Shetland Inter-Island Transport Connectivity Programme

Approved Strategic Outline Case

On behalf of **Shetland Islands Council**

SHETLAND
ISLANDS COUNCIL

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1 Introduction

1.1 Overview

1.1.1 The purpose of the **Shetland Inter-Island Transport Connectivity Programme (IITCP)** is to develop a high-level timed and costed sequence of island connectivity investments which, taken together, will form an agreed **network strategy** to meet the needs of Shetland's island communities.

1.1.2 The study is being delivered by **Stantec UK Ltd** in partnership with **Mott MacDonald**, **COWI** and **ProVersa Ltd**.

What is the background to the study?

1.1.3 Shetland Islands Council (the Council) operates or contracts essential transport connections to nine islands across the archipelago – Bressay, Fair Isle, Fetlar, Foula, Papa Stour, Out Skerries, Unst, Whalsay and Yell. These connections are delivered through a combination of air and ferry services, which have been supported over many years in both capital and revenue terms by the Council and, more recently with respect to ferry service revenue funding, the Scottish Government.

1.1.4 The majority of ferry services are operated directly by the Council, with the exception of the Foula ferry route which is delivered through a contract with a private operator. Air services are provided under contract by ZetTrans, the Regional Transport Partnership for the Shetland Islands, and the costs are met by the Council, under its duty to meet the net costs of ZetTrans.

Shetland Inter-Island Transport Study, 2016

1.1.5 In 2014, Shetland Islands Council, through the *Our Islands, Our Future*, initiative, began a dialogue with Scottish Government on establishing some principles for 'fair funding' of Shetland's inter-island transport services and infrastructure. The basis of these discussions was that the financial burden placed on the Council in providing inter-island transport was both disproportionate and unsustainable

1.1.6 To inform the Council's ask of the Scottish Government, it commissioned **the Shetland Inter-Island Transport Study (SIITS)**. SIITS was a programme-level Strategic Outline Case which established the case for investment in the inter-island transport network and identified a set of timed capital and revenue options which, if delivered, would in-part or in full address the identified transport problems.

1.1.7 Elements of the Programme Strategic Outline Case were progressed through a subsequent series of project-level Outline Business Cases (OBC)[1] focused on the priority recommendations from SIITS. The SIITS project delivered several important successes for the Council, including:

- Securing partial and thereafter full Scottish Government **top-up revenue funding to cover the annual operating deficit of the Council's ferry service**
- Securing circa **£27 million** of UK Government funding for the **Fair Isle Ferry Replacement Project**, now under construction
- Reorganisation of **air services** to provide improved connectivity for Fair Isle and Foula
- **Timetable improvements** on several ferry routes including **Papa Stour, Skerries and Whalsay**

[1] These were the Fair Isle, Whalsay, Air Services and Ferry Revenue OBCs.

- Further development of **potential future ferry options for Whalsay**

Why is the IITCP required?

1.1.8 Whilst SIITS delivered a number of successes, it will be replaced by the IITCP upon its completion. There are two reasons for this:

- Several island communities, including Bressay, Fetlar, Unst, Whalsay and Yell, have long expressed **a desire to consider a fixed link** rather than a ferry as their means of connectivity. At the time SIITS was undertaken, the prevailing political, economic and financial position meant that fixed links were not considered in detail and were instead placed in the context of Transport Scotland's Strategic Transport Projects Review 2 (STPR2) for consideration. The macroeconomic and policy context has however changed and the time is now right to consider fixed links in detail
- SIITS was also published almost a decade ago and, as with any strategic planning document, it is appropriate to **periodically review and refresh the outcomes** to reflect the passage of time and the evolving context within which transport investments are made

1.2 Shetland Inter-Island Transport Connectivity Programme

1.2.1 The Shetland Inter-Island Transport Connectivity Programme will set-out a **long-term network strategy for eight island communities served by Shetland Islands Council's ferry service** (with Fair Isle being addressed through the ongoing Fair Isle Ferry Replacement Project), as shown in the map below:

Figure 1.1: Geographic scope of the Shetland Inter-Island Transport Connectivity Programme

What is the purpose of the IITCP?

1.2.2 As alluded to above, the purpose of this study is to determine, for Shetland overall:

- The 'case' (in its widest sense) for **fixed links**
- The **shape of the ferry service and network in the short, medium and long-term**

1.2.3 These two elements will be combined to create a long-term 'Network Strategy', i.e., a sequential and costed investment plan for the inter-island transport network.

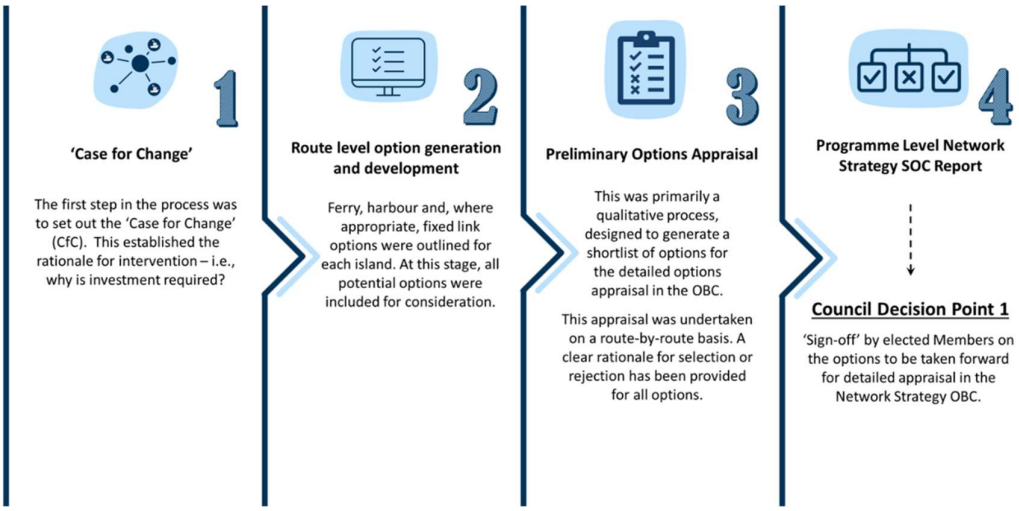
What are the key steps in the study?

1.2.4 The Network Strategy will be developed in two stages:

- The **Network Strategy - Strategic Outline Case** will establish the case for investment, the spending objectives and the ferry, harbour and, where appropriate, fixed link options at an island level
- The **Network Strategy - Outline Business Case** will determine the preferred option for each of the islands and aggregate these to a preferred network option – i.e., which investments should be made, where and in which order?

1.2.5 The individual steps contained within each of these two stages are shown below:

Network Strategy – Strategic Outline Case



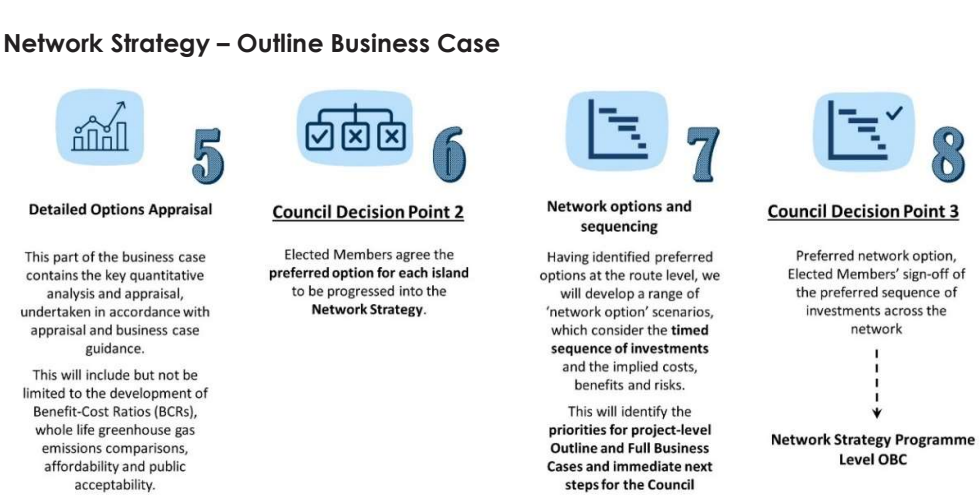


Figure 1.2: IITCP business case stages

Does this study cover air services?

1.2.6 The IITCP **does not consider air services** – it has been commissioned specifically to consider future ferry services, fixed links and the potential interaction between the two.

1.2.7 However, the information obtained through the IITCP will be used to support ZetTrans in developing the specification for the next inter-island air services contract in 2028.

1.3 How will the business case be developed?

1.3.1 Any appraisal work in relation to publicly funded transport projects in Scotland must be undertaken in line with the **Scottish Transport Appraisal Guidance (STAG)**. The IITCP will therefore closely follow the refreshed STAG Managers' Guide published in January 2022 to ensure full compliance with Scottish Government requirements. STAG comprises three stages:

- Initial Appraisal: Case for Change
- Preliminary Options Appraisal (largely qualitative)
- Detailed Options Appraisal (more quantitative)

1.3.2 The **end product here though is a business case**, which goes beyond a typical STAG-based study into e.g., commercial, delivery and management issues. To this end, Transport Scotland has published *Guidance on the Development of Business Cases*, very broadly reflecting H.M. Treasury *Green Book* approaches, although with some subtle differences. This guidance outlines the following stages:

- Stage 1 – Scoping: Strategic Business Case (SBC)
- Stage 2 - Planning: Outline Business Case (OBC)
- Stage 3 – Procurement: Final Business Case (FBC)

1.3.3 Given the range of potential funders for any options emerging from the IITCP, it is also important to consider UK business case guidance, which is far more detailed than the Transport Scotland guidance. In UK guidance the equivalent steps are:

- Stage 1 – Strategic Outline Case (SOC) – identifies a 'preferred way forward'
- Stage 2 – Outline Business Case (OBC) – 'identifies a preferred option'

- Stage 3 – Full Business Case (FBC) – confirms the preferred option and sets out the means by which it will be delivered

1.3.4 In both sets of guidance, each business case stage comprises five 'cases' or 'dimensions'. These are:

- Strategic
- Socio-Economic (Transport Scotland) / Economic (H.M. Treasury)
- Financial
- Commercial
- Management

1.3.5 As noted above, the requirement for this commission is a '**preferred option**' Network Strategy (i.e., sequence of investments and actions). In order to reach this preferred option stage (and align with both Scottish and UK Guidance), it will therefore be necessary to complete the SOC and the OBC. In addition, UK business case guidance uses the term 'programme', defined as a *series of planned measures, related events and co-ordinated activities in pursuit of an organisation's long-term goals*. This definition applies well to this work, and we will therefore adopt this terminology. The outputs will hereafter be referred to as the **Network Strategy Programme SOC / OBC**, and these will provide the framework for all subsequent project-level business case work.

1.3.6 The reporting structure across this study will therefore (i) follow the UK business case guidance as referred to by the Scottish guidance and (ii) use the main components of STAG for the qualitative and quantitative appraisal, including for example the STAG criteria.

1.3.7 The primary relationships between STAG and the business case process are therefore:

- **Stage 1 – Strategic Outline Case (SOC):** broadly incorporates the STAG 'Initial Appraisal – Case for Change' and 'Preliminary Options Appraisal' (qualitative)
- **Stage 2 – Outline Business Case (OBC):** broadly incorporates the STAG Detailed Options Appraisal, which itself draws heavily on the Department for Transport's Transport Analysis Guidance
- **Stage 3 – Full Business Case (FBC):** beyond STAG and the scope of this commission

1.3.8 Future stages of work subsequent to this commission will involve a series of '**Project OBCs**', one for each individual component of the Network Strategy. These would draw on the 'umbrella' Network Strategy Programme SOC and OBC but update and expand on the analysis, and complete the Financial, Commercial and Management Dimensions for these individual projects in much greater detail.

1.3.9 A **'Project FBC'** would follow the Project OBC at the point of procurement - for clarity, this overall structure is shown in the figure below:

Figure 1.3: Development of the Network Strategy Programme Business Case

1.4 Programme SOC

1.4.1 To aid readability, the **Programme SOC** is divided into three separate documents:

- **Case for Change Report:** This report details the rationale for investment through the analysis of transport problems and opportunities and defines desired outcomes from any investment, expressed as Transport Planning Objectives (TPOs)
- **Option Generation and Development Report:** This report sets out the framework within which the study options have been developed and the individual option packages for each island
- **Network Strategy - Strategic Outline Case Report (this document):** This report summarises the Case for Change and Option Generation and Development Reports and details the preliminary appraisal and the options to be progressed for further consideration

1.5 Network Strategy – Strategic Outline Case Report

1.5.1 This report is the **Network Strategy – Strategic Outline Case Report**. It draws on relevant material from the Case for Change Report and the Option Generation and Development Report, which have been developed to support this Strategic Outline Case.

1.5.2 It consists of **six** further chapters as follows:

- **Chapter 2** briefly summarises the approach to developing the Strategic Outline Case (i.e., this report)
- **Chapter 3** sets out the Strategic Dimension, which defines the case for change the transport planning (spending) objectives and the options long-list
- **Chapter 4** details the island-by-island appraisal of the options long-list, which has been undertaken in accordance with the principles of the Scottish Transport Appraisal Guidance (STAG). This chapter therefore forms the Economic Dimension of the business case
- **Chapters 5-7** outline how the preferred options / network plan emerging from IITCP could be funded, procured and delivered (i.e., the Financial, Commercial and Management Dimensions of the business case)

2 Strategic Outline Case – Overview

2.1 Overview

2.1.1 The Strategic Outline Case (SOC) is the first stage of the IITCP. It establishes the case for investment, the spending objectives and the ferry, harbour and, where appropriate, fixed link options at an island level. The SOC has been developed in accordance with the principles of the Scottish Transport Appraisal Guidance (STAG), the H.M. Treasury *Green Book* and the *Guide to Developing the Programme Business Case*.

Responsible organisations

2.1.2 **Shetland Islands Council** is responsible for the delivery and implementation of the IITCP.

2.1.3 Whilst they have no formal role on the project, both the **Scottish and UK Governments** are being engaged throughout the process, with technical advice with respect to appraisal sought where required.

2.1.4 It should be noted that the funding of capital assets (vessels and infrastructure) for ferry services operated within the Shetland Islands is the responsibility of Shetland Islands Council. However, Transport Scotland provides grant funding under Section 70 of the Transport Scotland Act 2001 to support the operating costs of internal ferry services. In financial year 2023/24, this amounted to £23,082,000.[2]

2.2 Business Case Context

2.2.1 This section sets out the approach taken to the development of this programme-level business case and specific considerations in relation to business case preparation in this context.

2.2.2 It is important to recognise that the target audience for the Programme SOC and OBC which will follow is wide ranging. It will include:

- Shetland's island communities (and indeed mainland communities)
- Shetland Islands Council, as the representative body which will make decisions with respect to future investment decisions
- Scottish and UK Government (and their agencies) as potential funders
- Potentially banks and other lending institutions if private finance is required

2.2.3 To this end, the business case has been developed in accordance with the H.M. Treasury *Guide to Developing the Programme Business Case*. The Transport Scotland guidance is based on the same principles used by UK Government and thus there are no significant implications associated with this, although there are some differences in terminology and appraisal approaches. The Scottish Transport Appraisal Guidance will be embedded in the approach to options appraisal as previously indicated.

Business Case Dimensions

2.2.4 The *Guide to Developing the Programme Business Case* sets out the three main stages which need to be completed in developing a compliant business case. These are summarised below in Chapter 1.

[2] https://www.transport.gov.scot/publication/transport-scotland-section-70-return-2023-24/support-for-internal-ferry-services/

2.2.5 Within each stage of the business case, there are five 'Dimensions', which provide a structured approach to detailing each component of the overall proposition. These are as follows:

- **Strategic Dimension:** Defines the case for change and identifies a shortlist of options which could deliver the programme or project specific and wider policy objectives (i.e., it demonstrates 'strategic fit')
- **(Socio) Economic Dimension[3]:** Identifies the option which will deliver the best public value to society
- **Financial Dimension:** Demonstrates the affordability and funding of the preferred option
- **Commercial Dimension:** Demonstrates that the preferred option will result in a viable procurement and well-structured agreement between the public sector and its delivery partners
- **Management Dimension:** Demonstrates that robust arrangements are in place for the delivery, monitoring and evaluation of the scheme

2.2.6 The focus on each 'dimension' varies by stage of the business case – this is highlighted in the figure below, with the size of the box showing the emphasis placed on that component of the business case at each stage of the process.

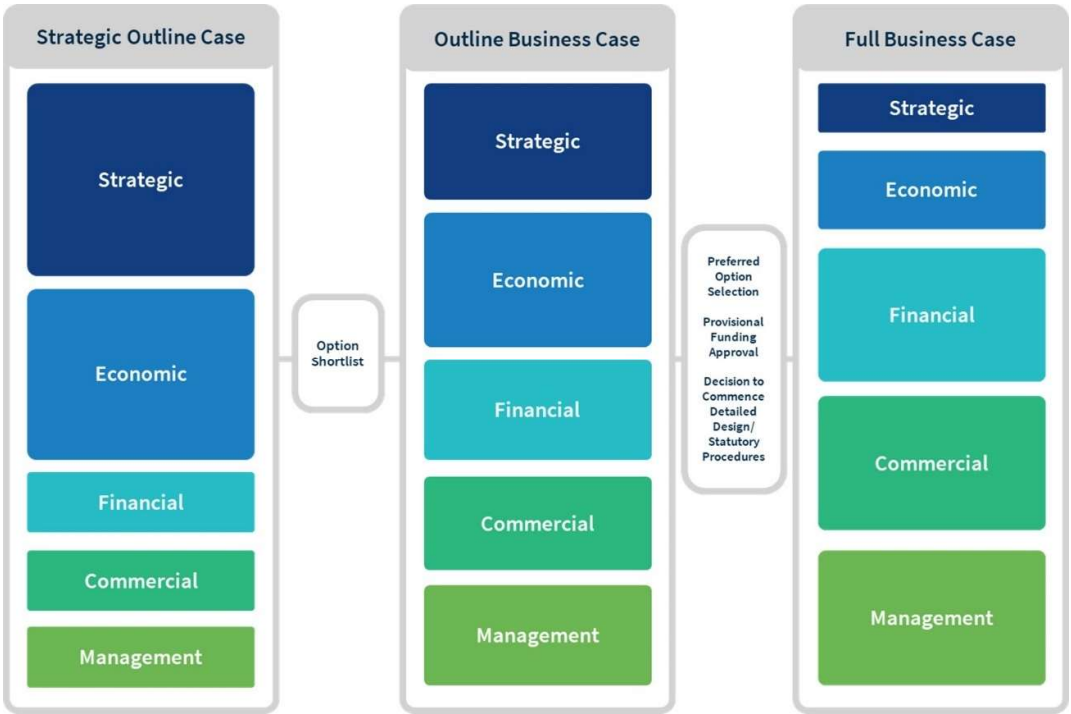


Figure 2.1: Business case stages

[3] The *Guidance on the Development of Business Case in Transport Scotland* defines this as the Socio-Economic Case (Dimension), which highlights a focus on distributional and wider societal issues rather than a narrower focus on benefit-cost ratios, which was previously more common in the UK guidance. There is in reality however little difference between these two dimensions in the different guidance documents, particularly since the H.M. Treasury *Green Book* was revised in 2022 in response to the then UK Government's 'Levelling-Up' agenda.

2.2.7 As can be seen from the above figure, the primary focus of the SOC is the development of the Strategic and Economic Dimensions. The Financial, Commercial and Management Dimensions are only developed in outline at this stage in the process.

2.3 Transport Scotland Community Needs Assessment Guidance

2.3.1 Transport Scotland is currently developing the *Islands Connectivity Plan (ICP)*, which will replace the *Ferries Plan 2013-2022*. Central to the ICP will be a set of 'Community Needs Assessments', which will provide a consistent means of identifying the current level of ferry service provision received by an island or peninsular community, any problems associated with this and, where relevant, options for service changes. In developing the SOC, we have followed the Transport Scotland Community Needs Assessment (CNA) guidance.

2.3.2 The requirement for a CNA is to set out the current and future 'needs' of ferry dependent island communities in terms of their ferry service (Community Needs Assessment) and align this with an appropriate level of service, in the process identifying potential under or over-provision of services compared to the service currently provided on the route.

2.3.3 To determine whether island needs are being met or not, a **six-stage process is adopted**. These steps are summarised in the flowchart below.

Figure 2.2: Transport Scotland CNA process

2.3.4 The CNA underpinned the case for change (Steps 1-5). The Option Generation and Development Report and this SOC largely cover Stage 6, which will continue to be developed through the Programme OBC and thereafter into individual Project OBCs and FBCs.

3 Strategic Dimension

3.1 Overview

3.1.1 This section summarises the Strategic Dimension, setting out the 'case for change', Transport Planning / Spending Objectives and options long-list. It provides the gateway to the Economic Dimension, where the option packages are progressed through the STAG Preliminary Appraisal process to identify a shortlist of options to be progressed into the Detailed Options Appraisal.

3.1.2 As noted in the introductory chapter, the detail underpinning what follows (including Steps 1-5 of the CNA) will be found in a separate Case for Change Report.

3.2 Strategic and Policy Context

3.2.1 The strategic context for the IITCP is set out in some detail in Chapters 3 and 4 of the Case for Change Report but is summarised below for the purposes of this SOC.

3.2.2 As explained in the introductory chapter, the IITCP is intended to update and ultimately supersede the Shetland Inter-Island Transport Study (SIITS), which was published in 2016. A key part of the rationale for undertaking this refreshed study was a requirement to reflect significant changes in both the strategic and policy context over the last decade. The narrative which follows therefore provides the foundations of the IITCP, setting out why it is being undertaken and what outcomes it must seek to deliver at the local and national levels.

Strategic Context

How has the macroeconomic context changed?

3.2.3 Since the completion of SIITS in autumn 2016, there have been several changes in both the macroeconomic and institutional landscape, some of which are directly material to this study whilst others define the context in which it will be undertaken. These changes can be summarised as follows:

- When the SIITS study was being undertaken, **the Council ferry services operated with a significant Council funded annual deficit**. The award of additional Section 70 funding from the Scottish Government from financial year (FY) 2018-19 onwards addressed this, with funding ramped-up over time to cover the full annual deficit. However, this funding is only awarded in single-year settlements through the annual Scottish Government Budget, so its potential reduction or withdrawal presents a risk to this study and more widely
- The **United Kingdom's withdrawal from the European Union (Brexit)** has had, and will continue to have, a multiplicity of effects on Shetland. Identifying and understanding these impacts is clearly beyond the scope of this study but it is nonetheless important to recognise both the change in the wider economic context and in procurement law since the SIITS study was published in 2016
- At the time of the initial SIITS study, the focus was almost entirely on making an investment case to the Scottish Government. However, the **recent involvement of the UK Government in Scottish local authority transport matters** (of which the Fair Isle Ferry Replacement Project is the most pertinent example in Shetland) provides a potential second outlet for this business case
- In August 2023, the Scottish Government and Shetland Islands Council formed a **'Ferry Replacement Task Force'** to work jointly on proposals to support the Council's consideration of options for the long-term renewal of its internal ferry fleet. This Task Force provides a forum into which the emerging outcomes of the IITCP can be input for discussion. However, it has also delivered a **short-term funding commitment of £10m**

in the FY2025/26 Scottish Budget to support improvements to the inter-island transport network

3.2.4 In short, much has changed since SIITS was published in 2016 but the key point here is that island transport issues have assumed a much higher profile in recent years and there is a recognition that the asset, financial, operational and customer problems facing the Shetland inter-island ferry network need to be resolved.

What is the strategic context in which the study is set?

3.2.5 Shetland has some of Scotland's most successful and vibrant island communities but they are also facing many of the challenges that other islands, island groups and indeed Scotland overall are encountering. These macro level challenges frame the strategic context for the study and are summarised below:

- **Population retention** is the major challenge facing Shetland's island communities - the collective population of the in-scope islands has **reduced by almost a quarter** over the last four decades, which compares to a **5%** increase in mainland Shetland and broad stability for Shetland overall. Absolute reductions were particularly significant in the North Isles (Fetlar, Unst and Yell)
- Long-term population decline has been compounded by **population ageing** across the isles. The islands have an older than average population and a demographic position which has worsened over the last decade or so. This has increased the dependency ratio[4] and placed additional pressures on the remaining working age population. The dependency ratio of the islands is higher (**0.79** relative to **0.65** for mainland Shetland), highlighting that their demographics are less favourable
- **House prices in Shetland's island communities lag those of mainland Shetland**, whilst the **cost of building is also higher**. This makes the provision of modern and affordable housing problematic and thus compounds the challenges associated with population retention and growth. Whilst this is understood to be a Shetland-wide issue outside of Lerwick, it is likely to be particularly prominent in the islands, where a shortage of accommodation is frequently cited as a major constraint on growth
- From a **transport perspective**, the inter-island ferry network emerged in its current form in the 1970s and 1980s, designed around the short-sea crossings principle, with a high frequency Ro-Ro service operating across a long day with comparatively low fares for most islands. Residents of Shetland's island communities therefore have **a higher propensity to travel** for work, personal business and leisure, whilst **public service design** in many cases reflects the comparative ease of travel to and from the isles
- For the above reason, the type and nature of travel on the **internal Shetland routes materially differs from most other island communities in Scotland**. There is significant regular travel, with strong commuting flows and high volumes of essential travel but generally lower tourism demand. The often non-discretionary nature of travel on the Shetland network meant that **carryings on all routes quickly recovered from the COVID-19 pandemic**. The change in volumes and the composition of demand seen elsewhere in Scotland as a result of the pandemic has been less prevalent in Shetland

3.2.6 In summary, Shetland's island communities are facing several short and medium-term demographic and economic pressures. These communities (with some exceptions) have evolved around the ability to make frequent and comparatively low-cost car-based ferry journeys to access employment, business, personal services and leisure opportunities in Lerwick and elsewhere on mainland Shetland. This particular feature means that high quality, reliable, resilient and frequent connectivity offered over a long operating day (or 24-hours) will

[4] The dependency ratio is the number of people aged under-16 and over-64 divided by the number of people of 'working age' (16-64).

be essential in promoting the continued development of the islands and addressing the aforementioned challenges.

Policy Context

3.2.7 When the original SIITS study was undertaken in 2015/16, much of the policy which informed it had been set in the 2000s (e.g., the National Transport Strategy (2006) and ZetTrans Regional Transport Strategy (2008)) or early 2010s (e.g., the *Scottish Ferries Plan 2013-2022*). These and other documents provided a clear but dated strategic direction for the work.

3.2.8 It was however recognised when preparing the reporting in 2016 that the Scottish Government planned to embark on a fundamental review of policy, commencing with the National Transport Strategy 2. Since the completion of the SIITS study, there has therefore been a wholesale change in the policy environment through which a much more coherent position has emerged on several issues of relevance to Shetland's island communities. This section summarises the main policy developments and their implications for the IITCP. Full detail is provided in Chapter 4 of the Case for Change Report.

National Policy – Scotland

3.2.9 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. The National Planning Framework 4 (NPF4) is considered in the 'Local Policy' section due to its relationship with the Shetland Local Development Plan.

Climate Change (Emissions Reduction Targets) (Scotland) Act 2019

3.2.10 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[5] by 2050 (the UK-wide target date for achieving net zero).[6] It embedded the principles of a 'just transition', which means reducing emissions in a way that reduces inequalities or at least does not widen them.

3.2.11 The 'just transition' principle recognises that, in theory at least, islands have unique characteristics which have to be accommodated within the overall transition to net zero. This is particularly pertinent in Shetland where there is a concentration of employment and other essential services in Lerwick, making routine travel essential for many island residents.

[5] 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

[6] https://www.legislation.gov.uk/asp/2019/15/contents/enacted

What are the implications for the IITCP? The IITCP will establish a long-term network strategy for the eight in-scope islands, with a planning horizon which extends beyond the Scottish and wider UK net zero commitments. The option generation, development and appraisal therefore requires a strong focus on the absolute and relative embedded and operational carbon of each option.

The legal commitment imposed by the Act is also focusing both public and private sector investment on new technology and infrastructure which will reduce transport 'tailpipe' emissions. The business case will therefore have to carefully define assumptions around the transition of the vehicle fleet to electric power and the path to decarbonisation for ferries.

National Transport Strategy 2

3.2.12 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. 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".*[7]

3.2.13 The Vision is underpinned by four 'Priorities' and 12 'Outcomes' with which any prospective investment must seek to align, as is shown in the figure below:

Figure 3.1: NTS2 Priorities and Outcomes (Source: NTS2)

3.2.14 Crucially for this study, the NTS2 established two 'hierarchies' which define the principles upon which future transport investment decision making and services should be planned – these are the:

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

- **Sustainable Travel Hierarchy**, which defines the priority which will be given to each mode of transport in future investment planning, with walking and wheeling the highest priority and the private car the lowest
- **Sustainable Investment Hierarchy**, which establishes a structured set of steps to be followed when planning investment in transport infrastructure. The provision of targeted infrastructure improvements is the final step once it has been demonstrated that the scope for reducing the need to travel unsustainably and making better use of existing assets has been exhausted

What are the implications for the IITCP? NTS2 and its embedded hierarchies provide a clear statement of the transport priorities of national government, which will need to be reflected in this business case if funding is sought from Scottish Government.

An inherent challenge here is that the Shetland internal ferry network, and hence the island communities which it serves, has by and large evolved around a car-based model of travel. There is therefore a balance to be struck in terms of reducing unsustainable travel without widening inequalities in island communities, where residents are frequently making essential car-based journeys to employment and / or off-island services.

The Sustainable Investment Hierarchy also very clearly identifies that 'targeted infrastructure improvements' should only be introduced once options under each of the preceding steps have been exhausted. For example, where ferry vehicle deck capacity is a problem, this hierarchy would advocate options to better manage demand prior to building more or larger ferries or a fixed link in the first instance. This point is particularly pertinent in relation to fixed links, where the investment case would need to provide evidence that there is an insurmountable problem or problems that cannot be addressed with existing assets.

Islands (Scotland) Act 2018 and the National Plan for Scotland's Islands (2019)

3.2.15 The Islands (Scotland) Act 2018 was introduced to support and help meet the unique needs of Scotland's islands, now and in the future. The NIP set 13 Strategic Objectives for Scotland's islands – most of these are relevant to the IITCP but of particular relevance are the following:

- **Strategic Objective 1:** To address population decline and ensure a healthy, balanced population profile (reflecting the population decline and worsening demographics previously introduced)
- **Strategic Objective 2:** To improve and promote sustainable economic development

3.2.16 Transport evidently has an important role to play in realising these objectives for islands generally. However, this is particularly the case for Shetland's island communities, due to the high degree of economic concentration in Lerwick and at Sullom Voe. Moreover, Shetland is an exporting economy and this also applies to several of its island communities, particularly Unst and Yell. This therefore lends distinct weight to **Strategic Objective 3**, "to improve transport services".[8]

[8] The National Islands Plan (Scottish Government, 2019), p. 3.

What are the implications for the IITCP? The NIP is one of the few documents that adopts an island-specific policy perspective. It recognises the unique features and challenges of Scotland's islands and highlights the importance of promoting sustainable economic development and population retention. It specifically recognises the role of transport connectivity as an enabler of these outcomes.

Summary

3.2.17 Since the completion of the Shetland Inter-Island Transport Study in 2016, there has been a significant and pronounced change in national policy direction. The Climate Change (Emissions Reduction Targets) (Scotland) Act 2019 followed by the NTS2 (and National Planning Framework 4) put decarbonisation at the heart of the policy agenda. There is now a distinct focus on travelling less frequently and, when a journey is required, that it is made by sustainable modes where possible.

3.2.18 The last decade or so has also seen a wider consciousness emerge of the issues faced by Scotland's island communities, culminating in the Islands (Scotland) Act 2018 and the conclusion of the Islands Growth Deal[9].

3.2.19 This evolution in the policy context provides a strong rationale for revisiting and updating the business case for improvements in inter-island connectivity.

National Policy – United Kingdom

3.2.20 Transport in Scotland is a devolved matter, with Shetland effectively having 'double devolution' with respect to its ferry services (although acknowledging that annual revenue funding requirements are currently underwritten by the Scottish Government). That said, the UK Government has in recent years become more involved in supporting Scottish transport schemes, both through partnership-based Growth Deals such as the Islands Growth Deal and national funding streams such as the *Levelling-Up Fund*.

The UK Government has founded its policy platform on **five 'missions' for a better Britain** – these define the Government's long-term aims for this Parliament. The figure below sets out these five 'missions' together with the Secretary of State for Transport's (Heidi Alexander MP) priorities and the Department for Transport's 'strategic enablers' which will support the delivery

[9] https://www.islandsdeal.co.uk/

of these priorities and the overall 'missions':

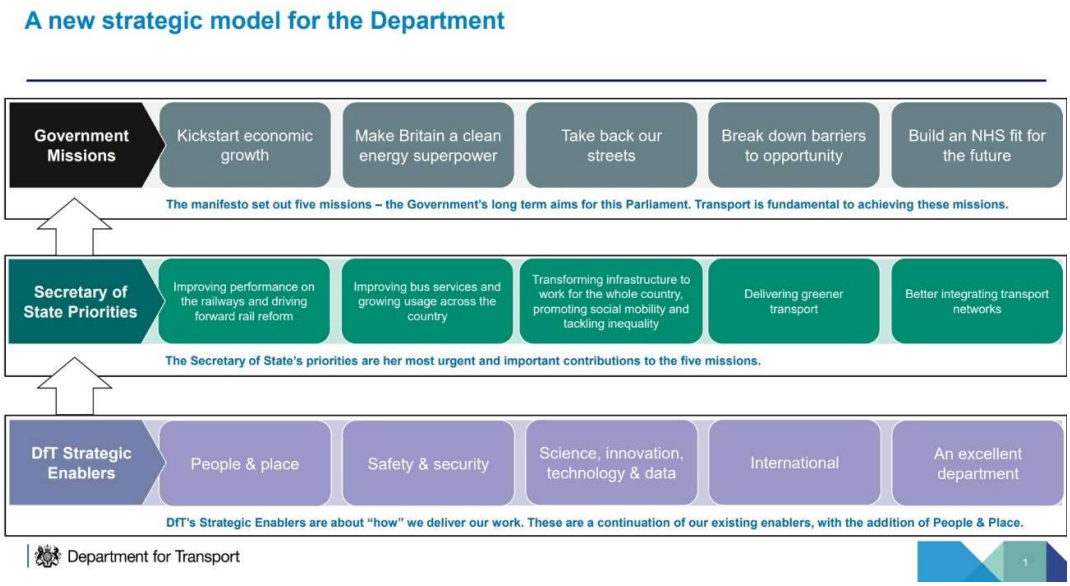


Figure 3.2: The five 'missions' of the Government

3.2.21 The outcomes of the IITCP will support the following priorities of the Secretary of State:

- **Transforming infrastructure to work for the whole country, promoting social mobility and tackling inequality:** infrastructure measures which reduce the peripherality of Shetland's island communities will increase social mobility and reduce the inequalities faced by island residents. Such measures will also support several high value and nationally important industries such as aquaculture and renewable energy production
- **Delivering greener transport:** The Shetland internal ferry network operates entirely on hydrocarbon-based fuels. Regardless of whether new ferries or fixed links are the future solution for Shetland's island communities, reducing embodied and operational emissions will be a key focus of this study
- **Better integrating transport networks:** A major cause of car dependency when travelling to and from Shetland's island communities is limited alternative provision. Whilst buses and active travel are outwith the immediate scope of this study, improved integration will be a theme of the IITCP

3.2.22 By supporting the delivery of these priorities, the outcomes of the IITCP will support the following Government Missions:

- **Kickstart economic growth:** through improving the efficiency and productivity of Shetland's high value economy, most notably the aquaculture industry, renewable energy production and the emerging aerospace / space cluster
- **Make Britian a clean energy superpower:** through supporting the commercialisation and delivery of renewable energy projects
- **Break down barriers to opportunity:** through minimising the inherent disadvantage faced by island residents in accessing employment, business and leisure opportunities and essential services

What are the implications for the IITCP? This project is closely aligned with the 'Missions' of the UK Government. Investment in and improvements to inter-island transport connectivity will support nationally significant economic sectors such as aquaculture and aerospace, facilitate the transition to clean energy and reduce the inequalities faced by residents of the eight in-scope islands.

Regional Policy

3.2.23 The change in the national transport and land-use planning policy landscape in-turn created the requirement to refresh regional policy, which is the responsibility of the ZetTrans Regional Transport Partnership (RTP) in Shetland. ZetTrans defines its policy positions for transport in Shetland by means of a Regional Transport Strategy (RTS) – the second ZetTrans RTS was developed over the period 2021-23 and was adopted in March 2025.

3.2.24 The second ZetTrans RTS (RTS2) was based around an overarching 'Vision', under which sat six RTS Strategy Objectives and eight RTS Themes, within which individual policies are grouped.

3.2.25 The **RTS Vision** is:

- *"Our transport networks in Shetland and our connections to the rest of Scotland support our social and inclusive economic prosperity, provide equitable access to opportunities, enable people to live healthy and active lives, facilitate the development of sustainable and inclusive communities, and contribute to our net zero emission targets"*[10]

3.2.26 Whilst all of the RTS Strategy Objectives are relevant to Shetland's island communities, RTS Strategy Objective 2 was specifically set with these communities in mind:

- **RTS Strategy Objective 2:** To address the barriers which constrain access to and / or impose unreasonable costs of travel and freight transport for all groups within Shetland

3.2.27 Through this objective, the RTS recognised that Shetland's island communities experience a specific set of transport problems which limit access and or increase the costs of travel for passengers and freight alike. This island-specific focus at the strategic level gave rise to an RTS Theme and associated policies specifically related to these island communities, as follows:

- **RTS Theme 4:** Improving internal ferry and air connections and exploring the case for fixed links so as to better connect Shetland's island communities
  - **RTS Policy 25:** Our internal ferry network should be developed in a more coherent, recognisable, and integrated way for regular, occasional and new users of the network, including visitors
  - **RTS Policy 26:** We are committed to contributing to the sustainability of our island communities by reducing or removing the cost, capacity and connectivity barriers to personal and business travel, the delivery of public services and the movement of goods between our islands
  - **RTS Policy 27:** We commit to ensuring the maintenance of the ferry fleet and associated infrastructure and to invest in these assets and crews to a level which ensures a continuing reliable and resilient service
  - **RTS Policy 28:** We commit to maintaining the inter-island air service to at least its current level and to explore opportunities to improve the service where necessary and deliverable. As part of developing and implementing this policy, we will take

[10] ZetTrans Regional Transport Strategy (ZetTrans, 2023), p. 7

cognisance of the activities being undertaken by the Sustainable Aviation Test Environment (SATE) located in Orkney

- **RTS Policy 29:** We will progress the feasibility and case for fixed links and act on the conclusions as part of our future wider inter-island connectivity planning across all modes of travel. Any fixed link should be implemented in conjunction with a high-quality public transport offer, which incorporates provision for cyclists
- **RTS Policy 30:** We will support island-based vessels and crews where safe, deliverable and practicable
- **RTS Policy 31:** We will ensure that all future ferry and aircraft replacement programmes will contribute towards the delivery of the Council's Climate Change Strategy
- **RTS Policy 32:** Inter-island services will move towards being fully accessible taking account of the needs of all users[11]

What are the implications for the IITCP? The new ZetTrans RTS provides the strategic transport rationale for this study (RTS Policy 29) and highlights a range of issues that it must cover including fixed links, island-based vessels and reducing the cost and connectivity barriers facing Shetland's island communities.

Local policy – Shetland Islands Council

Shetland Islands Council Corporate Plan 2021-2026 – Our Ambition

3.2.28 The Corporate Plan provides the strategic political direction for the Council across all policy areas. Much of the Plan is relevant to this study, for example its aspirations to achieve an improved demographic balance, equitably grow the economy and support new development. However, it is the transport theme which is most relevant.

3.2.29 The Plan references the challenges facing the inter-island transport network, including ageing assets and affordability. It also provides the specific political context for this study noting that:

- *"We will **continue to secure support from the Scottish Government to ensure financially and environmentally sustainable internal ferry services**, so we can continue to provide links between the islands that are reliable and support economic and social wellbeing, and will **continue to pursue fixed links where they can be proven to be a viable alternative**."*[12]

What are the implications for the IITCP? The Shetland Islands Council Corporate Plan 2021-26 provides the strategic political direction for this study.

Shetland Local Development Plan

3.2.30 The Local Development Plan (LDP) defines planning policy and the spatial approach to development in Shetland. Shetland's current LDP was adopted in 2014. Policy H2 of the LDP identifies eight areas of 'Best Fit' throughout Shetland in order to promote sustainable locations for residential or residentially compatible development. There are three island locations identified – Baltasound, Symbister and Mid Yell.[13]

[11] ZetTrans Regional Transport Strategy (ZetTrans, 2023), p. 10

[12] Shetland Islands Council Corporate Plan 2021-26 (Shetland Islands Council, 2021), pp. 29-30.

[13] Shetland Islands Council Local Development Plan (Shetland Islands Council, 2014), p. 39.

3.2.31 The Council is currently preparing its LDP2 which will reflect the policies and principles set out in NPF4, the national spatial strategy for Scotland. Shetland's LDP2 is expected to be adopted in 2028.

3.2.32 In the intervening period, NPF4 will be the primary planning policy document that applies to Shetland, which takes precedence over the extant Shetland LDP. Of particular relevance of this study are the six spatial principles that will guide how development will be planned across Scotland and, by extension, Shetland:

- **Compact growth**, which is focused on development in locations that reduce the need to travel
- **Local living**, which will enable people to meet most of their daily needs within a 20-minurtes walk, cycle or public transport trip (i.e., 20-minute neighbourhoods)
- **Balanced development**, which will ensure that development benefits all parts of Scotland, including rural and island communities. The focus is on avoiding over concentration and promoting a fair distribution of growth
- **Conserving and recycling assets**, prioritising the re-use of existing buildings, infrastructure and land to reduce the environmental impacts of development
- **Just Transition**, to support a fair and inclusive transformation to a net zero economy, ensuring that no community is left behind
- **Climate resilience**, with respect to directing development to places that are less vulnerable to climate risks

3.2.33 The realisation of these principles will evidently take a different form in Shetland from more urbanised areas of Scotland. However, with respect to the IITCP, they highlight the important consideration of balanced development, reflecting the need to ensure that development benefits Shetland's island communities.

What are the implications for the IITCP? The extant LDP and NPF4 provide the local spatial planning context for the IITCP. These documents recognise the importance of ensuring balanced development, which will include reflecting the needs of Shetland's island communities.

Shetland Islands Council Climate Change Strategy 2023-2027.

3.2.34 Shetland Islands Council acknowledged a 'Climate Emergency' in January 2020, prompting the creation of the Climate Change Programme, with the purpose of minimising the risks of climate change to the Shetland community as far as possible, and to make the transition to net zero as beneficial as possible. The Council has a statutory duty to reduce greenhouse gas emissions in line with Scotland's national target of 2045, and to demonstrate that it is working towards this. The Shetland Islands Council Climate Change Strategy and associated Action Plan were prepared in response to these developments.[14] The Strategy is formed of six themes, of which **transport** is one.

3.2.35 The Strategy sets out six outcomes that the Council is seeking to achieve with respect to transport:

- Fully **decarbonise the Council fleet by 2045**, including heavy-duty vehicles, vessels and aircraft
- Reduce emissions from business and commuter travel by **30%** by 2030 from the 2019 baseline

[14] Climate Change Strategy 2023-27 (Shetland Islands Council, 2022), p. 4

- **Increase active travel infrastructure and encourage uptake of active travel** for Council employees and the Shetland community
- Work towards **developing a public transport system that is affordable and attractive to residents**, which will increase use and efficiency
- Support the **transition to zero-emissions vehicle use and transport infrastructure**
- Prepare our transport networks and infrastructure for the **effects of climate change**[15]

3.2.36 The Climate Change Strategy directly references the IITCP, highlighting that it will consider the emissions implications of fixed links and consider both the growing zero-emissions fleet of vehicles and the possibility of zero-emissions ferries. It is important to note that 'vessels' (the majority of which will be Council ferries) are by some distance the third biggest source of greenhouse gas emissions in Shetland, behind only 'waste and waste infrastructure' and 'Council homes', demonstrating the importance of the solutions that will emerge from this study.[16]

What are the implications for the IITCP? The Climate Change Strategy 2023-27 is the local expression of how the Council will contribute to the delivery of national net zero legislative commitments and is inclusive of a specific transport theme. The key consideration for this study is understanding, at the options appraisal stage, the emissions associated with each option, both in terms of embodied and operational carbon. It will also be important to develop realistic assumptions on the timescales for the transition of the vehicle fleet and future options for low or zero emissions ferries.

As with several other policy documents, there is also a presumption towards reduced business and commuter travel, which will have to be factored into the business case work.

Shetland's Partnership Plan 2018-2028

3.2.37 The Shetland Partnership is the Community Planning Partnership (CPP) for Shetland, which combines a range of agencies and bodies that work together and with local communities to design and deliver better services. The Plan incorporates a shared vision, as follows:

- *"Shetland is a place where everyone is able to thrive; living well in strong, resilient communities; and where people and communities are able to help plan and deliver solutions for future challenges."*[17]

3.2.38 Under the 'Place' priority, public transport is noted as being of the highest priority for improvement according to Shetland communities.[18] It highlights that distance should not be a barrier to opportunity.[19]

3.2.39 The Partnership has published its *Second Locality Plan for Shetland's Islands with Small Populations*, which covers Fair Isle, Fetlar, Foula, Papa Stour and Skerries. The purpose of the Plan is to support these five island communities to find innovative solutions to their main local problems.[20]

[15] Climate Change Strategy 2023-27 (Shetland Islands Council, 2022), p. 52
[16] Climate Change Strategy 2023-27 (Shetland Islands Council, 2022), p. 22
[17] Shetland's Partnership Plan 2018-2028 (Shetland Partnership, 2018), p. 2
[18] Shetland's Partnership Plan 2018-2028 (Shetland Partnership, 2018), p. 8
[19] Shetland's Partnership Plan 2018-2028 (Shetland Partnership, 2018), p. 9
[20] Shetland's Islands with Small Populations: Second Locality Plan (Shetland Partnership, 2023), p. 1

What are the implications for the IITCP? The key point of note for this study is that the solutions for the four 'small population islands' in-scope are developed in the context of each locality, recognising that bespoke solutions may be required for each island (as per Fair Isle for example).

Summary

3.2.40 The evolution of policy at the national (Scottish and UK) level has established the macro context for this study. At the strategic level, the Council must work towards delivering the national carbon reduction target but in a way that ensures a 'just transition' and recognises the unique characteristics of the eight in-scope islands.

3.2.41 This has been reflected in the formulation of Shetland-level policy, with the Council's Corporate Plan providing the strategic rationale for the study and the ZetTrans RTS the strategic transport context. It is also recognised that inter-island transport is a cross-cutting policy issue and the need for reliable and resilient connections is detailed in the Shetland Partnership Plan, the Council's Climate Change Strategy and the emerging LDP2.

3.3 Case for Change summary – what is the need?

3.3.1 Any appraisal or business case is founded on developing a **case for change – i.e., what is the rationale for investment**. In the context of STAG, the case for change is primarily focused on identifying the transport problems that have been identified and evidenced. The Case for Change Report provides the extensive detail underpinning this summary section.

3.3.2 The case for change underpinning this business case is complex and nuanced – each of the eight in-scope islands have commonalities but they also have significant differences, reflecting their geography, economies, history and culture. Moreover, for several of the smaller islands, data availability is limited and that which does exist is often aggregated with other islands or mainland Shetland, out-of-date or not reported because it would risk the identity of individuals being revealed. However, there are two broad components to consider:

- **Network / operational problems**, which in this context are the problems that the Council experiences in delivering ferry services – i.e., the **supply-side**
- Problems experienced by a **user or potential user of the transport network** – i.e., the **demand side**

Network / operational problems

3.3.3 As noted, the network problems are an expression of the supply-side difficulties faced by the Council in operating and maintaining its inter-island fleet – these can be summarised as follows:

- **Fleet resilience:** Fleet resilience is a major challenge with the Shetland ferry fleet. A combination of an ageing fleet, only having one spare vessel (and even that only outside of drydock periods) and harbour and vessel certification limitations on certain routes means that there are several potential points of failure. Recognising the criticality of this issue, the Council commissioned an internal **Ferries Resilience Review** in 2024 to consider short-term measures which could be adopted to put the service on a more sustainable footing
- **Fleet age:** The Shetland internal ferry fleet is ageing, with an average age of 31.5 years and six of the eleven vessels over 30-years old. As a consequence of their age, a number of the vessels in the fleet do not comply with modern legislation and fall below passenger expectations. Significant fleet renewal will be required over the next 10-15 years, for which there is at present no committed funding

- **Crewing:** The availability of qualified ferry crew, and in particular engineers, is placing a significant resilience challenge on the Council's Ferry Service. There is a global shortage of qualified seafarers (and engineers in particular), but this issue is being compounded by several Shetland-specific factors. Agency crew members are playing a crucial role in maintaining the current level of service (by and large) but this is not a sustainable long-term solution
- **Succession planning:** The demographics of the current ferry crew are skewed towards the older age groups (**50%** are aged 46+ and only **9%** aged 16-25) and there is a clear challenge around long-term succession planning given the ageing population of the islands and Shetland overall
- **Vehicle deck capacity:** Providing and managing vehicle deck capacity is a daily challenge faced by the Council. There are evident capacity problems on certain routes and at particular times of the day or week, exacerbated by the recent growth in average vehicle size. The approach to accommodating the future demand for travel is an important strategic choice for the IITCP
- **Cost:** The operational challenges facing Shetland's internal ferry network have been compounded by sharp increases in cost and the annual revenue funding deficit. Whilst the additional Section 70 funding[21] provided by the Scottish Government has offset this, the widening differential between cost and revenue remains a cost to the public sector overall

3.3.4 In summary, there is an increasingly urgent need for capital investment and additional crew to first put the service on a more sustainable footing, before potentially expanding to address problems experienced by users or potential users of the service.

User and potential user problems

Island-by-island problems

3.3.5 'Transport problems' from the perspective of users and potential users of the internal ferry network have been developed within a systematic 'Transport Problems Framework'. This is summarised in the figure below:

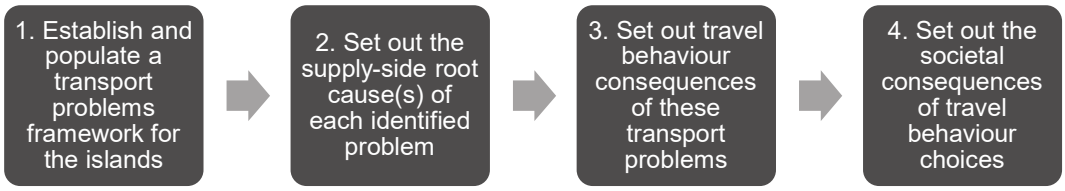


Figure 3.3: Transport Problems Framework process

3.3.6 **What is a transport problem?** Here, we primarily focus on the definition of a transport problem as being **a problem experienced by a user, or potential user of the transport network** in or travelling to / from one of the in-scope island communities. These transport problems can be thought of as one or more of:

- Something that **negatively affects a journey which is still made** (people and freight) by that mode of travel – *in the main this makes a trip less efficient, more expensive, less comfortable or more stressful in terms of safety and / or wellbeing*
- Something that **stops people or goods travelling by (generally) more sustainable and policy friendly modes** – *this primarily leads to more car use and associated*

[21] The Scottish Ministers can make grants to any persons for any purposes relating to transport, known as Section 70 funding

negative impacts across a range of policy areas including the environment, climate change and safety

- Something that **stops people making the trips they would like to make, or goods being moved** – *impacting on peoples' life chances, wellbeing, and business opportunities*

3.3.7 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 the investment case is developed.

3.3.8 Transport problems, when defined as described above, are typically associated with a relatively narrow range of parameters which define any trip, defined here as **'problem components'** - these problem components are set out in the table below:

Table 3.1: Transport problem 'components'

All modes of travel	Public transport specific
Concern over environmental impact of travel	Booking and journey planning (e.g., making connections between services)
Cost of travel and affordability[22]	Capacity
Fuel / power issues	Comfort, safety and security
Integration of travel between modes	Connectivity and network coverage (availability of services)
Journey information, including for protected groups who may find accessing information particularly difficult	Ease of use / convenience
Journey quality	Integration between services (within mode, e.g., bus-to-bus and between modes, e.g., bus-to-ferry, including for people with disabilities or other protected characteristics which affect accessibility
Journey times	Service reliability (cancellations and punctuality)
Journey time reliability (including public transport service punctuality)	Timetables (first and last / frequency / days of the week etc.) and their accessibility for all groups
Lack of awareness of travel options	
Personal accessibility – being able to access transport networks and public transport services specifically including people with disabilities or other protected characteristics which affect accessibility	
Personal security (fear of crime)	
Travel safety (collisions, personal injury)	

3.3.9 The above list was used as a 'checklist' to develop a set of transport problems for each island, which are detailed in **Chapters 7 to 13** of the Case for Change Report. The transport problems identified were presented, discussed and validated with the communities through the public drop-in sessions / community in-depth interviews. We can therefore be confident that

[22] **Framing cost of travel as a barrier to opportunity:** In the Shetland context, the cost of travel is best understood as a structural barrier to access, not simply a per-journey or distance-based cost. Residents of island communities frequently rely on off-island travel for employment, education, healthcare and daily activities. As a result, the cumulative travel costs borne by households are disproportionately high—even when individual fares appear modest in isolation. Recognising this framing will be essential in ensuring fair funding models and infrastructure investment decisions that reflect the lived realities of Shetland's island communities.

we have a firm and agreed understanding of the principal problems affecting travel to and from island communities.

Aggregating the island transport problems

3.3.10 Whilst problems have been identified at the island level, this is a **network (programme) business cas**e and thus it is important to aggregate these problems, providing a focus for the setting of Transport Planning Objectives in Section 3.5.

3.3.11 This was primarily done through using the **resident survey**, supported by **wider community inputs** and **secondary data**. The resident surveys generated around 1,000 responses, with around 600 from island residents and 400 from mainland residents, a very high response rate to a survey of this nature. These surveys asked respondents about their level of **satisfaction / dissatisfaction with 38 aspects of their ferry services**. Those who stated that aspects of the ferry services **prevented them making all the journeys they'd like to make** (around **1/3** of island respondents and **39%** of mainland respondents) were asked how significant **20 key aspects of the ferry services were in not travelling as much as they'd like**. These 'dissatisfaction' and 'barriers to travel' metrics ultimately form the basis of the TPO setting process.

3.3.12 The quantitative analysis of the surveys focussed on responses from the four most populous islands (Bressay, Unst, Whalsay, Yell, where response rates were highest) plus Fetlar, and mainland Shetland. Survey responses from the lower population islands (where the absolute number of responses is low by definition) have been used in a more qualitative sense and supplemented by community depth interviews. A low number of business surveys were also returned, and these are reported in brief here and more broadly used on a more qualitative sense. These business surveys were however supplemented by an extensive programme business and service provider interviews, which have been used to support the analysis.

3.3.13 In order to make the analysis more manageable, the **38 ferry dissatisfaction factors** and **20 barriers to travel factors** were allocated into one of nine prospective 'TPO themes' as set out in the table below.

Table 3.2: Survey ferry service factors and prospective TPO themes

TPO Theme	Survey Dissatisfaction Factors	Survey Barriers to Travel Factors
Accessibility – physical accessibility	- Facilities for those with a disability - Availability of suitable seating onboard	- Facilities for those with a disability
Capacity – ability to take a car on the ferry	- Ability to get on first sailing with a vehicle if unbooked - Ability to book vehicle on my preferred sailings - The frequency with which I have to book for travel	- Ability to get on first sailing with a vehicle if unbooked - Ability to book vehicle on my preferred sailings - The frequency with which I have to book for travel
Cost – fares	- Level of standard fares: vehicle - Level of 10-journey fares: vehicle - Level of standard fares: - commercial vehicle - Level of 10-journey fares: passenger - Level of standard fares: passenger	- Level of standard fares: vehicle - Level of standard fares: passenger
Journey times	- Check in times - Crossing time	NA

TPO Theme	Survey Dissatisfaction Factors	Survey Barriers to Travel Factors
Limited, fixed times of travel, within operating day – current timetables	- Service frequency - Sunday - Service frequency - Saturday - Integration with other SIC ferry services - Timetable complexity and regularity - Convenience of 'booking only' sailings - Service frequency - weekday evening - Service frequency - weekday - Connections with NorthLink Ferry arrivals and departures (island residents only)	- Service frequency - Sunday - Service frequency - Saturday - Service frequency - weekday evening - Service frequency - weekday
Operating day restriction – service start and end times	- Ability to catch first flight (island residents only) - Ability to return home from last flight (island residents only) - Time of first sailing of the day - Time of final sailing of the day - Number of days per week that service operates	- Ability to catch first flight (island residents only) - Ability to return home from last flight (island residents only) - Time of first sailing of the day - Time of final sailing of the day
Other	- Ticketing and payment arrangements - Vehicle marshalling arrangements - The ease and convenience of the booking process - Comfort onboard	NA
Poor non-car travel options – public transport and foot passenger provision	- Public transport connections to island / mainland ferry terminal - Onward public transport connections from mainland / island ferry terminal - Parking at island / mainland ferry terminal - Quality of ferry terminal facilities	- Public transport connections to island / mainland ferry terminal - Onward public transport connections from mainland / island ferry terminal
Resilience – service consistency, reliability and punctuality	- Service during vessel re-fit periods - The number of service cancellations (short notice) - Monday timetables (Yell Sound, Bluemull Sound, Whalsay only) - The number of service cancellations (notified in advance) - The punctuality of the services (i.e., sailings running to timetable)	- Service during vessel re-fit periods - The number of service cancellations (short notice) - The punctuality of the services (i.e., sailings running to timetable)

3.3.14 In order to get a sense of the relative importance of the prospective TPO Themes to Shetland residents:

- The dissatisfaction factors and barriers to travel factors were **ranked in terms of their frequency of being cited** – where being ranked 1 is the most dissatisfaction / biggest barrier to travel
- An **average TPO Theme dissatisfaction rank** was then calculated (the average ranking of all the factors allocated to each theme) for island and mainland residents with respect to both dissatisfaction and barriers to travel

- These **averages were then ranked**

3.3.15 The results of this analysis are shown in the table below, where a **high ranking (low number) indicates greater significance** – the top three areas of dissatisfaction and barriers to travel shown in bold and orange shading in each case

Table 3.3: Survey ferry service factors, barriers to travel and prospective TPO themes

TPO Theme	Dissatisfaction Rank		Barrier to Travel Rank	
	Rank (Island Residents)	Rank (Mainland Residents)	Rank (Island Residents)	Rank (Mainland Residents)
Accessibility	7	7	6	4
Capacity	**3**	**3**	**1=**	**2**
Cost	**2**	5	5	4
Journey times	9	9	NA	NA
Limited, fixed times of travel, within operating day	6	**2**	**3**	**3**
Operating day restriction	5	8	4	7
Other	8	6	8	8
Poor non-car travel options	4	4	7	6
Resilience	**1**	**1**	**1=**	**1**

3.3.16 The **highest levels of dissatisfaction** are therefore associated with:

- Resilience
- Cost
- Limited, fixed times of travel, within operating day
- Capacity

3.3.17 **Cost** is a greater source of dissatisfaction with **island residents**.

3.3.18 The **key barriers to travel** therefore surround:

- Resilience
- Capacity
- Limited, fixed times of travel, within operating day

3.3.19 The results are very similar for island and Shetland mainland residents.

3.3.20 This aggregated set of transport problems has been used to set the Transport Planning Objectives in Section 3.5. Ahead of this however, it is essential in a business case to detail the **impact of not changing** so that there is a clear statement of the implications of a no investment position.

3.4 Impact of not changing

3.4.1 Failure to address the problems identified in the case for change will have negative impacts on Shetland's island communities and indeed the archipelago overall. For some islands which are already facing significant economic and demographic pressures, the perpetuation and

worsening of the transport problems identified could threaten the viability of maintaining a sustainable community in the long-term. For others, it may undermine critical industries (e.g., aquaculture in Yell) and / or prevent or limit the scale and benefits of new investment (e.g., Spaceport on Unst). This is captured in the 'Do Nothing' scenario (note that that this is also often referred to as the business-as-usual (BaU) scenario, but the term 'Do Nothing' will be used here as the BaU implies investment and thus will be included in the options).

Do Nothing

3.4.2 The Do Nothing provides the baseline against which value for money is conventionally measured. In most business case settings, this implies a comparison against a broadly 'steady state' position – e.g., in the context of a new road, the basis of comparison would be the current road (hence the usual nomenclature of BaU). Whilst this approach could be adopted for the IITCP, it fails to recognise that the Do Nothing is not a static position – without investment in ferries or fixed links as current assets expire, the economies and societies of Shetland's island communities would be severely threatened. In short, the **Do Nothing represents a declining position over time**.

So, what does the Do Nothing look like?

3.4.3 The 'rule of thumb' for the replacement of a passenger ferry operating in Scottish waters was defined in the *Scottish Ferries Plan 2013-2022* as 30-years[23]. This is not a hard and fast rule as ferries can operate for many years beyond this date so long as their steelwork is in good condition – indeed one of the world's most luxurious small cruise ships, MV *Hebridean Princess*, was launched in 1964 as the Mull Ro-Ro ferry MV *Columba*. That said, as vessels get older:

- Breakdowns become more common
- Refits take longer either because more work is required or parts become harder to source
- Systems become obsolete
- Compliance with modern legislation and regulations becomes harder to maintain, with a dependence on 'grandfather rights' often required

3.4.4 These types of issues have very much come to the fore in Scotland in recent years. The most high-profile cases have been on the Clyde and Hebridean Ferry Services (CHFS) network and for the Corran Ferry, but Shetland Islands Council has also begun to experience these problems in more recent years.

3.4.5 The table below summarises the age of the Shetland ferry fleet in chronological order (note the Fair Isle vessel MV *Good Shepherd IV* is excluded as she is in the process of being replaced and is out of scope for this study):

Table 3:4: Shetland Islands Council internal ferry fleet – vessel age as at May 2025

Vessel	Primary Route	Entered Service	Age in 2025
MV *Hendra*	Symbister – Laxo / Vidlin	1982	43
MV *Snolda*	West Burrafirth – Papa Stour	1983	42
MV *Fivla*	Spare	1985	40
MV *Geira*	Bluemull Sound	1988	37
MV *Bigga*	Bluemull Sound	1991	34
MV *Leirna*	Lerwick – Bressay	1992	33

[23] *Scottish Ferries Plan 2013-2022* (Transport Scotland, 2012), p. 9.

Vessel	Primary Route	Entered Service	Age in 2025
MV *New Advance*	Foula – Walls	1996	29
MV *Linga*	Symbister – Laxo / Vidlin	2001	24
MV *Filla*	Skerries – Laxo / Lerwick / Vidlin	2003	22
MV *Dagalien*	Toft – Ulsta	2004	21
MV *Daggri*	Toft – Ulsta	2004	21

3.4.6 The key points of note from the above table are as follows:

- The **average age of the fleet** as at May 2025 is **31.5 years**
- **Six of the eleven vessels in the Shetland fleet are over 30-years old**, with three of these vessels now having entered their fifth decade
- There have been **no new vessels introduced into the Shetland fleet for over 20-years**

3.4.7 In addition to the age of the vessels, there are several ships in the fleet which do not comply with modern legislation – for example:

- MV *Hendra*, MV *Fivla*, MV *Geira* and MV *Bigga* all have passenger accommodation below the waterline, accessed by steep steps
- MV *Snolda* is limited to carrying 12 passengers due to her insufficient watertight sub-division

3.4.8 Ultimately, even with investment in maintenance and life extension, both vessels and landside infrastructure will reach a stage at which asset replacement is required. This may be preceded by the imposition of operational restrictions in terms of e.g., carrying capacity (passengers, vehicles, tonnage etc), length of operating day etc. Whilst it is almost inconceivable that a situation would be reached whereby an island would be cut-off altogether, it is entirely realistic than an island is provided with a sub-optimal ferry service that impacts negatively on its society and economy. There is therefore evidently a requirement for a significant fleet renewal over the next 10-15 years and / or potential replacement of some ferry services with fixed links.

What are the implications of not changing / doing nothing?

3.4.9 The 'Shetland model' of inter-island connectivity was developed in the 1970s and 1980s, focused on enabling frequent travel by car on short ferry crossings operating regularly and over a long day. The societies and economies of the isles have evolved around this high-level of connectivity. By way of comparison, the table below shows the comparable trip rates on the Orkney and Shetland internal ferry services in 2022:

Table 3:5: Orkney and Shetland internal ferry networks – comparable trip rates (2022)

	Passenger trips	Council population	Annual Trip rate	Mainland population	Annual Trip rate	Island population	Annual Trip rate
Orkney	320,800	21,958	15	17,162	19	4,796	67
Shetland	656,510	22,900	29	18,765	35	4,135	159

3.4.10 The key points of note from the above table are as follows:

- For the islands overall, the average Orcadian only makes around half **(15)** the number of trips of the average Shetland resident **(29)**

- Specifically with regards to those who live in an island, the average Shetland resident makes around **two and half times** the number of journeys **(159)** that the average Orcadian **(67)** resident makes each year
- It is likely that the figures in the above table slightly underestimate the relative difference in annual trip rates, as there is a higher volume of tourism to Orkney's island communities relative to those in Shetland

3.4.11 High frequency of travel is therefore embedded in Shetland and maintaining the economic and social viability and sustainability of island communities is dependent on minimising the inconvenience associated with having to cross a body of water. As outlined in the previous section, there is an increasingly urgent need to replace the Shetland fleet, and failure to do so may have a range of consequences for island communities, including:

- **Continued long-term population decline** – the total population of the eight in-scope islands has reduced by **24%** between 1981 and 2022. The trend in population varies by island but it is worth noting that **all islands except Bressay** have experienced population decline over the last four decades, with the population of the **North Isles (Fetlar, Unst and Yell)** having reduced by one third over the 1981-2022 period
    - At the most extreme end of the scale, the sobering experiences of several abandoned Scottish islands, including the world-famous St Kilda, Stroma and Mingulay, highlights the ultimate end point when declining conditions on-island allied with poor connectivity to larger centres of population combine to make a community unsustainable. Engagement with communities suggests that this is not an immediate threat for any of the in-scope communities, but **maintaining a viable and stable population is evidently a long-term challenge for several islands**
- Allied to the above point, **the populations of the respective islands are ageing**. Most of the in-scope islands have a higher number of people of retirement age and a lower proportion of children than Shetland and Scotland overall. For example, over one third of Fetlar residents are above state retirement age and there are now no residents under 23-years of age on the island. This translates into low rates of economic activity and difficulties and / or high costs of delivering services. Transport has an essential role to play in rebalancing the demographics of the islands in terms of providing access to education, employment and leisure opportunities for young people and families living in the isles or for those that are minded to move to an island
- Negative **labour market impacts**, particularly in terms of matching skills to jobs and filling vacancies. At **1.12**, Shetland has **one of the highest job densities[24] in Great Britain, ranked 23rd out of 350 local authorities** and second only to Aberdeen City in Scotland. In short, there are more jobs than prospective employees, making recruitment difficult, and demographic change is exacerbating this problem. The transport connectivity of Shetland's island communities is important in providing access to mainland jobs for island residents. Perhaps more significantly however, there are high-value established industries on several islands and prospective new developments such as onshore wind and the Spaceport in Unst. Maximising the labour market catchment of these industries is essential to their success and providing reliable and efficient inter-island transport connectivity plays a key role in this
- Reduced **business productivity**, particularly in sectors such as aquaculture and agriculture where there is a requirement to physically move products. Several of the products produced in Shetland's island communities are very time sensitive and at the end of long supply-chains, making reliable inter-island connections of paramount importance. Industries such as aquaculture, fish processing etc also have a degree of mobility and there is a risk of businesses relocating if e.g., moving products, recruiting labour etc becomes more difficult

[24] Jobs density is the total number of filled jobs in an area divided by the resident population of working age in that area. A jobs density of >1 implies that there are more jobs than prospective workers

- **Tourism** in Shetland's island communities has grown strongly in recent years, particularly in Unst. Stakeholder engagement suggested that issues of ferry service reliability (and also capacity to some degree) are constraining visitor demand (with accommodation also being an issue). A modern and reliable inter-island ferry service with adequate capacity or a fixed link is therefore important if this industry is to continue growing
- Finally, **island residents and businesses already pay a cost premium for many goods and services**, reflecting their comparative geographic remoteness, thin supply-chains and limited connectivity. The inter-island transport network compounds these cost pressures, both directly in terms of the need to pay fares, but also indirectly in terms of e.g., unproductive time for tradespeople, the cost of having some goods shipped etc. Any worsening of provision or reliability over time would further increase this cost premium

3.5 Transport Planning Objectives

3.5.1 With regards to TPOs, the STAG Managers Guide (2022) states that: *The objective must express the change sought in the study area without indicating potential solutions*. With this in mind, when considering and developing TPOs it is helpful to place them in the context of the following simplified transport intervention logic map:

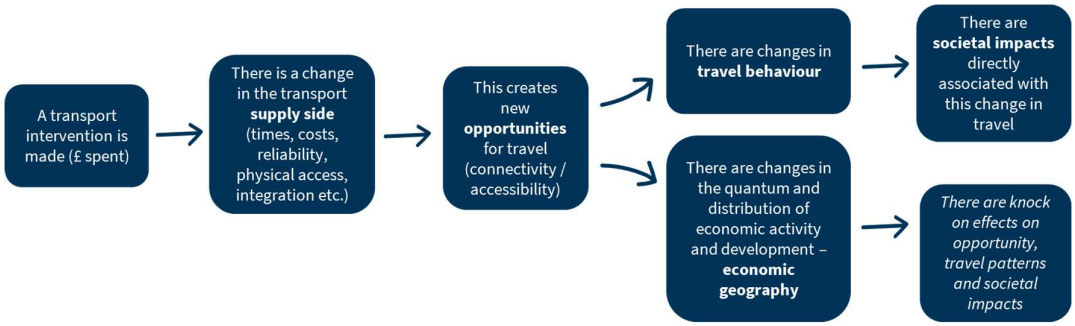


Figure 3.4: Simplified transport intervention logic map

3.5.2 Whilst there is no guidance from Transport Scotland regarding at which 'stage' in the logic map TPOs should be directed, measures of *supply-side* and *opportunity* are the most measurable in any appraisal, and changes in *travel behaviour* (and environmental *societal impacts*) are the most readily quantifiable / forecastable.

3.5.3 In the Shetland case, it is clear that significantly improved inter-island transport connectivity would have implications across this full extent of the logic map, and the graphic below illustrates how improved island connectivity can lead to changes in economic geography and greater dependency on this connectivity. This in turn drives the need for further improved connectivity, with the ultimate end point potentially being a fixed link.

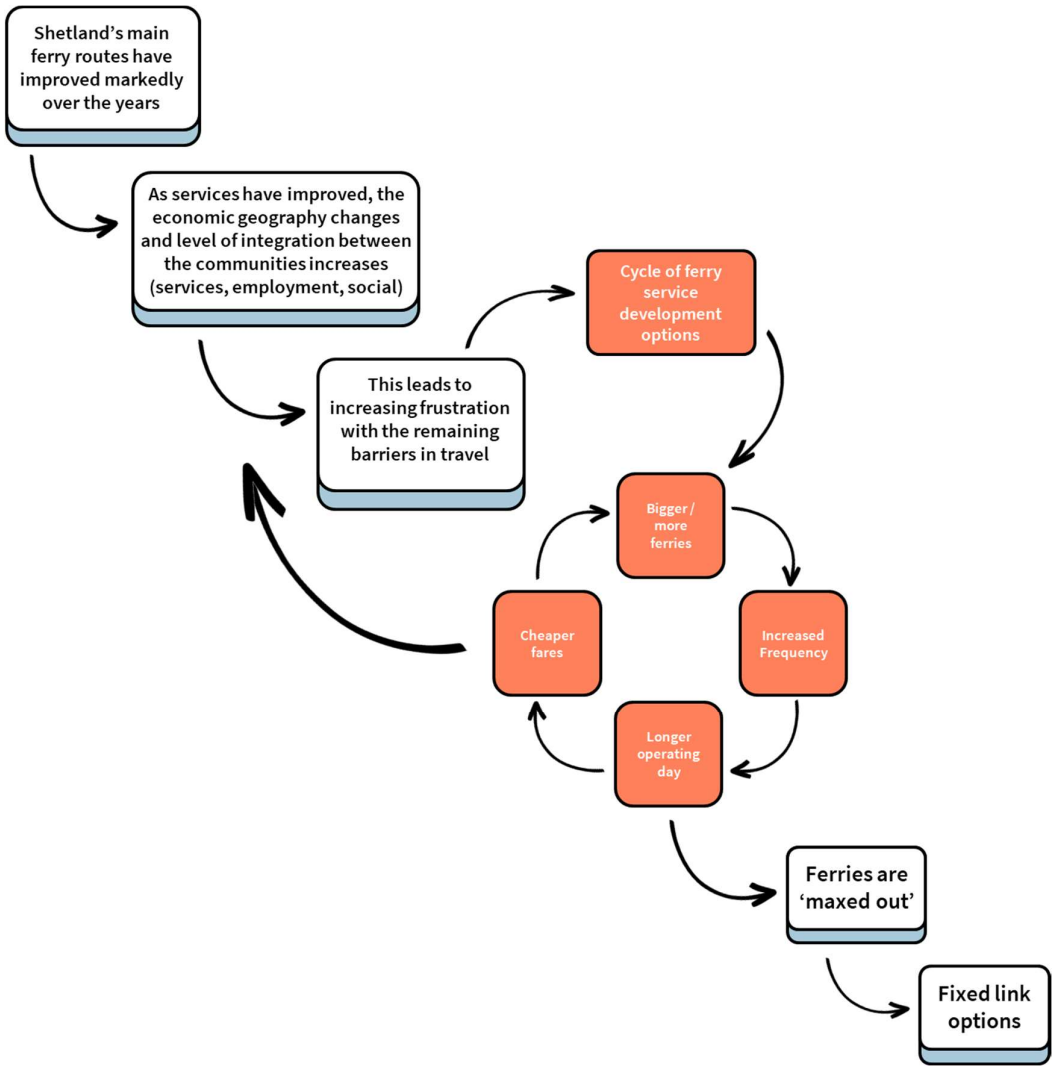


Figure 3.5: Inter-island transport connectivity through time

3.5.4 In the light of the case for change and the evidence of transport problems set out in Section 3.3, the following TPOs have been set in response to the TPO Themes of most significance The **TPO themes below are ordered in terms of their significance as barriers to travel**. In keeping with the guidance, the TPOs are not SMART[25] at this stage, but will be made SMART in the OBC / Detailed Appraisal.

Table 3.6: Survey ferry service factors, barriers to travel and prospective TPO themes

TPO Theme	TPO
Resilience	Reduce or remove **variances from the regular published timetable**
Capacity	Reduce or remove the ferry **capacity** barrier associated with ferry travel
Limited, fixed times of travel, within operating day	Improve the **flexibility of travel** within the operating day
Cost	Reduce or remove the **cost** barrier associated with ferry travel
Accessibility	Make inter-island travel fully **accessible** to all

[25] **S**pecific, **M**easurable, **A**ttainable, **R**elevant and **T**ime-bound

TPO Theme	TPO
Operating day restriction	Improve travel options beyond the current **operating day**
Poor non-car travel options	Improve provision for those **not travelling by car** / who would **prefer not to travel to by car**
Other	No TPO set as not identified as a significant problem
Journey times	No TPO set as not identified as a significant problem

3.5.5 In terms of the logic map set out previously (Figure 3.4) these **TPOs are aimed at the transport supply-side**. The resident survey did also explore the degree to which people would make more trips to take up activities and opportunities so there is evidence to suggest that resolving these supply-side problems would lead to the travel behaviours and societal impacts set out in the logic map.

3.5.6 Whilst these TPOs will be used universally in the appraisal, it is recognised that their relevance will differ somewhat between islands. To this end, narrative based logic maps for each island / option will be developed in the OBC.

3.5.7 The options will be developed (see Section 3.8) based on an incremental approach to addressing the TPOs, i.e., different levels of ferry service improvement will address these TPOs to different extents whilst a fixed link package could resolve all of these TPOs.

3.6 Scope

3.6.1 The overall scope of the IITCP is to deliver **a reliable, resilient and decarbonised inter-island transport network that supports the growth and development of Shetland's island communities**. The transport outcomes desired are expressed through the Transport Planning Objectives.

3.6.2 However, there are a number of quite different ways in which this scope could be delivered, and the role of this business case is to identify the optimum solution that addresses the transport problems and meets the needs of island communities in a way that maximises value for money.

3.7 Strategic Benefits, Risks, Constraints and Dependencies

3.7.1 This section focuses on the potential benefits, risks, constraints and dependencies associated with the generality of improving inter-island transport connectivity in Shetland, recognising that there are different options with respect to potential solutions and the timeframes over which they will be delivered.

Benefits

3.7.2 The scale, timing and incidence of benefits which will be realised will be dependent on the solutions which ultimately emerge from the IITCP and the order in which they are implemented. At a strategic level, the benefits that can be expected to emerge from delivering the IITCP can be considered in three steps:

- **Improved transport network outcomes:** These are the direct outcomes of investment emerging from the IITCP, such as no / fewer capacity constrained sailings, the ability to travel more frequently etc
- **Improved travel and supply-chain outcomes:** These are the changes in personal and supply-chain travel enabled by the 'transport network outcomes', e.g., more journeys made, greater ferry use by those with mobility impairments etc

- **Societal impacts:** The corresponding societal impacts generated by the travel and supply-chain outcomes, for example, population retention, reduced social exclusion etc

3.7.3 The component parts of each of these steps are set out below.

Transport network outcomes

3.7.4 The transport network outcomes can be thought of as the change in the service offered (or the supply-side change) delivered by the investment. These are:

- Improved **resilience** in terms of fewer or no **deviations from** the published timetable
- Improved **reliability** in terms of fewer cancelled or delayed sailings
- No or fewer **capacity** constrained sailings in terms passengers, vehicles and freight tonnage
- Increased ability to travel more frequently **within the current operating day** and **beyond the current operating day**
- Increased **flexibility of travel** within the operating day, particular in terms of being able to secure a ferry booking or the removal of this requirement altogether (either through a ferry or fixed link solution)
- A reduction or removal in the **cost** barrier associated with ferry travel
- An expansion of options for **non-car-based travel** on the ferry or through / over a fixed link
- Removal of the current **physical accessibility** issues associated with certain vessels

Travel and supply-chain outcomes

3.7.5 The travel and supply-chain outcomes are those which will emerge from the improvement in the service. These will vary in type and scale depending on the solution ultimately adopted. However, it is anticipated that the ultimate preferred option will deliver the following outcomes:

- Increased **passenger carryings (including visitors)**, and potentially **vehicle carryings** depending on the quality of non-car-based alternatives
  - These journeys would be for a range of purposes including employment, business, leisure etc
- **New journeys** made as a result of the expansion of travel options
- Greater certainty of goods being delivered **on time**
- Greater ferry use by those with **mobility impairments**
- Improved passenger **wellbeing** and **journey quality**
- Increased **bus travel** and **active journeys** to and from islands and / or ferry terminals

Societal impacts

3.7.6 Societal impacts are the ultimate benefits that the investment is seeking to deliver for Shetland's island communities, supporting local, national and regional policy. These societal impacts / benefits are summarised in the table below and are split by **benefit category** (i.e., type), **beneficiary** (i.e., to whom it will be of value) and **class** (i.e., how the benefit will be measured):

Table 3:7: Strategic benefits to island communities

Benefit	Category	Beneficiary	Class
Community			
Increased community confidence	Wider societal benefit	Island communities and Shetland overall	Qualitative
Reduction in transport inequalities	Wider societal benefit	Island communities	Qualitative
Reduction in the cost premium faced by island residents	Wider societal benefit	Island communities	Qualitative
For some communities, provision of career path / development / progression opportunities for future island residents associated with the ferry service	Wider societal benefit	Island communities, particularly where vessels are based in the island overnight	Qualitative
Demographic			
Population retention and growth	Wider societal benefit	Island communities and Shetland overall	Quantifiable, but not readily monetisable
Improved demographic balance	Wider societal benefit	Island communities and Shetland overall	Quantifiable, but not readily monetisable
Employment and training			
Increased employment through better connecting labour and jobs – allows: (i) unemployed to enter workforce; (ii) uptake of higher-paid jobs; and (iii) working more hours	Wider societal benefit	Island communities and Shetland overall	Potentially monetisable in line with TAG[26] Unit 2.1 (Wider Economic Impacts Appraisal), although absolute impacts would be small
Improved educational attainment through better connecting island-based students and educational establishments	Wider societal benefit	Island communities and Shetland overall	Qualitative
Productivity			
Improved productivity through increasing the effective size of the labour force and improved matching of skills to jobs	Direct benefit to businesses and wider societal benefit	Individual business, island communities and Shetland overall	Potentially monetisable in line with TAG Unit 2.1 (Wider Economic Impacts Appraisal), although absolute impacts would be small
Improved business certainty and confidence associated with: (i) improved resilience; (ii) improved reliability; (iii) reduced cost of travel; and (iv) reduced stock loss	Direct benefit to businesses and wider societal benefit	Individual business, island communities and Shetland overall	Quantifiable and potentially monetisable with appropriate data
Access to a larger customer base, particularly for leisure and tourism-focused businesses	Wider societal benefit	Island communities and Shetland overall	Quantifiable (connectivity analysis), but not readily monetisable

[26] Transport Analysis Guidance (TAG) is the Department for Transport's appraisal guidance and toolkit.

Benefit	Category	Beneficiary	Class
Efficiencies in public service delivery on-island, leading to savings for public bodies	Indirect public sector	Public sector bodies including the Council, NHS Shetland etc	Qualitative
Development			
Realisation / improved performance of new developments (e.g., Spaceport)	Wider societal benefit	Island communities and Shetland overall (and potentially beyond for Scotland and the UK)	Quantifiable but not readily monetisable
Increased housing development / refurbishment	Wider societal benefit	Island communities and Shetland overall as well as the Council and other housing developers	Monetisable in line with TAG unit 2.1, Wider Economic Impacts Appraisal but impacts would be very small
Environmental			
Reduced greenhouse gas emissions	Wider societal benefit	Scottish / UK society	Monetisable in line with TAG unit A3 Environmental Impact Assessment

Risks

3.7.7 Risk represents the possibility of a 'negative' event occurring, with the potential to adversely impact the IITCP. The table below outlines the most critical risks to the development of the programme. However, a more exhaustive preliminary risk register has been developed, which also incorporates risk mitigation measures. Some of these risks are explored in more detail within the Financial, Commercial and Management Dimensions.

Table 3:8: Major programme risks

Risk Theme	Cause	Risk Description
Funding and finance	The capital investment required for the delivery of future individual projects under the IITCP may be beyond the Council's financing capacity. There could be a willingness from the UK and Scottish Governments to provide funding but this is likely to be limited and private finance may be required.	There is a risk that the Council may not be able to develop a robust 'equity story', building up credibility amongst potential investors and lenders to participate in the delivery of fixed links in Shetland. At this stage, this is probably the most critical risk and source of uncertainty to the IITCP, particularly when it comes to the delivery of subsea tunnels.
SIC organisational capability	If identified as the preferred option for a given island, subsea tunnelling projects are outwith the Council's typical knowledge and experience as a client organisation. Additionally, the Council would need to review its resources to manage such a project through its lifecycle. *Note: the Council's capacity and capability with regards to subsea tunnelling will be explored as part of the next stage (Network Strategy Programme OBC).*	There is a risk that future decision-making may underestimate the degree of uncertainty and complexity – technical, financial, commercial and organisational – associated with delivering a subsea tunnelling project, particularly given the limited experience of such projects in the UK. This could lead to the failure of elements of the IITCP and cause a reputational impact on SIC.
Contracting market	Subsea tunnel construction requires a specialist approach. There is a limited resource pool in the UK and internationally, which may be aggravated if	There is a risk that the Council is unable to put an attractive proposition to the contracting market, particularly if a prospective fixed link in Shetland clashes

Risk Theme	Cause	Risk Description
	more than one of these projects need to take place concurrently.	with other major tunnelling projects in the UK (e.g., rail, wastewater etc). This could result in significant delays to the procurement process and limit future funding and financing opportunities.
Ageing infrastructure	Port infrastructure in Shetland is ageing and may need to be modernised or replaced to accommodate any ferry service development options. However, there will remain a significant level of uncertainty around the cost assumptions relating to harbour infrastructure requirements across the network.	Harbour infrastructure will weigh heavily in the total capital expenditure requirements of the IITCP. Therefore, any uncertainty around the cost assumptions could lead to significant cost variability across the programme, putting additional pressure on the Council's financial position.
Consents	The delivery of any future ferry service development or fixed link options will be subject to successfully gaining the necessary consents, which have been outlined, both for harbour infrastructure and subsea tunnels in the Commercial Dimension (Table 6.1)Table 6:1.	There is a risk that the consenting processes could be challenging, attracting significant attention from interest groups and statutory consultees. This could result in significant delay, increasing the risk of added inflationary costs not accounted for and potentially limiting future financing opportunities.
Crewing issues	The Council's Ferry Service is facing significant challenges around retaining and attracting crew. Although current issues with crewing may be cyclical, this does present a clear threat to future ferry service sustainability, particularly where vessels overnight in islands of small population.	There is a risk that the assumptions included in the Network Strategy may need to be revisited in the future as they could affect the standing of any ferry service development options.
Ferries operating costs	The Scottish Government currently fully funds the revenue gap required to run Shetland's inter-island ferry services. However, the requirement may be higher in the future as a result of ferry development options. Moreover, this funding is provided through annual Scottish Government Budget settlements and could potentially be reduced or withdrawn at short notice.	There is a risk that additional costs of operating future ferry service development options create an even larger revenue gap, which may not be covered by the Scottish Government, shifting the financial burden to the Council. This could require reworking the programme-level assumptions and result in delays to individual projects.

Constraints

3.7.8 Constraints are the internal / external conditions and agreed parameters within which the programme and individual projects therein must be delivered and over which the project has little or no control. The table below identifies high-level constraints with the potential to affect the programme:

Table 3:9: High-level project constraints

High-level constraint	Type	Potential project considerations / implications
Environmental designations	External – physical	Environmental constraints maps will be developed for any options emerging from this study. Individual projects emerging from the programme will need to be delivered within these constraints and may require an Environmental Impact Assessment.
Compliance with planning legislation	External - regulations	Several of the projects that may emerge from this programme will require infrastructure works, be that

High-level constraint	Type	Potential project considerations / implications
		harbour upgrades or fixed links. Any such works would need to be delivered in accordance with Shetland Islands Council's planning policy, as well as those of Marine Scotland for works below the mean high water spring tide level.
Compliance with industry design standards	External - regulations	Several of the vessels in the Council fleet are operating under 'grandfather rights', providing specific exemptions to regulations which were not in force when the vessels were built. Any new vessels and indeed harbour infrastructure will need to be built to modern standards, which will include compliance with the Equality Act 2010. This may impact the size of vessels and associated infrastructure works. Any fixed links would likely need to be designed in accordance with the Design Manual for Roads and Bridges (DMRB), with any departures from standards agreed within the Council (as the Roads Authority) and potentially Transport Scotland.
Funding	External - funding	With the exception of the £10m of funding allocated by the Scottish Government Budget for FY2025/26, there is at present no in-principle or committed funding for any of the projects which will emerge from the IITCP.
Procurement regulations which apply to local authority project delivery.	External / internal - procurement	Shetland Islands Council must adhere to the Public Contracts (Scotland) Regulations 2015 and the Reform Act (Scotland) 2014. The emerging procurement strategy is set out in the Commercial Dimension and will be developed further in the Programme OBC and individual project business cases thereafter.
Subsidy control	External / internal - legislative	The project must be delivered in accordance with the Subsidy Control Act 2022.
Crewing	Internal - resourcing	It is important to recognise that any short-term measures to operate the service more intensively or add additional vessels will be constrained to some degree by the availability of suitably qualified crew.

Dependencies

3.7.9 Successful delivery of the programme and its inherent projects will depend on several factors which are outside of the immediate control of the programme and project environment. These dependencies are summarised in the table below and, whilst outwith the control of the project team, they are reflected in programme planning so as to minimise risk.

Table 3:10: High-level project dependencies

Dependency	Type	Comment	Project Delivery Interactions
Ferries Resilience Review	Internal	Thie Programme SOC and all subsequent business case work must complement the recent Ferries Resilience Review undertaken by the Council. The options (see Section 3.8) have been developed to reflect this requirement.	Sign-off of the Programme SOC and OBC.
Business case sign-off and	Internal	Shetland Islands Council Members will be required to sign-off the Programme	Progression through each stage of the programme

Dependency	Type	Comment	Project Delivery Interactions
political approval		SOC and OBC and thereafter individual project business cases prior to any intervention being delivered.	and then individual project business cases up to the commencement of construction.
Consents	Internal / external	Any harbour infrastructure or fixed link (including ground investigations) will require consents. This is likely to include terrestrial planning consent and a marine licence as a minimum. Site specific consents may also be required.	Commencement of construction.
Securing funding	Internal / external	There is a requirement to secure in-principle and thereafter committed funding. Each funding source will have its own governance and assurance requirements which will have to be met.	Release of funding and commencement of construction.
Design approval	Internal / external	Design approval will be required for any vessels, harbour infrastructure or fixed links, particularly where these entail a departure from agreed standards	Release of funding, political approval and commencement of construction.
Subsidy control	External	The procurement and funding strategy for any project developed through this study must satisfy the Council's Governance and Law Service that it is compliant with the Subsidy Control Act 2022. If Scottish and / or UK Government funding is involved, additional assurance may be required from the Scottish Government Legal Directorate and / or Department for Transport.	Permission to proceed with any project and release of associated funding.
Successful procurement of contractors	Internal / external	Market interest in delivering any individual project emerging from the IITCP will need to be established. Thereafter, the procurement process and outcomes would need to be agreed within the overall project / programme governance structure.	Decision to tender, appointment of a contractor(s), release of funding and commencement of construction.
Crewing	Internal	Any short-term measures to operate the service more intensively or add additional vessels may require: (i) an agreed change in current crewing arrangements; and / or (ii) the deployment of additional crew.	Decision to implement any short-term measures to operate the service more intensively or introduce new vessels.

3.8 Options Long-List

3.8.1 This section briefly summarises the options long-list which will be considered in the Economic Dimension. It should be noted that extensive further detail is available in the Option Generation and Development Report, which has been prepared in parallel to this document.

Ferries Resilience Review

3.8.2 It is important to note that the Council is facing immediate resilience problems associated with its ageing fleet, including longer refit periods, more frequent breakdowns, and a shortage of crew. In order to address this problem, the Council commissioned an internal Ferries

Resilience Review in 2024 to consider short-term measures which could be adopted to put the service on a more sustainable footing.

3.8.3 This review, which reported in September 2024, has highlighted a number of recommendations / actions including changes to crew shifts and pay and the requirement for the procurement of an additional vessel for the fleet.

3.8.4 Reflecting the spirit of the review, the **business-as-usual** option package developed later in this chapter incorporates a commitment to operating services as per the published timetable through addressing recent resilience issues (as well as the disruption caused by refit periods). The Ferries Resilience Review is therefore explicitly recognised by and incorporated within the option generation element of the IITCP.

3.8.5 It should be noted that, as part of the outcomes of the Ferries Resilience Review, the Council is discussing potential changes to ferry crew shift patterns. At present, some of these changes have been implemented, whilst others are either committed or under negotiation. To provide a fixed reference point, the Case for Change Report and this report have been based on existing shift patterns. However, it is likely that some updates to the options will be required at OBC stage to reflect the new baseline position once established.

Vessel Typologies

3.8.6 As a programme level business case, the IITCP will consider vessel design at a high-level. That said, the Council operates a network, and it is essential that, in network planning, there is a clear strategy with respect to vessel replacement.

3.8.7 As detailed in the Case for Change Report, a key challenge on the Shetland network at present is that there is limited interchangeability within the fleet – this causes management problems and is limiting in operational terms, with some vessels such as MV *Leirna* limited to their current routes. Ideally, and where economically and financially practical, vessels should meet the same class rules of construction instead of the present regime which has differences of classification for different routes, times of year etc.

3.8.8 The IITCP therefore supports **greater standardisation of the fleet**, with a limited number of vessel designs to improve and optimise flexibility in vessel and crew deployment. It will though remain important to recognise that certain islands, Foula for example, will always require bespoke solutions that meet their specific needs. A typology consisting of **five vessel types** is defined in the table below:

Table 3:11: IITCP vessel typologies

Typology	Class	Indicative Length Overall	Indicative PCU Capacity	Single[27] or Double-Ended[28]
Bespoke	Workboat	Max. 24m	1	Not roll through
Fair Isle Class	Workboat	Max. 24m	4	Not roll through
Type 1	Euro B	33m	14-15	Single
Type 2	Euro B	45m	22-24	Double
Type 3	Euro B	65m	31	Double

[27] A single-ended ferry has a designated forward end which will always face the direction of travel. Whilst such a vessel is drive through, it will always need to turn to either access or egress the berth. An example of such a vessel in Shetland is MV *Linga*.

[28] A double-ended ferry is a type of ferry with identical bow and stern sections, allowing it to travel in either direction without needing to turn around. An example of this in Shetland is MV *Dagalien*.

3.8.9 The key points of note from the above table are as follows:

- Both Fair Isle and Foula have a very different model of operation to the other islands in Shetland. On both islands, the vessel is coded as a **workboat** and limited to a maximum of 12 passengers. This very much fits the needs of both islands, allowing the vessel to be island-based and crewed. A new vessel has recently been ordered for Fair Isle (the **'Fair Isle Class'** cited in the table above) and this may provide a usable design for Foula (or a variant therein) and this will be explored in the business case and with the community. It may however remain the case the Foula requires a genuinely bespoke vessel to fit with its infrastructure and meet community needs
- It is assumed that vessels of Type 1, 2 and 3 will be classified as **Euro B**, thus maximising the scope for short-term redeployment and long-term cascade within Shetland
- The indicative **PCU capacities are intended to replicate or slightly increase** those provided by the existing tonnage. These capacities will be further developed at OBC stage in terms of striking an appropriate balance between vessel capacity and physical size, which has implications for infrastructure work
- On review of the infrastructure, the project team has determined that **vessel length overall should be capped at 65 metres, effectively providing a 'Shetland Max' vessel**. Building vessels larger than this would have significant implications for required infrastructure works, would lead to periods of very low-capacity utilisation and would also increase the number of vessel types, negatively impacting on the flexibility of deployment of vessels and crew. The principle adopted therefore is to **achieve capacity through frequency**
- To reduce journey times and simplify operations, it is assumed that **the majority of the fleet will migrate to being double-ended over time**. The Type 1 vessel will however remain single-ended to ensure it delivers the required seakeeping standards and thus reliability

3.8.10 The table below summarises the candidate vessels by route which will be incorporated in the option generation and further developed:

Table 3:12: Vessel typology and candidate routes

	Vessel Typology				
Route	**Bespoke**	**Fair Isle Class**	**Type 1**	**Type 2**	**Type 3**
Bluemull Sound	×	×	✓[29]	✓	✓
Bressay	×	×	×	✓	×
Foula	✓	✓	×	×	×
Papa Stour	×	×	✓	×	×
Skerries	×	×	✓	×	×
Whalsay	×	×	✓	✓	✓
Yell Sound	×	×	×	×	✓

Type 1 Vessel

3.8.11 The Ferries Resilience Review outlined previously highlighted the need for an expansion of the fleet size to ensure adequate cover for breakdowns and the refit period. Reflecting this requirement, the Council has been working with its framework naval architects Macduff Ship

[29] A Type 1 would only be deployed on Bluemull Sound in the event of either: (i) a three vessel solution, where it would be dedicated to Fetlar; or (ii) if a fixed link was progressed between Yell and Unst, thus providing Fetlar with a dedicated vessel.

Design (MSD) to design a new small ferry capable of operating across the network. This vessel forms the basis for the IITCP Type 1 vessel and is thus the first investment action emerging from this study.

3.8.12 An important consideration with this vessel class is ensuring that it can operate across as many routes as possible, either as the primary vessel or as a relief. To this end, she has been **designed to remain within a threshold of 500 gross tonnes (GT) and 750kw installed power**. The rationale for this is that any vessel with a higher GT or power requirement would impose more onerous qualifications on the crew, known as the Standards of Training, Certification and Watchkeeping for Seafarers (STCW). A significant proportion of the Council ferry crew are not certified to this level as it has not been required for the vessels and routes which they operate. Obtaining STCW qualifications would require extended periods of sea time on a qualifying vessel, which could entail crew leaving the Council Ferry Service and possibly Shetland altogether to obtain this experience.

3.8.13 The outline design prepared by MSD provides for a vessel of circa 33 metres length overall, which would be capable of carrying 14-15 cars. Such a vessel would therefore be a broadly like-for-like replacement in terms of both size and vehicle capacity for several of the smaller vessels in the Council fleet, including MV *Bigga*, MV *Fivla*, MV *Geira* and MV *Hendra*.

Option generation

3.8.14 This section sets out the approach to the initial generation and development of the options.

3.8.15 There are several challenges with respect to option generation in this study – these include:

- For each route, there are **multiple potential capital and revenue options**, each of which merits consideration in detail, and some of which could be the subject of studies in their own right, changes to fares for example
- There is a **temporal issue**, whereby some revenue options could be implemented immediately with the current vessels, but capital investment could be some years away depending on asset condition and route need
- Even where there are few problems on a route, **asset replacement** will be required over the lifespan of this programme, and thus capital investment will be necessary on all routes (and with ferry options, there will be several rounds of asset replacement over the lifespan / appraisal period for a fixed link)

3.8.16 The above challenges could therefore lead to an unmanageable number of options and difficulties in undertaking an appraisal which meaningfully distinguishes between options. It is therefore essential to reiterate that the IITCP is a **Programme Business Case**, rather than a **Project Business Case**. That is, it is a strategic document focused on justifying a group of related projects (i.e., developing a long-term plan for investment) and their outcomes and long-term benefits rather than justifying a single project.

3.8.17 In practical terms, this means that the IITCP will develop packages of options for each route and island intended to address the transport problems expressed in the Case for Change Report. As explained in Chapter 1, at the conclusion of the Programme OBC stage, short-term priorities for project level OBCs will be identified - it is at this stage that t more detailed consideration of the intricacies of options for each island will be considered.

3.8.18 There are therefore two strands to this option generation process:

- **Candidate fixed link islands (Bressay, Fetlar, Unst, Whalsay and Yell):** For these five islands, the options increment up from the present-day position to a 'ferry max' option, which is effectively a ferry comparator to a fixed link. The responses to the resident survey for these islands were of a sufficient number to highlight the key areas of dissatisfaction with the service. When combined with other secondary data, it was

possible to develop detailed option packages for consideration that incrementally address the problems expressed by communities

- **Foula, Papa Stour and Skerries:** For these smaller and generally more geographically remote islands, the option generation was focused on asset replacement and increments to the current ferry service. The option packages were defined through in depth interviews with each community, supplemented by other secondary data

Fixed link alignments

3.8.19 To support the appraisal at this stage, very high-level desk-based fixed link alignments have been prepared. These are very much indicative at this stage and are intended as proof of concept – they will be further developed and refined at OBC stage.

Option Packaging

3.8.20 Reflecting the preceding narrative, a set of option packages has been developed which are intended to reflect and address the transport problems identified in the Case for Change Report. These are described in the table below:

Table 3:13: Option packages

Option	In-Scope Islands	Description
Business-as-usual	All	Reflecting the Ferries Resilience Review, the BaU option is focused on operating services as per the published timetable, addressing recent resilience issues and the disruption caused by refit periods. From an asset replacement perspective, it assumes replacement of vessels at the point of life expiry with vessels of a broadly like-for-like vehicle carrying capacity (although such vessels will be physically larger, reflecting modern design requirements).
Ferry 'Do Something'	All	This option package involves addressing current route priorities using the current assets, supplemented by revenue measures. It does however include asset replacement ahead of life expiry where there is a clear justification for this, capacity problems for example.
Ferry 'Do Maximum' (Do Max)	Bressay, Fetlar, Unst, Whalsay and Yell	The 'Do Max' is intended to demonstrate a realistic maximum level of connectivity that can be achieved by significantly scaling-up revenue and capital funding. **The 'Do Max' expands the Ferry Do Something** to provide a service level broadly equivalent to that offered by Western Ferries in the Firth of Clyde and would reduce other barriers to travel (e.g., provision for 24-hour sailings, reduced fares etc). This will only be considered for a subset of islands, both as a comparator to a fixed link and also because these are the high volume and high frequency routes on the network at present.
Fixed link	Bressay, Fetlar, Unst, Whalsay and Yell	Fixed link options have been developed for the five listed islands. Within these options, there are potential variants around tolling and public transport provision through the fixed link.

What are the contents of the option packages?

3.8.21 An evidence-based approach was adopted in developing the option packages so as to ensure that they are similar in intent across all eight routes. The Case for Change Report identified problem themes and underlying supply-side causes which are acting to limit journeys made to and from the islands for a variety of purposes. These problem themes were used as the basis of the Transport Planning Objectives.

3.8.22 To populate the option packages, a range of standalone options were developed which, if implemented, would partially or fully address one or more of the problems identified. This is shown in the table below for the candidate fixed link islands, where the component options in each package are mapped against the identified problem themes. For completeness, the total number of respondents to the resident survey[30] which expressed dissatisfaction in relation to each problem theme is stated.

3.8.23 It should be stressed here that these are simply options for appraisal incrementing on the current day position. They will be subject to refinement over the business case process, whilst more complex topics such as changes to fares could merit a study in their own right.

[30] Bressay, Fetlar, Unst, Whalsay and Yell only.

Table 3:14: Option package components

Approach / principles	Problem Themes							
	Resilience – cancellations and temporary timetables	*Operating day restrictions*	*Capacity*	*Limited, fixed times of travel, within operating day*	*Cost*	*Poor non-car travel options*	*Physical accessibility*	*Journey times*
No. of dissatisfied responses	***264***	***201***	***178***	***172***	***152***	***136***	***104***	***58***
Business-as-usual – network-wide recovery								
Like-for-like asset replacement at life expiry	✓						✓	
Operate service to timetable year-round (weather events excepted)	✓							
Address refit impacts – additional vessels to remove / mitigate refit timetable impacts	✓		✓	✓			✓	
Ferry Do Something – address current route priorities with the same number of assets								
Common Monday to Friday timetable (Bluemull, Whalsay, Yell)	✓		✓	✓				
Improved booking / cancellation arrangements			✓	✓				
Timetable intensification – increase frequency with existing assets			✓	✓				
Improved Saturday service				✓				
Improved Sunday service				✓				
Larger vessels to increase vehicle capacity			✓					
Fully accessible vessels							✓	
Earlier first sailings to enable shift work / airport access		✓						

Approach / principles	Problem Themes							
	Resilience – cancellations and temporary timetables	*Operating day restrictions*	*Capacity*	*Limited, fixed times of travel, within operating day*	*Cost*	*Poor non-car travel options*	*Physical accessibility*	*Journey times*
No. of dissatisfied responses	***264***	***201***	***178***	***172***	***152***	***136***	***104***	***58***
Reduced fares for island residents reflecting the level of dependency on off-island services					✓			
Improved bus connections						✓		
Foot passenger waiting facilities						✓	✓	
Ferry 'Do Max': maximum level of connectivity that can realistically be achieved by scaling-up revenue and capital funding (i.e., tunnel equivalent)								
Provide 'turn-up-and-go' service, no bookings required between 06:00-00:00	✓		✓	✓				
Provision for 24-hour travel with request sailings 00:00-06:00		✓						
Through bus services (i.e., which travel on the ferry to the end destination)						✓		
Free fares for residents (or toll equivalent for fixed link comparison)					✓			
Fixed link								
Fixed link – tolled	✓	✓	✓	✓			✓	✓
Fixed link – free, with through buses	✓	✓	✓	✓	✓	✓	✓	✓

3.8.24 A similar broad approach was adopted for **Foula, Papa Stour and Skerries** but the option packages are tailored to the specific needs of each island, informed by community consultation and secondary data analysis.

3.8.25 The option packages which follow for each individual island community reflect the content of the above table, providing consistent options to be appraised qualitatively in the Programme SOC and quantitatively in the Programme OBC.

Options by route

3.8.26 The options by route are summarised below. Additional detail is available in the Option Generation and Development Report.

Bluemull Sound

Business-as-Usual

Table 3:15: Bluemull Sound Business-as-Usual option components

Approach / Principles	Component Options
Like-for-like asset replacement at life expiry	- 2 * Type 1 vessels in the immediate-term - Replace and extend existing berth structures (Gutcher and Belmont) - Provide increased shelter (Gutcher and Belmont) - Better designated vessel manoeuvring areas, particularly Gutcher
Operate service to timetable year-round (weather events excepted)	- Solution to current crewing challenges (e.g., additional crew, different shift patterns etc)
Address refit impacts – additional vessels to remove / mitigate refit timetable impacts	- 2-vessel service year-round, delivered through a fleet reserve vessel

Ferry Do Something

Table 3:16: Bluemull Sound Ferry Do Something option components

Approach / Principles	Component Options
Common Monday to Friday timetable	- Standardise Monday to Friday timetable, either through additional vessels to cover drills and maintenance and / or move drills and maintenance to a two-vessel Sunday
Improved booking / cancellation arrangements	- Network-wide issue
Timetable intensification – increase frequency with existing assets	- Intensification of the timetable to fill gaps across the day and in the evening - Extend the operating day of the 'day vessel' (currently MV *Geira*)
Improved Saturday service	- Operate the 'shift vessel' (currently MV *Bigga*) on the same basis as a Monday to Friday (or an intensified Monday to Friday as set out above) - Operate the 'day vessel' on a Saturday
Improved Sunday service	- Operate the 'shift vessel' on the same basis as a Monday to Friday (or an intensified Monday to Friday as set out above) - Operate the 'day vessel' on a Sunday
Larger vessels to increase vehicle capacity	- 2 * Type 2 45m length overall double-ended vessels - Berth modifications as required, and as indicated for BaU but on a larger scale - Consideration of increased marshalling provision particularly at Belmont
Fully accessible vessels	
Earlier first sailings to enable shift work / airport access	- Earlier start (circa 05:00 or earlier) - Potentially operate both vessels on shift basis, with offset timetables to maintain the length of the operating day

Approach / Principles	Component Options
Lower fares for residents	- Reduced fares for residents, potentially determined on an island-by-island basis to reflect dependency on off-island services
Improved bus connections	- Additional No.24Y bus services to connect with Yell Sound Ferries at Ulsta
Foot passenger waiting facilities	- Improved facilities in waiting rooms

Ferry Do Max

Table 3:17: Bluemull Sound Ferry Do Max option components

Approach / Principles	Component Options
Provide 'turn-up-and-go' service, no bookings required between 06:00-00:00	- 2 * Type 3 65m length overall double-ended vessels - 1 * Type 1 vessel dedicated to Fetlar - Increase service frequency to half-hourly on Gutcher – Belmont - Hourly Fetlar service (balance of Yell and Unst calls decided through discussion with the community) - Additional linkspan at at least Gutcher or Belmont - Increased sheltered berth lengths to accommodate longer vessels (Gutcher and Belmont) - Increased vessel manoeuvring areas for longer vessels (Gutcher and Belmont) - Consideration of increased marshalling capacity, particularly at Belmont - Additional overnight / layby berth, likely at Gutcher
Provision for 24-hour travel with request sailings 00:00-06:00	- Hourly on-request service 00:00-06:00
Through bus services (i.e., which travel on the ferry to the end destination)	- Three through bus services (No.24 Gutcher to Lerwick) to deliver working-day and part-day connectivity to Lerwick, seven days per week
Free fares for residents (or toll equivalent for fixed link comparison)	- Free fares for residents

Fixed link – Fetlar

3.8.27 The figures below show an **indicative alignment** and long section for a subsea tunnel between Yell and Fetlar:

Figure 3.6: Yell to Fetlar indicative subsea tunnel alignment

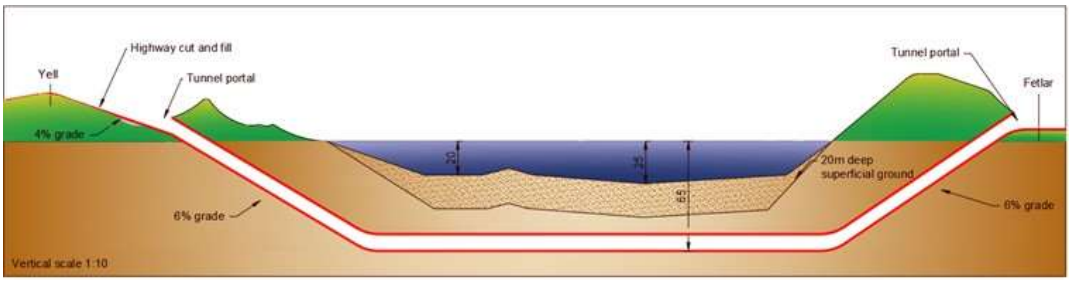


Figure 3.7: Yell to Fetlar subsea tunnel – long section

3.8.28 The key points of note with respect to this indicative alignment are as follows:

- The route would start at a T-junction at Sellafirth on the A968, requiring an upgrade of the existing 2.5 km single-track road to a single carriageway.
- Approximately 1km of new road would be built to connect the existing track to the north-western tunnel portal, involving a 10-metre-deep cutting
- The tunnel would descend at a 6% gradient to 65 metres below sea level, running 2.75 km at this depth
- The tunnel would ascend at a 6% gradient towards Fetlar, totalling 5km in length from portal to portal
- On Fetlar, a cutting would bring the tunnel to the surface, followed by 0.3km of new roadway linking the eastern portal to the B9088, the main road on the island

- A T-junction would connect the new road to the B9088, which serves the ferry terminal on the island.

Fixed link – Unst

3.8.29 The figures below show an **indicative alignment** and long section for a subsea tunnel between Yell and Unst:

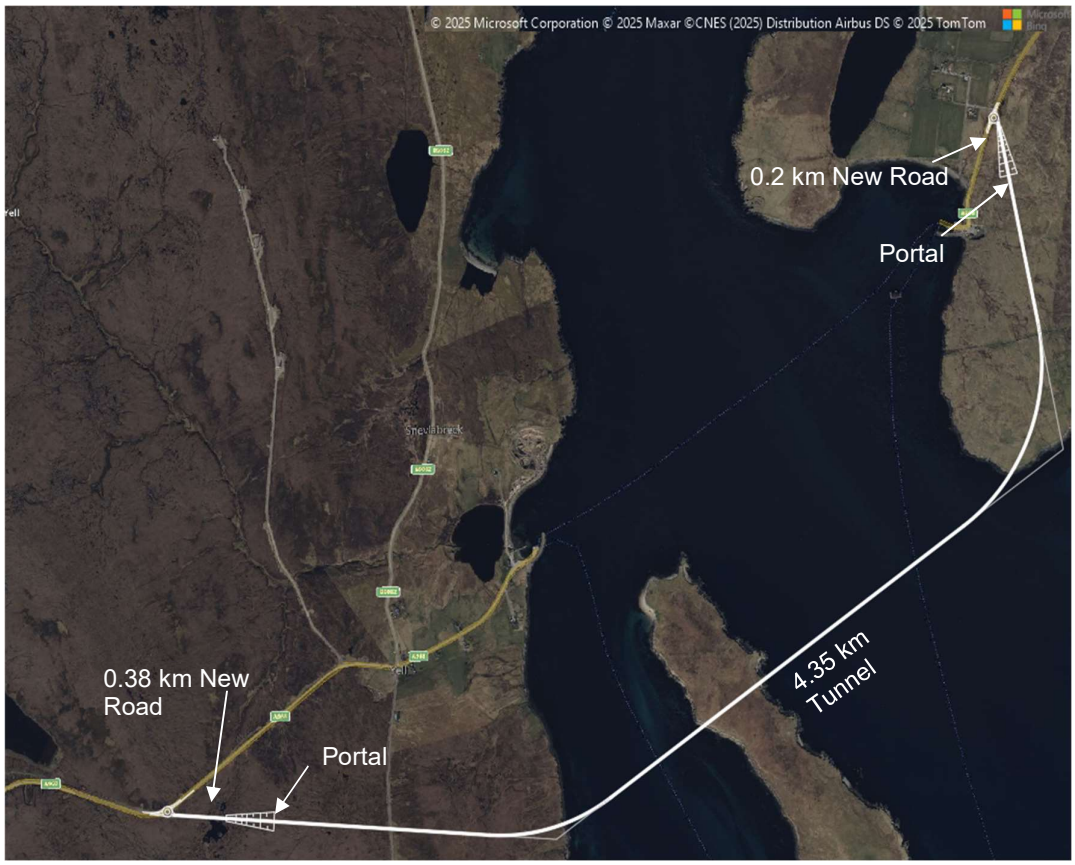


Figure 3.8: Yell to Unst indicative subsea tunnel alignment

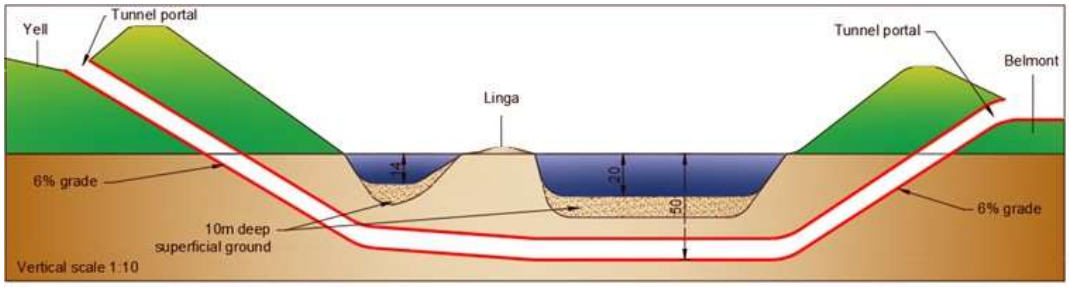


Figure 3.9: Yell to Unst subsea tunnel - long section

3.8.30 The key points of note with respect to this indicative alignment are as follows:

- The fixed link between Yell and Unst would broadly follow the line of the ferry route, starting near Gutcher and ending just to the north of Belmont

- The seabed along the crossing is relatively shallow (10-20 meters deep) with about 10 metres of superficial sediment over bedrock
- The tunnel design maintains a rock cover of 1 to 1.5 times the tunnel diameter above the bore to bedrock
- Both tunnel portals would connect to the A968 via roundabouts, facilitating access to the ferry terminal (for onward connections to Fetlar) and onward travel routes
- The tunnel would descend at a 6% gradient to 44 metres below sea level, deepening to 50 metres below ground level before ascending at 6% near Unst. A 10-metre-deep cutting would be needed at Belmont
- Short sections of new carriageway would connect the tunnel portals to the A968 road
- The route would be designed for standard heavy goods vehicles, with design parameters including a 40-mph speed, 6% maximum gradient, 5.7 m headroom and specific sight distance and curve radius requirements. This specification will ensure that no climbing lanes are required

Bressay

Business-as-Usual

Table 3:18: Bressay Business-as-Usual option components

Approach / Principles	Component Options
Like-for-like asset replacement at life expiry	- 1 * Type 2 vessel at life expiry of MV *Leirna*
Operate service to timetable year-round (weather events excepted)	- Not applicable
Address refit impacts – additional vessels to remove / mitigate refit timetable impacts	- Fleet reserve vessel to ensure no reduction in service during refit

Ferry Do Something

Table 3:19: Bressay Ferry Do Something option components

Approach / Principles	Component Options
Common Monday to Friday timetable	- Not applicable
Improved booking / cancellation arrangements	- Network-wide issue
Timetable intensification – increase frequency with existing assets	- Weekdays and Saturdays: 20-minute frequency in peak, 30-minute frequency over the rest of the day - Sunday: 30-minute frequency
Improved Saturday service	- As above
Improved Sunday service	- As above
Larger vessels to increase vehicle capacity	- 1 * Type 2 vessel
Fully accessible vessels	
Earlier first sailings to enable shift work / airport access	- Earlier start (circa 06:00 or earlier)
Lower fares for residents	- Reduced fares for residents, potentially determined on an island-by-island basis to reflect dependency on off-island services
Improved bus connections	- No changes required, although scope for improved bus services on Bressay
Foot passenger waiting facilities	- New, secure waiting area in Lerwick

Ferry Do Max

Table 3:20: Bressay Ferry Do Max option components

Approach / Principles	Component Options
Provide 'turn-up-and-go' service, no bookings required between 06:00-00:00	- 20-minute frequency, 7-days per week
Provision for 24-hour travel with request sailings 00:00-06:00	- Hourly on-request service 00:00-06:000
Through bus services (i.e., which travel on the ferry to the end destination)	- No changes required, although scope for improved bus services on Bressay
Free fares for residents (or toll equivalent for fixed link comparison)	- Free fares for residents

Fixed link

3.8.31 The figures below show an **indicative alignment** and long section for a subsea tunnel between Bressay and Lerwick:

Figure 3.10: Bressay to Lerwick indicative subsea tunnel alignment

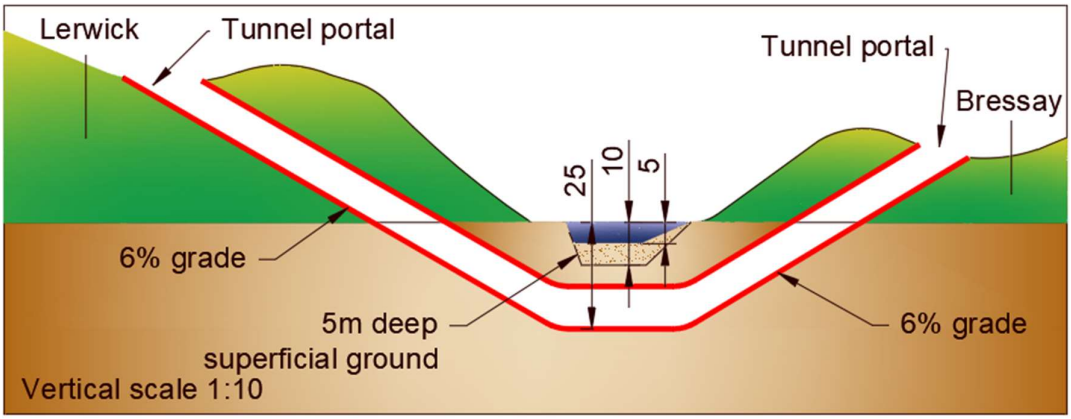


Figure 3.11: Lerwick to Bressay subsea tunnel - long section

3.8.32 The key points of note with respect to this indicative alignment are as follows:

- Previous fixed link studies between the mainland and Bressay identified seafront portal locations that are now occupied by industrial development. A fixed link would now therefore have portals which would be further inland
- In Bressay, the tunnel portal would be to the north of the island, some way away from the main area of population. Similarly, the tunnel exit in Lerwick would be to the immediate west of Gremista Industrial Estate, about 1.5 miles from the town centre
- The inland portal locations would increase the tunnel's length and depth, raising construction costs relative to previous estimates
- The hilly topography requires a curved alignment or use of natural depressions, with the seabed being shallow (5-10 meters) and covered by a similar thickness of superficial sediment
- At the Bressay end, 0.25km of new road would be required, connecting with the tunnel portal at a natural low point
- The tunnel would descend at a 6% gradient to 25 metres below sea level and would continue at this depth for about 300 meters before then ascending at a 6% gradient towards Bressay
- On Bressay, about 400 meters of new road with a roundabout would be needed to connect the tunnel to the existing road network and provide access to the Pelagia fish processing plant. Key design parameters would include a 30mph speed limited and 5.7 metres headroom

Foula

3.8.33 It should be noted that the option of **combining the Foula and Papa Stour service and delivering it through a single mainland-based vessel has been raised on several occasions** and was considered in the 2016 SIITS study. However, it is crucial to stress here that this is simply an impractical option for Foula (and also Papa Stour to some degree) and would have significant consequences for the community. The deployment of an island-based vessel is fundamental to the sustainability of the service and the community at large for several reasons:

- An island-based crew allows the service to be entirely **responsive to weather windows**, maximising the number of sailings that can be operated (and operated to timetable) across the year
- The crew also fulfil a range of **other important jobs on the island**. If the ferry was not based in Foula, it is possible and indeed probable that some of these crew and their families would leave the island. In a small island community, it only takes a handful of families to leave to pose a fundamental threat to island sustainability
- Employment on the ferry service is amongst the few salaried jobs in the island. It retains traditional maritime skills and provides a **career pathway for young people**, providing scope for them to stay in Foula in the long-term
- With a maximum of one rotation per sailing day, basing the ferry in the island provides the **opportunity for a very short day return trip to West Mainland**. Whilst this is a maximum of two hours, and almost all passenger journeys are made by air, the occasional use of the ferry allows for attending a GP appointment. This would not be possible if the vessel was mainland based
- Less tangibly, but perhaps most importantly, the **crew are completely committed to and invested in delivering the ferry service**, which is essential to the sustainability of their community

3.8.34 Basing the Foula vessel off-island could **entirely undermine the economic and social sustainability of the island, and it is therefore not considered further in this study**.

Indeed, the Fair Isle Ferry Replacement Project provides an important recent precedent of where the importance of this point and its justification for investment was explicitly recognised.

3.8.35 The contents of the option packages are set out in the sections which follow.

Business-as-Usual

3.8.36 Engagement with the community – including some crew members of MV *New Advance* – identified broad satisfaction with the current ferry arrangements, including the contracted-out delivery of the service and relief arrangements. Feedback from the crew suggested that MV *New Advance* is in reasonably good condition and is likely to have another decade or so in service with appropriate maintenance. The BaU therefore consists of the following:

- Replacement of MV *New Advance* with a **like-for-like vessel** at life expiry
  - Like-for-like in the Foula context is primarily related to vessel dimensions given the spatial constraints of Ham Harbour and the design and capacity of the lifting davits
- Undertaking of any required **preventative vessel and harbour maintenance**, including possible maintenance dredging of the harbour and entrance channel

Ferry Do Something

3.8.37 Whilst the community is satisfied with the current arrangements, it is important to have a point of comparison in the appraisal. The Ferry Do Something therefore consists of the following:

- A new **Fair Isle Class vessel**, replacing MV *New Advance* at the point of life expiry
- Associated **harbour works** including capital dredging and shoreside infrastructure improvements at Ham and a larger pontoon berth at Walls
  - Any such work would need to ensure that the **quayside crane at Ham is maintained for community use**

3.8.38 This option package would entail a significant programme of harbour works as the Fair Isle Class vessel is approximately double the length of MV *New Advance*. It is likely to therefore be expensive and command limited community support.

Papa Stour

Business-as-Usual

3.8.39 The short-term requirement on Papa Stour route is a new vessel to replace MV *Snolda*. When developing the options, we considered the case for a Fair Isle Class vessel which could be considered proportionate for the route. However, a smaller workboat would maintain the at times problematic 12-passenger cap and would significantly reduce the vehicle carrying capacity of the service. This was therefore not considered further.

3.8.40 The BaU therefore is the **replacement of MV *Snolda* with a Type 1 vessel**. This vessel would offer a larger passenger and vehicle carrying capacity, roll through capability and the ability to carry larger agricultural vehicles. As the new Type 1 vessel will be approximately 9m longer than the existing 24m long MV *Snolda*, this implies that berth extension works will be required at both Papa Stour and West Burrafirth to achieve satisfactory moorings for the longer vessel.

Ferry Do Something

3.8.41 The Ferry Do Something for Papa Stour will consist of:

- The new **Type 1 vessel** and associated berth extensions to be delivered through the BaU

- Increasing the **number of days the service operates** to six or seven
- The operation of **additional sailings across the week** where required

3.8.42 Further option development at OBC will be focused on determining the scope for increasing the number of days on which the service operates and its frequency without materially increasing the number of crew required.

Skerries

Island-based vessel

3.8.43 At the time of the Shetland Inter-Island Transport Study in 2016, there was a strong desire from the Skerries community for an island-based vessel. There were several reasons for this, chief amongst them the removal of the morning and evening 'dead-leg' to and from Symbister, with the time recycled back into the timetable to provide additional connections.

3.8.44 Whilst the SIITS study retained an island-based vessel as an option in principle, it highlighted the challenges around being able to crew the vessel from the island. MV *Filla* is a Euro B classified vessel and her crew must have a Standards of Training Certification and Watchkeeping (STCW) certificate. This is a relatively onerous certificate to obtain, requiring extensive sea time amongst other requirements. The vessel could not currently be crewed from Skerries.

3.8.45 In our engagement with the Skerries community as part of the IITCP, we explored whether an island-based vessel remained a community priority. It was explained that:

- Whilst an island-based vessel would be advantageous for Skerries, there was acknowledgement that such **a vessel similar to MV *Filla* could not be crewed from the island in the medium-term**
- We explored whether **a solution similar to Fair Isle and Foula would be of value**, with a workboat (i.e., a Fair Isle Class vessel) based in Skerries. However, the community view was that, despite some advantages, the **12-passenger limit and reduced vehicle and cargo capacity relative to MV *Filla* would be sub-optimal**

3.8.46 For the reasons outlined above, **a Skerries-based vessel is not considered further at this stage of the appraisal**. However, it remains a long-term possibility if the community considers and can demonstrate that it could reliably crew a Euro B vessel from the island. Harbour infrastructure investment would be required to accommodate such a vessel.

Business-as-Usual

3.8.47 At just over 20-years old, MV *Filla* is likely to have several years of residual life and will likely be a lower priority for replacement relative to some other vessels in the fleet. A new vessel for Skerries will only be required in the short-term if MV *Filla* is redeployed to another route, although it is acknowledged that she is a relatively expensive vessel to operate due to her high fuel consumption.

3.8.48 At the point of life expiry, MV *Filla* will be replaced by a **Type 1 vessel**. The project level business case will need to consider whether any specific modifications would be required to a Type 1 to meet the needs of the Skerries community, most notably whether there would be a future need for water tanks and a refrigerated hold. For the time being, it is assumed that the route will be operated by a standard Type 1.

3.8.49 The **finger pier alongside the linkspan berth in Skerries** is in very poor condition and currently has a load restriction on it. It would need to be replaced to accommodate any new vessel. Indeed, it is possible that such a replacement will be required ahead of any new vessel depending on when that is introduced.

Ferry Do Something

3.8.50 The Do Something for Skerries would be the BaU plus:

- The introduction of an **additional sailing day on a Wednesday**, providing seven-day connectivity for the Skerries community. This could be to either Lerwick or Vidlin
- Coastal defence measures to **protect / raise the road leading to the ferry terminal** from flooding / storm action

3.8.51 It should be noted that the additional Wednesday sailing day could potentially be introduced with the current vessel and crew.

Whalsay

Business-as-Usual

Table 3:21: Whalsay Business-as-Usual option components

Approach / Principles	Component Options
Like-for-like asset replacement at life expiry	- 1 * Type 1 vessel in the immediate-term to replace MV *Hendra* - MV *Linga* continues in operation until she is at the point of life expiry
Operate service to timetable year-round (weather events excepted)	- Not applicable
Address refit impacts – additional vessels to remove / mitigate refit timetable impacts	- Fleet reserve vessel to ensure no reduction in service during refit

Ferry Do Something

Table 3:22: Whalsay Ferry Do Something option components

Approach / Principles	Component Options
Common Monday to Friday timetable	- Standardise Monday to Friday timetable, either through additional vessels to cover drills and maintenance and / or move drills and maintenance to a two-vessel Sunday - As part of this option, it is assumed that MV *Filla* would be released from her Whalsay commitments on a Monday and her time reallocated to Skerries
Improved booking / cancellation arrangements	- Network-wide issue
Timetable intensification – increase frequency with existing assets	- Intensification of the timetable to fill gaps across the day and in the evening - Extend the operating day of the 'day vessel' (currently MV *Hendra*)
Improved Saturday service	- Operate the route on the basis of the intensified Monday to Friday timetable, as set out above
Improved Sunday service	- Operate the route on the basis of the intensified Monday to Saturday timetable, as set out above - Operate the 'day vessel' on a Sunday
Larger vessels to increase vehicle capacity	- 2 * Type 2 45m length overall double-ended vessels - Redevelop the Pelagic Basin in Symbister Harbour as per the 2022 Whalsay OBC - Redevelop Laxo and Vidlin as per the 2022 Whalsay OBC to accommodate new 45m vessels
Fully accessible vessels	

Approach / Principles	Component Options
	- Potential cascade of MV *Linga* depending on when this option is introduced
Earlier first sailings to enable shift work / airport access	- Not applicable, service already commences at 05:00 seven days a week
Lower fares for residents	- Reduced fares for residents, potentially determined on an island-by-island basis to reflect dependency on off-island services
Improved bus connections	- Additional bus connections at Laxo for Whalsay services - Other measures to improve connectivity, such as a car club at Laxo
Foot passenger waiting facilities	- Symbister: Upgraded waiting facilities - Laxo: Improved heating, Wi-Fi, toilets, baby change, functioning vending machines etc

Ferry Do Max

Table 3:23: Whalsay Ferry Do Max option components

Approach / Principles	Component Options
Provide 'turn-up-and-go' service, no bookings required between 06:00-00:00	- 3 * Type 2 45m length overall double-ended vessels *(this could potentially be increased to Type 3 vessels to provide resilience for Yell Sound – this will be considered further at OBC)* - Increase service frequency to half-hourly, with two vessels operating on a shift basis and one on a day basis (reducing to two shift vessels on a Sunday) - Develop North Voe to accommodate the new vessels and also the Skerries ferry, MV *Filla*. Two linkspans would be required. - Redevelop Laxo and Vidlin to accommodate new larger vessels and higher intensity timetable. This would be a major redevelopment as significantly greater sheltered manoeuvring area and berth lengths would be required to accommodate the larger vessels and two linkspans may be required at each terminal to accommodate the increased frequency and provide resilience
Provision for 24-hour travel with request sailings 00:00-06:00	- Hourly on-request service 00:00-05:00
Through bus services (i.e., which travel on the ferry to the end destination)	- BaU plus three through bus services from Whalsay to deliver working-day and part-day connectivity to Lerwick, seven days per week
Free fares for residents (or toll equivalent for fixed link comparison)	- Free fares for residents

Fixed Link

3.8.52 The figures below show an indicative alignment and long section for a subsea tunnel between Whalsay and mainland Shetland:

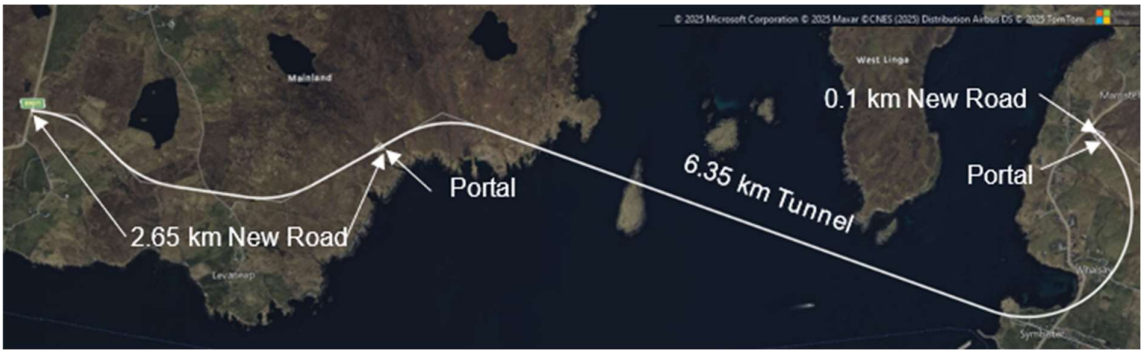


Figure 3.12: Whalsay to mainland Shetland indicative subsea tunnel alignment

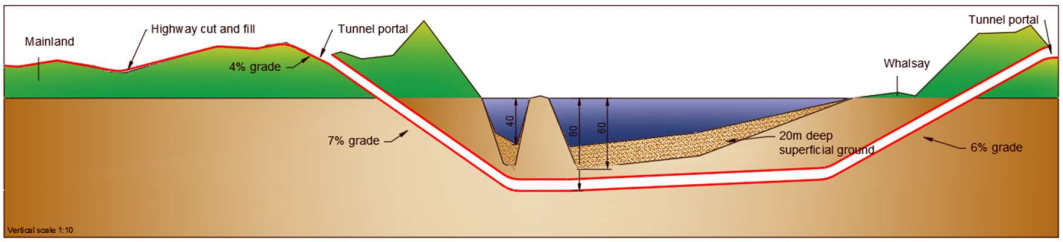


Figure 3.13: Whalsay to mainland Shetland subsea tunnel – long section

3.8.53 The key points of note with respect to this indicative alignment are as follows:

- The proposed fixed link between Whalsay and mainland Shetland would involve 6.35km of tunnel and 2.75km of new road, making it the longest of the proposed fixed links being examined by this study
- There are significant elevation changes at both ends of the crossing, and the seabed is 30 to 50 metres below sea level, with an additional 20 metres of sediment, requiring deep tunnelling
- To achieve the necessary depth, approach tunnels would either need to exceed the preferred maximum gradient or be extended to maintain acceptable inclines
- The route would start at a T-junction on the B9071 on mainland Shetland, with a newly built carriageway leading to the western portal, where the tunnel would descend from 30 metres above ground to 80 metres below sea level
- The western descent would have a 7% gradient (steeper than preferred, needing enhanced ventilation and safety), whilst the eastern ascent would be 6%, emerging in Marrister, Whalsay, with a 5-metre cutting to meet the existing road level
- The design speed for the route would be 40 mph

Yell Sound

Business-as-Usual

Table 3:24: Yell Sound Business-as-Usual option components

Approach / Principles	Component Options
Like-for-like asset replacement at life expiry	- 2 * Type 3 vessels at life expiry of MV *Daggri* and MV *Dagalien*
Operate service to timetable year-round (weather events excepted)	- Not applicable

Approach / Principles	Component Options
Address refit impacts – additional vessels to remove / mitigate refit timetable impacts	- Fleet reserve vessel to ensure no reduction in service during refit - For Yell Sound, this would need to be of a higher capacity than the current occasional relief vessel, MV *Fivla*

Ferry Do Something

Table 3:25: Yell Sound Ferry Do Something option components

Approach / Principles	Component Options
Common Monday to Friday timetable	- Standardise Monday to Friday timetable, either through additional vessels to cover drills and maintenance and / or move drills and maintenance to a two-vessel Sunday
Improved booking / cancellation arrangements	- Network-wide issue
Timetable intensification – increase frequency with existing assets	- Intensification of the timetable to fill gaps across the day and in the evening - Extend the operating day of the 'day vessel'
Improved Saturday service	- Operate the 'shift vessel' on the same basis as a Monday to Friday (or an intensified Monday to Friday as set out above) - Operate the 'day vessel' on a Saturday
Improved Sunday service	- Operate the 'shift vessel' on the same basis as a Monday to Friday (or an intensified Monday to Friday as set out above) - Operate the 'day vessel' on a Sunday
Larger vessels to increase vehicle capacity	- As per BaU
Fully accessible vessels	
Earlier first sailings to enable shift work / airport access	- Earlier start (circa 05:15 or earlier)
Lower fares for residents	- Reduced fares for residents, potentially determined on an island-by-island basis to reflect dependency on off-island services
Improved bus connections	- Mainland bus service to connect with every other Toft arrival - Ulsta – Gutcher bus service to connect with every other Toft arrival
Foot passenger waiting facilities	- Provide waiting room at Ulsta - Relocate Toft waiting room

Ferry Do Max

Table 3:26: Yell Sound Ferry Do Max option components

Approach / Principles	Component Options
Provide 'turn-up-and-go' service, no bookings required between 06:00-00:00	- 3 * Type 3 65m length overall double-ended vessels - Increase service frequency to near 20-minutes, with two vessels operating on a shift basis and one on a day basis (reducing to two shift vessels on a Sunday) - Additional linkspan berth at least one end of the route - Additional layby berth

Approach / Principles	Component Options
Provision for 24-hour travel with request sailings 00:00-06:00	- Half hourly on-request service 00:00-05:00
Through bus services (i.e., which travel on the ferry to the end destination)	- BaU plus three through bus services from Yell to deliver working-day and part-day connectivity to Lerwick, seven days per week
Free fares for residents (or toll equivalent for fixed link comparison)	- Free fares for residents

Fixed Link

3.8.54 The figures below show an indicative alignment and long section for a subsea tunnel between Yell and mainland Shetland:

Figure 3.14: Yell to mainland Shetland indicative subsea tunnel alignment

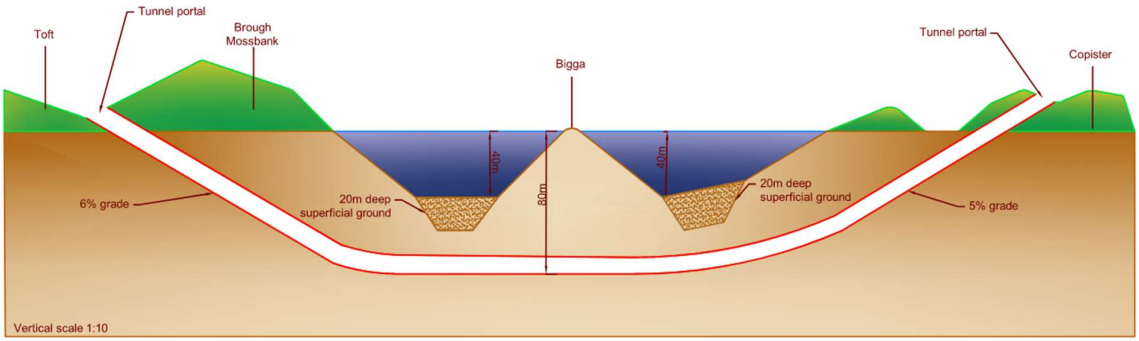


Figure 3.15: Yell to mainland Shetland subsea tunnel – long section

3.8.55 The key points of note with respect to the indicative alignment are as follows:

- The indicative alignment is between Toft and Yell, reflecting local topography and engineering needs
- Yell and mainland Shetland around Toft have undulating terrain with coastal areas near sea level. Seabed depths range between 40 and 60 metres with 20 metres of superficial sediment
- The western portal near the A968 in Toft would start at a low topographical point, descending at a 6% gradient to about 40 metres below seabed level, maintaining a clearance of 1.5 tunnel diameters from the bore top
- The tunnel would remain at depth beneath Bigga and Yell Sound, ascending at a 6% gradient to the surface near Copister, with a total length of approximately 6km
- There is a 600-metre shallow valley area suitable for cut-and-cover tunnel construction near the portal
- Around 2km of existing single-track road would require upgrading, with a further requirement for 0.75km of new carriageway to the portal
- Given the comparatively high volumes of commercial traffic across Yell Sound, the route would be designed for standard heavy goods vehicles, with a speed limit of 40mph. This specification will ensure that no climbing lanes are required

3.9 Next Steps

3.9.1 Having set out the case for change, Transport Planning Objectives and the options long-list, the next chapter subjects the option packages to a preliminary appraisal in line with STAG.

4 Economic Dimension

4.1 Overview

4.1.1 The (Socio) Economic Dimension of the SOC entails a preliminary appraisal of the option packages developed to ascertain which option packages merit further consideration at OBC stage.

4.1.2 As explained in the introductory chapter, whilst the IITCP is being developed as a business case, it will incorporate the principles of the Scottish Transport Appraisal Guidance, STAG. The (Socio) Economic Dimension therefore adopts the STAG-based approach to Preliminary Appraisal as set out in the STAG Managers' Guide (Transport Scotland, 2022). A brief summary of this approach is outlined in the next section.

4.1.3 The following points should be noted with regards to the appraisal:

- In keeping with the STAG Guidance, the appraisal undertaken is **proportionate and largely qualitative at this stage**. It is focused on ensuring that the options progressed into the Programme OBC can realistically contribute to delivering the TPOs
- The options are **presented at the island / route level** at SOC stage. Network options will not be considered until OBC stage
- As outlined in the previous chapters, the options have been developed in packages incrementing from a 'Business-as-Usual' to a 'Do Something' or 'Do Maximum' / fixed link. Given this packaging, it is **unlikely that many, if any, options will be ruled out at SOC stage as they represent coherent option packages which there is likely to be merit in testing in the OBC**.
- In assessing economic value, it is **essential to consider the cost of travel not only in per-trip terms but as a cumulative burden shaped by the frequency with which residents of Shetland's island communities must travel to access essential services**. For these communities, affordability challenges are often not a function of fare per kilometre but rather the repeated need to overcome geographic isolation. This understanding of cost as a structural barrier rather than a transactional one aligns with broader equity and access goals and should guide both option evaluation and future engagement with funding stakeholders. This broad principle has been adopted in the appraisal process
- In keeping with the guidance, **costs** are reported on a largely qualitative basis or, where costs are available from previous work, suitably qualified

Impact assessments

4.1.4 An impact assessments screening exercise has been undertaken as part of the SOC development. This has identified the requirement for impact assessments reflecting the Council's obligation to show 'due regard' to the:

- Public Sector Equality Duty (PSED), which can be delivered by undertaking an Equality Impact Assessment (EqIA) with respect to the provisions of the Equality Act 2010
- Fairer Scotland Duty (FSD),
- Island Communities Impact Assessment
- Children's Rights and Wellbeing Impact Assessment (CRWIA)

4.1.5 The screening exercise also highlighted the benefit in undertaking a non-statutory Health Impact Assessment (HIA), which would allow for a holistic consideration of the business case with respect to key health outcomes and reducing health inequalities.

4.1.6 The requirements of the programme mean that these impact assessments, whilst being undertaken in parallel with SOC development, will conclude after the SOC has been signed-off by Council Members. To this end, and in keeping with business case methodology, the options progressed from the SOC will be reviewed, updated where required and confirmed at the outset of the OBC stage.

4.2 STAG Preliminary Appraisal

4.2.1 This section briefly summarises the STAG Preliminary Appraisal approach, which is being used to assess options at this SOC stage.

STAG criteria

4.2.1 The table below sets out the five STAG criteria and their associated sub-criteria. At this Preliminary Appraisal stage, the options will be appraised against the overall criteria rather than specifically against each individual sub-criterion, although specific points of relevance will be drawn out.

Table 4:1: STAG appraisal criteria and sub-criteria

STAG Criteria	Sub-criteria
Environment	• Biodiversity and habitats • Geology and soils • Land-use (including agriculture) • 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 Efficiency (TEE), which covers the benefits ordinarily captured by standard cost-benefit analysis – including traffic volumes, journey times, driver frustration or travel time reliability • Wider Economic Impacts (WEIs), which refer to any economic impacts which are additional to transport user benefits
Equality and Accessibility	• Public transport network coverage • Active travel network coverage • Comparative access by people group • Comparative access by geographic location • Affordability

4.2.2 The comparison of all options is against the **present-day position**.

Decarbonisation

4.2.3 The IITCP will ultimately provide a long-term strategic investment plan for the eight in-scope islands. Emissions reductions and, ultimately, complete decarbonisation of the transport network serving the islands is therefore evidently a central objective of the overall programme. Over its duration, it can be expected that both the ferry fleet, in whatever form it takes, and

road vehicles will operate on the basis of zero tailpipe emissions. The assumptions around vessel and road vehicle decarbonisation will therefore be an integral part of the appraisal.

4.2.4 As noted above, at this SOC stage, options are compared against the present-day position only. However, at OBC stage, investment will be profiled over time and assumptions around when each mode of transport will be decarbonised will be set. This will allow for a quantitative comparison **between options** with respect to their whole life carbon.

Established policy objectives

4.2.5 There is a requirement within STAG to assess the options against established Scottish Government policy objectives, using the Policy Assessment Framework (PAF) tool. However, the content of this tool is significantly out-of-date. Moreover, the policy context described in Section 3.2 identified the overall policy fit of the IITCP in terms of improving connectivity, although highlighting some of the tensions with respect to the environment, climate change and equalities. These specific issues can however be drawn out through reference to the relevant STAG criteria. Policy in its widest sense is not therefore considered further in this chapter unless there is a specific point of note.

Feasibility, affordability and public acceptability criteria

4.2.6 The table below outlines the 'Feasibility', 'Affordability' and 'Public Acceptability' criteria as defined by STAG and applied to this appraisal.

Table 4:2: Feasibility, Affordability and Public Acceptability Criteria

Criteria	Description
Feasibility	The feasibility of construction or implementation and operation (if relevant) of an option and the status of its technology (e.g., proven, prototype, in development, etc.) as well as any cost, timescale or deliverability risks associated with the construction or operation of the option, including consideration of the need for any departure from design standards that may be required.
Affordability	The scale of the financing burden on the promoting authority and other possible funding organisations and the risks associated with these. The level of risk associated with an option's ongoing operating or maintenance costs and its likely operating revenues (if applicable). **It should be noted with respect to cost that a fixed link would be a one-off investment whereas all ferry options would require several rounds of asset replacement over the lifespan of a fixed link. This point will be explored in more detail in the OBC.**
Public Acceptability	An assessment of the likely public response to an option. It should be noted that options have not yet been subject to a public engagement exercise. This will take place during the development of the Programme OBC.

Hierarchies

4.2.7 The STAG Managers' Guide requires options to be appraised against both the **Sustainable Investment Hierarchy** and **Sustainable Travel Hierarchy** as defined in the National Transport Strategy 2. This is not however particularly meaningful or appropriate in the context of this appraisal because:

- **Sustainable Travel Hierarchy:** The options being considered in this study are effectively a combination of improved ferry services and fixed links. Neither can be easily categorised with respect to the hierarchy and each will have a range of impacts across modes. These impacts will therefore be brought out separately in the narrative of the appraisal, particularly with respect to the STAG Equality and Accessibility criterion, rather

than independently. Opportunities for complementary bus and active travel measures are though set out

- **Sustainable Investment Hierarchy:** The case for change is largely predicated on the need to replace capital assets at the point of life expiry, so most options will involve 'targeted infrastructure improvements' as standard. Where this is not the case, it will be described in the appraisal narrative

Risk and Uncertainty

4.2.8 Risk and uncertainty are being considered at the programme level (see Section 3.7) and will not be detailed for individual option packages at this stage.

Rationale for selection or rejection

4.2.9 Each option package will be accompanied by a clear statement of whether it is recommended for inclusion in the Programme OBC (or Detailed Appraisal in STAG terminology).

Scoring

4.2.10 The STAG seven-point scoring scale, as described in the table below, will be used to assess the relevant scale of the impacts against both the TPOs and STAG criteria.

Table 4:3: STAG Seven-point scoring scale

Impact	Description	Score
Major Positive	These are benefits or positive impacts which, depending on the scale of benefit or severity of impact, the practitioner feels should be a principal consideration when assessing an option's eligibility for funding.	✓✓✓
Moderate Positive	The option is anticipated to have only a moderate benefit or positive impact. Moderate benefits and impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together do so.	✓✓
Minor Positive	The option is anticipated to have only a small benefit or positive impact. Small benefits or impacts are those which are worth noting, but the practitioner believes are not likely to contribute materially to determining whether an option is funded or otherwise.	✓
No benefit or impact	The option is anticipated to have no or negligible benefit or negative impact.	○
Minor Negative	The option is anticipated to have only a small cost or negative impact. Small costs/negative impacts are those which are worth noting, but the practitioner believes are not likely to contribute materially to determining whether an option is funded or otherwise.	x
Moderate Negative	The option is anticipated to have only a moderate cost or negative impact. Moderate costs / negative impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together could do so.	xx
Major Negative	These are costs or negative impacts which, depending on the scale of cost or severity of impact, the practitioner should take into consideration when assessing an option's eligibility for funding.	xxx

4.2.11 It should be noted that the use of a seven-point scale does not always allow the subtle differences between options to be drawn out. For example, the BaU, Ferry Do Something, Ferry Do Max and a fixed link on a route could all potentially contribute to e.g., improving capacity. However, with four options and only three positive 'ratings' it can be difficult to draw

out some of the differences in the scoring. Where this is the case, these differences are described in the subsequent narrative.

4.3 Bluemull Sound

Options recap

4.3.1 The table below recaps the options for Bluemull Sound in a summary format. Full details on the option components can be found in the Option Generation and Development Report.

Table 4:4: Bluemull Sound options

Option	Description	Main Components
1	Bluemull Sound (BISo) Business as Usual	- 2 * Type 1 vessels in the immediate term - Resolution of route resilience and refit issues
2	BISo Do Something	- 2 * Type 2 vessels in the immediate term - Revenue measures to standardise the weekday service, provide an enhanced weekend service and extend the operating day - Reduced ferry fares
3	BISo Ferry Max	- 2 * Type 3 vessels in the immediate term - 1 * Type 1 vessel dedicated to Fetlar in the immediate term - Increase service frequency to half-hourly on Gutcher – Belmont - Increase service frequency to hourly on Fetlar service - 24-hour sailings (on-request overnight) - Free ferry travel for island Fetlar, Unst and Yell residents
4	Yell to Unst fixed link	- Tunnel connecting Yell and Unst - 1 * Type 1 vessel dedicated to Fetlar (this would in practice need to come well before a tunnel to Unst opened given the age of MV *Geira*) - Increase service frequency between Hamars Ness and Gutcher to hourly (passengers for Unst would use the tunnel) - It is assumed that the tunnel is tolled for the purposes of this Preliminary Appraisal
5	Yell to Fetlar fixed link	- Tunnel connecting Yell and Fetlar - Assumed to be no further ferry investment once complete as this tunnel would only realistically follow after a Yell – Unst tunnel - It is assumed that the tunnel is tolled for the purposes of this Preliminary Appraisal

Appraisal

4.3.2 The table below summarises the performance of the Bluemull Sound options against the TPOs and STAG criteria:

Table 4:5: Bluemull Sound Preliminary Options Appraisal

	BISo1: BaU	BISo2: Do Something	BISo3: Do Max	BISo4: Unst fixed link	BISo5: Fetlar fixed link
Transport Planning Objectives					
TPO1: Resilience	✓	✓	✓✓	✓✓✓	✓✓✓
TPO2: Capacity	✓	✓✓	✓✓	✓✓✓	✓✓✓
TPO3: Limited, fixed times of travel in operating day	**O**	✓	✓✓	✓✓✓	✓✓✓
TPO4: Cost	**O**	✓	✓✓✓	✓✓	✓✓

	BISo1: BaU	BISo2: Do Something	BISo3: Do Max	BISo4: Unst fixed link	BISo5: Fetlar fixed link
TPO5: Physical accessibility	✓✓	✓✓	✓✓	✓✓✓	✓✓✓
TPO6: Operating day	O	✓	✓✓	✓✓✓	✓✓✓
TPO7: Non-car travel options	O	✓	✓✓	✓✓✓	✓✓✓
STAG criteria					
Environment	O	×	×	×××	×××
Climate change	✓✓	✓	×	××	××
Health, safety and wellbeing	O	✓	✓✓	✓✓✓	✓✓✓
Economy	O	✓	✓✓	✓✓✓	✓✓
Equality and accessibility	✓	✓	✓✓	✓✓✓	✓✓✓

Transport Planning Objectives

4.3.3 The key points of note in relation to the appraisal against the TPOs are as follows:

- The nature of the option packages for Bluemull Sound means that each option increment will deliver progressively larger benefits with respect to the TPOs, but at a steadily increasing cost. This ultimately culminates in a fixed link, which would remove almost all of the identified barriers to travel. It should be recognised that the population of Unst is some ten times that of Fetlar and therefore the absolute benefits will be larger for that island, even if the relative benefits are broadly similar.
- The BaU contributes very little to the TPOs beyond addressing the physical accessibility issues with the current vessels, modernising the tonnage and very marginally increasing capacity. The case for change explained that there are numerous problems on the Bluemull Sound at the moment and, whilst the BaU will address some of the problems, it will fall well short of addressing them all nor will it provide scope for future growth associated with Spaceport
- The impact on **TPO4** (cost to the user) remains to be established and would depend on the balance between ferry fares and tunnel tolls. It is assumed for this preliminary appraisal that a tunnel would be tolled and thus would be higher cost than the Ferry Do Max **(BISo3)**, where free fares are assumed in principle for residents. However, there is also a scenario where a tunnel could be operated without tolls and thus would be cost equivalent to the Ferry Do Max in this respect. This detail will be worked through at OBC stage.

STAG criteria

Environment

4.3.4 The Environment criterion is primarily focused on the physical impacts of construction and thus a gradation of impacts can be expected. **BISo1**, the BaU, would be neutral in this respect as it is simply the replacement of the current vessels, which would entail minimal infrastructure works. Each option thereafter increments up in impact as the scale of physical works begin to increase, with the two tunnel options **(BISo4 and BISo5)** evidently being the most impactful of the options.

4.3.5 **Option BISo3**, the ferry 'do maximum' would entail the provision of new linkspan and overnight berths at Gutcher and / or Belmont. In delivering these improvements, the Council

would need to ensure that it has the power to do so within its existing Harbour Order and may be required to undertake an Environmental Impact Assessment (EIA) and secure site specific licences. There are established processes in place for securing the required consents which consider environmental impacts and mitigating / control measures.

4.3.6 Fixed links to Unst and / or Fetlar **(BISo4 and BISo5)** would evidently have a range of environmental considerations, for example the impacts on geology and soils, noise and vibration etc. This would particularly be the case during construction, as these would be major projects in this geographic context and as a minimum would generate significant quantities of spoil which would either have to be disposed of or an alternative use found. Fixed links would undoubtedly be subject to full EIA through which environmental protections, mitigations and enhancements would be developed. One key point of note here is that, as both fixed links would be tunnels, their physical environmental impacts would be limited, for example on the landscape, historic environment, and water quality, drainage and flooding.

4.3.7 In appraisal, there is generally a presumption that major infrastructure projects are negatively impactful on the environment, at least in terms of their physical impacts. However, the recent experience in the Faroe Islands has highlighted how this need not necessarily be the case. The Eysturoyartunnil subsea tunnel, and most notably the underwater roundabout has become a visitor attraction and a potent symbol of the archipelago's modernity and progress.

Climate Change

4.3.8 The STAG Climate Change criterion will be one of the major differentiators between the options as the business case develops. At this stage, impacts are described qualitatively but, at Programme OBC stage, the whole life carbon impacts of ferries and fixed links will be quantitatively compared. Key to this will be assumptions around when both the ferry and vehicle fleet will be decarbonised and the relative embodied carbon of each option.

4.3.9 **BISo1**, the business-as-usual, would record a minor positive benefit against this criterion as it would replace the ageing MV *Bigga* and MV *Geira* with new vessels built to modern design standards and with more efficient systems. The same can be said of **BISo2** but the benefit could be expected to be slightly smaller due to the increase in sailings associated with the revenue measures and the additional vehicle kilometres generated by the larger Type 2 vessels (i.e., through addressing capacity constraints). Whilst the absolute increase would be small, there is evidence from the resident survey that some journeys are not being made due to capacity issues, particularly on the Gutcher – Belmont leg.

4.3.10 The 'ferry max' option **(BISo3)** could be expected to increase greenhouse gas (GHG) emissions for three reasons - this option:

- Would entail the introduction of a third vessel to Bluemull Sound, with associated embodied carbon in the vessel build and operational emissions until the point that the ferry fleet is decarbonised
- Would increase the sailing frequency on both the Unst and Fetlar runs over and above the Ferry Do Something
- Could be expected to generate additional vehicle kilometres – in particular, the introduction of two Type 3 vessels on Gutcher – Belmont would address most if not all vehicle capacity constraints

4.3.11 In addition to the embodied carbon in fixed links, the provision of tunnels to Unst and / or Fetlar **(BISo4 and BISo5)** would effectively remove any constraint to vehicle-based travel to and from these two islands (outwith the ability to pay any toll if one was in place). It could therefore be expected to increase emissions until the point at which the vehicle fleet becomes zero emission.

Health, Safety and Wellbeing

4.3.12 The fundamental differentiator between the options with respect to this criterion is 'access to health and wellbeing infrastructure', which in turn impacts on 'health outcomes'. There is evidence from the resident survey and wider engagement that the current service on Bluemull Sound is restricting travel, including to health appointments. Each option increment would gradually improve this position, with a fixed link **(BISo4 and BISo5)** removing the barrier entirely assuming a bus connection for those who are non-car available. The one cautionary note here with regards to fixed links (and possibly the Ferry Do Max) is the medium to long-term risk of the centralisation of services if island residents are better connected to provision further afield – Fetlar and Unst would be little different to e.g., North and West Mainland in this respect.

4.3.13 The conventional quantified appraisal measure under this criterion is the change in **accidents** associated with a change in vehicle kilometres. Improvements in connectivity generally lead to increases in vehicle kilometres and there is a body of evidence from Scotland and abroad that fixed links have generally led to an increase in traffic levels. However, even with a fixed link, volumes will remain very small, particularly in the context of Fetlar. Moreover, the withdrawal of ferry services on one or both legs of Bluemull Sound would eliminate the small risks associated with seaborne travel.

4.3.14 A key safety benefit associated with fixed links **(BISo4 and BISo5)** is improved access to Fetlar and Unst for the emergency services. This is particularly the case in Fetlar, where there are no retained firefighters and only very limited health provision. Whilst the ferry will be operated out of hours if there were an emergency, it would inevitably take longer to mobilise the crew, start-up the vessel and make the crossing than would be the case with a fixed link. The Air Ambulance is however currently available in an emergency medical situation.

Economy

4.3.15 The qualitative appraisal of options from a **Transport Economic Efficiency (TEE)** perspective – which covers the benefits ordinarily included in cost-benefit analysis such as journey times, vehicle operating costs, reliability etc – is fairly straightforward in this context. In short, the larger the increment in connectivity, the greater the benefit. The provision of fixed links **(BISo4 and BISo5)** would therefore record the largest benefits, as they would significantly reduce wait and journey times, permit twenty-four-hour access and improve reliability and resilience. The key question therefore is the extent to which the incremental benefit of each option compares to the incremental cost, which will be a primary focus of the OBC.

4.3.16 It should be noted that, in volumetric terms, the benefits to Fetlar will be lower across all options as it has less than 10% of the population of Unst.

4.3.17 The Wider Economic Impacts (WEI) are more nuanced, and the following points should be noted:

- Option **BISo1**, the business-as-usual, would broadly represent a continuation of the current day position. It was highlighted in the Case for Change Report however that there are several problems associated with the current service (and which are about to be amplified by the introduction of a new timetable reflecting the now mandatory requirement to lash all vehicles over 3.5 tonnes on the Gutcher – Belmont route). This therefore will likely represent a declining position over time, particularly as Spaceport comes onstream in Unst, and would therefore be negative from a WEI perspective
- Each subsequent increment in service would generate a higher level of benefits, and again the question is the balance between that benefit and the corresponding increment in cost. Key economic benefits would: include improving the functioning of labour markets, better matching skills to jobs; promoting the more reliable export of products, particularly those of a time sensitive nature, including seafood; supporting the emergence

of new developments, most notably Spaceport in Unst; and growing the nascent tourism industry in the North Isles

- Fixed links **(BISo4 and BISo5)** offer the most significant connectivity benefits and therefore the largest WEI. It is though also important to recognise that improved transport connectivity is a 'two way street' and will open up businesses and tradespeople on both islands to increased competition. Whilst this would be positive for consumers and Shetland overall, it may subtly change the economic balance of the islands, particularly in terms of retaining employment and key services locally. Unlike Bressay, Whalsay and Yell however, the distance of Fetlar and Unst from Lerwick could potentially insulate them from this effect to some degree

Equality and Accessibility

4.3.18 All of the options would make a positive contribution to this criterion through either: (i) the delivery of modern vessels and infrastructure with Equality Act compliant access; or (ii) fixed links.

4.3.19 Each increment in service provision would again promote improved equality and accessibility for residents of Fetlar and Unst, as well as those travelling to those islands from Yell or further afield. Once again, fixed links **(BISo4 and BISo5)** would offer the most significant benefits providing:

- There is suitable public transport provision for those who are non-car available – for there to be no loss of accessibility, bus services through both tunnels would need to be at least as frequent as the current ferry services, on which island residents can travel as a foot passenger
- Provision is either made in any tunnel design to accommodate pedestrians and cyclists and / or bicycles can be taken on the bus
- The level of tolls is set at an affordable level – this may be at a higher level than the prevailing ferry fares to reflect the journey time advantage but will still need to reflect the generally lower than average income in the isles and the specific needs of those with protected characteristics

4.3.20 In the medium to long-term, it does have to be recognised that there is an equality and accessibility risk associated with potential public service reform in the context of the Ferry Do Max or a fixed link.

Feasibility

4.3.21 The table below considers the **outline feasibility** of each of the options. Additional work will be required at OBC stage to further develop the feasibility of the options.

Table 4:6: Bluemull Sound options – outline feasibility

Option	Description	Comment
1	BISo Business as Usual	There are no feasibility issues with this option, it is by-and-large a like-for-like replacement of the current vessels and returning the service to its timetabled operation.
2	BISo Do Something	This option entails an increase in service provision and the main feasibility issue would therefore be securing the required crew to operate these services, particularly given the challenges faced on the route at present.
3	BISo Ferry Max	The main feasibility consideration associated with this option is the ability to secure sufficient crew to operate three vessels on a very frequent timetable, given the crewing challenges associated with

Option	Description	Comment
		maintaining the current timetable. This is a particular challenge in Fetlar given its small and ageing population.
4	Yell to Unst fixed link	It is feasible to build a fixed link between Yell and Unst, but further design and investigation work will be required to understand how this translates into capital cost. The feasibility of securing funding / financing and a contractor remains unknown at this stage. This option assumes a continued standalone Fetlar ferry service operating on an hourly basis over a long operating day. Maintaining sufficient crew to operate such a service in the long-term is a key feasibility consideration. That said, in the event of an Unst fixed link, crew could potentially be cascaded from that route.
5	Yell to Fetlar fixed link	It is feasible to build a fixed link between Yell and Fetlar, but further design and investigation work will be required to understand how this translates into capital cost. The feasibility of securing funding / financing and a contractor remains unknown at this stage.

Affordability

4.3.22 The table below considers the **affordability** of each of the options. It is important to note that, at Programme SOC stage, costs are reported largely qualitatively and will be further developed at OBC stage.

Table 4:7: Bluemull Sound options – affordability

Option	Description	Comment
1	BISo Business as Usual	This is effectively the minimum required and thus the lowest cost solution. However, it should be highlighted that the existing berthing structures at Gutcher and Belmont are in poor condition and need to be replaced and extended along with the provision of increased shelter and a better designated vessel manoeuvring area at Gutcher
2	BISo Do Something	This option is an increment on BISo1, whilst more expensive in terms of the vessels, it will also have a cost increment on landside infrastructure implications. There would also be an increment in crewing costs associated with operating a two-vessel service more frequently, including at the weekend.
3	BISo Ferry Max	This option represents a major increment in capital (i.e., the addition of a third vessel to two new larger vessels, an additional linkspan and an additional overnight / layby berth) and revenue. Whilst revenue costs are currently funded by Scottish Government, it is unclear whether this funding would extend to such a major scaling-up of the service. If fares were removed, this would also reduce revenue to zero.
4	Yell to Unst fixed link	There is uncertainty over the cost of a fixed link between Yell and Unst. This will be worked-up in more detail in the OBC, but it will be significant. A tunnel would be a more affordable proposition with tolls.

Option	Description	Comment
5	Yell to Fetlar fixed link	A fixed link between Yell and Fetlar would be of a significant length and would require a new road formation on Yell – it is likely to be expensive and would present an affordability challenge. . A tunnel would be a more affordable proposition with tolls but revenue from Fetlar would be much smaller than from Unst given its much smaller population and economic base.

Public acceptability

4.3.23 The table below considers the **public acceptability** of each of the options. Whilst public opinion on the options has not been objectively tested as yet, our experience of the public engagement event in Unst in March 2025 from those who attended suggests that there is a strong current of public opinion in favour of a fixed link.

Table 4:8: Bluemull Sound options – public acceptability

Option	Description	Comment
1	BISo Business as Usual	Whilst this option would represent a modernisation of the service, it is likely to have a low level of public acceptability due to the perpetuation of capacity problems and the lack of future proofing around the growth of the Spaceport in Unst.
2	BISo Do Something	Modernising and increasing the capacity of the tonnage and expansion of the service would likely be welcomed but may not fully offset the capacity impact of fewer services due to the new lashing requirements on Gutcher – Belmont.
3	BISo Ferry Max	This option is likely to have a high level of public acceptability in both Fetlar and Unst. There would however be justifiable questions over its delivery and sustainability given its cost and human resource requirements. Its cost comparability to a tunnel would also be an important community consideration.
4	Yell to Unst fixed link	This option would have a high level of public acceptability. Whilst it has not yet been objectively tested, a fixed link is understood to have strong support in Unst. An important point to test with the Unst population would be their views on the impact of a fixed link on the distinctiveness of the island and future public service delivery.
5	Yell to Fetlar fixed link	The public acceptability of this option in Fetlar is uncertain and would need to be tested. Whilst it would undoubtedly improve the connectivity of the island, there is a realism that such a solution likely remains a long way in the future at best and it is important that a ferry-based solution is not delayed in the short-term. Moreover, the ferry crew hold what are amongst some of the few salaried posts on the island and they would have to be redeployed within the Council's Ferry Service or made redundant if no suitable role could be found (although this seems unlikely) – this could be highly detrimental to Fetlar. An important point to test with the Fetlar population would be their views on the impact of a fixed link on the distinctiveness of the island.

Rationale for selection / rejection

4.3.24 The table below summarises which options have been retained for consideration in the Programme OBC and the rationale for this:

Table 4:9: Bluemull Sound options – rationale for selection / rejection

Option	Description	Retain / Reject	Comment
1	BISo Business as Usual	**Reject**	The evidence has highlighted capacity issues on the route which will only worsen with the emergence of Spaceport and other developments in Unst. Larger capacity vessels than the incumbents will be required.
2	BISo Do Something	**Retain**	Larger capacity vessels with a quicker turnaround would offer a material improvement on the route, as would an expansion of the service.
3	BISo Ferry Max	**Retain**	This option would significantly improve the ferry service but the realism of delivering it and its value for money relative to a fixed link must be tested in the OBC.
4	Yell to Unst fixed link	**Retain**	A fixed link could be transformative for Unst, particularly in the context of the strategically important Spaceport development
5	Yell to Fetlar fixed link	**Reject**	Fetlar would require a long and very expensive crossing to serve a sub-100 population. This would present very obvious affordability and value for money challenges to the Council and other potential funders, compounded by the limited economic activity on Fetlar (the island does not have an anchor industry such as aquaculture or Spaceport that would benefit significantly from a fixed link) Any fixed link would also be several decades in the future and may detract from the more urgent need to provide a sustainable and reliable ferry service. The option of a Fetlar fixed link could be revisited at some point in the future if a tunnel to Unst is built and proves to be successful.

4.4 Bressay

Options recap

The table below recaps the options for Bressay in a summary format. Full details on the option components can be found in the Option Generation and Development Report.

Table 4:10: Bressay options

Option	Description	Main Components
1	Bressay (Bre) Business as Usual	- 1 * Type 2 vessel at life expiry of MV *Leirna*
2	Bre Do Something	- 1 * Type 2 vessel at life expiry of MV *Leirna* - Intensification of the timetable and earlier start to allow connections with the first flights from Sumburgh - Reduced ferry fares - Improved secure waiting facilities
3	Bre Ferry Max	- 20-minute frequency, 7-days per week - 24-hour sailings (on-request overnight) - Free ferry travel for Bressay residents
4	Bressay fixed link	- Tunnel connecting Bressay and Lerwick

Option	Description	Main Components
		- It is assumed that the tunnel is tolled for the purposes of this Preliminary Appraisal

Appraisal

4.4.1 The table below summarises the performance of the Bressay options against the TPOs and STAG criteria:

Table 4:11: Bressay Preliminary Options Appraisal

	Bre1: BaU	Bre2: Do Something	Bre3: Do Max	Bre4: Fixed link
Transport Planning Objectives				
TPO1: Resilience	O	O	O	✓✓✓
TPO2: Capacity	O	✓	✓✓	✓✓✓
TPO3: Limited, fixed times of travel in operating day	O	✓	✓✓	✓✓✓
TPO4: Cost	O	✓	✓✓✓	✓✓
TPO5: Physical accessibility	✓	✓	✓	✓✓✓
TPO6: Operating day	O	✓	✓✓	✓✓✓
TPO7: Non-car travel options	O	O	O	✓✓✓
STAG criteria				
Environment	O	O	O	××
Climate change	✓✓	✓	✓	××
Health, safety and wellbeing	O	✓	✓	✓✓
Economy	O	✓	✓	✓✓✓
Equality and accessibility	✓	✓	✓	✓✓

Transport Planning Objectives

4.4.2 The key points of note in relation to the appraisal against the TPOs are as follows:

- As with Bluemull Sound, the nature of the option packages for Bressay means that each option increment will generally deliver progressively larger benefits with respect to the TPOs. This ultimately culminates in a fixed link, which would remove almost all of the identified barriers to travel
- The BaU **(Bre1)** would be entirely neutral with respect to the TPOs, as it would involve replacing MV *Leirna* with a broadly equivalent vessel. However, any vessel replacing MV *Leirna* would be of a modern design and record a minor benefit with respect to physical accessibility (acknowledging that physical accessibility issues on this route are much less prevalent than on some others)
- The impact of the Ferry Do Something **(Bre2)** would be less significant than on some of the other routes (e.g., Bluemull Sound, Whalsay etc) because the change in connectivity would be less. Outwith an earlier start to the operating day, this option is primarily focused on intensifying the current service during its current operating day
- The impact on **TPO4** (cost to the user) remains to be established and would depend on the balance between ferry fares and tunnel tolls. It is assumed for this preliminary appraisal that a tunnel would be tolled and thus would be higher cost than the Ferry Do Max **(Bre3)**, where free fares are assumed in principle for residents. However, there is

also a scenario where a tunnel could be operated without tolls and thus would be cost equivalent to the Ferry Do Max in this respect. This detail will be worked through at OBC stage.

- It is worth though noting that while the distance of the Bressay crossing is short, the frequency of travel required by residents reflects its high level of dependence on off-island services, which results in a substantial cumulative travel cost for residents. This cost burden is better understood in absolute terms rather than as a function of distance. Options **Bre2**, **Bre3** and **Bre4** could potentially reduce this cumulative cost and increase affordability, depending on the level of the fare or toll set

- Whilst a tunnel from Bressay would provide the opportunity for unconstrained access, non-car available residents would need a bus service that at least matched the frequency of the current ferry service to avoid a reduction in connectivity (and so contribute to **TPO7**). Whilst this is true of all candidate fixed link islands, it is particularly important in Bressay where travelling as a foot passenger can be readily done given the ferry berths in the heart of Lerwick

STAG criteria

Environment

4.4.3 The three ferry options for Bressay do not involve any significant infrastructure works and thus would be neutral from an Environment perspective.

4.4.4 As highlighted with respect to Bluemull Sound, a fixed link **(Bre4)** would have a range of environmental considerations and would be subject to full EIA. The negative impact has only been marked as 'moderate' rather than 'major' here however as the north end of Lerwick Harbour is largely industrial and thus impacts on the likes of landscape and visual amenity would be less prominent. Nonetheless, disposal of tunnel spoil would be a significant environmental consideration, even if a purpose could be found for it.

Climate Change

4.4.5 **Bre1**, the business-as-usual would record a positive benefit with respect to the Climate Change criterion as it would replace the ageing MV *Leirna* with a new vessel built to modern and more efficient design standards. **Bre2** and **Bre3** would also record this benefit, but both options would increase the number of sailings and potentially the number of vehicle kilometres and so perform marginally les well in this respect.

4.4.6 A fixed link **(Bre4)** would generate a significant uplift in vehicle kilometres through:

- Existing traffic driving through a tunnel rather than going on a ferry, although the emissions associated with the ferry would be discontinued
- The tunnel portal being located in the north of the island and to the north of Lerwick town centre – both portals therefore would be relatively distant from the main areas of population and commercial activity
- Induced travel, which could be expected to be particularly prominent given the proximity of Bressay to Lerwick and the comparatively high number of average trips per resident on the ferry at present

4.4.7 The absolute impact in terms of vehicle kilometres and emissions would though be small given the low volumes in question.

Health, Safety and Wellbeing

4.4.8 As was detailed in the case for change, almost all services for Bressay residents, including the island's GP and dental practices, are located in Lerwick. Each option increment would

therefore marginally improve access to healthcare. The above said, the marginal benefit would be minimal as, outwith cancellations (which are unusual), there are relatively few barriers to travel with the current ferry service, cost perhaps being the main issue.

4.4.9 A fixed link **(Bre4)** would improve access to Bressay for the emergency services, shortening response times and thus records a benefit in this respect. As the ferry overnights on the Bressay side of the crossing, the crew must mobilise, sail to Lerwick, pick-up any emergency service vehicles and sail back. Whilst such occurrences are rare, there would clearly be a significant time saving – likely approaching 20 minutes – in the event of an emergency.

4.4.10 As noted with respect to Fetlar and Unst, a fixed link **(Bre4)** could be expected to generate additional vehicle kilometres and would thus statistically increase the likelihood of accidents. Any such impact would however be extremely minor and likely be offset by a removal of the small risks associated with seaborne travel.

4.4.11 From a security perspective, a fixed link **(Bre4)** would provide 24-hour access to Bressay, thus potentially increasing the risk of crime or anti-social behaviour on the island given its proximity to Lerwick. Again, however, any such impact would be extremely minor, if it existed at all.

Economy

4.4.12 From a **TEE** perspective:

- The Ferry Do Something **(Bre2)** and, to an even greater extent, the Ferry Do Max **(Bre3)** would both record benefits associated with reduced wait times. In many instances, the wait time on the Bressay route is longer than the crossing time and this inconvenience would be removed for passengers. These options would in effect move the service closer to a 'turn up and go' method of operation
- Whilst not easily captured in conventional TEE analysis, being able to catch the first flights from Sumburgh and make a day return trip to mainland Scotland would significantly shorten the time (and expense) required for any trip. **Bre2** and **Bre3** deliver this, whilst a fixed link would provide 24-hour connections
- The much more significant TEE benefits would however be delivered by a fixed link **(Bre4)** as this would reduce journey times and eliminate wait times. Vehicle operating costs would though be likely to increase given that a fixed link portal would likely be in the north of the island, further away from both the main areas of population in Bressay and the centre of Lerwick. This disbenefit will be quantified in the OBC.

4.4.13 The much more significant impact from a Bressay perspective would be **WEI** – the following points should be noted:

- Bressay has a dependence on Lerwick / mainland Shetland for employment and almost all public and personal services. Each increment in provision would therefore support the economy and society of the island and may ultimately lead to improved population retention and growth. Fares are perhaps the biggest barrier for Bressay residents, primarily due to the frequency with which residents must travel off-island rather than the fare per individual journey. This high cumulative cost imposes a disproportionate burden on residents. Measures to reduce fares and increase service frequency **(Bre2 and Bre3)** could help address this challenge
- A fixed link **(Bre4)** would make Bressay a *de facto* part of mainland Shetland, or 'Greater Lerwick'. It would fully integrate the economies of the island and town, removing all barriers to travel (except cost, where there is toll)
- The major economic development opportunity in this context relates to a fixed link **(Bre4)**. Shetland has an under-supply of housing which in turn contributes to difficulties in attracting people to move to Shetland and the tight labour market of the archipelago. The geography and topography of Lerwick however means that developable land is at a

premium, with the new Staney Hill and Knab developments the only significant expansions committed at present. A fixed link could open the east side of Lerwick Harbour (Bressay) to development, potentially facilitating the expansion of the settlement, with benefits for Shetland overall

Equality and Accessibility

4.4.14 Each option increment would progressively improve accessibility and reduce inequalities through removing barriers to travel. The impact here could be more significant for Bressay than other islands given the proximity of Lerwick and the comparatively high trip making of island residents.

4.4.15 As with Bluemull Sound, a fixed link would clearly offer the most significant benefits providing:

- There is suitable public transport provision for those who are non-car available, a particularly important consideration for Bressay where, compared to the ferry terminals, the tunnel alignment could be further away from the main residential area on the island and the centre of Lerwick. The bus service on Bressay is extremely limited but would need to be scaled up significantly to ensure any non-car available residents do not suffer from isolation
- Provision is either made in any tunnel design to accommodate pedestrians and cyclists and / or bicycles can be taken on the bus. This is more important for Bressay than for any of the other candidate fixed link islands as the distance to the major centre of population is much shorter
- The level of tolls is set at an affordable level - this may be at a higher level than the prevailing ferry fares to reflect the journey time advantage but will still need to consider the generally lower than average income in the isles and the specific needs of those with protected characteristics. This is again particularly crucial for Bressay where almost all services are located off-island – a situation where the connectivity barrier reduced but the cost barrier remained the same or increased could widen inequalities faced by island residents

4.4.16 Given the lack of public services on Bressay, there is much less of a risk or opportunity associated with public service evolution due to improved connectivity. Indeed, a process of centralisation has largely happened in Bressay already, with many island residents working in Lerwick and taking their children to school there. The bigger risk here perhaps is the loss of the island's distinctive character as it would inevitably become part of urban Lerwick over time.

Feasibility

4.4.17 The table below considers the **outline feasibility** of each of the options. Additional work will be required at OBC stage to further develop the feasibility of the options.

Table 4:12: Bressay options – outline feasibility

Option	Description	Comment
1	Bre Business as Usual	There are no significant feasibility issues associated with this option.
2	Bre Do Something	There are no significant feasibility issues associated with this option.
3	Bre Ferry Max	The main requirement of this option would be finding the additional crew to scale-up the service, but this is perhaps less of an issue than elsewhere in Shetland given the island's close proximity to Lerwick and the more modest change in service provision.
4	Bressay fixed link	It is feasible to build a fixed link between Bressay and mainland and indeed there is more information available from previous work for

Option	Description	Comment
		this tunnel than there is for the others. However, significant further design and investigation work will be required to understand how this translates into capital cost. The feasibility of securing funding / financing and a contractor remains unknown at this stage. Any fixed link would need to be constructed and operated in such a way that it does not disrupt the operation of Lerwick Harbour.

Affordability

4.4.18 The table below considers the **affordability** of each of the options. It is important to note that, at Programme SOC stage, costs are reported largely qualitatively and will be further developed at OBC stage.

Table 4:13: Bressay options – affordability

Option	Description	Comment
1	Bre Business as Usual	This is effectively the minimum required and thus the lowest cost solution. The revenue measures can be delivered with the currently available crew.
2	Bre Do Something	The cost of this option would not be materially different from the BaU as it could also likely be delivered by the current crew. Marginal costs would be fuel and berthing dues.
3	Bre Ferry Max	This option would require additional crew for through the night manning, which would be the main operational cost increment on the Ferry Do Something. If fares were removed, this would also reduce revenue to zero.
4	Bressay fixed link	There is uncertainty over the cost of a fixed link between Bressay and Lerwick at this stage. This will be worked-up in more detail in the OBC, but it will be significant. There is also uncertainty around funding and financing, although it is likely that funding external to the Council will be required. A tunnel would be a more affordable proposition with tolls.

Public acceptability

4.4.19 The table below considers the **public acceptability** of each of the options:

Table 4:14: Bressay options – public acceptability

Option	Description	Comment
1	Bre Business as Usual	This option would over time modernise the service but would not address some of the connectivity shortfalls raised in the case for change, the inability to catch the first flight from Sumburgh for example.
2	Bre Do Something	This option would by and large address the problems identified in the case for change and would likely be publicly acceptable.
3	Bre Ferry Max	This option would record high levels of public acceptability as it would remove most barriers to travel, particularly cost.
4	Bressay fixed link	The public acceptability of this option in Bressay is uncertain and would need to be tested.

Option	Description	Comment
		Whilst it would undoubtedly improve connectivity, a key issue for Bressay residents is likely to be the level of tolls relative to ferry fares. The approach to meeting the travel needs of those who are non-car available and the impact on the distinctive island nature of Bressay would also be important considerations.

Rationale for selection / rejection

4.4.20 The table below summarises which options have been retained for consideration in the Programme OBC and the rationale for this:

Table 4:15: Bressay options – rationale for selection / rejection

Option	Description	Retain / Reject	Comment
1	Bre Business as Usual	**Retain**	The BaU would meet the majority of the needs of the Bressay community. That said, the marginal cost of scaling-up to the Ferry Do Something would not be particularly significant – this will be a key point of consideration in the OBC.
2	Bre Do Something	**Retain**	Each of these options would incrementally improve the connectivity of Bressay, addressing several of the issues identified in the case for change. They should all therefore be retained for further consideration in the OBC.
3	Bre Ferry Max	**Retain**	
4	Bressay fixed link	**Retain**	

4.5 Foula

Options recap

The table below recaps the options for Foula in a summary format. Full details on the option components can be found in the Option Generation and Development Report:

Table 4:16: Foula options

Option	Description	Components
1	Foula (Fou) Business as Usual	- Replacement MV *New Advance* with a like-for-like vessel at life expiry
2	Fou Do Something	- New Fair Isle class vessel and associated harbour works at Ham and Walls

Appraisal

4.5.1 The table below summarises the performance of the Foula options against the TPOs and STAG criteria:

Table 4:17: Foula Preliminary Options Appraisal

	Fou1: BaU	Fou2: Do Something
Transport Planning Objectives		
TPO1: Resilience	✓	✓
TPO2: Capacity	**O**	✓
TPO3: Limited, fixed times of travel in operating day	**O**	**O**

	Fou1: BaU	Fou2: Do Something
TPO4: Cost	O	O
TPO5: Physical accessibility	O	✓
TPO6: Operating day	O	O
TPO7: Non-car travel options	O	O
STAG criteria		
Environment	O	✗
Climate change	✓	O
Health, safety and wellbeing	O	✓
Economy	O	✓
Equality and accessibility	O	✓

Transport Planning Objectives

4.5.2 It is important to note at the outset that the Foula community is broadly satisfied with its current ferry service. An island-based workboat maximises flexibility to work around weather windows with a salaried island-based crew who are completely invested in the success of the service. Whilst the BaU **(Fou1)** therefore offers little in the way of direct benefits with regards to the TPOs, it would secure the future of the service, which would be of significant benefit to the community.

4.5.3 The Ferry Do Something **(Fou2)** would fulfil largely the same function but would also increase the capacity of the service and potentially improve physical accessibility.

STAG criteria

Environment

4.5.4 The BaU **(Fou1)** would have no impact on this criterion as it would be a like-for-like replacement of the existing vessel. This option includes possible maintenance dredging but this would be required even with the existing vessel.

4.5.5 Ham Harbour is spatially constrained, shallow and prone to siltation. A Fair Isle Class vessel **(Fou2)** is approximately double the length of MV *New Advance* and would require significant harbour works to accommodate her. The scale of these works will be developed at OBC if this option is progressed, but they would potentially be significant – for context, accommodating the new Fair Isle Class vessel at North Haven in Fair Isle is estimated to cost in the region of £16 million (plus risk). In addition, the existing pontoon berth at Walls would be too small to accommodate the larger Fair Isle class vessel and would need to be replaced with a new larger pontoon. This option would therefore record a moderate negative with respect to the Environment criterion.

Climate Change

4.5.6 The replacement of the 1996-built MV *New Advance* with a vessel of a modern design **(Fou1)** would record a minor positive benefit with respect to the Climate Change criterion. It is possible that, by the time renewal is required, alternative low carbon fuels may be available. However, it is important to recognise that the Foula route is one of the most exposed ferry crossings in Scotland and indeed Europe and thus mechanical reliability is paramount.

4.5.7 Deployment of a Fair Isle Class vessel on the route **(Fou2)** would record a disbenefit with respect to this criterion. Her larger dimensions and deadweight would mean that the power required to operate would likely negate any benefit from a more modern vessel. As with **FoU1**,

there is medium-term scope for a Fair Isle Class vessel to be operated using a low or zero carbon fuel, which would negate this disbenefit.

Health, Safety and Wellbeing

4.5.8 As a like-for-like replacement, Option **FoU1** would be neutral with respect to this criterion. Option **FoU2** would deliver a larger vessel with better seakeeping capability than MV *New Advance* and thus would record a minor benefit through reducing operational risks.

4.5.9 As the primary function of the Foula route is to meet the supply-chain needs of the island, there would be no material impacts on health outcomes and access to health infrastructure.

Economy

4.5.10 As was introduced in the Case for Change Report and the Strategic Dimension, the current solution very much works for the Foula community. It offers an island-based crew and jobs, personal investment in the service and the ability to operate sailings flexibly around weather windows. Both options presented seek to maintain this arrangement and thus are unlikely to have fundamental impacts with respect to the Economy criterion.

4.5.11 A Fair Isle Class vessel **(FoU2)** would provide a minor Economy benefit through potentially:

- Reducing journey times, which in turn could allow sailings to be operated in tighter weather windows (so more sailings operated to timetable or overall)
- Reducing the number of at-capacity sailings / short-shipped goods (i.e., goods presented for carriage for which there is insufficient capacity)
- Allowing larger single items to be moved, such as plant, thus providing efficiencies when undertaking activities on Foula

Equality and Accessibility

4.5.12 The Foula service is not fully accessible at present. Whilst not ideal, it was noted in discussions with the community that there is an acceptance of the realities of living in Foula and the challenges of ensuring, for example, step-free access to the ferry. It is likely that the new vessel in both options would provide improved onboard access for persons of reduced mobility, but ship-to-shore access would remain a challenge. There is greater scope for addressing this with **Fou2**, as this option would entail more significant harbour works and thus greater scope for making improvements.

4.5.13 As the air service is the main mode of passenger travel for Foula, neither option would have any other significant impacts on equality and accessibility.

Feasibility

4.5.14 The table below considers the **outline feasibility** of each of the options. Additional work will be required at OBC stage to further develop the feasibility of the options.

Table 4:18: Foula options – outline feasibility

Option	Description	Comment
1	Fou Business as Usual	As a like-for-like replacement, this option is feasible but maintenance dredging will be required to maintain under keel clearance in the channel and harbour
2	Fou Do Something	Whilst likely feasible, the technical solution and costs of accommodating a Fair Isle Class vessel in Foula remain to be established.

Option	Description	Comment
		A key consideration would be how the vessel is removed from water when not in service. It is understood that the davits in Ham Harbour were the largest of their kind when installed but would be too small for a Fair Isle Class vessel. The geometry of the harbour would also make it difficult to deliver a slipway, cradle and rails solution as per Fair Isle. However other forms of boat lift are available and would be further explored at OBC stage should this option be retained. Replacement of the pontoon berth at Walls would need consultation with other harbour users as it could limit berth availability and vessel manoeuvrability.

Affordability

4.5.15 The table below considers the **affordability** of each of the options. It is important to note that, at Programme SOC stage, costs are reported largely qualitatively and will be further developed at OBC stage.

Table 4:19: Foula options – affordability

Option	Description	Comment
1	Fou Business as Usual	This is effectively the minimum required and thus the lowest cost solution. The new vessel for Fair Isle cost circa £5m and thus a like-for-like replacement for MV *New Advance* would likely cost slightly less, estimated at circa £3.5m-£4m.
2	Fou Do Something	Whilst a new Fair Isle Class vessel could be procured for around £5m (2024 prices), this option would likely drive considerable infrastructure spend at Ham together with expenditure at Walls.

Public acceptability

4.5.16 The table below considers the **public acceptability** of each of the options:

Table 4:20: Foula options – public acceptability

Option	Description	Comment
1	Fou Business as Usual	The Foula community is happy with their current model, which works well for them. This option would therefore have a high level of public acceptability.
2	Fou Do Something	The provision of a larger vessel would in itself likely be acceptable to the Foula community, providing it does not lead to any change in the operating model. However, engagement with island residents would be required to understand whether they think this benefit is worth the construction-related disruption, reorientation of the harbour lay out etc.

Rationale for selection / rejection

4.5.17 The table below summarises which options have been retained for consideration in the Programme OBC and the rationale for this. The key point for Foula is the retention of an island-based and crewed vessel, which both options deliver.

Table 4:21: Foula options – rationale for selection / rejection

Option	Description	Retain / Reject	Comment
1	Fou Business as Usual	Retain	This option would retain all of the desirable features of the current Foula service.
2	Fou Do Something	Retain	This option would also retain all of the desirable features of the current service and would increase capacity on the route. However, there is a significant question as to whether it would represent value for money, particularly given that the community is content with the current solution. It may be worth discussing this option further with the community at the outset of the OBC to confirm whether it is worth progressing further.

4.6 Papa Stour

Options recap

The table below recaps the options for Papa Stour in a summary format. Full details on the option components can be found in the Option Generation and Development Report.

Table 4:22: Papa Stour options

Option	Description	Components
1	Papa Stour (PS) Business as Usual	- Replacement of MV *Snolda* with a Type 1 vessel and extend berths to accommodate longer vessel
2	PS Do Something	- BaU plus 6 or 7- day sailings and additional sailings across the week where required

Appraisal

4.6.1 The table below summarises the performance of the Papa Stour options against the TPOs and STAG criteria:

Table 4:23: Papa Stour Preliminary Options Appraisal

	PS1: BaU	PS2: Do Something
Transport Planning Objectives		
TPO1: Resilience	✓	✓
TPO2: Capacity	✓✓	✓✓
TPO3: Limited, fixed times of travel in operating day	O	✓
TPO4: Cost	O	O
TPO5: Physical accessibility	✓	✓
TPO6: Operating day	O	O
TPO7: Non-car travel options	O	O
STAG criteria		
Environment	×	×
Climate change	✓✓	✓
Health, safety and wellbeing	✓	✓✓

	PS1: BaU	PS2: Do Something
Economy	✓	✓✓
Equality and accessibility	✓	✓✓

Transport Planning Objectives

4.6.2 The replacement of MV *Snolda* with a Type 1 vessel would address the resilience risks associated with continuing operation with a vessel that is now over 40-years old. Whilst physical accessibility is less of a problem on the Papa Stour route than on other routes, a modern Type 1 vessel would be fully Equality Act compliant. The key benefit of the new vessel however is that it would lift the 12-passenger capacity threshold in place at present and would also expand vehicle carrying capacity. All of these benefits apply to options **PS1** and **PS2**.

4.6.3 Option **PS2**, the Ferry Do Something, offers the incremental benefit of improving the flexibility of travel through expanding the number of days on which the service operates and potentially its frequency.

STAG criteria

Environment

4.6.4 Both options would entail berth extensions at Papa Stour and West Burrafirth to accommodate adequate moorings beyond the extent of the current berths. There would therefore be very minor environmental impacts associated with both options.

Climate Change

4.6.5 MV *Snolda* is one of the oldest vessels in the Shetland fleet, built in 1983. Her replacement by a new Type 1 vessel built to a modern design would likely record an emissions reduction benefit, particularly if such a vessel is powered by a zero emission fuel or could be retrofitted to do so in the future (the age of MV *Snolda* would make such a retrofitting cost prohibitive).

4.6.6 Option **PS2** records a slightly lower benefit than **PS1** because it entails at least a slight expansion in the number of sailings. The emissions impact of these extra sailings would though be extremely marginal.

Health, Safety and Wellbeing

4.6.7 The provision of a new Type 1 vessel in both options would record a minor safety benefit (or, more accurately, a risk reduction benefits) for two reasons:

- The new vessel would be roll through and thus would reduce the risks associated with motorists reversing onto the ferry
- Any new build vessel would comply with modern regulations with respect to watertight subdivision - the Type 1 vessel would therefore have greater stability in the highly unlikely event of water ingress

4.6.8 There is no health, dentistry or social care provision on Papa Stour, meaning residents must travel to their GP in West Mainland or further afield to Lerwick for hospital appointments etc. Both options perform positively in terms of improving access to healthcare, as they would lift the 12-passenger cap on MV *Snolda*, thus reducing the likelihood of being unable to get a booking when travelling to or from an appointment (recognising that a booking is required on both the outbound and return sailing, of which there is only one option in each direction if a day return is to be made).

4.6.9 Option **PS2** would though be particularly beneficial for access to healthcare. It would increase the number of days in which Papa Stour residents could travel for appointments and also potentially reduce 'dead time' either side of appointments by increasing the frequency of sailings, although this latter benefit would be marginal.

Economy

4.6.10 Engagement with the Papa Stour community highlighted the economic constraints placed on the island by the ferry service. A combination of a low passenger capacity cap and low frequency make travelling to and from the island more difficult and inflate the cost of doing business in the island.

4.6.11 Both options would lift the 12-passenger capacity cap and would also expand vehicle deck capacity, including the ability to carry large vehicles and plant. This would be economically advantageous for Papa Stour, particularly in the summer months when there is a growing number of tourists visiting the island.

4.6.12 Option **PS2** would have the most significant benefits. From a TEE perspective, it would reduce the wait time between ferries – even though the total number of sailings would not increase significantly in absolute terms, any increase in service frequency would help to fill the long gaps between sailings, whilst also introducing sailings on current non-sailing days. This would assist in reducing the cost of doing business on the island and by extension the fees paid by residents for essential services. Indeed, the community provided a recent example of how costs escalated on an island construction project due to the challenges of getting contractors and equipment to and from the island.

Equality and Accessibility

4.6.13 Both options would improve physical accessibility on the vessel. Whilst the passenger lounge on MV *Snolda* is on the same level as the car deck, there are doorway sills which can be a problem for Persons of Reduced Mobility. A new Type 1 vessel built to modern design standards would deliver step free access throughout.

4.6.14 Perhaps the more significant benefit however would be the increase in connectivity delivered by **PS2**. At present the low frequency of the service (layered on top of the limited capacity) is a barrier to travel for Papa Stour residents. For example, a short and routine GP appointment in West Mainland will effectively take up a whole day. Similarly, if a Papa Stour resident is travelling back to the island from e.g., mainland Scotland on a non-sailing day, they will require at least one overnight stay, potentially at considerable expense. In the other direction, a contractor delivering a project on Papa Stour will either need to find overnight accommodation on the island or will have non-productive days (this is a particular issue for mainland Scotland contractors who cannot easily fill non-productive days and thus these costs are passed through). Filling gaps in the timetable and marginally intensifying the frequency would therefore be beneficial from an accessibility perspective and would assist in reducing some of the inequalities faced by island residents.

Feasibility

4.6.15 The table below considers the **outline feasibility** of each of the options. Additional work will be required at OBC stage to further develop their feasibility.

Table 4:24: Papa Stour options – outline feasibility

Option	Description	Comment
1	PS Business as Usual	There are no feasibility issues with this option – whilst a Type 1 would entail the introduction of a larger vessel, both in terms of dimensions and capacity, it is the closest to a like-for-like solution within the vessel typology developed.

Option	Description	Comment
2	PS Do Something	The Revenue OBC undertaken in 2019 noted that scaling up the Papa Stour service to operate two return sailings daily, seven-days a week would require scaling-up from a single crew to 2.5 crews.

Affordability

4.6.16 The table below considers the **affordability** of each of the options. It is important to note that, at Programme SOC stage, costs are reported largely qualitatively and will be further developed at OBC stage.

Table 4:25: Papa Stour options – affordability

Option	Description	Comment
1	PS Business as Usual	This is effectively the minimum required and thus the lowest cost solution.
2	PS Do Something	The increment of the Ferry Do Something over the BaU is related to the number of sailing days and frequency on days where the ferry service is currently operated. The marginal cost of this option is therefore the additional crew, fuel etc required to operate the sailings. It was estimated in the 2019 Revenue OBC that scaling up the Papa Stour service to operate two return crossings seven days per week would cost an additional £165k per annum (2019 prices).

Public acceptability

4.6.17 The table below considers the **public acceptability** of each of the options:

Table 4:26: Papa Stour options – public acceptability

Option	Description	Comment
1	PS Business as Usual	Both options are likely to have high levels of public acceptability, although evidently the community would be more well-disposed to PS2 given that it addresses the connectivity problems identified.
2	PS Do Something	

Rationale for selection / rejection

4.6.18 The table below summarises which options have been retained for consideration in the Programme OBC and the rationale for this:

Table 4:27: Papa Stour options – rationale for selection / rejection

Option	Description	Retain / Reject	Comment
1	PS Business as Usual	**Retain**	The BaU would address several of the identified problems on the Papa Stour route, most notably the age of the vessel and its passenger capacity limit.
2	PS Do Something	**Retain**	This option would deliver the BaU benefits and also fill several of the identified connectivity gaps, most notably the absence of seven-day sailings.

4.7 Skerries

Options recap

The table below recaps the options for Skerries in a summary format. Full details on the option components can be found in the Option Generation and Development Report.

Table 4:28: Skerries options

Option	Description	Components
1	Skerries (Ske) Business as Usual	- Replacement of MV *Filla* with a Type 1 vessel - Replacement of existing finger pier at Skerries
2	Ske Do Something	- BaU plus introduction of a Wednesday sailing day - Coastal defence measures to protect the road to the ferry terminal

Appraisal

4.7.1 The table below summarises the performance of the Skerries options against the TPOs and STAG criteria:

Table 4:29: Skerries Preliminary Options Appraisal

	Ske1: BaU	Ske2: Do Something
Transport Planning Objectives		
TPO1: Resilience	✓	✓✓
TPO2: Capacity	O	O
TPO3: Limited, fixed times of travel in operating day	O	✓
TPO4: Cost	O	O
TPO5: Physical accessibility	O	O
TPO6: Operating day	O	O
TPO7: Non-car travel options	O	O
STAG criteria		
Environment	×	×
Climate change	✓✓	✓✓
Health, safety and wellbeing	✓	✓✓
Economy	✓	✓✓
Equality and accessibility	O	✓

Transport Planning Objectives

4.7.2 Resilience is not, at present, a particular challenge on the Skerries route – MV *Filla* is still one of the newer vessels in the fleet (although still over 20-years old) and the infrastructure does what is required of it. However, the finger pier at Skerries is in a poor condition and the vessel is beginning to age, both of which present resilience risks. Options **Ske1** and **Ske2** would therefore be positive actions to reduce this risk.

4.7.3 Option **Ske2** records an additional benefit with regards to resilience, reducing the risk of the ferry access road becoming unusable as a consequence of coastal erosion / flooding.

4.7.4 The introduction of an additional sailing on a Wednesday would be a further positive of **Ske2**, providing Skerries with a seven-day timetable, removing the costs and other impacts of having a non-sailing day.

STAG criteria

Environment

4.7.5 Neither of the options entail any significant infrastructure works beyond replacement of existing assets on a like-for-like basis. However, there is a requirement to replace the finger pier with both options, so a minor negative is recorded with respect to the Environment criterion.

Climate Change

4.7.6 Whilst MV *Filla* is one of the newer vessels in the fleet, she is very fuel intensive (she consumes 225 litres per hour (lph) relative to 204 lph for MV *Dagalien*, the largest vessel in the Shetland fleet) and thus is 'emission heavy' relative to her size. Her replacement with a Type 1 vessel in both options would therefore be positive with respect to this criterion.

4.7.7 Whilst **Option Ske2** would increase the number of sailings, it is likely that overall emissions would reduce with a new and more fuel-efficient vessel.

4.7.8 **Option Ske2** would also record a benefit with regards to adapting to the effects of climate change. The access road to the ferry terminal is becoming increasingly threatened by coastal erosion and this option entails coastal defence measures to protect the road. Without these works, there is a long-term possibility that several households on Skerries could be cut off from the ferry terminal.

Health, Safety and Wellbeing

4.7.9 The provision of a new Type 1 vessel in both options would record a minor safety benefit (or, more accurately, a risk reduction benefit) as it would be roll through. This would reduce the risks associated with motorists reversing onto the ferry.

4.7.10 Whilst there is a health care assistant in Skerries, health provision is otherwise limited and there is no dentistry or social care provision on island, meaning residents must travel to access these services. Most of the health needs of the island will be delivered in Lerwick, although it is understood that at least some Skerries residents are registered with the Whalsay dental practice. Regardless, Option **Ske2** will record a benefit in terms of access to healthcare by scaling-up to a seven-day timetable.

Economy

4.7.11 Engagement with the Skerries community highlighted several of the economic challenges facing the island, most notably its limited on-island services and the potential forthcoming closure of the two shops on the island. This makes connections to mainland Shetland critically important from the perspective of both the island's residents and supply-chain. The new vessel which would be delivered under both options would be advantageous given it would increase vehicle capacity.

4.7.12 However, it is again option **Ske2** that would have the most material benefit, as it would deliver seven-day services. This would support increased resident travel, improve the functioning of the supply-chain and make it easier and potentially lower cost to deliver services to Skerries (particularly if the Tuesday service is cancelled as those travelling to or from the island would not need to wait until Thursday for the next connection).

4.7.13 The enhanced coastal protection for the ferry terminal access road delivered under **Ske2** would safeguard / support the resilience of the Skerries economy. If this road became unusable at some point in the future, it would be highly detrimental to Skerries.

Equality and Accessibility

4.7.14 Option **Ske1** would be neutral from an Equality and Accessibility perspective as MV *Filla* is an accessible vessel and this option would involve her broadly like-for-like replacement.

4.7.15 There would be a minor benefit associated with **Ske2**, as it would fill the remaining non-sailing day in the Skerries timetable, improving access to services on mainland Shetland.

Feasibility

4.7.16 The table below considers the **outline feasibility** of each of the options. Additional work will be required at OBC stage to further develop their feasibility.

Table 4:30: Skerries options – outline feasibility

Option	Description	Comment
1	Ske Business as Usual	There are no feasibility issues with this option, it is by-and-large a like-for-like replacement of the current vessel and finger pier.
2	Ske Do Something	Analysis of weekly crewing hours suggests that an additional return sailing day on a Wednesday could be accommodated within the maximum permitted weekly hours. However, there is a question as to whether the additional hours could be delivered within the crew's contracted hours or whether overtime or additional crew would be required. This will be worked though in more detail with the Council if this option is progressed to OBC.

Affordability

4.7.17 The table below considers the **affordability** of each of the options. It is important to note that, at Programme SOC stage, costs are reported largely qualitatively and will be further developed at OBC stage.

Table 4:31: Skerries options – affordability

Option	Description	Comment
1	Ske Business as Usual	This is effectively the minimum required and thus the lowest cost solution.
2	Ske Do Something	The increment of the Ferry Do Something over the BaU is related to the additional sailing day on a Wednesday. The marginal cost of this option is therefore the additional crew costs, fuel etc required to operate the sailings. There would also be an additional capital cost associated with coastal defence works for the ferry terminal access road. This is though likely to be essential maintenance in any case.

Public acceptability

4.7.18 The table below considers the **public acceptability** of each of the options:

Table 4:32: Skerries options – public acceptability

Option	Description	Comment
1	Ske Business as Usual	Both options are likely to have high levels of public acceptability, although it is likely that the community will be more well-disposed to **Ske2** given that it addresses the connectivity issues associated with having a non-sailing day.
2	Ske Do Something	

Rationale for selection / rejection

4.7.19 The table below summarises which options have been retained for consideration in the Programme OBC and the rationale for this:

Table 4:33: Skerries options – rationale for selection / rejection

Option	Description	Retain / Reject	Comment
1	Ske Business as Usual	**Retain**	The BaU would ensure a minimum of like-for-like provision on the Skerries route when MV *Filla* reaches the point of life expiry.
2	Ske Do Something	**Retain**	This option would deliver the BaU benefits and also fill the connectivity gap created by having a non-sailing day. The community specifically identified concerns around the threat of coastal erosion to the ferry terminal access road, which this option would address.

4.8 Whalsay

Options recap

The table below recaps the options for Whalsay in a summary format. Full details on the option components can be found in the Option Generation and Development Report.

Table 4:34: Whalsay Options

Option	Description	Main Components
1	Whalsay (Wha) Business as Usual	- 1 * Type 1 vessel in the immediate-term to replace MV *Hendra*, and MV *Linga* replaced at life expiry - Addressing of route resilience and refit issues
2	Wha Do Something	- 2 * Type 2 45m length overall double-ended vessels - Redevelopment of Pelagic Basin in Symbister and required works at Laxo and Vidlin - Revenue measures to standardise the weekday service and provide an enhanced Sunday service - Reduced ferry fares
3	Wha Ferry Max	- 3 * Type 2 45m length overall double-ended vessels - Development of North Voe as the Whalsay ferry terminal plus required works at Laxo and Vidlin - Increase service frequency to half-hourly, with two vessels operating on a shift basis and one on a day basis - 24-hour sailings (on-request overnight) - Free ferry travel for island Whalsay residents
4	Whalsay fixed link	- Tunnel connecting Whalsay and mainland Shetland - It is assumed that the tunnel is tolled for the purposes of this Preliminary Appraisal

Appraisal

4.8.1 The table below summarises the performance of the Whalsay options against the TPOs and STAG criteria. It should be noted that the appraisal takes cognisance of the Whalsay OBC prepared in 2022, although the impacts are subtly different because the IITCP includes a wider range of revenue measures. The definitions of the STAG criteria have also changed slightly since the completion of the 2022 OBC.

Table 4:35: Whalsay Preliminary Options Appraisal

	Wha1: BaU	Wha2: Do Something	Wha3: Do Max	Wha4: Fixed link
Transport Planning Objectives				
TPO1: Resilience	✓	✓✓	✓✓	✓✓✓
TPO2: Capacity	✓	✓	✓✓	✓✓✓
TPO3: Limited, fixed times of travel in operating day	O	✓	✓✓	✓✓✓
TPO4: Cost	O	✓	✓✓✓	✓✓
TPO5: Physical accessibility	✓	✓✓	✓✓	✓✓✓
TPO6: Operating day	O	O	✓✓	✓✓✓
TPO7: Non-car travel options	O	✓	✓✓	✓✓✓
STAG criteria				
Environment	O	x	xx	xxx
Climate change	✓	x	xx	xx
Health, safety and wellbeing	✓	✓	✓	✓✓
Economy	✓	✓	✓✓	✓✓✓
Equality and accessibility	✓	✓	✓✓	✓✓

Transport Planning Objectives

4.8.2 The key points of note in relation to the appraisal against the TPOs are as follows:

- The nature of the option packages for Whalsay means that each increment will deliver progressively larger benefits with respect to the TPOs. This ultimately culminates in a fixed link, which would remove almost all of the identified barriers to travel
- The BAU **(Wha1)** contributes little to the TPOs beyond addressing the physical accessibility issues associated with MV *Hendra*. There would be a minor benefit associated with replacing a 1982-built vessel with modern tonnage, as well as a very small increase in overall route capacity
- The introduction of a third vessel with option **Wha3** would in itself provide some resilience **(TPO1)** on the route, ensuring that at least a two-vessel service could be operated at all times
- The impact on **TPO4** (cost to the user) remains to be established and would depend on the balance between ferry fares and tunnel tolls. It is assumed for this preliminary appraisal that a tunnel would be tolled and thus would be higher cost than the Ferry Do Max **(Wha3)**, where free fares are assumed in principle for residents. However, there is also a scenario where a tunnel could be operated without tolls and thus would be cost equivalent to the Ferry Do Max in this respect. This detail will be worked through at OBC stage.

STAG criteria

Environment

4.8.3 **Wha1**, the business-as-usual, would be neutral with respect to this criterion as it would not involve any significant harbour works beyond minor amendments to Symbister, Laxo and Vidlin to accommodate the new vessel.

4.8.4 **Wha2** would involve significant marine infrastructure works in Symbister (and more modest works at Laxo and Vidlin) and thus would record minor negative impacts in terms of noise and vibration, local air quality, water quality and biodiversity and habitats. However, Symbister is a working industrial harbour (and is defined as such in the Shetland Local Development Plan) and thus it is unlikely that such a development would be unconsentable. Moreover, the environmental impacts would be relatively short-term, predominantly associated with the construction period only.

4.8.5 In contrast, the environmental impacts associated with developing a new ferry terminal at North Voe **(Wha3)** are more significant, recording an overall moderate negative. In addition to the short-term construction impacts, there would be negative landscape and visual amenity impacts associated with the development of a new harbour at a currently undeveloped site, and one which is adjacent to residential frontages – indeed, developing North Voe may require an EIA. This option would also entail significant redevelopment of Laxo and Vidlin, which would also be environmentally impactful and would require consents.

4.8.6 A fixed link to Whalsay **(Wha4)** would evidently have a range of environmental considerations, for example the impacts on geology and soils, noise and vibration etc. This would particularly be the case during construction, as this would be a major project in this geographic context. Nonetheless, disposal of tunnel spoil would be a significant environmental consideration, even if a purpose could be founded for it. A fixed link would undoubtedly be subject to full EIA through which environmental protections, mitigations and enhancements would be developed. One key point of note here is that, as the fixed link would take the form of a tunnel, its physical environmental impacts would be limited, for example on the landscape, historic environment and water quality, drainage and flooding.

Climate Change

4.8.7 As noted with regards to Bluemull Sound, the STAG Climate Change criterion will be one of the major differentiators between the options as the business case develops. Any fixed link to Whalsay would be relatively long and would have significant embodied carbon, but the Ferry Do Max (and to a lesser degree the Ferry Do Something) would also entail major infrastructure works with associated embodied carbon.

4.8.8 **Wha1**, the business-as-usual option, would record a minor positive benefit against this criterion as it would replace the ageing MV *Hendra* and, in the fullness of time, MV *Linga* with new vessels built to modern and more efficient design standards. It is worth noting though that, by partially alleviating the capacity pressures at peak times, this option could induce demand and marginally increase vehicle kilometres.

4.8.9 The same can be said of **Wha2** but the benefit could be expected to be slightly smaller due to the increase in sailings associated with the revenue measures and additional vehicle kilometres generated by the larger vessels (i.e., through addressing capacity constraints). Whilst the absolute increase would be small, there is evidence from the resident survey and operator data that some journeys are not being made due to capacity issues. This option would also incorporate embodied carbon associated with the redevelopment of the Pelagic Basin in Symbister Harbour – any such effect would likely be relatively small however.

4.8.10 The Ferry Do Max option **(Wha3)** could be expected to increase greenhouse gas emissions, potentially substantially, for four reasons:

- There would be significant embodied carbon associated with developing a new harbour at North Voe, added to which would be the requirement for major works at Laxo and Vidlin
- It would entail the introduction of a third vessel on the Whalsay run, with associated embodied carbon in the vessel build and operational emissions until the point that the ferry fleet is decarbonised
- It would increase the sailing frequency over and above the Ferry Do Something
- Such a scale-up in capacity and frequency could also be expected to generate additional vehicle kilometres

4.8.11 In addition to the embodied carbon in a fixed link, the provision of a tunnel to Whalsay **(Wha4)** would effectively remove any constraint to vehicle-based travel to and from the island (outwith the ability to pay any tolls). As there are relatively few services on Whalsay and a high propensity to travel, this option could therefore be expected to increase emissions until the point at which the vehicle fleet becomes zero emission.

Health, Safety and Wellbeing

4.8.12 A key consideration for this route is safety, or more accurately minimising navigational risk. The 2022 Whalsay OBC set out at length the spatial constraints within Symbister Harbour and the strong cross-current across the harbour entrance, which can be challenging for vessels to navigate. Option **Wha1** would perpetuate the current arrangements and would thus be neutral in this respect, whereas **Wha2** would remove the long-narrow approach channel within the harbour and the challenging turn onto the current ferry berth, whilst the deployment of a double-ended vessel would improve manoeuvrability.

4.8.13 The development of a new ferry terminal at North Voe (part of Option **Wha3**) would deal with all of the current issues with the current berth in Symbister. However, whilst this would segregate the ferries from all other harbour users, the ability to navigate past the fish farm and through the overlapping breakwaters would need to be established and thus this option scores no better than the others. A fixed link **(Wha4)** would remove ferry services from Symbister Harbour altogether, easing the congestion and navigation issues within the harbour.

4.8.14 From a societal perspective, the main differentiator between the options with respect to this criterion is ‘access to health and wellbeing infrastructure’, which in turn impacts on ‘health outcomes’. There is evidence from the resident survey and wider engagement that the current service on Whalsay is restricting travel, including to health appointments and sports / leisure opportunities. Each option increment would gradually improve this position, with a fixed link **(Wha4)** removing the barrier entirely assuming a bus connection for those who are non-car available.

4.8.15 Each increment in service would likely lead to additional vehicle kilometres, which in turn statistically increases the chance of an accident. However, even with a fixed link, volumes will remain relatively small overall. Moreover, the withdrawal of ferry services would eliminate the small risks associated with seaborne travel and the specific navigational risks in and around Symbister cited above.

4.8.16 A key safety benefit associated with a fixed link **(Wha4)** would be improved access to Whalsay for the emergency services in the event that there is an incident that could not be managed on-island. Whilst the ferry will be operated in the event of an emergency, the time required to mobilise the crew, start-up the vessel and make the 30-minute crossing (and 60 minutes if bringing services to Whalsay) means that response times are relatively slow (although the Air Ambulance is available in medical emergencies).

Economy

4.8.17 From a TEE perspective, each increment in ferry service provision would generate benefits associated with reduced wait times and fewer capacity constrained sailings / frustrated

demand. The Ferry Do Max **(Wha3)** would evidently record the most significant benefit in this respect as it would provide a 24-hour high frequency service with plentiful capacity, akin to that which Western Ferries offers in the Firth of Clyde.

4.8.18 The provision of a fixed link **(Wha4)** would clearly generate the largest overall benefit as it would significantly reduce wait and journey times, permit twenty-four hour access and improve reliability and resilience. The key question therefore is the extent to which the incremental benefit of each option compares to the incremental cost, which will be a primary focus of the OBC.

4.8.19 The Wider Economic Impacts (WEI) are more nuanced in the context of Whalsay. Unlike Bressay which is proximate to Lerwick and Unst and Yell which have comparatively large industrial bases, there is little economic activity on Whalsay itself. The benefit therefore is likely to be focused more on allowing residents to readily access mainland Shetland. The following points should be noted:

- Option **Wha1**, the business-as-usual, would broadly represent a continuation of the current day position. It was highlighted in the Case for Change Report however that there are vehicle deck capacity shortages on the Whalsay route at peak times. This option may therefore represent a declining position over time. However, the 2022 Whalsay OBC highlighted the opportunity to smooth these peaks through increasing travel choices and this approach remains appropriate given the scale of infrastructure increase associated with the Ferry Do Something **(Wha2)** and Ferry Do Max **(Wha3)**
- Each subsequent iteration in service would generate a higher level of benefits, and again the question would be the balance between that benefit and the corresponding increment in cost
- A Whalsay fixed link **(Wha4)** would offer the most significant connectivity benefit and therefore the largest WEI. It is though important to recognise that the structure of Whalsay's economy means that most travel will likely be outbound and the potential impacts on on-island services would need to be considered

Equality and Accessibility

4.8.20 All of the options would make a positive contribution to this criterion through either: (i) the short-term replacement of MV *Hendra* with a modern vessel with Equality Act compliant access (i.e., the ferry options); or (ii) a fixed link.

4.8.21 Each increment in service provision would again promote improved equality and accessibility for residents of Whalsay. Once again, a fixed link **(Wha4)** would offer the most significant benefits providing:

- There is suitable public transport provision for those who are non-car available – for there to be no loss of accessibility, bus services through the tunnel would need to be at least as frequent as the current ferry services, on which island residents can travel as a foot passenger
- Provision is either made in any tunnel design to accommodate pedestrians and cyclists and / or bicycles can be taken on the bus, albeit this is perhaps a lesser consideration for this route given the distance of the Laxo / Vidlin area from any reasonably sized settlement
- The level of tolls is set at an affordable level – this may be at a higher level than the prevailing ferry fares to reflect the journey time advantage but will still need to reflect the specific needs of those with protected characteristics

4.8.22 As was noted with respect to Unst, in the medium to long-term, it does have to be recognised that an equality and accessibility risk associated with potential public service reform in the context of the Ferry Do Max or a fixed link.

Feasibility

4.8.23 The table below considers the **outline feasibility** of each of the options. Additional work will be required at OBC stage to further develop the feasibility of the options. It should however be noted that the capital elements of the ferry options **(Wha1-Wha3)** were developed in some detail in the 2022 OBC, and thus the Whalsay options are much more progressed than for the other islands.

Table 4:36: Whalsay options – outline feasibility

Option	Description	Comment
1	Wha Business as Usual	There are no feasibility issues with this option, it is by-and-large a like-for-like replacement of the current vessels and returning the service to its timetabled operation. It would have no significant impact on existing infrastructure.
2	Wha Do Something	The Whalsay OBC demonstrated that it would be possible to redevelop the Pelagic Basin in Symbister Harbour. Additional crew would likely be required for any scaling up of the service.
3	Wha Ferry Max	The development of North Voe is feasible but could have consentability issues. Similarly, redeveloping Laxo and Vidlin is possible but would be a significant exercise. As with the Ferry Do Something, additional crew would be required to scale-up to a 24-hour service over three vessels.
4	Whalsay fixed link	It is feasible to build a fixed link between Whalsay and mainland, but further design and investigation work will be required to understand how this translates into capital cost. The feasibility of securing funding / financing and a contractor remains unknown at this stage.

Affordability

4.8.24 The table below considers the **affordability** of each of the options. It is important to note that, at Programme SOC stage, costs are reported largely qualitatively and will be further developed at OBC stage. That said, unlike the other in-scope islands, capital costs for the ferry options were worked-up in a significant level of detail in the 2022 Whalsay OBC, albeit these are high-level and are somewhat dated, having been prepared prior to the surge in inflation in late 2022 and throughout 2023.

Table 4:37: Whalsay options – affordability

Option	Description	Comment
1	Wha Business as Usual	This is effectively the minimum required and thus the lowest cost solution. The non-risk adjusted capital cost was reported in the Whalsay OBC as £18.8m in 2021 prices.
2	Wha Do Something	This option would entail a significant incremental cost on the BaU. The non-risk adjusted capital cost was reported in the Whalsay OBC as £56.9m in 2021 prices. Revenue costs would be additional to this.
3	Wha Ferry Max	This option would be similarly expensive - the non-risk adjusted capital cost was reported in the Whalsay OBC as £52.8m in 2021 prices, although this was for one fewer Whalsay vessel and thus more infrastructure would be required with this option. Revenue costs would be additional to this and more significant with an

Option	Description	Comment
		additional vessel and 24-hour running. The removal of fares would also reduce revenue to zero.
4	Whalsay fixed link	There is uncertainty over the cost of a fixed link between Whalsay and the mainland. This will be worked-up in more detail in the OBC, but it will be significant. A tunnel would be a more affordable proposition with tolls. There is also uncertainty around funding and financing, although it is likely that funding external to the Council will be required.

Public acceptability

4.8.25 The table below considers the **public acceptability** of each of the options. Whilst public opinion on the options has not been objectively tested as part of this process, we have reported below some of the feedback from the 2022 Whalsay OBC options consultation. It should however be noted that these responses reflected a specific set of questions related to the options and **will need to be revisited in detail through the IITCP**,

Table 4:38: Whalsay options – public acceptability

Option	Description	Comment
1	Wha Business as Usual	The replacement of MV *Hendra* would likely be a welcome first step for the Whalsay community. However, whilst 49 respondents to the 2022 OBC survey favoured a phased approach (i.e., replacement of MV *Hendra* and options to improve travel choices), 43 wanted to progress immediately to what has been badged in this study as **Wha2** Ferry Do Something and 37 to **Wha4**, a fixed link.
2	Wha Do Something	The revenue components of this option would undoubtedly be viewed positively. However, in the 2022 Whalsay OBC, there was a 3-to-1 verdict in favour of developing North Voe rather than redeveloping the Pelagic Basin.
3	Wha Ferry Max	The revenue components of this option would undoubtedly be viewed very positively, providing a major ramp-up in frequency and capacity. As noted above, the Whalsay OBC recorded a preference for redeveloping North Voe rather than the Pelagic Basin in Symbister Harbour.
4	Whalsay fixed link	In the Whalsay OBC, respondents were asked: “In principle, in the longer-term, would your preference be for an improved ferry service or a fixed link?”. Of the 169 respondents, 99 respondents supported an improved ferry service, 77 respondents supported a fixed link and three respondents had no preference. The views of the Whalsay community are therefore clearly finely balanced and must be explored in more detail through this study, and from a more informed position towards the completion of the Programme OBC.

Rationale for selection / rejection

4.8.26 The table below summarises which options have been retained for consideration in the Programme OBC and the rationale for this:

Table 4:39: Whalsay options – rationale for selection / rejection

Option	Description	Retain / Reject	Comment
1	Wha Business as Usual	**Retain**	Whilst the BaU will clearly not resolve all of the problems associated with the ferry service in Whalsay, incrementing to a solution beyond this would come at a considerable cost and could take several years to deliver. Replacing MV *Hendra* in the short-term is however a necessity. The proposed Type 1 vessel could be cascaded to several other routes in the event that a larger scale ferry solution or fixed link was latterly progressed.
2	Wha Do Something	**Retain**	This option is retained as it was the preferred capital option identified in the 2022 Whalsay OBC and includes revenue measures to improve the service. However, the question of redeveloping the Pelagic Basin in Symbister versus developing an entirely new terminal at North Voe merits further investigation with the community.
3	Wha Ferry Max	**Retain**	This option would significantly improve the ferry service but the realism of delivering it and its value for money relative to a fixed link must be tested at OBC.
4	Whalsay fixed link	**Retain**	A fixed link could be transformative for Whalsay and merits further consideration at OBC.

4.9 Yell

Options recap

The table below recaps the options for Yell in a summary format. Full details on the option components can be found in the Option Generation and Development Report.

Table 4:40: Yell Options

Option	Description	Main Components
1	Yell Business as Usual	- 2 * Type 3 vessels at life expiry of MV *Daggri* and MV *Dagalien* - Addressing of route resilience and refit issues
2	Yell Do Something	- 2 * Type 3 vessels at life expiry of MV *Daggri* and MV *Dagalien* - Revenue measures to standardise the weekday service, provide an enhanced weekend service and extend the operating day - Reduced ferry fares
3	Yell Ferry Max	- 3 * Type 3 vessels - Increase service frequency to 20-minutes, with two vessels operating on a shift basis and one on a day basis - 24-hour sailings (on-request overnight) - Free ferry travel for Yell, Fetlar and Unst residents
4	Yell fixed link	- Tunnel connecting Yell and mainland Shetland - It is assumed that the tunnel is tolled for the purposes of this Preliminary Appraisal

Appraisal

4.9.1 The table below summarises the performance of the Yell options against the TPOs and STAG criteria:

Table 4:41: Yell Preliminary Options Appraisal

	Yell1: BaU	Yell2: Do Something	Yell3: Do Max	Yell4: Fixed link
Transport Planning Objectives				
TPO1: Resilience	✓	✓	✓✓	✓✓✓
TPO2: Capacity	O	✓	✓✓	✓✓✓
TPO3: Limited, fixed times of travel in operating day	O	✓✓	✓✓	✓✓✓
TPO4: Cost	O	✓	✓✓✓	✓✓
TPO5: Physical accessibility	O	O	O	✓✓✓
TPO6: Length of operating day	O	✓	✓✓	✓✓✓
TPO7: Non-car travel options	O	✓	✓✓	✓✓✓
STAG criteria				
Environment	O	O	×	×××
Climate change	✓	×	××	××
Health, safety and wellbeing	✓	✓	✓	✓✓
Economy	✓	✓	✓✓	✓✓✓
Equality and accessibility	✓	✓	✓✓	✓✓

Transport Planning Objectives

4.9.2 The key points of note in relation to appraisal against the TPOs are as follows:

- The nature of the option packages for Yell Sound means that each increment will deliver progressively larger benefits with respect to the TPOs. This ultimately culminates in a fixed link, which would remove almost all of the identified barriers to travel. It is also important to note that any improvement in connectivity across Yell Sound would also benefit residents of Unst and Fetlar
- The sole benefit of the BaU **(Yell1)** would be to address the reduction of the service to a single vessel during refit, the primary resilience issue on the route. As the vessels would otherwise be broadly like-for-like there are no other significant benefits of note
- The key incremental benefit of the Ferry Do Something **(Yell2)** would be to increase the flexibility of travel **(TPO3)** by introducing a two-vessel weekend service and an early departure from Ulsta, allowing Yell residents to catch the first flights from Sumburgh and undertake shift work on mainland Shetland
- The impact on **TPO4** (cost to the user) remains to be established and would depend on the balance between ferry fares and tunnel tolls. It is assumed for this preliminary appraisal that a tunnel would be tolled and thus would be higher cost than the Ferry Do Max **(Yell3)**, where free fares are assumed in principle for residents. However, there is also a scenario where a tunnel could be operated without tolls and thus would be cost equivalent to the Ferry Do Max in this respect. This detail will be worked through at OBC stage

STAG criteria

Environment

4.9.3 Both the BaU **(YeII1)** and Ferry Do Something **(YeII2)** would be neutral with respect to this criterion as it would not involve any significant harbour works beyond minor amendments to Toft and Ulsta to accommodate the new vessels.

4.9.4 Option **YeII3** would require an additional linkspan berth and layby berth to accommodate a three-vessel solution. A minor negative has been recorded in the appraisal but the spatial requirements will be considered in more detail in the OBC.

4.9.5 A fixed link to Yell **(YeII4)** would evidently have a range of environmental considerations, for example the impacts on geology and soils, noise and vibration etc. This would particularly be the case during construction, as this would be a major project in this geographic context. Nonetheless, disposal of tunnel spoil would be a significant environmental consideration, even if a purpose could be found for it. A fixed link would undoubtedly be subject to full EIA through which environmental protections, mitigations and enhancements would be developed. One key point of note here is that, as the fixed link would take the form of a tunnel, its physical environmental impacts would be limited, for example on the landscape, historic environment and water quality, drainage and flooding.

Climate Change

4.9.6 As noted with regards to other candidate fixed link islands, the STAG Climate Change criterion will be one of the major differentiators between the options as the business case develops. Any fixed link to Yell would be relatively long and would have significant embodied carbon. Unlike some of the other routes, Whalsay for example, the Ferry Do Max would not entail such significant infrastructure works, with most of the emissions associated with the operation of the service.

4.9.7 **YeII1**, the business-as-usual, would record a minor positive benefit against this criterion as it would introduce new vessels built to modern and more efficient design standards. That said, the Yell Sound vessels are amongst the newer ferries in the fleet (albeit they are still 20-years old) and thus the relative magnitude of this benefit would perhaps be less than on Bluemull Sound or Whalsay for example.

4.9.8 Option **YeII2** would offer the same benefit as the BaU but this would be at least partially offset by scaling up the service, particularly at the weekend. This effect would be even more significant in **YeII3**, with the introduction of a third vessel and the operation of a much more intensive service. There is also evidence from the case for change that the Yell Sound route experiences capacity pressures in certain periods, most notably Saturdays. **YeII2** and **YeII3** would progressively address these capacity problems and thereby potentially generate additional vehicle kilometres.

4.9.9 In addition to the embodied carbon in a fixed link, the provision of a tunnel to Yell **(YeII4)** would effectively remove any constraint to vehicle-based travel to and from the island (outwith the ability to pay any tolls). This option could therefore be expected to increase emissions until the point at which the vehicle fleet becomes zero emission.

Health, Safety and Wellbeing

4.9.10 From a societal perspective, the main differentiator between the options with respect to this criterion is ‘access to health and wellbeing infrastructure’, which in turn impacts on ‘health outcomes’. Yell has reasonably good on-island health provision, including a GP, dentist and care home, whilst the high frequency and capacity of the ferry services does generally allow for access to healthcare in Lerwick. However, there is evidence that vehicle deck capacity can on occasions act as a barrier to travel or make journeys less convenient, so each option

increment would gradually improve this position, with a fixed link **(Yell4)** removing the barrier entirely assuming a bus connection for those who are non-car available.

4.9.11 Each increment in service would likely lead to additional vehicle kilometres, which in turn statistically increases the chance of an accident. However, even with a fixed link, volumes will remain relatively small overall. Moreover, the withdrawal of ferry services would eliminate the small risks associated with seaborne travel.

4.9.12 A key safety benefit associated with a fixed link **(Yell4)** would be improved access to Yell for the emergency services in the event that there is an incident that could not be managed on-island. Whilst the ferry will be operated in the event of an emergency and is partially manned through the night, response times would still be quicker with a fixed link in the event of an emergency.

Economy

4.9.13 From a TEE perspective, each increment in ferry service provision would generate benefits associated with reduced wait times and fewer capacity constrained sailings / frustrated demand. The Ferry Do Something **(Yell3)** would evidently record the most significant benefit in this respect as it would provide a 24-hour high frequency service with plentiful capacity, akin to that which Western Ferries offers in the Firth of Clyde.

4.9.14 The provision of a fixed link **(Yell4)** would clearly generate the largest overall benefit as it would significantly reduce wait and journey times, permit twenty-four-hour access and improve reliability and resilience. The key question therefore is the extent to which the incremental benefit of each option compares to the incremental cost, which will be a primary focus of the OBC.

4.9.15 The Wider Economic Impacts (WEI) of improved ferry services or a fixed link are, in absolute terms, likely to be larger in Yell than in any of the other islands. Yell has a comparatively large industrial base, with a significant seafood sector and emerging renewable energy opportunities. There is therefore a strong commercial element to travel on Yell Sound that is less prevalent elsewhere in Shetland. Moreover, improvements to connectivity across Yell Sound will support Fetlar and Unst, and in particular the latter with its emerging Spaceport and established seafood industry.

4.9.16 Whilst businesses across all sectors are accustomed to working around the challenges of delivering projects in island locations, it is a truism that the requirement to work around timed connections with fixed capacities makes their activities more challenging. This is particularly the case for the various component parts of the seafood sector, where products are highly perishable and thus extremely time sensitive.

4.9.17 Businesses in Yell also highlighted the increasingly prominent challenges around attracting and retaining labour. Whilst this is a Shetland-wide issue, the limited on-island labour supply on Yell makes this a particular issue and thus good connectivity to and from mainland Shetland is essential. Whilst Yell's industrial base is well established, the key sectors such as aquaculture are potentially mobile and thus it is essential that the transport network supports rather than inhibits these industries.

4.9.18 Option **Yell1**, the business-as-usual, would broadly represent a continuation of the current day position. It was highlighted in the Case for Change Report that there are vehicle deck capacity shortages on the Yell route at certain times, particularly Saturdays. This option may therefore represent a declining position over time if current problems are not addressed.

4.9.19 Each subsequent iteration in service would generate a higher level of benefits, and again the question would be the balance between that benefit and the corresponding increment in cost. A Yell fixed link **(Yell4)** would offer the most significant connectivity benefit and therefore the largest WEI.

Equality and Accessibility

4.9.20 MV *Dagalien* and MV *Daggri* are both accessible vessels and thus, unlike several of the other islands, there would be no immediate accessibility gain when these vessels are replaced. That said, lifts on vessels are maintenance intensive and, when broken down, can present an accessibility barrier. The ideal position is to have access to the passenger lounge on the level from the car deck.

4.9.21 Overall, however, each increment in service provision would promote improved equality and accessibility for residents of and visitors to Yell. Once again, a fixed link **(Yell4)** would offer the most significant benefits providing:

- There is suitable public transport provision for those who are non-car available – for there to be no loss of accessibility, bus services through the tunnel would need to be at least as frequent as the current ferry services, on which island residents can travel as a foot passenger
- Provision is either made in any tunnel design to accommodate pedestrians and cyclists and / or bicycles can be taken on the bus, albeit this is perhaps a lesser consideration for this route given tunnel length and the limited population at either side of the indicative tunnel portals
- The level of tolls is set at an affordable level – this may be at a higher level than the prevailing ferry fares to reflect the journey time advantage but will still need to reflect the generally lower than average income in the isles and the specific needs of those with protected characteristics

4.9.22 As was noted with respect to Unst, in the medium to long-term, it does have to be recognised that an equality and accessibility risk associated with potential public service reform in the context of the Ferry Do Max or a fixed link.

Feasibility

4.9.23 The table below considers the **outline feasibility** of each of the options. Additional work will be required at OBC stage to further develop the feasibility of the options.

Table 4:42: Yell options – outline feasibility

Option	Description	Comment
1	Yell Business as Usual	There are no feasibility issues with this option, it is by-and-large a like-for-like replacement of the current vessels and maintaining the published timetable during refit.
2	Yell Do Something	The required infrastructure works in the Ferry Do Something are the same as the BaU. The key feasibility consideration would be the ability to increase the crew complement to expand the service.
3	Yell Ferry Max	This option would require an additional linkspan and layby berth, but there are no feasibility issues associated with this. As per the Ferry Do Something, the key feasibility question is the ability to scale-up the crew complement, particularly given the introduction of a third vessel and 24-hour running.
4	Yell fixed link	It is feasible to build a fixed link between Yell and mainland Shetland, but further design and investigation work will be required to understand how this translates into capital cost. The feasibility of securing funding / financing and a contractor remains unknown at this stage.

Affordability

4.9.24 The table below considers the **affordability** of each of the options. It is important to note that, at Programme SOC stage, costs are reported largely qualitatively and will be further developed at OBC stage.

Table 4:43: Yell options – affordability

Option	Description	Comment
1	Yell Business as Usual	This is effectively the minimum required at the point of vessel life expiry and thus the lowest cost solution.
2	Yell Do Something	The capital cost of this option would be the same as the BaU, but revenue costs would increase with the intensification of the service. This would particularly be the case at the weekend if a second vessel was introduced.
3	Yell Ferry Max	This option would entail a significant ramp up in cost, with the construction of a third vessel, associated infrastructure works and a major ramp-up of the service. If fares were removed, this would also reduce revenue to zero.
4	Yell fixed link	There is uncertainty over the cost of a fixed link between Yell and the mainland. This will be worked-up in more detail in the OBC but it will be significant., A tunnel would be a more affordable proposition with tolls. There is also uncertainty around funding and financing, although it is likely that funding external to the Council will be required.

Public acceptability

4.9.25 The table below considers the **public acceptability** of each of the options.

Table 4:44: Yell options – public acceptability

Option	Description	Comment
1	Yell Business as Usual	Whilst this option would represent a modernisation of the service at the appropriate point in time, it is likely to have a low level of public acceptability as it is effectively a perpetuation of the current service.
2	Yell Do Something	This option would likely be positive from a public acceptability perspective, particularly the operation of a two-vessel solution at the weekend. It would also increase capacity through frequency on weekdays but would perhaps not be seen as transformative by the Yell community, as well as those of Fetlar and Unst.
3	Yell Ferry Max	This option is likely to have a high level of public acceptability in Yell, as well as in Fetlar and Unst. There would however be justifiable questions over its delivery and sustainability given its cost and human resource requirements. Its cost comparability to a tunnel would also be an important community consideration.
4	Yell fixed link	This option would have a high level of public acceptability in Yell, Fetlar and Unst and would also be viewed positively by the business community. An important point to test with the Yell population would be their views on the impact of a fixed link on the distinctiveness of the island.

Rationale for selection / rejection

4.9.26 The table below summarises which options have been retained for consideration in the Programme OBC and the rationale for this:

Table 4:45: Yell options – rationale for selection / rejection

Option	Description	Retain / Reject	Comment
1	Yell Business as Usual	**Retain**	Whilst this option would not address all of the identified problems on the route, it would modernise the service and could be progressed to the Ferry Do Something over time.
2	Yell Do Something	**Retain**	This option is retained as it would both modernise the assets and deal with several of the identified problems on Yell Sound, most notably the single vessel weekend service.
3	Yell Ferry Max	**Retain**	This option would significantly improve the ferry service but the realism of delivering it and its value for money relative to a fixed link must be tested at OBC.
4	Yell fixed link	**Retain**	A fixed link could be transformative for Yell and merits further consideration at OBC.

5 Financial Dimension

5.1 Overview

5.1.1 The ultimate purpose of the Financial Dimension is to demonstrate the affordability and funding of the preferred investment programme for the IITCP, including the support from key stakeholders as required. Demonstrating affordability requires a complete understanding of the capital, revenue and whole-life costs across the programme and how any potential agreements with the private sector will impact upon the Council's balance sheet, income and expenditure and pricing arrangements, i.e., ferry fares and, if applicable, tolling.

5.1.2 At this stage, however, the development of whole-life costs of the future assets making up the IITCP is not sufficient to allow for a comprehensive assessment of affordability. Therefore, this Financial Dimension focuses on:

- Briefly summarising the main **funding and financing structures** available to the Council at present to deliver the IITCP
- Exploring the main **financial risks at programme level** that could impact the effectiveness of any future decisions

5.2 Potential Funding Sources

5.2.1 The following sections outline at a high level the potential sources of public and private finance which would be explored to deliver the IITCP. The level of detail is appropriate at SOC stage, but significant further development will be required at OBC stage.

Public sector capital contributions

Council funding

5.2.2 Funding of the ferry service and indeed transport infrastructure and services more generally has historically been provided directly by the Council through its annual capital budgets.

Council reserves and prudential Borrowing

5.2.3 The Council may occasionally use **reserves, prudential borrowing, or a combination of both, to fund their share of a given capital investment**. This was the case for the Fair Isle Ferry Replacement project, where the Council committed to provide a 46% match contribution of £22.84 million. The remaining 54% was committed by the UK Government Levelling-Up Fund.

5.2.4 Whereas using reserves would translate into a loss of the flow of income from Council investments, borrowing would add a new cost for interest which would need to be absorbed. The Council would need to demonstrate the ability to meet the repayments and to ultimately repay the amount being borrowed. Both options would however add pressure to the Council's already challenging financial position.

Government grants

5.2.5 The Council periodically has the opportunity to bid for government grants. These can take various forms such as:

- Funding **allocated directly** through the Scottish or UK Government Budgets. For example, the Council received a £10m grant from the Scottish Government Budget for Financial Year 2025/26 for capital investment to support inter-island connectivity

- Through **partnership funding agreements**, of which the Islands Deal is an example
- Bidding into **sectoral funding schemes** such as the Transport Scotland Ports and Harbours Scheme, which allows local authorities, trusts and commercial organisations to make an application for grant funding for harbour infrastructure work
- Bidding into **competitive funding schemes**, such as for example the recent allocation of UK Government funding for the Fair Isle Ferry Replacement Project

5.2.6 It is unlikely that the IITCP would be achievable if relying exclusively on public sector funding due to the limitations given the extent of costs potentially under consideration, and therefore private finance is likely to be a feature.

Private Finance

5.2.7 The IITCP is a long-term investment programme that will require significant capital investment for its delivery, particularly if one or more fixed links are included in the preferred investment programme.

5.2.8 Private sector finance (whether wholly privately finance or a public-private arrangement) will then become critical to enable delivery of the outputs of the IITCP, particularly for fixed links. Private finance, however, is closely linked to the mechanisms to transfer risks to the private sector and, therefore, this procurement and delivery model is likely to see higher levels of cost. These are further explored in the Commercial Dimension.

5.3 Programme-Level Key Financial Risks

5.3.1 The main financial risks associated with the delivery of the IITCP are outlined below:

- **Cost overruns** are frequent in infrastructure projects, particularly on large-scale, long-term investment propositions. These could have a significant **impact on the Council's own accounts**, given that government grants are typically established at a set level. There are mechanisms, however, that may help mitigate the effects of this risk such as early contractor involvement, robust cost estimating procedures, in-depth risk quantification and the application of an adequate level of optimism bias as per established guidance. Alternatively, this risk may be **transferred to the private sector** through one of the mechanisms outlined in the Commercial Dimension
- At present, **funding availability is one of the biggest uncertainties facing the IITCP**. The development of accurate financial costs will be dependent on the preferred delivery and procurement model and will probably result in the **identification of key affordability gaps**. Appetite for public funding will need to be explored in consultation with government agencies and other institutions, as it could be key to **presenting an attractive investment proposition to the private sector**
- A potential source of future revenue from fixed links, particularly under a concession-based model, is tolls. There may be other similar user charges, for example those from ferry fares, which could be used to offset financial obligations. However, **financial modelling will be based on estimates of these income revenues** and, therefore, there is a risk that lower than expected usage could introduce an additional financial pressure on the overall programme. This risk should be quantified under different scenarios. A potential mitigation could be to reduce the dependency on user-based charges of the preferred delivery model
- Unexpectedly high **inflation and interest rates** could also result in rising construction and borrowing costs. This could put the programme under additional financial pressure. However, there are tools that may help mitigate these effects, including the development of different scenarios when undertaking financial modelling and putting in place robust provisions for value engineering as individual projects develop

- Finally, operation and maintenance of the new assets, if not considered when planning the delivery model, could result in **additional liabilities to the Council by introducing lifecycle costs higher than expected**. The financial impact of any operations and maintenance requirements should be considered when developing the investment programme, based on extensive benchmarking and the Council's own experience with regards to ferry operations and harbour infrastructure

6 Commercial Dimension

6.1 Overview

6.1.1 The Commercial Dimension is intended, at this stage, to provide a high-level reference of the key aspects of the Network Strategy that will be developed as part of the OBC. In doing so, there will be a distinction between the overall commercial approach for vessels (and the associated harbour infrastructure) and fixed links.

6.1.2 Once the Network Strategy Programme Level OBC is complete, and subject to funding availability, the overall investment programme will progress as individual projects for each route and island with varying requirements. However, it is anticipated that the delivery of each project will involve the following key activities:

- A design development process for the required outputs, including surveys and ground investigations
- The completion of a project level business case to secure final approvals
- Obtaining the required consents and, potentially, land acquisition
- A procurement process to secure suitable suppliers for the required outputs
- Project (and potentially programme) management and controls
- A period of construction – which may or may not include some elements of design – at the end of which the new vessels or infrastructure should enter their operational stage

6.1.3 The remainder of this section provides a preliminary overview of the ability of the market to deliver the different potential component outputs of the IITCP and the services associated with the programme activities.

6.2 Vessels

6.2.1 The Council has extensive experience in the procurement of ferries and other vessels such as tugs and pilot boats. When placing an order for a new vessel, there are several potential approaches the Council could adopt:

a. **Precise Specification:** The Council could set out a detailed specification based on vessel general arrangement drawings, including requirements for engine type, fuel type, fit-out requirements etc. This approach ensures that the vessel design aligns precisely with the client's specified requirements but may limit innovation

b. **Output Specification:** The Council could provide the market with an output specification, defining broad parameters such as required passenger capacity, speed, physical dimension ranges etc. Shipyards would then be invited to present their own costed solutions. This approach allows the market to offer different and often innovative solutions but carries the risk that some design elements may not reflect the client's exact preferences

c. **Existing Proven Design:** The Council could use an existing proven design to ensure it meets the required specifications and efficiencies. The proven design could be modified to meet the detailed requirements. However, it may not fulfil every need, as the vessel would not be specifically designed for the route or a bundle of routes

d. **Concept Design:** The Council could develop a concept design to take to the market, including general arrangement drawings and associated specifications. This would allow shipyards to tender for the detailed design and build of the vessel on a fixed price basis, reducing design, construction and operating risks for the Council

e. **Second-Hand Tonnage:** The Council could identify suitable second-hand tonnage for purchase or charter

6.2.2 These options represent the usual go-to ship design solutions although elements of each approach can be blended to suit the particular context. In any case, the Council will likely need to engage the support of a **naval architect** to develop the specifications and design for new vessels.

Shipbuilding industry

6.2.3 In 2024, the economic output of the UK shipbuilding industry was **£2.7 billion**[31], representing a **72% growth since 2019**. This was equivalent to 7.9% of the manufacture of transport equipment sector, 1.3% of the output of the total UK manufacturing sector and 0.1% of the total UK economic output[32].

6.2.4 In 2023, there were around **38,650 employee jobs** in the shipbuilding industry, according to estimates from the Office for National Statistics and Ireland Statistics and Research Agency based on the Business Register and Employment Survey[33]. These jobs were concentrated in a small number of areas – the North-West and South-West of England both accounted for 34% of employee jobs in this sector, whilst **Scotland accounted for 19%**.

6.2.5 To support the long-term sustainability and further develop the shipbuilding industry, the Ministry of Defence (MoD) published the **National Shipbuilding Strategy (NSS)** in 2017. The National Shipbuilding Office (NSO) then published a refreshed version of the NSS in 2022, confirming **£4 billion** for new vessels, initially announced in the 2020 Spending Review and the 2021 Autumn Budget. Additionally, funding was allocated for the **Home Shipbuilding Credit Guarantee Scheme (HSCGS)**. Launched by the Department for Business and Trade in July 2023, the scheme offers partial government-backed guarantees to cover up to 80% of the risk of non-payment of loan principal and interest.

6.2.6 More importantly, the refresh of the NSS included, for the first time, a **30-year pipeline of over 150 naval and civil government vessel procurements**, including ferries. This is intended provide the industry with greater certainty and encourage investment in skills and infrastructure.

6.2.7 In recent years, however, the Scottish shipbuilding industry has faced significant challenges. The construction of *MV Glen Sannox* and *MV Glen Rosa*, awarded to now nationalised shipyard Ferguson Marine in 2015, has been subject to **delays and cost overruns**. *MV Glen Sannox* was delivered to CMAL in November 2024 after a number of late stage complications with the specialist LNG pipework and commissioning of the engine systems. At the time of writing, it is expected that *MV Glen Rosa* will be delivered between April and June 2026. Both ferries were originally due for delivery in July 2018 to serve CalMac's Arran route. The two ships are expected to cost upwards of £460 million if written-off loans are included. This is **more than four and a half times the original contract price of £97 million**.

6.2.8 Delivery of four other large ferries under construction in the Cemre yard in Turkey is also delayed. The first of the ferries, *MV Isle of Islay*, was pushed from October 2024 to mid-February 2025 and is now expected to be delivered no earlier than the end of Q2 2025. According to CMAL, the delays are due to a global lack of specialist systems commissioning engineers[34].

[31] Economic output here is expressed in GVA, i.e., the value of products and services produced minus the costs incurred in production (excluding labour costs).

[32] Role of shipyards in economic growth - House of Commons Library

[33] Data related to Employees in Great Britain - Office for National Statistics

[34] Fresh delays to Turkish-built CalMac ferries - BBC News

6.2.9 The inclusion of ferries in the refreshed NSS pipeline presents an opportunity to **align Shetland's long-term procurement programme with national priorities** through targeted engagement with the NSO. However, recent procurement experiences in Scotland also highlight the need for **robust risk management, realistic delivery schedules, and diversified supplier engagement**. A phased, forward-looking approach – anchored in technical due diligence, whole-life cost assessments, and early engagement with experienced shipyards – will be essential to ensure that any new ferries under the IITCP are delivered on time and within budget.

6.3 Harbour Infrastructure

6.3.1 When procuring marine civil engineering projects, there are a number of considerations in relation to the approach adopted. These are summarised in this section. The consideration of a preferred option will be further developed as part of the Network Strategy Programme Level OBC and subsequent project level business cases.

6.3.2 The Council has traditionally procured ferry and harbour infrastructure following a conventional procurement model, i.e., the customer procures the design, planning and preparation (business case development, consents and legal support etc) and construction separately. **The Council has funded the capital expenditure – via government grants or their own capital budgets – and retained ownership and operational control of the new assets**, i.e., life-cycle management of the new infrastructure (and related risks) has historically remained a direct responsibility of the Council.

6.3.3 Conventional procurement models usually take one of the following forms:

- **Build (B) only contracts:** the public sector customer leads the development of and **takes responsibility for a fully designed output** (including detailed drawings and specifications), which is then tendered for the successful contractor to build the infrastructure asset. The advantage of this approach is increased certainty of outcome, i.e., the public sector customer gets exactly the desired output. However, the majority of design and construction risks remain with the customer and, as such, it may lead to higher capital costs to take on these risks
- **Design and Build (DB) contracts** – **a single contract**, based on a broad definition of the output, **is tendered for both the design and construction of the infrastructure asset**, thus allowing the opportunity to transfer some of the design and planning risks to a private sector contractor. This approach incentivises the market to offer different and sometimes innovative solutions to mitigate construction risks. However, some elements of the design may not necessarily reflect the exact preferences of the customer

6.3.4 The above options do of course represent polar positions and it is possible to blend elements of each approach, particularly if procuring multiple contracts as part of an overarching programme, which is the case for the IITCP. The Council's recent experience on the Fair Isle Ferry Replacement project will provide useful insights and lessons learned around the chosen approach to procurement, i.e., a B contract with certain elements subject to contractor design.

Design and construction frameworks

6.3.5 **There may be a case for the Council to set up one or more dedicated frameworks for marine civil engineering design and construction work**. This framework approach could help reduce procurement timescales for individual projects, while maintaining a level of competition that guarantees value for money (VfM). It could also provide confidence to the local market with regards to the future work pipeline. The success of a framework, however, would be dependent on the Council's ability to secure sufficient funding to deliver the required works within the planned timescales.

6.3.6 Other advantages of setting up a framework could include:

- Enabling the **full alignment of procurement activities with the long-term desired outputs of the IITCP**, ensuring consistency across projects of a similar nature
- **Avoiding full-scale tendering exercises for each individual projects**, with the potential to generate significant savings at programme level
- The opportunity to **develop a long-term relationship with the selected contractors and consultants**, thus improving collaboration and the potential for more efficient working over time
- Reducing disputes and **improving cost predictability**
- The possibility of **designing the framework (or frameworks) to match local priorities**, e.g., local market participation, sustainability, local labour etc

6.3.7 Establishing a framework that is compliant with Public Contracts (Scotland) Regulations 2015 and the Procurement (Scotland) Regulations 2016 requires a significant upfront effort (drafting specifications, evaluating suppliers, checks etc), which may require additional legal and commercial support. Additionally, if the pipeline of projects under the IITCP stalls due to funding or planning delays, the framework (or frameworks) may go underutilised, which is inefficient operationally, financially and reputationally.

6.3.8 To address some of these issues, the Council could use some of the established frameworks currently in operation across Scotland, including:

- **Scotland Excel** for building construction consultancy or engineering and technical consultancy support
- The **Crown Commercial Service (CCS) Framework Agreements**, which would allow the Council to procure both professional services and construction work
- The **Scottish Government's Civil Engineering Framework** for construction contracts between £5 million and £100 million
- **City of Edinburgh Council Professional Services Framework**
- Finally, **SCAPE Scotland** would provide an additional option for the Council, but these are single-supplier agreements and may introduce a risk with regards to competition and VfM

6.4 Fixed Links

6.4.1 Northern Europe has set a strong precedent in the delivery of subsea tunnels, with extensive networks that have transformed regional connectivity. Whilst there is limited experience in the UK, developments in the **Faroe Islands** and countries like **Norway** and **Iceland** offer compelling delivery and procurement models and could help inform the viability of any fixed links as part of the IITCP.

6.4.2 Delivering subsea tunnel infrastructure would be a step change in scale, complexity and risk for the Council. As such, the choice of the preferred delivery and procurement model would be significantly influenced by:

- How the required services and works may be best procured within the constraints of existing regulations, the Council's own commercial strategy and framework and within the implementation timescales dictated by the project plan
- The service risks analysis across the Design, Build, Finance, Operation and Maintenance phases of a potential fixed link project
- The outcomes of any negotiation of risk transfer between the Council and the private sector
- The payment mechanisms and any potential incentives that may contribute to deliver value for money over the lifespan of the project and its operational phases

6.4.3 The commercial model for the fixed link elements of the IITCP would need to be consistent with the funding and financing strategy, as it would be centred around the capital cost of the scheme and the future operating entity. The main models available to the Council to design, build, finance and operate a future fixed link are outlined below. However, it will not be possible to develop a recommendation until a fixed link model has been developed in more detail, enabling more targeted market testing with the private sector, including contractors and financial institutions.

6.4.4 Although the sections below refer to the 'public sector' generally, the Council would likely be the public sector organisation promoting the development of any future links under the IITCP.

Conventional infrastructure procurement

6.4.5 Under this model, the public sector would procure the design, planning and preparation – e.g., business case development, consents and legal support etc – and construction separately. **The public sector would fund the capital expenditure and retain ownership and operational control of the new assets**, i.e., life-cycle management of the new infrastructure (and related risks) would remain a direct responsibility of the public sector.

6.4.6 In principle, the public sector would maintain direct control over scope and quality within a relatively clear governance structure. However, **the public sector would also bear the majority of scope, cost and schedule risks**, which it may not be able to manage as effectively as the private sector. Given the likely scale of the funding requirement and the limited national experience in the delivery of subsea tunnels, **there would probably be significant constraints to the viability of a conventional procurement model for a fixed link as part of the IITCP**, e.g., skills gap, capability to develop the technical solution, ability to retain maintenance responsibility, funding availability, attitude towards risk etc.

6.4.7 Conventional procurement models usually take one of the following forms:

- **Build only contracts** – the public sector would lead the development of and take responsibility for a design, which is then tendered to build the infrastructure asset
- **Design and Build contracts** – a single contract is tendered for both the design and construction of the infrastructure asset, thus allowing the opportunity to transfer some of the design and planning risks to the private sector

Design, Build and Finance (DBF)

6.4.8 There is a variation to the conventional infrastructure procurement model in which the Council would defer the payment, **making the contractor a *de facto* lender to the public sector**. The lending, however, is indirect, as ultimately the funds would be provided by a lending institution against the future payments granted under the contract with the public sector.

6.4.9 **This variation would allow for transferring the risk of construction delays, which may provide additional reliability around the proposed construction period** (provided that payments are to some extent conditional upon construction completion and commissioning). However, there would be an interest rate premium over the cost of direct public debt raised by the public sector. Whether this premium is higher than the cost of the public sector managing the risk of construction delays would dictate the viability of this model.

Public Private Partnerships (PPP)

6.4.10 A PPP is a **long-term contractual arrangement** between the **public sector, i.e., the Council** and a **private sector partner (usually a consortium of different private parties), which may include the operators and financers**, for the whole life of a public infrastructure asset. Under a PPP model, **the private sector partner bears significant risk and management responsibility** for the duration of the contract. Remuneration is linked to

performance (in the sense of quality and availability of the asset) and, in the case of concession-based models, the demand or use of the asset, or a combination of both.

6.4.11 Key features of the PPP model are:

- The **search for efficiency through the involvement of the contractor**, which applies not only to the design and construction of the asset, but also its long-term maintenance and operation so that construction, maintenance and operation are bundled obligations
- The **private sector partner should be materially and integrally in charge of the management of the asset, especially life-cycle cost management**. Otherwise, there is no point in transferring life-cycle risks (and relying on a long-term contract) under a PPP scheme
- In addition to the transfer of construction risks, **there should be significant risk transfer to the private sector over a significant part of the asset life cycle**, which links to the long-term nature of these contracts
- Risk transfer is the main efficiency driver for a PPP and, as such, **the bulk of the risk should be transferred to the private sector**. However, there may be significant inefficiencies in transferring certain risks[35] that can be reduced by means of the public sector partner taking on or sharing the risk
- Private finance, when included, can also be a driver for efficiency under a PPP. This is because the most effective way of transferring responsibility and significant risks is to **compensate the private partner on the basis of the performance of the asset, the level of use** or a combination of both
- The link to performance and use is also a particular feature of an infrastructure PPP – the contractor will only receive payments (or the majority of the payments) once the infrastructure asset is in service[36]. **The link of remuneration to performance is paramount for aligning the interest of the private partner with the objectives of the public sector**, mostly focused on service reliability and quality

6.4.12 The different types of PPP contracts are outlined below:

Design, Build, Operate and Maintain (DBOM) contracts

6.4.13 these are contracts financed by the public sector, as opposed to a private finance PPP (see below), in which the selected private partner will carry out the construction works, future operations and maintenance. **If construction and maintenance risks are transferred to the private partner, a DBOM contract may be close to the PPP features** outlined above, although the mechanisms for achieving this may be limited due to the absence of capital at risk. The key driver for the public sector to deliver a project as a DBOM would be the potential benefit of a more integrated management approach at the expense of the potential loss of efficiency.

6.4.14 If financing is included in the PPP contract, **the private sector partner would provide all or some of the financing – with its own capital at risk** – to develop the infrastructure. This is often referred to as a DBFOM contract if operations are included in the scope (or DBFM if not).

[35] For example, risks like changes in law, or other political risks, as well as extreme conditions or force majeure events. Requiring the private sector to price in such risks could result in inflated costs or deter market interest altogether.

[36] This may include exceptions in the form of part of the compensation or payments to the private partner being received during construction, depending on the financial structure of the PPP.

Design, Build, Finance, Operate and Maintain (DBFOM) contracts based on user payments (concession schemes)

6.4.15 A **contractual assignment of future potential revenues associated with the public use of a public infrastructure asset** by a public administration to a private partner as a means to fund the procurement of the infrastructure. However, the revenues may not be enough to offset financial obligations. This situation is referred to as a **viability gap, which is usually filled by public financing**, either in the form of grants or by means of complementary budgetary payments linked to performance.

DBFOM contracts based on performance-based payments (Private Finance Initiative)

6.4.16 In the case that the infrastructure was available to users at no charge (i.e., no tolling), the public sector may decide to pursue a Private Finance Initiative (PFI). As in a concession scheme, the private partner would derive revenue from the infrastructure asset. However, **the revenue would result from service provision to the public sector, providing a service related to the availability of use for the infrastructure**, with the precedent conditions of design and construction, and an ongoing obligation to maintain (and usually operate).

6.4.17 There could also be a situation in which the public sector may procure a DBFOM type of contract from a project company that is jointly owned by public and private partners. As such, the private partner still has the right incentives to perform over the duration of the contract, whilst the public sector is perceived as retaining more control of the project.

Relevance of the PPP model for fixed links in Shetland

6.4.18 The range of PPP models outlined above offer a compelling approach to managing the organisational, financial and technical complexities of building, maintaining and operating one or more subsea tunnels in Shetland. The following are key PPP value drivers that are particularly relevant to this context:

- PPP models enable access to private capital, which **could allow any fixed links within the IITCP to proceed without full public funding**. This is especially valuable when public borrowing capacity is constrained and could provide the Council with an opportunity to progress the IITCP while spreading financial commitments over time. However, significant resources would still be committed under a long-term contract. Therefore, **there is a risk that the use of the PPP model to circumvent financial constraints could unduly burden the Council**, particularly if there is not a robust VfM rationale supporting the PPP
- In a private finance PPP, the private partner is compensated over the operational phase by means of user charges and performance-based payments. The private partner must assume maintenance risks so as to meet the required performance standards. Therefore, **the private partner has a natural incentive to optimise design and construction in a manner that reduces maintenance and renewal risks**, arguably delivering long-term savings in the overall life-cycle cost. This approach can be crucial given the challenges of the subsea environment and the long asset lives of subsea tunnels
- Key risks such as construction delays, cost overruns, and operational underperformance can be effectively transferred to the private sector. **Providing a well-structured framework for the transfer of risks – particularly if capital is at risk**[37] and payments are linked to availability and service quality – would be a must given the Council's lack of experience in the delivery of this type of infrastructure. In the case of fixed links, **it is likely that the private sector would require a risk premium that is lower than the potential cost to the Council of taking on the risks**. Effective risk transfer is probably

[37] Private sector investors and financiers with capital and funds at risk in the project would normally perform their own due diligence, providing an additional layer of risk oversight.

one of the key VfM drivers for the application of the PPP model to fixed links under the IITCP

- The focus on performance and outputs of PPP contracts may provide an additional benefit by encouraging innovation, drawing on the private sector's ability and flexibility to innovate. **Given the challenging construction environment in some of the isles (remoteness, difficult weather and sea conditions etc.), innovation could provide an additional source of savings and efficiency**, although this should only be relied on after thorough and targeted engagement with the contracting sector
- In PPP projects, the private sector has an incentive to increase the economic utilisation and value of the infrastructure asset. For example, **a subsea tunnel may provide a strategic opportunity to embed energy transmission and data infrastructure** directly within the fixed link itself, improving long-term reliability and, potentially, contributing to lower maintenance costs

6.5 Planning and Preparation

Project Level Business Cases

6.5.1 The Network Strategy Programme Level OBC will set out the preferred sequence of investments in inter-island transport connectivity over a given period of time. Investment will materialise through individual projects, which **will require their own individual Project Level Business Case to secure funding and approvals**.

6.5.2 Consideration should be given to the best way of **ensuring that all of the individual business cases across the programme are consistent to facilitate governance, assurance and decision-making**, particularly in a potentially multi-consultancy environment. This may require the development of a **guidance framework specific to projects within the IITCP** including, as a minimum:

- A library of templates and standard requirements, e.g., strategic fit matrix (to show alignment with IITCP), options longlist and shortlist criteria, cost and benefit analysis spreadsheet models (where possible, with fixed assumptions and rates), standard risk register categories, Master Schedule and, when possible, a carbon impact calculator
- Quantitative and qualitative analysis assumptions, e.g., time horizon, discount rate, inflation, cost categories, optimism bias, environmental valuation etc
- The parameters for standard appraisal techniques
- Thresholds or triggers for the selection of the preferred procurement and delivery models, as well as the market engagement requirements at project level
- Project lifecycle and review process, defining the standard and programme assurance gateways including progression criteria between stages
- Stakeholder mapping guidance and community engagement requirements and methods
- Provisions for audit, records and lessons learned, ensuring each business case documents the key decisions and rationale, any changes to scopes, timeline or budget and lessons learned for future IITCP projects

Programme management

6.5.3 The IITCP will probably involve a mix of new and replacement vessels, harbour infrastructure and, potentially, one or more fixed links across Shetland. As such, the programme will be made up of multiple projects with varying levels of complexity and requirements but set to deliver an overarching set of outcomes for Shetland, i.e., to improve inter-island connectivity.

6.5.4 There will be different aspects of the IITCP that would benefit from an integrated management structure at programme level including, but not limited to, funding and financing, risk allocation

and commercial models, procurement and market engagement, supply-chain strategy, interfaces between projects, programme controls, contractual and delivery models and benefits realisation.

6.5.5 The different approaches to facilitate an integrated programme management structure around the IITCP are outlined in Chapter 7.

Consents

6.5.6 This section introduces the likely consents and approvals required to deliver the key outputs of the IITCP, treating harbour infrastructure and fixed links separately and assuming these are progressed as individual projects. The complexity and requirement will vary depending on the scale of the project. Requirements such as the Environmental Impact Assessment (EIA) will be much more onerous for a fixed link, for example, whereas it may not even be required for minor harbour works.

Table 6:1: Likely consents requirements for individual projects under the IITCP

Consent Type	Issuing Authority	Harbour Infrastructure	Fixed Links
Planning Permission	SIC as Planning Authority	Required for works above the Mean Low Water Springs (MLWS) level such as terminal buildings, roads and storage areas.	Required for works above the MLWS level such as portals, access roads and ventilation shafts.
Marine Licence(s)	Marine Scotland	Required for all construction and dredging works below MLWS level such as new quays and sheet piling. A separate licence will be required for dredging and disposal activities.	Required for construction works below the MLWS level, such as tunnelling. A separate licence will be required for disposal activities.
Environmental Impact Assessment (EIA)	SIC as Planning Authority and Marine Scotland	May be required depending on the scale and location of the works, i.e., near designated sites, involving dredging, disposal at sea etc.	This is a statutory requirement for major infrastructure – it could be needed separately for planning and marine licence applications.
Habitats Regulation Appraisal (HRA)	NatureScot and Marine Scotland	Required if the proposed project affects protected sites. In Scotland, Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are given legal protection by the Habitats Regulations[38].	
Protected Species Licence	NatureScot	Required if otters, seals, or nesting birds are disturbed or relocated.	
Land acquisition	Landowners, SIC, Crown Estate Scotland	Will only be required in certain cases, including to cover construction-stage requirements.	Required for landfall, tunnelling alignment, compounds and other construction-stage requirements.

6.5.7 As the IITCP will result in a long-term investment programme with different infrastructure features, a Strategic Environmental Assessment (SEA) will likely be required to assess, consult on and monitor the likely impact of the proposed programme. The SEA is governed by the Environmental Assessment (Scotland) Act 2005[39]. The SEA will contribute to set a framework for future development consents for individual projects.

[38] The Conservation (Natural Habitats, &c.) Regulations 1994

[39] Environmental Assessment (Scotland) Act 2005

7 Management Dimension

7.1 Overview

7.1.1 The purpose of the Management Dimension of the business case is to demonstrate that robust arrangements are in place for the delivery, monitoring and evaluation of the programme. Demonstrating that the preferred investment programme can be successfully delivered requires evidencing that the programme is being managed in accordance with best practice, e.g., *Managing Successful Programmes*, subjected to independent assurance and that the necessary arrangements are in place for change and contract management, benefits realisation and risk management.

7.1.2 The Council could face a number of organisational challenges to deliver the IITCP, mostly in relation to their ability to:

- Effectively **identify and manage the risks across the DBFOM phases of the IITCP** (and individual projects within) and put in place appropriate and proportionate contingency plans
- Implement a **controlled environment with realistic and achievable provisions** to deal with the inevitable business and service change
- Ensure that the programme objectives are met, **the anticipated outcomes are delivered within the planned timescales and financial envelope** and that the benefits are adequately evaluated

7.1.3 As an introduction to the above, this chapter focuses on developing an understanding of the main lessons learned from similar projects and presents an outline framework for the management of risks, issues and programme dependencies. These will all be expanded on as the business case work progresses into the Programme Level OBC, when the preferred investment programme will set out investment timescales and the output solution for each route and island.

7.2 Evidence of Similar Projects

7.2.1 This section provides an overview of lessons learned from projects of a similar nature to those that will make up the IITCP, i.e., new and replacement vessels, harbour infrastructure and fixed links (subsea tunnels). The Council has extensive experience with marine civil engineering and the procurement of new ferries. However, subsea tunnels represent an organisational step change in scale and complexity and, given the limited experience in the UK, these reflections are mainly based on experience from the Faroe Islands and Norway.

Vessels and harbour infrastructure

7.2.2 For the most part, this section largely draws on the project team's (inclusive of Council staff) own extensive knowledge and experience rather than published documentation. The core project team members have collectively acted as board member, client, client project manager, NEC Project Manager and Supervisor and consultant across a wide range of ferry and marine infrastructure projects over many years. As such, most of their experience relates to the Scottish ferry network and it is therefore important to respect confidentiality, thus individual projects have not been referenced.

7.2.3 The above said, the *New vessels for the Clyde and Hebrides* report, published by Scotland's Auditor General in March 2022, has also been reviewed. This report sets out the lessons learned in the procurement and construction of MV *Glen Sannox* and MV *Glen Rosa* at Ferguson Marine Engineering Limited (FMEL) at Port Glasgow. It identifies several lessons which will be valuable in the context of the IITCP.

7.2.4 More recently, the Council has procured the build of a new vessel and harbour infrastructure as part of the Fair Isle Ferry Replacement Project. However, this project is still underway and, therefore, its key takeaways will be incorporated into the future Network Strategy Programme OBC.

Business Case

- The **development of a robust business case** – including an objective appraisal of options – is essential in ensuring that the rationale for investment is robust. A business case produced using the 'Five Dimension Model' covers all of the necessary headings which need to be considered in developing and implementing a project. The project should never be purely operationally led
- The **business case, including financial assumptions within it, should be continually reviewed**, with the FBC completed at the point of procurement. The FBC should include tendered costs and a full review of affordability. Quantitative Cost Risk Analysis should be undertaken and incorporated in the FBC and, if possible, in the OBC
- The **communities and stakeholders which the investment impacts should be engaged throughout the business case process**, from SOC through to the point of procurement and subsequent contract award. Arrangements should be put in place to keep communities and stakeholders informed as the project progresses on-site

Vessel Procurement

- Vessel procurement is notoriously challenging and can frequently end in litigation or with yards experiencing financial difficulties as a result of cost over-runs. There are several approaches to transferring this risk, including but not limited to the requirement for a Builders Refund Guarantee and the appointment of an experienced delivery partner / consultant to oversee the build on behalf of the client
- The key lesson identified by the Auditor General in relation to FMEL is the criticality of a **Builder's Refund Guarantee (BRG)** in the contract. The BRG is the primary mechanism by which the buyer protects itself against risk and also provides an incentive to ensure high quality workmanship as the yard carries the risk associated with poor workmanship or failing to deliver the specification. In the case of FMEL, after protracted negotiations, a BRG of only 25% was provided to the buyer, Caledonian Maritime Assets Limited (CMAL). This led to a significant transfer of risk to CMAL to the extent that they recommended that the procurement should be cancelled and restarted. **A full and non-negotiable BRG should therefore be integral to the contract ultimately signed with the shipyard which will build any new ferry**
- Irrespective of whether a detailed or output vessel specification is used, the **design should be fully agreed before the yard commences work**. Moreover, every conceivable effort should be made to ensure that there is a **common understanding of the client's requirements** and thus minimal reworking of the design once construction has commenced. This was a major failing at FMEL, where vessel construction began before the detailed design was agreed, leading to substantial rework, delays and additional costs
- The **milestones that should be achieved to trigger payment should be clearly defined and linked to quality standards**. In a NEWBUILDCON contract, payment is typically divided into five equal payments linked to clear and unambiguous milestones. This was a failure of the FMEL procurement, where an atypical payment schedule was adopted, with 15 payment stages for each vessel based on poorly defined milestones
- **Appropriate documentation of design versions, decisions etc is essential** – there should be a clear audit trail which can be followed in the event of staff moving on
- Where an **uncommon or high-risk design** is being pursued, that risk should either be transferred through the contract as far as reasonably possible and / or provisioned for in the QCRA

- The **crew of existing vessels should also be engaged throughout the design phase**. Whilst there is always a risk of change aversion, incumbent crew have an unrivalled understanding of the routes which they ply and can provide 'in the water' feedback which cannot be readily obtained elsewhere
- The quality component of the procurement should focus on ensuring that bidding **yards can demonstrate their experience and suitability to deliver the specification required**
- The **build contract should include provisions around sign-off and acceptance of the vessel**, potentially with an after-sales service provided
- Once awarded, it is essential that **the buyer continues to work on the basis of the advertised contract**, otherwise there is a significant risk of a legal challenge from an unsuccessful bidder. This lesson was specifically highlighted by the Auditor General in relation to the FMEL procurement, where the concession on the full BRG increased the scope for challenge from unsuccessful shipyards

Continuous Review

- Regular and continuous review will provide a good platform for project success. It is important to **reflect regularly on what is going well and what is not and adjusting the management of the project as it progresses**. Challenge to processes, approaches etc. is required and the risk of 'group think' must be avoided. In our experience, it can help to have one or more individuals external to the client body in the team as this can bring a fresh perspective and challenge to established views (as well as a willingness to 'speak-up' which may be less common within an organisational structure)
- Many projects carry out a **'lessons learned' review** at the end / completion. Whilst this is essential, **it should not detract from reacting actively during the project** to anything identified as a problem or a potential problem

Infrastructure procurement

- To ensure a smooth procurement journey and contract delivery, it is **essential that what is being tendered is very clear, detailed and that the tender returns will provide no ambiguity from any bidder** – this is particularly essential where time is of the essence. The outputs required by the bidder must be set out in-depth and the evaluation methodology detailed to allow evaluation on a like-for-like basis
- If not, it becomes a lengthy process while clarifications are sought from different bidders to allow evaluation to a standard which will stand-up to any challenge. Spending more time setting out the front end of the tender documents will save time in the long-run

Governance

- **Governance arrangements must be clearly defined in the Project Execution Plan (or Programme Delivery Plan if addressed at network level) and thereafter followed**. The Auditor General highlighted significant failures of governance in relation to FMEL including: unclear oversight arrangements; generic Terms of Reference for the Programme Steering Group; incomplete project documentation, including the Project Initiation Document; and lack of a clear escalation process
- Appoint a **suitably qualified Client Project Manager / PMO**, from internal or external resources and commit fully to the resource being available as needed to protect the interests of the client. For clarity, this is a **different role** to an NEC Project Manager and Supervisor (or those supervising vessel build), which is a much more contractual role
- **Actively manage the risk around the delivery of the project**. The quantified risk register prepared as part of this business case should be kept live and added to throughout the process. The Auditor General report on FMEL found that several of the risks which were assessed as "unlikely" (including insolvency of the shipbuilder, vessel

modifications and sub-standard construction) materialised and had a major impact on the cost and deliverability of the project. Indeed, the report noted that the vessel procurement and risk register was never updated, despite several of the identified risks becoming issues that CMAL needed to resolve

- **Clear and unequivocal dispute escalation procedures** should be defined at the outset and used as required during delivery
- Where **external funding parties or stakeholders are involved, there is benefit in forming a Stakeholder Group to keep them abreast of progress and seek inputs or views on funding**, **regulatory or governance requirements**
- Build a **good team ethos across all parties including contractors, stakeholders, funders and the Project Board**. Ensure the communication requirements are clearly established and delivered within and between groups and teams
- Set out **clear roles and responsibilities for all parties** involved and ensure the correct procedures are in place for any reporting requirements, change to scope / objectives or deliverables

Delivery

- Manage the programme actively and **never assume 'no news is good news'**. Be active, be visible and engage with the parties at appropriate times
- If something is going wrong, ensure this is communicated to all key parties with details of what has gone wrong, why and how to fix it
- Work actively with the teams will ensure that delivery will go as smoothly as reasonably practicable

Project completion

- **On completion, a full review of the entire project should be undertaken** to identify what went well, what went wrong and what could have been done. This should involve all stakeholders and contractors. Keeping a record of the outputs will provide advice and guidance for any future projects

Subsea tunnels in the Faroe Islands[40]

TUNNEL	EYSTUROYARTUNNILIN
LENGTH	11,240 meters
GRADIENT (‰)	50
CONSTRUCTION PERIOD	2016 to 2020
OPENED	19th December 2020
COST	Approximately DKK 1.3 billion (over £145 million)
OPERATOR	Eystur- og Sandoyartunlar (EST)
CONTRACTOR	NCC

TUNNEL	SANDOYARTUNNILIN
LENGTH	10,800 meters
GRADIENT (‰)	50

[40] https://www.landsbankinn.is/uploads/documents/radstefnur/2025-uppbygging-innvida/kynning-teitur-samuelsen.pdf

TUNNEL	SANDOYARTUNNILIN
CONSTRUCTION PERIOD	2019 to 2024
OPENED	21st December 2023
COST	Approximately DKK 1.3 billion (over £145 million)
OPERATOR	Eystur- og Sandoyartunlar (EST)
CONTRACTOR	NCC

7.2.5 The Faroe Islands is a self-governing nation with extensive autonomous powers and their own government structure within the Kingdom of Denmark. Faroe Islands have exclusive competence to legislate and govern independently in a wide range of areas. These include, for example, the conservation and management of marine resources, environment, sub-surface resources, trade, taxation, industrial relations, energy, transport, communications, social security, culture, education and research.

7.2.6 While the Faroe Islands decided not to become a part of the European Economic Community when Denmark joined in 1973, EU Member States make up the largest single market for Faroese exports. In addition, the majority of goods and services imported to the Faroe Islands come from the European Union[41].

7.2.7 The Faroe Islands are an archipelago of 18 islands, with a total population of over 50,000 scattered over 17 of the islands, although 40% live in the capital, Tórshavn. The Faroese is an industrial economy mainly based on fisheries and aquaculture. There has been significant investment in transport infrastructure over the past 60 years, including about 1,000 kilometres of new roads, 23 mountain tunnels, 3 major bridges and **4 sub-sea tunnels** - **Vágatunnilin**, opened in 2002 after a 27-month construction period; **Norðoyatunnilin**, opened in 2006; **Eysturoyartunnilin (Eysturoy)**, opened in 2020; and **Sandoyartunnilin (Sandoy)**, opened in 2023.

7.2.8 This section provides an overview of the combined project to deliver the most recent subsea tunnels, Eysturoy and Sandoy. The objective was to reduce travel time from the Eysturoy and Sandoy islands to the capital by 50% to 70%, creating a reliable alternative to dated and weather-dependent ferry infrastructure.

The Public Company

7.2.9 Eystur- og Sandoyartunlar (EST) is a publicly owned limited company established in 2014 by the Faroese Government and is owned entirely by the Faroese Ministry of Transport. The company's creation was formalised under Parliament Law no.30 from 14th April 2014 (equivalent to an Act of the Scottish Parliament), which **introduced the legal framework under which EST operates**. The Parliament Law provided EST with the authority (and remit) to engage consultants for the design, procure contractors for construction and manage the operation (as owner) of the Eysturoy and Sandoy tunnels.

7.2.10 The company was set up with a **share capital of DKK 400 million (around £45 million)**, paid in full by the Faroese Government between 2014 and 2024. Under the Parliament Law, **the Faroese Government also committed to a guarantee of minimum traffic levels** to ensure the viability of the tunnels and help secure financing and managing the financial risks associated with user-based revenues.

Financial structure of the project

7.2.11 The Faroese Government's guarantee **played a pivotal role in the financial structuring of the tunnels, enabling EST to secure loans amounting to DKK 2.6 billion (£290 million)**.

[41] The Faroe Islands in the international community - The Government

The assurance of minimum revenue streams made the projects more attractive to investors and lenders, facilitating the necessary capital inflow.

7.2.12 EST established a model of financial coupling between both tunnels (cross-subsidisation), as the Sandoy tunnel was not expected to generate sufficient demand to recover its own investment exclusively from tolls. Therefore, **Sandoy's viability gap would be addressed by the surplus revenue that was anticipated for Eysturoy**.

Main challenges

7.2.13 The **scale of the combined project and, therefore, the level of challenge and risk, could be perceived by international investors and lenders as being extraordinary** for the Faroe Islands, given their size and remoteness. This was expected to cause issues with EST's ability to finance the project. In response to this, EST built up what their CEO, Teitur Samuelsen, refers to as their 'Equity Story'. This was the main narrative EST used to describe the case for investment to potential investors and lenders, and it was based on the following:

- The successful delivery of two subsea tunnels, built on time and within budget and with higher usage than expected
- Bringing back the experience of the previous advisors and designers, as well as using a similar programme of surveys and site investigations to address the geological risks
- Allowing local lenders from the Faroe Islands to participate, thus drawing on the local knowledge to support the case for investment
- Linking financing and construction planning early in the development of the combined project through in-depth financial modelling

7.2.14 Only a small amount of the combined project was financed through equity, with the majority of the finance coming from investors and lenders. As such, there was a significant financial exposure to interest rate increases over a combined construction period of seven years. For reference, it was anticipated that **an increase of 1% in the interest rate would have a higher impact on the project than the estimated value of the quantified construction risk**. If the interest rate increased to 2008 levels, the interest risk rate was estimated at about 25 times the estimated value of the quantified construction risk.

7.2.15 To mitigate this exposure to interest rate fluctuations, the Faroese Government issued bonds, equivalent to the DKK 2.6 billion, at a **fixed interest rate of 2.73% over a 24-year term** between 2016 and 2040. The key attractiveness of the bonds resided with the **financial governance provisions and affirmative covenants** put in place (minimum liquidity requirements, Debt Service Coverage Ratio and binding financial obligations to maintain certain levels of reserves), as well as the Faroese Government's commitment to a guarantee of minimum traffic levels.

7.2.16 Finally, there was a **limited number of contracting companies with the right capabilities and experience to build this type of tunnel**, i.e., to Norwegian standards using drill and blast techniques. Scandinavian companies were considered to have the most relevant experience in this kind of project, with maybe between eight and ten companies able to demonstrate the right experience and size to carry out the works.

7.2.17 In addition to the limited market, bidding companies would need to comply with the requirements from the lenders and investors, i.e., to transfer as much of the construction risk to the contractor as possible. In response to this, EST put together a tender strategy that **transferred the risk of around 70% of the contract prices to the contractor using the fixed price mechanism**.

Benefits realisation

7.2.18 The Eysturoy tunnel was completed on time and within budget, opening to the public six months earlier than anticipated. The Sandoy tunnel was also completed on time and within budget, with traffic levels today two to three times higher than expected, which has paved the way for additional investment. Revenue is increasing year-on-year, with **significantly higher income from the Sandoy tunnel than initially anticipated**.

7.2.19 This has allowed the Faroese Government to decrease the value of their guarantee over time. In 2022, this financial commitment was DKK 54 million (£), decreasing to DKK 47 million (£) in 2023, and further to DKK 40 million (£) in 2024. Projections had anticipated continued support with allocations of DKK 27 million (£) in 2025 and DKK 18 million (£) in 2026. This suggests that the **Faroese Government may be able to cease its financial support earlier than expected**.

7.3 Programme Plan

7.3.1 At this stage in the business case, there is still significant uncertainty around the preferred investment programme and, therefore, the timeline for the specific sequence of investments. This will be prepared towards the end of the Programme OBC delivery period. This section, therefore, reflects on the immediate, most urgent requirements for ferry replacements and introduces an indicative timeline for a future prospective tunnel.

Ferry replacements

7.3.2 As noted in the strategic dimension, the current ferry fleet is ageing, with some of the vessels significantly past their operational life. These will need to be set as priorities for ferry replacements within the IITCP. For reference, the figure below provides an overview of Shetland's entire fleet, showing which of the ferries have been operating for over 30 years.

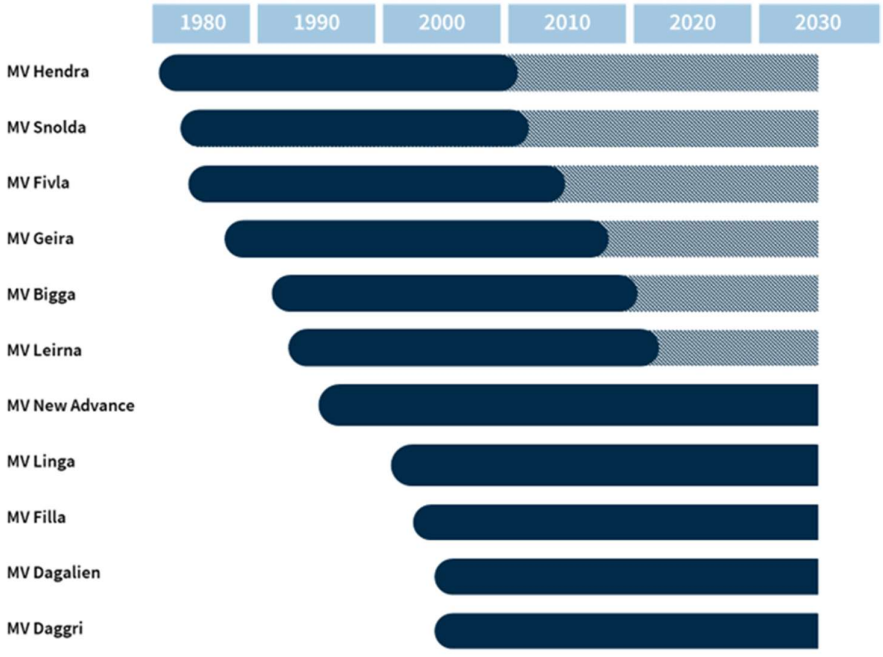


Figure 7.1: Age of Shetland's ferry fleet

Tunnel timeline

7.3.3 The purpose of this section is to outline the timeline from the completion if the IITCP Network Strategy Programme OBC to the hypothetical opening of the first tunnel within the programme. However, it must be highlighted that this first tunnel has not yet been identified, nor has it been demonstrated that there is a case for building tunnels as part of the IITCP. Therefore, this timeline reflects the delivery of a generic tunnel in the Shetland setting.

7.3.4 The duration of some activities will vary depending on the tunnel selected but it is expected to be within the envelope presented. The indicative timescales presented are based on previous experience of similar scale projects of this nature, including pre-planning and business case development, consenting, detailed design and construction.

7.3.5 Procurement activities have been assumed to run in parallel to the consenting and, therefore, will not be on the critical path. This, however, could vary depending on the selected procurement and delivery model and the extent to which procurement is integrated at programme level. It must also be noted that the timescales presented assume all activities are end-on and proceed without delays related to approvals, funding, consents etc. These all could have a significant impact on this timeline. For additional clarity, this means that the business cases for both the network and the individual tunnel project are supportive, and follow sequentially without significant delays between stages, and on the assumption that funding will be available.

7.3.6 Finally, the generic tunnel adopted is assumed to be a single bore tunnel carrying a two-lane bi-directional road.

Timeline

7.3.7 The starting point for the timeline presented is the beginning of 2025, where the Network Strategy business case is under development and expected to be complete in 2026. On completion of the Network Strategy Programme OBC, individual projects will require their own business case to be developed in two separate stages – the OBC and the FBC (post-procurement).

7.3.8 The **indicative timeline** is presented in the figure below, including all of the business case activities, consenting, procurement and construction.

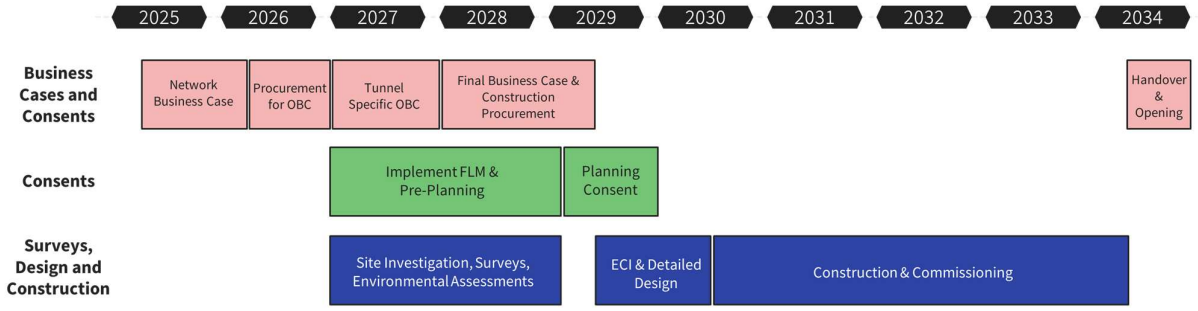


Figure 7.2: Indicative tunnel timeline

7.3.9 Following completion of the Network Strategy Programme OBC, a period of **3 months** has been built into the timeline to make the key decision to progress with developing a tunnel solution for a specific island, and to procure the OBC for said tunnel. The OBC will build on the work undertaken at programme level but will differentiate the benefits of the single intervention in the context of the overall network.

7.3.10 Development of the OBC can include further development of the tunnel option(s) from the network level study and may include preliminary information from investigations to manage risk, further design development to sharpen project definition and engagement with the potential funders and construction partners to improve cost estimates. These activities would be aimed at providing greater cost certainty.

7.3.11 It is estimated that completion of the tunnel OBC would take between **10 and 20 months** depending on the level of further investigation and development undertaken to supplement the work from previous studies.

7.3.12 Various surveys and investigations have been undertaken for some potential tunnel routes during previous studies. However, these will need supplemented by a campaign of more detailed investigations to allow development of options such as depth profile and route. These investigations will include topographic and bathymetric surveys, ground investigations and environmental / habitat studies. The ground investigations and environmental studies will have the longest duration.

7.3.13 Investigations at the tunnel portals are relatively straightforward; however, the offshore investigations are more complex and may have a longer lead time due to limited availability of the specialist equipment. It could take between **6 to 12 months** to procure and undertake the initial offshore ground investigation. However, these timescales would be subject to the availability of the appropriate equipment and the length of the tunnel under consideration.

7.3.14 The environmental studies will also have a long duration as they will need to capture seasonal changes such as migratory birds in the habitat surveys. It is estimated that the duration of the surveys and investigations to allow the planning submission are anticipated to be of the order of **20 to 26 months** overall. This assumes an early start for the first phase of geotechnical works as noted above.

7.3.15 Once the OBC for the tunnel is established, in addition to developing and defining procurement and funding strategies, a pre-planning phase of between **18 to 24 months** would be anticipated for a project of this scale. Environmental impact assessments (EIA) would be carried out during this phase to inform the design and development of the planning application. There is limited opportunity to reduce the duration of this phase as the environmental studies would be required to capture all seasons, meaning a minimum of a year of observations.

7.3.16 During this period, Preliminary Design work would be undertaken to fix the tunnel route, layout of portals and any ancillary structures, and to define the key design parameters such as cross-section, safety strategy and the like. Consideration would be given to tunnelling logistics, such as site establishments, material supply and spoil removal, which will need addressed in the planning application.

7.3.17 This stage would include formal pre-planning application consultation along with engagement with all project stakeholders, both statutory and non-statutory. This process would significantly de-risk the formal consenting period for the design.

7.3.18 At the conclusion of this stage, the business case process would then proceed to the next stage, i.e., the FBC.

7.3.19 Consenting periods vary by local authority and are wholly dependent on the consenting approach required by both regional and national guidelines. On the assumption that the Council is supportive of the project and with the pre-application consultation report demonstrating stakeholder engagement and feedback, a local planning consent could optimistically be provided within a **6 to 9 months** timescale.

7.3.20 This part of the process entails significant risk, particularly if there are objections to the proposal, which could result in the application being 'called in' by Scottish Ministers, which could significantly prolong the process.

7.3.21 The FBC revisits and updates everything on which the OBC was based and is developed based on the outcome of the procurement phase of the project. The FBC also sets out the detailed arrangements for the successful delivery of the project. This has been assumed to run in parallel with the planning consent process, detailed design and procurement for the main works and its duration will be **12 to 18 months** aligned with the detailed design phase. It is worth noting, however, that running these activities in parallel carries a degree of risk that some design activities may be abortive. The end point of the FBC will be the final investment decision to proceed with tunnel construction.

7.3.22 Subject to a favourable investment decision, a construction period of between **24 to 36 months** could be expected. This, however, would depend on the length of the tunnel, ground conditions, portal requirements, the method of construction and logistics.

7.3.23 An allowance of **1 to 2 months** has been included to hand over the asset to the Council or the operating organisation upon completion of the construction stage.

Conclusions

7.3.24 Taking the duration listed above for the main activities, the overall duration from the beginning of 2025 to opening of the first fixed link would be between **7 to 10 years**. At the lower end, seven years seems a very ambitious timescale, while nine years would be a more realistic, but still optimistic, estimate.

7.3.25 There are key risks that may affect these timescales, some of which have been identified above. Funding risks would be particularly critical to this timeline and could end up having the highest impact on the timings indicated above. The risks (and opportunities) will be further developed in the Network Strategy Programme OBC.

7.4 Programme Dependencies

7.4.1 The main programme dependencies have been outlined in the Strategic Dimension (Section 3.7). These will be developed in more detail as part of the Network Strategy Programme OBC.

7.5 Assurance and Approvals Plan

7.5.1 Prior to progressing with any individual options, the Network Strategy should be developed through each of the business case stages, i.e., SOC and OBC, which will be subject to three key decision points by the Council:

- **SIC Decision Point 1:** 'Sign-off' by Elected Members on the option packages to be taken forward into the OBC for detailed appraisal (i.e., sign-off of this report)
- **SIC Decision Point 2:** The appraisal will identify a preferred option for each island, which will allow the Council Members to determine which ferry or fixed links projects should be progressed for further analysis
- **SIC Decision Point 3:** Analysis of the network options will define a preferred sequence of investments across the network throughout the delivery period of the Network Strategy. This will need to be signed off by Council Members

7.5.2 A more comprehensive assurance framework and approvals plan will be developed as part of the Network Strategy Programme OBC.

7.6 Risk, Opportunity and Issues Management

Risk process

7.6.1 The risk management process for the IITCP should facilitate the ongoing identification, analysis, treatment and review of risk throughout the construction and post-construction stages of the investment programme, as follows:

- **Identification:** New risks are identified and incorporated into a risk register
- **Analysis and evaluation:** Each risk is assessed and analysis is undertaken to facilitate prioritisation
- **Treatment:** Actions are identified to actively manage risk to the benefit of the programme
- **Monitoring and review:** Monitor progression of risks over the life of the programme
- **Communication and consultation:** Create a clear line of targeted information flows within the agreed governance structure, ensuring the right stakeholders remain informed of relevant risks

Risk management interventions

7.6.2 In order to ensure the continuous management of risks, the programme will be subject to the schedule of risk activities detailed below.

Risk register review

7.6.3 The current risk register was developed between September and December 2024. This process was led by Stantec with inputs from the IITCP Programme Board[42]. This risk register will be reviewed to inform the development of the Network Strategy Programme OBC on at least two occasions:

- As part of the detailed options appraisal process
- Once a preferred option for each island and route has been identified

7.6.4 The frequency of future risk register reviews and how these may be split at the programme and project levels will be set out in the Network Strategy Programme OBC. However, the general structure of the risk register reviews at programme level will be as follows:

- Review the potential risks associated with any key emerging developments
- Review of the previous ‘top 5’ risks
- Review of risk treatment actions which have been selected as targeted or are approaching their completion dates
- Capturing new risks
- Review of the remaining risks in order of current risk score

Risk dashboard reporting

7.6.5 The results of any future risk register reviews and any other risk activity in the month will be summarised in a monthly risk dashboard report. This will summarise the details of the top risks to the project and provide an overview of the current estimated risk exposure.

[42] Further details about current governance arrangements and an analysis of future requirements will be developed as part of the Network Strategy Programme OBC.

Quantitative Risk Assessment

7.6.6 Quantitative Risk Assessment (QRA) modelling is a more advanced form of risk analysis, providing a higher level of granularity to the basis of the risk assessment process. QRA modelling is typically used to evaluate the expected impacts of risk in terms of cost (QCRA) and schedule (QSRA), at any given confidence level. Although there are currently no plans for undertaking QRA, this is recommended to be carried out at programme level prior to any work commencing on individual projects.

Opportunity management

7.6.7 Opportunity management is an approach to enhance programme and project benefits, potentially saving time, cost and improving performance. An opportunity is an event or occurrence that, should it occur, would enhance one or more of the project objectives.

7.6.8 Opportunities will be assessed going forward following the same criteria as risks. Once the opportunities have been assessed, the following response options should be considered:

- **Exploit:** Maximise the probability of the outcome through extensive measures to ensure that the opportunity can become a certainty
- **Enhance:** Consider actions to increase the likelihood of the opportunity occurring, rather than making the opportunity a certainty
- **Transfer:** Transfer the opportunity to the organisation or individual best able to maximise the opportunity
- **Accept:** This is the 'do-nothing' approach by which the opportunity may occur, but nothing is done to prepare for impact

Issues management

7.6.9 An 'issue', for risk management purposes, can be defined as a risk that has materialised and needs to be resolved as soon as possible. Issues will be recorded in a separate Issues Log and a recovery plan developed to ensure the issue is rectified as a matter of urgency.