

Part 1 Appraisal Summary Tables

Proposal Details			
Name and address of authority or organisation promoting the proposal: (Also provide name of any subsidiary organisations also involved in promoting the proposal)		Mr Michael Craigie, 01595 744 160, michael.craigie@shetland.gov.uk Shetland Islands Council, Development Service, Transport Planning Service, 6 North Ness, Lerwick, Shetland, ZE1 0LZ	
Proposal Name:	Option CO5 – Construct a fixed link between Bressay and Shetland Mainland.	Name of Planner:	Stephen Canning, Peter Brett Associates
Proposal Description:	The issue of a fixed link between Bressay and Shetland mainland has been analysed in the most detail of any of the Shetland fixed link proposals. The current adopted position of the Council is the construction of a drill and blast tunnel beneath the Sound of Bressay on an alignment between Gremista and Heogan on Bressay. The tunnel would allow bi-directional traffic movement.	Estimated Total Public Sector Funding Requirement:	<i>Capital costs/grant:</i> A range of capital costs have been provided for a fixed link, as set out in the main report: <ul style="list-style-type: none"> • Unlined UK: £21.1m (£25.9m including optimism bias & contingency) • Unlined Norwegian: £16.8m (£20.6m including optimism bias & contingency) • 1/3 Lined UK: £22.5m (£27.5m including optimism bias & contingency) • 1/3 Lined Norwegian: £17.8m (£21.8m including optimism bias & contingency)
			<i>Current revenue support:</i> £0
			<i>Annual revenue support:</i> It is likely that a fixed link of this nature would require revenue support for ongoing maintenance. However, as this option is rejected from further consideration, an estimation of these costs and a determination of who would meet the costs has not been undertaken

Funding Sought From: (if applicable)	Transport Scotland	Amount of Application:	<i>Present Value of Cost to Govt.</i> Costs in this study are all reported in 2016 prices only. The costs would reflect those set out above.
Background Information			
Geographic Context:	<p>The island of Bressay is 7 miles long by 3 miles wide and is separated from Lerwick by the sheltered Bressay Sound. Rough grazing covers most of the island, and the coast is formed of steep cliffs and beaches.</p> <p>In many respects, Bressay benefits significantly from its proximity to Lerwick and the access to services that this provides. However, geographic proximity and good transport links can be something of a double edged sword for the island, with a constant challenge to prevent economic leakage and maintain local services.</p> <p>Transport connectivity is wholly delivered by the frequent ferry service, which links Bressay with Lerwick, the journey time being seven minutes. The MV <i>Leirna</i> currently lies overnight at Bressay.</p>		
Social Context:	<p>Despite strong population growth towards the end of the 20th century, Bressay has experienced a recent decline in population, something which the recent closure of the school may accelerate. During our consultation with HIE, they expressed a concern that the island is becoming increasingly fragile.</p> <p>The lack of readily available social housing on Bressay and the relatively static property market suggests that housing could be a constraint to growth on the island and could have been a factor in the decline of its population.</p> <p>Bressay is the only one of the nine islands in this study where on-island nursery and primary school provision is not available. Whilst the rationale underpinning the closure of the school was perhaps sound, there is a potentially longer-term impact in terms of the attractiveness of the island for in-migrants.</p> <p>Medical provision for Bressay is provided by Lerwick Health Centre.</p>		
Economic Context:	<p>There is limited on-island activity on Bressay, with the majority of residents being geared towards the Lerwick jobs market. The fishmeal factory is likely to be the largest single private sector employer. There has been an overall downturn in services in the island in recent years.</p> <p>Bressay has a very high economic activity rate (akin to that of Shetland as a whole), although the majority of full-time employees are likely to commute to Lerwick.</p>		
Planning Objectives			
Objective:	Performance against planning objective:		

<p><i>TPO1: The capacity of the services should not act as a constraint to regular and essential personal, vehicular and freight travel between the island(s) and Shetland Mainland</i></p>	<p>Performance against Transport Planning Objective: Major Positive</p> <p>The provision of a fixed link between Bressay & Shetland mainland would remove all capacity related constraints associated with the current ferry service. The evidence suggests that the current peak hour capacity constraints on the Lerwick - Bressay route are constraining the key Bressay commuter market. A fixed link would clearly alleviate this problem.</p>
<p><i>TPO2a: Where an island has a 'commutable' combined ferry or drive / public transport / walk time to a main employment centre (e.g. 80 minutes), the connections provided should reliably facilitate commuting</i></p>	<p>Performance against Transport Planning Objective: Major Positive</p> <p>The current Lerwick - Bressay service supports significant commuting to Lerwick and further afield. However, the provision of a fixed link would significantly reduce commuter journey times, allow for 24 hour travel-to-work and offer a high-degree of reliability.</p>
<p><i>TPO2b: Where an island does not have a 'commutable' combined ferry or air / drive / public transport / walk time to a main employment centre (e.g. 80 minutes), the connections provided should reliably permit at least a half day (e.g. 4 hours) in Lerwick 7 days a week, all year round.</i></p>	<p>Performance against Transport Planning Objective: Neutral</p> <p>This objective is not relevant to Bressay.</p>
<p><i>TPO3: The scheduled time between connections should be minimised to increase flexibility for passengers and freight by maximising the number of island connections across the operating day.</i></p>	<p>Performance against Transport Planning Objective: Major Positive</p> <p>The provision of a fixed link would remove any frequency related considerations associated with the ferry.</p>
<p><i>TPO4: The level of connectivity provided should minimise the variation within and between weekdays, evenings, Saturdays and Sundays.</i></p>	<p>Performance against Transport Planning Objective: Major Positive</p> <p>The provision of a fixed link would remove any timetable related variations associated with the current Lerwick – Bressay ferry service.</p>
<p><i>TPO5: Where practicable, islanders should be provided with links to strategic onward transport connections without the need for an overnight stay on Shetland mainland.</i></p>	<p>Performance against Transport Planning Objective: Major Positive</p> <p>The provision of a fixed link would allow twenty-four hour access to Lerwick and Sumburgh Airport.</p>

Rationale for Selection or Rejection of Proposal:	The research undertaken as part of this study, including the pricing of the tunnel option by a Norwegian & UK contractor, suggests that a fixed link could be competitive when compared with ongoing ferry replacement cycles.	
Implementability Appraisal		
Technical:	This option is technically feasible. The ground conditions for the proposed alignment are understood following some circumstantial and some limited dedicated ground investigation. It is anticipated that contingency finance (currently allowed at 10% CAPEX) and optimism bias multipliers (currently allowed at 12.6% for CAPEX) would be reduced further if more dedicated ground investigation were undertaken.	
Operational:	A basic ferry infrastructure would need to be maintained to ensure continuity during times of tunnel closure / maintenance or where there is a catastrophic failure of the asset (akin to that experienced on the Forth Road Bridge in December 2015). The current ferry on the Lerwick – Bressay route could not be cascaded elsewhere on the network, although there may be limited opportunities to cascade the shoreside infrastructure.	
Financial:	A range of capital costs have been provided for a fixed link, as set out in the main report: <ul style="list-style-type: none"> • Unlined UK: £21.1m (£25.9m including optimism bias & contingency) • Unlined Norwegian: £16.8m (£20.6m including optimism bias & contingency) • 1/3 Lined UK: £22.5m (£27.5m including optimism bias & contingency) • 1/3 Lined Norwegian: £17.8m (£21.8m including optimism bias & contingency) Ongoing maintenance costs would be in addition to the up-front capital costs.	
Public:	The public consultation found that there is some support for a fixed link although others are opposed or think that it is an unrealistic proposition.	
STAG Criteria		
Criterion	Assessment Summary	Supporting Information

<p>Environment:</p>	<p>xxx</p>	<p>The provision of a fixed link is likely to have a minor negative impact through increasing vehicle kilometres, whilst there will also be potentially moderate environmental impacts associated with construction (further work on the alignment and design would be required to more accurately assess these impacts).</p> <p>The following impacts have been identified in terms of environmental sub-criteria</p> <ul style="list-style-type: none"> • Noise & vibration: Short term impacts at closest properties during construction of tunnel and new road links. Traffic on new sections of road may have noise impacts on nearby sensitive receptors. • Local air quality: Traffic on new sections of road has potential to generate increased emissions but unlikely to impact significantly on local air quality. • Water quality, drainage & flood defence: Significant impacts on water resources not predicted provided works were sensitively planned • Geological features: Impact from tunnel from removal of geological deposits. Surplus spoil could potentially be used in new road works. • Biodiversity & habitats: Disturbance of protected species during construction. New roads have potential for local impacts on biodiversity including peatland habitats. • Landscape: Potential for adverse permanent effects from new tunnel portals if not sensitively designed and landscape impacts of new road. • Visual amenity: Short term impacts during construction. Impacts from increased traffic on approach road and other roads in Bressay on closest receptors. • Agriculture & soils: Some permanent loss of peat soils for new road. • Cultural heritage: Bressay works unlikely to be of a scale to impact on the setting of listed buildings in proximity to the works.
<p>Safety:</p>	<p>x</p>	<p>The provision of a fixed link would lead to an increase in car trips to and from Bressay, which would lead to a marginally higher accident rate. There would also be potential fire risks with a tunnel but it is assumed that the design and safety standards would minimise this risk.</p>
<p>Economy:</p>	<p>✓✓✓</p>	<p>The provision of a fixed link would be of a significant benefit to Bressay. Firstly, there would be TEE benefits, associated with the removal of capacity constraints and journey time savings associated with not having to wait for or travel on a ferry. In addition, Shetland mainland would be accessible 24 hours per day and there would be no frequency related issues associated with waiting for a ferry. This is particularly critical for Bressay, which is so tightly integrated with the Lerwick economy.</p> <p>The EALI benefits to Bressay would also be considerable. First and foremost, Bressay would effectively become an 'extension' of Shetland mainland (in effect part of 'greater Lerwick'), more fully</p>

		integrating the islands. A fixed link would also lead to cost reductions / productivity enhancements for the small stock of Bressay businesses, particularly the fishmeal plant. Other sectors which would benefit include tourism and locally traded services.
Integration:	✓✓✓	A fixed link would significantly enhance transport integration with the Shetland and indeed Scottish mainland.
Accessibility and Social Inclusion:	✓✓✓	The provision of a fixed link would fundamentally transform the community accessibility of Bressay, effectively making the island an extension of Shetland mainland / greater Lerwick.