

# Shetland Inter-Island Transport Study

## Pre-Appraisal Report

On behalf of **Shetland Islands Council**



Project Ref: 35580 | Rev: SC | Date: November 2015



## Document Control Sheet

**Project Name:** Shetland Inter-Island Transport Study

**Project Ref:** 35580

**Report Title:** Pre-Appraisal Report

**Date:** 5<sup>th</sup> November 2015

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Revision	Date	Description	Prepared	Reviewed	Approved
v2.0	30/11/2015	Revised draft taking account of comments from SIC and TS plus peer review from Tom Matthew	SC	SL	SL
v3.0	22/01/2016	Revised draft taking account of further Transport Scotland comments	SC	PMcC	SL
V3.7	05/02/2016	Revised taking account of further SIC comments	SC	PMcC	SL

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# 1 Introduction

## 1.1 Project Overview

- 1.1.1 The purpose of this phase of the Shetland Inter-Island Transport Study (SIITS) is to undertake a proportionate STAG-based options appraisal across the internal Shetland air and ferry network. The overall approach to this options appraisal is to analyse each island in turn considering current and future connectivity needs in the light of the current provision of vessels, harbours, services, aircraft, airstrips and timetables.
- 1.1.2 The output of this process will be a **set of options for each island**, which have been subjected to a Part 1 and Part 2 Appraisal process. The appraisal will be reported in full and also in the form of Appraisal Summary Tables and Options Summary Tables. Given the network coverage (serving nine islands), the analysis and outputs of the appraisal will be proportionate to the wide geographic nature of the study.
- 1.1.3 It is important to note that the air and ferry services provide lifeline connections where there is no alternative should the service fail. This study is ultimately concerned with developing a long-term strategy to provide certainty and ensure the sustainable continuity of services in line with the needs of island communities.

### Business Case Context

- 1.1.4 Transport Scotland has recently published 'Guidance on the Development of Business Cases' (January 2016). There are three main stages to this:
- Stage 1 - Scoping: Strategic Business Case (SBC) – analyses a variety of options which tackle the problems, issues and objectives identified;
  - Stage 2 – Planning: Outline Business Case (OBC) – identifies the Preferred Option; and
  - Stage 3 – Procurement: Final Business Case (FBC) – undertaken during procurement phase.
- 1.1.5 Overall, the Business Case development process comprises the so-called 'five-case' model as follows:
- The Strategic Case – making the case for change;
  - The (socio) Economic Case – optimising value for money in terms of economic, social and environmental impacts;
  - The Commercial Case – commercial viability;
  - The Financial Case – financial viability; and
  - The Management Case – achievability.
- 1.1.6 The STAG process is seen as forming the substantive part of the **SBC** which itself provides the overall Strategic Case for the five-case model. In this context, STAG (and hence this study) will provide the SBC for the future development of Shetland Inter-Island transport links.
- 1.1.7 The STAG also provides key inputs to the Strategic and (socio) Economic cases of the OBC, where these will be revisited / refreshed if necessary. A parallel workstream being undertaken by SIC and Transport Scotland will ultimately inform the Commercial, Financial and Management cases and this material can be brought together to form the OBC. The OBC is therefore analogous to a Transport Connectivity Plan for Shetland.

1.1.8 Any individual element of this Connectivity Plan / OBC will ultimately require an FBC prior to any investment being made. A high-level timeline for the requirement for FBCs will be set out in the OBC.

1.1.9 **This study will therefore provide the Strategic Business Case for the future of Shetland Internal Air and Ferry services.**

## 1.2 Pre-Appraisal Report

1.2.1 STAG highlights the importance of Pre-Appraisal. This stage involves the baselining of the study area and the identification of the transport-related problems, issues, opportunities and constraints within it. Pre-appraisal is a critical stage in the process, as it provides a basis for setting objectives and testing and developing options.

### Baselining

1.2.2 The first task in this project involved a comprehensive baselining of the Shetland Islands and its inter-island transport network. The purpose of this was to provide a clear statement of the underlying factual position in relation to all aspects of the current services - this included:

- the *Council facing* elements of the service:
  - vessels and ports & harbours – assets & operations
  - aircraft & airfields – assets & operations
  - the cost of providing the service; and
  - the context in relation to fixed links.
- the *public facing* elements of the service:
  - carryings and utilisation of the air & ferry services;
  - air & ferry connectivity;
  - a review of all previous consultation; and
  - baselining of the economy and the future planning horizon.

1.2.3 All of the reports from this baselining exercise are referenced throughout this document and are available separately for reference. **Given the volume of research which has been undertaken, our approach in this report has been only to report the salient points in relation to the network overall and each of the islands.** This is in keeping with the proportionate reporting recommended in STAG and will ensure the document remains succinct and accessible.

## 1.3 Our Islands, Our Future – Joint Statement

1.3.1 In December 2014, Shetland Islands Council, HITRANS, Transport Scotland, Orkney Islands Council and ZetTrans agreed a **Joint Statement** establishing Partnership commitments to jointly address ferry replacement issues in Shetland and Orkney. This Agreement was itself linked into the *Empowering Scotland's Island Communities Prospectus* which identified the benefits of close working to establish a fair and effective solution to service requirements for the future.

1.3.2 It was recognised in these Statements that there was a **need for evidence gathering to support future funding and investment decisions.** It was further recognised that the evidence gathering should follow Transport Scotland's established **Routes and Services**

**Methodology (RSM)** and **STAG** Appraisal approaches to ensure consistency and legitimacy alongside other transport projects and services in Scotland.

- 1.3.3 The SIITS study (and corresponding Orkney Inter-Island Transport Study) is intended to provide the evidence required to inform this debate.



## 2 Logic Mapping

### 2.1 Overview

2.1.1 Whilst this current project is fundamentally an options appraisal to feed a Strategic Business Case, to provide a wider context, this Chapter sets out a 'logic mapping' based approach to the typical whole project life cycle from its origin in a set of problems to its post-implementation evaluation. The purpose of this is to explore where the STAG process fits within this logic model based approach.

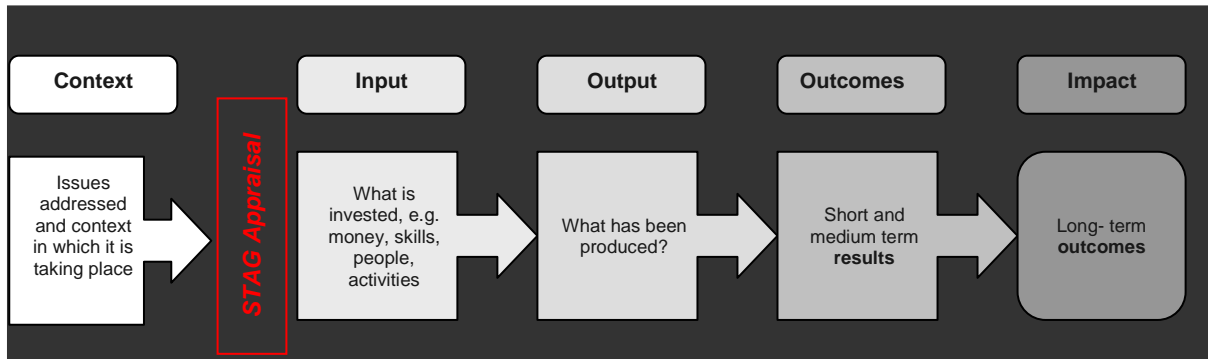
2.1.2 It is recognised that STAG is fundamentally concerned with addressing transport problems or transport opportunities. These problems can however sit within a set of wider overarching aims to which transport can make a contribution. In the Shetland context, inter-island ferry and air services provide the **only available connections** and it is therefore important to demonstrate the extent to which transport in the island context is a fundamental enabler of a functional economy and society.

2.1.3 The principles underlying this line of argument are as follows:

- No transport project is undertaken for its own sake – any 'transport problem' will have a knock-on effect, creating or contributing to other 'societal problems'. It is however acknowledged that transport interventions alone are unlikely to be sufficient to fully resolve these societal problems.
- Any transport project is therefore fundamentally undertaken to tackle firstly a **transport problem** but indirectly address a knock-on **societal problem**; with the societal problem stemming (at least in part) from a **problem relating to the current transport provision**.
  - these societal problems could be stated in the appraisal:
    - *eg unemployment in island x is too high at y%.*
  - links between societal and transport problems also need to be clearly stated and evidence-based
    - *eg there are relatively poor transport links to and from island x that are causing problems (or limiting opportunities) in terms of employment.*
- **Transport planning objectives** are then set aimed at addressing the transport problems / opportunities, not the societal problems.
  - *eg access to employment between island x and mainland or island y should be improved by z%.*
- Options are developed to address the Transport Planning Objectives – ie the transport problems
  - *eg introduce a larger & faster ferry service connecting island x and mainland or island y.*
- Given the evidence-base on the links between the transport and societal problems, it is anticipated that solving the transport problems will achieve, in-full or in-part the wider societal **Aims** and address the **Transport Problems**.
- The **Monitoring & Evaluation** should extend beyond supply and transport to the societal impacts, in which case, an estimate of these societal impacts would be required:
  - *eg the new ferry has to have a capacity of 50 cars and run at 15 knots (transport)*

- eg unemployment in island x is reduced from a% to b% (societal)

2.1.4 As noted, it is helpful to consider this by applying Logic Mapping. The Tavistock Institute produced a guide to Logic Mapping in the context of transport evaluations for the DfT. It suggests that the main components of an 'intervention logic map' are as follows – we have added an Appraisal step between Context and Input:



*'Logic Mapping: Hints and Tips', Tavistock Institute, 2010*

2.1.5 Each stage of this logic map is expanded on below.

### Context

- A set of problems forming the basis of the appraisal

### STAG Appraisal (i.e. this study)

- The transport appraisal
  - (i) develops the transport aspects of the identified problems
  - (ii) develops Transport Planning Objectives to address these problems
  - (iii) undertakes an appraisal of options based on these objectives
- A range of options emerge from this appraisal

### Inputs

- eg funding, resources etc to implement the project

### Outputs

- has the project physically been achieved – ie essentially a measure of the **supply side in terms of the delivery of a project**, eg new vessel or increased ferry frequency or lower ferry fares etc.

### Outcomes

- What have the **transport** outcomes been in the short and medium-term – eg people now benefit from reduced journey times, more people travel, access to opportunities and services has been successfully maintained, etc.

### Impacts

- What have the **societal** impacts been on the wider economy – eg people can now take up new employment opportunities and incomes have risen, economies and communities remain strong and resilient, etc.

## Evaluation

- Any later **Evaluation** should consider Outcomes (Transport) and potentially Impacts (Societal).

2.1.6 This logic chain is deployed throughout this report, with a view to identifying the societal problems in the Shetland Islands and the extent to which existing transport services are acting as a contributing factor to these problems. The objective is to provide evidence that, by addressing the identified transport problems, desired wider societal impacts will be achieved (in full or in-part), contributing to local and national government policy.

## 2.2 A Nine-Step End-to-End Process

2.2.1 With reference to the above, this section puts forward a proposed nine-step process which aligns the STAG-based SIITS Appraisal with the end-to-end logic mapping approach.

### Step 1) Develop the set of island-based 'societal' problems

- *eg an island may have an ageing and declining population or lagging local economy*

### Step 2) From these societal problems, develop high level 'Aims'

- *eg address declining population in islands where this is occurring*

### Step 3) Develop the transport related aspects of the Step 1 Societal 'Problems' at the island level – ie identify any problems with current connectivity that may contribute to these 'societal' problems.

- *eg the costs and frequency of island to mainland connections may be leading to people moving from the island for employment on the mainland*

2.2.2 Given that this project is concerned with nine different islands, rather than a single island, it is beneficial to adopt a consistent and systematic approach to the process of identifying transport problems. A full list of all of the aspects of inter-island connectivity which could **conceivably be considered as a 'Transport Problem'** has therefore been derived to provide a **checklist** for this process. This checklist is laid out in Chapter 5.

2.2.3 Each aspect of connectivity in the checklist will be reviewed for each island in the context of the **available evidence** to establish whether this is a problem or not. The identified problems will then be taken forward into the appraisal as **evidence-based problems**. The four SIITS Review Work Packages (Connectivity, Planning Horizon, Consultation, Carrying) are used to provide this evidence. This approach has the added benefit of providing an audit trail to indicate that all of these service aspects have been considered.

2.2.4 **Step 4) Develop Transport Planning Objectives – designed to tackle the transport related problems laid out in Step 3.**

2.2.5 At this stage, we will lay out how meeting these Transport Planning Objectives would meet the Aims established for the project.

2.2.6 **Step 5) Option(s) are developed and appraised that could potentially meet the Transport Planning Objectives.**

2.2.7 **This point would mark the end point of the current SIC SBC workstream.** The remaining steps are included here for additional context.

2.2.8 Looking further ahead, the preferred option emerging from an SBC / OBC / FBC process would eventually go through an FBC process and be implemented via the Logic Model **Inputs**.

**Step 6)** The remaining option then creates a Logic Model **Output**, a supply side change (eg a new ferry, a higher frequency air service etc)

**Step 7)** The remaining option creates a Logic Model **Outcome** - ie people travel more often / more cheaply / more reliably etc

**Step 8)** Over time, these transport outcomes lead to (societal) Logic Model **Impacts**

2.2.9 If achieved, by reflecting the **aims** set, the **impacts** should address the **problems and opportunities** identified at the outset (ie in Step 1). The appraisal process will have set out the evidence base for this.

2.2.10 These **Impacts** are aligned with the Aims for which targets & indicators could be set.

### Step 9) Monitoring and Evaluation

2.2.11 The monitoring & evaluation should cover how the project has performed in terms of:

- Outputs (Supply side)
- Outcomes (Transport outcomes)
- Impacts (Societal Impacts – where possible)

2.2.12 This process is summarised in the flow chart below where the blue boxes represent the current study and the green boxes would be tasks undertaken in the future.

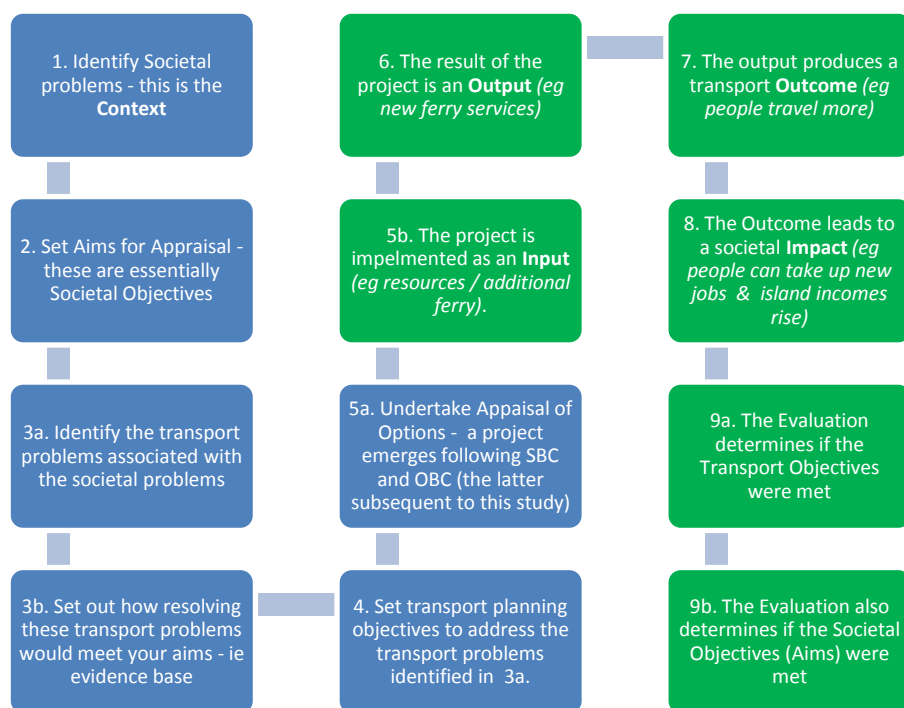


Figure 2.1: Logic Framework for Overall Process

2.2.13 The remainder of this report follows the structure of this logic model up to and including task 5a, as follows:

- Chapter 3 sets out the societal problems (context) and sets aims for the appraisal (ie the societal objectives) (tasks 1 & 2).
- Chapters 4 and 5 identify the transport problems, issues, opportunities and constraints associated with the societal problems (task 3a and 3b).

- Chapter 6 sets the transport planning objectives (task 4).
- Chapter 7 sets out the option development process and the pre-appraisal option sifting.

## 3 Socio-Economic Context

### 3.1 The Island Challenge - Societal Problems

- 3.1.1 The larger the island, the more self-contained it tends to be – essentially as the size of the island's economy increases, the dependency on its transport connections becomes progressively more limited to the facilitation of the supply chain and import / export of goods.
- 3.1.2 In this case, the Shetland Islands aside from the mainland have a much greater reliance on their transport connections on a day-to-day basis, hence the description of 'lifeline' services. Small islands by their nature therefore face an element of competitive 'disadvantage' compared to the mainland given that they are physically detached from some services and opportunities. Without regular connections, life on these islands could not therefore be sustained. The purpose of transport connections is to assist in reducing this disparity as far as possible by 'closing the gap'. In this study, the nature of the connections to each island are analysed in this context.
- 3.1.3 The following set of bullets establish the inherent competitive 'disadvantages' faced by islands in the Shetland archipelago by virtue of their physical separation from the Shetland mainland:
- There are **reduced access to opportunities** (eg employment, health, leisure, social, onward strategic transport connections (air / ferry), emergency services) associated with living in an island community.
  - There are relatively **higher costs associated with living and / or doing business in an island community**.
  - There is a potential **competitive disadvantage** associated with basing a business in an island community.
  - There is **not broad equality of opportunity** for island residents (including vulnerable groups), both in a local and national context.
  - Some islands are **unable (now or in the foreseeable future) to maintain the required number and mix of residents necessary** to consider an island sustainable in terms of the provision of transport and other public services.
  - For mainland based concentrations of employment, **access to island-based labour markets is constrained (and vice versa)**.
  - Island residents have **limited access to essential public services** – whether delivered on-island or off-island.
  - There may **not be a fair and consistent level of connectivity** where no island is unduly disadvantaged relative to other islands in the group accounting for local circumstances.
  - The **benefits of tourism are not evenly spread across the island group**.
  - There is an **over-concentration of economic activity in Lerwick**.
  - There is **income inequality across the islands** where this is brought about by constrained access to employment opportunities.
  - **'At home' time for children educated off island can be restricted** – this makes islands a less attractive place to live for those with children.
  - People and goods **cannot always travel at the time needed with a high certainty of supply** (reliability / capacity).

- The island group **could function more effectively as a single economic unit** – improved productivity / agglomeration.
- Some islands have an **unbalanced demographic** which impacts on the future sustainability of the community.
- Some islands may function as a community in terms of the current residents but are **compromised in terms of attracting new inhabitants**.
- There is a **high cost to service providers** of providing island communities with essential public services.

3.1.4 These wider societal problems are reflected in various ways at the individual island level. The evidence in this respect is set out below, with reference to the SIITS *Socio-Economic Baseline & Future Planning Horizon* report.

## 3.2 Island-Level Socio-Economic Problems & Opportunities

3.2.1 This section considers the island-level socio-economic problems and opportunities developed in the SIITS Socio-Economic Baseline & Future Planning Horizon report.

### Bressay

- Despite strong population growth towards the end of the 20th century, Bressay has experienced a recent decline in population, something which the recent closure of the school may accelerate. During our consultation with HIE, they expressed a concern that the island is becoming increasingly fragile.<sup>1</sup>
- There is limited on-island activity on Bressay, with the majority of residents being geared towards the Lerwick jobs market. The fishmeal factory is likely to be the largest single private sector employer. There has been an overall downturn in services in the island in recent years.<sup>2</sup>
- The frequency of travel for Bressay residents is necessarily significantly higher than on other islands – this links to the above point in terms of limited on-island opportunities and a dependence on neighbouring Lerwick for almost all key services.
- Bressay has a very high economic activity rate (akin to that of Shetland as a whole), although the majority of full-time employees are likely to commute to Lerwick.<sup>3</sup>
- Bressay residents share a similar occupational profile to the Shetland Islands as a whole, although the proximity of the island to Lerwick means that there is an above average proportion of residents employed in white-collar jobs.<sup>4</sup>
- The private car is the dominant mode of travel-to-work for Bressay residents, with 39% of users driving a car onto the ferry, with a further 11% travelling as a car passenger.<sup>5</sup> Ferry use remains prevalent and is growing. The proportion of Bressay residents who work at home has grown significantly, likely reflecting enhanced digital connectivity.<sup>6</sup>

<sup>1</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.18

<sup>2</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.18

<sup>3</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.19

<sup>4</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.20

<sup>5</sup> Shetland Ferry Passenger Survey High Level Results (McGregor Transport & Strategy Solutions, 2014), p.37.

<sup>6</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.22

- The lack of readily available social housing on Bressay and the relatively static property market suggests that housing could be a constraint to growth on the island and could have been a factor in the decline of its population.<sup>7</sup>
- Bressay is the only one of the nine islands in this study where on-island nursery and primary school provision is not available. Whilst the rationale underpinning the closure of the school was perhaps sound, there is a potentially longer-term impact in terms of the attractiveness of the island for in-migrants.<sup>8</sup>
- Bressay has benefitted from the initial roll-out of high-speed fibre broadband, providing it with high quality internet connectivity.<sup>9</sup>
- In terms of opportunities, whilst Bressay has faced a number of recent challenges, its proximity and excellent connectivity to Lerwick offers a wide range of employment, business and leisure opportunities for the island. There are also plans for more local development on Bressay. Over the piece, demand for transport between Bressay and the mainland is likely to be at least steady, if not increasing over the plan period.<sup>10</sup>

## Fair Isle

- Fair Isle's population had shown relatively strong growth between 1981 and 2011, but the cumulative growth was wiped out between 2011 and 2015, with the population now down to 55. Fostering population growth is a key element of the island's development plan and addressing the transport issues facing Fair Isle is deemed to be an important element of this plan.<sup>11</sup>
- The Fair Isle population is both ageing and declining – limited transport connectivity is seen to be one of a number of causes of this. Addressing this issue and raising overall economic activity rates is essential to the future sustainability of the island.<sup>12</sup>
- The occupational structure of Fair Isle reflects the predominance of self-employment and cottage industries on the island.<sup>13</sup>
- Car ownership is lower in Fair Isle than elsewhere in Shetland, with those who do own a car likely making mainly on-island trips.<sup>14</sup> This may in part reflect the difficulties of getting the car on the ferry for a trip to mainland, with island travel patterns having very much evolved around use of the air service for the majority of trips to the mainland.
- There has been a significant growth in home working in Fair Isle between the last two Census periods, a common trend across Scotland (although it is again important to bear in mind that residents hold multiple jobs, making economic data imprecise. However, access deprivation is a key issue for islanders.<sup>15</sup>
- Health indicators for Fair Isle are generally good, although there are concerns over access to various aspects of health provision consistent with other rural communities.<sup>16</sup>

<sup>7</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.19

<sup>8</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.24

<sup>9</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.24

<sup>10</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.91

<sup>11</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.26

<sup>12</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.27

<sup>13</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.27

<sup>14</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.29

<sup>15</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.30

<sup>16</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.30



- The roll at Fair Isle primary school (five children in 2014) and nursery (no children in 2014) has declined in recent years, which is in keeping with the general decline and ageing of the population.<sup>17</sup>
- There are ambitious plans for the development of Fair Isle, principally aimed at putting the population on a more sustainable footing (in terms of both absolute numbers and the age profile). However, current transport connectivity is seen to be a significant inhibitor to realising this growth. The reliability issues surrounding the ferry service, the ageing vessel and its lack of onboard facilities and capacity issues on the air services are seen to be an issue in Fair Isle.<sup>18</sup> Addressing the reliability and connectivity issues is seen to be important in ensuring the future sustainability and growth of the island.

## Fetlar

- Fetlar has experienced a significant recent decline in population (81 residents in 2013, down to 59 in August 2015) and the community is now very fragile. Limited on-island economic opportunities, a lack of appropriate housing and the closure of the island shop are amongst a number of factors cited as an issue.<sup>19</sup>
- Fetlar currently has a shortage of viable economic development opportunities, an issue the Fetlar Development Plan is seeking to address.<sup>20</sup>
- Fetlar has limited economic opportunities, with the bulk of employment concentrated in agriculture, small scale tourism and the public sector – travel to neighbouring islands and mainland is therefore essential.<sup>21</sup>
- Fetlar has comparatively low levels of household car ownership.<sup>22</sup>
- There has been an increase in home working across Fetlar, which is consistent across the majority of Scottish islands.<sup>23</sup>
- The lack of appropriate housing is deemed to be a problem on Fetlar.<sup>24</sup>
- Fetlar continues to have an on-island primary school and nursery, which is critical for the island. However, the roll in each is very low.<sup>25</sup>
- Fetlar's transport connections will be an important enabler of the Community Development Plan. The frequency of ferry services appears reasonable although there may be specific issues around sailing times, particularly gaps in the timetable.<sup>26</sup>

## Foula

- The population of Foula is small but has been relatively resilient over the years, despite limited on-island opportunities.<sup>27</sup>

<sup>17</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.31

<sup>18</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.92

<sup>19</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.33

<sup>20</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.34

<sup>21</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.35

<sup>22</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.37

<sup>23</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.37

<sup>24</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.38

<sup>25</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.40

<sup>26</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.93

<sup>27</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.41

- Employment opportunities on Foula are limited, with employment concentrated in public sector posts, small scale crofting and seasonal tourism.<sup>28</sup>
- The shortage of housing stock in Foula is a key constraint on population sustainability and growth.<sup>29</sup>
- Health provision on Foula is limited, although this is perhaps to be expected given the remoteness of the island. The main need of the island appears to be enhanced emergency cover.<sup>30</sup>
- Foula retains its primary school and recently attracted a teacher to go and live on the island. The school roll has increased over the last two years.<sup>31</sup>
- The cost of living is higher on Foula than most other areas of Shetland due to the added expense of either flying or shipping in materials, fuel, food and supplies. Freight charges are equivalent with Fair Isle - £25.30 for vehicles up to and including 5.5 metres - which compares with £6.80 for Skerries and Papa Stour. This often has a detrimental impact on the island and adds to the challenges for the local population. Access to services and social events is also highly restricted.<sup>32</sup>
- There is no ambulance cover on Foula and emergency medical response is challenging. There is also no taxi service on Foula, with the community working together to provide transport to the airstrip or ferry terminal.<sup>33</sup>
- There is unlikely to be a significant change in the transport needs of Foula over the plan period, although improved accessibility to key services and increased time on the mainland could assist in sustaining and developing the population.<sup>34</sup>

## Papa Stour

- Papa Stour has a very small and fragile population, although there have been some recent signs of improvement. There is a problem for landowners, who own property on the island but rarely live there as a result of poor connectivity and job opportunities.<sup>35</sup>
- The Papa Stour economy is almost wholly dependent on small scale crofting and a handful of public sector jobs.<sup>36</sup>
- The cost of living is higher on Papa Stour than most other areas of Shetland due to the added expense of either flying or shipping in materials, fuel, food and supplies. This often has a detrimental impact on the island and adds to the challenges for the local population. Access to services and social events is also highly restricted.<sup>37</sup>
- There is no ambulance cover on Papa Stour and emergency medical response is challenging.<sup>38</sup>

<sup>28</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.42

<sup>29</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.42

<sup>30</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.42

<sup>31</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.43

<sup>32</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.44

<sup>33</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.44

<sup>34</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.94

<sup>35</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.45

<sup>36</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.45

<sup>37</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.46

<sup>38</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.46

- There is unlikely to be any major change in the demand for travel amongst Papa Stour residents, although reviewing and resolving the issues with the current ferry service will be an important element of this study.<sup>39</sup>

## Skerries

- The Skerries population has been in steady decline since 1981 and is now believed to number less than 60. This poses a significant threat to the future sustainability of this group of islands.<sup>40</sup>
- Skerries has a relatively low economic activity rate (although perhaps underestimated by the official figures), a problem likely exacerbated by the closure of the salmon farm and processing plant.<sup>41</sup>
- There has been a substantial increase in the number of people working from home in Skerries.<sup>42</sup>
- There has been a gradual decline in numbers at both primary and secondary school level, with just 2 children enrolled at the Primary School in 2014. The declining school roll, closure of the high school and general population decline present a serious threat to the future sustainability of the island chain.<sup>43</sup>
- There is little in the way of proposed development in Skerries and the island chain is currently going through a challenging period. The key issue with regards to transport connectivity is the extent to which day / week commuting to the mainland can be supported and / or whether current connectivity is preventing valuable on-island opportunities materialising.<sup>44</sup>

## Unst

- Population in Unst declined following the closure of RAF Saxa Vord in 2006 but is now relatively stable at the 600-650 mark.<sup>45</sup>
- The economic activity rate in Unst also declined with the closure of RAF Saxa Vord and the out-migration of a number of young and economically active families from the island. Nonetheless, the picture overall remains relatively healthy.<sup>46</sup>
- There are seen to be a number of opportunities in sectors such as tourism and food & drink. The public sector continues to play a key role in terms of providing both direct employment and facilitating other development opportunities on the island.<sup>47</sup>
- Unst has broadly similar levels of car ownership when compared with the Shetland average, whilst the private car dominates the travel-to-work market, suggesting longer distance movements and travel-to-work destinations within Unst, where the settlements are relatively dispersed.<sup>48</sup>

<sup>39</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.94

<sup>40</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.47

<sup>41</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.48

<sup>42</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.50

<sup>43</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.52

<sup>44</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.92

<sup>45</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.54

<sup>46</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.55

<sup>47</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.57

<sup>48</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.59

- The availability of housing on Unst is reasonably good (although there are some local issues) but there are concerns that housing is of the 'wrong type' for retaining and attracting families.<sup>49</sup>
- Healthcare in Unst is seen to be of a high standard, although there is a community concern about the lack of some resident specialist services.<sup>50</sup>
- The school roll in Unst declined sharply with the closure of RAF Saxa Vord, but has recovered slightly since 2006.<sup>51</sup>
- Unst has had its economic challenges in recent years but has now stabilised to some extent, albeit with a smaller population. There are also promising signs of growth in the local economy, with tourism and food & drink being key growth industries. The work of the Unst Partnership may also stimulate population growth, although the reintroduction of fares onto the Bluemull Sound has been an issue for the island. Good transport connectivity will be important in ensuring the realisation of the above stated opportunities in Unst.<sup>52</sup>

## Whalsay

- Whalsay has a stable population, although islanders do have concerns that limited ferry capacity and a lack of affordable housing are causing out-migration amongst younger cohorts.<sup>53</sup>
- Whalsay has a relatively healthy economic activity rate, although there are a higher proportion of retirees amongst the population than on Shetland as a whole.<sup>54</sup>
- Whalsay has a relatively healthy economy, although it is quite dependent on the fishing industry for its economic wellbeing.<sup>55</sup> The ability to commute off-island does however remain critical, particularly in terms of providing a diversified economy.
- Whilst the private car dominates travel-to-work for Whalsay residents, it is clear that either or both the cost of taking the car on the ferry / driving generally and capacity issues are restraining car use. As with other islands, the number of residents working from home has increased.<sup>56</sup>
- There is seen to be a shortage of the types of housing that will assist in attracting new people onto the island.<sup>57</sup>
- Whilst school rolls have generally been in decline since the 1980s, there are promising signs for the island, with a doubling of the number of children in the nursery between 2013 and 2014.<sup>58</sup>
- Whalsay is an island with a strong and stable population and economy, although like all islands, it does have problems in terms of connectivity. Consultation with islanders has stated that capacity issues on the ferry, combined with the cost of travelling and the

<sup>49</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.60

<sup>50</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.61

<sup>51</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.62

<sup>52</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.96

<sup>53</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.63

<sup>54</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.64

<sup>55</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.66

<sup>56</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.67

<sup>57</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.68

<sup>58</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.70

reduced weekend timetable post-cuts have had a cumulative negative effect on the island, leading to the out-migration of younger people.<sup>59</sup>

## Yell

- Yell has a relatively stable population, supported by good access to job opportunities and local services.<sup>60</sup>
- Whilst Yell has a stable population, it is also an ageing one, which is reflected in the proportionally lower economic activity rate and higher number of retirees relative to the Shetland Islands generally.<sup>61</sup>
- The Yell economy is relatively healthy, with a number of indigenous businesses in the valuable aquaculture sector, good commuting opportunities and a strong public sector presence (in terms of both direct jobs and as a facilitator of other opportunities).<sup>62</sup>
- Yell has very high levels of household car ownership and a significant proportion of its residents travel in a car to work. This reflects the importance of commuting to the island, particularly to Sullom Voe and Lerwick. The amount of people working from home has increased, which is common across all nine islands.<sup>63</sup>
- The availability of housing on Yell and the North Isles generally is seen to constrain the growth of the community.<sup>64</sup>
- Health provision in Yell is of a very high standard.<sup>65</sup>
- School rolls have declined over the last 25 years or so, which is in keeping with the ageing population on Yell.<sup>66</sup>
- Yell is in a relatively favourable position overall, with a stable population, reasonable industrial mix and good connectivity. Maintaining and potentially improving this level of connectivity in years to come will be of importance to the island.<sup>67</sup>

3.2.2 Finally, the table below summarises the available services on each island, which provides an indication of the likely current need to travel:

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<sup>59</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.97

<sup>60</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.71

<sup>61</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.71

<sup>62</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.74

<sup>63</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.76

<sup>64</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.77

<sup>65</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.78

<sup>66</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.79

<sup>67</sup> SIITS Economic Baseline & Future Planning Horizon (Peter Brett Associates, 2015), p.98

Table 3.1: Key Services by Island

	Primary School	Junior Secondary	Shop	Post Office / Services	Health Centre	Dentist	Emergency Cover	Leisure Centre	Industrial Base	Max Digital Connectivity <sup>68</sup>	Population (2011 Census)
Fetlar	✓			✓			✓		✓	ADSL Max	61
Unst	✓	✓	✓	✓	✓		✓	✓	✓✓	ADSL Max/Exchange Activate	632
Yell	✓	✓	✓	✓	✓	✓	✓	✓	✓✓✓	ADSL Max/Exchange Activate	966
Skerries	✓		✓	✓					✓	Exchange Activate	74
Whalsay	✓	✓	✓	✓	✓		✓	✓	✓✓	ADSL Max	1061
Bressay				✓			✓		✓	ADSL Max	368
Fair Isle	✓		✓	✓					✓	Exchange Activate	68
Papa Stour	✓			✓					✓	Exchange Activate	15
Foula	✓			✓					✓	Exchange Activate	38

Note – emergency cover is limited on the Outer Islands.

Note – a review of what can be done with existing broadband speeds is included in the Economic Baseline & Future Planning Horizon Report.

### 3.3 Appraisal Aims

- 3.3.1 The above analysis has been used to develop a set of high level aims which seek to encapsulate how transport can play a role in contributing to the future sustainability and prosperity of the Shetland Islands. These Aims, which were developed at the SIITS Objective Setting Workshop, are also reflective of regional and national policy.
- 3.3.2 The Shetland Transport Strategy (2008) produced a comprehensive set of 33 objectives nested within the five STAG criteria. Our review found that the aims developed as part of this study align with the RTS objectives. This ensures a good fit between SIITS options development and appraisal and the RTS in terms of Established Policy Directives.

<sup>68</sup> Unst and Yell are served by multiple telephone exchanges, the other islands by a single telephone exchange.

Maximum download/upload speeds:

Exchange Activate = 0.5Mbps/0.25Mbps

ADSL Max = 8.0Mbps/0.4Mbps

FTTC = 76Mbps/20Mbps

All speeds reduce as the length of copper line increases from exchange or cabinet – download speeds drop more than upload.

### 3.3.3 The Aims developed are as follows:

- 1) The inter-island transport network should **support and promote inclusive economic growth**.
  - It will help to mitigate the **reduced access opportunities** associated with living on an island community.
  - It will help to mitigate the **increased cost** associated with living and / or doing business on an island community.
  - It will help to mitigate the potential **competitive disadvantage** associated with basing a business in an island community.
  - It will help to provide broad **equality of opportunity** for island residents (including vulnerable groups), both in a local and national context.
  - It will help to **reduce income inequality** across the islands where this is brought about by constrained access to employment opportunities and essential services.
  - It will provide access to a **wide labour market and source of raw materials**.
- 2) The inter-island transport network should support **improved access to opportunities and services** on mainland Shetland, including employment, health, education and personal services.
  - It will help to provide access to a **wide labour market** for mainland based concentrations of employment (and vice versa).
  - It will help to enable island residents to **access essential public services**, whether delivered on-island or off-island.
  - It will work towards providing island residents with a **fair and consistent level of connectivity** where no island is unduly disadvantaged relative to other islands in the group.
  - It will maximise **'at home'** time for children educated off-island, making the island a more viable place to live.
  - To enable people and goods to broadly **travel at the time they wish** with a high **certainty of supply**.
  - To reduce the time and money **costs to service providers** of providing island communities with essential services, both public and private (e.g. schools, health, tradespeople etc).
- 3) The inter-island transport network should **promote population retention**, a balanced island demographic and capacity within the local community
  - It will help to achieve / maintain **critical mass** in terms of population.
  - It will help to support higher levels of **economic concentration** (i.e. a critical mass of employment opportunities) on the islands.
  - It will help to make the islands a practical proposition for those **potentially minded to island life (i.e. in-migration)**.
- 4) The inter-island transport network should support **enhanced productivity and economic connectivity** within the Shetland Islands

- It will help to increase the proportion of total **tourists** visiting the islands.
- It will help the island group to function more effectively as a **single economic unit** through **increasing productivity / agglomeration**.



## 4 Consultation

### 4.1 Overview

- 4.1.1 Effective and proportionate consultation is an important part of the STAG process and provides a valuable input to the process. At the Pre-Appraisal stage, the aim is to identify current and future transport problems, issues, constraints and opportunities. These may be real or perceived and may have been raised by one or more stakeholders or members of the community.

### 4.2 Approach to Pre-Appraisal Consultation

- 4.2.1 In developing our methodology for this study, the Council explained that there had been a significant volume of transport related consultation undertaken on the islands in recent years. In addition, SIC undertakes a programme of ongoing consultation with islanders covering a range of issues including transport provision. To this end, the team and client took the view that additional consultation specifically related to this study would not be welcomed by islanders at this stage, and that there was no evidence to suggest a material change from the position recorded through previous consultations.
- 4.2.2 The approach to initial consultation was therefore to undertake an initial comprehensive review of existing material, including the:
- previous STAG studies for Bluemull Sound, Whalsay, Bressay and the Outer Isles;
  - consultation sections within the Shetland Fixed Links Socio-Economic Study;
  - material from the recent Shetland Ferries Review, which informed the spending reductions / service cuts imposed on the network;
  - Shetland Ferry Passenger Survey High Level Findings; and
  - Routes & Services Methodology survey findings.
- 4.2.3 The review of previous consultation findings is set out in the SIITS Consultation Report. The SIITS Consultation Report was reviewed by Council officials and cross-checked against the records of ongoing consultation with islanders.
- 4.2.4 Whilst wholly new public consultation was not included at this stage of the study, the study team consulted on a face-to-face basis with institutional and operational stakeholders to inform the Council-facing elements of the study. Consultation was held with:
- Direct Flight (ground staff, pilots and head office);
  - Highlands & Islands Enterprise;
  - SIC Airfields;
  - SIC Ferries;
  - SIC Finance;
  - SIC Ports & Harbours; and
  - ZetTrans.

- 4.2.5 We are confident that the primary and secondary consultation undertaken has provided the study team with a well-developed understanding of the transport, social and economic issues facing the islands. Whilst it is acknowledged that views alone do not constitute evidence of a problem, many of the issues raised by consultees are further evidenced through the wider research undertaken as part of the baselining exercise.
- 4.2.6 One issue that also became prominent during the consultation review was the frequent difference between perception and reality in terms of aspects of the transport service. This is an important point as STAG gives equal weight to perceived and actual problems, as the perception may impact on behaviour. For example, if an island is believed to be hard to get to, even if it is not, the perception may be enough to deter certain activities such as tourism and inward investment. It is acknowledged that perceptions can be addressed through eg information dissemination and awareness raising.
- 4.2.7 It is the intention to produce an information paper for each island providing an outline of the project and describing the problems, issues, opportunities and constraints in each case. These papers will be circulated to community representatives by SIC with the intention of confirming (or otherwise) that our understanding of these key factors is correct. This process will provide a final set of problems and objectives in particular to take into the appraisal.

### **4.3 Summary of Network Problems**

- 4.3.1 Whilst this study will consider each individual island and air/ferry route within Shetland, it is ultimately a network review. With this in mind, the first step in each section is to take a network-wide perspective before focussing on specific islands and routes.
- 4.3.2 A summary of the consultation findings in relation to the inter-island transport network as a whole is provided below:
- At the strategic level, there was significant concern that the recent ferry & air service revisions are undermining the sustainability of the islands. Whilst residents are satisfied that the weekday timetables, although not entirely, have by-and-large been protected, the decline in weekend connectivity (particularly on Sundays) is seen to lessen the attractiveness of the islands as a place to live.
  - There was a common concern expressed across islands that the average age of the ferry fleet and aircraft is increasing. Whilst the transport assets are seen to be well-maintained, inadequate physical access for the mobility impaired was cited as a common issue. This has negative implications given the generally ageing population of the islands.
  - Capacity issues at peak times were also cited as a problem. On islands such as Yell, Whalsay, Unst and Bressay, these constraints were typically concentrated on the travel to and from work markets. On the Bluemull Sound, capacity constraints tend to be more focused on triangular sailings, whilst for the Fair Isle and Foula, the problem is related more to the limited passenger and car carrying capacity of the vessels. Capacity on the air service is also a key issue for Fair Isle, particularly during the tourist season and, to a lesser extent, Foula.
  - A further common problem cited across all islands was the relatively poor integration with flights from Sumburgh. None of the islands have connections which allow residents to catch the first flight of the day out of Sumburgh.
  - Fares are perceived to be too high (due to the cumulative effect arising from a need to travel frequently), acting as an inhibitor to island-mainland and inter-island interaction. The extent to which this is the case in reality requires to be tested in this study. Lack of season tickets (apart from the pilot scheme on the Bressay service / multi-journey tickets) and islander discounts were cited as a further fares related issue.

- Onward connections / integration with bus services were cited as an issue across the network.
- Reliability and crossing times were cited as a key issue for the Outer Isles. Crossing times were also a concern for those using the Bluemull Sound route, where indirect sailings (particularly for Fetlar) are seen as a problem.
- Finally, the consultations raised a concern that there was a lack of sailings late enough, particularly at weekends, for islanders to enjoy mainland social events without an overnight stay. However, with the exception of the Outer Isles, Shetland has very long operating days and would almost require a 24 hour sailing day (at least at weekends) to address such concerns.<sup>69</sup>

## 4.4 Summary of Key Points by Island / Island Group

4.4.1 This section presents a summary of the key points by island or, in the case of the triangular Bluemull Sound route and the Outer Isles, by island group. The consultation findings feed into the identification of problems, issues, opportunities and constraints in Chapter 6.

### Bluemull Sound – Fetlar & Unst

- The current timetable on the Bluemull Sound routes was seen as acting as a barrier to commuting to the mainland and onward connections at Sumburgh. This was particularly the case for Fetlar where the lower frequency was seen to limit access (although the early morning service improved from July 2013 with the Fetlar based ferry's schedule starting from Fetlar at 0655). However, a review of the timetable does suggest a very long operating day overall and the access to mainland issue may be more a function of distance and the need for two ferry crossings.
- In terms of specific timetable issues, gaps in the Monday timetable and the much reduced service at weekends were frequently cited as a problem. The timetable is not seen to be conducive to undertaking social activities in Lerwick although, as previously explained, an almost 24 hour operating day would be required to facilitate this.
- Journey times to Yell were seen to be long on triangular sailings where the ferry travels to Gutcher via Belmont and/or Hamars Ness.
- Car capacity on peak sailings departing Belmont is seen to be an issue. Capacity can be a particular problem on triangular sailings where a single departure is conveying traffic to both other islands.
- Physical accessibility to the ageing vessels was cited as an issue.
- The reintroduction of fares onto the Bluemull Sound route was seen as a major negative for the communities, reducing interaction between the islands and between Fetlar/Unst and mainland. This is seen to be a particular issue for Fetlar, which has very few on-island services – the majority of schoolchildren travel to Unst whilst the majority of services are on Yell or mainland.<sup>70</sup>

### Yell

4.4.2 Yell has the most recently modernised ferry service and the issues raised in the consultation tended to be focussed more on the timetable and fares:

<sup>69</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 44.

<sup>70</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 11.

- The consultation cited gaps in the timetable, particularly on a Monday (the day on which drills and maintenance are carried out). The reduced weekend timetable, particularly on a Sunday, was seen to be an issue in terms of the attractiveness of the island.
- The time of the first and last sailing was cited as an issue for shift workers, onward transport connections and social events respectively. However, it should be noted that the weekday operating day on the Yell Sound is in the region of 17 hours,
- Fares are deemed to be too high given the significant commuting flows from Yell. Islanders cited the need for season tickets and islander discounts.<sup>71</sup>

## Whalsay

- Capacity constraints are considered to be the key problem on Whalsay. There are significant commuting flows from the island and a number of consultees cited problems getting on the AM peak services ex Symbister and PM peak services ex Laxo.
- There were a number of comments in relation to the timetable. It was argued that services could be better aligned with the needs of commuters, whilst it was argued that morning and evening sailings should offer better integration with onward connections through Sumburgh and enhanced access to social activities (although, as with Yell, the operating day is in the region of 17 hours). There is also seen to be a timetable gap on a Wednesday afternoon in terms of Whalsay commuters getting back to the island to pick their children up from school.
- Recent service reductions, particularly in terms of the weekend timetable, are seen to be detrimental to the islands.
- Fares are deemed to be too high given the significant commuting flows from Whalsay. Islanders cited the need for season tickets and islander discounts
- Public transport integration at Laxo is seen to be relatively poor, encouraging Whalsay residents to take their car on the ferry / car share / have a second on island car.
- There was also a concern that the current Symbister harbour is congested and could lead to a longer-term conflict with fishing and leisure vessels.<sup>72</sup>

## Bressay

- Fares are an important issue for Bressay residents. The island is almost entirely dependent on Lerwick for employment and all key services. Island residents travel almost daily to the mainland, meaning that the ferry connection has to be affordable.
- Given the dependence of the island on commuting to Lerwick, car capacity issues on the AM peak sailings ex Bressay and PM peak sailings ex Lerwick were cited as an issue by islanders.
- As with Yell and Whalsay, the timetable is not seen to facilitate connections with Sumburgh or evening social activities in Lerwick. However, a review of the timetable does suggest a 16-18 hour operating day depending on the day of the week. Weekend services are more limited but the operating day is still lengthy, and longer on Fridays and Saturdays than during the week.<sup>73</sup>

<sup>71</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 15.

<sup>72</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 19.

<sup>73</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 19.

## Outer Isles – Air Services

4.4.3 Given that the Outer Isles share air assets, we have set out communal air network issues independent of the wider transport issues for each individual island.

- Capacity is seen to be a key issue on the air services. The aircraft can accommodate a maximum of nine passengers depending on weight, with aircraft G-SICB being particularly restricted given that it is heavier than G-SICA. Capacity was a particular problem on the currently suspended Skerries route where the short runway means that the absence of a sufficient headwind can limit passenger numbers to two and sometimes less. Capacity can be particularly constrained around peak tourism times, especially on Fair Isle. Analysis suggests that average load factors are well within the capacity of the aircraft, but there are peak flights where capacity is an issue, particularly on Fair Isle. With a low service frequency, being unable to get booked on a flight is a key problem.
- Physical access to the aircraft is challenging for the elderly and those with disabilities, a key issue given the ageing demographic of islanders.
- The aircraft are restricted to flying in daylight hours, a key issue during the winter where daylight hours are limited and only one plane is used. None of the island airstrips have the necessary lighting and navigational aids which permit flying in anything but daylight and good weather (There is some runway lighting at some of the islands but that in itself does not allow flying outside daylight hours). Operating a reliable service is also a challenge given the weather in Shetland, particularly the frequent fog. A key concern in terms of reliability is connecting with flights / ferries to mainland Scotland – late arrivals can mean missed connections and hence costly overnight stays.
- Weekend connectivity by air is very limited – only Fair Isle gets a scheduled flight at weekends and then only on summer Saturdays.
- Facilities and onward integration from Tingwall are seen to be poor.<sup>74</sup>

## Fair Isle

4.4.4 The key issue on Fair Isle overall is the extent to which transport services facilitate or otherwise connections to key mainland services such as health and education. The following specific problems were identified by consultees on Fair Isle:

### Ferry Service

- The current Fair Isle vessel, the Good Shepherd IV, is ageing and in need of replacement. The vessel is constrained for both passenger and freight capacity (including for livestock). It is also a very small vessel considering the exposed crossing which she operates and thus tends to be uncomfortable in moderate to bad weather. With a speed of 7 knots, the vessel is very slow making the crossing time long.
- The ferry service is Lo-Lo and thus the loading / unloading of vehicles and larger items is by crane. The vessel cannot carry any heavy machinery, such as tractors.
- Access for the disabled and elderly is seen to be problematic.
- The consultation explained that tourists can get confused by the rescheduling of sailings to fit weather windows and can sometimes get stranded on the island
- Islanders also expressed their concern about the absence of a chilling facility on the ferry, which is a key issue in terms of importing goods from mainland.

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<sup>74</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 32.

### **Air Service**

- The consultation identified delays and reliability as a problem for islanders and tourists alike, although it is acknowledged that this is very much driven by the inclement weather which Fair Isle and mainland Shetland often face.
- As is the case across the Outer Isles, capacity is seen to be a problem. This is believed to be a particular issue in Fair Isle where there is a more prominent tourism trade than on other the islands. Inability to book on a flight can lead to missed appointments.
- Islanders also cite the difficulties in attending single day events on the mainland due to the timing of flights.<sup>75</sup>

### **Foula**

4.4.5 As with Fair Isle, the principal concern of Foula residents was specifically in relation to accessing key mainland services and the role which transport plays in facilitating this. The following problems were identified by consultees on Foula:

#### **Ferry Service**

- The current vessel, the New Advance, is seen to be uncomfortable and not fit-for purpose for the length of the crossing. Access for the disabled and elderly to the vessel is seen to be a particular problem. The vessel also does not have a chilling facility to handle perishable freight.
- The harbour at Foula is also suffering from silting, which means that none of the current Shetland Islands Council fleet of Ro-Ro vessels can access it. The MV *Snolda* called at the island in the past but can no longer do so due to draft restrictions.

#### **Air Service**

- Consultees expressed concern that spaces on the flights are booked up by 'officials' (presumably Council staff) travelling to the island, limiting the 'effective capacity' of the air service.
- Reliability is cited as a key issue, again largely due to the inclement weather (particularly fog) impacting on flights.

#### **Fares**

- Although subsidised, there is a view that it is too expensive to get to/from the island. Cost is a particular issue when accessing key mainland services such as health.

#### **Island Infrastructure**

- The on island air service infrastructure is run as a charity which consultees explained adds extra requirements and burden to the community. Sustaining this in the long-term will remain a challenge.<sup>76</sup>

### **Papa Stour**

4.4.6 The following problems were identified by consultees on Papa Stour:

#### **Ferry Service**

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<sup>75</sup> SIITS Consultation Review (Peter Brett Associates, 2015), pp.. 33-35.

<sup>76</sup> SIITS Consultation Review (Peter Brett Associates, 2015), pp.. 37-38.

- The MV *Snolda* is limited to twelve passengers, which means if there is an influx of people to the island on any one day, passenger capacity can be an issue. On the other hand, consultees explained that the 'double run' service is not always effective as sometimes booked passengers do not turn up so two trips are made when all passengers could have fitted on one sailing.
- Consultees explained that an additional Sunday morning service and a second Saturday service in winter would be of value to the island.

### **Air Service**

- No issues were raised in relation to the air service provision, although it should be noted that Papa Stour is limited to two rotations per week due to lack of fire cover.

### **Onward Connections**

- Consultees identified onward transport connections from West Burrafirth to Lerwick as a key issue. It was noted that there is a bus link on a Wednesday, Friday and Saturday but passengers are otherwise essentially stranded at West Burrafirth if they do not have private transport.
- It was also noted that it is difficult to get public transport (bus) from Lerwick to West Burrafirth – this is seen as a missing link and discourages tourists without private transport from visiting the island.
- Consultees also explained that it is difficult for passengers on the inbound morning NorthLink sailing (even those with a car) to catch the first ferry from West Burrafirth to Papa Stour.
- There was a concern that there is a charge for unaccompanied children travelling on flights and they cannot do more than one 'leg' of a journey unaccompanied

### **Fares**

- There was little in the way of issues relating to fares, although a respondent indicated a desire to see a free transport service to and from the island.<sup>77</sup>

### **Skerries**

- As with the Outer Isles generally, the key issues in Skerries relate to accessing mainland services given the paucity of such service on the island itself. The following problems were identified by consultees on Skerries:

#### **Ferry Service**

- There is seen to be an absence of travel information at Skerries, Lerwick or Vidlin, which is believed to be problematic for tourists.
- There is a belief amongst some islanders that the Saturday morning ferry should go to Lerwick rather than Vidlin.
- Consultees explained that all sailings are dependent on bookings. It is possible to book the ferry up to 1700 the evening before sailing or by 1100 on the day for sailings after 1500. However, this can sometimes cause a problem if only one person has booked the ferry then decides not to go. The ferry therefore turns up for no reason as has no passengers.

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<sup>77</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 38.

## **Air Service**

*Note – the air service at Skerries has been suspended as of Monday 23<sup>rd</sup> November due to a lack of Rescue and Fire Fighting Services at the airfield.*

- The key issue identified by Skerries' residents is that if weather conditions are unfavourable, a number of passengers will be dropped off at Whalsay and then shuttled in small groups to Skerries.

## **Onward Connections**

- Onward connections between Vidlin and Lerwick are seen to be a key problem for Skerries' residents – the limited connectivity significantly reduces productive time on the mainland. It was explained that residents have to take the car on the ferry if they want to access anywhere once they are on mainland.

## **Island Infrastructure**

- The current island airstrip is seen to be a key constraint, impacting on the reliability of the service.
- The mainland port of Vidlin is seen to be inadequate for freight handling / marshalling.<sup>78</sup>

4.4.7 Having set out the key issues emerging from the consultation with islanders, the next chapter considers the importance of transport problems, issues, opportunities and constraints for the network overall and for each specific island.

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<sup>78</sup> SIITS Consultation Review (Peter Brett Associates, 2015), pp.. 39-40.



## 5 Problems, Issues, Opportunities & Constraints

### 5.1 Overview

5.1.1 The purpose of this stage of a STAG study is to identify the problems, issues, opportunities and constraints within the **current and future** transport system. Addressing the identified problems and realising the opportunities (whilst acknowledging issues and constraints) is the ultimate aim of the STAG process, as reflected in the Transport Planning Objectives, STAG criteria and option scoring. To summarise:

- **Problems** relate to current or future actual or perceived problems in the transport system;
- **Issues** are uncertainties that the study may not be in a position to resolve but must work within the context of;
- **Opportunities** relate to the potential for improvements to the transport system and the way it is used; and
- **Constraints** represent the physical, legal and institutional boundaries in which the study is being undertaken. STAG appraisals must take cognisance of all relevant constraints and ensure that the options developed are in keeping with them.

5.1.2 The problems, issues, opportunities and constraints are summarised initially at the network level. Following on from this, we consider problems and constraints at the island level (issues and opportunities are more at the network than island level). As with previous chapters, data are summarised only, with references to the baselining material provided where required.

### 5.2 Routes & Services Methodology

5.2.1 Prior to the commencement of SIITS, the RSM was applied (in part) for the Shetland Islands. To recap, the RSM comprises six steps as follows:

- Step 1: Identify the dependencies of the community;
- Step 2: Define the ferry service profile that fits the community's dependencies;
- Step 3: Define the current ferry service profile;
- Step 4: Compare the current and proposed service profiles to identify gaps in service provision;
- Step 5: Propose and appraise options for addressing gaps in service provision; and
- Step 6: Prioritise options to be taken forward in the short, medium and long-term.

5.2.2 Steps 1-4 were completed and this STAG study will encompass Steps 5 and 6. The RSM Steps 1-4 therefore forms one part of the evidence base informing this study. **The STAG approach will confirm or otherwise the level of service implied by the RSM**, ie the eventual service specification implied by RSM may be greater than or less than that implied by the STAG process.

5.2.3 The STAG process therefore builds on the RSM since the RSM does not fully prescribe all aspects of an island's services / connectivity – for example:

- It is based on a snapshot reflecting the **current island population** – in this sense it could be seen that the outcomes could perpetuate the current situation on the island:

- For example an indicator for 'commuting and business' is the percentage of households who use the ferry for commuting – if this is low then the prescribed service will not be favourable for commuting – however the level of commuting may have been low because of the low level of ferry service.
- The level of service prescribed is therefore based on current ferry usage (and island demographics / commerce) – however as the level of ferry usage will be heavily influenced by the nature of the current service – there is a circular element to this.
- As it is based on analysis of the present day, it will therefore not identify where **a change in connectivity may be required** to eg reverse population decline or an ageing demographic and it takes no account of how 'dependencies' may evolve over time.
- It takes no account of the **interaction between air and ferry services**.
- It does not prescribe **under what circumstances an air service is justified**.
- It does not prescribe **when a RoRo rather than a LoLo facility is justified**.
- Fares – it does not **take account of the cost of travel** – i.e. there may be a connection but is it affordable (a particular issue with air services)?
- For less frequent services, it does not **explicitly quantify 'minimum time on island' or 'time on mainland'** – this is important in terms of 'operating day'. Operating day can be seen from two perspectives, mainland and island and will be dependent on where the vessel overnights.
- **Capacity**, and the potential impact of this on usable or reliable connectivity (particularly in relation to low capacity aircraft), is not considered.
- **Vessel characteristics** in any way or implied reliability levels are not prescribed.
- On some routes there are **marked differences in provision between weekdays as well as between weekends and weekdays** – this is not accounted for in the RSM.
- **Crossing times** – crossing times are a key input factor in determining the level of service – but crossing times are vessel dependent – if a slightly faster vessel were used, this would reduce the crossing time and imply an improved level of service in terms of 'sailings per day' and 'length of operating day'.

5.2.4 These issues will all be picked up in the more detailed STAG appraisal.

5.2.5 The main issues flagged up by applying the RSM to Shetland are in relation to the Outer Isles (Fair Isle, Foula, Papa Stour and Skerries), where there is noted under-provision. However three of these islands do have an air service.

5.2.6 Current services to Bressay, Unst, Whalsay and Yell are mostly in line with those prescribed by the RSM (except at weekends), whilst Fetlar demonstrates overprovision in length of operating day but under-provision in daytime frequency of sailings.<sup>79</sup>

## 5.3 Network-Level

### Problems

#### Ferries and Ports & Harbours

<sup>79</sup> Shetland Islands Routes & Services Methodology (Peter Brett Associates, 2015), p.19.

5.3.1 The SIC ferry fleet and port infrastructure is developed to a good standard, well maintained and crewed by skilled and experienced local seafarers. The problems relate principally to the increasing age of the assets and the lack of a committed replacement programme (although there are various committed life extension investments). An ageing asset base (vessels and harbour infrastructure) creates a problem in that a failure of a vessel or key piece of harbour infrastructure will lead to an immediate loss of connectivity for that island. As the age of these assets increases the likelihood of a catastrophic failure increases. In terms of lifespan, SIC looks to replace vessels every 20 years (which is their intended design life), whilst the norm for Caledonian Maritime Assets Limited (CMAL) and Orkney Islands Council is a 30 year replacement programme. In terms of the Shetland fleet:

- three vessels are 30 or more years old (MV *Hendra*, MV *Snolda* and MV *Fivla*);
- a further five vessels are 20 or more years old (MV *Bigga*, MV *Geira*, MV *Good Shepherd IV*, MV *Leirna*, and MV *New Advance* (in 2016)).<sup>80</sup>

5.3.2 The average age of the fleet in 2015 stands at 22 years and there are no committed replacements at present. Whilst the fleet remains fully certified for operations, there are a number of challenges with older vessels, namely:

- The design and components are in many cases less efficient than would be found in an equivalent newer vessel.
- From a strict accounting perspective, the vessels can cost more to maintain than their book value, meaning that they are effectively written off.
- Physical access can be problematic, particularly for the elderly and disabled. For example, there may not be step-free access to the passenger areas, whilst narrow car deck lanes may leave limited space for those in wheelchairs. This is a particularly key issue given the generally ageing demographic of the island populations.
- The passenger accommodation on MV *Bigga*, MV *Fivla*, MV *Geira* and MV *Hendra* is below the waterline. This would be against regulations with new build vessels but the vessels are legally operated under a system of “grandfather rights”.<sup>81</sup>
- The availability of spare parts for key components and the skills base to maintain them.

5.3.3 There are nominal replacement dates for the port & harbour infrastructure (see SIITS Piers & Harbours Review) although in reality any non-routine investment is likely to be driven by vessel replacement.

5.3.4 Overall, whilst the fleet continues to operate efficiently, there is a growing need to commit to an asset replacement programme if the network is to remain fit-for-purpose over the strategy period.

### **Airfields & Infrastructure**

5.3.5 As with the ferry service, the airfields and aircraft are skilfully operated in what is a challenging environment. However, there are a number of problems which could, at any point, lead to the discontinuation of the service and the loss of air connectivity for the islands concerned.

5.3.6 During our fact finding trip to Shetland, it was also explained that there is pressure on the Council from the CAA to invest in a **new control tower for Tingwall**. At present, controllers cannot see one end of the runway from the control tower, which means they cannot identify any debris or hazards for aircraft taking off and landing. There are a series of measures in

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<sup>80</sup> SIITS Vessels Review (TMG, 2015), p. 15.

<sup>81</sup> SIITS Vessels Review (TMG, 2015), pp. 18-19

place to mitigate this problem at present but, in the longer-term, a new £150k control tower is likely to be required.<sup>82</sup>

- 5.3.7 **Fire cover** is also a recurring problem at Shetland airfields. The Rescue & Fire Fighting Service (RFFS) requirement is quite basic at CAT 2 level (the required level dictated by the CAA for the airstrips in question), but there are a range of issues of even maintaining this level of cover at Papa Stour, Whalsay, Foula and Skerries in particular. Indeed, the Skerries air service was suspended on Monday 23<sup>rd</sup> November 2015 due to lack of RFFS, whilst Papa Stour is limited to two rotations per week. Recruitment and recurrent training, and maintenance of expensive fire tenders are issues.<sup>83</sup>
- 5.3.8 The **air strips** themselves vary in length and are generally sufficient for the type of aircraft using them. The one exception to this is Skerries, which is the shortest in the system and one of the shortest in the world handling scheduled passenger services. The short runway creates difficult operating conditions, with aircraft only being able to take off if there is a sufficient headwind. When such a wind is not blowing, Whalsay is used as a 'stop & shuttle' point, but this is clearly not ideal for passengers.
- 5.3.9 All aspects of the **staffing of the inter-island service** present challenges in the Shetland context. Unexpected staff shortages complicate the service and are a significant risk. Reserve staff cover is often uncomfortably thin, and replacements often not easy to find or immediate.<sup>84</sup>

#### **Aircraft & Service**

- 5.3.10 The air service is skilfully designed to spread benefit and utility as widely as possible across the Shetland Islands. However, the **trend in carryings has been downward** in recent years (in some cases, e.g. Skerries, this has been correlated with an improved ferry service). The data provided by Directflight suggests that average load factors are generally well within the capacity of the aircraft, although there will clearly be certain flights (particularly around sustained periods of bad weather impacting the ferry service) where capacity issues may exist.<sup>85</sup> The peak capacity issue presents a significant problem as, where an air service is provided, it is often the 'lifeline' connection and thus the inability to secure a place on the aircraft can prevent or delay essential or discretionary travel.
- 5.3.11 Shetland Islands Council took the decision in the early 2000s to acquire their own inter-island aircraft both to modernise the age of the aircraft operating on the network, and to facilitate a tender process where several operators could realistically compete to supply the service under dry lease arrangements. In 2006 Shetland Islands Council<sup>86</sup> acquired two BN2 Islanders with slightly different specifications.
- 5.3.12 G-SICA was manufactured in Romania under licence by IRMA<sup>87</sup> and was delivered in September 2007 and is a Britten-Norman BN2B-20 Islander. G-SICB is a BN-2B-26 version Islander; was delivered July 2006 and was previously operated as G-NESU and undertook work for Northumbria and North East Police by Police Aviation Services (PAS). G-SICB, because it was modified for previous tasks by PAS and because it has additional structural supports and several coats of paint is a slightly heavier example, and hence its performance characteristics, including its passenger carrying capacity, are more inhibited.
- 5.3.13 The current schedule can be completed satisfactorily with one aircraft, so in essence the second aircraft is a reserve which allows aero-engineering (main checks are undertaken off the Shetland Islands) and unscheduled withdrawals from service to avoid disruption. As the

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<sup>82</sup> SIITS Aviation Baseline (Northpoint Aviation, 2015), p. 10 and 28.

<sup>83</sup> SIITS Aviation Baseline (Northpoint Aviation, 2015), p. 17.

<sup>84</sup> SIITS Aviation Baseline (Northpoint Aviation, 2015), p. 22.

<sup>85</sup> SIITS Aviation Baseline (Northpoint Aviation, 2015), p. 5.

<sup>86</sup> Technically G-SICA is leased from *Shetland Leasing and Property Developments Limited (SLAP)*, a subsidiary company of Shetland Charitable Trust.

<sup>87</sup> Intreprinderea de Reparatii Material Aeronautic

aircraft are used interchangeably the capacity of the aircraft is set by the lowest common denominator, which is the performance of G-SICB. The difference in their specifications does reduce the standard capacity - as the aircraft are used interchangeably, the capacity of G-SICB and thus overall capacity is reduced. This is a key problem in light of the above discussion of capacity.

## Air Operations

5.3.14 There are several aspects of the service as currently operated which constrain the overall operation of the air service. These are set out in detail in the SIITS Aviation Baseline but, to summarise:

- A number of the current airstrips are exposed to challenging wind and weather conditions. Directflight impose **maximum wind limitations** on the strips which are not simple cross wind limits. The effects which are of concern stem from the surrounding topography and the limits have been derived through years of experience. Beyond their published limits, unpredictable local vortices are created which may be dangerous. Simple extension of any relevant strip (if possible) will not improve the turbulence characteristics to be found there. All aircraft will be similarly vulnerable to these vortices with minor differences of behaviour due to wing loading and excess power available. Without re-siting the strips to other locations on the islands (if these exist), these limitations will be similar for all types of aircraft.
- The aircraft are flown on the basis of **Visual Flight Rules** (VFR) and thus can only operate during the daylight hours and are susceptible to fog and low cloud cover. This can lead to reliability issues, with flights being brought forward, rearranged or cancelled due to the weather.
- There are **limited navigational aids** and no airfield other than Tingwall has runway lighting and other facilities to allow flying outside daylight hours (There is some runway lighting at some of the islands but this in itself does not allow flying outside daylight hours). This fixes the operating day to the hours of daylight (which are particularly short in Shetland during the winter months).
- **Fire cover** is provided locally on island and this requires a minimum number of fit and capable individuals to be available consistently at flight times. As these individuals will often have other jobs, and given the very low populations on some islands, available staff to provide fire cover is sometimes limited and challenging to provide – Skerries' air service was suspended on Monday 23<sup>rd</sup> November 2015 due to lack of fire cover, whilst Papa Stour is limited to two rotations per week. The difficulties in providing fire cover vary by island but, overall, this problem could threaten the continuation of the service (or at least the number of rotations operated over the week) even in the short-term.

## Issues

### Economic Environment

- 5.3.15 In developing the options appraisal it is necessary to understand how changes in the local and macro-economic environment will impact on the demand for transport and hence the connectivity requirements. The SIITS Economic Baseline & Future Planning Horizon provides positive / negative forecasts for each island and Shetland as a whole, which does provide some context.
- 5.3.16 However, there will clearly remain considerable uncertainty given the vulnerability of small islands to even small changes in economic circumstances (e.g. the loss of a single employer, trends in world commodity prices, public sector spending reductions etc). In addition, whilst the Shetland Islands are economically vibrant, there is likely to be structural changes in the economy over the next 30 years as for example oil production slowly declines, decommissioning comes on-stream and the economy diversifies.

## Airfield Licencing

5.3.17 The key problem in relation to the airfields is that the **ownership, licencing and management** of them are very diverse. At present, Foula, Papa Stour and Skerries (as well as Whalsay which supported the now suspended Skerries service as a drop-off point when required by the weather conditions) are not currently licenced. Directflight currently has Civil Aviation Authority (CAA) derogations in place which permits them to operate scheduled passenger services to these islands. There is a concern that the use of unlicensed airfields for scheduled passenger services of this nature will become increasingly untenable as the years pass. Several risks combine to lead to this conclusion:

- The European Aviation Safety Agency (EASA) may extend its remit, and this can easily be prompted by an incident which may have nothing to do with the Shetland Islands. The relevant regulations may be tightened at an EU level in a way that makes it impossible for the CAA to continue with its derogations for the services in question.
- The CAA may tire of the uncertainties and risks raised by the current derogations and begin pushing for the adoption of a migration path to licensing, and a change may be prompted by an incident that once again has nothing do with the Shetland Islands. A change of operator fulfilling the PSO may also prompt the CAA to review the derogations it has awarded to Directflight to fly into unlicensed airfields with paying passengers.
- Shetland Islands Council may come to the view that they are morally and in many senses legally responsible for all that occurs at Shetland Islands airfields, whether they are directly accountable or not.

5.3.18 Addressing the airfield licencing issue will be important in ensuring certainty of supply over the period of this strategy (additional information can be found in the SIITS Aviation Baseline).<sup>88</sup>

## Aviation Fuel

5.3.19 The Britten-Norman Islander aircraft engines burn AVGAS (aviation gasoline). This is an aviation fuel used in spark-ignited internal-combustion engines to propel aircraft. There are **questions over the long-term availability of this fuel type** and the eventual withdrawal of AVGAS could provide future complications and cost to the service or could, *in extremis*, force a fleet renewal at some point.<sup>89</sup>

## Opportunities

### Our Islands, Our Future

5.3.20 As explained at the outset of this report, the Scottish Government has issued its *Empowering Scotland's Island Communities Prospectus* as part of the "Our Islands, Our Future" initiative. The *Our Islands, Our Future* document references the disproportionate financial burden placed on island local authorities by the operation of ferry services. It further explains that the Scottish Government recognises that the provision of transport services **should not place a disproportionate financial burden on any Council**. The document commits to meaningful negotiation to conclude this issue. From a political and funding perspective, this should be seen as a key opportunity in the context of this study.

## Constraints

5.3.21 The network-wide constraints for both air and ferry relate to the legislative and regulatory environment in which these services are operated. There are no specific constraints in this

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<sup>88</sup> SIITS Aviation Baseline (Northpoint Aviation, 2015), p. 10 and 28.

<sup>89</sup> SIITS Aviation Baseline (Northpoint Aviation, 2015), p. 30.



respect except in relation to available funding, an issue which is being considered in parallel to rather than as part of this study.

## 5.4 Island Specific

- 5.4.1 This section covers the island specific problems and constraints that have been identified through the pre-appraisal research (issues, opportunities and constraints are reported at the network level). Given that this study covers nine islands, a systematic approach has been adopted to the identification of problems. All problems are however evidence based.
- 5.4.2 The checklist referred to in Section 2.2 has been used to assess all the potential characteristics of connectivity for each island. These aspects of inter-island connectivity and their associated generic potential transport problems are outlined in the table below. This table is provided here to avoid repetition in the tables which follow.

**Table 5.1 Checklist of Potential Transport Problems**

Aspect of Connectivity	Potential Problems Arising
Overall journey time to Lerwick	Long total journey times to Lerwick impact on the ability to take up employment and conduct personal business in Shetland's main town. This aspect of connectivity includes land based travel on the island and the mainland.
First sailing / flight	This will determine when islanders can arrive at mainland jobs, appointments or onward transport connections. Too late a first sailing / flight will restrict islanders' opportunities on the mainland (both Shetland and Scottish).
Last sailing / flight	This will determine when islanders have to leave appointments, jobs or evenings out to catch the last ferry or flight home.
Time on mainland (for islanders accessing jobs, shops, services, friends and family etc on the mainland);	The time window provided on the mainland will limit the activities which can be undertaken by islanders without the requirement for an overnight stay. A short window would prevent the completion of a working day, thus severely restricting employment opportunities and providing a barrier to prospective island residents.
Time in Lerwick (for islanders accessing jobs, shops, services, friends and family etc in the main town);	The time window provided in Lerwick will limit the activities which can be undertaken by islanders in Lerwick where most employment and services are based without the requirement for an overnight stay. A short window would prevent the completion of a working day, thus severely restricting employment opportunities and providing a barrier to prospective island residents.
Time on island (for those visiting or undertaking business on the island);	The daily time window provided on each island will limit the activities which can be undertaken by visitors or those providing services / doing business without the requirement for an overnight stay. At its most severe, this can lead to businesses refusing to provide services to islands or significantly marking up the cost of doing so.
Frequency / Timetable gaps	A low service frequency or long gaps in the timetable creates a problem because it limits the times at which people can travel impacting on flexibility and accessibility. This restricts access to services and facilities on the mainland and could make the island unattractive as a place to live or do business. Infrequent services means that there is a long wait between services (eg if one sailing is narrowly missed) which can be inefficient.
Vessel / Aircraft capacity	If the vessel / aircraft is regularly full, this limits the certainty with which islanders and visitors can travel. On services where no booking is possible, a longer wait time will be incurred until the next available sailing. For the Outer Isles, if the aircraft is fully booked, this will essentially place a barrier on travel leading to missed appointments etc.
Cost to the user (fares)	Air and ferry fares can place a barrier on travel meaning that islanders cannot take up opportunities on the mainland or visitors may be deterred from visiting the islands. There are very few services on some islands which means that residents have to make regular air and ferry journeys incurring additional costs compared to those who live on the mainland.
Reliability (weather / mechanical)	A service which has a poor reliability record means that islanders and visitors have a lack of certainty surrounding travel. This also impacts on the supply chain to and from each island.

Aspect of Connectivity	Potential Problems Arising
Comfort	The level of comfort provided by a given ferry / aircraft can be a barrier to its use. This can affect access to key services and the attractiveness of the island for potential in-migrants.
Physical access	Given that the ferry or aircraft is the only means of travelling to / from the island, issues of physical access are crucial for those with any form of mobility impairment. This is a particularly key issue as the ageing population across the islands means that physical access issues will become increasingly important.
Integration with public transport (local bus)	Without taxis / lifts off others, those without access to a car are reliant on public transport for connections at either end of the ferry journey. If these connections are infrequent or non-existent, this places a severe restriction on the ability to travel and take up employment, leisure and other opportunities. The quality of public transport on the islands will also have an impact on the ability of visitors to get around the island.
Integration with public transport (strategic)	When islanders have to make onward journeys from Shetland to the rest of the UK or overseas, being able to connect with flights from Sumburgh and ferries at Lerwick is important. If the first flight out of Sumburgh cannot be reached, then this can mean that a day trip eg Aberdeen cannot be made without the necessity of an overnight stay. The same applies in terms of the last departure to the island.
Crossing / flight times	Long crossing times are an impediment to travel and reduce accessibility between the island and the mainland. Some vessels in the SIC fleet are slower than others meaning that crossing times are longer than they could be. This creates a problem leading to long journey times and potential exposure to rough weather at sea. This can act as a deterrent to living or working on a given island.
Onboard facilities (ferries)	The lack of facilities on some vessels can limit the productive use of time whilst travelling.
Weekday / weekend service variation	A reduced service at the weekend (especially Sundays) will impact on islanders potential activities and also restrict those wishing to travel from the mainland to the island.
Landside infrastructure issues	The landside infrastructure can provide a transport problem by limiting the nature of vessels / aircraft employed on the route thus contributing to some of the issues outlined above.
Landside human resource issues	The lack of landside human resources on the island can impact on the often conflicting current and future staffing provision for services to that island.

5.4.3 Each island is now considered in turn through a series of island specific tables. The tables:

- note whether there is any evidence to indicate that each of these aspects of connectivity is an actual or perceived (through the consultation) problem;
- provide the supporting local evidence (which is referenced); and
- provide a clear statement of why this is a problem.

5.4.4 This process therefore outlines the local manifestation of the generic problem outlined in the above checklist. In the interests of brevity, only key points are reported, with references provided to the relevant baselining reports.

5.4.5 The key for the tables is as follows:

- ✓ - This element of connectivity is not deemed to be a problem.
- × - This element of connectivity is deemed to be a minor problem.
- ×× - This element of connectivity is deemed to be a moderate problem.
- ××× - This element of connectivity is deemed to be a major problem.



- 5.4.6 The objectives developed for each island will reflect the range and extent of the transport problems set out in the tables.
- 5.4.7 The RSM outcomes for each island are presented before the table. Note that we report the RSM results as expressed in the RSM report, although there are several islands where weekend provision falls below the RSM standard.
- 5.4.8 Whilst we have identified that fares / cost to the user represents a transport problem, the method of setting fares and their absolute level is a policy issue and should be addressed in the Regional Transport Strategy context. This issue is therefore not considered further in the tables below.
- 5.4.9 Issues such as physical accessibility, comfort and onboard facilities can be considered a transport problem in that they can reduce the accessibility and amenity of the service and the propensity to travel. However, unless there is evidence that these issues are creating a true barrier to travel, they are not considered as problems which in themselves would trigger the need for investment. However, any new tonnage / aircraft / infrastructure would clearly have to comply with current legislation in this respect.

## Bressay

### RSM Results

- 5.4.10 The RSM results for Bressay are set out in the table below:

**Table 5.2: Bressay RSM Results**

Island	Connection Days	Connections Per Day	Operating Day
Bressay	Acceptable	Acceptable	Acceptable

- 5.4.11 In summary, the sailing days, sailings per day and the operating day for Bressay are deemed to be acceptable.

**Table 5.3: Bressay Transport Problems**

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	✓	The journey time to Lerwick is the shortest on the network at 7 minutes.
2	First sailing / flight	✓	The first sailing from Bressay is 0700, seven days a week.
3	Last sailing / flight <sup>90</sup>	✓	The last sailing to Bressay is 2300 Sunday – Thursday, with two additional sailings on a Friday and Saturday. The last sailing to Bressay on these nights is 0100.
4	Time on mainland	✓	Bressay residents get around 16 hours per day on the mainland Sunday – Thursday and 18 hours on a Friday and Saturday
5	Time in Lerwick	✓	Bressay residents get around 16 hours per day in Lerwick Sunday – Thursday and 17 hours on a Friday and Saturday
6	Time on island	✓	Visitors get over 15 hours per day on the island Sunday – Thursday and over 17 hours on a Friday and Saturday.
7	Frequency / Sailings per Day /	×	Bressay residents have a dependency on the AM and PM peak ferries to / from Lerwick to access employment and education.

<sup>90</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

	Service Characteristics	Rating	Why is this a problem or not?
	Timetable gaps		However, the peak frequency of the Bressay - Lerwick ferry is relatively low and detailed analysis of operator carryings data suggests that some capacity issues do emerge around the 0830 departure from Bressay and, less frequently, the 1715 from Lerwick. <sup>91</sup> This can lead to people being late for work / school.
8	Capacity	xx	<p>Linked to point 7 above, car deck capacity on the AM peak departures from Bressay and PM peak departures from Lerwick max out, meaning some vehicles cannot get onto the ferry. This can lead to late arrival into work and education or missed interchange with an onward connection.</p> <p>In terms of the evidence to support this problem, carryings data show that the 0830 departure from Bressay frequently has a vehicle deck utilisation in-excess of 80%, particularly in the summer months. Some seventy-four 0830 departures sailed over the 80% threshold (above which a sailing is defined as high utilisation) in summer 2013/14, suggesting capacity on this service, which is key to accessing employment and education, is a problem. This service is less highly utilised in the winter, with &gt;80% sailings typically on a Monday and Tuesday. The 1715 service from Lerwick is relatively highly utilised during the winter (31 sailings &gt;80% utilised).<sup>92</sup></p>
9	Reliability (weather / mechanical)	✓	The Bressay – Lerwick crossing is relatively sheltered and is very reliable overall.
10	Comfort	✓	Facilities are appropriate for the length of crossing.
11	Physical access	✓	The MV <i>Leirna</i> is an older vessel and has some disabled access issues, which could present an issue for the ageing population of the island. However, she is better than most of the older ships with passenger accommodation on the car deck level.
12	Integration with PT (local bus)	✓	Lerwick town centre is accessible on foot from the ferry terminal. The Viking Bus Station is also a short walk away.
13	Integration with PT (strategic)	x	<p>Bressay is generally well connected with onward transport connections. It is located close to the Holmsgarth ferry terminal, whilst connectivity to Sumburgh is also reasonable.</p> <p>However, Bressay residents cannot catch the first morning flights to Edinburgh, Inverness or Kirkwall, although the first flights to Glasgow and Aberdeen are accessible. The inability to catch the first morning flights to various locations means that Bressay residents cannot carry out a day return visit for meetings, appointments etc, adding to the cost of any given trip.</p>
14	Crossing / flight times	✓	The ferry travels from Bressay to the heart of Lerwick in seven minutes.
15	Onboard facilities	✓	Facilities are appropriate for the length of crossing.
16	Weekday / weekend service variation <sup>93</sup>	✓	<p>Bressay has a seven day service.</p> <p>Bressay has an enhanced service on Friday and Saturday evenings.</p>
17	Landside infrastructure issues	✓	There are no major landside transport infrastructure issues.
18	Landside human resources	✓	There are not currently any landside human resource issues, although the ferry is crewed with island-based staff, which could give

<sup>91</sup> SIITS Carryings and Utilisation Analysis (Peter Brett Associates, 2015), Bressay – Lerwick Capacity Analysis Table

<sup>92</sup> SIITS Carryings and Utilisation Analysis (Peter Brett Associates, 2015), Bressay – Lerwick Capacity Analysis Table

<sup>93</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

	Service Characteristics	Rating	Why is this a problem or not?
			rise to future crewing issues.

## Fair Isle

### RSM Results

5.4.12 The RSM results for Fair Isle are set out in the table below:

Table 5.4: Fair Isle RSM Results

Island	Connection Days	Connections Per Day	Operating Day
Fair Isle	Service should be offered 7 days-a-week <b>Substantial under-provision</b>	Acceptable	Acceptable

5.4.13 The RSM results for Fair Isle suggest that the island has an acceptable number of connections per day and length of operating day on the days on which a connection is provided. Fair Isle is however under-served in terms of the lack of seven day service.

Table 5.5: Fair Isle Transport Problems

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	x	Fair Isle residents can reach Tingwall in 25 minutes by air, with a 15 minute connection to Lerwick by bus (although interchange can be an issue on certain days of the week).  However, ferry journey times are long, some 300 minutes direct to Lerwick and 160 minutes to Grutness, with a one hour bus connection or 30 minute drive. <sup>94</sup> The long ferry journey times means that anyone who cannot travel by air (either because of physical accessibility issues, cost or weather) faces an unattractive and extended trip to the mainland.
2	First sailing / flight	✓	The issue for Fair Isle is related more to time on mainland / Lerwick / island.
3	Last sailing / flight <sup>95</sup>	✓	The issue for Fair Isle is related more to time on mainland / Lerwick / island.
4	Time on mainland	xxx	It is not possible to make a meaningful day return either to or from Fair Isle by ferry – day access is entirely dependent on the air service.  The air service itself is of a reasonable level offering 13-21 hours weekly on the mainland, 11-18 hours in Lerwick and 18-26 hours on the island depending on season. <sup>96</sup> However, this is still a relatively limited period of time ashore when comparing Fair Isle to other islands of a similar size (e.g. Fetlar, North Ronaldsay, Papa Westray etc).  The limited time ashore can lead to a need for costly overnight stays when carrying out work-based or personal business which extend beyond the length of the operating day.
5	Time in Lerwick	xxx	See point 4 above
6	Time on island	x	See point 4 above

<sup>94</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Fair Isle – Lerwick – Travel Time & Cost Page.

<sup>95</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

<sup>96</sup> SIITS Air Service Provision (Peter Brett Associates, 2015), Time Ashore – Weekly.

	Service Characteristics	Rating	Why is this a problem or not?
7	Frequency / Sailings per Day / Timetable gaps	✓	The community successfully work around the current frequency. The bigger question is the number of connections overall and effective time on the mainland / island.
8	Capacity	xxx	<p>The MV <i>Good Shepherd IV</i> is very limited in terms of vehicle and indeed passenger capacity. The vessel can only take one or two small cars and 12 passengers, whilst she cannot accommodate any heavy freight or plant.<sup>97</sup></p> <p>The air service is also limited to 8-9 passengers depending on weight. This places a significant capacity constraint on the island, particularly when one or both modes are affected by bad weather. In addition, the deadweight limitation on the vessel means that bringing any larger vehicles or plant onto the island requires the use of a different vessel.</p> <p>The capacity issue impacts negatively both on the key tourist trade and access to the mainland for island residents.</p>
9	Reliability (weather / mechanical)	xx	<p>The ferry crossing to Fair Isle traverses some of the roughest and most exposed seas in Europe. This, combined with the small vessel used, presents reliability challenges on the route, particularly during winter. In many cases, the ferry has to travel when there is a weather window, even if this is off-timetable.</p> <p>The air service is overall believed to be reliable but can be affected by the frequent fog which is experienced in Fair Isle and on mainland Shetland. Reliability issues can lead to both islanders and visitors incurring costly overnight stays, whilst a sustained period of cancellations can have significant impacts on the inbound and outbound supply chain.</p>
10	Comfort	xxx	The MV <i>Good Shepherd IV</i> is a relatively uncomfortable vessel given the average sea states in which she operates. Indeed, the vessel is fitted with seatbelts! The vessel is also single screwed, which means it is vulnerable in the event of an engine, drive chain component or propeller failure. The consultation suggests that these issues combine to deter tourists travelling by ferry (putting pressure on the low-capacity air services) and limiting the willingness of islanders to use the vessel.
11	Physical access	xx	<p>As an older vessel operating out of a non Ro-Ro port, the MV <i>Good Shepherd IV</i> can present physical accessibility issues for older and disabled passengers, a key issue on Fair Isle, which has an ageing demographic.</p> <p>The Britten-Norman Islander aircraft are not well suited to those with any kind of mobility impairments either. This is a key problem on Fair Isle – the ageing demographic on the island means that, in the longer-term, physical accessibility could become a barrier to necessary travel.</p>
12	Integration with PT (local bus)	✓	There is a bus service which meets the ferry at Grutness and a demand-responsive service to Lerwick from Tingwall Airport.
13	Integration with PT (strategic)	xx	Given the limited connections from Fair Isle, onward travel will always have to be well planned. However, there are a number of problems over and above this. Firstly, a high

<sup>97</sup> SIITS Vessels Review (TMG, 2015), p. 9.

	Service Characteristics	Rating	Why is this a problem or not?
			degree of reliability is required on both the connecting and onward service as any delay or cancellation can lead to the need for a costly overnight stay or a long layover on Shetland mainland. In addition, the air service from Fair Isle travels to Tingwall and requires a double-bus connection to get to Sumburgh.
14	Crossing / flight times	✖	The ferry crossing is very long.
15	Onboard facilities	✖✖	As a small and relatively old vessel, the MV <i>Good Shepherd IV</i> has little in the way of onboard facilities. Of particular importance is the absence of a chilled compartment, which presents a challenge when moving perishable goods given the length of the crossing (even from Grutness). This is a problem both in terms of supplying the island and for any island business (current or prospective) moving either large or chilled goods.
16	Weekday / weekend service variation <sup>98</sup>	✖✖✖	Fair Isle has a significant weekend connectivity gap. During the summer, there is a Saturday ferry return and two air rotations, although there are no services on a Sunday. There are no weekend services at all during the winter, <sup>99</sup> which effectively cuts the island off on winter weekends. This suppresses both the key tourist market and the ability of islanders to take an overnight off-island trip at the weekend.
17	Landside infrastructure issues	✖✖	The ferry berth is constrained and exposed, with the vessel having to be hauled out of the water overnight. <sup>100</sup> This limits the size of vessel which can serve Fair Isle and is the cause of a number of the problems outlined above.
18	Landside human resources	✖	There is an ongoing challenge of providing fire cover at the airfield, which could have an impact on the long-term sustainability of the air service.  The ferry crew is also island based, which could present an issue for crew resourcing in the medium to longer term.

<sup>98</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

<sup>99</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Ferry Service Provision and SIITS Air Service Provision (Peter Brett Associates, 2015), Air Service Provision

<sup>100</sup> SIITS Ports Review (TMG, 2015), p. 18.

## Fetlar

### RSM Results

5.4.14 The RSM results for Fetlar are set out in the table below:

Table 5.6: Fetlar RSM Results

Island	Connection Days	Connections Per Day	Operating Day
Fetlar	Acceptable	Number of sailings should be increased to 20+ p/d <b>Marginal under-provision</b>	Sailing day should be 11 hours, 7am – 6pm <b>Substantial over-provision</b>

5.4.15 Fetlar currently has seven day sailings but the RSM indicates that the island is marginally under-provided in terms of the number of connections per day but over-provided in terms of the length of the operating day.

Table 5.7: Fetlar Transport Problems

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	xx	Of the nine islands included in this study, Fetlar has the second longest travel time of islands without an air connection (after Skerries). The journey involves two ferry connections and takes around two and a quarter hours by car and two hours and 25 minutes by public transport, assuming all connections are made. The long journey times limit daily interaction with the services and employment opportunities in Lerwick and indeed mainland generally and could be one of the causes of the economic challenges which the island has been facing of late. <sup>101</sup>
2	First sailing / flight	✓	The first sailing from Hamars Ness is early in the morning at 0655 Monday to Friday.
3	Last sailing / flight <sup>102</sup>	x	The consultation suggested that the timetable is not seen to be conducive to undertaking social activities in Lerwick. <sup>103</sup> However, even in winter, the first departure in Fetlar is 0655 on weekdays and last departure from Yell is 2250 (or Shetland mainland is 2200) Monday to Saturday, which suggests that the inability to undertake social activities on the mainland is purely a function of distance. Indeed, the RSM found that Fetlar is over-provided in terms of its length of operating day.
4	Time on mainland	✓	The current timetable allows for a significant amount of time on the mainland daily.
5	Time in Lerwick	✓	The current timetable allows for a significant amount of time in Lerwick daily, although the long journey time from Fetlar eats into this.
6	Time on island	✓	The current timetable allows for a significant amount of time on the island daily.
7	Frequency / Sailings	xx	In comparison to neighbouring Unst, Fetlar has a relatively

<sup>101</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Fetlar to Lerwick – Travel Time & Cost

<sup>102</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

<sup>103</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 11.

	Service Characteristics	Rating	Why is this a problem or not?
	per Day / Timetable gaps		low service frequency, although their service is much better overall than that of other islands of a similar size, both within Shetland and further afield. Nonetheless, frequency is less than the RSM specified level.  There is a specific gap in the Monday timetable, with no departures from Hamars Ness between 1300 and 1640 due to lunch and maintenance and on other weekdays from 1050 to 1430 due to split shifts. The gaps in the timetable in particular can lead to extended periods off-island when undertaking employer or personal business on Yell, Unst or the mainland.
8	Capacity	xx	There is not a notable capacity issue on direct sailings between Hamars Ness and Gutcher, but sailings to and from the island via Belmont can have car capacity issues. <sup>104</sup> This problem combined with the frequency / timetable gaps problem can impact on the ability to make unplanned trips off-island.
9	Reliability (weather / mechanical)	✓	There are no major reliability issues on this route.
10	Comfort	x	The accommodation is below the car deck and there is no disabled access / facilities
11	Physical access	x	The MV <i>Bigga</i> and <i>Geira</i> are both ageing vessels and both have passenger accommodation below the waterline. Physical access can therefore be challenging for the elderly and disabled, again an important issue given the ageing demographic of Fetlar. <sup>105</sup>
12	Integration with PT (local bus)	xx	There is very limited bus integration at Gutcher for Fetlar residents. Variants of the 24 & 28 services call at Gutcher, with a single service through to Lerwick and four services per day to Ulsta. These services are not timed well for the Fetlar ferry and, with the exception of one service, require a change of bus. This makes public transport an unattractive option overall. <sup>106</sup> The dependence on the private car has a negative environmental impact and increases the cost of travel for islanders, leading to further comparative disadvantage.
13	Integration with PT (strategic)	xx	Fetlar has a timetable which allows islanders to easily access NorthLink services from Lerwick. However, residents cannot catch the morning Edinburgh, Inverness or Kirkwall flights, although the first flights to Glasgow and Aberdeen are accessible. The inability to catch the first morning flights to various locations means that Fetlar residents cannot carry out a day return visit for meetings, appointments etc, leading to potentially costly overnight stays.

<sup>104</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 11.

<sup>105</sup> SIITS Vessels Review (TMG, 2015), p. 17.

<sup>106</sup>

<http://www.travelinescotland.com/timetableplanner/serviceLookup.do?method=defaultMethod&hss=GViYe282326821>



	Service Characteristics	Rating	Why is this a problem or not?
14	Crossing / flight times	✖	<p>The 25 minute crossing time to Gutcher is not unreasonable. However, on indirect sailings via Belmont, the crossing time is extended by 10 minutes plus the time required for marshalling at Belmont. Fetlar generally has two indirect sailings per day, adding significantly to journey times.<sup>107</sup></p> <p>The increased overall journey times on such sailings increase the already lengthy journeys for accessing a range of business and personal services.</p>
15	Onboard facilities	✓	The facilities on the vessel are appropriate for the length of crossing.
16	Weekday / weekend service variation <sup>108</sup>	✖✖✖	Fetlar has a much reduced service at the weekend. Saturday provision is almost half of the weekday provision, whilst there are very few sailings on a Sunday. <sup>109</sup> This limits weekend accessibility to the mainland and the attractiveness of the island for weekend tourists.
17	Landside infrastructure issues	✓	The facilities are appropriate for the route.
18	Landside human resources	✓	There are not currently any landside human resource issues, although the ferry is crewed with island-based staff, which could give rise to future crewing issues.

<sup>107</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Daily Crossings and Capacity – Fetlar.

<sup>108</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

<sup>109</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Daily Crossings and Capacity – Fetlar.

## Foula

### RSM Results

5.4.16 The RSM results for Foula are set out in the table below:

Table 5.8: Foula RSM Results

Island	Connection Days	Connections Per Day	Operating Day
Foula	Service should be offered 7 days-a-week <b>Substantial under-provision</b>	Acceptable	Acceptable

5.4.17 The RSM results for Foula suggest that the island has an acceptable number of connections per day and length of operating day on the days on which a connection is provided. Foula is however under-served in terms of the lack of seven day service.

Table 5.9: Foula Transport Problems

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	x	Foula residents can reach Tingwall in 15-20 minutes by air, with a 15 minute connection to Lerwick by bus (although interchange can be an issue on certain days of the week).  However, ferry journey times are long, some 120 minutes to Walls. If a person is travelling by public transport, there is a 105 minute wait for the bus and 55 minute bus connection to Lerwick. <sup>110</sup> The long ferry journey times means that anyone who cannot travel by air (either because of physical accessibility, cost or reliability issues) faces an unattractive and extended trip to the mainland.
2	First sailing / flight	✓	The issue for Foula is related more to time on mainland / Lerwick / island.
3	Last sailing / flight <sup>111</sup>	✓	The issue for Foula is related more to time on mainland / Lerwick / island.
4	Time on mainland	xxx	It is not possible to make a meaningful day return either to or from Foula by ferry – day access is entirely dependent on the air service. The air service itself is of a reasonable level offering 8-18 hours weekly on the mainland, 7-17 hours in Lerwick and 9-20 hours on Foula. <sup>112</sup>  However, this is still a relatively limited period of time ashore when comparing Foula to other islands of a similar size (e.g. Fetlar, North Ronaldsay, Papa Westray etc). The limited time ashore can lead to a need for costly overnight stays when carrying out work-based or personal business which extend beyond the length of the air operating day.
5	Time in Lerwick	xxx	See point 4.
6	Time on island	xx	See point 4.

<sup>110</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Foula – Lerwick – Travel Time & Cost Page.

<sup>111</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

<sup>112</sup> SIITS Air Service Provision (Peter Brett Associates, 2015), Time Ashore – Weekly.

	Service Characteristics	Rating	Why is this a problem or not?
7	Frequency / Sailings per Day / Timetable gaps	✓	The community successfully work around the current frequency. The bigger question is the number of connections overall and effective time on the mainland / island.
8	Capacity	xxx	<p>The MV <i>New Advance</i> is very limited in terms of vehicle and indeed passenger capacity. The vessel can only take one small car and 12 passengers, whilst she cannot accommodate any heavy freight or plant.<sup>113</sup></p> <p>The air service is also limited to 8-9 passengers depending on weight. This places a significant capacity constraint on the island, particularly when one or both modes is affected by bad weather. In addition, the deadweight limitation on the vessel means that bringing any larger vehicles or plant onto the island requires the use of a different vessel.</p> <p>The capacity issue impacts negatively both on access to the mainland for island residents and on visitors to the island.</p>
9	Reliability (weather / mechanical)	xx	<p>The ferry crossing is long and exposed. This, combined with the small vessel used, presents reliability challenges on the route, particularly during winter. In many cases, the ferry has to travel when there is a weather window, even if this is off-timetable.</p> <p>The air service is overall believed to be reliable but can be affected by the frequent fog which affects Foula and Tingwall. Reliability issues can lead to both islanders and visitors incurring costly overnight stays, whilst a sustained period of cancellations can have significant impacts on the inbound and outbound supply chain.</p>
10	Comfort	xx	The MV <i>New Advance</i> is a relatively uncomfortable vessel given the average sea states in which she operates (indeed her workboat classification hints at her size).
11	Physical access	xx	<p>As a small vessel operating out of a non Ro-Ro port, the <i>New Advance</i> can present physical accessibility issues for older and disabled passengers, a key issue on Foula, which has an ageing demographic.</p> <p>As previously explained, the Britten-Normen Islander aircraft are not well suited to those with any kind of mobility impairments either. This is a key problem on Foula – the ageing demographic on the island means that, in the longer-term, physical accessibility could become a barrier to necessary travel.</p>
12	Integration with PT (local bus)	✓	There are local bus connections for ferry at Walls, although the layover time is long. There is a demand responsive service from Tingwall.
13	Integration with PT (strategic)	xx	Given the limited connections from Foula, onward travel will always have to be well planned. However, there are a number of problems over and above this. Firstly, a high degree of reliability is required on both the connecting and onward service as any delay or cancellation can lead to the need for a costly overnight stay or a long layover on Shetland mainland. In addition, the air service from Foula travels to Tingwall and requires a double-bus connection to get to Sumburgh.

<sup>113</sup> SIITS Vessels Review (TMG, 2015), p. 13.

	Service Characteristics	Rating	Why is this a problem or not?
14	Crossing / flight times	✖	See point 1.
15	Onboard facilities	✖✖	As a small vessel (classified as a workboat), the MV <i>New Advance</i> has little in the way of onboard facilities. This lessens the attractiveness of the ferry as a travel option and puts pressure on aircraft capacity.
16	Weekday / weekend service variation <sup>114</sup>	✖✖✖	Foula has a significant weekend connectivity gap. Other than a summer Saturday ferry return, there are no weekend services at all, which effectively cuts the island off. <sup>115</sup> This suppresses the ability of islanders to take an overnight off-island trip at the weekend and discourages potential visitors to the island.
17	Landside infrastructure issues	✖✖	The ferry berth is constrained and exposed, with the vessel having to be hoisted out of the water overnight. The harbour is silted-up which prevents the larger MV <i>Snolda</i> calling as she did in the past. <sup>116</sup>
18	Landside human resources	✖✖	There is an ongoing challenge of providing fire cover at the airfield, which could have an impact on the long-term sustainability of the air service.  The ferry crew is also island based, which could present an issue for crew resourcing in the medium to longer term.

<sup>114</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

<sup>115</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Ferry Service Provision and SIITS Air Service Provision (Peter Brett Associates, 2015), Air Service Provision

<sup>116</sup> SIITS Ports Review (TMG, 2015), p. 34.

## Papa Stour

### RSM Results

5.4.18 The RSM results for Papa Stour are set out in the table below:

Table 5.10: Papa Stour RSM Results

Island	Connection Days	Connections Per Day	Operating Day
Papa Stour	Service should be offered 7 days-a-week <b>Substantial under-provision</b>	Number of sailings should be increased to 6-8 p/d <b>Substantial under-provision</b>	Sailing day should be more than 14 hours <b>Substantial under-provision</b>

5.4.19 The RSM results suggest that Papa Stour is substantially under-served in terms of all three aspects of connectivity.

Table 5.11: Papa Stour Transport Problems

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	✓	The journey time from Lerwick to Papa Stour is reasonable, particularly when considered in the context of the Outer Isles more generally.
2	First sailing / flight	✓	On days where there is a sailing, the first departure from the island is 1000 (except on a Sunday).
3	Last sailing / flight <sup>117</sup>	✓	On days where there is a sailing, the last departure to the island is 1500 on a Wednesday and around 1800 on the other sailing days.
4	Time on mainland	xx	<p>Unlike the other Outer Isles, it is possible to make a meaningful return to the mainland, Lerwick and the island by ferry on a Wednesday, Friday and summer Saturday. The air service provides for an effective day return on a Tuesday.</p> <p>However, the amount of time at each end of the crossing is limited – 16-25 hours per week on the mainland, 13-20 hours in Lerwick and 20-31 hours on the island.<sup>118</sup> This is a relatively limited period of time ashore when comparing Papa Stour with other islands of a similar size (e.g. Fetlar, North Ronaldsay, Papa Westray etc).</p> <p>The limited time ashore can lead to a need for costly overnight stays (or off-island living) when carrying out work-based or personal business which extend beyond the length of the operating day.</p>
5	Time in Lerwick	xx	See point 4.
6	Time on island	xx	See point 4.
7	Frequency / Sailings per Day / Timetable gaps	✓	In summer, there are two return sailings from the mainland on a Wednesday, Friday and Saturday, with one return sailing on a Sunday. This has not come up as a problem in our research but community feedback is required. However, there is only a

<sup>117</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

<sup>118</sup> SIITS Air Service Provision (Peter Brett Associates, 2015), Time Ashore – Weekly.

	Service Characteristics	Rating	Why is this a problem or not?
			single sailing on a Saturday in winter which the community consider a problem.
8	Capacity	✓	Vehicle capacity is believed to be satisfactory for the size of the island, although the 12 passenger limit on the ferry is perceived to be a problem, as it can lead to passengers not securing a space on the service of their choice.
9	Reliability (weather / mechanical)	✓	There are not believed to be any major reliability issues on this route.
10	Comfort	✓	The facilities on the vessel are appropriate for the length of crossing.
11	Physical access	✗	<p>The MV <i>Snolda</i> is an older vessel and can present physical accessibility issues for older and disabled passengers. However, access to the lounge is straight from car deck on same level but there are sills in doorways which are an issue for those with mobility problems.</p> <p>As previously explained, the Britten-Normen Islander aircraft are not well suited to those with any kind of mobility impairments. This is a key problem on Papa Stour – the ageing demographic on the island means that, in the longer-term, physical accessibility could become a barrier to necessary travel. There are currently solutions in place for dealing with this problem.</p>
12	Integration with PT (local bus)	✓	There is reasonably good bus integration at West Burrafirth.
13	Integration with PT (strategic)	✗	<p>Given the limited connections from Papa Stour, onward travel will always have to be well planned. However, there are a number of problems over and above this.</p> <p>Firstly, a high degree of reliability is required on both the connecting and onward service as any delay or cancellation can lead to the need for a costly overnight stay or a long layover on Shetland mainland. In addition, the air service from Foula travels to Tingwall and requires a double-bus connection to get to Sumburgh.</p>
14	Crossing / flight times	✓	The crossing time from West Burrafirth to Papa Stour is reasonable, particularly when considered in the context of the Outer Isles more generally.
15	Onboard facilities	✓	The facilities on the vessel are appropriate for the length of crossing.
16	Weekday / weekend service variation <sup>119</sup>	✗	Papa Stour has connections five days per week. However, the loss of the second Saturday sailing in winter is perceived to be restrictive by the community.
17	Landside infrastructure issues	✓	The landside infrastructure is appropriate for the island.
18	Landside human resources	✗	<p>The absence of fire cover at the airfield means the air service is limited to two rotations per week. The low frequency of the air service means that its usage is very limited, with the ferry being the more popular of the two travel options.</p> <p>Landside human resources would become an issue if the service frequency was increased.</p>

<sup>119</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

## Skerries

### RSM Results

5.4.20 The RSM results for Skerries are set out in the table below:

Table 5.12: Skerries RSM Results

Island	Connection Days	Connections Per Day	Operating Day
Skerries	Service should be offered 7 days-a-week <b>Substantial under-provision</b>	Number of sailings should be increased to 3-5 p/d <b>Marginal under-provision</b>	Sailing day should be up to 14 hours, 6am-8pm <b>Substantial under-provision</b>

5.4.21 The RSM results suggest that Skerries is substantially under-provided in terms of the days in which it receives a service and the length of the operating day. It is also noted to have marginal under provision in terms of the number of connections per day.

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	xx	<p>The suspension of air services as of 23<sup>rd</sup> November 2015 means that Skerries residents face a relatively long and, on occasions, indirect journey to Lerwick.</p> <p>The ferry from Skerries to Vidlin takes 90 minutes, with the direct weekly sailing time to Lerwick being 150 minutes. On sailings to Vidlin, there is a 30-40 minute connection to Lerwick by car, whilst public transport takes 40-50 minutes (although the frequency of the bus service means the public transport option is unattractive in any case – see below). The last sailing of the day from Skerries goes to Symbister (where the vessel overnights) except on a Sunday, which means island residents who are travelling to the mainland need to interchange onto the Symbister – Laxo ferry.<sup>120</sup></p> <p>The long-journey time and infrequent connections creates a problem for Skerries residents in that access to mainland based employment and personal services is limited, an issue which exacerbated by the lack of on-island services.</p>
2	First sailing / flight	xx	<p>There are only sailings to and from Skerries five days a week, whilst the first departure tends to be slightly later in the morning because the vessel overnights in Symbister. This, to some extent, limits time on the mainland and the ability to undertake personal business, particularly when return travel from Vidlin is required.<sup>121</sup></p>
3	Last sailing / flight <sup>122</sup>	xx	<p>The latest departure time of a sailing to Skerries is 1730. This sailing is from Vidlin, which means islanders would need to leave Lerwick no later than 1630-1645. The relatively early last sailing time (and the departure point of Vidlin) is a cause of the limited mainland and on-island time (see below).</p>

<sup>120</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Daily Crossings and Capacity – Skerries

<sup>121</sup> <http://www.shetland.gov.uk/ferries/documents/TimetetableWinter2015-16V3.pdf>

<sup>122</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

	Service Characteristics	Rating	Why is this a problem or not?
4	Time on mainland	xxx	<p>The combination of the comparatively long crossing time, suspension of the air service, the overnighing of the ferry in Symbister and the mainland port being Vidlin means that productive on-mainland and on-island time is limited.</p> <p>Skerries residents get around 23 hours per week on the mainland but much reduced time in Lerwick (around 18 hours) given the need to connect to and from Vidlin on most days. Visitors get around 31 hours on the island.<sup>123</sup> This limits access to employment and business / personal services, an issue exacerbated by the absence of on-island services.</p>
5	Time in Lerwick	xxx	See point 4.
6	Time on island	xx	See point 4.
7	Frequency / Sailings per Day / Timetable gaps	xx	The Skerries timetable offers relatively infrequent sailings, all of which are request only. This is very much a result of the limited demand for the service. However, the low frequency and under-utilisation of the vessel could be considered a problem as Skerries is less well connected than e.g. Fetlar and the other Outer Isles which still have air services. <sup>124</sup>
8	Capacity	✓	Vehicle capacity on the ferry is not believed to be a major problem.
9	Reliability (weather / mechanical)	xx	This route is quite exposed to the weather, particularly the Skerries – Lerwick crossing. This can lead to cancellations and service disruption, a key problem with such a low frequency.
10	Comfort	✓	The facilities on the vessel are appropriate for the length of the crossing.
11	Physical access	✓	The passenger accommodation and disabled toilet are on the same level as the vehicle deck so access is not a problem. There are sills below the doors but one of these is hinged to allow it to open for wheelchair access. Because of the nature of the crossing, passengers cannot remain in their vehicles on passage on this route.
12	Integration with PT (local bus)	xxx	Public transport integration at Vidlin is relatively limited, with only three buses to Lerwick per day, which are not particularly well timed with the ferry. <sup>125</sup> This is a factor in limiting time in Lerwick, which is key for accessing personal services.
13	Integration with PT (strategic)	xx	Given the limited connections from Skerries, onward travel will always have to be well planned. However, there are a number of problems over and above this. A high degree of reliability is required on both the connecting and onward service as any delay or cancellation can lead to the need for a costly overnight stay or a long layover on Shetland mainland.
14	Crossing / flight times	xx	The crossing time is relatively long, 90 minutes to Vidlin and 150 minutes to Lerwick. This was previously offset by the provision of the air service but this is no longer the case. <sup>126</sup> The long-crossing time means that any visit to the mainland is effectively a full day affair meaning that little can be done on-island on that day.

<sup>123</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Time Ashore – Weekly.

<sup>124</sup> <http://www.shetland.gov.uk/ferries/documents/TimetableWinter2015-16V3.pdf>

<sup>125</sup> <http://www.travelinescotland.com/pdfs/timetables/SLAO019.pdf#page=1>

<sup>126</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Skerries – Lerwick – Travel Time & Cost Page.



	Service Characteristics	Rating	Why is this a problem or not?
15	Onboard facilities	✓	The facilities on the vessel are appropriate for the length of crossing.
16	Weekday / weekend service variation <sup>127</sup>	✓	There are only five sailing days per week, although weekend connectivity is more frequent than weekdays on which there is a sailing.
17	Landside infrastructure issues	✗	Vidlin is accessed via a single track road. The marshalling area is very limited, especially when the Whalsay service is also operating from there. All vehicles have to reverse on or off the ferry, which adds to turnaround times and presents marshalling challenges at the constrained Vidlin site. This can give rise to operational and safety problems but the current situation is workable.
18	Landside human resources	✗✗✗	The lack of fire cover at Skerries airfield has led to the suspension of the air service.

<sup>127</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

## Unst

### RSM Results

5.4.22 The RSM results for Unst are set out in the table below:

**Table 5.13: Unst RSM Results**

Island	Sailing Days	Sailings Per Day	Operating Day
Unst	Acceptable	Acceptable	Acceptable

5.4.23 In summary, the sailing days, sailings per day and the operating day for Unst are deemed to be acceptable.

**Table 5.14: Unst Transport Problems**

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	xx	Of the nine islands considered in this study, Unst has the third longest journey time to Lerwick without an air connection (after Skerries and Fetlar). The journey involves two ferry connections and takes around two hours by car and two and a half hours by public transport (depending on where on Unst the journey begins), assuming all connections are made.  The long journey times limit daily interaction with the services and employment opportunities in Lerwick and indeed mainland generally. <sup>128</sup>
2	First sailing / flight	✓	The first sailing from Belmont is early in the morning at 0630.
3	Last sailing / flight <sup>129</sup>	x	The consultation suggested that the timetable is not seen to be conducive to undertaking social activities in Lerwick. <sup>130</sup> However, even in winter, the first departure from Unst is 0630 and last departure on Monday to Saturday from the mainland 2200 or from Yell 2250, which suggests that the inability to undertake social activities on mainland is purely a function of distance. <sup>131</sup>
4	Time on mainland	✓	The current timetable allows for a significant amount of time on the mainland daily.
5	Time in Lerwick	✓	The current timetable allows for a significant amount of time in Lerwick daily, although the long journey time from Unst eats into this.
6	Time on island	✓	The current timetable allows for a significant amount of time on the island daily.
7	Frequency / Sailings per Day / Timetable gaps	✓	Unst has a relatively frequent service with a high number of sailings per day, for example during the summer timetable period there are 23 sailings per day Tuesday – Friday direct to Gutcher, plus a further five sailings (plus one request sailing) via Hamars Ness.

<sup>128</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Unst to Lerwick – Travel Time & Cost

<sup>129</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

<sup>130</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 11.

<sup>131</sup> <http://www.shetland.gov.uk/ferries/documents/TimetableWinter2015-16V3.pdf>

	Service Characteristics	Rating	Why is this a problem or not?
8	Capacity	xx	<p>The consultation and carryings data suggest that peak vehicle capacity can be an issue on the Gutter – Belmont route.</p> <p>From a passenger perspective, the majority of the capacity issues are on departures from Belmont, with the 0630 and 1740 departures in the summer particularly busy (although this may have changed since the end of the movements of Petrofac workers working at the Sullom Voe gas terminal).</p> <p>With regards to vehicles, the 0825 departure from Belmont is a particularly busy sailing – in summer 2014, this sailing departed with its vehicle-deck utilised at more than 80% on 59 separate days, with the corresponding figure for the winter being 83 days.<sup>132</sup> The shortage of capacity on key sailings means that a passenger may have to delay a desirable journey (with the potential for missed onward connections) or cancel it altogether, particularly where the journey is short notice or discretionary.</p>
9	Reliability (weather / mechanical)	✓	There are not believed to be any major reliability issues on this route.
10	Comfort	x	The accommodation is below the car deck and there is no disabled access / facilities
11	Physical access	x	The MV <i>Bigga</i> and MV <i>Geira</i> are both ageing vessels and both have passenger accommodation below the waterline. Physical access can therefore be challenging for the elderly and disabled, again an important issue given the ageing demographic of Unst. <sup>133</sup>
12	Integration with PT (local bus)	xx	<p>There is very limited bus integration at Gutter for Unst residents. Variants of the 24 and 28 services call at Gutter, with a single service through to Lerwick and four services per day to Ullsta. These services are not in keeping with the much higher frequency ferry service. This makes public transport an unattractive option overall.<sup>134</sup></p> <p>The dependence on the private car has a negative environmental impact and increases the cost of travel for islanders, leading to further comparative disadvantage.</p>
13	Integration with PT (strategic)	xx	<p>Unst has a timetable which allows islanders to easily access NorthLink services from Lerwick. However, residents cannot catch the first Aberdeen, Edinburgh, Inverness or Kirkwall flights, although the first flight to Glasgow is accessible.</p> <p>The inability to catch the first morning flights to various locations means that Unst residents cannot carry out a day return visit for meetings, appointments etc, leading to potentially costly overnight stays.</p>

<sup>132</sup> SIITS Carryings and Utilisation Analysis (Peter Brett Associates, 2015), Gutter – Belmont Capacity Analysis Table

<sup>133</sup> SIITS Vessels Review (TMG, 2015), p. 17.

<sup>134</sup>

<http://www.travelinescotland.com/timetableplanner/serviceLookup.do?method=defaultMethod&hss=GViYe282326821>

	Service Characteristics	Rating	Why is this a problem or not?
14	Crossing / flight times	✓	Sailings via Hamars Ness add to journey times but these are relatively infrequent when considered in the context of Unst's total number of sailings.
15	Onboard facilities	✓	The facilities on the vessel are appropriate for the length of crossing.
16	Weekday / weekend service variation <sup>135</sup>	✗	Unst has a reduced service at the weekend. Saturday provision is around two thirds of the weekday provision, whilst there are relatively few connections on a Sunday compared to a typical weekday (although the Sunday service frequency is still very high when compared to other Scottish islands). <sup>136</sup> The consultation suggested this presents something of a problem for Unst residents, although it is clear from the timetable and data that Sunday travel is possible, albeit less frequent.
17	Landside infrastructure issues	✓	The facilities are appropriate for the route.
18	Landside human resources	✓	There are not currently any problems with landside human resources.

<sup>135</sup> The "Weekday / Weekend Service Variation" picks up on the RSM metric of "Sailing Days".

<sup>136</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Daily Crossings and Capacity –Unst.

## Whalsay

### RSM Results

5.4.24 The RSM results for Whalsay are set out in the table below:

**Table 5.15: Whalsay RSM Results**

Island	Sailing Days	Sailings Per Day	Operating Day
Whalsay	Acceptable	Acceptable	Acceptable

5.4.25 In summary, the sailing days, sailings per day and the operating day for Whalsay are deemed to be acceptable.

**Table 5.16: Whalsay Transport Problems**

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	✓	The overall journey time to Lerwick was not cited as an issue in previous consultations.
2	First sailing / flight	✓	The first departure from Symbister is early in the morning at 0630.
3	Last sailing / flight <sup>137</sup>	✗	The consultation suggested that the timetable is not seen to be conducive to undertaking social activities in Lerwick. <sup>138</sup> However, even in winter, the first departure from Whalsay is 0630 and last departure from the mainland 2310 (on request), which suggests that the inability to undertake social activities on mainland is purely a function of distance. <sup>139</sup>
4	Time on mainland	✓	The current timetable allows for a significant amount of time on the mainland daily.
5	Time in Lerwick	✓	The current timetable allows for a significant amount of time in Lerwick daily.
6	Time on island	✓	The current timetable allows for a significant amount of time on the island daily.
7	Frequency / Sailings per Day / Timetable gaps	✗	The timetable for Whalsay is relatively thin in the evening compared to Yell Sound (the population of Yell being a similar size of island to Whalsay). Whalsay has three timetabled and one request sailing after 1800. This compares to five timetabled and one request sailing on Yell Sound. This is largely a product of the longer crossing-time and the reduction to a one vessel service in the evening. It is nonetheless considered a problem by Whalsay residents. The limited evening connectivity is seen as being a contributing factor to younger people leaving the island, although there is no firm evidence to support this point.  There is also a gap in the timetable on a Wednesday (one return sailing removed from timetable for drills and

<sup>137</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

<sup>138</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 16.

<sup>139</sup> <http://www.shetland.gov.uk/ferries/documents/TimetableWinter2015-16V3.pdf>

	Service Characteristics	Rating	Why is this a problem or not?
			maintenance) for parents returning to Whalsay to collect their children from school. <sup>140</sup>
8	Capacity	xxx	<p>The Whalsay route has issues in terms of peak vehicle capacity. The 0750 departure from Symbister is the most constrained service, with 31 of these sailings showing greater than 80% car deck utilisation in summer 2014. Further, all of these sailings are concentrated on Mondays and Tuesdays.</p> <p>In the winter, the 0630 (22 occasions with car deck utilisation over 80%) and 0750 (15 occasions with car deck utilisation over 80%) are the busiest sailings from Symbister. In the reverse direction, the peak sailing is 1755 ex Laxo, which has 16 sailings in summer and 47 sailings in winter (generally concentrated on a Friday) which have over 80% car deck utilisation.</p> <p>Finally, the gap in the Wednesday timetable is evident from the carryings data, with the 1445 service ex Laxo frequently showing high utilisation levels.<sup>141</sup></p> <p>The shortage of capacity on key sailings means that desirable journeys, particularly for commuters, can be delayed (with the potential for a late start to the working day or missed onward connections) or cancelled altogether, particularly where the journey is short notice or discretionary.</p>
9	Reliability (weather / mechanical)	x	The Laxo – Symbister route is very exposed to winds from the south-east. On occasions where the service cannot be operated, the vessels divert to Vidlin. <sup>142</sup> The longer at sea and on land journey times impact negatively on the travel-to-work market, particularly in terms of journey time disbenefits.
10	Comfort	x	The facilities on the MV <i>Linga</i> are appropriate for the length of crossing, less so on the MV <i>Hendra</i> .
11	Physical access	x	<p>The MV <i>Hendra</i> is a relatively old vessel and physical access can be challenging for those with a mobility impairment. The passenger accommodation on this vessel is also below the waterline, which means stairs also have to be negotiated once on the vessel. Physical access can therefore be challenging for the elderly and disabled, although passengers with impaired mobility usually travel on the other vessel, MV <i>Linga</i>, when possible.</p> <p>The MV <i>Linga</i> has good disabled access.</p>
12	Integration with PT (local bus)	xx	There is very limited bus integration at Laxo (and indeed Vidlin) for Whalsay residents. Opportunities to commute to Lerwick using the bus are very limited. <sup>143</sup>

<sup>140</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 16.

<sup>141</sup> SIITS Carryings and Utilisation Analysis (Peter Brett Associates, 2015), Laxo - Symbister Capacity Analysis Table

<sup>142</sup> SIITS Vessels Review (TMG, 2015), p. 17.

<sup>143</sup>

<http://www.travelinescotland.com/timetableplanner/displayTimetableDetails.do?rid=1447671063183&hss=5cCWG282621564>

	Service Characteristics	Rating	Why is this a problem or not?
			The dependence on the private car has a negative environmental impact and increases the cost of travel for islanders, leading to further comparative disadvantage.
13	Integration with PT (strategic)	xx	<p>Whalsay has a timetable which allows islanders to easily access NorthLink services from Lerwick. However, residents cannot catch the first Aberdeen, Edinburgh, Inverness or Kirkwall flights, although the first flight to Glasgow is accessible.</p> <p>The inability to catch the first morning flights to various locations means that Whalsay residents cannot carry out a day return visit for meetings, appointments etc, leading to potentially costly overnight stays.</p>
14	Crossing / flight times	✓	The crossing time was not cited as an issue in previous consultations.
15	Onboard facilities	✓	The facilities on the vessel are appropriate for the length of crossing.
16	Weekday / weekend service variation <sup>144</sup>	x	<p>Whalsay has a reduced service at the weekend. There are ten timetabled plus one request sailing on both a Saturday and Sunday, which compares to 16/17 timetabled sailings plus one request sailing during the week.</p> <p>Whilst overall weekend provision is lower, weekend provision to/from Whalsay compares very favourably to many other Scottish islands with a similar crossing time.<sup>145</sup> This was a problem identified through the consultation and is believed to be a cause of younger people leaving the island, although there is no firm evidence to support this point.</p>
17	Landside infrastructure issues	x	Vidlin, the diversionary port for Whalsay, is accessed via a single track road. The marshalling area is very limited. This can give rise to operational and safety problems but the current situation is workable.
18	Landside human resources	✓	There are not currently any problems with landside human resources.

<sup>144</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

<sup>145</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Daily Crossings and Capacity –Whalsay.

## Yell

### RSM Results

5.4.26 The RSM results for Yell are set out in the table below:

**Table 5.17: Yell RSM Results**

Island	Sailing Days	Sailings Per Day	Operating Day
Yell	Acceptable	Acceptable	Acceptable

5.4.27 In summary, the sailing days, sailings per day and the operating day for Yell are deemed to be acceptable.

**Table 5.18: Yell Transport Problems**

	Service Characteristics	Rating	Why is this a problem or not?
1	Overall journey time to Lerwick	✓	The overall journey time to Lerwick was not cited as an issue in previous consultations.
2	First sailing / flight	✓	The first departure from Ulsta is early in the morning at 0615.
3	Last sailing / flight <sup>146</sup>	✗	The consultation suggested that the timetable is not seen to be conducive to undertaking social activities in Lerwick. <sup>147</sup> However, even in winter, the first departure from Yell is 0615 and last departure from the mainland 2255 (on request), which suggests that the inability to undertake social activities on mainland is purely a function of distance. <sup>148</sup>
4	Time on mainland	✓	The current timetable allows for a significant amount of time on the mainland daily.
5	Time in Lerwick	✓	The current timetable allows for a significant amount of time in Lerwick daily.
6	Time on island	✓	The current timetable allows for a significant amount of time on the island daily.
7	Frequency / Sailings per Day / Timetable gaps	✓	On a typical weekday (Tuesday – Friday), there are 24 timetabled and one request sailing across Yell Sound. The Monday frequency is slightly lower but still offers 20 timetabled sailings plus one request sailing.  The reduced service on Mondays is considered a problem for fish lorries.
8	Capacity	✓	Vehicle capacity has not been identified as an issue.
9	Reliability (weather / mechanical)	✓	There are not believed to be any major reliability issues on this route.
10	Comfort	✓	The facilities on the vessel are appropriate for the length of crossing.
11	Physical access	✓	Physical access to both Yell Sound vessels is very good.

<sup>146</sup> The combination of 2) First Sailing / Flight and 3) Last Sailing Flight represent the RSM measure of (Length of Operating Day).

<sup>147</sup> SIITS Consultation Review (Peter Brett Associates, 2015), p. 14.

<sup>148</sup> <http://www.shetland.gov.uk/ferries/documents/TimetableWinter2015-16V3.pdf>



	Service Characteristics	Rating	Why is this a problem or not?
12	Integration with PT (local bus)	✖	Public transport connections at Toft are limited, although there are connections at peak times.
13	Integration with PT (strategic)	✖	Yell has a timetable which allows islanders to easily access NorthLink services from Lerwick. However, residents cannot catch the first Aberdeen, Edinburgh, Inverness or Kirkwall flights, although the first flight to Glasgow is accessible. The inability to catch the first morning flights to various locations means that Yell residents cannot carry out a day return visit for meetings, appointments etc, leading to potentially costly overnight stays.
14	Crossing / flight times	✓	The crossing time is short.
15	Onboard facilities	✓	The facilities on the vessel are appropriate for the length of crossing.
16	Weekday / weekend service variation <sup>149</sup>	✖	<p>Yell has a reduced service at the weekend. There are fifteen (Saturday) and fourteen (Sunday) timetabled sailings plus one request sailing on both a Saturday and Sunday. This compares to twenty-four timetabled sailings plus one request sailing during the week (except Monday).</p> <p>Whilst overall weekend provision is lower, it compares very favourably to many other Scottish islands.<sup>150</sup> The consultation suggested this presents something of a problem for Yell residents, although it is clear from the timetable and data that Sunday travel is possible, albeit it is slightly less frequent.</p>
17	Landside infrastructure issues	✓	The facilities are appropriate for the route.
18	Landside human resources	✓	There are not currently any problems with landside human resources.

<sup>149</sup> The “Weekday / Weekend Service Variation” picks up on the RSM metric of “Sailing Days”.

<sup>150</sup> SIITS Ferry Service Provision (Peter Brett Associates, 2015), Daily Crossings and Capacity –Yell.

## 6 Objective Setting

### 6.1 Overview

- 6.1.1 The setting of Transport Planning Objectives (TPOs) is a key step in the STAG process as they define what the policymaker should be seeking to achieve through the transport intervention. Chapter 5 established the evidence-based transport problems drawing upon the baselining research and community consultation. This chapter sets out the TPOs for the SIITS study.
- 6.1.2 We have developed common objectives which can be applied to all islands / routes. These objectives are based on the island 'problems tables' and the wider review of network problems set out in Chapter 5. This common set of TPOs will ensure consistency in the appraisal of options but, at the same time, allow the analysis to take account of the very individual nature of the problems faced by these islands.
- 6.1.3 By applying the TPOs to each island, it will be possible to identify where the current assets and revenue resource are failing to meet the TPOs, which in turn will assist in developing and appraising the options. These TPOs will be used in conjunction with the STAG criteria in the subsequent appraisal.
- 6.1.4 In summary, the main problems (from the above tables) and the corresponding objective developed in relation to each are:
- **Capacity:** the lack of capacity creates uncertainty of travel, or an actual barrier to travel. The capacity issue is a particular problem for Bressay, Fair Isle, Fetlar, Foula, Unst and Whalsay. For Fair Isle and Foula (and to a lesser extent Papa Stour), the key issue is the very low passenger capacity of the ferry and limited seats on the plane. On the other routes, capacity relates more to car deck space on the vessels during peak times.
    - **Transport Planning Objective 1:** *The capacity of the services should not act as a constraint to regular and essential personal, vehicular and freight travel between the island and Shetland mainland.*
  - **Time in Lerwick / on mainland / on island:** The curtailed periods of time in Lerwick, on the mainland and on the island can limit the ability to undertake commuting, personal and employer's business at these locations.
    - **Transport Planning Objective 2a:** *Where an island has a 'commutable' combined ferry or drive / public transport / walk time to a main employment centre (e.g. 80 minutes), the connections provided should facilitate commuting.*
    - **Transport Planning Objective 2b:** *Where an island does not have a 'commutable' combined ferry or air / drive / public transport / walk time to a main employment centre, the connections provided should permit at least a half day (e.g. 4 hours) in Lerwick 7 days a week.*
  - **Frequency / Sailings per Day / Timetable Gaps:** Frequent timetabled connections provide flexibility and minimise 'dead' time between ferries / flights. The internal Shetland network has relatively frequent connections on most routes. However, there are problematic timetable gaps on the Bressay, Fetlar and Whalsay routes and the low service frequency to the Outer Isles also represents a problem. .
    - **Transport Planning Objective 3:** *The scheduled time between connections should be minimised to increase flexibility for passengers and freight by maximising the number of island connections across the operating day.*

- **Weekday / Weekend Service Variation:** Whilst there is a generally accepted position with transport services that weekend (particularly Sunday) connectivity is less than that on a typical weekday, the evidence gathered suggests that variations in weekday and weekend services are having a negative impact on islanders in terms of their ability to: interact with the Shetland mainland; make weekend trips to the Scottish mainland; and for tourists to make weekend trips to the islands.
    - **Transport Planning Objective 4:** *The level of connectivity provided should minimise the variation between weekdays, evenings, Saturdays and Sundays.*
  - **Integration with Public Transport (Strategic):** Many islands cannot connect with the first flights out of Sumburgh or return to their home island by returning to Shetland on the last flight. This limits the ability to undertake a day return trip to the Scottish mainland for employer or personal business and leads to costly overnight stays.
    - **Transport Planning Objective 5:** *Where practicable, islanders should be provided with links to strategic onward connections without the need for an overnight stay on Shetland mainland.*
- 6.1.5 Whilst weather-related reliability, physical access, comfort and onboard facilities have been identified as problems for a number of the islands, they are issues which will be considered as part of the option development and appraisal process (STAG criteria). For example, any new vessel which emerged from this process would be constructed to modern standards in terms of disabled access and would be designed to ensure the best possible seakeeping etc.
- 6.1.6 In addition, we have identified a number of issues in relation to integration with local public transport services. The issue of public transport integration sits more within the framework of the Regional Transport Strategy. However, in order to make any connection meaningful, it would appear appropriate to allow for at least one return per operating day by public transport to Lerwick.
- 6.1.7 Landside infrastructure and human resources will also be considered when appraising the cost and risks associated with different options.
- 6.1.8 The table below summarises the extent to which the current service to each island meets the above objectives. A ✓ indicates that the current service delivers this objective, whilst a ✗ indicates otherwise. A 'o' indicates that a given objectives is not relevant to a given island.

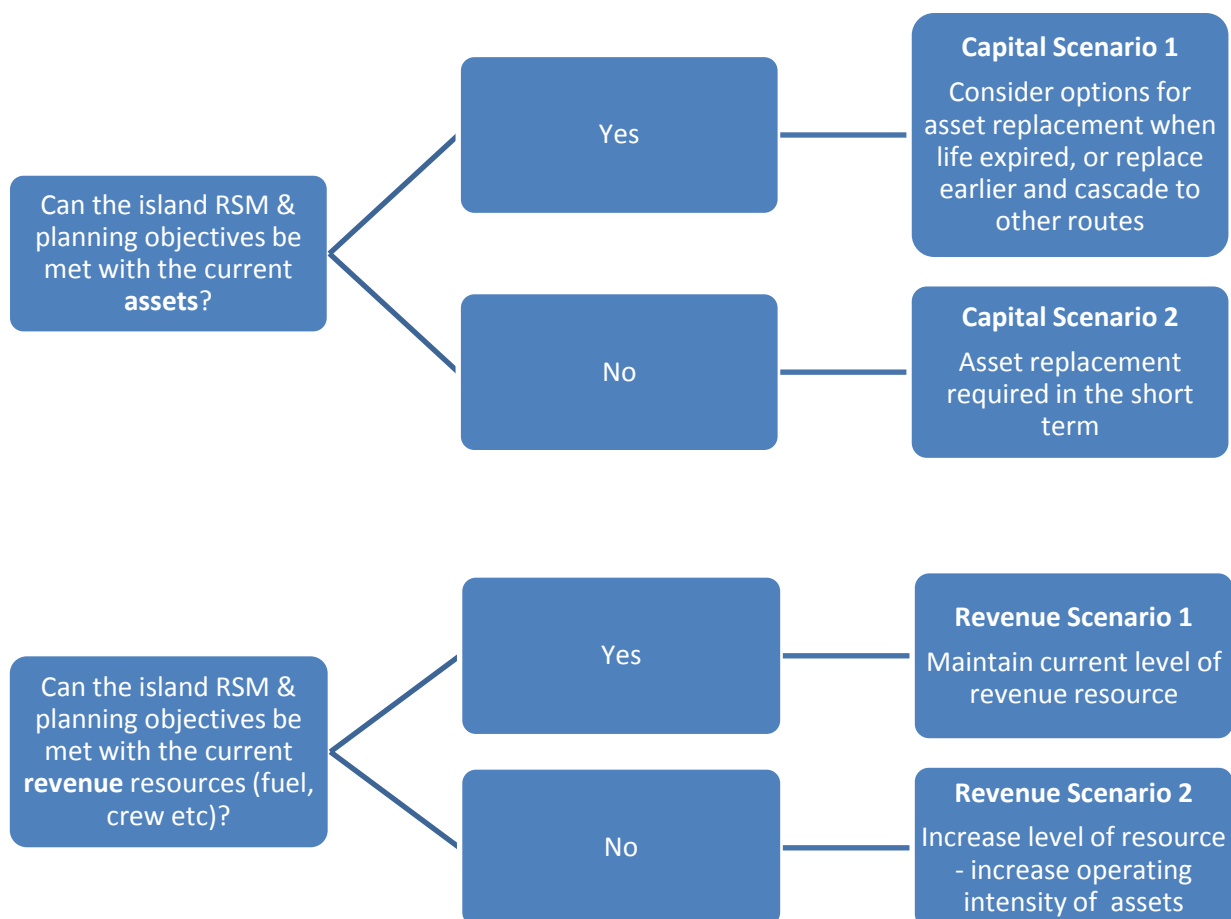
Table 6.1: Current Service and Objectives

Service Characteristics	Does the current service to this island deliver this objective?								
	Bressay	Fair Isle	Fetlar	Foula	Papa Stour	Skerries	Unst	Whalsay	Yell
<b>Transport Planning Objective 1:</b> The capacity of the services should not act as a constraint to regular and essential personal, vehicular and freight travel between the island and Shetland mainland.	x	x	x	x	✓	✓	x	x	✓
<b>Transport Planning Objective 2a:</b> Where an island has a 'commutable' combined ferry or drive / public transport / walk time to a main employment centre (e.g. 80 minutes), the connections provided should facilitate commuting.	✓	o	o	o	o	o	o	✓	✓
<b>Transport Planning Objective 2b:</b> Where an island does not have a 'commutable' combined ferry or air / drive / public transport / walk time to a main employment centre, the connections provided should permit at least a half day (e.g. 4 hours) in Lerwick 7 days a week.	o	x	✓	x	x	x	✓	o	o
<b>Transport Planning Objective 3:</b> The scheduled time between connections should be minimised to increase flexibility for passengers and freight by maximising the number of island connections across the operating day.	✓	✓	x	✓	✓	x	✓	x	✓
<b>Transport Planning Objective 4:</b> The level of connectivity provided should minimise the variation between weekdays, evenings, Saturdays and Sundays.	✓	x	x	x	✓	✓	x	x	x
<b>Transport Planning Objective 5:</b> Where practicable, islanders should be provided with links to strategic onward connections without the need for an overnight stay on Shetland mainland.	x	x	x	x	x	x	x	x	x

## 7 Option Generation and Sifting

### 7.1 Option Generation

- 7.1.1 A range of transport problems have been identified in relation to each island and in no case was there found to be no problem with current connections. The resulting transport planning objectives can be met by a combination of **capital** and **revenue** based initiatives.
- 7.1.2 Having set the Transport Planning Objectives for each island based on the service-based problems identified, a set of options needs to be generated and in this case, options are being generated across nine different islands. In dealing with this number of islands, a strategic approach has been adopted to provide structure to the process and to avoid an *ad hoc* approach to option generation. In doing this, a distinction has also been retained between **capital** investment and **revenue** based expenditure. A key issue here is that over a 30 year appraisal period virtually all ferries will require to be replaced (assuming a typical 20-30 year ferry lifespan). The issue is when these vessels are replaced.
- 7.1.3 In broad terms the high level option scenarios and timing of these options in terms of capital and revenue based actions are defined through the following two key questions:



- 7.1.4 In this context, at the island level, an initial assessment of the likely scenarios for **ferry services** is set out in the table below.

Table 7.1: Capital &amp; Revenue Scenarios

	Capital Scenario		Revenue Scenario	
	1 – Replace on Life Expiry or replace and cascade	2 – Replace in Short Term	1 – Current Resource	2 – Increased Resource
Unst		✓		✓
Fetlar		✓		✓
Yell	✓			✓
Skerries	✓			✓
Whalsay		✓		✓
Bressay	✓			✓
Fair Isle		✓		✓
Foula		✓		✓
Papa Stour	✓			✓

7.1.5 This initial assessment has been included at this stage to provide context for the option generation and development which follows. It is worth noting that the analysis and evidence has pointed to the need for additional revenue resource across all of the routes. The appraisal will identify and assess the options in this respect and establish the cost implications of any increase in the service specification.

7.1.6 Note that STAG states that: ‘*The **Option Sifting** process should be undertaken when an unmanageably large number of options have been generated or where there is general consensus that a particular option or options generated will clearly not achieve the intended objectives or meet the identified transport problems and/or opportunities*’.

7.1.7 To this end, this paper documents a process whereby:

- options are generated on a systematic basis derived from a set of common themes;
- these options are initially sifted based on the above STAG condition;
- capital-based option themes are expanded upon to produce island specific options
- revenue-based options are developed to produce island specific options; and
- the surviving capital and revenue options will form the long list for initial appraisal against the planning objectives and STAG criteria.

7.1.8 For each island, three tables are therefore presented as follows:

7.1.9 **Table 1: Capital Option Themes Sift:** a number of consistent option themes have been developed for ferry-based, air-based and fixed-link based options in turn. For consistency, each option theme is considered in the context of each island and those option themes which are clearly not relevant or appropriate for a given island are sifted out at this stage. A brief note is included explaining any option theme’s exclusion to provide a decision making audit trail. Note that at this stage option themes are included or excluded from the ‘*long list*’ on the basis of their potential contribution to planning objectives and the STAG Criteria ***in their own right*** (they may have an enabling role in relation to another option though). Any option themes in *italics* are specific to that island.

7.1.10 For each route, the 'Do Nothing' involves ongoing use of the current assets, with continuing use of existing assets and the operation of the current service. Given that this study has a thirty-year time horizon during which all assets will have to be replaced, it is assumed that the Do Nothing is not appropriate on any route and is therefore sifted at this stage.

7.1.11 The option themes for a single vessel route are as follows:

- Do minimum - Replace life expired assets on a like-for-like basis (in terms of capacity). Retain current service / timetable.
- One larger capacity vessel
- Two smaller capacity vessels
- Two vessels of the same capacity
- Two larger capacity vessels
- Any role for Freight vessel
- Any role for Passenger only vessel
- New overnight berths
- Relocated harbours
- Conversion of LoLo to RoRo
- Introduce a new air service
- Fixed link – bridge
- Fixed link – causeway
- Fixed link – tunnel

7.1.12 Note within each option theme, there can be variants – e.g. in the 'two smaller capacity vessels' option, it could be possible to have one smaller vessel and one vessel of the same capacity (the key issue being the point at which a new vessel triggers harbour works).

7.1.13 The equivalent list for a multi-vessel route is:

- Do minimum - Replace life expired assets on a like-for-like basis (in terms of capacity). Retain current service / timetable.
- One very much larger capacity vessel
- Two vessels –same size, larger, or combination
- Three vessels –smaller, same size, larger, or combination
- Any role for Freight vessel
- Any role for Passenger only vessel
- New overnight berths
- Relocated harbours

- Conversion of LoLo to RoRo
- Introduce a new air service
- Fixed link – bridge
- Fixed link – causeway
- Fixed link – tunnel

- 7.1.14 Note that on multi-vessel routes, there could be various combinations of vessel sizes, whilst redeployment options may also be considered. The outturn vessel(s) size would depend on projected loadings associated with the timetable specification. It should also be noted that, replacement vessels may not be introduced at the same time but their introduction / redeployment may be staggered over several years.
- 7.1.15 The issue of the age at which a vessel should be replaced is a complex one. For the purposes of this study, we are assuming a 30 year appraisal horizon, which is used by Transport Scotland in the Scottish Ferries Plan. However, in practice, the design life of current / future vessels and the operational needs of the network will be the key factors in determining replacement dates.
- 7.1.16 Finally, it should be noted that whilst the options are developed from broadly consistent themes, the islands of Fair Isle and Foula are amongst the most remote in Europe and are operationally challenging to serve. It is possible and indeed likely that relatively bespoke solutions will require to be developed for both islands.
- 7.1.17 **Table 2: Selected Capital Options:** Each option theme emerging from this initial sift is developed in an island specific context. As well as detailing the **direct option which affects the service offered** (eg new vessel) it also notes any **enabling measures** (eg harbour improvements) which would be required to support this option.
- 7.1.18 **Table 3: Revenue Options:** A range of revenue based options have also been developed – these are generally associated with more intense use of existing assets (aircraft / vessels) and resources (crew), and
- 7.1.19 Each option is described, together with the implication for the service provided and also the likely impact on the level of revenue resource required.
- 7.1.20 Following the consideration of island specific factors, a range of **network wide issues and options** are then outlined (which covers the majority of air service related capital options).
- 7.1.21 Note that whilst we have identified islands where fares / cost to the user represents a transport problem, the method of setting fares and their absolute level is a policy issue and should be addressed in the Regional Transport Strategy context.



## 7.2 Capital & Revenue Options by Island

### Bressay

#### Capital / Asset-based Option Themes Sift

7.2.1 The following table shows the capital option themes considered in the context of **Bressay**.

Option Theme		Consider on Long List?	Notes
	<b>Ferry</b>		
Fe1	Replace life expired assets on a like-for-like basis	✓	<i>When life expired</i>
Fe2	One larger capacity vessel	✓	
Fe3	Two smaller capacity vessels	✓	
Fe4	Two vessels of the same capacity	✓	
Fe5	Two larger capacity vessels	✓	
Fe6	Any role for Freight vessel	✗	<i>No obvious role for a freight vessel given the current high frequency RoRo service</i>
Fe7	Any role for Passenger only vessel	✓	
Fe8	New overnight berths	✓	<i>Vessel has a suitable overnight berth at Bressay. However, future crew sustainability could be eased by berthing in Lerwick overnight. Additional overnight berths may be required for multi-vessel solutions.</i>
Fe9	Relocated harbours	✗	<i>Current harbour locations are suitable</i>
Fe10	Conversion of LoLo to RoRo	✗	<i>The service currently operates as RoRo</i>
Fe11	Chain Ferry	✓	
	<b>Air</b>		
Ai1	Investment in air based infrastructure to support new air service	✗	<i>Bressay is very close to Lerwick so no air link required</i>
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✓	
FL2	Fixed link – causeway	✗	<i>North-south Access through Lerwick Harbour is required</i>
FL3	Fixed link – tunnel	✓	

#### Selected Capital Options

7.2.2 The MV *Leirna* will be 30 years old in 2022 and we assume she will be retired and replaced at this time. The vessel cannot be deployed anywhere else in Shetland.

Options	Enabling Measure
<b>Theme Fe1: –Do Minimum</b>	
Replace the <i>Leirna</i> with one new ferry which offers a like-for-like capacity (124 passengers, 19 PCUs)	- May require harbour works at Bressay and / or Lerwick if the vessel has a larger hull form than the <i>MV Leirna</i>
<b>Theme Fe2: – 1 * larger capacity vessel</b>	

Options	Enabling Measure
Replace the <i>Leirna</i> with one new ferry which offers an increased capacity (eg 144 passengers, 31 PCUs) <sup>151</sup>	- Very likely to require harbour works at Bressay and / or Lerwick
<b>Theme Fe3: 2 * Smaller Vessels</b>	
Replace the <i>Leirna</i> with two smaller ferries (95 passengers, 12 PCUs) <sup>152</sup>	- None, would likely fit with existing harbour infrastructure but would require provision of lay by berth off linkspan for the second vessel.
<b>Theme Fe4: 2 * like for like vessels</b>	
Replace the <i>Leirna</i> with two new ferries which offer a like-for-like capacity (124 passengers, 19 PCUs).	- May require harbour works at Bressay and / or Lerwick if the vessel has a larger hull form than the <i>MV Leirna</i> and would require provision of lay by berth off linkspan for the second vessel.
<b>Theme Fe5: 2 * larger vessels</b>	
Replace the <i>Leirna</i> with two new larger ferries which offer an increased capacity (144 passengers, 31 PCUs) <sup>153</sup>	- Very likely to require harbour works at Bressay and / or Lerwick and would require provision of lay by berth off linkspan for the second vessel.
<b>Theme Fe7: Passenger only vessel</b>	
Linked option – supplement any replacement vessel(s) with a passenger only vessel	- May require minor harbour works at Bressay and / or Lerwick
<b>Theme Fe8: New Overnight Berths</b>	
Develop a new overnight berth in Lerwick.	- None
<b>Theme Fe11: Chain Ferry</b>	
Replace the <i>Leirna</i> with a chain ferry of a suitable size	- Assumed that hard ramp required at Bressay and / or Lerwick and other associated chain ferry infrastructure. May also require replacement of existing linkspan for relief ferry and the Skerries service.
<b>Theme FL1: Tunnel</b>	
Replace the <i>Leirna</i> with a tunnel – no potential to re-use <i>Leirna</i> elsewhere in network	- Work would need to commence by 2018/2019 or an interim ferry option would be required - Ongoing basic connectivity contingency required
<b>Theme FL3: Bridge</b>	
Replace the <i>Leirna</i> with a high level bridge – no potential to re-use <i>Leirna</i> elsewhere in network	- Work would need to commence by 2018/2019 or an interim ferry option would be required - Ongoing basic connectivity contingency required

## Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	- Continuation of trend on resource funding
Address peak hour <b>vehicle deck capacity</b> issues	Increase the intensity of the peak timetable – add in a 0750, 0810 and 0910 departure from Bressay and a 1650 and 1735 departure from Lerwick.	- This option will not require additional crew - Marginal cost will be limited to additional fuel
Increase access to Sumburgh	Offer an early morning on-request departure from Bressay, which will allow connection with the first flights from Sumburgh	- This option will not require additional crew, as it can be covered by the day shift, but there may be a crew resource issue and cost for the additional hours.

<sup>151</sup> Assumed to be same capacity as Daggri & Dagalien

<sup>152</sup> Assumed to be the same capacity as Hendra

<sup>153</sup> Assumed to be same capacity as Daggri & Dagalien

Option	Service Change	Resource Implication
		- Additional fuel would also be required.

## Fair Isle

### Capital / Asset-based Option Themes Sift

- 7.2.4 The Good Shepherd IV will be 30 years old in 2016 and requires to be replaced as soon as possible. The key consideration in the Fair Isle context is whether the vessel and crew is island-based, mainland-based or shift-based with on-island accommodation.

Option Theme		Consider?	Notes
	<b>Ferry</b>		
Fe1	Replace life expired assets on a like-for-like basis	✓	<i>A replacement for the MV Good Shepherd is required in the short-term</i>
Fe2	One larger capacity vessel	✓	
Fe3	Two smaller capacity vessels	✗	<i>Two vessels not required to deliver service frequency but could increase capacity if required. Smaller vessels may be less reliable than present vessel given the sea conditions.</i>
Fe4	Two vessels of the same capacity	✗	<i>Two vessels not required to deliver service frequency but could increase capacity if required.</i>
Fe5	Two larger capacity vessels	✗	<i>Two vessels not required to deliver service frequency but could increase capacity if required.</i>
Fe6	Any role for Freight vessel	✓	
Fe7	Any role for Passenger only vessel	✓	
Fe8	New overnight berths	✗	<i>Would not have a material impact on the service in its own right – but could be associated with eg Fe2</i>
Fe9	Relocated harbours	✗	<i>Current harbour locations are suitable</i>
Fe10	Conversion of LoLo to RoRo	✓	
	<b>Air</b>		
Ai1	Investment in air based infrastructure to support current / new air service	✓	<i>An additional runway at a different orientation could improve performance dependent on wind direction. This would require development on a different site. The current runway would be retained.</i>
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✗	<i>Fair Isle is around 38km south of the Shetland mainland</i>
FL2	Fixed link – causeway	✗	<i>Fair Isle is around 38km south of the Shetland mainland</i>
FL3	Fixed link – tunnel	✗	<i>Fair Isle is around 38km south of the Shetland mainland</i>

### Selected Capital Options

Options	Enabling Measure
<b>Theme Fe1: –Do Minimum</b>	
Replace <i>Good Shepherd IV</i> with a broadly like-for-like and fit-for-purpose Lo-Lo vessel (12 passengers, 2 PCUs, including the ability to handle at least 1 item of plant) which can be based on Fair Isle and winched out	

Options	Enabling Measure
of the water when not in use. Vessel would be more comfortable for passengers then at present. Vessel dedicated to route.	
<b>Theme Fe2: – 1 * larger capacity vessel</b>	
Replace Good Shepherd IV with a larger and fit-for-purpose Lo-Lo vessel (eg 12 passengers, 6 PCUs <sup>154</sup> ) which can be based on Fair Isle and winched out of the water when not in use. Vessel would be more comfortable for passengers then at present.  Vessel dedicated to route.	<ul style="list-style-type: none"> <li>- This option will likely require some harbour works at Fair Isle &amp; Grutness to accommodate the larger vessel</li> <li>- If there was a continued requirement to lift the vessel out of the water when not in use, there may be a need for additional investment at Fair Isle to accommodate a larger vessel.</li> </ul>
<b>Theme Fe6: Freight Vessel (i)</b>	
Replace the <i>Good Shepherd IV</i> with a shared freight vessel (eg 12 passengers, 6 PCUs) <sup>155</sup> – aiming to maintain current number of Fair Isle calls. Freighter could be shared with Foula, Papa Stour, Skerries & potentially islands in the Orkney Archipelago.  Air service could be enhanced to provide additional passenger capacity.	<ul style="list-style-type: none"> <li>- Crew unlikely to be island based given the shared nature of the vessel</li> <li>- Some harbour works may be required to accommodate the new vessel.</li> </ul>
<b>Theme Fe6: Freight Vessel (ii)</b>	
Supplement the <i>Good Shepherd IV</i> replacement (from Fe 1 or Fe 2) with a shared freight vessel (eg 12 passengers, 6 PCUs) <sup>156</sup> .  Freighter could be shared with Foula, Papa Stour, Skerries & potentially islands in the Orkney Archipelago.	<ul style="list-style-type: none"> <li>- Crew unlikely to be island based given the shared nature of the vessel</li> <li>- Some harbour works may be required to accommodate the new vessels.</li> </ul>
<b>Theme Fe6 &amp; Fe7: – Freight &amp; Passenger Vessel</b>	
Replace the Good Shepherd IV with: <ul style="list-style-type: none"> <li>- shared freight vessel (eg 12 passengers, 6 PCUs<sup>157</sup>) &amp; dedicated passenger only vessel. Freighter could be shared with Foula, Papa Stour, Skerries &amp; potentially islands in the Orkney Archipelago.</li> <li>- Passenger vessel dedicated to route.</li> </ul>	<ul style="list-style-type: none"> <li>- Some harbour works may be required to accommodate the new vessels.</li> </ul>
<b>Theme Fe10: - Conversion to RoRo</b>	
Replace the Good Shepherd IV with a vessel capable of offering an <b>intermediate solution</b> combining a Lo-Lo and Ro-Ro facility at certain tidal conditions.	<ul style="list-style-type: none"> <li>- This option will likely require some harbour works at Fair Isle &amp; Grutness to accommodate the larger vessel (particularly the requirement to provide protected berth overnight).</li> </ul>
Replace the Good Shepherd IV with a <b>full Ro-Ro</b> vessel (eg 30 passengers, 8 PCUs <sup>158</sup> ).	<ul style="list-style-type: none"> <li>- Both terminals would require to be upgraded to RoRo (linkspan or hard ramp).</li> <li>- A safe overnight berth would have to be provided at one end of the crossing.</li> </ul>
<b>Theme Ai1 - Investment in air based infrastructure to support current / new air service</b>	
An additional runway at a different orientation could	

<sup>154</sup> Assumed to be same size as Snolda

<sup>155</sup> Assumed to be same size as Snolda

<sup>156</sup> Assumed to be same size as Snolda

<sup>157</sup> Assumed to be same size as Snolda

<sup>158</sup> Assumed to be same size as Filla

Options	Enabling Measure
improve performance dependent on wind direction. This would require development on a different site.	

### Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	Continuation of trend on resource funding
Increase the intensity of use of current aircraft and flight crews	Increased service frequency on a daily and / or weekly basis.	<ul style="list-style-type: none"> <li>- Additional flying hours required</li> <li>- This option will not require additional crew but may have implications for island airstrip manning and Rescue and Fire Fighting Services (RFFS)</li> <li>- May have implications for level of runway maintenance</li> <li>- Costs could be offset by use of shared freight vessel</li> <li>- Implications for aircraft maintenance</li> </ul>
Increase the intensity of use of an existing SIC ferry to add Fair Isle connections.	Where an existing SIC vessel has spare hours within the timetable, one additional call per week could be made at Fair Isle, enabling goods to be taken to / from the island	<ul style="list-style-type: none"> <li>- This will have a crew cost for additional hours and additional fuel costs.</li> </ul>
Increase the intensity of use of current ferry and crew.	Double the number of return sailings from Fair Isle each week (the relative frequency of sailings to Grutness and Lerwick should be considered within this option)	<ul style="list-style-type: none"> <li>- This will have a crew cost for additional hours and additional fuel costs.</li> <li>- There may also be implications for the manning of other island jobs.</li> </ul>

## Bluemull Sound

### Capital / Asset-based Option Themes Sift

- 7.2.6 Given the interdependencies between Fetlar, Unst and Yell, it is sensible to consider options for the Bluemull Sound as a whole rather than for individual islands.
- 7.2.7 Given the age of both vessels on the route, it is likely that both will require to be replaced in the relatively short-term (ie next 5-7 years). The MV *Bigga* will be 30 years<sup>159</sup> old and scheduled for replacement in 2021. The MV *Geira* will be 30 years old and scheduled for replacement in 2018. At present, one vessel can lie overnight at Gutcher with one vessel on the lay by berth at Hamars Ness leaving the linkspan clear. A vessel could lie overnight on the linkspan berth at Belmont and there is no layby berth at Gutcher or Belmont.

Option Theme		Consider?	Notes
	<b>Ferry</b>		
Fe1	Replace life expired assets on a like-for-like basis	✓	<i>Required in short term</i>
Fe2	One very much larger capacity vessel	✗	<i>Would reduce number of connections and not meet RSM model service provision.</i>
Fe3	Two vessels –same size, larger, or combination	✓	
Fe4	Three vessels –smaller, same size, larger, or combination	✓	
Fe5	Any role for Freight vessel	✗	<i>No obvious role for a freight vessel given the high service frequency</i>
Fe6	Any role for Passenger only vessel	✓	<i>There would be a need for enhanced public transport connectivity at either end of the crossing.</i>
Fe7	New overnight berths	✓	
Fe8	Relocated harbours	✓	<i>New harbour at eg Mid-Yell for Fetlar service.</i>
Fe9	Conversion of LoLo to RoRo	✗	<i>Current service is RoRo</i>
	<b>Air</b>		
Ai1	Investment in air based infrastructure to support new air service	✓	<i>There is already airport infrastructure already in Unst but it has been out of operation for a number of years</i>
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✓	
FL2	Fixed link – causeway	✗	<i>Navigation required through Bluemull Sound between Yell &amp; Unst</i>
FL3	Fixed link – tunnel	✓	

### Selected Capital Options

Options	Enabling Measure
<b>Theme Fe1: Do Minimum</b>	
Replace <i>Bigga</i> and <i>Geira</i> with two new ferries which offer a like-for-like capacity (96 passengers, 14 PCUs).	<ul style="list-style-type: none"> <li>- May require harbour works at Gutcher and Belmont</li> <li>- May require new overnight berth(s)</li> </ul>
<b>Theme Fe3: - 2 Vessel Solution</b>	

<sup>159</sup> Note comment in 7.2.11 in relation to the appraisal horizon and the age at which a vessel should be replaced.

Options	Enabling Measure
Replace <i>Bigga</i> and <i>Geira</i> with two similarly sized or larger ferries or combinations thereof which would offer the current frequency. Vessel size would depend on loadings associated with timetable specification.	<ul style="list-style-type: none"> <li>- May require harbour works depending on vessel specification / service configuration</li> <li>- May require either harbour works at Belmont to permit overnight berthing or construction of a layby berth at Gutcher or Belmont.</li> <li>- Alternative is overnighing elsewhere, eg in Cullivoe.</li> </ul>
<b>Theme Fe4: 3 Vessel Solution</b>	
Replace <i>Bigga</i> and <i>Geira</i> with three smaller, similarly sized or larger ferries or combinations thereof which would offer additional frequency. Vessel size would depend on loadings associated with timetable specification.	<ul style="list-style-type: none"> <li>- May require harbour works depending on vessel specification / service configuration</li> <li>- May require either harbour works at Belmont to permit overnight berthing or construction of a layby berth at Gutcher or Belmont.</li> <li>- Alternative is overnighing elsewhere, eg in Cullivoe.</li> </ul>
<b>Fe6: Passenger Only Vessel</b>	
Supplement any option emerging from Option Themes Fe1, Fe3 or Fe4 with a new passenger vessel.	<ul style="list-style-type: none"> <li>- None likely</li> </ul>
<b>Fe7: New Overnight Berths</b>	
New overnight berths would potentially be required to supplement a number of the above options, particularly where a three vessel solution is required.	
<b>Fe8: Relocated Harbours</b>	
A new harbour in eg Mid Yell could support a shorter crossing on the Fetlar – Yell route and could be considered in the context of any three vessel solution.	
<b>Ai1</b>	
Invest in <u>Fetlar</u> airstrip to facilitate the commencement of an air service.	<ul style="list-style-type: none"> <li>- None</li> <li>- Additional revenue resource may be required (see below).</li> <li>- This could be independent of Unst or in partnership with Unst.</li> </ul>
Invest in <u>Unst</u> airstrip to facilitate the commencement of an air service.	<ul style="list-style-type: none"> <li>- None</li> <li>- Additional revenue resource may be required (see below)</li> <li>- This could be independent of Fetlar or in partnership with Fetlar.</li> </ul>
<b>Theme FL1: Tunnel</b>	
Construct a tunnel linking Yell and Unst. Subset of ferry options from Fe1 – Fe5 would be required for Fetlar. Ageing vessels may not be able to be redeployed economically.	<ul style="list-style-type: none"> <li>- Given the scale of the proposed fixed link, preparatory work would need to commence almost immediately and an interim ferry option would still likely be required until completion.</li> <li>- Ongoing contingency ferry capability required</li> </ul>
<b>Theme FL3: Bridge</b>	
Construct a bridge linking Yell and Unst. Subset of ferry options from Fe1 – Fe5 would be required for Fetlar. Ageing vessels may not be able to be redeployed economically. - Privately funded 'self-financing' tidal generation bridge has recently been proposed	<ul style="list-style-type: none"> <li>- Given the scale of the proposed fixed link, preparatory work would need to commence almost immediately and an interim ferry option would still likely be required until completion.</li> <li>- Ongoing contingency ferry capability required.</li> </ul>

### Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	Continuation of trend on resource funding
Commencement of an air service from Fetlar to Tingwall	Options: - 2 * rotations per day from Tingwall	- Increase the intensity of use of current aircraft and flight crews



Option	Service Change	Resource Implication
	<ul style="list-style-type: none"> <li>- 3 * rotations per day from Tingwall</li> <li>- also provide direct flight to Sumburgh</li> <li>- operate on bookings-only basis</li> <li>- Potential connecting service between Fetlar and other islands.</li> </ul>	<ul style="list-style-type: none"> <li>- Would require RFFS trained staff</li> <li>- Capital investment may be required (see above)</li> <li>- implications for aircraft maintenance?</li> </ul>
Commencement of an air service from Unst to Tingwall	Options: <ul style="list-style-type: none"> <li>- 2 * rotations per day from Tingwall</li> <li>- 3 * rotations per day from Tingwall</li> <li>- also provide direct flight to Sumburgh</li> <li>- operate on bookings-only basis</li> <li>- Potential connecting service between Unst and other islands.</li> </ul>	<ul style="list-style-type: none"> <li>- Increase the intensity of use of current aircraft and flight crews</li> <li>- Would require RFFS trained staff</li> <li>- Capital investment may be required (see above)</li> <li>- implications for aircraft maintenance?</li> </ul>
Increase access to Sumburgh	Offer an on-request early morning departure from Unst & Fetlar, which will allow connection with the first flights from Sumburgh	<ul style="list-style-type: none"> <li>- This option may require additional crew and fuel.</li> <li>- Additional request service on Yell Sound would also be required.</li> </ul>
Operate standard weekday timetable seven days a week (ie 2-vessel service)	Increased service frequency at the weekend (maintenance would remain on a Monday)	<ul style="list-style-type: none"> <li>- Additional crew resource would be required, which could also mean berthing overnight on Fetlar becomes untenable unless there is a mainland shift crew staying on the vessel or on the island.</li> <li>- Additional fuel would be required.</li> </ul>
Offer additional request sailings on Friday and Saturday evenings (through to 0200)	New late night services for those returning from Lerwick	<ul style="list-style-type: none"> <li>- Additional crew resource would be required.</li> <li>- Additional fuel would be required.</li> <li>- Additional request services on Yell Sound would be required.</li> </ul>

## Foula

### Capital / Asset-based Option Themes Sift

Option Theme		Consider?	Notes
Fe1	Replace life expired assets on a like-for-like basis	✓	<i>Required in short term</i>
Fe2	One larger capacity vessel	✓	
Fe3	Two smaller capacity vessels	✗	<i>Smaller vessels not appropriate for route and appropriate service frequency would not require two vessels</i>
Fe4	Two vessels of the same capacity	✗	<i>Appropriate service frequency would not require two vessels</i>
Fe5	Two larger capacity vessels	✗	<i>Appropriate service frequency would not require two vessels</i>
Fe6	Any role for Freight vessel	✓	
Fe7	Any role for Passenger only vessel	✓	
Fe8	New overnight berths	✗	<i>Would not have a material impact on the service in its own right – but could be associated with eg Fe2</i>
Fe9	Relocated harbours	✓	<i>This option relates to moving the mainland port from Walls to West Burrafirth and would supplement other options which promote a larger vessel.</i>
Fe10	Conversion of LoLo to RoRo	✓	
	<b>Air</b>		
Ai1	Investment in air based infrastructure to support new air service	✗	<i>There may be a requirement for new infrastructure to accommodate Rescue and Fire Fighting Services requirements e.g. fire appliance, fire crew accommodation, office space, etc. This would be an enabling measure for any change to the current service and may even be required to maintain the current service in the future.</i>
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✗	<i>Foula is around 22km from the Shetland mainland with a very low population</i>
FL2	Fixed link – causeway	✗	<i>Foula is around 22km from the Shetland mainland with a very low population</i>
FL3	Fixed link – tunnel	✗	<i>Foula is around 22km from the Shetland mainland with a very low population</i>

### Selected Capital Options

- 7.2.8 The MV *New Advance* is 20 years old and, assuming a 30 year vessel life, would run to 2026. However, the vessel is not particularly fit for purpose in terms of vehicular and physical access and onboard amenities. It can be argued that a new vessel is required in the relatively short-term. The MV *New Advance* could be sold or redeployed as a supplementary passenger vessel if required elsewhere on the network. The key consideration in the Foula context is whether the crew is island-based, mainland-based or shift-based with on-island accommodation (unlikely in Foula). It has been explained by the Council that it would be

difficult to design a vessel different from the MV *New Advance* which could be accommodated on the current set of davits.

Options	Enabling Measure
<b>Theme Fe1: Do Minimum</b>	
Replace <i>New Advance</i> with a broadly like-for-like and fit-for-purpose Lo-Lo vessel (12 passengers, 2 PCUs, including the ability to handle at least 1 item of plant)	
<b>Theme Fe2: 1 * larger capacity vessel</b>	
Replace <i>New Advance</i> with a larger Lo-Lo vessel (12 passengers, 6 PCUs <sup>160</sup> ).	- This option will require harbour works at Foula & possibly at Walls to accommodate the larger vessel (particularly the requirement to take the vessel out of the water overnight if based on Foula).
<b>Theme Fe6: Freight Vessel (i)</b>	
Replace the <i>New Advance</i> with a shared freight vessel (eg 12 passengers, 6 PCUs <sup>161</sup> ) – aiming to maintain current number of Foula calls. Freighter could be shared with Fair Isle, Papa Stour & potentially islands in the Orkney Archipelago. Air service could be enhanced to provide additional passenger capacity.	- crew unlikely to be island based given the shared nature of the vessel - Some harbour works may be required to accommodate the new vessel.
<b>Theme Fe6: Freight Vessel (ii)</b>	
Supplement the <i>New Advance</i> replacement (from Fe 1 or Fe 2) with a shared freight vessel (eg 12 passengers, 6 PCUs <sup>162</sup> ). Freighter could be shared with Fair Isle, Papa Stour, Skerries & potentially islands in the Orkney Archipelago.	- Some harbour works may be required to accommodate the new vessels.
<b>Theme Fe6 &amp; Fe7: – Freight &amp; Passenger Vessel</b>	
Replace the <i>New Advance</i> with: - shared freight vessel (eg 12 passengers, 6 PCUs <sup>163</sup> ) & - dedicated passenger only vessel. Freighter could be shared with Fair Isle, Papa Stour, Skerries & potentially islands in the Orkney Archipelago. Passenger vessel dedicated to route.	- Crew would be island-based (as at present) or mainland-based, the latter with on-island / on ferry accommodation. - Some harbour works may be required to accommodate the new vessels.
<b>Theme FE9: Relocated Harbours</b>	
Terminate the service to Walls and run the ferry to and from West Burrafirth.	- None, although it would impact on the harbour works set out for each option above
<b>Theme Fe10: - Conversion to RoRo</b>	
Replace the <i>New Advance</i> with a vessel capable of offering an intermediate solution combining a Lo-Lo and Ro-Ro facility (with Ro-Ro access available during certain tidal conditions).	- This option will likely require some harbour works at Foula and Walls to accommodate the larger vessel (particularly the requirement to take the vessel out of the water overnight). How it should be noted that it would be difficult to design a vessel significantly different from the <i>New Advance</i> which could be accommodated by the current davits. - could be combined with FE9 – ie partial RoRo service between Foula and West Burrafirth
Replace the <i>New Advance</i> with a full Ro-Ro vessel (30 passengers, 8 PCUs <sup>164</sup> ).	- Both terminals would require to be upgraded to RoRo (linkspan or hard ramp). - A safe overnight berth would have to be provided

<sup>160</sup> Assumed to be same size as Snolda

<sup>161</sup> Assumed to be same size as Snolda

<sup>162</sup> Assumed to be same size as Snolda

<sup>163</sup> Assumed to be same size as Snolda

<sup>164</sup> Assumed to be same size as Filla

Options	Enabling Measure
	<p>at one end of the crossing. The location of this berth would determine whether the crew are mainland-based, island-based or a mainland-shift crew on the island.</p> <p>- could be combined with FE9 – ie RoRo service between Foula and West Burrafirih</p>

### Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	Continuation of trend on resource funding
Increase the intensity of use of current aircraft and flight crews	Increased service frequency on a daily and / or weekly basis.	<ul style="list-style-type: none"> <li>- Additional flying hours required</li> <li>- This option will not require additional air crew but may have implications for island airstrip manning and Rescue and Fire Fighting Services (RFFS). Indeed there may be a need for considering combined air / ferry crew solutions.</li> <li>- May have implications for level of runway maintenance</li> <li>- costs could be offset by use of shared freight vessel</li> <li>- implications for aircraft maintenance</li> </ul>
Where an existing SIC vessel has spare hours within the timetable, one call per week could be made at Foula, enabling vehicles to be taken to / from the island	<ul style="list-style-type: none"> <li>- Additional weather dependent return(s) for Foula</li> <li>- Current timetable services maintained using resident vessel</li> </ul>	- This option may require additional crew and would have additional fuel costs.
- Increase the intensity of use of current ferry and crew.	Double the number of return sailings to Foula each week	<ul style="list-style-type: none"> <li>- This option may require additional crew and would have additional fuel costs.</li> <li>- There may also be implications for the manning of other island jobs.</li> </ul>
Ongoing dredging of Foula harbour to the original depth will be required for any new larger vessels or additional vessel calls.	<p>Supports other service changes – maintains service and could facilitate deeper drafted vessels.</p> <p><i>Note: Even with dredging to the original depth, it may not be possible to accommodate a larger vessel at all states of the tide.</i></p>	- Ongoing cost of dredging Foula harbour to a deeper depth than at present.

## Papa Stour

### Capital / Asset-based Option Themes Sift

Option Theme		Consider?	Notes
	<b>Ferry</b>		
Fe1	Replace life expired assets on a like-for-like basis	✓	When life expired
Fe2	One larger capacity vessel	✓	
Fe3	Two smaller capacity vessels	✗	Two vessels not required to deliver service frequency but could increase capacity if required.
Fe4	Two vessels of the same capacity	✗	Two vessels not required to deliver service frequency but could increase capacity if required.
Fe5	Two larger capacity vessels	✗	Two vessels not required to deliver service frequency but could increase capacity if required.
Fe6	Any role for Freight vessel	✗	No obvious demand for a freight vessel
Fe7	Any role for Passenger only vessel	✗	No obvious role for a passenger only vessel as a supplement to the existing service
Fe8	New overnight berths	✗	Vessel has a suitable overnight berth at West Burrafirth.
Fe9	Relocated harbours	✗	Current harbour locations are suitable
Fe10	Conversion of LoLo to RoRo	✗	The service currently operates as RoRo
	<b>Air</b>		
Ai1	Investment in air based infrastructure to support new air service	✗	There is currently an air service
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✗	At its closest, Papa Stour is over 1 mile from the mainland – cost prohibitive for an island of <20 inhabitants
FL2	Fixed link – causeway	✗	At its closest, Papa Stour is over 1 mile from the mainland – cost prohibitive for an island of <20 inhabitants
FL3	Fixed link – tunnel	✗	At its closest, Papa Stour is over 1 mile from the mainland – cost prohibitive for an island of <20 inhabitants

### Papa Stour – Selected Capital Options

7.2.10 The Snolda is 32 years old and can be broadly considered life expired. In addition, the vessel is single-screwed, which presents a risk. Short-term replacement is therefore required.

Options	Enabling Measure
<b>Theme Fe1: Do Minimum</b>	
Replace Snolda with a like-for-like vessel in terms of car capacity (6 PCUs), although with a larger passenger certificate.	May require harbour works at West Burrafirth or Papa Stour.
<b>Theme Fe2:- 1 * larger vessel</b>	
Replace Snolda with a larger vessel (30 passengers, 8 PCUs <sup>165</sup> )	May require harbour works at West Burrafirth and Papa Stour.

<sup>165</sup> Based on Filla.

Options	Enabling Measure
<b>Linked Option</b> – Redeploy <i>Filla</i> to replace <i>Snolda</i> if Skerries gets a new vessel	None

### Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	Continuation of trend on resource funding
Increase the frequency of the service to two return crossings seven days per week.	Increase the intensity of use of current ferry and crew.	This option will require additional crew and have additional fuel costs.
Increase the frequency of the service on the current sailing days to three return crossings per day.	Increase the intensity of use of current ferry and crew.	This option may not require additional crew but will have a crew cost for additional hours and additional fuel costs.
<b>Linked Option</b> - Discontinue the air service in parallel with one or both of the above options.	The air service would be discontinued	Aircraft and crew hours could be redeployed to another route.

## Skerries

### Capital / Asset-based Option Themes Sift

Option Theme		Consider?	Notes
Fe1	Replace life expired assets on a like-for-like basis	✓	When life expired.  There is also an option to move to a smaller vessel which could overnight in Skerries.
Fe2	One larger capacity vessel	✓	
Fe3	Two smaller capacity vessels	✗	Required connectivity can be met with a single vessel operation
Fe4	Two vessels of the same capacity	✗	Capacity and frequency are not issues with the current service beyond that which could be provided with a single vessel
Fe5	Two larger capacity vessels	✗	Capacity and frequency are not issues with the current service beyond that which could be provided with a single vessel
Fe6	Any role for Freight vessel	✗	Freight needs are met by current ferry service
Fe7	Any role for Passenger only vessel	✗	No obvious requirement for a passenger only vessel – no issue with passenger carrying capacity
Fe8	New overnight berths	✓	
Fe9	Relocated harbours	✗	Current harbour locations are acceptable
Fe10	Conversion of LoLo to RoRo	✗	RoRo service at present
	<b>Air</b>		
Ai1	Reinstate the air service	✓	This option would involve reinstatement of the Skerries air service. It may require new infrastructure to accommodate Rescue and Fire Fighting Services requirements e.g. fire appliance, fire crew accommodation, office space, etc.
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✗	Skerries is 15km away from the Shetland mainland and the island's population is low
FL2	Fixed link – causeway	✗	Skerries is 15km away from the Shetland mainland and the island's population is low
FL3	Fixed link – tunnel	✗	Skerries is 15km away from the Shetland mainland and the island's population is low

### Selected Capital Options

- 7.2.11 The current vessel, the MV *Filla* was only introduced in 2003 and would not reach her thirty-year anniversary until 2033. The vessel is broadly fit-for-purpose but cannot overnight in Skerries. The vessel overnights in Whalsay, with a generally Whalsay crew (although there are some mainland crew). Vessel is a stern loader only.

Options	Enabling Measure
<b>Theme Fe1: Do Minimum</b>	
Replace <i>Filla</i> on a like-for-like basis in terms of capacity in 2033.	May require harbour works at Skerries and/or Vidlin.
Replace <i>Filla</i> on a like-for-like basis immediately and redeploy her to West Burrafirth – Papa Stour	May require harbour works at Skerries and/or Vidlin.
Replace <i>Filla</i> with a smaller vessel immediately which can overnight on Skerries. Redeploy <i>Filla</i> to West Burrafirth – Papa Stour	
Replace <i>Filla</i> with a smaller vessel immediately which can overnight on Skerries. Sell <i>Filla</i> .	
<b>Theme Fe2:- 1 * larger vessel</b>	
Replace <i>Filla</i> with one larger vessel (96 passengers, 14 PCUs <sup>166</sup> ) in terms of capacity in 2033	Would likely require harbour works at Skerries and/or Vidlin.
Replace <i>Filla</i> with one larger vessel (96 passengers, 14 PCUs <sup>167</sup> ) immediately and redeploy her to West Burrafirth – Papa Stour	Would likely require harbour works at Skerries and/or Vidlin.
<b>Theme Fe3:- 1 * smaller vessel</b>	
Replace <i>Filla</i> with one smaller vessel (30 passengers, 6 PCUs <sup>168</sup> ) in terms of capacity in 2033.	None, but new vessel would be able to overnight in Skerries
Replace <i>Filla</i> with one smaller vessel (30 passengers, 6 PCUs <sup>169</sup> ) immediately and redeploy her to West Burrafirth – Papa Stour.	None, but new vessel would be able to overnight in Skerries
Replace <i>Filla</i> with <i>Snolda</i> immediately and redeploy her to West Burrafirth – Papa Stour.	None, but <i>Snolda</i> would be able to overnight in Skerries
<b>Fe8:- New Overnight Berths (Linked Option)</b>	
Enhance Vidlin to allow Skerries ferry to overnight there	None, although this option may be realised as part of any Whalsay related improvements

## Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	<ul style="list-style-type: none"> <li>- Continuation of trend on resource funding.</li> <li>- In the context of Skerries, this would include operation of the air service as per the timetable pre-RFFS reductions.</li> </ul>
Introduce one return sailing from Skerries to Vidlin seven days a week	Increase the intensity of use of current ferry and crew.	<ul style="list-style-type: none"> <li>- This option will require additional crew and fuel.</li> </ul>
Introduce one return sailing from Skerries to Lerwick seven days a week	Increase the intensity of use of current ferry and crew.	<ul style="list-style-type: none"> <li>- This option will require additional crew and fuel.</li> <li>- Additional berthing and pier dues associated with Lerwick</li> </ul>
Introduce one return sailing from Skerries to a combination of Vidlin and Lerwick seven days a week	Increase the intensity of use of current ferry and crew.	<ul style="list-style-type: none"> <li>- This option will require additional crew and fuel.</li> <li>- Additional berthing and pier dues associated with Lerwick</li> </ul>
Permanently discontinue the air	None	<ul style="list-style-type: none"> <li>- Additional aircraft and air crew resources available for elsewhere</li> </ul>

<sup>166</sup> Based on Bigga.

<sup>167</sup> Based on Bigga.

<sup>168</sup> Based on Snolda with enhanced passenger certificate.

<sup>169</sup> Based on Snolda with enhanced passenger certificate.



Option	Service Change	Resource Implication
service to Skerries.		on the network.

## Whalsay

### Capital / Asset-based Option Themes Sift

Option Theme		Consider?	Notes
	<b>Ferry</b>		
Fe1	Replace life expired assets on a like-for-like basis	✓	<i>Required in short term</i>
Fe2	One very much larger capacity vessel	✗	<i>Would reduce number of connections and would not deliver RSM model service provision.</i>
Fe3	Two vessels –same size, larger, or combination	✓	
Fe4	Three vessels –smaller, same size, larger, or combination	✓	
Fe5	Any role for Freight vessel	✗	<i>Freight needs are met by current ferry service</i>
Fe6	Any role for Passenger only vessel	✗	<i>No obvious requirement for a passenger only vessel – no issue with passenger carrying capacity</i>
Fe7	New overnight berths	✓	
Fe8	Relocated harbours	✓	
Fe9	Conversion of LoLo to RoRo	✗	<i>Service is currently RoRo</i>
	<b>Air</b>		
Ai1	Investment in air based infrastructure to support new air service	✗	<i>Whalsay has a high frequency ferry service and relatively short journey times to Lerwick</i>
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✓	
FL2	Fixed link – causeway	✗	<i>Prohibitive due to water depth and exposure</i>
FL3	Fixed link – tunnel	✓	

### Selected Capital Options

7.2.12 Linga was introduced in 2002 and reaches her 30th anniversary in 2032. Hendra is 33 years old and is in need of replacement. Symbister Harbour is very constrained and there is a concern of increased marine accidents due to congestion within the harbour. The harbour is a constraint in terms of equipping the route with larger vessels

Options	Enabling Measure
<b>Theme Fe1: Do Minimum</b>	
Replace <i>Linga</i> and <i>Hendra</i> with a like-for-like vessel in terms of capacity. <i>Linga</i> could be redeployed to Bluemull Sound	- Would require harbour works at Laxo, Symbister and possibly Vidlin. - May additionally require harbour works on Bluemull Sound.
Replace <i>Hendra</i> with a like-for-like vessel in terms of capacity. <i>Linga</i> retained and replaced like-for-like when life expired.	- May require harbour works at Laxo, Symbister and/or Vidlin
<b>Theme Fe3: - 2 Vessel Solution</b>	
Replace <i>Linga</i> and <i>Hendra</i> with two similarly sized or larger ferries or combinations thereof which would offer the current frequency. Vessel size would depend on loadings associated with timetable specification.	- May require harbour works at Laxo, Symbister and Vidlin - This option could involve retention of the <i>Linga</i> as part of the solution or the redeployment of that vessel to the Bluemull Sound.

Options	Enabling Measure
<b>Theme Fe4: 3 Vessel Solution</b>	
Replace <i>Linga</i> and <i>Hendra</i> with three smaller, similarly sized or larger ferries or combinations thereof which would offer additional frequency. Vessel size would depend on loadings associated with timetable specification.	<ul style="list-style-type: none"> <li>- May require harbour works at Laxo, Symbister and Vidlin</li> <li>- This option could involve retention of the <i>Linga</i> as part of the solution or the redeployment of that vessel to the Bluemull Sound.</li> </ul>
<b>Theme Fe7:- New overnight berths (Linked Option)</b>	
Enhance Vidlin to allow Whalsay and /or Skerries ferries to overnight there	None
<b>Theme Fe8:- Relocated Harbours (Linked Option)</b>	
Construct new harbour at North Voe for Whalsay ferries	None
Construct new marina and move leisure craft and fishing fleet from Symbister harbour.	None
<b>Theme FL1: Tunnel</b>	
Construct a tunnel linking Whalsay and mainland. <i>Linga</i> could be redeployed, <i>Hendra</i> disposed of.	<ul style="list-style-type: none"> <li>- Given the scale of the proposed fixed link, preparatory work would need to commence almost immediately and an interim ferry option would still likely be required.</li> <li>- Ongoing contingency ferry capability required</li> </ul>
<b>Theme FL3: Bridge</b>	
Construct a bridge linking Whalsay and mainland. <i>Linga</i> could be redeployed, <i>Hendra</i> disposed of.	<ul style="list-style-type: none"> <li>- Given the scale of the proposed fixed link, preparatory work would need to commence almost immediately and an interim ferry option would still likely be required.</li> <li>- Ongoing contingency ferry capability required</li> </ul>

### Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	Continuation of trend on resource funding
Increase access to Sumburgh	Offer an on-request early departure from Whalsay, which will allow connection with the first flights from Sumburgh	This option may require additional crew and fuel.
Operate standard weekday timetable seven days a week	Increased service frequency at the weekend.	<ul style="list-style-type: none"> <li>- Additional crew would be required.</li> <li>- Additional fuel would be required.</li> </ul>
Offer additional request sailings on Friday and Saturday evenings	Increased service frequency on Fridays and Saturdays.	<ul style="list-style-type: none"> <li>- Additional crew would be required.</li> <li>- Additional fuel would be required.</li> </ul>
Run both vessels for the full operating day	Increased service frequency in the evening.	<ul style="list-style-type: none"> <li>- Additional crew would be required.</li> <li>- Additional fuel would be required.</li> </ul>

## Yell

### Capital / Asset-based Option Themes Sift

Option Theme		Consider?	Notes
Fe1	Replace life expired assets on a like-for-like basis	✓	<i>When life expired</i>
Fe2	One very much larger capacity vessel	✗	<i>Would reduce number of connections</i>
Fe3	Two vessels –same size, larger, or combination	✓	
Fe4	Three vessels –smaller, same size, larger, or combination	✓	
Fe5	Any role for Freight vessel	✗	<i>All freight needs are met by current ferry service and crossing time is short</i>
Fe6	Any role for Passenger only vessel	✗	<i>No obvious requirement for a passenger only vessel – no issue with passenger carrying capacity on this high frequency service</i>
Fe7	New overnight berths	✓	<i>Berths are adequate for current vessels</i>
Fe8	Relocated harbours	✗	<i>Harbour locations are satisfactory and do not impact on service provision</i>
Fe9	Conversion of LoLo to RoRo	✗	<i>Service is currently RoRo</i>
	<b>Air</b>		
Ai1	Introduce a new air service	✗	<i>Yell has a high frequency ferry service and relatively short journey times to Lerwick</i>
	<b>Fixed Link</b>		
FL1	Fixed link – bridge	✓	
FL2	Fixed link – causeway	✗	<i>Prohibitive due to water depth and exposure</i>
FL3	Fixed link – tunnel	✓	

### Selected Capital Options

7.2.13 *Daggri* and *Dagalien* were both built in 2004 and due for replacement in 2034. The vessels cannot regularly be used elsewhere in Shetland without the need for harbour works.

Options	Enabling Measure
<b>Theme Fe1: Do Minimum</b>	
Replace <i>Daggri</i> and <i>Dagalien</i> with like-for-like vessels in terms of capacity.	- May require harbour works at Ulsta and / or Toft
<b>Theme Fe3: - 2 Vessel Solution</b>	
Replace <i>Daggri</i> and <i>Dagalien</i> with two similarly sized or larger ferries or combinations thereof which would offer the current frequency. Vessel size would depend on loadings associated with timetable specification.	- May require harbour works at Ulsta and / or Toft
<b>Theme Fe4: 3 Vessel Solution</b>	
Replace <i>Daggri</i> and <i>Dagalien</i> with three smaller, similarly sized or larger ferries or combinations thereof which would offer additional frequency. Vessel size would depend on loadings associated	- May require harbour works at Ulsta and / or Toft - Berthing requirements for third vessel

Options	Enabling Measure
with timetable specification.	
<b>Theme Fe7: New Overnight Berths</b>	
Install a breakwater and overnight berth at Toft.	- Would be progressed in parallel with Themes Fe3 and Fe4 above
<b>Theme FL1: Tunnel</b>	
Construct a tunnel linking Yell and mainland – <i>Daggri</i> and <i>Dagalien</i> freed up for other routes	- Given the scale of the proposed fixed link, preparatory work would need to commence almost immediately - Ongoing contingency ferry capability required
<b>Theme FL3: Bridge</b>	
Construct a bridge linking Yell and mainland – <i>Daggri</i> and <i>Dagalien</i> freed up for other routes (subject to harbour works to accommodate them).	- Given the scale of the proposed fixed link, preparatory work would need to commence almost immediately and an interim ferry option would still likely be required. - Ongoing contingency ferry capability required

Given the relative youth of these vessels, there is scope to consider an early upgrade with a view to cascading these vessels to other routes in Shetland. This could happen to the two vessels at the same time or could be phased, and would be relevant to Options 2-5 above.

### Revenue Options

Option	Service Change	Resource Implication
Do Minimum	None	- Continuation of trend on resource funding
Increase access to Sumburgh	Offer an on-request early departure from Yell, which will allow connection with the first flights from Sumburgh	- This option may require additional crew and fuel
Operate standard weekday timetable seven days a week	Increased service frequency at the weekend	- Additional crew would be required - Additional fuel would be required
Offer additional request sailings on Friday and Saturday evenings (through to 0200)	Increased services frequency on Fridays and Saturdays	- Additional crew would be required - Additional fuel would be required
Run both vessels for the full operating day – ie the second vessel would also run on a 'shift vessel' basis 7 days a week	Increased service frequency in the evening and at weekends	- Additional crew would be required - Additional fuel would be required
Run both vessels on a 'shift vessel' basis Monday to Friday	Increased service frequency in the evening	- Additional crew would be required - Additional fuel would be required

## 7.3 Network Wide Options / Issues

- 7.3.1 There are a number of aspects of the service delivery which do not lend themselves to consideration at the island level. These are discussed in this section.
- 7.3.2 **Aircraft:** Aircraft are clearly not tied to routes to the degree that ferries are. Options surrounding future aircraft policy (ie number, size, specification) cannot therefore be considered on an individual route basis. Over the 30 year plan period the main options are:

Option Themes	Enabling Measure
<b><i>Do Minimum</i></b>	
Maintain and continue with G-SICA and G-SICB Britten Norman Islanders for the next 30 years	- no major works required
<b><i>Theme 1: – 2 * like for like</i></b>	
Replace the two aircraft with new / newer Britten Norman Islanders when life expired	- no major works required
<b><i>Theme 2: – 1 * larger capacity aircraft</i></b>	
Replace the G-SICB with one large capacity aircraft and retain G-SICA	- likely to require works at island airstrips and Tingwall
<b><i>Theme 3: – 2 * larger capacity aircraft</i></b>	
Replace the G-SICB and G-SICA with two larger capacity aircraft	- likely to require works at island airstrips and Tingwall
<b><i>Theme 4: Linked Option</i></b>	
Retain G-SICA and G-SICB and supplement with an additional Islander	- no major works required other than possible hanger extension at Tingwall
Retain G-SICA in combination with two new / newer aircraft to provide a fleet of three aircraft	- likely to require works at island airstrips and Tingwall - additional aircraft may require new hangarage at Tingwall
<b><i>Theme 5: Rotary Solutions</i></b>	
Use of helicopters to provide island air services	- likely to require some landside investment
<b><i>Theme 6: Runway Lighting</i></b>	
Install runway lighting on island airstrips to facilitate take-off and landing after nightfall. A longer year round operating day could be provided (although note the experience of North Ronaldsay with runway lighting has been mixed).	- none
<b><i>Theme 7: Navigational Aids</i></b>	
Ground and / or air based aids to navigation to facilitate flying in visibility that Visual Flight Rules would prevent. Improved reliability.	- none

- 7.3.3 Note that it would not be possible to provide an air service with only one aircraft as it is essential that a year round, resilient service is provided and this would not be possible with only one aircraft.
- 7.3.4 Any development of the scale of the air service beyond that which is currently provided would imply a major investment in aircraft, airstrips and associated infrastructure. The costs associated with this will be considered in the context of the benefits which could arise.

## 7.4 Other Issues

### Vessel / Aircraft Replacement

- 7.4.1 There is a debate to be had around future aircraft replacement. The current Islander fleet should have another 20 – 30 years life in them, and perhaps more. If an aircraft is well maintained and various parts renewed, the only core element that cannot be replaced is the

fuselage, which could develop fatigue cracks or corrosion and eventually be deemed not airworthy. One limitation may be the withdrawal of manufacturer support for very old aircraft types or their components, at some point in the future.

7.4.2 There is therefore a challenge within this strategy period and beyond in terms of identifying replacement aircraft for G-SICA and G-SICB. There are no easy replacement aircraft types for the Islander. Each has its pros and cons. SIC has already, quite recently, decided the Islander is its aircraft type for the next generation, but the risk of the withdrawal of manufacturer support does remain.<sup>170</sup>

7.4.3 There are several scenarios under which a vessel or aircraft is replaced:

- Replacement due to life expiry
- Replacement due to not fully meeting the requirements of the route
- Replacement due to non compliance with legislation
- Replacement due to requirement to reduce emissions
- Replacement to allow introduction of more cost effective method of service delivery.

7.4.4 Note that the adoption of best practice and current legislation means that new vessels providing a similar carrying capacity as their predecessors are very likely to require a larger hull form and hence there may be implications for harbour infrastructure and berths with even a 'like for like' replacement.

#### **Vessel Cascade**

7.4.5 In addition to straight vessel replacement, there are a range of options surrounding vessel cascades. By doing this, it could be possible to provide an improved service on more than one route by investing in only one route. For example new vessels on Yell Sound could release the Daggri and Dagalien for use on the Whalsay crossing. In turn the Whalsay vessels could be cascaded to eg Bluemull. In each case there may be a need for harbour works to accommodate the larger vessels. There are clearly a number of permutations in terms of vessel cascades and these will have to be considered in detail during the development of the Plan. As such as options develop there will be potential linkages across routes.

#### **Fuel Types (Ferries)**

7.4.6 There are a range of potential options for fuel types for future vessels. Some of these would have a landside infrastructure requirement.

7.4.7 All these network wide options will be considered as part of the Appraisal.

### **7.5 Other Investment Related to the Ferries Service**

7.5.1 In addition to the capital investment needs of the ferry service in terms of vessels and port & harbour infrastructure, there are wider capital investments which, whilst not enhancing connectivity, would improve the delivery and public perception of the ferry service overall. These include:

- Facilities in Shetland to allow all ferries to be taken out of the water for survey and repair, reducing the money and time costs of sending vessels south for maintenance.

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<sup>170</sup> SIITS Aviation Baseline (Northpoint Aviation, 2015), pp. 38-42

- Facilities to store spare propulsion units in Shetland where maintenance and survey work can be carried out.
- Replacement booking offices where required..
- Facilities to allow all required training and revalidation to be carried out in Shetland.

## **7.6 Next Steps**

7.6.1 This qualitative appraisal will then consider the long list of options in the context of:

- Transport planning objectives
- Routes and Services Methodology outcomes
- STAG criteria
- Established policy directives
- Feasibility, affordability and likely public acceptability