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Appraisal of Options for the Specification of the 2018 Northern Isles Ferry Services

Final Report

Redacted Version

Contents *[tables and figures reflect non-redacted report]*

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1. Introduction

Overview

Passenger and freight ferry services between the Northern Isles and the Scottish mainland are essential to the economies and sustainability of both the Orkney and Shetland Islands. The Scottish Ferries Plan established commitments to strengthening and improving the ferry services provided to island communities and more generally the policy of the Scottish Government is that all communities should be treated on an equal footing. However, the Ferries Plan does not make specific reference to what the provision for the Northern Isles Ferry Services (NIFS) should be beyond the duration of the current contract and it made clear that further work was necessary to achieve this.

In light of the above, Transport Scotland commissioned Peter Brett Associates LLP, together with partners Pro Versa and WSMD Associates, to undertake a comprehensive transport appraisal, in line with the Scottish Transport Appraisal Guidance (STAG), which involves exploring and assessing potential options for the specification of the next NIFS contract.

An Evolving Scope

The STAG Pre-Appraisal and Part 1 reports were completed in June 2016. These reports identified the problems and opportunities with the NIFS services currently and generated a long-list of options which were developed and appraised at Part 1 stage. The options covered:

- vessels
- ports & routes
- timetables
- capacity
- public transport integration

The outcomes of the Pre-Appraisal and STAG Part 1 options appraisal was reported to the project Working Group[1] in June 2016. At this stage, it was anticipated that the study would proceed to a STAG Part 2 appraisal of the shortlisted options, intended to be completed in October / November 2016.

Fares Review

At the outset of this study in December 2015, it was agreed that the means by which fares are set and their absolute level would be assumed to fixed for the purposes of the analysis although some sensitivity analysis would be undertaken. However, the SNP manifesto for the May 2016 Scottish Parliamentary Elections contained a

[1] The Working Group consists of Transport Scotland, Highlands & Islands Enterprise, HITRANS, Orkney Islands Council, Shetland Islands Council and ZetTrans.

commitment to reduce ferry fares on routes to / from the Northern Isles. Given the importance of fares to the wider appraisal of options, the study was paused at the end of the STAG Part 1 stage to allow for consideration of fares options.

A fares consultation was undertaken by PBA with stakeholders and the local communities in Orkney and Shetland throughout the autumn and was reported in November 2016. In the period between November 2016 and May 2017, Transport Scotland developed and tested a number of potential fares options in-house.

In May 2017, a paper on future fares options to be tested in this study was put to the Minister and approved for the purposes of the study. It is important to note at this stage that the fares options approved by the Minister were for the purposes of testing options in this study – it does not imply a commitment from Scottish Ministers to introduce the fares reduction in this precise form.

Note that future policy for freight fares is being considered separately, and for the purposes of this work, freight fares are assumed to remain at present day levels in real terms.

Other Developments

During the fares-related pause in the study, there were a number of other developments in the wider context which have had a material impact on the study. These developments are explained in more detail below, with the implications for the study set out at page 6.

Review of Tendering

The purpose of this STAG appraisal was to inform the specification of the next NIFS contract, which was due to commence on 25th April 2018. However, on 2nd February 2017, the Minister announced a policy review into the future of tendering for Scottish Government ferry contracts, and this is anticipated to run for 9-12 months. Specifically, the review will advise on whether ferry services can be awarded to an 'in-house' operator without the need for tendering within the framework of European legislation. The Transport Scotland website states that *'The Policy Review's primary purpose is to ensure the continued provision of safe, efficient and effective ferry services to meet the needs of island and remote rural communities and which provide value for money to the taxpayer.'*

Vessels

There were three key uncertainties in relation to the future vessel fleet at the completion of the Part 1 stage of the appraisal:

- the two freight vessels, MV *Helliar* and MV *Hildasay*, were leased directly by Serco NorthLink, with their charter due to expire at the end of the current contract. The early study research identified a key risk surrounding the availability of these vessels in the next contract period. Transport Scotland has since secured the

availability of these vessels for the next contract period. There is therefore now long-term security over the availability of these vessels

- there was also a question surrounding the future availability of the three Ro-Pax vessels, MV *Hamnavoe*, MV *Hjaltland* and MV *Hrossey*. However, Transport Scotland has been in discussions with Lombard / Royal Bank of Scotland in recent months and there is now a high level of certainty that these vessels will be available into the (nominal) new contract period
- Pentland Ferries has placed an order for a new 85 metre catamaran, significantly increasing the daily capacity on the Gills Bay – St Margaret's Hope route. It is our understanding that, at present, the intention for the company is to sell the MV *Pentalina* but this position may of course be subject to change given the potential fares reduction to be applied across both Pentland Firth routes

Nigg Bay

When the study was paused in June 2016, there was also uncertainty over if and when the proposed new harbour at Nigg Bay (Aberdeen South Harbour) would be developed. However, construction of what will become Aberdeen South Harbour commenced in May 2017 with anticipated completion in May 2020.[2] It should however be noted that a new ferry terminal is not included within the core development but remains a priced option which could be taken forward if the NIFS services were to relocate to there in future. There are no further details available with respect to this potential move at this stage.

Implications for the Study

The above developments have a number of implications for this study. In terms of vessels, the current fleet is likely to have a residual life of at least 10 years and possibly more in Scottish waters if required, assuming they continue with the current maintenance and running arrangements. Whilst there may be an appetite to procure new tonnage before this time, it is not imminent. It would therefore be inappropriate at this stage to define a future vessels strategy as it will inevitably be overtaken by events.

That said, if the forecast demand associated with the reduction in fares significantly exceeds the ability of the current vessels to cope (even if operated at an increased intensity), a supply-side response in terms of new tonnage may be required. In any case however, it is likely that a period of bedding in for the new fares structure would be required before any such decision is countenanced.

In terms of ports, given that Aberdeen South Harbour is now under construction, there is potential for a major transformation of the future service in terms of vessel size / capacity. At the STAG Part 1 stage, the option of relocating ferry services from Aberdeen to Peterhead was considered. Whilst there were a number of factors against such a move, the potential journey time savings and knock-on impact on the provision of extra sailings meant that it was retained for further consideration.

[2] http://www.aberdeen-harbour.co.uk/article/key-construction-milestones/

However, given the opportunity of transformational change committed to at Nigg Bay and both the direct & indirect costs associated with relocating to Peterhead, this option is considered much less attractive.

The focus of the study has therefore evolved to focus on the potential impact of the reduced fares on demand and the subsequent implications for vessel capacity (predominantly vehicle deck and cabin capacity). Based on the anticipated demand / capacity position, a number of potential supply-side options (effectively the timetable options emerging from STAG Part 1) are appraised in terms of their cost and deliverability.

As the reporting will be completed before the fares reduction is announced and in light of the uncertainty around tendering, no further public or stakeholder consultation (beyond the immediate working group) will be undertaken at this stage.

Project Timeline

This study was commissioned in late 2015 with the substantive analysis of options undertaken and reported in the first half of 2016. As noted above, developments with respect to fares policy led to the study being extended beyond its original programme into mid-2017.

There have been a number of developments affecting the network in the latter part of this period. These have been referenced throughout the report but it was not practical to revisit the text and analysis to fully embed all of these changes in the text.

Report Structure

This report therefore takes forward the analysis with particular respect to the illustrative fares scenario provided by Transport Scotland, the implications for vessel utilisation, and the potential supply responses. More details of the option development and appraisal process which led to this stage can be found in the accompanying STAG Pre Appraisal & Part 1 Report.

This report consists of four further chapters as follows:

- Chapter 2 establishes the fares scenario which has been used as the basis of the subsequent analysis
- Chapter 3 considers the demand and capacity implications of the fares reduction in the form of the ‘loadings calendars’ which were used at Pre-Appraisal stage
- Chapter 4 appraises the potential supply-side responses to the fares reduction
- Chapter 5 provides a summary of the appraisal process and provides some conclusions and potential next steps and the reader is directed to this chapter for an overview of the study and its findings

2. NIFS Fares

Overview

The 2016 SNP manifesto for the Scottish Parliamentary elections committed to:

- *…protect the Road Equivalent Tariff to all routes in the Clyde and Hebrides Ferry Services network and take action to reduce fares on ferry services to Orkney and Shetland*

As previously noted, Transport Scotland appointed PBA to carry out a public and stakeholder fares consultation in late 2016. The consultation sought views on a number of broad fare setting options as well as more specific issues such as seasonal pricing, islander discounts and potential phasing of changes to fares. The final consultation report was signed-off in late 2016.

Following the completion of the fares consultation, Transport Scotland officials developed and tested a number of fares options. This analysis was in turn used as the basis of a submission to the Minister for Transport and the Islands, Humza Yousaf MSP, in February 2017. The submission established in-principle recommendations in relation to the means by which fares are set, as well as an indicative tariff level. The purpose of this submission was to provide a basis for the testing of fares options in this study in terms of demand, capacity and the impact on revenue. **It is important to note at this stage that the acceptance of the submission in no way represents a commitment from Scottish Ministers to implement the specified level of fares.**[3]

The following sections summarise the recommendations of the ministerial submission, providing the context for the subsequent demand and supply-side analysis.

Approach to Fares Setting

Recent government policy in relation to ferry fares for passengers and vehicles has broadly been to relate the tariff to route distance (Road Equivalent Tariff), with a set charge per mile (calculated by Transport Scotland analysts using contemporary independent research by the RAC), added to a fixed fare element (to ensure services remain sustainable and to contribute to fixed costs such as maintaining harbour infrastructure and vessels). An equivalent approach is intended for routes to the Northern Isles, although it is acknowledged that the standard RET formula is inappropriate for the Aberdeen – Kirkwall – Lerwick route given the long distance nature of the crossing. A variant option has therefore been developed by Transport Scotland.

[3] Subsequent to the substantive drafting of this report, in August 2017, the Minister for Transport and the Islands Humza Yousaf announced that RET would be introduced to the Pentland Firth routes, whilst a variant of the RET scheme will be brought in on the routes from Aberdeen to Kirkwall and Lerwick. The illustrative fares put into the public domain at this stage are in line with those used in the submission and reported below.

Seasonal Pricing

The current seasonal pricing arrangement will be discontinued with RET, with a single year round fare no higher than the current islander low season fare applied.

Islander Discounts

The current two-tier fares system whereby islanders pay a lower fare than non-islanders will be discontinued with RET in favour of the single year round fare. By extension, the 'Friends & Family' scheme would also be discontinued.

North Sea Routes

The submission explained that all legs of the Aberdeen – Kirkwall – Lerwick route are in excess of 100 statute miles. Introducing RET on these routes would increase a number of fares and would be contrary to the manifesto commitment and a number of other policies.

In order to mitigate this, the proposal is to discount the variable element of the RET fare by 50%. This would reduce the majority of the fares, although a small number of low season islander vehicle fares would increase. This issue could be resolved by capping these fares at the level of the low-season islander fares, which is consistent with the approach taken on the Clyde & Hebridean routes in cases where RET would have led to fare increases.

Transport Scotland Recommended Option – RET Variant: The RET fares system would be introduced as per the Clyde & Hebridean Ferry Services network, but the variable element reduced by a percentage (assumed to be 50%) for those routes that are longer than 100 miles. Any fares which would increase under this measure would be capped at the low season islander fare.

Islander Fares

The tables over set out the changes in passenger and vehicle fares based on the assumption of an RET fares system with the variable element discounted by 50%.

Table 2.1: Islander Passenger Fares, Aberdeen – Kirkwall – Lerwick – RET with 50% Discount on Variable Element

Route	Season	2017 Fare	Indicative Fare	% Change
Aberdeen – Lerwick	Low	£18.90	£16.85	-11%
	Mid	£23.80		-29%
	Peak	£28.70		-41%
Aberdeen – Kirkwall	Low	£14.35	£12.35	-14%
	Mid	£18.20		-32%
	Peak	£22.05		-44%
Kirkwall - Lerwick	Low	£12.18	£10.00	-18%
	Mid	£14.35		-30%
	Peak	£17.26		-42%

Table 2.2: Islander Vehicle Fares, Aberdeen – Kirkwall – Lerwick – RET with 50% Discount on Variable Element

Route	Season	2017 Fare	Indicative Fare	% Change
Aberdeen – Lerwick	Low	£76.30	£76.30*	0%
	Mid	£97.30		-22%
	Peak	£102.20		-25%
Aberdeen – Kirkwall	Low	£56.70	£56.70*	0%
	Mid	£74.20		-24%
	Peak	£77.70		-27%
Kirkwall - Lerwick	Low	£44.10	£44.10*	0%
	Mid	£63.70		-31%
	Peak	£72.10		-39%

* These fares are capped at the low season islander rate – application of the fares formula would have resulted in a higher fare.

From an island resident perspective, all passenger fares across all route-legs and seasons would be reduced, with the most significant reductions generally on the Aberdeen – Kirkwall route (except in low season when the biggest proportional reduction would be on the Kirkwall – Lerwick route.

Islander vehicle fares in the mid and peak and season would generally be reduced by around a quarter on the Aberdeen – Lerwick and Aberdeen – Kirkwall routes, and by a third on the Kirkwall – Lerwick route. Vehicle fares in the low season would see no reduction.

The key challenge with the proposed fares regime is that the largest reductions in fares will be introduced at the time of year when demand is highest and capacity is under the greatest pressure. This issue is considered in more detail in the next chapter.

Standard Fares (i.e. non-islander)

The equivalent standard fares are shown in the table below:

Table 2.3: Standard Passenger Fares, Aberdeen – Kirkwall – Lerwick – RET with 50% Discount on Variable Element

Route	Season	2017 Fare	Indicative Fare	% Change
Aberdeen – Lerwick	Low	£27.00	£16.85	-38%
	Mid	£34.00		-50%
	Peak	£41.00		-59%
Aberdeen – Kirkwall	Low	£20.50	£12.35	-40%
	Mid	£26.00		-53%
	Peak	£31.50		-61%
Kirkwall - Lerwick	Low	£17.40	£10.00	-43%
	Mid	£20.50		-51%
	Peak	£24.65		-59%

Table 2.4: Standard Vehicle Fares, Aberdeen – Kirkwall – Lerwick – RET with 50% Discount on Variable Element

Route	Season	2017 Fare	Indicative Fare	% Change
Aberdeen – Lerwick	Low	£109.00	£76.30*	-30%
	Mid	£139.00		-45%
	Peak	£146.00		-48%
Aberdeen – Kirkwall	Low	£81.00	£56.70*	-30%
	Mid	£106.00		-47%
	Peak	£111.00		-49%
Kirkwall - Lerwick	Low	£63.00	£44.10*	-30%
	Mid	£91.00		-52%
	Peak	£103.00		-57%

* These fares are capped at the low season islander rate – application of the fares formula would have resulted in a higher fare.

The proposed tariff formula would result in larger reductions in passenger and car fares for standard fare payers across all seasons. As with islander fares, the reductions would be most marked in the peak season, with vehicle fares reducing by almost a half and passenger fares by around 60%. The demand and capacity implications of this will be explored in the next chapter.

Pentland Firth

The ministerial submission recommended the application of RET, as per the Clyde & Hebridean network, to routes across the Pentland Firth. This would apply to NorthLink Ferries, the current private sector operators on the Firth; and any incoming operators. The intention would be for the same fare to be applied on both routes, however, this will require further consideration. It should be noted that there are outstanding questions around how this fares system can be implemented – these are being addressed by Transport Scotland and are outwith the scope of this report.

Transport Scotland Recommended Option – RET: The RET fares system would be introduced on all routes across the Pentland Firth as per the Clyde & Hebridean network.

The table below sets out the changes in NorthLink fares associated with the introduction of RET across the Pentland Firth:

Table 2.5: Scrabster – Stromness Fares with the introduction of RET

Route	Season	2017 Fare	Indicative Fare	% Change
Islander – Passenger Fares				
Scrabster - Stromness	Low	£11.66	£6.10	-48%
	Mid	£12.60		-52%
	Peak	£13.58		-55%
Islander – Car Fares				
Scrabster - Stromness	Low	£37.10	£30.00	-19%
	Mid	£38.50		-22%
	Peak	£41.30		-27%
Standard Passenger Fares				
Scrabster - Stromness	Low	£16.65	£6.10	-63%
	Mid	£18.00		-66%
	Peak	£19.40		-69%
Standard Car Fares				
Scrabster - Stromness	Low	£53.00	£30.00	-43%
	Mid	£55.00		-45%
	Peak	£59.00		-49%

The introduction of RET on the Scrabster – Stromness routes would result in significant reductions in passenger and vehicle fares. The reductions would again be larger for non-islanders than islanders, with standard passenger fares reducing by more than 60%.

Accommodation Pricing

The fares consultation reported that there is a widely held view that all types of cabin are too expensive and on balance, there is support for a standard cabin price irrespective of trip length as currently on offer. The consultation also found that there is a widely held view that there are too many cabin pricing options on the Aberdeen routes and that this detracts from the simplicity of the fares system. A simple percentage reduction based on the current seasonal cabin pricing while meeting the objective of reducing fares will not simplify the cabin pricing options. The options currently available are priced according to the option and berth size.

Transport Scotland proposes to maintain cabin fares at their current level for now, subject to review following the completion of this report. The possibility of a nominal percentage discount and simplification of pricing options at a later stage remains.

There is no standard islander discount at present on accommodation charges for the overnight ferry services, although the 10% concessionary discount is available to eligible islanders.

3. Demand & Capacity Impacts

Overview

Vehicle deck and cabin capacity was the concern most frequently cited by residents and stakeholders during the development of the Pre and Part 1 Appraisal, particularly in the Shetland Islands. Demand at present appears to be broadly satisfied, even if a passenger does not secure their preferred sailing date or accommodation choice, although it is noted that the current supply of services may be resulting in a degree of suppressed demand. However, the implementation of the substantial fares reductions referenced in Chapter 2 has the potential to place a burden on available capacity and this is explored in the Chapter.

This chapter therefore considers the baseline and forecast demand / capacity position within each market segment, and how these changes would affect passenger, vehicle deck and cabin utilisation on the NIFS services.

For further detail on historic travel patterns across these routes, see Sections 3.2 and 3.3 of the *'Appraisal of Options for the Specification of the 2018 Northern Isles Ferry Services Contract, Pre-Appraisal & Part 1 Appraisal Report' (PBA, 2016).*

Conditions Under Current Fare Structure

In order to build a comprehensive and detailed baseline understanding of the NIFS network in terms of capacity utilisation patterns, sailing-by-sailing data was used to develop a set of 'loadings calendars' for each of the RoPax routes by carrying type. No separate analysis has been undertaken with respect to the separate freighter services which serve the Northern Isles as these are not capacity constrained. It is noted however that purveyors of time sensitive freight have a preference for the RoPax vessels.

Data was processed and analysed as follows:

- Sailing by sailing ticket sales data was obtained for the following contract years, indicating the number of passengers onboard, vehicle deck usage and cabin occupancy:
    - Contact Year (CY) 1: 12th July 2012 – June 2013
    - CY2: 1 July 2013 – 30 June 2014
    - CY3: 1 July 2014 – 30 June 2015
- Vessel loadings were calculated for passengers, vehicle deck and cabins as follows:
    - Ticket sales data were supplied by the operator for origin to destination movement, rather than ship loadings
    - Ship loadings were calculated by allocating these origin-destination movements to individual ship sailings where necessary e.g. the vessel

loading between Aberdeen and Kirkwall = Aberdeen to Kirkwall + Aberdeen to Lerwick ticket sales

- Vessel capacities were added, based on information provided by the operator
    - % utilisation by sailing leg (eg Aberdeen - Kirkwall, Kirkwall - Lerwick) was calculated for passengers, vehicle deck and cabins using the loadings data and capacities outlined above

Note that this study commenced in December 2015 and the quantitative analysis was undertaken in the first half of 2016. This explains the use of July 2014 to June 2015 data in the analysis which follows i.e. data for July 2015 to June 2016 was not yet available at the time of writing. There has been a number of unforeseen changes since 2014/15, e.g. the withdrawal of the Streamline Shipping Group's container shipping service in 2017 which will have impacted on NorthLink services and this should be borne in mind when considering the findings here.

The data were analysed at a sailing-by-sailing level, and summarised through a set of utilisation calendars and monthly utilisation charts. Due to this analysis considering vessel loadings, the analysis is split through route categories as follows:

- North Sea Northbound: includes all northbound movements from Aberdeen, i.e.
    - Aberdeen to Lerwick
    - Aberdeen to Kirkwall
    - Kirkwall to Lerwick
- North Sea Southbound: includes all southbound movements to Aberdeen, i.e.
    - Lerwick to Aberdeen
    - Kirkwall to Aberdeen
    - Lerwick to Kirkwall
- Pentland Firth: Scrabster to Stromness and Stromness to Scrabster sailings.

In this section, monthly summaries of present day vessel loadings by capacity utilisation for passenger, vehicle deck and cabins are reported, as a recap from the Pre -Appraisal & Part 1 Report. The full loadings calendars are reported separately in a Technical Annex. Note that the charts which follow run from July to June in line with the contract year schedule (for contract year 2014-15 - the latest full contract year for which data was available at the time).

Note that there is a '>=100%' category included in this analysis which may appear counter-intuitive. For the vehicle deck, the actual capacity varies depending on the mix of vehicles carried. We have used a lane metre capacity of 470m for the MV *Hjaltland* and MV *Hrossey* (provided by the operator) but on some occasions, the recorded loadings suggest a higher lane meterage figure than this. In the baseline case, a utilisation level of '>=100%' essentially means a full car deck.

For cabins, on sailings via Kirkwall, the way in which 'Bed in Shared Cabin' ticket sales are accounted for and the turnaround of cabins at Kirkwall means that, in the data received from the operator, figures of greater than 117 (total number of cabins) are recorded. Again, this can be interpreted in the baseline case as there being no spare cabins available on these sailings. Note also that the 0% utilisation sailings are instances where the boat was repositioning as opposed to sailing scheduled with no passengers or cars on board.

It should be noted that this analysis of cabins is based on 'cabin bookings' rather than 'berth utilisation'. The cabins provided onboard are a mixture of 2-berth, 4-berth and 'cabin-share' arrangements. Berth utilisation is therefore much lower than cabin utilisation since cabins are often under-occupied in terms of berths (eg one person in a 2-berth or two persons in a 4-berth). Even when all cabins have been booked out, berths in shared cabins will typically still be available, although this option will only appeal to some types of passengers.

A further issue with cabin utilisation is that '*ITX charged*' Group Tour bookings can shut out cabin space for other passengers and these bookings disproportionally impact on cabin use.

Northbound North Sea Routes Utilisation (Direct and Indirect)

Section redacted – analysis of commercially sensitive information

Southbound North Sea Routes Utilisation (Direct and Indirect)

Section redacted – analysis of commercially sensitive information

Pentland Firth (Stromness to Scrabster) Utilisation

Section redacted – analysis of commercially sensitive information

Reduced Fares - Demand Forecasting and Capacity Impact Assessment

Methodology

As has been noted, the level (%) of reduction in fares will vary widely by 'market segment' across the year, and as such a disaggregated approach is required to estimate the impact of the fares reduction.

The change in demand will depend on the change in the fare paid, and the change in fare paid will depend on the mix of passengers, ticket types used, time of year and choices regarding accommodation and vehicles.

On this basis, the following approach was undertaken to estimate the impact of the proposed fares reduction in 2018/19[4] for each route origin-destination (Aberdeen-Lerwick, Aberdeen-Kirkwall, Kirkwall-Lerwick and Scrabster-Stromness):

- Ticket sales data were compiled by NorthLink to generate an estimate of the number of bookings and passengers (and hence passengers per booking) who fell into each one of six main market segments, as follows
    - Foot passenger – cabin (sole use for individual or family group)
    - Foot passenger – bed in shared cabin / pod
    - Foot passenger – no accommodation
    - Vehicle based passenger – cabin (sole use for individual or family group)
    - Vehicle based passenger – bed in shared cabin / pod
    - Vehicle based passenger – no accommodation

These values were also calculated by residential status (i.e. visitor or islander) for each of these six market segments. With a further assumption regarding adults / children, the average number of adults and children per booked party was determined and used in the analysis as it is the total price paid per booking party which is the determining factor.

- Average fares per booking party were then calculated for each market segment for CY5 (current fares structure, including the 10% discount on passenger and vehicle fares for senior citizens (aged 60 years+)) and 2018/19 (proposed fares structure), based on relevant fare structures, per month (and part month where the season change splits a month).[5]
- The percentage change in average fares per booking party for each market segment by month between CY5 with proposed fares for 2018/19 was established.
- The percentage change in price was then multiplied by relevant price elasticities of demand (see below) to estimate demand uplift in 2018/19. Three sets of elasticities were applied to identify the range of potential demand responses that might occur, a central case and low & high elasticity scenarios.
- Based on the balance of passengers within each passenger category (islander / visitor & foot passenger / car passenger), overall monthly demand uplifts were calculated for passengers.

[4] Note that no 'background' growth has been assumed given the relatively flat profile in recent years (at the time the analysis was undertaken) and the fact that this figure would be low compared to the impact of the change in fares. It is recognised that 2015 and 2016 saw some more significant growth which would create a somewhat higher base for this analysis.

[5] Note that for Aberdeen-Kirkwall and Kirkwall-Lerwick, the total cost of a return trip was calculated, with accommodation costs (where the sailing was overnight) included on one leg of the trip only (however some travellers may wish to utilise a cabin both ways). For the other routes, a one-way trip was used.

- The uplift in demand for car carryings has been estimated on the basis of the ratio of cars carried per person carried. In all CHFS[6] routes, when RET was introduced, the ratio of cars per passenger increased, based on analysis undertaken by PBA. For Scrabster-Stromness, the closest comparator route is the Uig Triangle and this has been used to estimate a 10% increase in the cars / passenger ratio. For the North Sea routes, assumed figures of 5% to 7% have been used. The new ratio has been applied to forecast passenger numbers to determine forecast car carryings
- The uplift in demand for cabins has been determined on the basis of projected increases in the market segments where cabins are booked
- The monthly uplift factors were applied to CY5 origin-destination movements to estimate demand for travel between origin destination pairs in 2018/19 under the proposed fares regime.
- Vessel loadings were then calculated by allocating movements to specific ship sailing legs e.g. the ship loading between Aberdeen and Kirkwall = passengers making Aberdeen to Kirkwall movement plus those making Aberdeen to Lerwick movement.

These data were added to the Sailing Utilisation Model to generate % utilisation by sailing leg for passengers, vehicle deck and cabins using established vessel capacities. The spreadsheet then output the 2018/19 loadings calendar and utilisation metrics discussed below.

Change in Fares

The Scottish Government provided PBA with indicative fare levels for the purposes of exploring the potential impacts of a fares reduction (as set out in Chapter 2). Although fare changes have been modelled by route, passenger type, vehicle/accommodation selection and month, the average fare changes (per booking party, 2014-15 Contract Year) are presented by route in the figure below to provide an indication of the scale of the fares reductions in a 'headline' sense, and how these differ between those paying island resident fares and those paying standard fares.

[6] It is recognised that the CalMac and NorthLink routes are not like for like comparators but there is a wealth of data now available from the introduction of RET across the CalMac network and this is best source for understanding what may happen on NorthLink with RET.

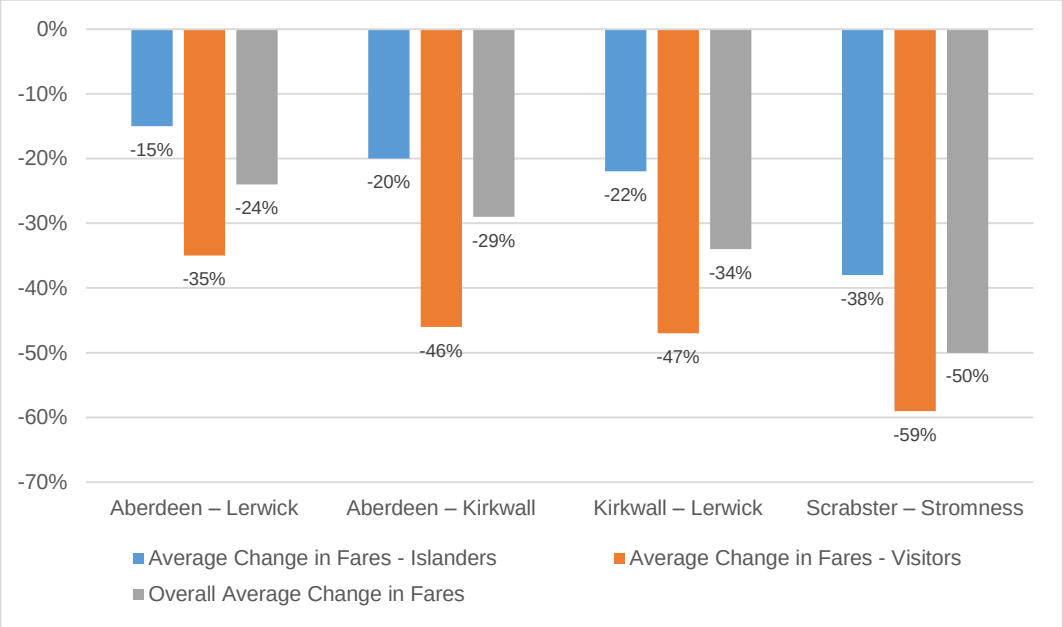

Figure 3.1: Average Change in Fare Paid – per Travelling Party, by Route

This figure illustrates how the fares reductions for non-islanders are far greater than those seen for island residents. The largest reduction in typical fare paid would be for non-islanders on Scrabster-Stromness where fares would reduce by 59% whilst Aberdeen-Lerwick islander fares would reduce the least, by 15%.

Price Elasticities

The price elasticities of demand for the central case were taken from the Scottish Lifeline Ferries Review: Stated Preference Research 2009 (MVA). These elasticities were derived from the outputs of stated preference surveys undertaken across a basket of 20 Scottish ferry routes. The scope for this current study did not allow for new stated preference research, and although the 2009 elasticities remain relevant to the current study, the following limitations should be borne in mind:

- price elasticities are intended for the modelling of marginal changes in price, however, as can be seen in the above figure, significant price changes are proposed under the new fares system on both the Aberdeen – Kirkwall – Lerwick and Stromness – Scrabster routes
- no consideration has been given to cross-price elasticity of demand. However, there is expected to be an element of substitution within (e.g. ferry routes) and between (e.g. ferry and air services) modes. For example, if Stromness-Scrabster fares are halved, whilst Kirkwall – Aberdeen fares only reduce by 30%, some demand may shift from Aberdeen to Scrabster and similarly if ferry travel costs decrease, some demand may transfer from air to ferry
- evidence from the roll-out of RET in the Clyde & Hebrides suggests that there is likely to be an element of behavioural change with current passengers. There is clear evidence from the CHFS network that, when RET was introduced, a

significant number of foot passengers started taking a car onto the ferry. The elasticities will not fully capture this effect

No tailored price elasticities or cross-price elasticities are available to address these uncertainties, and so instead high and low price elasticities were developed to provide an indication of the likely range of demand changes which may be seen. The central set of elasticities were derived from the Scottish Ferries Review as discussed, and the high/low elasticity sets relate to the central set +/- 50%. This is consistent with the identified requirement for sensitivity testing in the Risk & Uncertainty section of the STAG Technical Database.

Forecast Demand Uplifts

As noted above, three sets of price elasticities have been applied, meaning that low, central and high demand forecasts have been generated.

Table 3.1 over notes the resulting forecast annual passenger, car and cabin demand uplifts under the low, central and high price elasticities. This illustrates the range of responses which may occur.

This assessment focusses on the central forecast, but includes footnotes for context which indicate results under low and high demand scenarios.

Remainder of section redacted – analysis of commercially sensitive information

Vessel Load Factor Forecasts

This section considers the impact of these forecast demand uplifts on vessel utilisation or load factors. As per the analysis presented earlier, a load factor (i.e. vessel loading / vessel capacity) for passengers, cars & cabins has been derived for each 'sailing leg' (eg Aberdeen to Kirkwall and Kirkwall to Lerwick are two sailing legs) on a sailing by sailing basis across the year. On the North Sea routes, there were a total of 1,025 individual sailing legs in the 2014/15 (contract year) base year (referred to hereafter as 'sailings') and on Scrabster-Stromness there were 1,594 individual sailings.

- 0-50%: no capacity issues
- 50-75%: no capacity issue
- 75-90%: high utilisation
- 90-100%: vessel essentially full
- >100%: demand exceeds supply

Total Sailings by Load Factor

Using this definition, the table below show the base sailings and the same sailings under the RET fares (forecast) scenario.

Table 3.1: North Sea Routes – Sailings by Load Factor, All Sailings Across the Year

Table Redacted

So for example, [redacted]% of North Sea sailings in the Present Day Fares scenario sailed with a passenger load factor of [redacted]%.

The implementation of the RET fares scenario would have [*text redacted*] in terms of passenger capacity, with *[text redacted].*

On the vehicle deck, in the base case, [redacted]% of sailings [*text redacted*].

With cabins, under the RET scenario, [redacted]% of sailings [*text redacted*].

Table 3.2: Scrabster-Stromness Route – Sailings by Load Factor, All Sailings Across the Year

Table Redacted

Text redacted

Load Factors by Month

The following sections set out how these changes in vessel load factors are distributed across the year.

North Sea – Northbound Sailings

Graphic Redacted

Figure 3.2: North Sea – Northbound Sailings by Passenger Load Factor

It has been shown that the fares reductions will increase demand for travel across the year, [*text redacted*].

The forecasts set out above are broadly consistent with experience on the CHFS network. The fares reductions brought about by RET did stimulate passenger demand, but this was considerably less than induced vehicle demand. There are very few instances of passenger capacity constraints on the west coast even after RET was introduced.

Overall, passenger capacity is not expected to be a constraining factor in the northbound direction. It is likely that constraints on vehicle deck space and cabins will engage first, dissuading those passengers that see car deck / cabin availability as the key factor(s) in deciding whether to make a journey or otherwise.

Graphic Redacted

Figure 3.3: North Sea – Northbound Sailings by Vehicle Deck Load Factor

The impact of additional demand for car carryings is clearly seen. From April to August, the proportion of sailings at greater than [redacted]% load factor is over [redacted]% under the RET scenario. In July and August, where the fares reductions are greatest, [redacted]% and [redacted]% of sailings respectively [*text redacted*] in the RET case, compared to [redacted]% and [redacted]% in the base case.

Text redacted

Northbound car deck capacity will [*text redacted*] by the fact that the largest fares reductions will be in the peak summer months. Under the central scenario, there will be significant unmet demand in July and August, when [*text redacted*].

Under the RET fares scenario, the loadings calendar analysis shows that the vehicle deck will be [*text redacted*].

Demand and capacity are expected to be [*text redacted*].

Graphic Redacted

Figure 3.4: North Sea – Northbound Sailings by Cabins Load Factor

Text redacted

North Sea – Southbound Sailings

Graphic Redacted

Figure 3.5: North Sea – Southbound Sailings by Passenger Load Factor

Text redacted

[Text redacted]. Periods of high utilisation are focussed in July and August during the Scottish school holidays.

Graphic Redacted

Figure 3.6: North Sea – Southbound Sailings by Vehicle Deck Load Factor

Text redacted

Graphic Redacted

Figure 3.7: North Sea – Southbound Sailings by Cabins Load Factor

Text redacted

The position with respect to directional travel is summarised in the figure below. These tables show the average load factor per sailing for the summer period for the vehicle deck and cabins, under existing fares and RET fares.

Graphic Redacted

Figure 3.8: Average Summer Monthly Load factors, Current & RET Fares

The following points emerge from this analysis:

- the average load factor for both the vehicle deck and cabins increases by [redacted] percentage points with RET fares
- the average load factor is typically higher for cabins than the vehicle deck and this would appear to be the limiting factor
- with RET fares, [redacted] connections per week are forecast to see average demand of [redacted]% for cabins. [redacted] of the seven Kirkwall-Lerwick and Kirkwall-Aberdeen connections are forecast to see average load factors of [redacted]%
- the [redacted] & [redacted] southbound and [redacted] northbound direct sailings are forecast to see average load factors of [redacted]%
- it is notable that the indirect sailings will come under more pressure than the direct sailings – [redacted] of the eight sailing legs where both Orkney and Shetland passengers require cabins (i.e. Kirkwall-Lerwick and Kirkwall-Aberdeen) are forecast to have an average load factor demand of [redacted]%, and [redacted] of the nine sailing legs where load factor demand is [redacted]% occur on these legs

<u>Pentland Firth</u>

Graphic Redacted

Figure 3.9: Scrabster-Stromness –Sailings by Passenger Load Factor

Text redacted

Graphic Redacted

Figure 3.10: Scrabster-Stromness –Sailings by Vehicle Deck Load Factor

Text redacted

Text redacted

Vehicle deck utilisation is expected to exceed [redacted]% on [redacted] days per year, [redacted]% on [redacted] days per year and [redacted]% on [redacted] days per year.

However, on the Pentland Firth route where there are multiple sailings in each direction each day, the maximum loadings calendar only paints part of the picture, as high utilisation sailings may occur only once a day to be classed as such. Therefore,

it is equally important to consider average utilisation across the day. The loadings calendars indicate that [*text redacted*].

Text redacted

Text redacted

Summary

The analysis above has provided an estimate of the impact of the RET fares reduction as envisaged at present on all of the routes. A recurring theme is the seasonal nature of the impacts with the biggest reductions in fares coinciding with the busiest times of year, and this would have a key bearing on the nature of any supply side response.

This is summarised in the charts below which show the number and percentage of sailings forecast to have a demand exceeding 100% of capacity for both vehicle deck and cabin accommodation (combined directions). All three charts are shown on the same scale for comparative purposes.

Graphic Redacted

Figure 3.11: North Sea: Number & % of sailings at >100% Utilisation, Base and RET, Vehicle Deck

Graphic Redacted

Figure 3.12: North Sea: Number & % of sailings at >100% Utilisation, Base and RET, Cabins

The main impact on the vehicle deck and cabins is therefore seen between April and October. For cabins, there is a particular impact between June and August.

Graphic Redacted

Figure 3.13: Scrabster-Stromness: Number & % of sailings at >100% Utilisation, Base and RET, Vehicle Deck

On Scrabster-Stromness, the main impacts on the vehicle deck are between May and October, although as can be seen the scale of the problem is much less severe.

In all of the above cases, more detail of the pattern of individual days which are projected to be affected can be found in the Technical Appendix.

Summary of Findings

In CY3 (2014/15), under the existing fares structure:

- vehicle utilisation on the Lerwick–Kirkwall–Aberdeen (and reverse) services tends to demonstrate moderate year round utilisation, with significant peaks in the summer months. In July and August, the car deck load factor peaks at [redacted]% on [redacted]% of sailings. Although car based loadings range significantly across the year, freight carryings show much less variability meaning that the average monthly vehicle deck load factor does not drop below [redacted]%
- accommodation utilisation is peaky, with very high levels of utilisation experienced throughout the summer months. For sailings in July and August, the proportion of cabins sold peaks at [redacted]% on [redacted]% of sailings, i.e. [*text redacted*]. Note though that the level of bed rather than cabin occupancy is far lower than this. Between November and March, at least [redacted] of the sailing legs have [*text redacted*]
- the service as currently orientated appears to be broadly accommodating the overall level of current demand, albeit there is likely to be some unsatisfied demand on particular days, especially for short-notice travel
- whilst current capacity on the Lerwick–Kirkwall–Aberdeen route is largely sufficient, it is clear from the analysis that there is very limited scope for expansion, particularly in the summer months. This could impact both on resident travel and inbound tourism, which is important for Orkney and a defined growth area for Shetland. Moreover, if the objectives of both Councils to retain and increase their population are realised, there could be further pressure on the service
- overall, whilst capacity is broadly sufficient on the Lerwick–Kirkwall–Aberdeen RoPax routes at present, it should be acknowledged that it can be a problem at certain times of year and could be a longer-term constraint on the economic development of both groups of islands, but particularly Shetland which does not have an alternative ferry connection
- lack of capacity is not an issue on the Stromness – Scrabster route

In 2018/19, under the reduced RET fares structure:

- as a result of the proposed reductions in ferry fares, demand for passage, vehicle deck space and cabins will increase across all sailing-legs

  the greatest fare reductions, and consequently greatest demand increases are expected to be seen on the **Pentland Firth**.
- *Text redacted*
- **passenger** utilisation will typically remain below [redacted]% on **North Sea** routes; however, during the summer months, utilisation on Northbound and Southbound routes will generally increase to [redacted]% of capacity. Although there [redacted] days during the summer when Southbound passenger utilisation is [*text redacted*], it is anticipated that constraints on vehicle deck and cabin space will be encountered first, and that passenger demand will be dampened as a result, i.e. if passengers cannot book a vehicle or cabin, some will choose not to travel by ferry, and so passenger demand will be lower than forecast while these constraints remain

Text redacted

Uncertainties

There are a number of key uncertainties with respect to the above analysis.

Latent Demand

It has been shown that there are high levels of utilisation in the summer months, in particular with respect to cabin sales and the vehicle deck. It is therefore possible that there is a degree of latent demand which is not currently being met and is not known (in addition to that which is known), with people trying and failing to book due to lack of space on the vehicle deck or suitable cabin accommodation. This latent demand would not be accounted for within the elasticity based analysis. Any supply-side response would have to account for this capacity-related latent demand as well as the increase in demand prompted by reduced fares.

Elasticities

The elasticities developed as part of the Ferries Review have been used here. Whilst these were derived directly from a survey of passengers on NorthLink services, the exercise was not designed specifically for the purpose of this study. The true elasticities could therefore be significantly higher or lower, and this has been accounted for in sensitivity testing around these elasticities.

It is also noted that the public engagement exercise did suggest that people would travel far more often than suggested by the Ferries Review elasticity. Whilst this was not a detailed technical exercise, it does indicate the potential for lower fares to generate significant new demands for travel.

Car Carryings

Based on the observed response to RET on all CHFS routes, an assumption has been made here that the ratio of cars carried per passenger will increase with the introduction of RET. However, this impact did vary by route and, given the different characteristics of the North Sea routes to the CHFS routes, the nature and quantum of this response may differ.

Pentland Ferries

The relationship between RET on Scrabster-Stromness and Pentland Ferries has still to be confirmed. Pentland Ferries has recently commissioned a new, larger vessel which will, once in service, increase capacity on this route. In addition, there is currently a price differential between the two routes in favour of Pentland Ferries and any action on fares which affects this price differential may impact on market share.

The forecasts developed here should be seen in the context of these uncertainties. [*text redacted*]. The next chapter considers the potential supply side responses developed in the Part 1 Report with a view to how these options can be implemented and their potential for adding capacity to the routes.

4. Potential Supply-Side Responses

Overview

The previous chapter set out the potential vehicle deck and cabin capacity implications of the proposed scale of fares reductions. It is evident that in a 'Do Minimum' situation (i.e. continuing with the current timetable), significant challenges in relation to capacity are likely to emerge.

This chapter appraises the potential supply-side responses which could be adopted in the event that the forecast demand materialises. Given that it is assumed that the NIFS fleet is fixed in the short-term, any immediate response is going to be in terms of a change in timetable. The following table shows the timetable options which were retained at the end of the STAG Part 1 stage.

Table 4.1: Timetable Options Emerging from Part 1 Appraisal

Option	Description
Tt1	Do Minimum – continue with the current timetable
Tt2	Offer a Friday north and Sunday south call at Kirkwall
Tt3c	Variations in the number of Kirkwall calls across the week.
Tt4	All sailings depart Aberdeen & Lerwick at 1900
Tt7	Operate a daily return sailing from Lerwick – Kirkwall
Tt9	Operate additional daytime sailings between Aberdeen-Kirkwall-Lerwick
Tt10	Operate additional daytime sailings between Aberdeen-Kirkwall-Aberdeen
Tt11	Operate three return sailings per day on Stromness – Scrabster all year round
Tt12	Operate three return sailings per day on Stromness – Scrabster for the full summer season, or another defined time period
Tt16	Agree a staggered timetable with Pentland Ferries offering 5-7 return crossing across the Pentland Firth per day

There may, in the medium-term, be an opportunity to purchase or charter additional tonnage to support e.g. day sailings, in advance of the longer-term turnover of the fleet. This chapter explores these issues in more detail.

Scope of Appraisal

At the STAG Part 1 stage, the timetable options set out in the table above were subject to a qualitative appraisal in terms of their contribution to the Transport Planning Objectives (TPOs) and the STAG criteria, whilst a very high level assessment of their deliverability was also undertaken. The focus in this subsequent

piece of work is largely on providing a much more detailed review of deliverability, which is the key issue at this stage. Public acceptability, cost to government and potential implications for capacity are also revisited.

The first step is therefore profiling current operations, with a view to establish the operating envelope in which the NIFS services are delivered.

Current Operations

North Sea Routes

The sections below set out the current operations of the Aberdeen – Kirkwall – Lerwick route, with a view to providing a degree of context for the subsequent consideration of options.

Timetable

For reference, the current NorthLink timetable is reproduced below.

Aberdeen – Kirkwall – Lerwick (Northbound)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Dep Aberdeen	1900	1700[1]	1900	1700	1900	1700	1700
Arr Kirkwall	-	2300[2]	-	2300	-[3]	2300	2300
Dep Kirkwall	-	2345	-	2345	-	2345	2345
Arr Lerwick	0730	0730	0730	0730	0730	0730	0730

[1] DEPARTURE ABERDEEN 1900 FROM 2 JAN – 28 MAR AND 1 NOV – 30 DEC
[2] NO KIRKWALL CALL FROM 2 JAN – 28 MAR AND 1 NOV – 30 DEC

Lerwick – Kirkwall – Aberdeen (Southbound)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Dep Lerwick	1730[1]	1900	1730	1900	1730	1900	1900
Arr Kirkwall	2300[2]	-	2300	-	2300	-	-[3]
Dep Kirkwall	2345	-	2345	-	2345	-	-
Arr Aberdeen	0700	0700	0700	0700	0700	0700	0700

[1] DEPARTURE LERWICK 1900 FROM 2 JAN – 27 MAR & 1 NOV – 30 DEC
[2] NO KIRKWALL CALL FROM 2 JAN – 27 MAR & 1 NOV – 30 DEC

Scrabster to Stromness Off Peak Timetable (dates marked in **light blue**)

DEPARTURE TIMES Sailing time: 90 minutes		
Stromness to Scrabster	0630	1645
Scrabster to Stromness	0845	1900

Scrabster to Stromness Peak Timetable (dates marked in **pink**)

DEPARTURE TIMES Sailing time: 90 minutes			
Stromness to Scrabster	0630	1100	1645
Scrabster to Stromness	0845	1315	1900

Scrabster to Stromness Weekend Timetable (dates marked in **dark blue**)

DEPARTURE TIMES Sailing time: 90 minutes		
Stromness to Scrabster	0900	1645
Scrabster to Stromness	1200	1900

Figure 4.1: Current NorthLink Timetable

Crewing

The MV Hjaltland and MV Hrossey operate a single sailing in each 24-hour period in alternate directions, either Aberdeen – Lerwick direct or Aberdeen – Kirkwall – Lerwick (or vice versa).

Each vessel operates on the basis of a single crew at any given time. Whilst the vessels are single-crewed, the required operating hours of a single sailing are in excess of what can be delivered if all of the crew were to be on-deck at the same time (the current crew work an 11-hour roster over a period of 24 hours). There is therefore a degree of crew rotation within the operating day. As a consequence, the current crew resource is fully deployed and **therefore additional sailings could not be undertaken without additional crew.**

There are two broad options for accommodating additional crew on the Aberdeen – Kirkwall – Lerwick route, as follows:

- vessel-based crew, whereby crew members rotate throughout the operating day, sleeping in their cabins whilst off-duty
- deployment of a day-crew, which would operate day sailings. The current crew would sleep in their cabins during the operation of day sailings

There are significant logistical and crew management challenges associated with both options. In terms of vessel-based crew, there are 37 crew cabins onboard each vessel and, on the basis of summer crewing, all crew cabins are utilised (this includes a number of cabins occupied on a shared basis). The additional crew could therefore clearly not be housed within the currently allocated crew accommodation – passenger cabins would need to be allocated to crew and given the loss of cabins for passenger use, this may not be publicly acceptable.

The deployment of a day-crew is also highly challenging given that each vessel berths at a different port each evening. It would not therefore be possible to recruit a local day crew (who could return home every day) and overnight accommodation would need to be provided in both Lerwick and Aberdeen, which may be impractical. This would add a considerable additional cost to operation overall.

Vessel Turnaround

The current operation provides customers with a relatively relaxed schedule prior to departure and after arrival. Passengers can board the vessel around two hours before departure and can remain onboard until 09:30 on the morning of arrival. The operation of any additional sailings would, in all likelihood, remove this flexibility and offer a shorter check-in / disembarkation procedure.

Once the ferry berths in Aberdeen or Lerwick in the morning, there are a range of tasks involved in turning her round for her next departure, as follows:

- *section redacted*

If additional sailings were to be undertaken, it is likely that:

- the turnaround time would need to be significantly reduced, which would mean compressing the time for the above activities significantly. It is questionable as to whether this can be achieved as activities like e.g. bunkering have relatively fixed times associated with them

Maintenance

The MV *Hjaltland* and MV *Hrossey* have a programmed maintenance plan, which requires around [*text redacted*]. This maintenance is delivered by a combination of the crew and a range of shore-based specialist contractors. Other routine maintenance is carried out by the crew and local contractors during the day so as to avoid the closure of public areas when there are passengers on the vessel.

There is also a [redacted] block once per week for safety drills and training once the passengers have disembarked.

Operating Costs

The distances associated with the Aberdeen – Kirkwall – Lerwick route, both as a whole and in terms of its constituent parts are such that:

- any *additional services* will require additional crew. This would come at a significant cost and there would also be a number of highly challenging, if not insurmountable, logistical and practical issues which would need to be overcome. These are discussed further in the sections which follow
- *amendments to existing services* (e.g. changes to the number of Kirkwall calls, amended departure times etc) will not have a significant impact on crewing. However, there may be a change in implied steaming speeds associated with different timetable options. This is a key operating cost issue as the fuel consumption [*text redacted*]. For example, at [redacted] knots, the MV *Hjaltland* and MV *Hrossey* consume around [redacted] litres of fuel per hour, which increases to [redacted] litres of fuel per hour at [redacted] knots

Pentland Firth

The current Stromness – Scrabster timetable can be expanded to accommodate the three return sailings per day schedule set out in options Tt11 and Tt12. By expanding the current peak period timetable, this would broadly represent a return to the pre-2012 position and is thus deliverable within the current operating envelope.

The following sections consider each of the options noted in Table 4.1 in turn considering Deliverability, Public Acceptability, Implications for Capacity & Cost to Government. Note that costs to government cannot be quantified at this stage given the data available and the complexities of these options. Instead a quantitative commentary on costs is provided together with a focus on deliverability. A detailed

costing exercise could then be undertaken in collaboration with the operator for any options which are deemed deliverable and desirable.

Option Tt1: Continue with the current timetable on all routes (Do Minimum)

This option would involve the continuation of the current timetable. For the avoidance of doubt, the Stromness–Scrabster timetable would be as currently operated under this option with two return sailings per day during the off peak period.

By way of context the table below shows the timetabled travel time with the existing vessels and the implied average speed for each component leg of the network. Note that these speeds account for harbour manoeuvres so the actual vessel cruising speeds in open waters will be higher than these values, typically by around 2 knots.

Table 4.2: Current Travel Times and Speeds

Route	Distance (NM)*	Timetabled Time	Implied Average Speed (knots)
Scrabster-Stromness (both ways)	25	1:30	17
Aberdeen-Kirkwall	131	6:00	22
Kirkwall-Aberdeen	131	7:15	18
Lerwick-Aberdeen	188	12:00	16
Aberdeen-Lerwick	188	12:30	15
Lerwick-Kirkwall	98	5:30	18
Kirkwall-Lerwick	98	7:45	13

* Source – Marine Traffic Voyage Planner

The main Aberdeen-Lerwick direct services therefore run at 15-16 knots overall. The impact of the Kirkwall call can be seen in that the Aberdeen-Kirkwall leg runs at 22 knots to get to Kirkwall for 23:00. On departure from Kirkwall, the vessel slows to 13 knots for arrival in Lerwick at 07:00. On both legs southbound when there is a Kirkwall call, the vessel averages around 18 knots.

Whilst the maximum speed of the vessels is around 24 knots, the ability to maintain this speed will depend on a number of variables, including weather (passenger comfort), tides, following seas etc. Speed and therefore crossing time is dependent on these variables.

Implications for Capacity

The previous chapter established in some detail the anticipated capacity challenges which will emerge in the Do Minimum scenario.

Option Tt2: Offer a Friday north and Sunday south call at Kirkwall

This option has been developed in response to feedback from the tourism industry in Orkney that the lack of a Friday evening northbound and Sunday evening southbound service to / from Kirkwall is constraining the industry in terms of weekend breaks, particularly for those using public transport.

At present the Kirkwall calls operate as follows:

- Northbound: Tuesday (summer only), Thursday, Saturday, Sunday
- Southbound: Monday (summer only), Wednesday, Friday

The scheduled arrival and departure times at Kirkwall (23:00 and 23:45) is the same whether travelling north or south. Therefore, on the current timetable, it is not possible to have both a north and southbound Kirkwall call on the same night, as there is only one ferry berth / linkspan at Hatston.

In order to accommodate a 'double call', a number of sub-options were developed at the STAG Part 1 stage. These are recapped below, with a discussion of deliverability and public acceptability as well as a qualitative assessment of cost to government included under each option. Note that these illustrative timetable options are premised on the retention of the current 45-minute turnaround time at Kirkwall and a 15-minute gap between one vessel departing the berth and the other berthing. These assumptions should be revisited in detail should this option be taken forward.

Note that in all these cases, as well as providing the opportunity for a weekend in Orkney from Aberdeen, there would be additional connectivity between Orkney and Shetland. At present it is possible to spend a weekend in Orkney from Shetland. This option would also make it possible to spend a weekend in Shetland from Orkney, opening up new sporting and cultural opportunities.

<u>Sub-Option 1</u>

The southbound service would have to precede the northbound 23:00 call at Kirkwall, arriving at 22:00, departing 22:45 (allowing the 23:00 arrival of the northbound service), meaning:

- leaving Lerwick one hour earlier at 16:30, or leaving Lerwick at the same time (17:30) and steaming at circa 22 knots (equivalent to the Aberdeen to Kirkwall northbound leg) then
- reducing steaming speed between Kirkwall and Aberdeen to arrive in Aberdeen at 07:00

In terms of deliverability, there are no issues with departing Lerwick at 16:30. The 17:30 departure could be maintained but there is an increased likelihood of punctuality issues emerging as a higher speed (22 knots as opposed to 18 knots) would need to be maintained for this leg of the journey. In the event that the vessel had to slow down in inclement weather or due to unfavourable sea conditions, a late arrival into Kirkwall would be likely (although the subsequent 07:00 arrival into

Aberdeen would in all likelihood be maintained given the more relaxed schedule on departure from Kirkwall. Compliance with Hours of Work and Rest would also be required.

The late arrival into Kirkwall of the southbound service would have a knock-on impact on the northbound service. Whilst the 07:30 arrival into Lerwick would likely be maintained, the northbound departure from Kirkwall could well be after midnight.

In terms of **public acceptability**:

- the inclusion of additional Kirkwall calls would, overall, be negatively perceived in Shetland, as it extends the overall journey time and requires a sharing of car deck and cabin capacity
- this variant would however be particularly unpopular in Shetland as it could bring forward the departure from 17:30, which is already considered too early, to 16:30. That said, Sunday is likely to be the least controversial day on which to adopt this additional call given the lower volume of freight being moved and given that most passengers would not need to leave their work early to catch the ferry
- the addition of a Sunday southbound call would be publicly acceptable and indeed popular in Orkney

<u>Sub-Option 2</u>

The southbound service would have to follow the 23:00 northbound call at Kirkwall arriving at 00:00, departing 00:45, meaning:

- leaving Lerwick one hour later at 18:30 and
- steaming at circa 21 knots on departure from Kirkwall to arrive in Aberdeen at 07:00
- this would have the effect of reducing the journey time between Lerwick and Kirkwall on the nights when there is a Kirkwall call by one hour

This option is **deliverable.** The increase in the implied speed of the vessel from 18 knots to 21 knots on the southbound Kirkwall – Aberdeen service presents a degree of risk in terms of being able to maintain that speed in inclement weather and / or unfavourable sea conditions. However, the vessel would be travelling one knot slower than on the current Aberdeen – Kirkwall northbound service so this does appear to be a practical option.

In terms of **public acceptability**:

- whilst there would be overall resistance to an additional Kirkwall call being added in Shetland, this option would be less contentious than sub-option 1 as the vessel would leave much closer to the preferred 17:00 departure time from Shetland
- whilst the addition of a Sunday evening Kirkwall call would be popular in Orkney, the 00:45 departure time would make this call less attractive to potential users

Sub-Option 3

The **northbound** service would have to ***precede*** the 23:00 southbound call, arriving at Kirkwall at 22:00, departing 22:45 (allowing the 23:00 arrival of the southbound service), meaning:

- leaving Aberdeen one hour earlier at 16:00 as it is not possible to reduce the northbound steaming time from the current six hours; and
- reducing even further the slow steaming speed from Kirkwall to Lerwick

This option is **deliverable** but would involve extending the operating day by one hour. However, from a **public acceptability** perspective, this option would be unpopular in Shetland, where the 17:00 departure from Aberdeen on nights where there is already a Kirkwall call is already considered to be too early.

The public acceptability of this option in an Orkney context is relatively mixed. From a resident perspective, there would be a clear benefit associated with an extra stop in Kirkwall, but the 16:00 departure time is likely to give rise to the same issues experienced by Shetlanders. The tourism industry is however likely both to welcome the additional call and the earlier arrival into Kirkwall (the current 23:00 arrival being identified as a 'problem' in the Pre-Appraisal Report).

Sub-Option 4

The **northbound** service would have to ***follow*** the 23:00 southbound call, arriving at Kirkwall at 00:00, departing 00:45, meaning:

- leaving Aberdeen at the current time of 17:00 and reducing steaming speed or leaving Aberdeen one hour later than at present at 18:00 and maintaining the current high steaming speed; and
- increasing the very low speed run from Kirkwall to Lerwick slightly to maintain the 07:30 arrival time in Lerwick
- this could have the effect of reducing the journey time between Aberdeen and Lerwick on the nights when there is a Kirkwall call by one hour.

This option is deliverable. From a public acceptability perspective, this option would be less negative than Option 3 from a Shetland perspective given the later departure time, but the additional Kirkwall call would not be welcomed overall. Conversely, this option would be widely welcomed in Orkney but would be less conducive to tourist traffic given the later arrival into Kirkwall.

Cost to Government

The change in the **cost to government** across all four sub-options would be determined by the additional fuel associated with the higher steaming speeds to accommodate the additional Kirkwall calls, and potentially some crewing increment (such as an additional second mate). This is set out in the table below:

Table 4.3: Implied Steaming Speeds

	Sub-Option 1	Sub-Option 2	Sub-Option 3	Sub-Option 4
	Sunday Southbound		Friday Northbound	
Average Speed	18	20	15	18
Maximum Speed	22 (Le-Ki)	21 (Ki-Ab)	22 (Ab-Ki)	22 (Ab-Ki)
Le-Ab Average Speed	16			
Ab-Le Average Speed			15	

The average steaming speeds associated with the southbound options would represent a two (Sub-Option 1) to four (Sub-Option 2) knot increase in the speed of the direct Lerwick – Aberdeen service. Option 2, the midnight arrival into Kirkwall, would be the more expensive of the two options due to the higher average speed overall and the need to run the longer Kirkwall – Aberdeen leg at 21 knots.

In the northbound direction, it is assumed that the 22 knot steaming speed from Aberdeen – Kirkwall is maintained (although a variant in Option 4 would be to maintain the current Aberdeen departure time and slow the vessel down on the Kirkwall leg). In this scenario, Option 3 would have an overall lower cost to government due to the implied 11 knot speed operated between Kirkwall – Lerwick (compared to 15 knots under Option 4). Whilst Option 3 would maintain the same overall average speed as the direct Aberdeen – Lerwick service, it would still represent an overall increase in the cost to government due to the high speed run between Aberdeen and Kirkwall.

Additional calls at Kirkwall would also see shore staff costs increase.

Implications for Capacity

This option would clearly increase capacity between Aberdeen and Kirkwall (and Kirkwall and Lerwick) as two additional calls would be included per week (one northbound and one southbound). It would therefore have the effect of reducing capacity between Aberdeen and Shetland on these trips. In particular, the Sunday southbound call would put further pressure on cabin capacity on the Kirkwall – Aberdeen leg.

Summary

The addition of a Friday north and Sunday south call at Kirkwall is deliverable and the cost to government would be relatively low in comparison to options that involve additional sailings. The key trade-off which has to be considered here is the benefit to Orkney in terms of the additional call (which works well for the tourism trade) set against the disbenefit to Shetland in terms of the longer journey times, earlier

departure time and the reduction in 'dedicated' vehicle deck and cabin capacity. Accordingly, this option may be best suited to run on a seasonal basis (summer only) to facilitate weekend trips to Orkney.

In the event that this option is implemented, Sub-Option 1 (Sunday southbound) would be the likely solution as:

- it allows for the current departure time of weekday Lerwick – Kirkwall – Aberdeen services to be maintained
- the 22:00 arrival into Kirkwall would be of greater benefit for Orcadian passengers
- the overall cost to government is likely to be lower

The choice of Friday northbound option would be somewhat more balanced. Sub-Option 3, the 22:00 arrival into Kirkwall, would have a lower cost to government and would also offer a more suitable arrival time for people travelling to Orkney (particularly tourists). However, the need to bring forward the current 19:00 departure to Lerwick to 16:00 would be deeply unpopular in Shetland and potentially detrimental to island businesses. Whilst the addition of Kirkwall calls overall is likely to be unpopular in Shetland, Sub-Option 4 would at least mean that the departure time on the Friday northbound is only brought forward by one hour.

It is also worth noting that, in keeping with the STAG philosophy that all options should be considered, the Pre-Appraisal & Part 1 Report identified the provision of a second linkspan at Hatston as a means by which both vessels could berth in Kirkwall at the same time. However, given that the vessels would only meet at Hatston in the context of this option and that there are operational workarounds, the significant investment required to provide a second linkspan and expanded marshalling area would represent very poor value for money and are thus not considered further here.

Option Tt3: Variations in Kirkwall Calls

The Pre-Appraisal and Part 1 Report identified the potential of varying the number of Kirkwall calls on the Aberdeen – Kirkwall – Lerwick route over the course of the week. For the purposes of the qualitative appraisal undertaken, two 'polar' positions were considered:

- Option Tt3a: All services between Lerwick and the Scottish mainland call at Kirkwall
- Option Tt3b: All services between Lerwick and the Scottish mainland are direct (i.e. no Kirkwall call)

Whilst these two positions were rejected, option Tt3c (reduced calls at Kirkwall) is considered further here in the wider context of varying the number of calls at Kirkwall.

There are clearly several intermediate positions in-between these two extremes, the current arrangements being one such example. In the event that the current equilibrium is altered, the issues associated with accommodating southbound and

northbound Kirkwall calls on the same evening set out in Tt2 would be relevant here (in the interests of brevity, that analysis is not repeated here).

Implications for Capacity

As per Option Tt2, any additional Kirkwall calls would provide additional capacity on the Aberdeen-Kirkwall and Kirkwall-Lerwick legs. This would be to the detriment of capacity between Shetland and Aberdeen.

Balance of Services

In order to contextualise the above capacity analysis, it is beneficial to consider the relative balance of services from the Orkney and Shetland Islands to the Scottish mainland. Whilst demand for the services is not the sole consideration underpinning the current timetable, it is a critical component overall.

From a ferry travel perspective, Shetland residents only have access to the one ferry route, with the only variation being whether there is a Kirkwall call or otherwise. Orcadians have three main choices:

- NorthLink: Kirkwall – Aberdeen
- NorthLink: Stromness – Scrabster
- Pentland Ferries – St Margaret's Hope – Gills Bay

For context, the figure below shows travel by these routes by passengers and cars for 2015.

Graphic Redacted

Figure 4.2: Northern Isles Ferry Routes, passengers & cars, 2015

Text redacted

The reasons for the dominance of the Pentland Firth are likely to include:

- the much higher frequency (5-7 return sailings per day between NorthLink and Pentland Ferries, compared to 2-3 Kirkwall – Aberdeen calls per week)
- the shorter journey time (and potentially more sociable hours of travel)
- lower absolute fares (particularly given the need for a cabin on southbound services, which are overnight)

The **Shetland** market is, unsurprisingly, dominant in terms of passenger and car movements in the North Sea routes. Lerwick – Aberdeen movements account for around [redacted]% of all passenger and car movements on the route, with the equivalent figure for Kirkwall – Aberdeen being around [redacted]% for both passengers and cars, the remaining [redacted]% being between Lerwick and Kirkwall.

The equivalent figure for commercial vehicle lane metres is shown below:

Graphic Redacted

Figure 4.3: North Sea Ferry Routes, CVs by direction, 2014

CV lane metres are heavily concentrated on the direct Lerwick – Aberdeen route, [redacted]% of the overall total. A further [redacted]% of CV LMs travel from Lerwick – Aberdeen via Kirkwall. The Kirkwall – Aberdeen route accounts for [redacted]% of overall CV LMs. The proportion of indirect carryings in the northbound direction is far greater in absolute and proportional terms than in the southbound direction. This is likely because the freight being moved is likely to be less time critical.

There are two important points to note in interpreting the above data:

- a significant proportion of the CV LMs will travel on the freight vessels and thus a variation in the number of Kirkwall calls will only affect a subset of commercial vehicle movements. That said, the Shetland aquaculture industry is highly dependent on securing slots on the Ro-Pax vessels (there are 18 reserved slots per day[7]) and thus additional Kirkwall calls would be disadvantageous to them due to the required earlier departure time from Lerwick and thus the shorter production day
- freight movements on the Kirkwall – Aberdeen route have a peak livestock season (September and October), with around a third of lane metres carried being during this concentrated period and typically conveyed on the freighters

Summary

On the balance of the above analysis, given the dominance of the Pentland Firth route, it would be difficult to argue on the basis of carryings alone that there should be additional Kirkwall calls in either direction, although other factors (such as enhanced connectivity for tourism, as per Option Tt2) could support the case for additional calls. It nonetheless has to be acknowledged that the Lerwick – Aberdeen connection is likely to face increased vehicle deck (and by extension cabin) capacity issues as a result of the reduction in fares and further Kirkwall calls would add to this. Reconciling this challenge with additional Kirkwall calls would be problematic.

Whilst absolute numbers are relatively low on the Kirkwall – Aberdeen route (particularly in comparison to the Pentland Firth routes), the service is an important connection for the Orkney Islands in terms of e.g. access to hospital appointments, students travelling to university etc. Whilst the existing traffic could be accommodated on the Pentland Firth routes without difficulty, the socio-economic implications of any reduction in the number of Kirkwall calls would have to be carefully assessed.

Option Tt4: All Current Sailings Depart Aberdeen & Lerwick at 19:00

[7] On days when there is no freighter sailing. Note that there will likely be a relationship between RoPax vehicle deck utilisation and the presence or otherwise of a 'parallel' freighter sailing on that overnight period. This has not been analysed at this stage – analysis of this would be beneficial in any subsequent detailed timetable planning in response to RET,

The Kirkwall call currently requires an earlier departure time from Aberdeen and Lerwick, and this is particularly unwelcome in Shetland. This option would involve all sailings departing Aberdeen and Lerwick at 19:00 irrespective of whether there is a Kirkwall call or otherwise.

Whilst a 19:00 departure in both directions would be well-received by the Shetland community, this would particularly be welcomed by the aquaculture industry as it would allow for an extended production day.

A sample timetable was developed in the Pre-Appraisal & Part 1 Report and is reproduced below to show the implications of this measure for the arrival / departures at Kirkwall.

Table 4.4: Sample Timetable, 19:00 departures from Lerwick and Aberdeen

	17.5 knots	20 knots	22.5 knots
Dep Lerwick	19:00	19:00	19:00
Arr Kirkwall	00:30	00:00	23:30
Dep Kirkwall	01:15	00:45	00:15
Arr Aberdeen	08:45	07:15	06:15
Dep Aberdeen	19:00	19:00	19:00
Arr Kirkwall	02:30	01:30	01:00
Dep Kirkwall	03:15	02:15	01:45
Arr Lerwick	08:45	07:15	06:15

Southbound

Deliverability

Southbound from Lerwick the vessel currently operates at 18 knots with a travel time of 5 hours 30 minutes again arriving at Kirkwall at 23:00. As is illustrated in the figure above, a higher average speed would have to be maintained than at present if the desired / required 07:00 arrival into Aberdeen is to be achieved. The average required speed to deliver this arrival time would be just over 20 knots, but this would lead to a midnight arrival in Kirkwall.

By running at 22-23 knots, this journey time could conceivably reduce to 4 hours 30 minutes, implying a Kirkwall arrival of around 23:30 for a 19:00 Lerwick departure. A speed of around 22 knots would need to be maintained from Kirkwall to ensure arrival into Aberdeen by 07:00. However, the seas and weather conditions between Lerwick and Kirkwall may not be conducive to reliably sailing comfortably at these speeds and thus meeting this timetable, particularly during the winter months.

Public Acceptability

In terms of public acceptability, this option would be welcomed in Shetland, particularly where the 07:00 arrival into Aberdeen is maintained. It would be less acceptable in Orkney where the Kirkwall call will be at least 30 minutes later than at present, although this is a relatively minor differential overall. Public acceptability may be compromised to some extent if there are frequent timetable slippages due to the vessels not being able to maintain the required speed.

Implications for Capacity

There would be no apparent implications for capacity associated with this option.

Cost to Government

There would be no additional crew costs associated with this option – indeed the operating hours at sea across the week would be very marginally reduced. There would be an increase in fuel costs associated with running the vessels at an average of 22-22.5 knots as opposed to an average of 18 knots. This would potentially represent a near doubling of hourly fuel costs.

Summary

Whilst there are disadvantages and an increased cost to government associated with this option, it should nonetheless be considered for implementation on the basis that it offers the desired 19:00 departure from Shetland whilst nonetheless maintaining the number of Kirkwall calls.

An alternative would be to still bring the departure time forward but by less time than at present, eg leave Lerwick at say 18:15, rather than 17:30, thus reducing the additional fuel costs as steaming speeds would be reduced.

Northbound

Deliverability

On evenings where there is a Kirkwall call, the vessel already operates at near full speed northbound from Aberdeen to arrive in Kirkwall at 23:00. There is little scope to further increase the speed of the vessel on this leg, but by steaming consistently at 20 knots or above, the desired 07:30 arrival time in Lerwick could be delivered. However, the implication is that, with a 19:00 departure from Aberdeen, the vessel would not arrive into Kirkwall until around 01:00 or later, with a potentially low level of punctuality in poor weather.

Public Acceptability

This option is likely to be broadly acceptable in Shetland given that it allows a later departure from Aberdeen on nights where there is a Kirkwall call without compromising the 07:30 arrival in Lerwick. However, public acceptability may decline

if reliability / punctuality issues begin to emerge as a result of the vessel being unable to maintain a high speed in inclement weather. In addition, the 'middle of the night' Kirkwall call could be disruptive to sleeping passengers as vehicles are marshalled on and off of the vessel.

This option is likely to be highly unpopular amongst the Orkney community. The arrival of the northbound ferry at 01:00 at the earliest may require extensions to the working days of e.g. taxi drivers, the Hatston shuttle bus drivers, NorthLink shore staff etc. In addition, for those operating hotels, B&Bs etc, they would be checking in guests later than at present (which may disrupt other guests).

On the positive side from the Orkney perspective, the later departure from Aberdeen would allow Orcadians carrying out a day visit to the mainland to benefit from an extended visit, which would be of particular value to those travelling beyond Aberdeen.

Implications for Capacity

There would be no apparent implications for capacity associated with this option.

Cost to Government

This option would result in an increased cost to government. Of particular note would be the required higher steaming speed between Kirkwall and Lerwick (around 18-20 knots depending on the speed at which the Aberdeen – Kirkwall leg is operated). This would compare with the relatively leisurely 13 knot speed maintained at present.

It is also likely that there would be an additional cost to government associated with:

- NorthLink and / or Orkney Islands Council Marine Services shore staff having to work longer hours to accommodate the later arrival of the vessel
- Orkney Islands Council Transport Department potentially having to run the Hatston shuttle bus later in the evening

Summary

Whilst there would be an additional cost to government associated with this option, it should be retained for further consideration, albeit the case looks much weaker than for implementing the equivalent initiative in the southbound direction. Outwith the additional cost, the key trade-off is between the benefits of a later Aberdeen departure to Shetlanders (and Orcadians to some extent) against the negative implications for the Orkney tourism industry in particular. Again, an alternative would be to still bring the departure time forward but by less time than at present, eg leave Aberdeen at say 18:00, rather than 17:00.

Option Tt7: Additional day return sailing between Lerwick–Kirkwall–Lerwick

This option would involve the operation of an additional Lerwick – Kirkwall – Lerwick day sailing. As well as linking the two island groups, the provision of a day return

sailing between Lerwick and Kirkwall would provide an opportunity for Shetland residents and freight to 'land-bridge' through Orkney to the Scottish mainland via the Pentland Firth. By providing a daytime link to the mainland (albeit via Orkney), this would also allow travel to and from Shetland without the need for overnight accommodation on the vessel. This new daytime connection could also be important in 'opening up' Shetland to a wider range of tourists who may be visiting Orkney. The overnight connection would be maintained.

The Pre-Appraisal and Part 1 Report **retained this option on days when the following overnight service runs direct to Aberdeen only.** The option of running a day sailing to Kirkwall on days when there is a southbound Kirkwall call in the evening was ruled out on deliverability grounds.

A sample timetable is shown below, based on a range of speeds, working back from an 07:00 arrival time in Aberdeen the following morning. Note that there would be scope to run the vessel at different speeds for different legs. It is assumed that the vessel would continue to arrive in Lerwick at 07:30 in the morning preceding the Kirkwall daytime run. If the implied required departure time for the Lerwick-Kirkwall run is before the vessel arrives and can be turned around in Lerwick from the previous night's overnight sailing, then this option is clearly not possible.

Table 4.5: Sample Timetable, Lerwick-Kirkwall-Lerwick (Aberdeen direct)

	17.5 knots	20 knots	22.5 knots
Arr Lerwick	07:30	07:30	07:30
Dep Lerwick	06:45	09:15	11:15
Arr Kirkwall	12:15	14:15	15:45
Dep Kirkwall	13:00	15:00	16:30
Arr Lerwick	18:30	20:00	21:00
Dep Lerwick	20:00	21:30	22:30
Arr Aberdeen (direct)	07:00	07:00	07:00
Possible?	No	Yes	Yes

Deliverability

Working back from an 0700 arrival in Aberdeen, and in pure steaming time terms, the vessel could achieve the Lerwick-Kirkwall-Lerwick run if operating at 20 knots or more. For example, at 20 knots, a 09:15 departure from Lerwick to Kirkwall would see the vessel return to Lerwick at 2000, then departing directly at 2130 for arrival in Aberdeen at 0700.

Potential landbridge connections could include:

- in the 20 knot scenario, southbound traffic could arrive in Kirkwall at 1415 and catch the 1645 from Stromness, and northbound traffic could use the 0845 from Scrabster to connect with the 1500 departure from Kirkwall and
- in the 22.5 knot scenario, northbound traffic could also catch the 1315 from Scrabster (summer only) to connect with the 1630 departure from Kirkwall arriving in Lerwick at 2100

Whilst the day sailing could be delivered in terms of vessel speeds, there would be wider logistical challenges associated with operating the Lerwick – Kirkwall – Lerwick day service. These include:

- additional day crews would be required (plus cover for leave, sickness etc) on a two-week on two-week off basis. Given that the vessel would be operating from Lerwick, the crew would need to be Shetland-based whilst on duty, either local residents or crew from further afield with paid living accommodation (or an allowance to cover this) on the island. There may be a challenge in attracting crew from the relatively limited local labour market (particularly deck crew) and potentially displacement from local ferry services. Furthermore, the additional crew would only be required four days in seven (given that the service would only operate on days when there is no Kirkwall call on the following overnight service) meaning that a full-time crew would be underutilised
- in the 20 knot scenario, passengers arriving on the overnight sailing would need to disembark earlier and there would be insufficient time for the current cleaning and preparation by shore-based contractors. In the 22.5 knot scenario, the current passenger disembarkation time could be maintained but shore-based contractors would have only a very limited amount of time to carry out their work (less than half of the time currently allocated), which is likely to be impractical
- bunkers are delivered six days out of seven and take 75 minutes after the discharge of vehicles. Current bunkering arrangements could not be delivered in the 20 knot scenario. It may be possible in the 22.5 knot scenario but there would be very little contingency available
- it is likely that the current maintenance requirements could be delivered as the day sailing would be operated by each vessel on a maximum of four occasions in any fortnight period (3 rotations in week one, and 1 rotation in week 2)

In the event that the above challenges could be overcome, it is likely that the vessel operating the service would need to steam at 22.5 knots in both directions on the day sailing and southbound on the overnight sailing. This speed would be difficult to maintain in inclement weather conditions, which could impact on punctuality. As the 07:00 arrival in Aberdeen is effectively at the end of chain, it would be the most effected. This is an important point as the 07:00 arrival is considered to be critically important in Shetland.

Public Acceptability

This option could be summer only or year round. The degree of public support for this proposal was higher in Shetland (around 30%) than in Orkney (around 10%) which reflects the additional benefits for Shetland residents compared to Orkney residents. However, if the required running speed of 22.5 knots cannot be maintained and reliability declines, the public acceptability of this option from a Shetland perspective may decline.

Implications for Capacity

This option would add significant capacity for those travelling between Orkney and Shetland and would likely lead to some displacement of passengers from the overnight service, freeing up the vehicle deck and cabins (northbound only). There would also likely be some switch of mainland traffic to / from Shetland to the Pentland Firth via Orkney, again freeing up vehicle deck and cabins on the overnight service. Further market research would be required to determine the potential scale of these transfers.

Cost to Government

The cost to government of this option would be significant. There would be a requirement for additional crew (plus sickness, leave cover etc) and associated subsistence and accommodation for non-Shetland residents, such as travel to Shetland or living costs whilst on duty. Crew costs would therefore be increased by around 50%.

There would be additional fuel cost associated with the day-run to Kirkwall. This would be significant as the vessel would be steaming at near top speed for around nine hours. There may also be additional harbour dues associated with the extra call at Hatston and Lerwick, and there may be implications for fuel capacity on the vessel and bunkering arrangements (i.e. would the vessel be able to travel Aberdeen – Lerwick – Kirkwall – Lerwick – Aberdeen without refuelling (if no bunkering is available at Lerwick)).

There would also need to be a significant increase in the speed at which the following Lerwick – Aberdeen direct service is operated, from 16 knots to 22.5 knots or higher. Given the exponential fuel curve associated with ferries, this would significantly increase the fuel costs associated with the current Lerwick – Aberdeen timetabled services, perhaps doubling the fuel requirement on this sailing leg.

Summary

Whilst there would be a capacity benefit associated with this option, based on the above analysis, it is not recommended for further consideration. There are clearly substantive issues surrounding deliverability, risks in terms of reliability and a substantially increased cost to government.

Option Tt9: Additional daytime sailings between Lerwick–Kirkwall–Aberdeen

This option would involve the operation of additional daytime sailings between Lerwick – Kirkwall – Aberdeen (and the reverse). This option would use both Ro-Pax vessels offering daytime northbound and southbound connections between Shetland, Aberdeen and potentially Orkney in addition to the current overnight services. This option would imply much more intensive use of the existing two RoPax vessels, when they would be operating 24 hours per day on the days when this timetable was in place (either summer only or all year round.

The tables below provide indicative timetables for two sailings per day per vessel based on different assumed average speeds, and also whether the service is direct or includes a Kirkwall call. For the purposes of this analysis a 1.5 hour turnaround at Aberdeen and Lerwick is assumed, given the full movement of freight and the vacating of cabins etc, together with a 45 minute turnaround at Kirkwall. All timetables have been developed to ensure morning arrival times of 07:00 in Aberdeen and 07:30 in Lerwick.

Table 4.6: Sample Timetables – Direct Service Rotation

Scenario 1: Vessel 1 Direct Service Rotation	17.5 knots	20 knots	22.5 knots
Dep Lerwick	20:00	21:30	22:30
Arr Aberdeen	07:00	07:00	07:00
Dep Aberdeen	08:30	08:30	08:30
Arrive Lerwick	19:30	18:00	17:00
Possible?	No	Yes	Yes

- in terms of pure steaming time, it would be possible to complete a daytime return trip from Lerwick to Aberdeen and back direct if the vessel could average a speed approaching 20 knots
- daytime departures from Aberdeen would be around 08:30
- this timetable could also be operated in the reverse direction
- overnight departure times from Lerwick and Aberdeen would likely be later than the current 1900 on days when the daytime sailing operates
- scheduled daytime arrivals back in Lerwick at 18:00 or 17:00 would provide a degree of resilience should the vessel be unable to maintain these speeds due to sea conditions

Options which involved a Kirkwall call in both directions were shown to be undeliverable in the Part 1 Appraisal.

Table 4.7: Sample Timetables – Combined Call Service Rotation

Scenario 3: Combined Call Rotation	17.5 knots	20 knots	22.5 knots
Dep Lerwick	17:15	18:45	19:45
Arr Kirkwall	22:45	23:45	00:15
Dep Kirkwall	23:30	00:30	01:00
Arr Aberdeen	07:00	07:00	07:00
Dep Aberdeen	08:30	08:30	08:30
Arr Lerwick	19:30	18:00	17:00
Possible?	No	No	Yes

- it would only be possible to complete a daytime return trip from Lerwick to Aberdeen with a combination of a direct connection and a Kirkwall call if the vessel could average around 22 knots across the day
- however, arrival time back in Lerwick of 17:00 would leave very little scope for late running without a knock on impact on the next day's timetable

From the perspective of sailing times only, it is therefore conceivable that a return direct or combined (direct / indirect) service could be operated potentially on certain days or at certain times of the year which would maintain the key 07:00 arrival into Aberdeen. In order for this permutation to operate though, both vessels would have to undertake a 'double'-run in the same 24-hour period, otherwise both would end up at the same port on a given night compromising the next night's overnight sailing in one direction.

This approach could also provide the scenario where each vessel operated **three sailings within a 48-hour period** rather than two. Such an arrangement could be operated at peak times and would see daytime sailings provided on alternative days in both directions. A combination of successive and alternate day double-running could be adopted to reflect demand.

A mix of Scenarios 1 and 3 could see e.g. one vessel run a return direct between Lerwick and Aberdeen and back, and the other vessel running direct in one direction and via Kirkwall in the other direction. As noted above, this would essentially involve 24 hour running for the periods when double-running is operating, which could be 7-days per week, or say 2-3 days per week or during e.g. summer / high peak weekends only. An example rota is shown in the table over:

Table 4.8 Sample 3-Sailing in 48-hour Timetable

Time	Ferry 1	Time	Speed	Ferry 2	Time	Speed
Night 1	Lerwick-Aberdeen	2130-0700	20	Aberdeen-Kirkwall – Lerwick	1945-0700	22.5
Day 1	Aberdeen-Lerwick	0830-1800	20	Lerwick-Aberdeen	0830-1800	20
Night 2	Lerwick-Kirkwall-Aberdeen	1945-0700	22.5	Aberdeen-Lerwick	2000-0700	17.5
Day 2	Stop			Stop		
Night 3	Aberdeen-Kirkwall – Lerwick	1945-0700	22.5	Lerwick-Aberdeen	2130-0700	20
Day 3	Lerwick-Aberdeen	0830-1800	20	Aberdeen-Lerwick	0830-1800	20
Night 4	Aberdeen-Lerwick	2000-0700	17.5	Lerwick-Kirkwall - Aberdeen	1945-0700	22.5
Day 4	Stop			Stop		
Night 5	Lerwick-Aberdeen	2130-0700	20	Aberdeen-Kirkwall – Lerwick	1945-0700	22.5
Day 5	Aberdeen-Lerwick	0830-1800	20	Lerwick-Aberdeen	0830-1800	20
Night 6	Lerwick-Kirkwall - Aberdeen	1945-0700	22.5	Aberdeen-Lerwick	2000-0700	17.5
Day 6	Stop			Stop		
Night 7	Aberdeen-Kirkwall – Lerwick	1945-0700	22.5	Lerwick-Aberdeen	2130-0700	20
Day 7	Lerwick-Aberdeen	0830-1800	20	Aberdeen-Lerwick	0830-1800	20
	revert to F2 tt			revert to F1 tt		

There are a range of potential permutations around this option, and some of these include:

- run all overnight sailings direct between Aberdeen and Lerwick and accommodate the Kirkwall call on daytime sailings
- continue with existing evening departure times on the sailings which follow the 'rest' day
- do not operate the Day 7 daytime sailing as this would otherwise involve running daytime sailings on consecutive days

Deliverability

Whilst there are various permutations of options which would allow additional day sailings on the Aberdeen – Kirkwall – Lerwick route in terms of steaming times alone, there are significant wider deliverability issues from an operational perspective. Key issues in this respect include:

- there would be significant and arguably insurmountable issues surrounding crewing and operations, as follows
    - additional crew would be required (for each vessel), each with cover for sickness, leave etc. As the crew sleeping accommodation is fully occupied by the main crew, the day crew would need to be shore-based unless passenger cabins were converted (which is assumed to a be a non-starter)
    - the key difference with this option compared to the Lerwick – Kirkwall – Lerwick day sailing is the offset nature of the timetable. The day crew would come off duty at a different port at the end of each day sailing. Using 'Ferry 1' from the table above as an example
        - the day crew would be in Lerwick at the end of Day 1
        - they would then be off-duty until Day 3, which they would finish in Aberdeen
        - they would then be off-duty until Day 5, which they would finish in Lerwick, and so on
    - the above would give rise to significant crew under-utilisation and costs associated with providing crewing accommodation. In addition, as the crew would not be returning home after their shift, it is assumed that they would still be considered on-duty on their off-days (e.g. Day 2 on Ferry 1), otherwise recruitment would likely be very challenging
- on days where there is a day sailing, passengers arriving on the overnight service would have to disembark immediately in order to allow the vessel to be turned around. This would be a particular issue for visitors arriving in Shetland (particularly foot passengers) as they would be disembarking around two hours before most local businesses open
- *Text redacted*

- *Text redacted*
- to accommodate three rotations within 48 hours, the vessel would need to maintain a relatively high average steaming speed. This would be a challenge in inclement weather and there is little contingency within a 48-hour period to recover from weather-related delays. This would be a particular problem if it impacted on the desired 07:00 arrival into Aberdeen
- current vessel maintenance regimes could not be maintained

Public Acceptability

Variants of this option are likely to be acceptable in both Orkney and Shetland. As well as offering a genuinely new connection (and associated capacity), the typically later departure times would be well received in Shetland. There may be some concerns in Orkney surrounding a later arrival into Kirkwall, but these would be outweighed by the benefits of having an additional daytime connection, particularly on the southbound leg where a day sailing to Aberdeen would reduce the need / desire for sleeping accommodation.

In response to the resident survey, around one third of Shetland residents noted that a day service between Lerwick and Aberdeen would encourage them to travel with NorthLink more often.

The public acceptability of this option may decline if the requirement to regularly maintain higher running speeds compromised reliability, particularly in terms of the early morning arrival time into Aberdeen.

Implications for Capacity

This option would clearly provide substantial additional capacity, and would be likely to meet all potential demands on the route. It would also fundamentally change the nature of the service provided by offering daytime sailings, which would lead to a reshaping of the nature of travel to and from the Northern Isles.

Cost to Government

The cost to government of this option would be very high and indeed would be more expensive than all of the preceding options set out above.

The key component of this cost would be the additional crew. As noted above, the offset timetable would generate a need for additional crew (with cover for sickness, leave etc), substantially increasing current crew costs. There is a question over whether these additional crews would be paid on non-sailing days but, as they are away from home, it is assumed that they would be. As the day crew would be at a different end of the crossing on each sailing day, onshore accommodation would need to be paid for / provided.

There would be a substantial increase in fuel costs, associated with each aspect of the service as follows:

- the operation of the day service would represent an entirely additional cost. This cost would also be significant due to the high speeds that the vessels would need to maintain to ensure no negative knock-on impacts on the timings of the evening service
- the overnight crossings would have to maintain a higher speed associated with the later departure times from Aberdeen and Lerwick. This is particularly true with the services via Kirkwall

Although sailing hours would not double, the higher running speeds could potentially result in a *[text redacted]* of fuel costs.

The additional timetabled calls at Aberdeen, Hatston and Holmsgarth may result in the accrual of additional harbour dues unless a fixed price agreement is in place.

Summary

On the face of it, this option offers an increase in both asset utilisation and capacity across the week. However, there are significant – indeed, potentially insurmountable – deliverability issues associated with it. It would also be an expensive option to deliver and could have a negative impact on reliability.

Whilst the discussed levels of service are potentially deliverable over a short period (e.g. during the Icelandic ash cloud), it is highly debatable as to whether this could be maintained on a regular basis. Despite its obvious attractions and benefits, our view is that this option should not be considered further given the identified deliverability issues.

In many respects, chartering a third vessel (if such a vessel is available) would be logistically much simpler and may well be of a cost of a comparable order of magnitude. For example, a dedicated vessel could sail north / south on alternate days with a single crew over the 14 days roster period.

Option Tt10: Daytime Aberdeen – Kirkwall – Aberdeen service

This option could conceivably allow for a daytime return trip from Aberdeen to Kirkwall to be accommodated using the Ro-Pax which currently lies in Aberdeen during the day.

An example timetable is set out in the table below based on different operating speeds and rooted off of a 07:00 arrival time in Aberdeen from the previous overnight ferry. This option would imply more intensive use of the existing Ro-Pax vessels, where they would be operating for prolonged periods on the ‘enhanced’ timetable.

Table 4.9: Example Timetable Incorporating a Daytime Aberdeen-Kirkwall-Aberdeen Service

	Boat 1 – Enhanced timetable	17.5 knots	20 knots	22.5 knots
Night 1	Dep Lerwick	20:00	21:30	22:30[8]
	Arr Aberdeen	07:00	07:00	07:00
Daytime 1	Dep Aberdeen	08:30	08:30	08:30
	Arr Kirkwall	16:00	15:00	14:30
	Dep Kirkwall	16:45	15:45	15:15
	Arr Aberdeen	00:15	22:15	21:15
Night 2	Dep Aberdeen	01:45	23:45	22:45
	Arr Lerwick	12:45	09:15	07:15
	Possible?	No	Possibly	Yes

- the determination of whether this timetable is possible or not is based on the arrival time in Lerwick being acceptable
- arrival times back into Aberdeen from Kirkwall are late
- note that under both possible scenarios, the departure time for the overnight sailing from Aberdeen is much later than the current 1900 departure
- in the 22.5 knot scenario, the vessel could still leave Lerwick at 1900

A Kirkwall call on the overnight service adds 1.5-2 hours to the overall journey. Given that from the table above, it is only just possible to run this service to arrive back in Lerwick at an acceptable time, it can be seen that the Aberdeen-Kirkwall-Aberdeen daytime sailing could only operate when the preceding and following overnight sailings run direct between Lerwick and Aberdeen and vice versa (assuming the period for which the vessel is currently berthed in Lerwick is maintained so as to allow for crew rest, maintenance etc).

On a weekly basis, one vessel could operate the enhanced timetable and one would operate the 'standard' timetable for six days. A 'standard' Sunday would reposition the vessels so that the vessels alternate between 'standard' and 'enhanced' timetables on a weekly basis. A sample rota is shown in the table below. This arrangement would provide three daytime return services from Aberdeen to Kirkwall per week. It also assumes that the second vessel sails overnight via Kirkwall on all occasions although this could be reduced to selected sailings. This latter assumption is necessary to retain connectivity between Kirkwall and Lerwick.

[8] Speed assumed for consistency – in reality, vessel would likely maintain current departure times.

Table 4.10: Sample Rota Incorporating a daytime Aberdeen-Kirkwall-Aberdeen Service

Time	Vessel 1	Vessel 2
Mon – Tues night	Lerwick-Kirkwall-Aberdeen	Aberdeen-Lerwick
Tuesday – daytime	Rest	Rest
Tues-Wed night	Aberdeen-Kirkwall-Lerwick	Lerwick Aberdeen
Wednesday – daytime	Rest	Aberdeen-Kirkwall-Aberdeen
Wed-Thu night	Lerwick-Kirkwall-Aberdeen	Aberdeen-Lerwick
Thursday – daytime	Rest	Rest
Thu–Fri night	Aberdeen-Kirkwall-Lerwick	Lerwick Aberdeen
Friday – daytime	Rest	Aberdeen-Kirkwall-Aberdeen
Fri-Sat night	Lerwick-Kirkwall-Aberdeen	Aberdeen-Lerwick
Saturday – daytime	Rest	Rest
Sat-Sun night	Aberdeen-Kirkwall-Lerwick	Lerwick-Aberdeen
Sunday – daytime	Rest	Aberdeen-Kirkwall-Aberdeen
Sun-Mon night	Lerwick-Aberdeen	Aberdeen-Kirkwall-Lerwick
Monday – daytime	Aberdeen-Kirkwall-Aberdeen – then switch to Vessel 2	Rest – then switch to Vessel 1

This illustration has shown how it could be possible to accommodate an Aberdeen-Kirkwall-Aberdeen connection within the bounds of the current timetable, whilst preserving the current pattern of overnight connectivity. This service would provide arrival times of around 1430 in Kirkwall and 2100 in Aberdeen. It would not be possible to bring forward this 2100 Aberdeen arrival without compromising the 0700 arrival in Aberdeen of the preceding overnight service.

Deliverability

The deliverability of this option is in many respects similar to that of the day sailings between Lerwick – Kirkwall – Lerwick. As with that option, additional Kirkwall calls are deliverable in terms of steaming times alone. However, given the longer steaming time from Aberdeen - Kirkwall than from Lerwick – Kirkwall, some of the deliverability issues will be more pronounced. In summary, the deliverability issues associated with this option include:

- additional crew would be required (plus cover for leave, sickness etc). Given that the vessel would be operating from Aberdeen, the crew would need to be Scottish

mainland based – this would in all likelihood be less problematic than trying to source crew from Shetland, as is the case with option Tt7. Nonetheless, given that the additional crew would only be required three days in seven, this would not appear to be an attractive prospect for an individual seeking a career in the merchant navy

- in each of the scenarios, passengers arriving on the overnight sailing would need to disembark earlier and there would be insufficient time for cleaning and preparation by shore-based contractors in Aberdeen. Cleaning and preparation would require to be undertaken by the day crew
- bunkers could only realistically be delivered whilst in Lerwick given the requirement for prompt turnaround both prior to and after the Kirkwall sailing
- it is likely that the current maintenance requirements could be delivered as the day sailing would be operated by each vessel on a maximum of three occasions in any fortnight period (3 rotations in week one, and 1 rotation in week 2)

Public Acceptability

In the Residents' Survey, around one third of Orkney residents noted that a daytime link between Kirkwall and Aberdeen would encourage them to use NorthLink Ferries more frequently, representing a reasonable degree of public support. In addition, 54% of Kirkwall–Aberdeen passenger (resident) respondents to the onboard survey noted that they would travel more frequently on NorthLink if a daytime Kirkwall-Aberdeen service was offered, however this would have to be explored further in market research.

Whilst this option would be popular in Orkney, there would be no frequency benefit for Shetland, and a potential disbenefit if the speeds required to maintain the Kirkwall call could not be regularly maintained (leading to punctuality / reliability issues in relation to the Shetland services). There would however be a potential capacity benefit for Shetland if some of the current evening traffic on the Aberdeen – Kirkwall – Lerwick (and reverse) route is transferred onto the day sailing.

Overall however, the Shetland community would pose the question as to why services levels to Orkney are being enhanced (where there already a number of options) when the main capacity constraint is on the Lerwick – Aberdeen leg.

Implications for Capacity

This option would add capacity on the Aberdeen-Kirkwall leg only. There may be some benefit to Shetland if there is a transfer to the daytime service but the arrival / departure times of this potential option do not look particularly desirable so this transfer may be small.

Cost to Government

The cost to government of this option would be significant, although presumably the cost would be lower than Option Tt7 given the greater likelihood of being able to draw crew from the mainland. There would be a requirement for two additional crews (plus sickness, leave cover etc).

There would be an entirely additional fuel cost associated with the day-run to Kirkwall. This would be significant as the vessel would be steaming at near top speed for around 12 hours. There would also be additional harbour dues associated with the extra call at Hatston.

There would also need to be a significant increase in the speed at which the Aberdeen – Lerwick direct service is operated, from 16 knots to 22.5 knots or higher. Given the exponential fuel curve associated with ferries, this would significantly increase the fuel costs associated with the current Lerwick – Aberdeen timetabled services.

Summary

Whilst this option would support an enhancement in overall capacity and provide Orcadians with additional Aberdeen connections, there are significant and indeed potentially insurmountable deliverability issues associated with it.

In addition, there would be a substantial cost to government and, whilst only judged on a qualitative basis, it appears unlikely that the benefits are significant given the limited overall contribution to addressing capacity on the Lerwick – Aberdeen / Lerwick – Kirkwall – Aberdeen services (particularly in the northbound direction), and the potential arrival / departure times offered. In addition, there is no obvious requirement for additional connections to Orkney given the range of options currently available.

It is our view that this option should not be retained for further consideration.

Summary of North Sea Route Options

The North Sea supply side options discussed above are summarised in the table over.

Table 4.11: Summary if North Sea Options

Option	Deliverability	Public Acceptability	Implications for Capacity	Cost to Government
Tt1 – Do Minimum	No issues	If the forecast demand uplifts emerge, and there is no supply side response, this is not likely to be acceptable to the public	No additional capacity	No additional cost
Tt2: Friday north and Sunday south call at Kirkwall	Some issues around managing the 'double call' at Kirkwall but these are not insurmountable	Well received in Orkney, less so in Shetland	Additional capacity on the Kirkwall - Aberdeen leg, reduced capacity for Shetland.	Very small additional fuel cost associated with additional Kirkwall calls
Tt3: Variations in the number of Kirkwall calls across the week	No deliverability issues aside from managing any 'double calls' at Kirkwall	Would depend on whether there fewer or more Kirkwall calls	Fewer Kirkwall calls would increase capacity for Shetland and vice versa.	Very small additional fuel cost associated with additional Kirkwall calls. Small saving if Kirkwall calls were reduced.
Tt4: All sailings depart Aberdeen & Lerwick at 1900	No major deliverability issues -	Pushing back the arrival / departure time at Kirkwall would not be popular in Orkney. This measure would be well received in Shetland.	None	Higher running speeds northbound and southbound would increase fuel costs more so than options Tt2 and Tt3
Tt7: Operate a daily return sailing from Lerwick – Kirkwall	Can be delivered from a timetable point of view but major issues concerning crewing (hiring, accommodation,	Likely to be popular only if 'core' service is unaffected. Market research would be required to gauge this and	Creates new inter-island group capacity and some additional capacity through displacement off	North Sea crew cost would increase substantially Substantial additional fuel costs from new run plus higher

Option	Deliverability	Public Acceptability	Implications for Capacity	Cost to Government
	under-utilisation), vessel maintenance, bunkering, cleaning, re-stocking	determine potential demand.	of the overnight services.	running speeds on 'core' services. Not likely to provide good value for money in terms of the costs and benefits.
Tt9: Operate additional daytime sailings between Aberdeen-Kirkwall-Lerwick	Can be delivered from a timetable point of view but major issues concerning crewing (hiring, accommodation, under-utilisation), vessel maintenance, bunkering, cleaning, re-stocking	Likely to be the most popular option. Would provide a genuinely new option for travel to / from the mainland.	Over a 14-day period, this option would increase capacity in each direction by 50%. Daytime sailings' capacity would not be constrained by lack of cabins.	North Sea crew cost would increase very substantially Vessels running an additional 50% hours at higher running speeds could see fuel costs double. The major uplift in capacity would provide substantial benefits though.
Tt10: Operate additional daytime sailings between Aberdeen-Kirkwall-Aberdeen	Can be delivered from a timetable point of view but major issues concerning crewing (hiring, accommodation, under-utilisation), vessel maintenance, bunkering, cleaning, re-stocking	No impact on Shetland if core service maintained. Would be attractive to some Orkney travellers but this market is dominated by the Pentland Firth.	Major increase in Aberdeen-Kirkwall-Aberdeen capacity. Any displacement from evening / overnight services would free up space for Shetland.	North Sea crew cost would increase substantially Substantial additional fuel costs from new run plus higher running speeds on 'core' services. Not likely to provide good value for money in terms of the costs and benefits – significant provision already for Orkney

Option Tt11: Year Round Three return sailings on Scrabster–Stromness

The Stromness – Scrabster route operated on a year round three return sailings per day basis in the previous contract, before being reduced to two return sailings per day except in the peak season. This option would involve the reinstatement of the middle sailing, operating the peak time table all year round.

Deliverability

This option is deliverable with the current vessel and crew.

Public Acceptability

This option would be well-received in Orkney and indeed is the principal aspiration of the Council and community in relation to this route (in tandem with the reduction in fares).

Implications for Capacity

The analysis contained in Chapter 3 highlights that, even with the introduction of RET, there are unlikely to be any significant capacity constraints on the Stromness – Scrabster route. This option is focussed more on meeting the social and economic need of the Orkney community, as explored in detail in the Pre-Appraisal and Part 1 report. That said, the operation of three rotations per day from Stromness would future-proof the route against potential growth.

Cost to Government

The cost to government associated with this option would be limited to the additional fuel required to operate the one additional return crossing (circa 3 hours at 17 knots). There may be additional token harbour dues associated with the additional call at Scrabster.

Summary

Given the relatively low intensity use of the MV Hamnavoe and the small cost of scaling up the service (particularly in light of anticipated additional demand from the fares reduction), this option should be retained for further consideration.

Option Tt12: Three return sailings on Scrabster–Stromness, full summer season

This is a variation on Tt11, which would involve operating the three return sailings per day for the full summer season, not just the peak – i.e. from Easter Saturday through to the end of the school October break.

A variation of this could see the three sailings re-introduced say 2-4 days per week during a ‘shoulder’ season. As the crew is in place, the operation of the third sailing

is a relatively straightforward option to 'activate' at prescribed periods across the year.

Deliverability

This option is deliverable with the current vessel and crew, with scope for additional 'middle sailings' where required.

Public Acceptability

This option would be well-received in Orkney and indeed is the principal aspiration of the Council and community in relation to this route (in tandem with the reduction in fares). It would naturally be received less well than the year round reinstatement of the middle sailing.

Implications for Capacity

As noted in relation to the Option Tt11, there are not forecast to be any significant capacity issues on this route. However, if capacity issues were to emerge, a three sailings schedule during the summer would be appropriately targeted to address any high utilisation days.

Cost to Government

The cost to government associated with this option would be limited to the additional fuel required to operate the one additional return crossing (circa 3 hours at 17 knots) in the extended peak season and additional crewing would be required within Passenger Services to take in the full season. There may also be additional harbour dues associated with the additional call at Scrabster.

Summary

This option should be retained for further consideration for the reasons specified under Option Tt11.

Option Tt16: Agree a staggered timetable with Pentland Ferries

There are currently five return sailings per day across the Pentland Firth in winter (2 * NorthLink and 3 * Pentland Ferries) and 5-7 in summer depending on the date (2 or 3 * NorthLink and 3 or 4 * Pentland). However, reflecting the pattern of demand, the two services operate to a broadly similar timetable reducing the effective number of connections to 3-4 depending on the time of year. It is recognised that this is a simplification of the picture though given the geography of the two routes which serves different areas of Orkney.

This option would involve an agreement between NorthLink Ferries (Transport Scotland) and Pentland Ferries to operate a staggered timetable where there is a more even distribution of all sailings across the day, providing 5-7 return sailings per day across the Pentland Firth.

Deliverability

This option would require a willingness from Pentland Ferries to agree to an arrangement of this nature, and an appropriate arrangement being established with Transport Scotland to secure reliable, quality fit for purpose lifeline services[9]. This is perhaps only likely if the bulk of the market is ceded to the private operator, with the Transport Scotland funded service potentially operating the lower demand and perhaps 'true lifeline' connections.

The MV Hamnavoe may then need to lie over in Scrabster, which would mean the first sailing off of Orkney would be offered by Pentland Ferries. This would also mean that the current MV Hamnavoe B&B offer in Stromness would be lost (although this could presumably be offered in Scrabster instead). In terms of operations, it is our understanding through discussions with the operator that there will be occasions during periods of bad weather that the MV Hamnavoe would be unable to overnight in Scrabster. On such occasions, the last sailing from Stromness – Scrabster and the first sailing the next day from Scrabster – Stromness would be cancelled. If this option was pursued, the operator performance regime may need to be adapted accordingly.

There may be State Aid and competition issues associated with this option which would need to be considered prior to introduction.

Public Acceptability

This option would likely be highly acceptable to the public at large as it would offer a significant increase the number of effective daily connections.

Implications for Capacity

Capacity on the Pentland Firth routes is not understood to be a particular problem. Nonetheless, this option would stagger the current capacity across the day.

Cost to Government

As this option would only involve the reorientation of existing services. There would therefore be no direct cost to government. However, if the NorthLink services were reoriented to focus on the more lightly utilised services, there may be a loss of revenue (and thus a higher subsidy requirement) and reduced harbour dues for OIC Marine Services and Scrabster Harbour Trust.

[9] This arrangement could potentially be delivered via any agreement on fares reached between Transport Scotland and Pentland Ferries.

Summary

This option should be retained for further consideration, as it offers a potentially significant ramp-up in effective connectivity, although it is acknowledged that there may be deliverability issues associated with it.

Route Summary

In light of the forecast challenges associated with accommodating vehicle deck and cabin capacity following on from the proposed fares reductions, this chapter has considered potential supply side responses intended to alleviate these pressures.

Aberdeen – Kirkwall – Lerwick

The key finding of the analysis is that the options in terms of a supply-side response on the Aberdeen – Kirkwall – Lerwick route are very limited. When considered at face value, the vessels can operate at steaming speeds which would allow them to make additional journeys within a day or three services within 48 hours. However, on closer inspection, it is clear that there are substantial and potentially insurmountable deliverability issues relating to crewing and the day to day operation and maintenance of the vessel. The operation of additional services would also introduce a degree of risk in terms of operator performance events, as the need to maintain higher speeds to keep to the timetable may be untenable during periods of inclement weather (although less so if the additional services were summer only).

The options which can be delivered (e.g. variations in Kirkwall calls) do offer benefits both in terms of the management of capacity and providing wider socially beneficial services. However, based on the forecasts set out in Chapter 3, the benefits / impacts of these options will pale into insignificance when compared against the uplift in demand resulting from lower fares. The negative impacts will be most keenly felt in Shetland, where residents do not have access to other ferry routes and only have the option of one crossing in either direction per day. In Orkney, the capacity on the Pentland Firth will ensure that the overall level of demand can be accommodated, even if there are pinch points associated with individual sailings on occasions.

Working on the assumption of continuing with the currently available tonnage, it is likely that a degree of demand management will be required, which could to some extent negate the social and economic benefits of the fares reduction. Given that any demand management measures are unlikely to be price-based (at least in terms of peak pricing), it is also questionable as to whether such measures would make any difference, except at the margin.

The capacity issues which are anticipated to emerge from lower fares are likely to cause a significant degree of public dissatisfaction. The fares consultation study posed the question to residents as to how they would trade off the fares reduction against short to medium-term capacity issues. Whilst residents generally considered the trade-off to be worthwhile in theory, it is likely to be much less acceptable when capacity issues actually begin to materialise (as has been the case in some places

on the west coast, where a number of supply-side changes have been made to accommodate additional demand).

In the long-term, it is likely that the next generation of NIFS vessels will be larger (assuming that they operate from Nigg Bay) and capable of accommodating the increased demand. However, given the relative youth of the current vessels, it is likely that new tonnage is very much a longer-term prospect. There may therefore be a requirement to consider the deployment of a third Ro-Pax vessel on the Aberdeen – Kirkwall – Lerwick route in the short-term.

A potential third vessel?

The Pre-Appraisal Report considered the issue of potential future tonnage for the NIFS routes in some detail. The report identified that the current vessels were specifically designed to fit the existing berth in Aberdeen Harbour and thus are relatively small in the context of ferries operating in similar waters elsewhere. There do not therefore appear to be any readily available vessels which could meet the needs of the Aberdeen – Kirkwall – Lerwick route (e.g. fit within Aberdeen harbour, capable of maintaining circa 24 knots, overnight sleeping accommodation etc). A new build vessel is unrealistic in the short-term given the time-lag associated with this and given that there is no committed funding at present.

In the event that such a vessel was identified on the charter market, there would be a procurement / labour relations challenge. The recent precedent in relation to the freighters suggests that any vessel chartered would have to be crewed by staff on equivalent terms and conditions to other NorthLink staff. Crew on 'home' (i.e. overseas) terms and conditions would be considered unacceptable. This could lead to challenges in agreeing a charter agreement and would be expensive if additional crew were added into the NorthLink contract. This issue is not insurmountable but is nonetheless a challenge to note.

Pentland Firth

Unlike the Aberdeen – Kirkwall – Lerwick route, there is sufficient capacity on the Pentland Firth to accommodate a substantial step change in demand. The main consideration in relation to the Pentland Firth services is whether the 'middle' sailing on Stromness – Scrabster should be reinstated on dates beyond that offered in the current timetable, and if so, for what period. Given the scale of proposed fares cuts and the opportunities that this will bring for Orkney, it would appear appropriate to at the very least operate the three sailings per day schedule across the full summer timetable, particularly if an offset timetable could be agreed with Pentland Ferries.

The exact window for this operation could be determined from the utilisation calendars although this would be dependent on resolving the issues surrounding Pentland Ferries.

5. Summary & Conclusions

Introduction

The appraisal of options for the specification of the Northern Isles ferry services contract has been undertaken in a number of phases. This chapter summarises the appraisal findings and provides some suggested next steps.

Summary Table

The table below brings together all of the options considered throughout this process into one overall summary.

It also indicates which of these options merit further consideration for inclusion within any future tender specification.

Table 5.1 Overall Summary of NorthLink Options Considered in Appraisal

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
Vessels - All	Ves1	Do Minimum – continue with the current fleet / Replace like-for-like if and when required	Do Minimum	The current vessel mix is relatively new and the issues surrounding the medium term availability of the freighters and ferries have been resolved. The underlying assumption is that the current vessels will remain in pace for the foreseeable future.	✓
Vessels – North Sea	Ves2	<2 * current RoPax & <2 * current Freighter	Sifted out at Pre-Appraisal	Any reduction from current levels of capacity would not be acceptable	×
Vessels – North Sea	Ves3	2 * Current RoPax plus 2 * Larger Freighter	Considered at Part 1 only to date	Vessel options will be considered further in the medium term.	consider in medium term
Vessels – North Sea	Ves4	2 * Larger RoPax plus 2 * Current Freighter	Considered at Part 1 only to date	Vessel options will be considered further in the medium term.	consider in medium term
Vessels – North Sea	Ves5	2 * Larger, 2 * Larger	Sifted out at Pre-Appraisal	Larger vessels are not required for both RoPax and Freighter services	×
Vessels – North Sea	Ves6	1 * Larger / 1 * Current RoPax & 1 * Larger / 1 * Current Freighter	Considered at Part 1 only to date	Vessel options will be considered further in the medium term.	consider in medium term
Vessels – North Sea	Ves7	2 * Much Larger RoPax, 0 Freighter	Sifted out at Pre-Appraisal	Freighter still required for resilience, flexibility	×

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
Vessels – North Sea	Ves8	2 * Much Larger RoPax, 1 * Current Freighter	Considered at Part 1 only to date	Vessel options will be considered further in the medium term.	consider in medium term
Vessels – North Sea	Ves9	2 * Much Larger RoPax, >1 Freighter	Sifted out at Pre-Appraisal	Much larger RoPax vessels would accommodate all passengers, vehicles, accommodation and freight so no requirement for >1 Freighter	×
Vessels – North Sea	Ves10	> 2 RoPax on current route, >=0 Freighter	Sifted out at Pre-Appraisal	Reconsider if post-fares cut demand cannot be met by two RoPax running at high levels of utilisation	×
Vessels – North Sea	Ves11	>=2 RoPax, > 2 Freighters	Sifted out at Pre-Appraisal	No requirement for more than 2 Freighters	×
Vessels – North Sea	Ves12	Additional Kirkwall based RoPax, >=1 Freighter	Sifted out at Pre-Appraisal	Any additional capacity should be focussed on Aberdeen-Lerwick	×
Ports & Routes	Por1	Do minimum – continue with the current port mix.	Do Minimum		✓
Ports & Routes	Por2	Offer an ‘open ports’ policy in the tender.	Rejected at Part 1	Desire to retain a degree of planning over the contract process. No obvious benefits in terms of the objectives set.	×
Ports & Routes	Por3	Specification of one or both alternative Pentland Firth ports	Not considered further at this stage	This would be a matter to be resolved in the tender specification and would allow a degree of flexibility for prospective operators.	✓

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
Ports & Routes	Por4	Peterhead as an alternative	Rejected at Part 1	Benefits outweighed by disruption and inconvenience. Progression of Aberdeen South harbour can also provide berths for larger vessels in future.	×
Ports & Routes	Por5	Lerwick-Bergen service	Sifted out at Pre-Appraisal	Does not align with planning objectives	×
Ports & Routes	Por6	Discontinue Scrabster-Stromness and deploy the MV Hamnavoe full time to the Aberdeen–Kirkwall route	Sifted out at Pre-Appraisal	Not publicly acceptable – the Scrabster-Stromness route will be retained.	×
Timetable	Tt1	Do Minimum - Continue with the current timetable	Option considered in detail	Continuing with the present day timetable is likely to lead to significant unmet demand over a period of April to October. The impacts would be most keenly felt in Shetland given that those travelling from Orkney have other sea-based options.	×
Timetable	Tt2	Offer a Friday north and Sunday south call at Kirkwall	Option considered in detail	This option is deliverable at low cost although there would be operational issued to consider. Worth considering further as part of the overall package.	✓
Timetable	Tt3a	All services between Lerwick and the Scottish mainland call at Kirkwall	Rejected at Part 1	Not merited on the balance of demand between the two island groups, and would have a major negative impact on capacity and travel times for Shetland.	×

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
Timetable	Tt3b	All services between Lerwick and the Scottish mainland are direct (i.e. no Kirkwall calls)	Rejected at Part 1	The Kirkwall call is valued in Orkney from both a passenger and freight perspective, and ferry-based connectivity between Orkney and Shetland would be lost.	×
Timetable	Tt3c	Reduced number of calls at Kirkwall	Option considered in detail	This option would provide additional capacity for Shetland and is worth considering further as part of the overall package, particularly in the context of fares reductions on the Pentland Firth, and any expansion of the current Scrabster-Stromness timetable.	✓
Timetable	Tt4	All sailings depart Aberdeen & Lerwick at 1900	Option considered in detail	This option is unrelated to capacity & fares but addresses a long-held issue from a Shetland perspective. Whilst some operational issues have been identified with retaining the 1900 departure time, there would be merit in exploring whether the current time by which departures are brought forward could be reduced.	✓
Timetable	Tt5	Operate the summer freight timetable all year round with continued enhancements for peak livestock season, including potential call-off sailings	Rejected at Part 1	There is no evidence that the current arrangement is failing to deliver the needs of this market.	×
Timetable	Tt6	Run the Ro-Pax vessels during the day rather than overnight,	Sifted out at Pre-Appraisal	Overnight sailings are highly valued and there is no obvious rationale to change this.	×

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
		with the freighters continuing to operate overnight			
Timetable	Tt7	Operate a day return sailing from Lerwick–Kirkwall-Lerwick	Option considered in detail	This option has been shown to face a range of deliverability issues covering crewing (hiring, accommodation, under-utilisation), vessel maintenance, bunkering, cleaning, re-stocking etc. Given these issues and the limited benefits, this option should not be considered further.	×
Timetable	Tt8	Operate a day return sailing from Lerwick–Scrabster-Lerwick	Sifted out at Pre-Appraisal	Undeliverable from a timetable perspective and very little public support.	×
Timetable	Tt9	Operate additional daytime sailings between Aberdeen-Kirkwall-Lerwick	Option considered in detail	This option has been shown to face a range of deliverability issues covering crewing (hiring, accommodation, under-utilisation), vessel maintenance, bunkering, cleaning, re-stocking etc. However, given the potentially transformative benefits of this option, if any extra sailing options are pursued, this would be the preferred option.	×
Timetable	Tt10	Operate additional daytime sailings between Aberdeen-Kirkwall-Aberdeen	Option considered in detail	This option has been shown to face a range of deliverability issues covering crewing (hiring, accommodation, under-utilisation), vessel maintenance, bunkering, cleaning, re-stocking etc. Given these issues and the limited benefits, this option should not be considered further.	×

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
Timetable	Tt11	Scrabster-Stromness: Operate three return sailings per day all year round	Option considered in detail	Analysis of projected RET loadings suggests that the current timetable would provide sufficient capacity over the winter period – eg November to April, but there is a local aspiration for a year round service. Any shift in the current market share between NorthLink and Pentland Ferries would also impact on this.	✓
Timetable	Tt12	Scrabster-Stromness: Operate three return sailings per day for the full summer season, or a for another prescribed period of the year / days of the week'	Option considered in detail	As per Tt11 commentary, this option should be considered between eg May to October.	✓
Timetable	Tt13	Scrabster-Stromness: Operate four return sailings per day for the full summer season and 2-3 return sailings per day in the winter timetable	Sifted out at Pre-Appraisal	No obvious demand for this – would imply major upscaling of service	×
Timetable	Tt14	Scrabster-Stromness: Increase the crossing time to 120 minutes	Sifted out at Pre-Appraisal	Not publicly acceptable	×
Timetable	Tt15	Scrabster-Stromness: Truncate the operating day to a single crew operation	Sifted out at Pre-Appraisal	Not publicly acceptable	×

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
Timetable	Tt16	Scrabster-Stromness: Agree a secure mechanism which would enable a staggered timetable with Pentland Ferries offering 5-7 return crossings across the Pentland Firth per day.	Option considered in detail	Worthy of further consideration, presumably within the broader context of the role of Pentland Ferries and any fares reduction policy. This measure would have to be developed in close partnership with OIC to ensure community needs are met.	✓
Timetable	Tt17	Scrabster-Stromness: Operate a day return sailing between Stromness and Invergordon	Sifted out at Pre-Appraisal	No obvious demand and would compromise existing service	×
Timetable	Tt18	Scrabster-Stromness: Operate a day return sailing between Scrabster-Stromness: Stromness and Inverness	Sifted out at Pre-Appraisal	No obvious demand and would compromise existing service – lack of infrastructure at Inverness	×
Timetable	Tt19	Operate a midnight return sailing from Stromness to connect with the southbound Lerwick–Kirkwall-Aberdeen service	Sifted out at Pre-Appraisal	No obvious demand for this service	×
Capacity	Cap1	Do Minimum – Continue with the current vehicle and cabin capacity.	Do Minimum	The analysis undertaken here suggests that the do minimum may not be acceptable.	×
Capacity	Cap2	Permit the tendered operator to introduce more demand	Considered at Part 1 only to	No demand management measures have been analysed here. The scope for implementing	✓

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
		management measures	date	demand management measures will be limited however by the RET-based fares policy. It is assumed that 'trough' pricing would be the only fares measure available. However, a further theme here could see a degree of prioritisation given to Shetland-based bookings, given the availability of other travel options for Orkney.	
Capacity	Cap3	Insert an additional sleeping block into the MV Hjaltland and MV Hrossey	Considered at Part 1 only to date	These measures have not been analysed in detail here. The tender specification could state an objective to provide additional capacity – and leave it to bidders to come forward with innovative proposals.	✓
Capacity	Cap4	Convert the cinema into a dormitory with couchettes and blankets / pillows for hire			
Capacity	Cap5	Covert all two berth cabins into four berth cabins			
Capacity	Cap6	Create a small number of larger family cabins			
Capacity	Cap7	Further develop the pods, allowing them to fully recline			
Integration	Int1	Do Minimum – continue with current contract arrangements	Do Minimum	There is a need for some refinements to improve	×
Integration	Int2a	Specify a bus connection	Rejected at	Better connections using existing service buses	×

Service Aspect	Option	Description	Status	Summary	Consider Further in Tender Spec?
		between Scrabster & Inverness within the next tender	Part 1	and links to Thurso station provide more cost effective options.	
Integration	Int2b	Specify a bus connection between Scrabster & Thurso railway station	Considered at Part 1 only to date	Worth considering further in conjunction with relevant stakeholders, although this may impact on the existing X99 Scrabster-Inverness connection	✓
Integration	Int3	Fund a Caledonian Sleeper service between Thurso and Edinburgh	Sifted out at Pre-Appraisal	Outwith the scope of the NIFS specification	×

Conclusions & Next Steps

The analysis undertaken has demonstrated that a reduction in fares of the scale considered here is likely to lead to significant problems of unmet demand on the **North Sea** routes (based on the best data available at present and subject to the caveats identified previously). The primary constraint will be on cabin accommodation, but there will also be a major impact on the vehicle deck.

The options which involve additional daytime sailings of the MV Hrossey and MV Hjaltland, be that either (i) Lerwick-Kirkwall-Lerwick; (ii) Aberdeen-Kirkwall-Aberdeen; or (iii) Aberdeen-Lerwick / Lerwick-Aberdeen, have been shown to face what would appear to be major and potentially insurmountable barriers to deliverability in terms of crewing (hiring / availability, accommodation when off duty, efficiency of crew utilisation), vessel maintenance programmes, fuel bunkering arrangements, vessel & cabin cleaning, and re-stocking of supplies. Even if these barriers to deliverability could be overcome the costs would be high, given the requirements to run the vessels faster than at present, and the lack of contingency time in the resulting timetable would impact on the punctuality of the overnight services in poor weather.

If it is accepted that these North Sea options are not deliverable, the remaining timetable options considered here would provide only marginal benefits in terms of additional capacity. The only realistic option is therefore to consider additional tonnage (potentially seasonal) on the route, within the context of all of the resources and assets available throughout the supported ferry service network in Scotland. Any additional tonnage on the route would provide a wide **range of timetable options** and these options would have to be considered further to ensure that the benefits of this additional resource are maximised. This additional tonnage could operate on the North Sea routes or, if appropriate, the Pentland Firth, the latter option allowing the MV Hamnavoe to switch to the North Sea routes. The implications for berthing arrangements for any additional tonnage would also have to be carefully considered.

In the **short term,** the options which could potentially be used to manage or add capacity most effectively on the **North Sea** routes are:

- to provide some form of booking prioritisation / quota system for those travelling to and from Shetland over those travelling to / from Orkney
    - this could be specific to cabins
    - this could prioritise those travelling with children (potentially for both Orkney & Shetland)
- an alternative which has been suggested is to consider a North Sea flat-fare, where Orkney and Shetland fares are the same (as per the current cabin charging regime), encouraging a further switch to the Pentland Firth (this may in turn support other initiatives in the Inverness-Caithness corridor) – however this

would not be in line with RET principles for passengers and vehicle fares or the fares system outlined by the Minister

- consider removing some Kirkwall calls – further analysis and consultation would be required to determine the least-used Kirkwall calls for potential review, taking into account the key requirements of this route such as livestock
    - the case underlying these options is that there are other options for ferry-based travel from Orkney and it has been demonstrated that the Pentland Firth routes already account for the large majority of travel between Orkney and the Scottish mainland
- Adaptation of onboard space to provide additional passenger sleeping accommodation. This should also include a review of current pricing structures to encourage maximum bed occupancy on board, addressing the current under-utilisation of bed spaces

The position on the **Scrabster-Stromness** route is more straightforward from a capacity perspective. The sailing day can be scaled up to three sailings per day with relative ease in line with projected demand at different periods across the year, or on a year-round basis. In the event of the MV *Hamnavoe* being displaced to the North Sea routes, the replacement tonnage should provide a comparable level of service and reliability.

However, the position with respect to Pentland Ferries is potentially more complicated. The analysis here has assumed no change to the Pentland Ferries service. If the balance of the fares changes between the two services, there will be an impact on market share. This could in turn have an impact on projected demand on this route.

As such, it is recommended that the options for the Pentland Firth are re-visited when there is clarity with respect to the role of Pentland Ferries in the fares reduction policy. If an agreement is reached with Pentland Ferries, there may be scope for timetabling benefits as per option Tt16 above, although these would have to be developed carefully in consultation with stakeholders. Any transfer from the foot passenger John O'Groats ferry to (now cheaper) car-based travel with Pentland Ferries / NorthLink should also be considered in this context.

<u>Air Services</u>

The entry of FlyBe / Eastern into the Shetland market has had a major (although potentially short-term) impact on reducing air fares. Although to a large extent, Shetland air and ferry services serve different markets, the dramatic reduction in air fares would be expected to have an impact on carryings on the ferry service. There is of course uncertainty as to how long both operators will continue to operate the route in direct competition (bringing the lower fares), but there would be merit in closely monitoring ferry carryings (e.g. on a monthly basis) and Sumburgh terminal passengers (using CAA data) to determine any transfer from ferry to air (and indeed

changes in 'all Shetland' travel volumes) as new air services and fares regimes bed in.

Monitoring & Evaluation of RET for the Northern Isles

The introduction of RET-based fares would represent a major change in the cost of travel to and from the Northern Isles. In line with other parts of the ferry network where fares have been reduced, it will therefore be important to monitor and then evaluate the impact of the introduction of RET-based fares on the Orkney and Shetland economies and the lifestyle choices of residents and visitors to the islands. In particular, the bigger price reductions for visitors could lead to a major upsurge in tourism in the islands.

Of particular interest would also be vessel loadings and evidence of unmet demand, i.e. through 'failed' booking attempts (distinguishing island residents from visitors). The impact on particular market sectors of interest such as coaches and campervans could also be monitored. The impact of the recent withdrawal of the Streamline vessel would also be picked up in this monitoring in the context of any wider changes and trends in freight volumes by type to / from the Northern Isles.

A detailed evaluation of RET was undertaken with respect to Arran, and this used a combination of onboard surveys, household surveys, business surveys and engagement with key stakeholders such as hauliers. However, this research was undertaken after the introduction of RET, which meant that respondents were asked to recollect behaviours, views and travel choices from the period prior to the introduction of RET. This represented something of a weakness in this approach.

To avoid this, there is merit in undertaking a **baselining** exercise prior to the introduction of RET to the Northern Isles to establish the pre-RET position without prejudice or a reliance on recollection. As part of this current NIFS study, an extensive programme of onboard and household surveys was undertaken. These surveys could provide the basis for a baselining exercise without the need for extensive new data collection prior to the introduction of RET. These datasets could therefore be reviewed at an early stage and key data extracted and packaged up to form the baseline. Any 'missing' data could then be identified and collected to provide an effective baseline and avoid the problems encountered with the Arran approach.

Any evaluation only makes sense in the context of a set of **objectives.** For the Arran evaluation, the flowing objectives were set:

- *to increase demand for ferry services by making ferry travel more affordable and more accessible*
- *to increase tourism to Arran and support existing tourism markets*
- *to enhance the local Arran economy and wider national economy*

It is assumed that a Northern Isles variant of these could be established and form the basis of the evaluation.

The Arran **evaluation** was undertaken during Year 1 and Year 2 of the introduction of RET. The Arran Evaluation Report also set out a longer term monitoring plan to identify 'lagged' impacts such as supply side investment in eg tourist facilities. A similar approach could be undertaken to the evaluation of RET on the Northern Isles routes.

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