The Future of Inter-Island Transport in the Orkney & Shetland Islands

Stephen Canning, Peter Brett Associates – scanning@peterbrett.com
Dr Scott Leitham, Peter Brett Associates – sleitham@peterbrett.com
Michael Craigie, Shetland Islands Council – Michael.craigie@shetland.gov.uk
Gavin Barr, Orkney Islands Council – Gavin.Barr@orkney.gov.uk
Neil Macrae, Highlands & Islands Transport Partnership – neil.macrae@hitrans.org.uk

ABSTRACT
In December 2014, Shetland Islands Council, ZetTrans, Transport Scotland, Orkney Islands Council and HITRANS 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.

It was recognised in these Statements that there was a need for evidence gathering to support future revenue funding and capital investment on both networks. It was further recognised that the evidence gathering needed to incorporate several methodologies including Transport Scotland's established Routes and Services Methodology, STAG Appraisal and Transport Scotland's recently established Business Case Guidance to ensure consistency and legitimacy alongside other transport projects and services in Scotland.

On the basis of the above, Shetland Islands Council and Orkney Islands Council each commissioned an Inter-Island Transport Study, intended to develop a Strategic Business Case (SBC) which takes a 30-year view on future inter-island transport needs (air, ferry and fixed link). In keeping with the Joint Statement, the work was progressed in partnership, with a view to developing a robust and consistent set of options at the route / island / mini-network level which could be taken forward to an Outline Business Case (OBC)

The Shetland and Orkney inter-island SBCs were one of the first applications of Transport Scotland's Business Case Guidance. This, combined with a genuine approach to partnership working and information sharing amongst the public sector, demonstrated a genuinely innovative approach to undertaking these key pieces of work.

This paper will report both on the process undertaken in these studies, innovation realised and emerging outcomes.

INTRODUCTION

The island communities within the Orkney[1] and Shetland[2] archipelagos are reliant on transport connections to and from the respective mainlands for health, employment, leisure, education, business and trips to the mainland of Scotland and beyond. Unlike ferry services in the Clyde & Hebrides and to / from the Northern Isles which are contracted by Transport Scotland, the internal ferries networks in Orkney and Shetland have typically been funded and operated by the respective local authorities (albeit with Grant Aided Expenditure contributions from central government). A number of islands in both Orkney and Shetland also benefit from air services, which are contracted directly by the respective local authorities through a competitive tendering process.

Whilst the current arrangements have functioned effectively over many years, a combination of ageing infrastructure with no committed capital replacement programme and declining local government revenue budgets led to the need for a more strategic review of asset replacement and 'needs-based' service levels.

---

[1] Eday, Egilsay, Flotta, Graemsay, Hoy, North Ronaldsay, Papa Westray, Rousay, Sanday, Shapinsay, Stronsay, Westray, Wyre.
[2] Bressay, Fair Isle, Fetlar, Foula, Out Skerries, Papa Stour, Unst, Whalsay, Yell.

In December 2014, Shetland Islands Council (SIC), HITRANS, Transport Scotland, Orkney Islands Council (OIC) 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.

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 & Services Methodology (RSM), STAG Appraisal and Business Case Guidance approaches to ensure consistency and legitimacy alongside other transport projects and services in Scotland.

Following on from the Joint Statement, both OIC and SIC commissioned their respective inter-island transport studies, the Orkney Inter-Island Transport Study (OIITS) and the Shetland Inter-Island Transport Study (SIITS). Whilst commissioned as independent projects, the Councils worked in close partnership with each other, HIE, HITRANS, Transport Scotland and ZetTrans to deliver the two studies

This paper will report both on the process undertaken in these studies, innovation realised and emerging outcomes.

DEFINING THE APPRAISAL

There were a number of challenges in defining the precise scope of the inter-island transport studies within the context of current appraisal guidance and the wider policy context.

Routes & Services Methodology

As part of the Scottish Ferries Review, Transport Scotland developed a 'Routes & Services Methodology' (RSM), which is designed to produce a consistent approach to ferry service transport provision across Scotland. The RSM is a six-step, evidence-based process which:

- Identifies the current level of service to an island.
- Establishes a 'model' level of service for an island in terms of the:
    - number of sailing days;
    - number of connections per day; and
    - the length of the operating day.
- Develops and appraises options to address any gaps between the 'current' and' 'model' service provision.
- It is worth noting that:
    - RSM does not consider air services.
    - RSM is not day of the week specific and does not therefore fully represent weekday / weekend service variations.

In advance of the commissioning of the inter-island studies, both Councils appointed PBA to undertake and validate their RSM 'results' on an island-by island basis (22 islands in total). Whilst the RSM in its own right does not imply an immediate or indeed any commitment to scale-up to the 'model' level of service, it provided a useful benchmarking tool to support the subsequent appraisal.

In terms of the RSM, provision was considered to be broadly appropriate in Shetland, although there are a number of instances where the level of service falls short of the RSM-specified level. There is however significant under-provision across Orkney in terms of the number of sailings per day and the length of the operating day.

Strategic Business Case (SBC)

When OIITS & SIITS were first commissioned, the studies were initially focussed on developing a single 'network plan' for each Council area – this included a finance and procurement plan. Following partnership discussions with Transport Scotland, the study was reframed as a **Strategic Business Case (SBC)**, making use of the national transport agency's then newly published business case guidance. At this stage in the process, Transport Scotland, OIC & SIC committed to take the procurement and financing aspects of the study forward as part of a separate workstream (also involving HIE, HITRANS & ZetTrans) – this was entitled the 'Fair Funding' workstream.

Transport Scotland published their *Guidance on the Development of Business Cases* in January 2016. The guidance is based on the H.M. Treasury 'Five Case Model' and sets out the steps required to take a project from conception through to project delivery – this consists of four stages:

- Stage 0 – Business planning: Strategic Outline Plan (SOP)
- Stage 1 – Scoping: Strategic Business Case (SBC)
- Stage 2 – Planning: Outline Business Case (OBC)
- Stage 3 – Procurement: Final Business Case (FBC)

The SBC provides the rationale for intervention, providing evidence for a scheme / project to proceed to development. This involves:

- Detailing the need for an intervention (based on problems & opportunities)
- Proposing and appraising a variety of options with which to deal with the issues
    - The **SBC** can be considered equivalent to a STAG Appraisal
    - The **OBC** will then identify a preferred option in each case following a more detailed appraisal of the options
    - The **FBC** updates the OBC during the procurement phase of the project

The OIITS and SIITS SBCs were informed by two discrete processes. Firstly, RSM results for all 22 islands 'in scope' were analysed to identify any areas over / under provision. The RSM was allied with a STAG-based study approach which took much greater account of the local transport problems and opportunities.
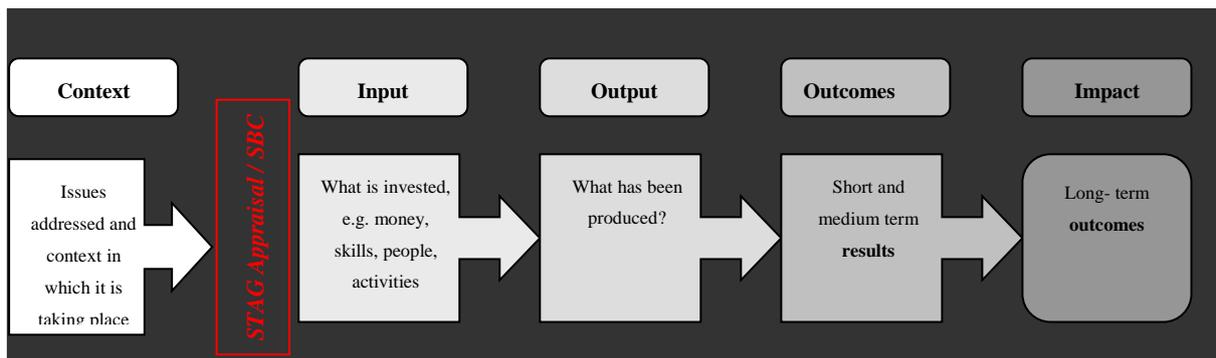
Logic Mapping

In defining the appraisal context for OIITS & SIITS, a 'logic mapping' based approach was adopted. It was recognised that STAG is fundamentally concerned with addressing transport problems or transport opportunities. However, these problems & opportunities sit within a wider socio-economic context to which transport can make a contribution (or conversely have a negative impact). This is nowhere more apparent than in this context – the islands in question are relatively small and have daily employment, commercial, supply-chain and/or personal business linkages with the Orkney and Shetland mainlands (and beyond). Inter-island ferry and air services provide the only available connections to / from these islands and are therefore the fundamental enabler of a functional economy and society.

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**.
- **Transport planning objectives** are then set aimed at addressing the transport problems / opportunities, not the societal problems.

- Options are developed to address the Transport Planning Objectives – i.e. the transport problems.
- 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:

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 – an Appraisal step has been added between 'Context' and 'Input':

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

Each stage of this logic map is expanded on below.

Context

- A set of problems forming the basis of the appraisal

STAG Appraisal / SBC – i.e. the OIITS & SIITS SBCs

- The transport appraisal / SBC:
  - (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

- e.g. funding, resources etc to implement the project.

Outputs

- Has the project physically been achieved? – i.e. essentially a measure of the supply side in terms of the delivery of a project, e.g. new vessel or increased ferry frequency or lower ferry fares etc.

Outcomes

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

Impacts

- What have the societal impacts been on the wider economy – e.g. 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).

This logic chain was deployed throughout both OIITS & SIITS, with a view to identifying the societal problems in each island and the extent to which existing transport services are acting as a contributing factor to these problems. The objective was 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.

A Nine-Step End-to-End Process

With reference to the above, a proposed nine-step process was developed aligning the OIITS & SIITS studies with Transport Scotland's *Business Case Guidance* and the end-to-end logic mapping approach.

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

- e.g. an island may have an ageing and declining population or lagging local economy.

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

- e.g. 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 – i.e. identify any problems with current connectivity that may contribute to these 'societal' problems.

- e.g. the capacity and frequency of island to mainland connections may be leading to people moving from the island for employment on the mainland.

Given that these projects were concerned with 22 different islands, rather than a single island, it was 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' was therefore derived to provide a checklist against which each island was cross-referenced.

Each aspect of connectivity in the checklist was reviewed for each island in the context of the available evidence to establish whether this was a problem or not. The identified problems were then taken forward into the appraisal as evidence-based problems, with the additional benefit of providing an audit trail to indicate that all of these service aspects had been considered.

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

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

This point marked the end point of the OIITS & SIITS SBC workstreams. The remaining steps are included below as a precursor for the next steps set out at the end of this paper.

STAR 2017
Stephen Canning, Scott Leitham, Michael Craigie, Gavin Barr & Neil Macrae

Scottish
Transport
Applications
Research

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 (e.g. a new ferry, a higher frequency air service etc)

Step 7) The remaining option creates a Logic Model Outcome – i.e. people travel more often / more cheaply / more reliably etc

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

If achieved, by reflecting the aims set, the impacts should address the problems and opportunities identified at the outset (i.e. in Step 1).

Step 9) Monitoring and Evaluation

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

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

This process is summarised in the flow chart below where the blue boxes represent the current studies and the green boxes would be tasks undertaken as part of subsequent OBCs.
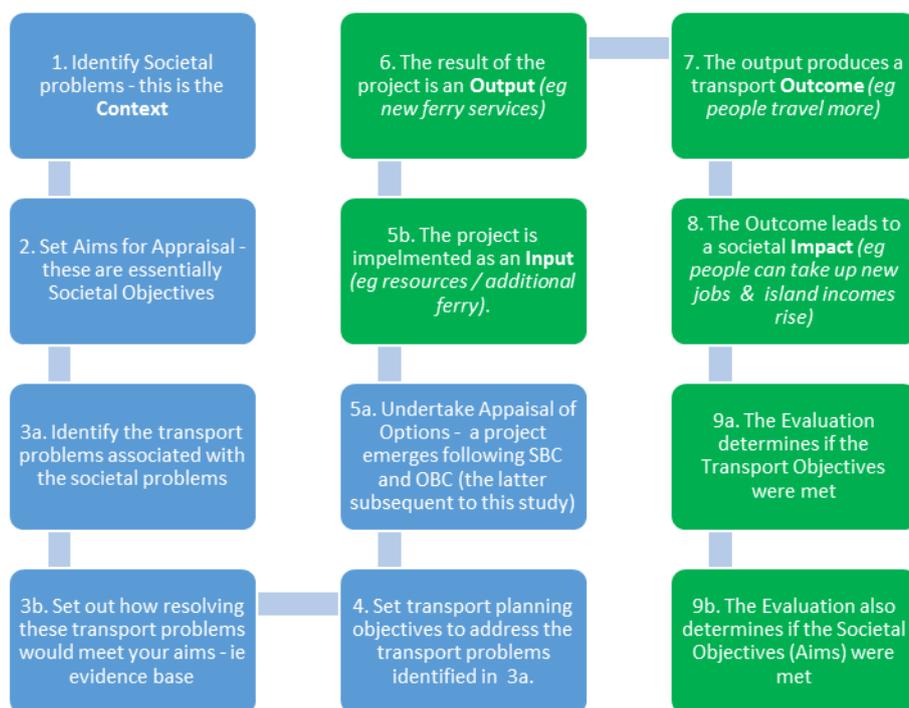
DEVELOPING THE STRATEGIC BUSINESS CASE

Problems, Issues, Opportunities & Constraints

In advance of commencing the Pre-Appraisal process, an extensive baselining exercise was undertaken to draw together the necessary evidence on problems, issues, opportunities and constraints. The baselining consisted of two distinct strands, one considering the various elements of service delivery from the operator / Council perspective and the other the service context from the public perspective, as follows:

- Review of Service Delivery (i.e. the operator / Council perspective)
  - Airfields & Aircraft
  - Harbours
  - Ferries
  - Environmental Baseline
  - Finance

- Review of Service Context (i.e. the public perspective)
  - Ferry Carryings
  - Ferry Connectivity
  - Air Connectivity
  - Stakeholder / Public Consultation
  - Socio-Economic Baseline & Future Planning Horizon

The baselining papers were used to systematically develop a record of the transport problems, issues, opportunities and constraints on an island-by-island basis. This process considered issues of a strategic nature (e.g. future vessel types, the mainland airfield on Shetland, opportunities in relation to new technology etc) and island-based transport problems & opportunities. In relation to the latter and as previously explained, a checklist was 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 Appendix 1.

For each island, all 18 'aspects of connectivity' were considered to establish whether they represented a problem or otherwise. Where a problem was identified, its magnitude was qualitatively assessed. This process allowed for the subsequent evidence-based development of study **Aims and Transport Planning Objectives**.

Study Aims

Whilst STAG is focussed on transport problems and opportunities, the process does allow for the establishment of wider socio-economic 'aims'. Whilst these are not used directly in the appraisal, they assist in guiding the overall direction of the appraisal.

As previously noted, transport and socio-economic sustainability & development are more closely inter-twined in an island context than in a mainland setting because either a ferry or air connection must be used as the start or end point of any journey. The high-level aims sought to encapsulate how transport can play a role in contributing to the future sustainability and prosperity of the Shetland & Orkney Islands. These Aims are also reflective of regional and national policy.

The Aims developed were 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.
  - 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 & jobs market and source of raw materials**.

- 2) The inter-island transport network should support **improved access to opportunities and services** on mainland Shetland / Orkney, including employment, health, education and personal services.

    o It will help to provide access to a **wide labour / jobs market** for mainland based concentrations of employment (and vice versa).
    o It will help to enable island residents to **access essential public services**, whether delivered on-island or off-island.
    o 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.
    o It will maximise **'at home' time** for children educated off-island, making the island a more viable place to live.
    o To enable people and goods to **broadly travel at the time they wish with a high certainty of supply.**
    o 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.

    o It will help to achieve / maintain **critical mass** in terms of population.
    o It will help to support higher levels of **economic concentration** (i.e. a critical mass of employment opportunities) on the islands.
    o 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 / Orkney Islands
    o It will help to increase the proportion of total **tourists** visiting the islands.
    o It will help the island group to function more effectively as a **single economic unit through increasing productivity / agglomeration.**

Transport Planning Objectives

A consistent set of TPOs was developed based on the commonly identified problems across the islands, namely:

- Air and ferry Capacity
- Time on mainland / island / Lerwick / Kirkwall / Stromness
- Service frequency / connections per day / timetable gaps
- Weekday / weekend service variation
- Integration with strategic public transport (i.e. connections to the Scottish mainland)

These TPOs are set out below and were used as the substantive basis of the appraisal.

- **TPO1:** The capacity of the air & ferry services should not act as a constraint to regular and essential personal, vehicular and freight travel between the island and Shetland / Orkney mainland.

- **TPO2a:** 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.
- **TPO2b:** 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 / Kirkwall / Stromness, 7 days a week all year round.
- **TPO3:** 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.
- **TPO4:** The level of connectivity provided should minimise the variation between weekdays, evenings, Saturdays and Sundays.
- **TPO5:** Where practicable, islanders should be provided with links to strategic onward connections without the need for an overnight stay on Shetland / Orkney mainland.

Whilst weather-related reliability, physical access, comfort and onboard facilities were identified as problems for a number of the islands, they are issues which were considered as part of the option development and appraisal process (under the 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. In addition, a number of issues were identified in relation to integration with local public transport services. The issue of public transport integration however sits more within the framework of the Regional Transport Strategy.

Option Generation & Development

Having set the TPOs for each island based on the service-based problems identified, a set of options needed to be generated and in this case, options were being generated across 22 different islands. In dealing with this number of islands, a strategic approach was adopted to provide structure to the process and to avoid an *ad hoc* approach to option generation. In doing this, a distinction also had to be 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.

In broad terms the high level option scenarios and timing of these options in terms of capital and revenue based actions were defined through the following two key questions:
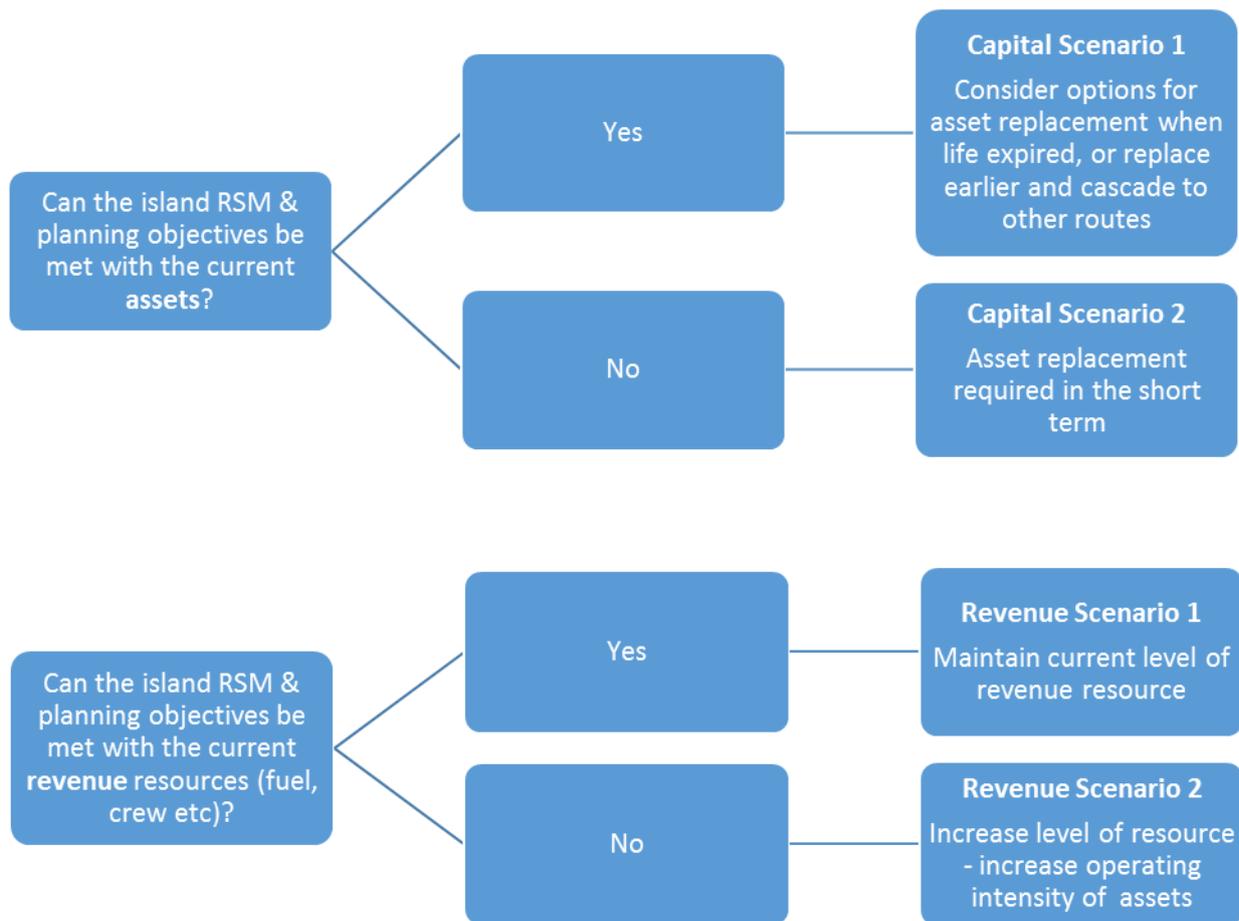
This process was worked through for all 22 islands to develop a set of capital and revenue options. In terms of capital options:

- A broad capital replacement timeline was identified for each island, specifying the point at which the SBC should proceed to an OBC.
- A vessel typology was created which, when applied to each island, allowed for the inclusion of a like-for-like vessel(s) option and combinations of other vessel options (e.g. 2 * like-for-like vessels, one larger vessel etc).
- For each vessel option developed, an outline harbour drawing was produced identifying any required investment to accommodate such a vessel(s).
- Stand-alone capital options which could contribute towards the objectives were also considered – e.g. harbour relocations, new overnight berths, new technology to support air services etc.
- An environmental constraints map was produced for each island, identifying any 'hard' constraints in terms of the capital options (principally associated with any required harbour works).

In terms of revenue options:
- The incremental costs of operating additional services up to and, where potentially appropriate, beyond the RSM level were calculated.

Options Appraisal

As OIITS and SIITS were relatively strategic in nature, the options appraisal was proportionate with that which would be expected in a strategy document (such as the Strategic Transport Projects Review).

The final SBCs provided:
- A clear identification of the transport problems & opportunities per island / mini-network.
- Network objectives, focussed on: capacity, frequency, onward transport connectivity, timetable variation
- A set of appraised air, ferry and fixed link (where appropriate) options per island / network - appraised against:
  - the study objectives
  - the STAG criteria - Environment, Economy, Safety, Accessibility & Social Inclusion and Integration)
  - Established Policy Objectives
  - Feasibility / Affordability / Public Acceptability
- Identification of a rationale for selection / rejection of each option
- A 'timed plan' for the stage at which each island will proceed to an OBC

Prior to the completion of the SBCs, public exhibitions and drop-in session were held across the islands. The process, problems & opportunities, objectives, options and appraisal outcomes were presented to the public, who were invited to discuss these with our team and complete an exit questionnaire commenting on the options and defining their allocation priorities for any additional funding available. The outcome of the public engagement process was used to inform the public acceptability criterion of the appraisal for each island.

A detailed appraisal summary table (AST) was prepared for all options, supplementing the Pre-Appraisal Report and main Options Appraisal Report.

FIXED LINKS

There has been a lengthy debate about the case for fixed links in the Shetland context in particular. Drawing on experience elsewhere, particularly Norway and the Faeroe Islands, proponents of fixed links argue that they would deliver the aims set out above and be cheaper in the long-run when compared against successive waves of ferry replacement and operation. In keeping with the requirements of STAG to consider the broadest possible range of options, the case for fixed links was considered in both the Orkney and Shetland contexts.

Fixed link options were ruled out fairly early in the process in Orkney but there was a more detailed debate in Shetland, where the issue is much more rooted in community expectations. The option of connecting the islands of Bressay, Whalsay and Yell to Shetland mainland, as well as Unst to Yell, through a network of fixed links (tunnels) has been of significant interest to these communities for over a decade. SIITS had to consider and come to a view on the case for fixed links on the basis of government appraisal & business case guidance

The proposed fixed link between Shetland mainland and Bressay is the only one which has been retained for consideration at the OBC stage due to its relatively low costs and a much higher degree of technical certainty. The other three fixed links have been rejected from an appraisal perspective for the following reasons:

- It is not feasible that SIC / ZetTrans & OIC / HITRANS could fund projects of this scale in the foreseeable future – the funding requirement would therefore be on central government.

- The cost of these fixed links would significantly exceed the costs associated with ongoing ferry services, even when considered over two or three ferry replacement cycles (principally due to the application of discounting).
- Projects of this nature would represent nationally significant infrastructure schemes and would be competing for funding against other committed and planned national infrastructure schemes.
- There would also be competition with other fixed links proposals within Shetland, Orkney and across Scotland for any available funding.
- Prior to construction, there would be a costly and extended period of technical development and preparation.

Whilst fixed links do not perform well in conventional appraisal terms and are thus rejected (Bressay excepted), there remains a wider question as to whether there should be a policy commitment to island fixed links. SIC has undertaken to progress this issue through the Islands Transport Forum, with a view to inclusion in the Strategic Transport Projects Review 2.

NEXT STEPS – PROGRESSING TO OBC

The OIITS and SIITS studies provide an SBC for all islands / mini-networks within Orkney and Shetland. The process followed in these studies and set out above has provided a systematic and evidence-based approach to identifying a viable shortlist of capital and revenue options that contribute towards the aims and TPOs.

However, at this stage and in keeping with STAG, the reporting only identifies a range of appraised options which could deliver the TPOs – there is no preferred option for any island. In addition, the technical detail (vessel specifications, harbour drawings etc) and associated costings are relatively high level at this stage, proportionate to the overall scope of the SBC. There is also no committed capital funding or agreed procurement approach for capital investment or revenue funding for additional sailings. The next step in the process is therefore to progress selected islands in both Orkney and Shetland to OBC stage.

As previously explained, a number of the islands under consideration are not in immediate need of capital investment (although additional revenue funding may be required). Nonetheless, there are clear short-term priorities in each island group. The progression to OBC is dictated by:

- the need for the relatively short-term replacement of life expired or unsuitable assets (i.e. compliance with legislation, capacity etc); and / or
- evidence of where current transport connections are acting as a constraint on an island.
- For a number of islands, an OBC is unlikely to be required for a number of years, and the SBC should be revisited at that stage.

There is a need for separate consideration of revenue options (which can be implemented in the relatively short-term without phasing) and capital options (which require a slightly longer-term view and a degree of phasing to account for financial constraints).

The OBC process will be required to produce much greater cost certainty on both the capital and revenue funding requirements of selected islands.

The immediate requirement from a capital perspective is to reduce the shortlist of options from the SBC to a **single preferred option** in the OBC. This will require:

- Detailed vessel design (General Arrangements) and costing

- o An iterative process will be required to assess the interaction between the proposed new vessels and the harbour works required to accommodate them
  - This will particularly be the case in Orkney where the fleet and infrastructure is more bespoke than in Shetland.
- Other standalone options will also have to be considered in detail (e.g. harbour relocations, new overnight berths etc).
- Having defined the preferred option in terms of the asset mix, a detailed service / timetable specification would need to be worked up and costed based on e.g. demand, available revenue funding, operational requirements etc.
- Further appraisal, supported by public engagement will then be required to identify the preferred option in each island.
- This would complete the **Strategic & Socio-Economic Cases** of the OBC

The Strategic & Socio-Economic cases would feed into the largely outline development of the Commercial, Financial and Management cases. As noted at the outset of this paper, the funding and procurement aspects of the study were taken forward under the separate but related 'Fair Funding' workstream. The commercial, financial and management cases for the detailed preferred options which emerge from the Strategic & Socio-Economic Cases will require significant development at this stage. It is anticipated that this would continue to involve a partnership arrangement between the aforementioned stakeholders.

It is anticipated that the first OBCs will be undertaken during 2017. The completed OBCs would provide a gateway to the FBCs / procurement, which would of course be subject to available funding (from whatever source).

Appendix 1: Checklist of Potential Transport Problems

Aspect of Connectivity	Potential Problems Arising
Overall journey time to Lerwick / Kirkwall	Long total journey times to Lerwick / Kirkwall impact on the ability to take up employment and conduct personal business in Shetland & Orkney's main towns. 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 Orkney / 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 / Kirkwall / Stromness (for islanders accessing jobs, shops, services, friends and family etc in the main town);	The time window provided in Lerwick / Kirkwall / Stromness will limit the activities which can be undertaken by islanders in the areas 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 (e.g. 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 of Shetland and Outer North Isles of Orkney, 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.
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 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 Orkney / Shetland to the rest of the UK or overseas, being able to connect with flights from

Aspect of Connectivity	Potential Problems Arising
	Kirkwall / Sumburgh and ferries at Kirkwall / Stromness / St Margaret's Hope / Lerwick is important. If the first flight cannot be reached, then this can mean that a day trip to e.g. 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. 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.