC, Highlands and Islands Enterprise, and Ability Shetland.

7.2.28 It is envisaged that two workshops will be held with the group during the development of the RTS. The first of these workshops was undertaken in November 2021 during the development of this Case for Change document. The Workshop include a presentation on the progress to date with respect to the RTS, including a summary of the emerging findings from the stakeholder meetings and briefing notes. The Workshop was then structured to enable an open discussion around several key topic areas. Feedback from the Workshop has been incorporated within this document.

7.3 Public Consultation

Approach

7.3.1 In order to capture the views of the public and develop an understanding of how people travel around and to / from Shetland as well as any problems experienced, two separate online public surveys were developed as follows:

- Internal Transport Survey – which covered active travel, bus, road, and inter-island air and ferry transport.
- External Transport Survey – which covered air and ferry connections to the Scottish Mainland.

7.3.2 Each survey contained questions on the modes used, frequency of use, and overall levels of satisfaction.

7.3.3 Both surveys were undertaken online and were accessible via the ZetTrans website. The surveys were live over a six-week period between 20th September 2021 and 29th October 2021.

Public Surveys: Response

7.3.4 This section provides an overview of the response received to the above surveys. It is noted that a detailed breakdown of responses is set out within a separate PowerBi analysis and relevant outputs from the surveys have also been incorporated into sections of this report. As such, rather than a question-by-question breakdown, this section focuses on the overall response numbers.

Internal Transport Survey: Response

7.3.5 In total, 1,036 responses were received to the Internal Transport Survey and 611 responses were received to the External Transport Survey. Table 7.1 provides a breakdown of the

responses to the Internal Survey by geographic area. A particularly high response was received from Fetlar, Bressay, and Whalsay, with smaller numbers responding from Skerries, North Mainland, and Lerwick.

Table 7.1: Internal Public Survey Response by Respondent Home Location

Location	Number of Responses	Percentage of Responses	Responses as a Percentage of Population
Fetlar	19	2%	31%
Bressay	57	6%	15%
Whalsay	149	14%	14%
Yell	109	11%	11%
Unst	59	6%	9%
Papa Stour	1	0%	7%
Central Mainland	136	13%	4%
South Mainland	145	14%	3%
West Mainland	70	7%	3%
Fair Isle	2	0%	3%
Lerwick	182	18%	2%
North Mainland	74	7%	2%
Skerries	9	1%	1%
Location not provided	24	2%	
Total	1,036		

7.3.6 Figure 7.1, Figure 7.2 and Figure 7.3 below compare the internal survey and external survey samples with data for the population of Shetland as a whole. The latter is based on 2019 data drawn from the Census 2011, ONS. The main points from these graphs are as follows:

- A higher proportion of females and a smaller proportion of males responded to the surveys compared to the population as a whole.
- There was a larger proportion of responses from those aged 25-54 and a smaller proportion of responses from those aged 16-24 and 55-75+ compared to the population as a whole.
- The majority of those responding to each survey were employed (72%), a slightly higher proportion than within the population as a whole (66%).
- A larger proportion of retirees responded to each survey (14%) compared to the population as a whole (2%).
- There was a smaller proportion of responses to each survey from students, those looking after the family / and those on long-term sick compared to the population as a whole.

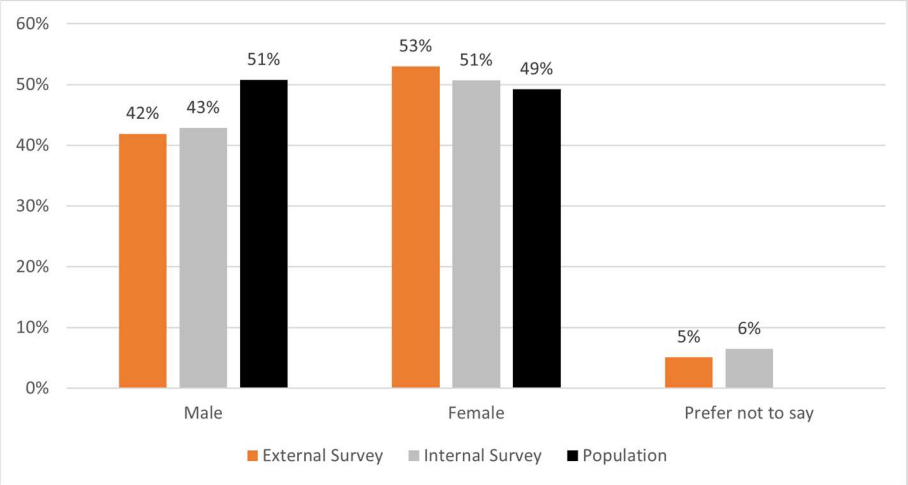


Figure 7.1: Proportion of Male / Females – Internal and External Transport Survey Sample versus Shetland Population

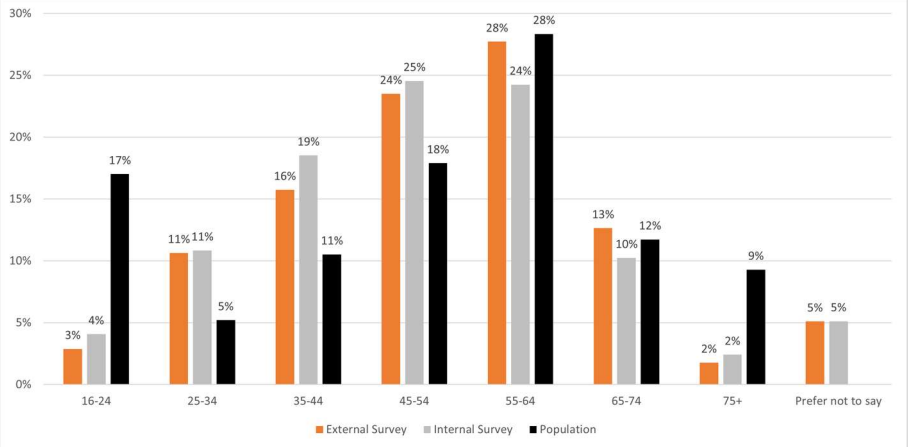


Figure 7.2: Age Breakdown – Internal and External Transport Sample versus Shetland Population

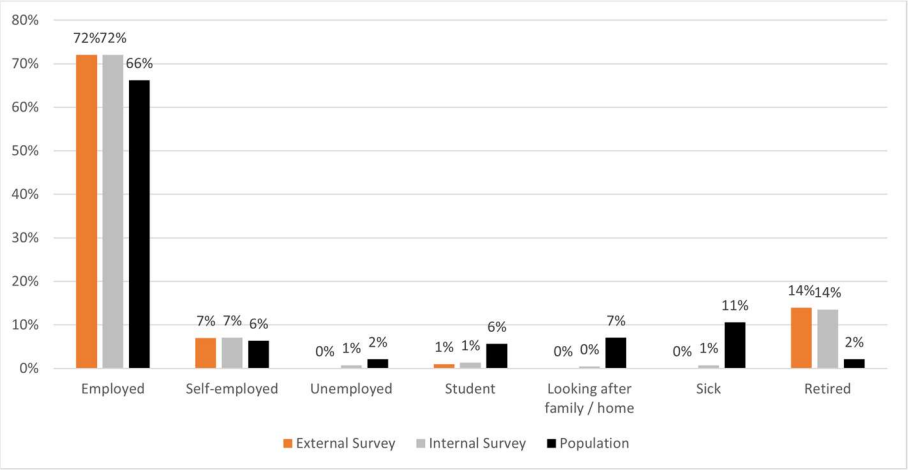


Figure 7.3: Employment Breakdown – Internal and External Transport Survey Sample versus Shetland Population

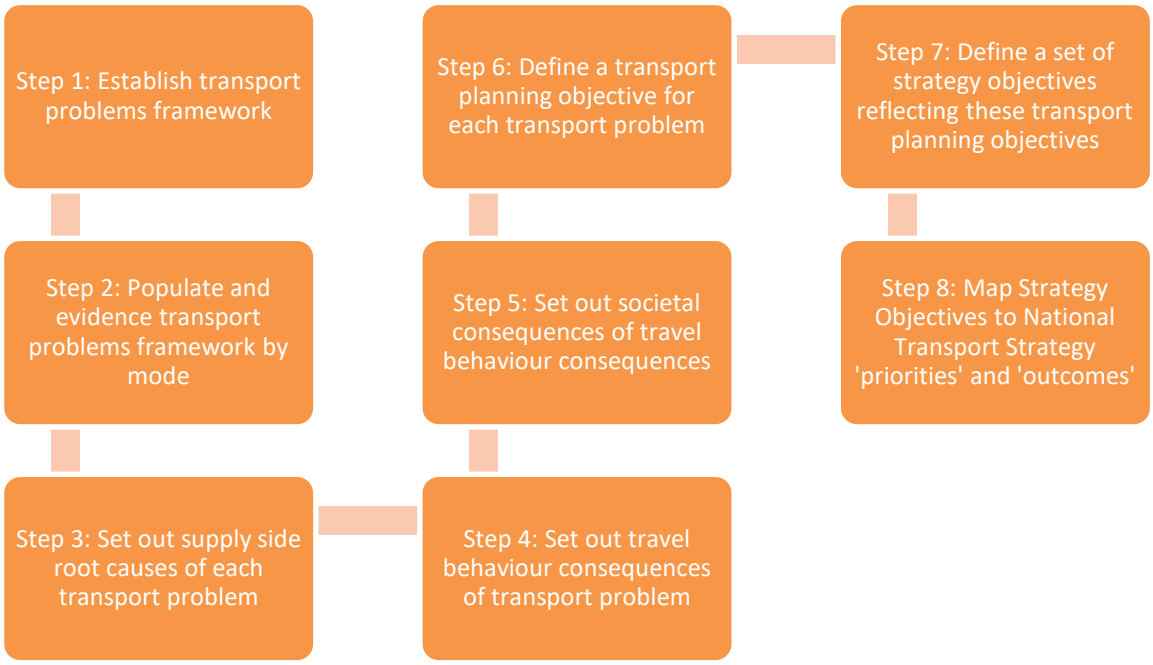
8 Developing Strategy Objectives

8.1 Overview

8.1.1 This section sets out the Strategy Objectives which have been developed. It includes an overview of the process undertaken to develop these objectives along with a detailed breakdown of the problems and opportunities identified through the analysis set out in Part 1 and the programme of public and stakeholder consultation.

8.2 Approach

8.2.1 The process for developing strategy objectives has followed an eight-step process as set out in the diagram and text below.



8.3 Step 1: Establish transport problems framework

8.3.1 What is a transport problem? Here, we define a transport problem as being a problem experienced by a user, or potential user of the transport network. 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 or less comfortable.*
- Something that stops people or goods travelling by (generally) more sustainable and policy friendly modes – *this primarily leads to more car use.*
- Something that stops people making the trips they'd like to make, or goods being moved – *this impacts on peoples' life chances and business opportunities.*

8.3.2 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 strategy objectives are developed. In the subsequent stage, options will be

developed to address these problems and capitalise on opportunities identified. These options will be developed and appraised within the wider context framed by prevailing policy as set out in Chapter 6 and encapsulated in the NTS2 Priorities.

8.3.3 **Transport problems** when defined in this way are typically associated with a relatively narrow range of parameters which define any trip, including:

- All modes of travel:
  - Awareness of travel options
  - Cost of travel and affordability
  - Fuel / power issues
  - Integration of travel between modes (e.g., bus to ferry)
  - Journey information, including for protected groups who may find accessing information particularly difficult
  - Journey quality
  - Journey times
  - Personal security (fear of crime)
  - Personal Accessibility – being able to access transport networks and services specifically including people with disabilities or other protected characteristics which affect accessibility
  - Reliability of journey times (including public transport service punctuality)
  - Safety (transport)
  - Travel emissions
- Public transport services specifically:
  - Capacity
  - Comfort
  - Connectivity (availability of services)
  - Ease of use / convenience
  - Integration between services (within mode, e.g., bus to bus)
  - Service reliability (cancellations)
  - Timetables (first and last / frequency)

8.3.4 The above list has been used as a ‘checklist’ to develop a set of transport problems for each mode of transport in the Shetland context based on the analysis set out in Part 1 and the programme of engagement and consultation.

8.4 Step 2: Populate and evidence transport problems framework

8.4.1 Table B1 in Appendix B sets out the range of transport problems identified of relevance to Shetland. Where there is supporting evidence, this is noted.

8.5 Steps 3-5: Supply side causes, and travel and societal consequence

8.5.1 Each of these transport problems has a consequence in terms of **travel behaviour**:

- adding cost or inconvenience to any trip – adding to the cost of travel, journey times / journey time reliability and / or impacting on health and wellbeing
- meaning that people travel by a different (often less sustainable) mode
- people not making trips with a range of consequences for them and society more generally

8.5.2 Table 8.1 below sets out:

- each transport problem identified in the Problems Framework in Appendix B
- 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 wider societal impacts associated with the transport problem

Table 8.1: Travel and Societal Consequences of Identified Transport Problems

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
Walking And Wheeling				
I do not know where walking routes are / do not feel confident using them	- Lack of signage other than at access points	- Anxiety whilst walking due to security concerns – a particular issue for more vulnerable groups - Extended journey times associated with longer routes -	- When travel by car rather than walk (including those in some protected groups unable to undertake walking and wheeling journeys) they generate avoidable car kilometres with associated impacts (energy usage, emissions, noise, collisions, demand on ferries with the latter potentially disadvantaging other essential users e.g., freight) - 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 -	- Reduced discretionary walking for leisure - Health impacts due to reduced physical activity - Equalities issues as some of these problems only (or most adversely) affect vulnerable or protected groups – economic, gender, age, disability etc. - Increased social isolation and associated impacts on health and wellbeing - Reduced tourism
My local environment is not suitable for walking and wheeling	- Quality of surfacing - Quality of streetscape - Obstacles on footway - Steps on routes			
Walking takes too long	- Indirect routes - Community severance			
I sometimes don't think it's secure enough for me to walk	- Lack of safe, well-lit routes - Fear of crime in local environment			
Walking is not a realistic option for me because of a disability	- Obstacles on footway, visibility of obstacles - Steps and other interruptions (e.g., gates) on routes - Lack of appropriate infrastructure including tactile paving etc			
I sometimes don't think it's safe enough for me to walk	- Lack of segregation from traffic - Traffic volumes and speeds - Lack of footways			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
Cycling				
I am not aware of cycling opportunities in Shetland	- Lack of information - Lack of promotion - Lack of signage	- Fear of injury whilst cycling due to concerns about traffic - Anxiety whilst cycling due to security concerns – a particular		- Reduced discretionary cycling for leisure - Low cycling participation rates in more vulnerable groups
I can't afford to own and maintain a bike	- Cost of buying and maintaining a bike			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I can't take my bike on the bus	- Carriage of bikes on buses at operator discretion and therefore not possible in all cases / guaranteed	issue for more vulnerable groups - Extended journey times associated with longer routes -	- When people travel by car rather than bicycle (including those in some protected groups unable to undertake cycling journeys), they generate avoidable car kilometres with associated impacts (energy usage, emissions, noise, collisions, demand on ferries with the latter potentially disadvantaging other essential users e.g., freight) - 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	- Health impacts due to reduced physical activity - Equalities issues as some of these problems only (or most adversely) affect vulnerable or protected groups – economic, gender, age, disability etc. - Reduced tourism
There is nowhere for me to securely park a bicycle	- There is a lack of bike parking facilities away from my home - There is a lack of bike parking facilities at my home and I cannot keep a bike in my home			
I don't like cycling up hills	- Cycling routes which are not defined to minimise the impact of gradients - Costs and availability of electric bikes			
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 by bike are too long	- Indirect cycling routes			
I don't think it's secure enough for me to travel by bike	- Lack of safe, well-lit routes - Fear of crime in local environment			
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			
I don't think it's safe enough for me to travel by bike	- Traffic volumes and speeds - Intimidation by vehicular traffic - Lack of segregation from general traffic			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
Bus				
I am not aware of the bus services available	- Level of, accessibility of, and promotion of bus service and vehicle information in Shetland - Low awareness of ZetTrans Travel App	- Cost of bus travel particularly significant for lower income households in particular and can comprise a significant		- Labour market efficiency impacts through poor matching of people to skills - Labour market access issues –

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I can't afford to travel regularly by bus	- Level of fares, including arrangements for regular bus users in Shetland - Concessionary travel entitlement regime	component of disposable income - Extended journey times associated with longer routes - Long journey times by bus lead to lost personal / in work time - Missed appointments, including health appointments - Anxiety whilst using the bus due to security concerns (particularly for some protected groups - e.g., women, elderly people) - Anxiety whilst using the bus due to health / virus concerns -	- When people travel by car rather than bus, they generate avoidable car kilometres with associated impacts (energy usage, emissions, noise, collisions, demand on ferries with the latter potentially disadvantaging other essential users e.g., freight) - Health impacts due to reduced physical activity as people travel by car rather than bus which involves some walking - Lack of suitable bus service 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 service can mean that people have to use taxis with significant financial implications for some households	particularly those undertaking shift work and vulnerable groups such as dispersed rural communities and deprived communities (impacts on those with socio-economic disadvantage) - Reduced community participation in tertiary education and training, - Reduced community participation in leisure, social, cultural and sporting activities - Increased social isolation and associated impacts on health and wellbeing - Reduced tourism - 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
I do not know if my bus is going to be on time	- Availability / quality of real time journey bus information at bus stops and via apps etc.			
I am exposed to weather at bus stops	- Availability / quality of bus shelters cross the network			
Travelling by bus does not feel like a high-quality experience	- Quality of vehicles - Customer experience - Quality of bus stop infrastructure			
I do not feel secure travelling by bus	- Combination of bus station and bus stop location and design - Lack of CCTV on board - Low bus occupancy - Infection control measures - Anti-social behaviour on transport - Lerwick bus station waiting environment			
It takes a long time to travel by bus, particularly compared to travel by car	- Frequent bus stops - Circuitous service routing - Interchange required for some as most services to / from Lerwick			
I find it difficult / am unable to travel on the bus due to a disability	- Combination of bus station / stop location and design, and bus design - Waiting areas at Lerwick bus station - Feeder bus services sometimes not wheelchair accessible (if buses have less than 22 seats they don't have to be wheelchair accessible) - Issues with driving standards			
Journey times by bus are not reliable	- Delays due to incidents on the road - Delays due to driver issues - Delays due to vehicle issues - Climate change leading to increasing weather events			
The bus is sometimes late and I have a longer wait at the stop	- Buses not punctual due to incidents on the network or operation reasons, including driver shortages			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
There are no bus services going where I want to go	- Coverage provided by current scheduled bus network - Absence of buses at the times people want to travel - Absence of Sunday services			
I need to pay each time I use the bus	- Absence of multi-journey or multi-day tickets			
I have to change buses to get where I want to go	- Extent of current scheduled bus network - Most services are to / from Lerwick			
The bus sometimes does not show up	- Cancellations due to driver or vehicle issues - Cancellations due to incident on the road network			
The bus service is not frequent enough	- Extent of current scheduled bus timetable			
I can't get to early morning flights / appointments / shift work or attend late night social events / shift work	- Absence of buses at the times people want to travel			
I am concerned about the environmental impact of travelling by bus	- The bus fleet is diesel powered in Shetland affecting greenhouse gas emissions and local air quality			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
Internal Ferry				
I find the ferry timetable difficult to read	- Level of, accessibility of, and promotion of ferry timetables	- The integration of the Shetland economy means that regular ferry use for employment and leisure is common o Adds to cost of island life o Cost of ferry travel particularly significant for lower income households and can comprise a significant component of	- When people travel by car on the ferry rather than as a foot or bus passenger, they generate avoidable car kilometres with associated impacts (energy usage, emissions, noise, collisions, vehicle demand on ferries with the latter potentially disadvantaging other essential users e.g., freight)	- Labour market efficiency impacts through poor matching of people to skills - Labour market access issues - particularly vulnerable groups such as dispersed rural communities and deprived communities (impacts on those with socio-economic disadvantage)
It is too expensive to take my car on the ferry	- Level of fares set by Shetland Island Council			
It is too expensive to travel as a foot passenger	- Level of fares set by Shetland Island Council			
It is too expensive to take freight on the ferry	- Level of fares set by Shetland Island Council			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I have to pay two fares for bus and ferry	- Fares are paid individually to Shetland Ferries and the bus operator - Very few bus services operate over the ferry service	disposable income o Cost of ferry travel imposes high costs on some businesses giving rise to relative disadvantage of these island businesses o Some keep a second car on the mainland and travel as a foot passenger, adding to household costs and creating mainland parking issues - Additional overnight accommodation / subsistence costs in absence of early / late ferries (although a benefit to providers) - Long ferry journey times lead to lost personal / in work time - Delays due to weather or operational issues add further lost time and lead to missed appointments, absence of information about delays can lead to further frustration and stress - Delays due to weather or operational issues impacts the supply chain, can affect the value of time sensitive goods and can affect the sustainability of island businesses - Illness due to seasickness - Undignified travel for those with some disabilities due to craning on / off ferry. People may travel at time or on days which are not their preference due to capacity constraints creating inconvenience and adding to lost personal time	- Lack of suitable ferry-bus services can mean 'forced' car ownership for some households with significant financial implications	- Reduced community participation in tertiary education and training, - Reduced community participation in leisure, social, cultural and sporting activities - Increased social isolation and associated impacts on health and wellbeing, particularly in more dispersed island communities including the Outer Isles - Equalities issues when vulnerable groups cannot travel by ferry - Reduced island tourism - Impact on island population retention and in-migration - Barriers to moving goods can act on island business formation relative to mainland locations
There is no direct bus from the ferry terminal to where I want to go / the bus does not reliably align with the ferry arrival and departure times	- Extent of scheduled bus services - Timetables of scheduled bus services			
I have to purchase two separate tickets for the bus and ferry	- Fares are paid individually to Shetland Ferries and the bus operator - Lack of integrated tickets			
I do not know if my ferry will be on time	- Availability / quality of real time journey information at harbour and via apps etc			
The journey time is too long	- Ferry routes and ports - Check in times at ferry terminal - Vessel operating speed			
I find it difficult / am unable to travel on the ferry due to disability	- Lack of step free access to passenger lounge on some vessels - Variable standards of provision with waiting rooms and accessible toilets			
The ferry is sometimes late	- Weather - Climate change - Crewing issues - Ageing vessels leading to more frequent breakdowns and longer refit periods			
I am unable to take my vehicle on the ferry at the time I want to travel	- Vessel vehicle deck capacity and frequency of sailings			
I am unable to take freight on the ferry at the time I want to travel	- Vessel vehicle deck capacity and frequency of sailings			
I don't find the ferry journey comfortable	- Sea conditions - Vessel design - Vessel speed			
I find it a hassle booking ferry tickets regularly	- Lack of electronic tickets - Short shelf-life of multi journey tickets - Lack of vehicle capacity means booking is often required			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I am unable to book ferry trips far enough in advance	- Current timetable production and approval process - In house sign off for timetables required before publication			
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			
I can't get to early morning flights / appointments / shift work or attend late night social events / shift work	- Length of ferry operating day driven by crewing hours			
I can't travel at the time I want to at the weekend	- Weekend timetable often reduced compared to weekday (operated by single vessel)			
There is insufficient time between sailings to enable a meaningful day trip between Skerries, Papa Stour and Shetland mainland / Lerwick	- Timetable - Overnight vessel location - Vessel and crew resourcing			
I can't travel on the day I want to travel	- Timetable – absence of 7-day service - Vessel and crew resourcing			
I am concerned about the environmental impact of travelling by internal ferry	- The ferry fleet uses fossil fuels generating greenhouse gases and other pollutants - The construction of ferry terminal infrastructure has environmental impacts			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
Internal Air				
The air fares are too expensive	- Level of fares set by Shetland Island Council	- Adds to cost of island life		- High school students do not get to return home on all of the

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I can't travel between Tingwall and Lerwick by scheduled bus	- Scheduled bus services do not call at Tingwall - Provision of a dial a ride bus (booked the previous day)	- 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 suitable flights (although a benefit to providers) - Delays due to weather or operational issues leads to missed appointments - Delays due to weather impact the supply chain, can affect the delivery of fresh produce when ferries are also affected - Undignified travel for those with some disabilities due to craning on / off ferry - People may travel on days which are not their preference due to the timetable, capacity constraints on the plane or cancellations creating inconvenience and adding to lost personal time	- Illness due to seasickness when forced to use ferry as an alternative to air - Longer journey times by ferry	weekends when there are scheduled to do so - Reduced community participation in tertiary education and training, - Reduced community participation in business, leisure, social, cultural and sporting activities - Increased social isolation for some protected groups and associated impacts on health and wellbeing - Equalities issues when vulnerable groups cannot travel by air - Reduced island tourism - Impact on island population retention and in-migration
I find it difficult to connect for onward travel	- Travel to Sumburgh and other onward connections all via the Lerwick dial a ride bus			
I do not know if my flight is going to be on time	- Flights are frequently affected by the weather - Climate change leading to increasing weather events - Information is provided by personal phone calls, rather than apps etc. given the low travel volumes			
I find it difficult / am unable to travel on the internal air service due to mobility issues	- Design of aircraft used to provide the service - Infrastructure and operational constraints which drive the aircraft specification			
The service does not keep to the timetable	- Flights are frequently affected by the weather			
I am unable to book a seat on the plane at the time I want to travel	- 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			
I don't find the flight comfortable	- Design of aircraft used to provide the service - Infrastructure and operational constraints which drive the aircraft specification			
My island no longer has an air connection	- Landside human resources on island - Low demand			
I have to travel between Tingwall and Sumburgh to make an external flight	- All internal flights except a Saturday Fair Isle – Sumburgh flights operate from Tingwall			
The service is sometimes cancelled	- Climate change leading to increasing weather events - Operational issues			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I can't travel on the day I want to travel	- A 7-day service is not provided in the current timetable - Aircraft, pilot and island human resources			
I can't undertake a meaningful day trip to the Shetland mainland / to an island on some days	- Current timetable - Aircraft, pilot and island human resources			
I am concerned about the environmental impact of travelling by the internal air service	- The two aircraft use fossil fuels generating greenhouse gases			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
External Ferry - Passengers				
It is too expensive to take my car on the ferry	- Level of fares - Fare types and concessionary travel arrangements	- Adds to cost of island life - Cost of ferry travel particularly significant for lower income households and can comprise a significant component of disposable income (with attendant impacts for some affected groups who are indirectly discriminated against in their ability to access services which can only be reached on the mainland) - Overnight discomfort / poor sleep if preferred sleeping accommodation not available - Additional overnight accommodation / subsistence costs in the event of ferry cancellations (although a benefit to providers) - Delays due to weather or operational issues adds further	- People may fly instead of using the ferry due to capacity constraints or cancellation – this will result in a different level of carbon generation and may cost more, especially if traveling at short notice -	- Cost of travel means some residents (particularly those in households of socio-economic disadvantage) don't see mainland family and friends or undertake social activities as much as they would like, particularly at short notice - Reduced participation in sport 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 across Shetland – has knock on impact on the Shetland economy and provision of public services
It is too expensive to travel as a foot passenger	- Level of fares - Fare types and concessionary travel arrangements			
It is too expensive to book accommodation onboard	- Overnight sailings only which necessitates the use of a cabin for many people - Cabin charges			
I can't leave my car at Holmsgarth Terminal	- Limited long stay parking provision at Holmsgarth - Parking on street in the surrounding area is less secure			
I find it difficult / am unable to travel on the ferry due to a disability	- Some people have to / choose to sleep on the floor in public areas so vulnerable to other passengers (protected groups)			
The ferry sometimes leaves and arrives late	- Weather disruption - Operational issues			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I sometimes find it difficult / am unable to book my vehicle on the ferry	- Vehicle deck size - Imbalance between demand for and supply of space for cars on the vehicle deck on some sailings - RoPax vessels the preferred service for time sensitive freight - Problem exacerbated on sailings with an Orkney call	lost time and leads to missed appointments - Illness due to seasickness - People may travel on days which are not their preference due to capacity constraints / cancellations creating inconvenience and adding to lost personal time - Lost time and inconvenience if travelling to / 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		- Potential implications on attending heath appointments in Aberdeen - Equalities impacts for those groups who will not travel without a cabin for health / personal security reasons
I sometimes find it difficult / am unable to book a cabin on the ferry	- Number of cabins - Imbalance between demand for and supply of cabins on some sailings - Preference for sole use cabins can mean low bed / cabin occupancy rates - Problem exacerbated on southbound sailings with an Orkney call			
I find it difficult / am unable to book my car on the ferry and a cabin	- Vehicle deck size and number of cabins - Imbalance between demand for and supply of space for cars on the vehicle deck and cabins on some sailings - RoPax vessels the preferred service for time sensitive freight - Problem exacerbated on southbound sailings with an Orkney call - Preference for sole use cabins can mean low bed / cabin occupancy rates			
I don't find the ferry comfortable	- Sea conditions and weather - Speed of sailing on Aberdeen – Orkney leg - Vessel design - Limited options to lie flat onboard without purchased accommodation			
I am unable to book ferry trips far enough in advance	- Process for setting timetables and opening bookings set out in ferry operating contract			
The ferry is sometimes cancelled	- Weather disruption - Climate change leading to increasing weather events - Operational issues			
When calling at Orkney, the ferry departs too early for me to have a meaningful day either on the Scottish mainland or in Shetland	- Orkney calls necessitate an early departure from Aberdeen and Lerwick to maintain preferred arrival times			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
I cannot travel to Orkney from Shetland when I want to / the arrival times are unsociable	- No daily connections between Shetland and Orkney - Late evening arrivals in / departures from Hatston a product of the timetable - Requirement for a cabin when travelling northbound from Orkney			
I am concerned about the environmental impact of travelling by NorthLink ferry	- The ferry fleet uses fossil fuels generating greenhouse gases - The construction of ferry terminal infrastructure has environmental impacts - The higher speed Aberdeen to Kirkwall leg uses a disproportionate amount of fuel			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
External Ferry - Freight				
It is too expensive to take freight on the ferry	- Freight schedule of rates specified by Scottish Government	- Cost of moving freight by ferry a significant additional cost to exporting from, or importing to Shetland, affecting commercial viability and / or the price charged to end user - with implications for relative economic and social disadvantage of Shetland and its freight dependent businesses relative to the Scottish mainland - Delays and cancelations affect supply chain efficiency and the value of some time-sensitive goods in transit will reduce with delays (particularly aquaculture) - Production day shortened on days when vessels leave early	- No significant issues here – goods which travel by ferry / freighter very unlikely to be suitable for air freight	- The current costs and logistics of moving goods from and to Shetland 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 the islands relative to the Scottish mainland
The ferry sometimes leaves and arrives late	- Weather disruption - Operational issues - Freight vessels more prone to disruption due to inferior seakeeping			
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 - RoPax vessels the preferred service for time sensitive freight			
There is not sufficient capacity for freight on the 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			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
The ferry is sometimes cancelled	- Weather disruption - Climate change leading to increasing weather events - Operational issues - Freight vessels more prone to disruption due to inferior seakeeping	due to incorporation of Orkney call		
The ferry departs too early on some evenings	- Orkney calls necessitate an early departure from Aberdeen and Lerwick to maintain preferred arrival times			
I am concerned about the environmental impact of moving goods using NorthLink ferry and freight services	- The ferry fleet and freighters use fossil fuels generating greenhouse gases - The construction of ferry terminal infrastructure has environmental impacts - The higher speed Aberdeen to Kirkwall leg uses a disproportionate amount of fuel			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
External Air				
I find that the air fares are too expensive / unpredictable, particularly for short notice trips	- Commercially set fares reflecting a yield management approach - Only one provider at present so there is a monopoly	- Adds to cost of island life - Adds to cost of doing business in Shetland, placing island businesses at a disadvantage compared to businesses on the Scottish mainland - 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)	- 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 Sumburgh rather than take the bus passenger, they generate avoidable car kilometres with associated impacts (energy usage, emissions, noise,	- Cost of travel means some residents don't see mainland 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 - Increased social isolation for and associated impacts on health and wellbeing - Reduced island tourism - Impact on population retention and in-migration across
As a public 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			
There is no direct bus connection to Sumburgh from my home / the bus connection to Sumburgh does not reliably align with flight times	- No dedicated airport bus (vehicles and service) - Non-clockface bus timetable - Need to interchange if destination is not on the bus service route			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
The bus connection to Sumburgh does not reliably align with flight times	- Current bus timetables do not meet first departure flights due to operating day constraints -	- 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 capacity constraints / cancellations creating inconvenience and adding to lost personal time	collisions)	Shetland – has knock on impact on the Shetland economy and provision of public services - Potential implications on attending heath appointments on the mainland
I have to pay to park my car at Sumburgh	- £3 parking charge per 24-hour period introduced by HIAL in 2019			
Flights are sometimes late	- Weather disruption - Operational issues - Crewing issues			
I am unable to get a seat on the plane at the time / on the day I want to travel	- Combination of timetables and aircraft used insufficient to meet demand - Commercial decision - operators should respond to this problem			
Flights are sometimes cancelled	- Weather disruption - Operational issues - Crewing issues			
I am unable to make a day return trip by air to all Scottish Mainland Airports in all timetable periods	- COVID-19 is affecting timetables in the short term - Commercial decisions of operator on services provided			
I am concerned about the environmental impact when I travel by air	- All the aircraft serving Shetland use fossil fuels generating greenhouse gases			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
Other Road-Based Travel				
The cost of driving is too high for me	- Higher fuel prices than mainland Scotland - Higher fuel consumption and car maintenance costs due to single track roads / climate	- Higher car operating costs in Shetland add further to higher cost of island life and the cost of doing business compared to the mainland - Cost of car ownership particularly significant for lower income households in particular and can comprise a significant	- 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 drive more sustainable travel choices through making	- Prohibitive cost of car ownership and use may bring reduced community employment participation - labour market efficiency impact if people are excluded; reduced community participation in tertiary education and training; reduced community
I can't 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			

Transport Problem	Supply Side Cause	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
The cost of using a taxi is too high for me	- Fares tariff set by SIC – reviewed every 18 months in a statutory process that involves public consultation - Higher costs during travel at anti-social hours	component of disposable income - People may have to rely on lifts reducing independence and increasing reliance on others - Delays due to incidents on the road network lead to lost time and missed appointments - Illegal use of disabled parking spaces adds to travel difficulties faced by blue badge holders - Some drivers will feel intimidated by other drivers' behaviour - Concern over vehicles left at car sharing locations with no security - Anxiety when travelling by taxi - Anxiety over risk of being involved in a traffic accident	people car share, or using the bus or active travel instead	participation in leisure, social, cultural and sporting activities; difficulties attending health appointments; and increased social isolation and associated impacts on health and wellbeing.
I can't charge an electric vehicle	- Flat based accommodation - Absence of suitable public EV charging infrastructure			
As a commercial operator, I cannot avoid diesel powered vehicles	- Lack of alternative fuel technologies on heavier vehicles			
There is a lack of security / facilities at informal parking locations when car sharing	- There are no formal Park & Choose / Ride sites			
I do not know if there are incidents on the road	- Limited real time traffic information other than that provided by app, local radio etc			
I can't park where I want to park	- Lack of disabled parking bays and increasing number of blue badge holders - No enforcement of parking regulations			
Journey times by road can be long	- Single track roads and poor road alignment off of main road network - Abnormal loads associated with industrial developments (note – this is generally not an issue currently / convey systems will be in place for transporting blades and components for the wind farm)			
I don't feel secure travelling by taxi	- Perception of taxi drivers			
I am unable to access taxi services due to disability	- Availability of fully accessible taxis - Lack of text-based booking options for those with hearing difficulties			
Journey times by road can be long when there is an incident where there is no alternative route	- Resilience issue on A970 between Isles Road and B9071 – could block all north-south travel - Resilience issue on the A970 south of Sandwick which connects to Sumburgh Airport – only connection to Sumburgh - Climate change leading to increasing weather events			

Transport Problem	**Supply Side Cause**	Something that **negatively affects a journey** which is still made by this mode (people and freight)	Something that stops people or goods **travelling by more sustainable modes**, or their preferred mode	Something that stops people **making the trips they'd like to make**, or goods being moved
Journey times by road can be long when there is an incident / road works that require a diversion	- Long diversionary routes due to local geography / sparse road network - Climate change leading to increasing weather event			
In places, journey times by road are variable	- Single track roads and poor road alignment off of main road network			
I am concerned about the risk of road accidents	- Traffic speeds and enforcement of speed limits - Road geometry - Road surfacing - Winter road treatment regime (including early morning / late night)			
I am concerned about the environmental impact when I travel by car or taxi	- High ongoing use of fossil fuelled vehicles generating greenhouse gas - Embedded carbon in EVs - Absence of alternatives to car use for many			

8.6 Step 6: Define Transport Planning Objectives

8.6.1 For each of the transport problems identified above, Table 8.2 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. They also provide a foundation of the types of issues which will be considered in the options appraisal with respect to the Strategy Objectives.

Table 8.2: Transport problems and Transport Planning Objectives

Transport Problem	Transport Planning Objective
Walking And Wheeling	
I do not know where walking routes are / do not feel confident using them	Improve signing and promotion of walking & wheeling routes in Shetland for all groups
My local environment is not suitable for walking and wheeling	Improve the physical environment and infrastructure for those walking & wheeling
Walking takes too long	Improve the directness of walking & wheeling routes
I sometimes don't think it's secure enough for me to walk	Address the personal security barriers which stop people walking & wheeling more
Walking is not a realistic option for me because of a mobility issue	Make walking & wheeling accessible to all abilities
I sometimes don't think it's safe enough for me to walk	Reduce conflicts between walkers & wheelers and general traffic and the perceived intimidation of walkers & wheelers by general traffic
Cycling	
I am not aware of cycling opportunities in Shetland	Improve signing and promotion of cycling routes in Shetland for all groups/users
I can't afford to own and maintain a bike	Widen access to cycle usage to enhance affordability
I can't take by bike on the bus	Make bus travel accessible to all Shetland residents, including those with prams, bikes etc
There is nowhere for me to securely park a bicycle	Improve cycle parking provision (and security) for those wishing to cycle in Shetland
I don't like cycling up hills	Reduce the impact of gradients as a deterrent to cycling in Shetland
I need to be presentable at work	Improve workplace facilities for cyclists
Journey times by bike are too long	Improve cycle routes to provide more direct routes
I don't think it's secure enough for me to travel by bike	Address the personal security barriers which stop people cycling more including for age and gender groups
I cannot use a standard bicycle due to disability	Make cycling accessible to all
I don't think it's safe enough for me to travel by bike	Reduce conflicts between cyclists and general traffic and the perceived intimidation of cyclists by general traffic
Bus	
I am not aware of the bus services available	Improve bus service information and promote bus use in Shetland for all groups/users
I can't afford to travel regularly by bus	Reduce the impact on households' disposable income of travelling by bus particularly for

Transport Problem	Transport Planning Objective
	households with fewer transport alternatives and in remoter areas
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 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	Address the perceptions of poor quality which stop some from using the bus
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 do not feel secure travelling by bus	Improve actual and perceived personal security on the bus networks
I cannot access the bus network	Make bus travel accessible to all Shetland residents, including those with disabilities, wheelchairs, mobility issues, prams, bikes etc
Journey times by bus are not reliable	Improve the reliability of bus in-vehicle journey times
The bus is sometimes late, and I have a longer wait at the stop	Improve bus punctuality at bus stops
There are no bus services going where I want to go	Widen coverage of the bus network across Shetland by geography and across the day
I need to pay each time I use the bus	Make bus travel / ticketing as seamless as possible
I have to change buses to get where I want to go	Provide more direct connections to locations other than Lerwick
The bus sometimes does not show up	Improve the certainty of bus travel in Shetland
The bus service is not frequent enough	Reduce the inconvenience caused by infrequent bus services
I can't get to early morning flights / appointments / shift work or attend late night social events / shift work	Widen access to the bus network across Shetland by geography and across the day
I am concerned about the environmental impact of travelling by bus	Reduce the environmental impacts associated the operation of Shetland's bus fleet
Internal Ferry	
I find the ferry timetable difficult to read	Improve ferry service information (and access to it for all protected groups)
It is too expensive to take my car on the ferry	Remove the cost-based barriers to travel on internal ferries particularly for households with fewer transport alternatives and in remoter areas
It is too expensive to travel as a foot passenger	Remove the cost-based barriers to travel on internal ferries particularly for households with fewer transport alternatives and in remoter areas
It is too expensive to take freight on the ferry	Remove the cost-based barriers to transporting goods on internal ferries
I have to pay two fares for bus and ferry	Make inter-island travel fully integrated
There is no direct bus from the ferry terminal to where I want to go / the bus does not reliably align with the ferry arrival and departure times	Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel

Transport Problem	Transport Planning Objective
I have to purchase two separate tickets for the bus and ferry	Make inter-island travel fully integrated
I do not know if my ferry will be on time	Improve real time ferry information (and access to it)
The journey time is too long	Reduce the total time taken when travelling by ferry
I find it difficult / am unable to travel on the ferry due to a disability	Make inter-island ferry services fully accessible and convenient to people in all protected groups
The ferry is sometimes late	Improve ferry service punctuality
I am unable to take my vehicle on the ferry at the time I want to travel	Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel
I am unable to take freight on the ferry at the time I want to travel	Provide appropriate connectivity which allows goods to be moved between the islands when it needs to travel
I don't find the ferry journey comfortable	Make travel by ferry as comfortable as possible for all users
I find it a hassle booking ferry tickets regularly	Make inter-island travel easy for all, minimising time and effort spent organising travel
I am unable to book ferry trips far enough in advance	Make inter-island travel easy for all, minimising time and effort spent organising travel
The ferry is sometimes cancelled	Improve the resilience and reliability of the ferry service, including with respect to more frequent severe weather linked to climate change
I can't get to early morning flights / appointments / shift work or attend late night social events / shift work	Provide end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel
I can't travel at the time I want to at the weekend	Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel
There is insufficient time between sailings to enable a meaningful day trip between Skerries, Papa Stour and Shetland mainland / Lerwick	Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel
I can't travel on the day I want to travel	Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel
I am concerned about the environmental impact of travelling by internal ferry	Reduce the environmental impacts of the operation of Shetland's internal ferry fleet
Internal Air	
The air fares are too expensive	Remove the cost-based barriers to travel on internal air services
I cannot travel between Tingwall and Lerwick by scheduled bus to Lerwick	Improve end-to-end journey integration for those using internal air services
I find it difficult to connect for onward travel	Improve end-to-end journey integration for those using internal air services
I do not know if my flight is going to be on time	Improve the availability and accessibility of information regarding flight status
I find it difficult / am unable to travel on the internal air service due to a disability	Make inter-island air services accessible and convenient to all groups with protected characteristics

Transport Problem	Transport Planning Objective
The service does not keep to the timetable	Improve air service punctuality
I am unable to book a seat on the plane at the time I want to travel	Provide sufficient capacity to meet the demand for essential air travel
I don't find the flight comfortable	Make travel by air as comfortable as possible for all users
My island no longer has an air connection	Provide appropriate air connectivity based on connectivity requirements and operational constraints
I have to travel between Tingwall and Sumburgh to make an external flight	Improve end-to-end journey integration for those using internal air services
The service is sometimes cancelled	Improve the resilience and reliability of the air service, including with respect to more frequent severe weather linked to climate change
I can't travel on the day I want to travel	Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel
I can't undertake a meaningful day trip to the Shetland mainland / on island on some days	Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel
I am concerned about the environmental impact when travelling by the internal air service	Reduce the environmental impacts associated with the operation of Shetland's internal aircraft fleet
External Ferry - Passengers	
It is too expensive to take my car on the ferry	Remove the cost-based barriers to travel on external ferries
It is too expensive to travel as a foot passenger	Remove the cost-based barriers to travel on external ferries
It is too expensive to book accommodation onboard	Remove the cost-based barriers to travel on external ferries
I can't leave my car at Holmsgarth Terminal	Provide connectivity options to Holmsgarth to meet the needs of all ferry users
I find it difficult / am unable to travel on the ferry due to a disability	Make the ferry services fully accessible and convenient to all users / protected groups
The ferry sometimes leaves and arrives late	Increase certainty of ferry travel
I sometimes find it difficult / am unable to book my vehicle on the ferry	Provide end-to-end travel options which allow people to travel between Shetland and Orkney / Scottish mainland when they need to or wish to travel
I sometimes find it difficult / am unable to book a cabin on the ferry	Provide end-to-end travel options which allow people to travel between Shetland and Orkney / 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	Provide end-to-end travel options which allow people to travel between Shetland and Orkney / Scottish mainland when they need to or wish to travel
I don't find the ferry comfortable	Make travel by ferry as comfortable as possible for all users / protected groups
I am unable to book ferry trips far enough in advance	Make ferry travel easy for all, minimising time and effort spent organising travel

Transport Problem	Transport Planning Objective
The ferry is sometimes cancelled	Increase certainty of ferry travel, including with respect to more frequent severe weather linked to climate change
When calling at Orkney, the ferry departs too early for me to have a meaningful day either on the Scottish mainland or in Shetland	Provide end-to-end travel options which allows people to travel between Shetland and Orkney / Scottish mainland when they need to or wish to travel
I cannot travel to Orkney from Shetland when I want to / the arrival times are unsociable	Provide end-to-end travel options which allow people to travel between Shetland and Orkney / Scottish mainland when they need to or wish to travel
I am concerned about the environmental impact when travelling by NorthLink ferry	Reduce the environmental impacts associated with the operation of NorthLink ferry services to Shetland
External Ferry - Freight	
It is too expensive to take freight on the ferry	Reduce the cost of business for those exporting from or importing to Shetland
The ferry sometimes leaves and arrives late	Increase certainty of ferry travel, including with respect to more frequent severe weather linked to climate change
There is not sufficient capacity for freight on Ro-Pax	Provide transport which allows freight to move between Shetland and Orkney / Scottish mainland when it needs to travel
There is not sufficient capacity for freight on the freight vessels	Provide transport which allows freight to move between Shetland and Orkney / Scottish mainland when it needs to travel
The ferry is sometimes cancelled	Increase certainty of ferry travel, including with respect to more frequent severe weather linked to climate change
The ferry departs too early on some evenings	Provide transport which allows freight to move between Shetland and Orkney / Scottish mainland when it needs to travel
I am concerned about the environmental impact of moving goods using NorthLink ferry and freight services	Reduce the environmental impacts associated with the operation of NorthLink ferry and freight services to Shetland
External Air	
I find that the air fares are too expensive / unpredictable, particularly for short notice trips	Remove the cost-based barriers to travel on external air services Reduce /remove cost uncertainty of travel using external air services
As a public sector organisation / business, we do not have access to the air discount scheme	Remove the cost-based barriers to travel on external air service
If I cancel / change my booking I incur a cost	Remove the cost-based barriers to travel on external air service
There is no direct bus connection to Sumburgh from my home / the bus connection to Sumburgh does not reliably align with flight times	Improve bus-based connectivity / integration to Sumburgh Airport
The bus connection to Sumburgh does not reliably align with flight times	Improve bus-based connectivity / integration to Sumburgh Airport
I have to pay to park my car at Sumburgh	Improve bus-based connectivity / integration to Sumburgh Airport

Transport Problem	Transport Planning Objective
Flights are sometimes late	Increase certainty of air travel to / from Shetland, including with respect to more frequent severe weather linked to climate change
I am unable to get a seat on the plane at the time / on the day I want to travel	Provide air connectivity which allows people to travel between Shetland and other Scottish airports when they need to, or wish to travel
Flights are sometimes cancelled	Increase certainty of air travel to / from Shetland, including with respect to more frequent severe weather linked to climate change
I am unable to make a day return trip by air to all Scottish Mainland Airports in all timetable periods	Provide air connectivity which allows people to travel between Shetland and other Scottish airports when they need to, or wish to travel
I am concerned about the environmental impact about carbon emissions when travelling by air beyond Shetland	Reduce the environmental impacts associated with the operation of aircraft serving Shetland
Other Road-Based Travel	
The cost of driving is too high for me	Provide alternatives to car use which are accessible and affordable to all
I can't 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
I can't charge an electric vehicle	Widen access to, and facilities for, EV ownership and use
As a commercial operator, I cannot avoid diesel powered vehicles	Widen access to, and facilities for, non ICE-powered commercial vehicles
There is a lack of security / facilities at informal parking locations when car sharing	Improve facilities for car sharing across Shetland at key route decision points
I do not know if there are incidents on the road	Improve the provision of real time traffic information and access to it across the network
I can't park where I want to park	Provide appropriate parking opportunities, and manage and enforce these effectively
Journey times by road can be long	Improve journey times and journey time reliability on the road network
I don’t feel secure travelling by taxi	Widen access to taxi services for all
I am unable to access taxi services due to mobility issues	Widen access to taxi services for all
Journey times by road can be long when there is an incident where there is no alternative route	Improve resilience of road network to incidents and weather events, including those linked to climate change
Journey times by road can be long when there is an incident / road works that require a diversion	Improve resilience of road network to incidents and weather events, including those linked to climate change
In places, journey times by road are variable	Improve journey times and journey time reliability on the road network
I am concerned about the risk of road accidents	Operate appropriate speed limits, and enforce these effectively
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

8.7 Step 7: RTS Objectives

8.7.1 The TPOs set out above have been used to develop a set of RTS Objectives which reflect and encompass the TPOs and set a clear direction for the strategy. Six Strategy Objectives are defined below.

Strategy Objective 1 - To address the barriers which constrain access and/or impose unreasonable costs on travel and freight transport for all groups to / from the rest of Scotland

8.7.2 It has been demonstrated that Shetland's geography and current transport connectivity imposes availability, time, and monetary cost constraints on the movement of people and goods between Shetland and the Scottish mainland beyond that seen anywhere else in Scotland. These constraints affect the ability of Shetland residents to see friends and family and participate in mainland-based activities with particular implications for affordability by groups with socio-economic disadvantage, as well as impacting on migration and tourism. Shetland is also a major exporter of high value seafood and operates a trade surplus, unique amongst Scotland's Island communities. In our survey, 57% of respondents stated that there are aspects of the service which prevent them from using NorthLink ferries more often and 60% stated the same for external air services.

Strategy Objective 2 - To address the barriers which constrain access and/or impose unreasonable costs on travel and freight transport for all groups within Shetland

8.7.3 Around 15% of Shetland residents do not live on Shetland mainland, and the economies of Yell, Whalsay, and Bressay in particular are highly integrated with Shetland mainland. The level of transport integration imposes availability, time, and monetary cost constraints on the movement of people and goods between Shetland's islands and Shetland mainland. The level of connectivity therefore struggles to keep up with level of social and economic integration affecting economic and social integration across the islands. This issue also affects the other islands where links to Lerwick are essential given the pattern of service delivery across the islands. Overall, around a third of respondents stated that aspects of the internal ferry service prevent them using it more often, a figure which rises to 40% if only island residents are included.

8.7.4 In addition, travel within the mainland and other islands can also be constrained by cost and availability for some groups which raises further issues of social and economic exclusion for some people including those with protected characteristics such as disability or age.

Strategy Objective 3 - To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism

8.7.5 Higher levels of walking and wheeling and cycling bring many benefits to the population. Partly in recognition of this, the Shetland Active Travel Strategy identifies a series of actions designed to ensure walking and cycling become attractive and realistic travel choices for short journeys in Shetland. In our survey, 42% and 51% of respondents agreed that there were things which prevented them walking and cycling respectively. Over half of those who expressed a desire to walk or cycle more stated that improved health was a reason for this. Increased active travel provision would help address socio-economic disadvantage through offering genuine low-cost alternatives for some journeys currently being made by car/bus (or being constrained) and for groups such as young people.

Strategy Objective 4 - To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car

8.7.6 Outwith the Lerwick area, Shetland is very car dependent. At 13%, the proportion of Shetland households without access to a car is the second lowest in Scotland, and it is the third highest local authority in Scotland in term of car usage. This pattern of travel is not sustainable in the context of Scotland's climate change targets. In our survey, 44% of respondents stated that there are aspects of the bus service which stop them using it more. Of these, 76% stated that they would use the car less if they could use the bus more and 40% stated that reason for wanting to use the bus more is to reduce carbon emissions compared to using the car. Enhanced alternative transport would also benefit disadvantaged people who may not be able to easily drive, and for those who cannot afford to. It would also improve accessibility to education and services for children and young people.

Strategy Objective 5 - To transition towards an environmentally and financially sustainable, post-carbon transport system

8.7.7 SIC and ZetTrans have direct control over all of Shetland's internal transport and have a role in shaping external transport connections as a key stakeholder. As a service provider and contract setter, the council and ZetTrans therefore can affect supply side changes as well as influencing the travel behaviour of residents of, and visitors to Shetland. This provides opportunities to directly contribute to the decarbonisation of transport in Shetland as well as ensuring that new transport services and infrastructure are planned and delivered sustainably.

Strategy Objective 6 – To support safe, resilient, and efficient movement of all people and freight across Shetland

8.7.8 The Shetland economy is founded on good connectivity across the islands. It is essential that reliable and safe travel and transport is developed and maintained across all transport modes, including to reduce differential demographic, economic and social impacts for Shetland relative to mainland Scotland / other island areas. As other strategy objectives are aimed specifically at public and active travel, this objective also recognises the importance of unavoidable car-based travel and the movement of goods. For all modes of travel, the networks also need to be resilient and able to adapt to the threat posed by climate change.

Mapping of TPOs to Strategy Objectives

8.7.9 In order to demonstrate the linkages between the TPOs and the Strategy Objectives and to cross-check that each TPO is encapsulated in at least one Strategy Objective, Table 8.3 below shows how the TPOs developed in Step 6 mapped to the Strategy objectives.

8.7.10 The ticks in Table 8.3 indicate the main Strategy Objectives to which each TPO relates, but it is noted that there will also be a relationship with some of the other Strategy Objectives in some cases.

Table 8.3 TPOs and Strategy Objectives

	Strategy Objectives					
Transport Planning Objective	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland**	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland**	**To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism**	**To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car**	**To transition towards an environmentally and financially sustainable, post-carbon transport system**	**To support safe, resilient, and efficient movement of all people and freight across Shetland**
Improve signing and promotion of walking & wheeling routes in Shetland for all groups			✓	✓		
Improve the physical environment and infrastructure for those walking & wheeling			✓	✓		
Improve the directness of walking & wheeling routes			✓	✓		
Address the personal security barriers which stop people walking & wheeling more			✓	✓		✓
Make walking & wheeling accessible to all abilities			✓	✓		
Reduce conflicts between walkers & wheelers and general traffic and the perceived intimidation of walkers & wheelers by general traffic			✓	✓		✓
Improve signing and promotion of cycling routes in Shetland			✓	✓		
Widen access to cycle usage to enhance affordability		✓	✓	✓		
Improve cycle parking provision (and security) for those wishing to cycle in Shetland			✓	✓		
Reduce the impact of gradients as a deterrent to cycling in Shetland			✓	✓		
Improve workplace facilities for cyclists			✓	✓		
Improve cycle routes to provide more direct routes			✓	✓		
Address the personal security barriers which stop people cycling more including for age and gender groups		✓	✓	✓		
Make cycling accessible to all		✓	✓	✓		

	Strategy Objectives					
Transport Planning Objective	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland**	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland**	**To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism**	**To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car**	**To transition towards an environmentally and financially sustainable, post-carbon transport system**	**To support safe, resilient, and efficient movement of all people and freight across Shetland**
Reduce conflicts between cyclists and general traffic and the perceived intimidation of cyclists by general traffic		✓	✓	✓		
Improve bus service information and promote bus use in Shetland for all groups/users		✓		✓		
Reduce the impact on households' disposable income of travelling by bus particularly for households with fewer transport alternatives and in remoter areas		✓		✓		
Improve the real time bus information available to passengers and its accessibility				✓		
Improve the waiting environment / experience at bus stops for all users				✓		
Address the perceptions of poor quality which stop some from using the bus				✓		
Reduce bus journey times between key settlements and areas				✓		
Improve actual and perceived personal security on the bus networks				✓		
Make bus travel accessible to all Shetland residents, including those with prams, bikes etc		✓	✓	✓		
Improve the reliability of bus in-vehicle journey times				✓		
Improve bus punctuality at bus stops				✓		
Widen coverage of the bus network across Shetland by geography and across the day		✓		✓		
Make bus travel / ticketing as seamless as possible				✓		
Provide more direct connections to locations other than Lerwick				✓		

	Strategy Objectives					
Transport Planning Objective	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland**	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland**	**To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism**	**To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car**	**To transition towards an environmentally and financially sustainable, post-carbon transport system**	**To support safe, resilient, and efficient movement of all people and freight across Shetland**
Improve the certainty of bus travel in Shetland				✓		
Reduce the inconvenience caused by infrequent bus services				✓		
Reduce the environmental impacts associated the operation of Shetland's bus fleet					✓	
Improve ferry service information (and access to it for all protected groups)		✓				✓
Remove the cost-based barriers to travel on internal ferries particularly for households with fewer transport alternatives and in remoter areas		✓				
Remove the cost-based barriers to transporting goods on internal ferries		✓				
Make inter-island travel fully integrated						✓
Provide appropriate end-to-end connectivity which allows people to travel between the islands when they need to or wish to travel		✓		✓		✓
Improve real time ferry information (and access to it)						✓
Reduce the total time taken when travelling by ferry						✓
Make inter-island ferry services fully accessible and convenient to people in all protected groups		✓				
Improve ferry service punctuality						✓
Provide appropriate connectivity which allows goods to be moved between the islands when it needs to travel		✓				✓
Make travel by ferry as comfortable as possible for all users		✓				

	Strategy Objectives					
Transport Planning Objective	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland**	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland**	**To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism**	**To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car**	**To transition towards an environmentally and financially sustainable, post-carbon transport system**	**To support safe, resilient, and efficient movement of all people and freight across Shetland**
Make inter-island travel easy for all, minimising time and effort spent organising travel		✓				✓
Improve the resilience and reliability of the ferry service, including with respect to more frequent severe weather linked to climate change		✓				✓
Reduce the environmental impacts of the operation of Shetland's internal ferry fleet					✓	
Remove the cost-based barriers to travel on internal air services		✓				
Improve end-to-end journey integration for those using internal air services		✓		✓		✓
Improve the availability of information regarding flight status		✓				✓
Make inter-island air services accessible and convenient to all groups with protected characteristics		✓				
Improve air service punctuality		✓				✓
Provide sufficient capacity to meet the demand for essential air travel		✓				
Make travel by air as comfortable as possible for all users		✓				
Provide appropriate air connectivity based on connectivity requirements and operational constraints		✓				✓
Improve the resilience and reliability of the air service, including with respect to more frequent severe weather linked to climate change		✓				✓
Reduce the environmental impacts associated the operation of Shetland's internal aircraft fleet					✓	

	Strategy Objectives					
Transport Planning Objective	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland**	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland**	**To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism**	**To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car**	**To transition towards an environmentally and financially sustainable, post-carbon transport system**	**To support safe, resilient, and efficient movement of all people and freight across Shetland**
Remove the cost-based barriers to travel on external ferries	✓					
Provide connectivity options to Holmsgarth to meet the needs of all ferry users				✓		
Make the ferry services fully accessible and convenient to all users / protected groups	✓					
Provide end-to-end travel options which allow people to travel between Shetland and Orkney / Scottish mainland when they need to or wish to travel	✓					
Make travel by ferry as comfortable as possible for all users / protected groups	✓					
Make ferry travel easy for all, minimising time and effort spent organising travel	✓					
Increase certainty of ferry travel, including with respect to more frequent severe weather linked to climate change	✓					
Reduce the environmental impacts associated the operation of NorthLink ferry services to Shetland					✓	
Reduce the cost of business for those exporting from or importing to Shetland	✓					
Provide transport which allows freight to move between Shetland and Orkney / Scottish mainland when it needs to travel	✓					
Increase certainty of ferry travel, including with respect to more frequent severe weather linked to climate change	✓					
Reduce the environmental impacts associated the operation of NorthLink ferry and freight services to Shetland					✓	
Remove the cost-based barriers to travel on external air services	✓					

	Strategy Objectives					
Transport Planning Objective	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland**	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland**	**To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism**	**To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car**	**To transition towards an environmentally and financially sustainable, post-carbon transport system**	**To support safe, resilient, and efficient movement of all people and freight across Shetland**
Reduce cost uncertainty of travel using external air services	✓					
Improve bus-based connectivity / integration to Sumburgh Airport				✓		
Increase certainty of air travel to / from Shetland, including with respect to more frequent severe weather linked to climate change	✓					
Provide air connectivity which allows people to travel between Shetland and other Scottish airports when they need to, or wish to travel	✓					
Reduce the environmental impacts associated the operation of aircraft serving Shetland					✓	
Provide alternatives to car use which are accessible and affordable for all		✓		✓	✓	
Widen access to, and facilities for, EV ownership and use		✓			✓	
Remove the cost-based barriers to travel by taxi for essential travel		✓				
Widen access to, and facilities for, non ICE-powered commercial vehicles					✓	
Improve facilities for car sharing across Shetland at key route decision points				✓		✓
Improve the provision of real time traffic information across the network						✓
Provide appropriate parking opportunities, and manage and enforce these effectively						✓
Improve journey times and journey time reliability on the road network						✓

	Strategy Objectives					
Transport Planning Objective	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland**	**To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland**	**To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism**	**To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car**	**To transition towards an environmentally and financially sustainable, post-carbon transport system**	**To support safe, resilient, and efficient movement of all people and freight across Shetland**
Widen access to taxi services for all		✓				
Improve resilience of road network to incidents and weather events, including those linked to climate change						✓
Operate appropriate speed limits, and enforce these effectively			✓			✓
Reduce the environmental impacts associated the operation of the car and taxi fleet				✓	✓	

8.8 Step 8: Map Strategy Objectives to National Policy

8.8.1 Finally, it is important to ensure alignment with the strategy objectives developed here and the national policy context. Table 8.4 below maps the RTS Strategy objectives to the four National Transport Strategy 'Priorities'.

Table 8.4: Mapping of Strategy objectives to NTS priorities

	NTS2 Priorities			
Strategy Objective	**Reduces inequalities**	**Takes climate action**	**Helps deliver inclusive economic growth**	**Improves our health and wellbeing**
1. To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups to / from the rest of Scotland	✓		✓	
2. To address the barriers which constrain access and/or impose unreasonable costs on travel and transport for all groups within Shetland	✓		✓	
3. To facilitate and encourage safe walking and cycling and wheeling for everyone, including for leisure and tourism	✓	✓		✓
4. To improve alternative, more sustainable travel options in Shetland for all including those without access to, or who would prefer not to use a car	✓	✓	✓	
5. To transition towards an environmentally and financially sustainable, post-carbon transport system		✓		✓
6. To support safe, resilient, and efficient movement of all people and freight across Shetland	✓		✓	✓

9 Next Steps

9.1.1 This document has set out the 'Case for Change' report for the ZetTrans RTS.

9.1.2 The document is split into two parts:

- Part 1 (Chapters 2 to 5) - established the overall context within which the RTS is being developed through the provision of a detailed baseline of the economy and society within Shetland and its transport network, as well as consideration of the potential future planning horizon.
- Part 2 (Chapters 6 to 9) - focused on the substantial elements of the Initial Appraisal - Case for Change, describing the wider policy context and the key findings from the public and stakeholder consultation, and setting out the problems and opportunities which were identified and the RTS Objectives which have been developed.

9.1.3 Separate SEA and EqIA Reports were 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.

9.1.4 In line with statutory requirements, this document, along with the accompanying SEA and EqIA Reports, will be subject to a formal public consultation.

9.1.5 Subject to this consultation, the problems and opportunities identified in this document along with the stated RTS Objectives will then be used as a basis to generate a long-list of options which will subsequently be appraised against the:

- RTS Objectives
- STAG criteria:
  - Environment
    - Biodiversity and habitats
    - Geology and soils
    - Land use (including agriculture and forestry)
    - Water, drainage and flooding
    - Air quality
    - Historic environment
    - Landscape
    - Noise and vibration
  - Climate Change
    - Greenhouse gas emissions
    - Vulnerability to the effects of climate change

        - Potential to adapt to the effects of climate change
    - Health, safety, and wellbeing
        - Accidents
        - Security
        - Health outcomes
        - Access to health and wellbeing infrastructure
        - Visual amenity
    - Economy
        - Transport Economic efficient
        - Wider economic impacts
    - Equality and accessibility
        - Public transport network coverage
        - Active travel network coverage
        - Comparative access by people group
        - Comparative access by geographic location
        - Affordability
- Established policy directives
- Feasibility, affordability, and public acceptability
- Sustainable Investment Hierarchy and Sustainable Travel Hierarchy
- Risk and uncertainty

9.1.6 The results of the appraisal of options will be presented and the remaining options taken forward. Following this stage, the RTS document will then be produced which will collate the outputs of the above tasks into a Strategy and an associated Delivery Plan.

Appendix A List of documents for literature review

Ref	Level	Document	Year of Publication
Transport, Economic and Planning Policy Documents			
1	**National**	Draft Fourth National Planning Framework	2021
2		Strategic Transport Projects Review 2: Update and Phase 1 Recommendations	2021
3		A Guide to National Concessionary Travel (Transport Scotland website)	Accessed 2021
4		National Transport Strategy 2	2020
5		National Transport Strategy 2 Delivery Plan 2020-2022	2020
6		A National Mission with Local Impact: Draft Infrastructure Investment Plan for Scotland 2021-22 to 2025-26: Consultation	2020
7		Strategic Transport Projects Review 2 – Initial Appraisal: Shetland Islands Case for Change	2020
8		Scottish Government Climate Change Plan 2018-2032	2020
9		The National Plan for Scotland's Islands	2019
10		Scottish Government Economic Strategy	2007, updated 2015
11		Empowering Scotland's Island Communities	2014
12		Scottish Ferries Plan 2013-22	2012
13		Going Further: Scotland's Accessible Travel Framework	2016
14	**Local**	10-year plan to attract people to live, work, study and invest in Shetland	Under development
15		Shetland Climate Change Strategy	Under Development
16		Our Ambition – Shetland Islands Council Corporate Plan (2021-26)	2020
17		Shetland's Islands with Small Populations Locality Plan	2020
18		Shetland's Partnership Plan and associated Delivery Plan	2018
19		Shetland Islands Council Economic Development Strategy	2017
20		Shetland's Tourism Strategy and Action Plan 2018-23	2017
21		Shetland, Our Place: Place Standard Final Report	2017
22		On Da Level: Achieving a Fairer Shetland – Report and Recommendations from Shetland's Commission on Tackling Inequalities	2016
23		Shetland's Equality Outcomes Progress and Mainstreaming Report 2021-2025	2021
24		Shetland Local Development Plan	2014, being updated
25		Shetland Islands Council Long-Term Financial Plan 2015-50	2014
26		Shetland Active Travel Strategy 2021-26	2021
Transport and Economic Research Studies and Business Cases			
27	**Local**	Whalsay Ferry Link Outline Business Case	2021
28	**Local**	Fair Isle Outline Business Case	2021
29	**Local**	Public Bus, School and Adult Social Care Transport Business Case	2020

Ref	Level	Document	Year of Publication
31	**Local**	Inter-Island Air Service Outline Business Case	2019
32	**Local**	Ferries Revenue Funding Outline Business Case	2019
33	**National**	Review of the Air Discount Scheme	2019
34	**Regional**	Appraisal of Options for the Specification of the 2018 Northern Isles Ferry Services – Final Report and supporting papers	2018
35	**Regional**	Shetland Fares Policy Review: STAG Based Options Appraisal	2021
36	**Regional**	Public Bus, School and Adult Social Care Transport Business Case	2020
37	**Regional**	ZetTrans RTS Refresh	2018
38	**National**	Sustrans: Active Nation – the health benefits of cycling and walking in Scotland	2018
39	**Local**	Shetland Inter-Island Transport Study and supporting baselining papers	2016
40	**National**	A Minimum Income Standard for Remote and Rural Scotland	2016
41	**National**	Sustrans: Transport poverty in Scotland	2016
42	**National**	Cycling Actin Plan for Scotland 2017-2020	2016
43	**National**	Sustrans: Reducing car use – views and behaviours of people who live and drive in towns and cities in Scotland	2015
44	**National**	Let's get Scotland walking – the National Walking Strategy	2014
45	**National**	A long-term vision for active travel in Scotland	2014
Others			
46	**National**	Scotland's Public Health Priorities	2018
47	**National**	Preventing overweight and obesity in Scotland – a route map towards healthy weight	2010
48	**National**	Smart and integrated ticketing payments delivery strategy	2018

Appendix B Transport Problems Framework

Table B.1 Transport Problems Framework

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
Awareness of travel options	I do not know where walking routes are / do not feel confident using them	I am not aware of cycling opportunities in Shetland	I am not aware of the bus services available	I find the ferry timetable difficult to understand	not a problem	not a problem	not a problem	not a problem	not a problem
Evidence	*Lack of signage on access routes / signage only provided at access gates identified as an issue during the stakeholder engagement – see 7.2.7* *15% (n=124) of respondents to the survey were dissatisfied with signage with respect to walking*	*Lack of cycle signage on quieter roads identified as an issue during stakeholder consultation – see 7.2.7.* *15% (n=36) of respondents to the survey were dissatisfied with signage with respect to cycling*	*Timetable information is not easily digestible from the perspective of a casual or infrequent user of the bus service and the ZetTrans App does not incorporate a journey planner – see 3.4.19* *A lack of / poor quality information on bus services and the lack of consistent branding / livery were identified as issues during the stakeholder consultation – this was felt to be a particular deterrent to visitors – see 7.2.10.* *In the public survey, net satisfaction with the 'quality / accessibility of information about services' was 36% with 54% (n=205) satisfied and 17% (n=67) dissatisfied*	*Internal ferry timetables being difficult to understand, particularly for visitors, identified during stakeholder consultation – see 7.2.14.*	-				
Cost of travel	not a problem	I can't afford to own and maintain a bike	I can't afford to travel regularly by bus	It is too expensive to take my car on the ferry	The air fares are too expensive	It is too expensive to take my car on the ferry	It is too expensive to take freight on the ferry	I find that the air fares are too expensive / unpredictable, particularly for short notice trips	The cost of driving is too high for me
				It is too expensive to travel as a foot passenger		It is too expensive to travel as a foot passenger		As a public sector organisation / business, we do not have access to the ADS	I can't afford an electric vehicle
				It is too expensive to take freight on the ferry		It is too expensive to book		If I cancel / change my booking I incur a cost	The cost of taxis is too high

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
				I have to pay two fares for bus and ferry		accommodation onboard			
Evidence		*High cost of living in island communities generally – see 2.6.13. 62% (n=543) of respondents to the survey did not own or have regular access to a bike although unclear the extent to which affordability impacts this*	*There are no discounts for multi-leg journeys / multi-journey tickets – see 3.4.22. High cost of living in island communities generally – see 2.6.13. Net satisfaction with the 'level of bus fares' was 42%, with 55% (n=211) satisfied and 13% (n=49) dissatisfied*	*Additional ferry costs for inter-island travel adds to high cost of living in island communities – see 2.6.13. Cost of internal ferry identified during stakeholder consultations – see 7.2.14. 39% (n=257) dissatisfied with the 'level of standard fares for car / van' and 31% (n=205) dissatisfied with 'level of standard fares: passenger'. 25% (n=171) dissatisfied with the 'level of 10-journey fares for car / van' and 23% (n=150) dissatisfied with the 'level of 10-journey fares: passenger'. 46% (n=102) identified 'level of fares' as a major factor for not using the ferry service as much as they would like.*	*Additional travel costs for inter-island travel adds to high cost of living in island communities – see 2.6.13. While internal air fares for residents are heavily discounted, they are almost four times the level of a return ferry fare – see 3.3.54. Cost of internal air identified during stakeholder consultations – see 7.2.16. Net satisfaction with 'level of fares' was the lowest of all aspects of the air service at -5%, with 23% (n=51) dissatisfied. 61% (n=39) identified the 'level of internal air fares' as a major factor for not using the internal air service as much as they would like and a further 19% (n=12) said it was a minor factor.*	*Fares on the NIFS services – particularly on the Aberdeen – Lerwick route – are very high in absolute terms – see 3.2.19. High cost of external ferry identified during stakeholder consultations – see 7.2.19. In the external survey, amongst those that said there were things about the service which prevented them using it more often, 79% (n=208) said the cost of accommodation was a major factor, 74% (n=195) said the level of vehicle fares was a major factor, and 52% (n=138) said the level of passenger fares was a major factor.*	*By virtue of distance, the tariff per LM on the Aberdeen – Lerwick route is higher than anywhere else in Scotland – see 3.2.23*	*External air fares commercially set-see 3.2.38 Business travel not eligible for ADS-see3.2.38 The high cost and variability of external air fares and the inability to change / cancel flight bookings raised during the consultations – see 7.2.23. In the external survey, amongst those that said there were things about the service which prevented them using it more often, 90% (n=264) said the level of fares for short notice booking was a major factor and 84% (n=246) said the level of fares generally was a major factor*	*High fuel prices and long commuting distances in island communities adds to high cost of living – see 2.6.12. High cost of electric vehicles and high cost of taxis identified during the consultation – see 7.2.17.*
Fuel / power issues	not a problem	not a problem	not a problem	not a problem	not a problem	not a problem	not a problem	not a problem	I can't charge an electric vehicle *As a commercial operator, I cannot avoid diesel powered vehicles*
Evidence									*Charging infrastructure – see 3.4.35 A lack of charging infrastructure raised during the consultation – see 7.2.17. Lack of alternative fuel technologies on heavier vehicles – see 5.3.3*

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
Integration of travel between modes (e.g. between bus and ferry)	not a problem	I can't take my bike on the bus	See cycle, internal ferry, internal air, and external air	There is no direct bus from the ferry terminal to where I want to go / the bus does not reliably align with the ferry arrival and departure times	I can't travel between Tingwall and Lerwick by scheduled bus	I can't leave my car at Holmsgarth Terminal	not a problem	There is no direct bus connection to Sumburgh from my home	There is a lack of security / facilities at informal parking locations when car sharing
				I have to purchase two separate tickets for the bus and ferry	I find it difficult to connect for onward travel to Sumburgh	Bus / Rail / Air integration at Aberdeen is good		The bus connection to Sumburgh does not reliably align with flight times	
								I have to pay to park my car at Sumburgh	
Evidence		*Unable to take bikes on buses – see 3.4.14. The inability to take bikes on buses identified during stakeholder consultations – see 7.2.10. Net satisfaction with the 'ability to take bike on bus' was -25% with 7% (n=18) satisfied and 32% (n=78) dissatisfied. Amongst those who said there were things which prevented them cycling more often, 16%(n=68) identified the inability to take bikes on buses as a major factor and a further 11% (n=51) noted this as a minor factor*		*The majority of ferries do not connect with a bus – see 3.3.47 No integrated ticketing between modes or discounts for multi-leg journeys by bus-ferry combinations- see 3.4.22 and* ***Error! Reference source not found.****. Net satisfaction with 'integration with onward bus connections' was -2% with 18% (n=121) dissatisfied. 21% (n=46) identified the 'lack of connecting public transport' as a major or factor for not using the ferry service as much as they would like with a further 29% (n=63) stating it was a minor factor.*	*There is no scheduled bus between Tingwall and Lerwick – see 3.3.51 Net satisfaction with 'connections to / from Tingwall by bus' was 0% with 10% (n=22) dissatisfied and 10% (n=21) satisfied. 33% (n=21) identified the 'lack of connecting public transport' as a major factor for not using the internal air service as much as they would like and a further 17% (n=11) said it was a minor factor.*	*A limited number of free parking spaces are provided by Lerwick Port Authority for both short stay and long stay parking. However, the availability of long stay parking is not guaranteed and overnight parking in the short stay car park is prohibited.*		*Car parking charges at Sumburgh – see 3.2.45. Poor integration between the bus service and external flight times and the lack of direct connection to Sumburgh for those living outside of Lerwick identified during the stakeholder consultations – see 7.2.10*	*Informal P&R sides- see 3.4.32 Lack of facilities at these locations identified during stakeholder consultations – see 7.2.17*
Journey information	not a problem	not a problem	*I do not know if my bus is going to be on time*	*I do not know if my ferry will be on time*	*I do not know if my flight is going to be on time*	not a problem	not a problem	not a problem	*I do not know if there are incidents on the road*
Evidence			*A lack of real time bus information identified during the stakeholder consultation - see 7.2.10.*	*No real time journey information at harbour / via apps*	*None to date*				*Lack of single source on road works/ incidents identified during stakeholder*

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
			As noted above, in the public survey, net satisfaction with the 'quality / accessibility of information about services' was 36% with 54% (n=205) satisfied and 17% (n=67) dissatisfied						*consultations – see 7.2.17*
Journey quality	My local environment is not suitable for walking	There is nowhere for me to securely park a bicycle	I am exposed to weather at bus stops	not a problem	not a problem	not a problem	not a problem	not a problem	I can't park where I want to park
		I don't like cycling up hills	Travelling by bus does not feel like a high-quality experience						
		I need to be presentable at work							
Evidence	*Few connections between good quality paths; routes interrupted by road crossings, wide junctions, narrow / lack of footways; and the absence of dropped kerbs. See 3.4.4 Range of issues identified through stakeholder engagement, including lack of dropped kerbs, uneven surfaces, narrow / lack of footways, wide junctions which are poorly designed for pedestrians, poor / lack of lighting / signage, poorly designed and sited street furniture – see 7.2.7,*	*Lack of bike parking / facilities at workplaces identified during stakeholder consultation see 7.2.7. 40% (n=98) were dissatisfied with bike parking facilities. Amongst those who said there were things which prevented them cycling more frequently, 17% (n=74) identified 'poor / lack of bike parking facilities' as a major factor and 25% (n=109) identified it as a minor factor*	*Lack of shelter at some stops identified during stakeholder consultation – see 7.2.10. In the public survey, 20% (n=77) were dissatisfied with the 'quality of bus stops / availability of seating and facilities'; 31% (n=118) were dissatisfied with the 'quality of Lerwick Bus Station'; and 7% (n=27) dissatisfied with the quality of the vehicle*						*Waiting restrictions at Esplanade in Lerwick and car park below Fort Charlotte- see 3.4.32. Car parking charge at Sumburgh – see 3.2.45*

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
Journey times	Walking takes too long	Journey times by bike are too long	It takes a long time to travel by bus, particularly compared to travel by car	The journey time is too long	not a problem	not a problem	not a problem	not a problem	Journey times by road can be long
Evidence	*Amongst those who said there were barriers to them walking more often, 27% (n=102) identified 'the lack of opportunities when going somewhere' as a major reason, with a further 30% (n=113) noting this as a minor factor and 58% (n=221) identified "the places where I go to work, shop, or visit friends are too far to walk" as a major factor in their decision, with a further 15% (n=58) noting this as a minor factor*	*Amongst those who said there were barriers to them cycling more often, 34% (n=136) identified 'the lack of opportunities when going somewhere' as a major reason, with a further 19% (n=76) noting this as a minor factor*	*Long journey times identified during stakeholder consultations – see 7.2.10.* *Net satisfaction with 'journey times' was 48% with 13% (n=48) dissatisfied* *27% (n=92) identified 'journey time' as a major factor for not using buses as much as they would like, with a further 29% (n=100) noting this as a minor factor*	*A particular problem for Fair Isle, Foula, and Skerries*					*Long journey times by road where there are disruptions (e.g., road works / accidents) identified during stakeholder consultations - see 7.2.17*
Personal security	I sometimes don't think it's secure enough for me to walk	I don't think it's secure enough for me to travel by bike	I do not feel secure travelling by bus	not a problem	not a problem	not a problem	not a problem	not a problem	I do not feel secure travelling by taxi
Evidence	*11% (n=95) were dissatisfied with the 'feeling of safety / personal security' when walking and amongst those who said there were things which preventing them walking more often, 11% (n=41) identified a lack of safety / personal security as a major factor, with a further 18% (n=69) noting this as a minor factor*	*43% (n=106) were dissatisfied with the 'feeling of personal security 'safety' when cycling and amongst those who said there were things which preventing them cycling more often, 18% (n=76) identified a lack of safety / personal security as a major factor, with a further 11% (n=49) noting this as a minor factor*	*20% (n=77) were dissatisfied with the 'quality of bus stops / availability of seating and facilities'; 31% (n=118) were dissatisfied with the 'quality of Lerwick Bus Station'; and 7% (n=27) dissatisfied with the quality of the vehicle*						*None to date*
Personal Accessibility	Walking is not a realistic option for me because of a disability	I cannot use a standard bicycle due to a disability	I find it difficult / am unable to travel on the bus due to a disability	I find it difficult / am unable to travel on the ferry due to a disability	I find it difficult / am unable to travel on the internal air service due to a disability	I find it difficult / am unable to travel on the ferry due to a disability	not a problem	not a problem	I am unable to access taxi services due to a disability

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
Evidence	*Range of issues identified through stakeholder engagement, including lack of dropped kerbs, uneven surfaces, narrow / lack of footways, wide junctions which are poorly designed for pedestrians, poor / lack of lighting / signage, poorly designed and sited street furniture, parked cars.* *26% (n=220) dissatisfied with the 'accessibility of walking routes: (steps, footway width, obstacles such as street furniture / parked cars etc – see 7.2.7,'*	*Identified in the stakeholder consultation – see 7.2.7*	*Many vehicles and bus stops unsuitable for PRM as noted at 3.4.14. Poor accessibility of bus stops; poor/inconsistent accessibility of vehicles; long walks to the nearest bus stop and inconsistencies in driving standards / driver behaviour identified during the stakeholder consultations – see 7.2.10.*	*Older vessels not typically accessible. On Fair Isle and Foula routes access to the vessel is challenging and undignified – see* ***Error! Reference source not found.****.* *Variable standard of provision with waiting rooms and accessible toilets identified during consultation - see7.2.14.* *Net satisfaction with 'facilities for people with a disability on board' was -6% with 22% (n=147) dissatisfied* *Net satisfaction with 'facilities for people with a disability when boarding' was -2% with 19% (n=125) dissatisfied*	*Whilst PRM can be accommodated, the aircraft fall below current accessibility standards. - see 3.3.42.* *Net satisfaction with 'arrangements for those with a disability' was -2% with 8% (n=18) dissatisfied and 10% (n=22) satisfied*	*Noted during the consultation that the waiting environment can be challenging for those with cognitive disorders – see 7.2.19.*			*Identified as an issue during the consultation – see 7.2.12*
Reliability of journey times	not a problem	not a problem	Journey times by bus are not reliable The bus is sometimes late and I have a longer wait at the stop	The ferry is sometimes late	The service does not keep to the timetable	The ferry sometimes leaves and arrives late	The ferry sometimes leaves and arrives late	Flights are sometimes late	Journey times by road can be long when there is an incident where there is no alternative route Journey times by road can be long when there is an incident / road works that require a diversion In places, journey times by road are long and variable
Evidence			*Net satisfaction with 'punctuality of service (being on time)' was 56%, with 69% (n=263) satisfied and 8% (n=30) dissatisfied.* *Amongst those who said there were things about the service which prevented them using it more frequently, 12% (n=41) identified*	*Poor punctuality identified during stakeholder consultations – see 7.2.14* *Net satisfaction with 'service punctuality – sailings keeping to time' high at 65% with 73% (n=487) satisfied and just 9% (n=57) dissatisfied.*	*The operating conditions for the Shetland inter-island air services mean that they are highly prone to weather-related disruption – see 3.3.50 and 4.3.8..* *Internal flights being re-scheduled / brought forward to take advantage of weather windows identified*	*The Ro-Pax vessels are generally reliable, with just 2.8% of sailings in 2019 ran late – see 4.2.35.* *Amongst those that said there were things about the external ferry service which prevented them using it more often, 8% (n=21) identified the 'the service is not reliable*	*The freighters are less reliable than the Ro-Pax, with 15.8% of sailings in 2019 running late – see 4.2.35.* *Amongst those that said there were things about the service which prevented them using it more frequently, 8% (n=21) identified 'the service not being*	*An estimated 25% of Sumburgh flights are delayed – see 4.2.47.* *Amongst those that said there were things about the service which prevented them using it more often, 30% (n=86) identified the 'the service is not reliable enough / is cancelled too often / subject to*	*Long journey times by road where there are disruptions (e.g. road works / accidents) identified during stakeholder consultations - – see 7.2.17*

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
			punctuality as a major factor, with a further 21% (n=72) identifying this as a minor factor		*during the stakeholder consultations – see 7.2.16..* *Net satisfaction with 'service punctuality – flights keeping to timetable' was 13% with 26% (n=57) satisfied and 13% (n=28) dissatisfied*	*enough / is cancelled too often / subject to delay' as a major factor with a further 38% (n=99) identifying this as a minor factor*	*reliable enough / being cancelled too frequently / subject to delay' as a reason for their limited use, with a further 38% (n=99) identifying this as a minor factor*	*delay' as being a major factor and a further 45% (n=131) said this was a minor factor – this issue was second only to cost as the main perceived barrier.*	
Safety (transport)	I sometimes don't think it's safe enough for me to walk	I don't think it's safe enough for me to travel by bike	not a problem	not a problem	not a problem	not a problem	not a problem	not a problem	I am concerned about the risk of road accidents
Evidence	*Range of issues identified through stakeholder engagement including lack of footways – see 7.2.7,* *40% (n=342) dissatisfied with 'segregation of walking routes from traffic'* *25% (n=209) dissatisfied with lighting*	*The UK National Cycle Network (NCN) does not extend to Shetland – see 3.4.4* *Lack of safe, segregated cycling facilities identified as an issue during stakeholder consultation – see 7.2.7,* *65% (n=160) dissatisfied with 'segregation of cycling routes from traffic'* *22% (n=55) dissatisfied with lighting*							*Relatively high rate of road accidents – see 4.4.13* *It was noted during the consultations that there is a requirement for speed reduction measures from residents at several locations - see7.2.17*
Travel Emissions	not a problem	not a problem	I am concerned about carbon emissions when I travel by bus	I am concerned about carbon emissions when I travel by internal ferry	I am concerned about carbon emissions when I travel by the internal air service	I am concerned about carbon emissions when I travel by NorthLink ferry	I am concerned about carbon emissions when I move goods using NorthLink ferry and freight services	I am concerned about carbon emissions when I travel by air beyond Shetland	I am concerned about carbon emissions when I travel by car or taxi

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
Evidence			*The need for greener technology in the bus industry was raised during stakeholder consultations – see 7.2.10.*	*Aging vessels which emit high levels of carbon identified as an issue during stakeholder consultations – see 7.2.14*	*Concerns over transport emissions raised during stakeholder consultation*	*Concerns over transport emissions raised during stakeholder consultation*	*Concerns over transport emissions raised during stakeholder consultation*	*Concerns over transport emissions raised during stakeholder consultation*	*Concerns over transport emissions raised during stakeholder consultation* *Amongst those who said there were barriers to them walking, 56% said they would use the car less if they could walk more and 20% stated that a reason for wanting to walk more was to reduce carbon emissions.* *Amongst those who said there were barriers to them cycling, 57% said they would use the car less if they could cycle more and 23% stated that a reason for wanting to cycle more was to reduce carbon emissions.* *Amongst those who said there were barriers to them using the bus more, 76% stated that they would use the car less if they could use the bus more and 40% stated that a reason for wanting to use the bus more is to reduce carbon emissions compared to using the car.*
Public transport services - Specific									
Capacity	not applicable	not applicable	not a problem	I am unable to take my vehicle on the ferry at the time I want to travel I am unable to take freight on the ferry at the time I want to travel	I am unable to book a seat on the plane at the time I want to travel	I find it difficult / am unable to book my vehicle on the ferry I find it difficult / am unable to book a cabin on the ferry	There is insufficient capacity for freight on Ro-Pax There is insufficient capacity for freight on freight vessels	I am unable to get a seat on the plane at the time / on the day I want to travel	not applicable

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	Cycling	Bus	Internal Ferry	Internal Air	External Ferry (pass)	External Ferry (freight)	External Air	Other Road-Based Travel
						I find it difficult / am unable to book my car and a cabin on the ferry			
Evidence				*Issues with vehicle deck capacity at peak times on several routes, particularly Whalsay and Bluemull Sound – see 4.3.25* *Lack of vehicle deck capacity identified during stakeholder consultation - Whalsay and Bluemull Sound identified as particularly problematic- see7.2.14,* *Net satisfaction with 'ability to always book a vehicle on my preferred sailing' was 34%, with 23% (n=150) dissatisfied,* *52% (n=114) identified the 'lack of reliable vehicle capacity' as a major factor for not using the ferry service as much as they would like and a further 30% (n=66) said this was a minor factor,*	*Average load factors are generally below the capacity of the aircraft. However, certain flights can be challenging to book and most households have experienced occasions where they cannot secure a booking – see 4.3.5..* *Net satisfaction with the 'ability to book a seat on preferred flight' was relatively high at 19% with 28% (n=62) satisfied and 9% (n=20) dissatisfied*	*Growth in CV lane metres and to a lesser extent car traffic on NorthLink services set against a static supply side – see 4.2.15.* *Peak of passenger, car and cabin carryings in summer months while peak in CVs in September and October – see 4.2.17.* *Vehicle deck and accommodation capacity issues – see 4.2.30* *Inability to book a vehicle / cabin on the external ferry identified during stakeholder consultation – see 7.2.19.,* *68% (n=304) of respondents to the external survey said they were frequently or occasionally unable to book a sole use cabin and 56% (n=269) said they were frequently or occasionally unable to book their vehicle on their preferred sailing in 2019,* *Amongst those that said there were things about the service which prevented them using it more often, 68% (n=179) said the shortage of onboard accommodation was a major factor and 56% (n=147) said the shortage of space for vehicles was a major factor with a further 22% (n=58) and 29% (n=75)*	*Growth in CV lane metres and to a lesser extent car traffic on NorthLink services set against a static supply side – see 4.2.15.* *CV Lane capacity issues – see 4.2.30* *The lack of freight capacity identified during the consultations –noted that the major capital works on Shetland have contributed to the problem and that the issues most regularly occur when there is only a single sailing south, such as on a Tuesday and Thursday – see 7.2.21.*	*Given the commercial nature of the industry there are no formal data on capacity issues.* *In the external survey, 14% (n=66) of respondents said they were frequently unable to book onto their preferred flight in 2019 with a further 44% (n=205) stating that they were occasionally unable to book onto their preferred flight.*	

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	Cycling	Bus	Internal Ferry	Internal Air	External Ferry (pass)	External Ferry (freight)	External Air	Other Road-Based Travel
						respectively identifying these as minor issues,			
Comfort	not applicable	not applicable	not a problem	I don't find the ferry journey comfortable	I don't find the flight comfortable	I don't find the ferry journey comfortable	not a problem	not a problem	not applicable
Evidence				*Sea conditions can make crossing uncomfortable, particularly the Fair Isle and Foula routes due to crossing large expanses of open water – see 4.3.30.* *Net satisfaction with ferry terminal facilities was 12% with 43% (n=287) satisfied and 31% (n=205) dissatisfied.*	*Net satisfaction of 14% with 'comfort on board' the aircraft, with 27% (n=59) satisfied and 12% (n=27) dissatisfied*	*Amongst those that said there were things about the service which prevented them using it more often, 19% (n=49) said 'I find the ferry uncomfortable / suffer from seasickness' as being a major factor and a further 32% (n=84) said this was a minor factor*			
Connectivity (availability of services)	not a problem	not a problem	There are no bus services going where I want to go	not a problem	My island no longer has an air connection	not a problem	not a problem	not a problem	There is a lack of taxis where I live / want to travel
Evidence			*The Lerwick – Sumburgh service is the only island bus service which operates on a Sunday, there are a number of areas where there are no / very few services – see 3.4.16.* *A lack of bus services in some locations identified during the stakeholder consultations – see 7.2.10* *Net satisfaction with the range of destinations available was 23% with 47% (n=180) satisfied and 23% (n=90) dissatisfied*		*The islands of Papa Stour and Skerries were withdrawn from the inter-island air network for the 2020-24 contract period – see 3.3.38*				*Limited supply of accessible taxis Identified as an issue during the consultation – see 7.2.12*
Ease of use / convenience	not applicable	not applicable	I need to pay each time I use the bus	I find it a hassle booking ferry tickets regularly	not a problem	not a problem	not a problem	not a problem	not applicable

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	Cycling	Bus	Internal Ferry	Internal Air	External Ferry (pass)	External Ferry (freight)	External Air	Other Road-Based Travel
				I am unable to book ferry trips far enough in advance					
Evidence			*There are no discounts for multi-leg journeys / multi-journey readily tickets – see 3.4.22.*	*Late publication of internal ferry timetable / opening of booking system identified as an issue during stakeholder consultation – see 7.2.14*					
Integration between services (within mode e.g., bus to bus)	not applicable	not applicable	I have to change buses to get where I want to go	not a problem	not a problem	not a problem	not a problem	not a problem	not applicable
Evidence			*Interchange often required for journeys other than Lerwick – see 3.4.16.* *The lack of a direct connection to Sumburgh for those living outwith Lerwich / southern mainland identified during consultations – see 7.2.10.* *Net satisfaction with the number of interchanges required was 28%, with 40% (n=155) satisfied and 12% (n=46) dissatisfied*						
Service reliability	not applicable	not applicable	The bus sometimes does not show up	The ferry is sometimes cancelled	The service is sometimes cancelled	The ferry is sometimes cancelled	The ferry is sometimes cancelled	Flights are sometimes cancelled	not applicable
Evidence			*Net satisfaction with 'reliability (cancellations / bus not turning up)' was 48%, with 65% (n=250) satisfied and 9% (n=36) dissatisfied. Amongst those who said there were things about the service which prevented them using it more frequently, 10% (n=35) identified reliability as a major factor, with a further*	*Main routes are on the whole highly reliable. Fair Isle, Foula and, to a lesser degree, Skerries suffer more from weather-related reliability issues - see 4.3.30* *Poor reliability identified during stakeholder consultations – see 7.2.14Net satisfaction with 'service reliability - sailings not being cancelled' was 38% with*	*The operating conditions for the Shetland inter-island air services mean that they are highly prone to weather-related disruption – see 3.3.50 and 4.3.8..* *Identified as an issue during the stakeholder consultations – see 7.2.16* *Net satisfaction with 'service reliability – flights not being cancelled' was 7% with*	*The Ro-Pax vessels are very reliable, with a cancellation rate of just 1.2% (8 sailings) in 2019 – see 4.2.33*	NorthLink services are very reliable, but the freighters are less reliable than the Ro-Pax, with a cancellation rate of 3.1% (19 sailings) in 2019 – *see 4.2.33-*	*Amongst those that said there were things about the service which prevented them using it more often, 30% (n=86) identified the 'the service is not reliable enough / is cancelled too often / subject to delay' as being a major factor and a further 45% (n=131) said this was a minor factor – this issue was second only to cost*	

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	**Cycling**	**Bus**	**Internal Ferry**	**Internal Air**	**External Ferry (pass)**	**External Ferry (freight)**	**External Air**	**Other Road-Based Travel**
			22% (n=75) identifying this as a minor factor	*16% (n=105) dissatisfied*	*21% (n=46) satisfied and 14% (n=31) dissatisfied*			*as the main perceived barrier.*	
Timetables (first and last / frequency)	not applicable	not applicable	The bus service is not frequent enough	I can't get to early morning flights / appointments / shift work or attend late night social events / shift work	I can't travel on the day I want to travel	When calling at Orkney, the ferry departs too early for me to have a meaningful day either on the Scottish mainland or in Shetland	The ferry departs too early on some evenings	I am unable to make a day return trip by air to all Scottish Mainland Airports in all timetable periods	not applicable
			I can't get to early morning flights / appointments / shift work or attend late night social events / shift work	I can't travel at the time I want to at the weekend	I can't undertake a meaningful day trip to the Shetland mainland / on island	I cannot travel to Orkney from Shetland when I want to / the arrival times are unsociable			
				There is insufficient time between sailings to enable a meaningful day trip between Skerries, Papa Stour and Shetland mainland / Lerwick					
				I can't travel on the day I want to travel					
Evidence	-	-	*Service frequency generally less than hourly for a large proportion of services, with few services operating on a Sunday – see 3.4.16* *Poor service frequency, particularly in the north and west mainland, and the short operating day of some bus services was identified as an issue during the stakeholder consultations - see7.2.10.* *Net satisfaction with 'service frequency' was -5%, with 40% (n=153)*	*Reduced service frequency on Yell Sound, Bluemull Sound and Whalsay at weekend – see **Error! Reference source not found.*** *Services to Fair Isle, Foula, Papa Stour and Skerries are less than daily – see **Error! Reference source not found.*** *Lack of integration with external flights and poor service frequency / gaps in weekend timetable identified during stakeholder*	*There are no flights to either Fair Isle or Foula at the weekend – with no weekend ferry service during winter, these islands are cut-off from Friday afternoon to Monday morning – see 3.3.50* *Net satisfaction with the 'weekend timetable' was 6%, with 16% (n=36) satisfied and 10% (n=23) dissatisfied.* *Net satisfaction with 'time of the first flight of the day' was 17%, with 25% (n=56) satisfied and 8% (n=18) dissatisfied.*	*Orkney call necessitates earlier departure times from Lerwick / Aberdeen – see 3.2.143.3.46* *The highest utilisation sailings tend to be the direct connections from Lerwick–Aberdeen, suggesting that Shetland residents do not wish to travel via Kirkwall where possible – see 4.2.30.* *The early departure from Aberdeen / shorter day on the Scottish Mainland on the weekend and the unsociable arrival times into Orkney were*	*Orkney call necessitates earlier departure times from Lerwick / Aberdeen - freight vessels cannot operate at the speed of the Ro-Pax and therefore they tend to leave earlier and / or arrive at their destination later compared to Ro-Pax – see 3.2.17.*	*Inability to make return day trips to some locations – see 3.2.32* *The inability to make same day returns to some destinations identified during the stakeholder engagement – see 7.2.23*	

Aspect of travel	Transport problem by mode of travel / transport								
	Walking & Wheeling	Cycling	Bus	Internal Ferry	Internal Air	External Ferry (pass)	External Ferry (freight)	External Air	Other Road-Based Travel
			dissatisfied and 82% (n=280) identified 'service frequency' as either a major or minor factor for not using buses as much as they would like. *Net satisfaction with the 'time of the last bus service' was -10%, with 42% (n=161) dissatisfied.* *Net satisfaction with the time of the 'first bus service' was higher at 34% with 18% (n=68) dissatisfied.* *67% (n=229) identified 'the time of the last service' and 53% (n=181) identified 'the time of the first bus service' as either a major or minor factor for not using buses as much as they would like*	*consultations – see 7.2.14.* *Net satisfaction with 'integration with Loganair flights' very low at -18%, with 29% (n=193) dissatisfied compared to 11% (n=70) satisfied* *38% (n=252) dissatisfied with 'weekend service frequency' and 16% (n=109) dissatisfied with 'weekday service frequency'* *64% (n=141) identified the 'Sunday timetable' and 61% (n=134) identified the 'Saturday timetable' as a major factor for not using the ferry service as much as they would like. This compares with 39% (n=66) who identified the 'Weekday timetable'*	*Net satisfaction with the time of the final flight of the day was 13%, with 24% (n=53) satisfied and 11% (n=24) dissatisfied.*	*identified as issues during the stakeholder consultations - see7.2.19*			