Detailed Appraisal	**E7 – Rail Freight Enhancements between Mossend, Grangemouth and Aberdeen/Inverness**	
Estimated total Public Sector Funding Requirement:	***Capital Costs/grant***	£1.5bn – £3bn
	Annual Revenue Support Present	-
	Value of Cost to Gvt	£1bn – £1.5bn
	BCR/PVB	Estimated BCR of <0.75

Summary Impact on STAG Criteria	- - -	- -	-	0	+	++	+++
Environment							
Safety							
Economy							
Integration							
Accessibility and Social Inclusion							

(Judgement based on available information against a 7pt. scale.)

Intervention Description:

This intervention supports the objectives to reduce emissions and improve operations on the road network.

It would provide enhancements to the existing rail network between Mossend, Grangemouth and Aberdeen/Inverness to allow more freight services to operate. Quality improvements would include measures such as:

- Increased length of freight loops (allowing longer freight trains);
- Removal of speed limits that are below 75mph for freight trains;
- Increased loading gauge to permit larger containers to be carried; and
- Provision of bi-directional signaling along the route to reduce the impact of engineering works (permitting the route to remain open for freight throughout the day and week).

Summary: Rationale for Not Recommending

The intervention would provide a step change in the provision of rail freight, encouraging a modal shift from road to rail thereby reducing the volume of longer distance goods vehicles and the related CO_2e emissions.

However, the costs of providing the enhancements are high compared with the benefits, particularly as the proposed improvements to the line to Aberdeen via Dundee would include bi-directional signaling to provide system resilience, thereby limiting the need for an alternative route via Inverness.

Depending on the form and location of works required, this intervention has the potential for moderate adverse effects on the natural environment, including biodiversity, cultural heritage, soils and geology and the landscape.

Table E7.1.1 STPR Objectives

STPR Objectives	
STPR Objective 5.1: To improve the public transport competitiveness between Aberdeen and Dundee (and hence onwards to the Central Belt).	**5.1: Neutral** – Rail freight enhancements to the network between the Central Belt and Aberdeen would not have any direct impact on public transport competitiveness.
STPR Objective 5.2: To contribute to reducing both overall emissions and emissions per person kilometre through providing for alternatives to road freight movement on the corridor.	**5.2: Strongly Positive –** These improvements are likely to make it considerably more attractive for freight hauliers to move containers and other goods by rail, by reducing journey times, allowing freight to arrive at times suitable for the final receiver and allowing standard 9' 6'' deep sea containers to be carried. This would provide an attractive alternative to road freight and could be expected to encourage a modal shift from road to rail. This potential modal shift could lead to significant emission reductions in this corridor.
STPR Objective 5.3: To promote continuing reduction in accident rates and severity rates across the strategic transport network.	**5.3: Slightly Positive –** Freight enhancements which could lead to a modal shift from road to rail would potentially reduce the accident rate by lowering the number of HGVs on the road network.
STPR Objective 5.4: To promote journey time reductions, particularly by public transport, between the Central Belt and Aberdeen primarily to allow business to achieve an effective working day when travelling between these centres.	**5.4: Neutral** – This intervention is unlikely to have a significant effect on promoting journey time reductions, particularly by public transport, between the Central Belt and Aberdeen.
STPR Objective 6.1: To reduce journey time and increase opportunities to travel between Inverness and Perth (and hence onto the Central Belt).	**6.1: Slightly Positive –** This intervention would encourage some modal shift for freight from road to rail. This would result in a reduction in the anticipated growth in the number of HGVs required to carry freight between the Central Belt and Inverness. This would have a positive impact on journey times for other road users on the A9 as there would be a reduction in congestion due to fewer slow moving vehicles.
STPR Objective 6.2: To improve the operational effectiveness of the A9 as it approaches Perth and Inverness.	**6.2: Slightly Positive –** Indirectly this intervention would have the effect of reducing the growth in road traffic volume. Although it is unlikely to have a significant effect on improving the operational effectiveness of the A9 as it approaches Perth and Inverness, a reduction in HGV movements tends to have a disproportionate benefit because of the size of vehicles and slow average speeds of these vehicles in urban areas.
STPR Objective 6.3: To address issues of driver frustration relating to inconsistent road standard, with attention to reducing accident severity.	**6.3: Slightly Positive –** By improving the rail freight infrastructure, moving goods by rail may become a more attractive alternative to freight hauliers with potentially less HGVs on the road. The resultant reduction in HGVs between Perth and Inverness would contribute towards reducing driver frustration caused by cars having to overtake these slower vehicles on the A9.
STPR Objective 6.4: To promote journey time reductions, particularly by public transport, between the Central Belt and Inverness primarily to allow business to achieve an effective working day when travelling between these centres.	**6.4: Neutral** - This intervention is unlikely to have a significant effect on promoting journey time reductions, particularly by public transport, between the Central Belt and Inverness.

Table E7.1.2 STAG Criteria

STAG Criteria		
Criteria:	**Assessment Summary:**	**Supporting Information:**
Environment:	**Moderate Negative Impact / Minor Benefit**	Improved rail freight facilities would ultimately reduce emissions by encouraging modal shift from road based freight haulage to rail. This reduction in HGV movements would also reduce other pollutants such as noise and vibration along the road transport corridor. This intervention has the potential for moderate adverse effects on the natural environment, including biodiversity, cultural heritage, soils and geology and the landscape. These effects will be highly dependent on the location of the final works and mitigation may well be possible, therefore the degree of impact remains uncertain at this stage.
Safety:	**Minor Benefit**	Increased rail freight adoption by major freight operators between the Central Belt, Aberdeen and Inverness should lead to the removal of some HGV journeys from the trunk road network. Rail freight enhancement should lead to a reduction in the growth of total HGV kilometres travelled and a consequential reduction in the number of accidents involving HGVs.
Economy:	**Minor Benefit**	**Transport Economic Efficiency (TEE):** The cost of this intervention is high due to the necessary physical works to allow the operation of larger standard containers. As a result, the anticipated cost benefit analysis of this intervention indicates the poor value for money of the scheme (BCR<0.75). However, it is worth noting that elements of this intervention have been developed and incorporated within other interventions which are to be taken forward under the STPR. These include D15 (Rail Enhancements to the Highland Mainline) and D18 (Rail Enhancements between Aberdeen and the Central Belt)). **Wider Economic Benefits (WEBs):** The creation of faster rail links between major freight hubs between the Central Belt and Aberdeen will encourage economic growth in key development areas in the North East of Scotland. In 2005-06, 14 million tonnes of freight were lifted in Scotland by rail, 24 per cent more than the previous year and over twice the amount in 1996-97. Improved freight connection is one of the policy requirements of the National Planning Framework (NPF2), a document which encourages economic growth through sustainable development. The North East's reliance on the oil industry for employment and trade is forecast to decline over time. The region has to diversify into new business types, with improved rail freight connection being key to continued economic success between Central and North East Scotland. The creation of faster rail freight links between the Central Belt and Inverness should encourage economic growth in the Inverness - Nairn area which has been identified by National Planning Framework (NPF2) as a spatial area of national importance. Improved freight connection is one of the policy requirements of the document which encourages economic growth through sustainable development. The creation of jobs through improved rail freight connection in one of the UK's fastest growing cities would serve to benefit Inverness and the Highland community greatly. The availability of through rail freight services can be attractive to many local businesses. **Economic Impact and Location Impacts (EALIs):** This intervention would provide improved rail freight access from the Central Belt to Inverness/Aberdeen; however this would come at a very high cost. Other potential interventions are able to deliver a change in the rail freight opportunities on the routes to Aberdeen/Inverness at a lower cost.
Integration:	**Minor Benefit**	**Transport Integration:** This intervention would not have a significant effect on the integration of transport. **Transport and Land-Use Integration** The Freight Action Plan for Scotland (2006) encourages modal shift of freight transport from road to rail and sea as a priority for reducing vehicle kilometres and emissions. Rail freight enhancements will help in the

		creation of integrated road and rail transport through the requirement for freight hubs for distribution to local towns and cities. Similarly, supply chains from the North Atlantic and Scandinavia berthing at Aberdeen harbour will rely on good rail freight integration with key ferry and maritime based operations to distribute goods across Scotland and the rest of the UK. Freight integration with Aberdeen Airport would serve the express delivery of offshore industry equipment, therefore improved rail freight to the northeast remains a high priority. However, potential development of rail links to reach agricultural areas in Perthshire, and timber deposits further north, confirm that future road freight integration with the Inverness line are possible and integration with both Inverness harbour and airport for the movement of freight and in connection with Orkney and Shetland. **Policy Integration:** This intervention would support policies of transferring freight from road to rail.
Accessibility and Social Inclusion:	**Minor Benefit**	**Community Accessibility:** Rail freight improvements and integration with lifeline ferry services from Aberdeen to Orkney and Shetland are included in the Freight Action Plan as important to the creation of jobs in remote and rural areas. **Comparative Accessibility:** There are no comparative accessibility issues associated with this intervention.

Table E7.1.3 Key Strategic Outcomes

Key Strategic Outcomes (KSO's)		
Objective:	**Assessment Summary:**	**Supporting Information:**
Improve Journey Times and Connections:	**Moderate Benefit**	Scotland's existing freight network is concentrated around links from the south to the Central Belt. Improved rail freight links to the north would significantly improve journey times for consolidated train loads of freight going to and coming from Aberdeen and Inverness and in turn provide potential rail freight access to the cities of Dundee, Perth and Stirling on route.
Reduce Emissions:	**Minor Benefit**	It is envisaged that the rail improvements could encourage modal shift of freight from road to rail. This could relieve traffic congestion on the A9 and A96 resulting in a reduction of CO_2e emissions.
Improve Quality, Accessibility and Affordability:	**Minor Benefit**	Rail freight enhancements are unlikely to directly impact on public transport links, accessibility issues and the affordability of public transport.

Table E7.1.4 Scottish Government's Strategic Objectives

Scottish Government's Strategic Objectives		
Objective:	**Assessment Summary:**	**Supporting Information:**
Safer and Stronger:	**Minor Benefit**	The reduction of HGV journeys would improve road safety. Rail freight hubs could lead to the creation of jobs and increased wealth for strategic areas along the route. This intervention would not improve the quality, accessibility and affordability of public transport.
Smarter:	**Neutral**	This intervention would not improve access to education facilities.
Wealthier and Fairer:	**Moderate Benefit**	This enhanced infrastructure would speed up rail links and better connect the North East of Scotland with the Central Belt. This would therefore offer opportunities to reduce freight transport costs resulting in economic growth, job creation and prosperity. Freight hubs offering intermodal facilities can promote increased investment and opportunities in strategic areas encouraging business relocation to benefit from improved transport links.
Greener:	**Neutral**	Although the reduction of HGV traffic on the roads will lead to improved air quality and emissions, this intervention will not promote modal shift away from the car nor promote public transport.
Healthier:	**Minor Benefit**	This intervention would result in reduced HGV traffic. Improved air quality would impact on urban areas near to major trunk roads reducing health service costs and the costs of respiratory disease on society. This intervention would not encourage any modal shift from the car to public transport or improve access to healthcare.

Table E7.1.5 Implementability Appraisal

Implementability Appraisal	
Technical:	In general, no untried techniques would be required when implementing any aspects of this intervention. However, as the design stages progress, localised issues may arise that require increased technical capabilities to overcome. Construction of some aspects of this intervention may have an impact on operating existing services, however much of this work could be carried out at times when the disruption would be minimised.
Operational:	Running additional rail services places extra pressure on the rail network and can increase the risk of delays. However, it is expected that these issues would be mitigated by ensuring that the works included within the intervention have sufficient capacity for the proposed service levels. No significant operational impacts are anticipated from this intervention.
Public:	There has been no detailed consultation specifically on this individual intervention; however it is expected that any measure which promotes modal shift to more sustainable transport would achieve public support.