

## 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, <a href="mailto:michael.craigie@shetland.gov.uk">michael.craigie@shetland.gov.uk</a>  Shetland Islands Council, Development Service, Transport Planning Service, 6 North Ness, Lerwick, Shetland, ZE1 0LZ	
Proposal Name:	Option CO5 – Fixed link (tunnel) between Whalsay and Shetland mainland.	Name of Planner:	Stephen Canning, Peter Brett Associates
Proposal Description:	<p>There is at present uncertainty over the precise design and alignment of a fixed link to Whalsay. The most recent tunnel feasibility work was carried out in 2010 and established the potential for a tunnel as the preferred option.</p> <p>This option would permit the redeployment of the MV <i>Linga</i> (and potentially the shoreside infrastructure to another route). The MV <i>Hendra</i> is life-expired.</p>	Estimated Total Public Sector Funding Requirement:	<p><i>Capital costs/grant:</i></p> <p>A range of capital costs have been provided for a fixed link, as set out in the main report:</p> <ul style="list-style-type: none"> <li>• Unlined UK: £108.1m (£201.0m including optimism bias &amp; contingency)</li> <li>• Unlined Norwegian: £86.3m (£160.4m including optimism bias &amp; contingency)</li> <li>• 1/3 Lined UK: £115.1m (£214.1m including optimism bias &amp; contingency)</li> <li>• 1/3 Lined Norwegian: £91.0m (£169.3m including optimism bias &amp; contingency)</li> </ul>
			<p><i>Current revenue support:</i> £0</p>
			<p><i>Annual revenue support:</i></p> <p>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</p>

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.
<b>Background Information</b>			
Geographic Context:	<p>The island of Whalsay, the most populous of the isles, lies to east of Shetland mainland. The largest settlement on the island is Symbister, which is also where the main harbour is located. As well as having a vibrant pelagic fishing fleet based in the island, the relatively short ferry crossing to Shetland mainland means that there is considerable commuting between the island and Lerwick &amp; Sullom Voe.</p> <p>The island is connected to Shetland mainland via a ferry service between Symbister and Laxo, a sheltered voe on the east side of Shetland mainland. The Symbister – Laxo crossing is very exposed to south-easterly winds and thus a diversion port is maintained at Vidlin (also the destination for the Skerries ferry) to the north-east of Laxo. The timetable is designed with sufficient contingency to ensure that when the vessel diverts to Vidlin, there is no disruption to the timetable.</p>		
Social Context:	<p>Whalsay has a stable population, although islanders do have concerns that limited ferry capacity and a lack of affordable housing are causing out-migration amongst younger residents.</p> <p>Whalsay has one primary &amp; junior high school and nursery, three shops (one of which incorporates the post office), a police station, care centre, health centre (with dental practice) and leisure centre. The Whalsay Learning Centre, operated by Shetland College, uses the clubroom in the leisure centre to deliver learning opportunities for the community. The island also has access to a weekly mobile banking service. Childcare provision is seen to be very limited and is seen as a constraint in terms of residents taking up jobs and / or further education. A small marina is located within Symbister harbour.</p> <p>Whilst school rolls have generally been in decline since the 1980s, there are promising signs for the island, with a doubling of the number of children in the nursery between 2013 and 2014.</p>		
Economic Context:	<p>Whalsay has a relatively healthy economy, although it is quite dependent on the fishing industry for its economic wellbeing. The ability to commute off-island does however remain critical, particularly in terms of providing a diversified economy and there are concerns from the community that current capacity issues and fares are undermining this.</p> <p>Whalsay has a relatively healthy economic activity rate, although there are a higher proportion of retirees amongst the population than on Shetland as a whole.</p>		
<b>Planning Objectives</b>			
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><b>Performance against Transport Planning Objective: Major Positive</b></p> <p>The provision of a fixed link to Whalsay would remove all capacity related constraints associated with the current ferry service. The evidence suggests that the current capacity constraints are significantly constraining the economic development of the island.</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><b>Performance against Transport Planning Objective: Major Positive</b></p> <p>The current Whalsay service supports commuting to Sullom Voe and Lerwick. 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 (i.e. a tunnel would not be negatively impacted by weather as the ferry service often can be).</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><b>Performance against Transport Planning Objective: Neutral</b></p> <p>This objective is not considered relevant for Whalsay.</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><b>Performance against Transport Planning Objective: Major Positive</b></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><b>Performance against Transport Planning Objective: Major Positive</b></p> <p>The provision of a fixed link would remove any timetable related variations associated with the current Whalsay 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><b>Performance against Transport Planning Objective: Major Positive</b></p> <p>The provision of a fixed link would allow twenty-four hour access to Lerwick and Sumburgh Airport.</p>

<p>Rationale for Selection or Rejection of Proposal:</p>	<p>This option is rejected from further consideration given the very high up-front capital costs. In addition, there are very high levels of technical and funding uncertainty, whilst the elapsed time before this option could be realised means that it will not be considered further in the appraisal.</p> <p>This elapsed time would also mean that if taken forward, this option would not be in place until the tail end of the strategy period, meaning that an interim ferry-based solution would be required, adding further to the cost.</p> <p>Should a nationally funded programme of fixed links emerge in future, the proposal could be revisited at this stage.</p>
<p><b>Implementability Appraisal</b></p>	
<p>Technical:</p>	<p>A number of fixed link suggestions have been examined in varying levels of detail over the years; but none of the studies commissioned to date has had the benefit of any supporting ground / seismic investigation. This necessarily limits the engineering accuracy of design assumptions and consequently the robustness of any cost assessments. Proposals remain conceptual in nature.</p>
<p>Operational:</p>	<p>A proposal of this nature could not be funded independently by Shetland Islands Council and a bid for funding support would therefore have to be made to Transport Scotland. A scheme of this nature would be considered a nationally significant infrastructure project, similar in scale to e.g. the Airdrie – Bathgate Rail Link (£300 million) and Borders Rail (£353 million). To this end, the project would need to go through several steps to secure funding and it should be noted that it is not included as one of Transport Scotland’s 29 strategic transport priorities through to 2032 (identified by the Strategic Transport Projects Review). The project is also not cited in the Infrastructure Investment Plan 2011.</p> <p>The lead time for a fixed link of this nature would also be considerable, with an elapsed time of several years from initial planning through to scheme opening. The combination of a lack of funding certainty, the absence of a supporting policy commitment and the long lead-times for such a scheme give rise to significant operational risks associated with a Whalsay fixed link.</p> <p>A basic ferry infrastructure would also 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).</p> <p>The current ferry infrastructure on the Whalsay route is approaching the end of its operational life – cascade opportunities would therefore be limited with the exception of the MV <i>Linga</i>.</p>

Financial:	<p>A range of capital costs have been provided for a fixed link, as set out in the main report:</p> <ul style="list-style-type: none"> <li>• Unlined UK: £108.1m (£201.0m including optimism bias &amp; contingency)</li> <li>• Unlined Norwegian: £86.3m (£160.4m including optimism bias &amp; contingency)</li> <li>• 1/3 Lined UK: £115.1m (£214.1m including optimism bias &amp; contingency)</li> <li>• 1/3 Lined Norwegian: £91.0m (£169.3m including optimism bias &amp; contingency)</li> </ul> <p>Ongoing maintenance costs would be in addition to the up-front capital costs.</p>	
Public:	A fixed link was the preferred option identified by the community at the public drop-in sessions.	
<b>STAG Criteria</b>		
Criterion	Assessment Summary	Supporting Information
Environment:	xxx	<p>Overall, this option would record a major negative impact with potential for significant effects from permanent development of new infrastructure. This option would also generate increased traffic movements on Whalsay and between Whalsay and the mainland</p> <p>The following impacts have been identified in terms of environmental sub-criteria:</p> <ul style="list-style-type: none"> <li>• Noise &amp; 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.</li> <li>• Local air quality: Traffic on new sections of road has potential to generate increased emissions but unlikely to impact significantly on local air quality.</li> <li>• Water quality, drainage &amp; flood defence: Significant impacts on water resources not predicted provided works sensitively planned.</li> <li>• Geological features: Impact from tunnel from removal of geological deposits. Would be negative. However, surplus spoil could potentially be used in construction.</li> <li>• Biodiversity &amp; habitats: Disturbance of protected species during construction. New roads have potential for local impacts on biodiversity including peatland habitats.</li> <li>• Landscape: Potential for adverse permanent effects from new tunnel portals if not sensitively designed. Wider negative landscape impact of new road.</li> <li>• Visual amenity: Short term impacts during construction. Impacts from increased traffic on approach road on closest receptors.</li> <li>• Agriculture &amp; Soils: Some permanent loss of peat soils for new road.</li> </ul>

		<ul style="list-style-type: none"> <li>Cultural Heritage: Works unlikely to be of a scale to impact on the setting of listed buildings in proximity to the works</li> </ul>
Safety:	x	The provision of a fixed link would lead to an increase in car trips to and from Whalsay, which would lead to a marginally higher accident rate. The removal of the ferry service would remove any potential for marine accidents, particularly in the crowded Symbister Harbour.
Economy:	✓✓✓	<p>The provision of a fixed link would be of a significant benefit to Whalsay. Firstly, there would be substantial 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.</p> <p>The wider / EALI benefits to Whalsay would also be considerable. First and foremost, Whalsay would effectively become an 'extension' of Shetland mainland, more fully integrating the island's economy with the wider Shetland economy. This could create additional job opportunities for Whalsay and would encourage both inward investment and in-migration / population retention. A fixed link would also lead to cost reductions / productivity enhancements for Whalsay businesses, particularly the strategically important fishing sector. Other sectors which would benefit include tourism and locally traded services.</p>
Integration:	✓✓	<p>A fixed link would significantly enhance transport integration with the Shetland and indeed Scottish mainland.</p> <p>A fixed link could also promote land-use development in Whalsay (in the 'Area of Best Fit' in Symbister), alleviating the current housing pressures on the island.</p>
Accessibility and Social Inclusion:	✓✓✓	The provision of a fixed link would fundamentally transform the community accessibility of Whalsay, effectively making the island an extension of Shetland mainland. The impacts are likely to be similar in nature to that experienced by Skye when the bridge was opened, albeit the magnitude of those benefits are likely to be smaller given that a Whalsay fixed link would connect an island with an island rather than with the Scottish mainland and Skye Bridge provided a link onwards to the Western Isles.