

Forth Freight Study: Preliminary Options Appraisal

SEStran

August 2022

Quality information

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1 Executive Summary

The study focuses on the Preliminary Appraisal of Individual Options and Packaged Options associated with helping promote more sustainable, efficient, and reliable freight movements for the SEStran area, whilst helping promote the region as a competitive international freight hub. In-line with Transport Scotland's Guidance on Transport Appraisal (STAG) as well as being informed by best practice, each identified intervention has been robustly appraised against the identified Transport Planning Objectives, its perceived Strategic Fit, the latest STAG criteria as well as against Feasibility, Affordability and Public Acceptability.

In addition to the detailed evidence base as set out within the Case for Change informing the appraisal process are the outcomes of a significant and wide-ranging engagement process that has been undertaken with a variety of stakeholders and decision-makers across the SEStran region. The outcomes from this comprehensive stakeholder engagement have been invaluable in not only informing the appraisal of the overall deliverability of the identified interventions but also in helping with the selection of interventions for the next stage of the appraisal process – Detailed Appraisal.

The interventions which are identified as being appropriate to take forward to the Detailed Appraisal stage of the SEStran Forth Freight Study are summarised in Table 1 below. The list includes eight interventions which are worthy of further analysis in their own right and six further packages of interventions that merit more detailed appraisal. The reason for including packages is that by combining some of the interventions there can be positive synergies and hence the outcome would have more benefits.

Table 1. Recommended Interventions for Detailed Appraisal

Intervention ID	Intervention Name
GFI3	Multi-User Freight Train Service
GFI4	Consolidation Centre (Port of Leith)
GFI5	Consolidation Centre (Hermiston)
GFI6	Consolidation Centre (Port of Grangemouth)
GFI7	Development of the necessary infrastructure for alternative fuels
GFI9	Passenger Trains for Freight
GFI12	Consolidation Centre (Regional-wide concept)
GFI13	Consolidation Centre Rural Areas
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure
GFP3	Food / Retail Hub (Leith) with connected Freight Tram
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges
GFP5	Urban Consolidation Centres associated with the Tram Network
GFP6	Consolidation Centres associated with smaller Passenger Train Interchanges
GFP7	Multi-User Freight Train with Alternative Fuelling Infrastructure

In addition, the Preliminary Options Appraisal has identified that there is merit in further considering the role of maritime transport solutions to sustainable transport goods across the region.

The main report provides a more in-depth review of the study, the methodology of appraisal, the outcomes of stakeholder engagement as well as the recommended individual and package options to be taken forward for Detailed Appraisal.

2 Introduction

2.1 Overview

This report sets out the outcomes of the Preliminary Options Appraisal that has been undertaken as part of the Forth Freight study. This is the second stage of the study and follows the initial stage, Case for Change (CfC).

This Preliminary Options Appraisal report sets out the outcomes of the appraisal of interventions identified within the CfC.

2.2 Evidence Base

The CfC was initially developed in late 2020 and updated in early 2022. It outlines the existing freight movements for the SEStran region, the current policies, strategies, and plans associated with the region and the range of problems and opportunities relevant to the freight sector.

The review identified the potential for the freight sector in the region to be more sustainable. Although there are a range of weaknesses and barriers associated with modal shift, the Scottish Government has made a commitment to help achieve and facilitate the transition from the movement of goods via road freight to the generally accepted more sustainable modes of rail and sea freight where practicable.

The CfC highlights the importance of the road freight sector in supporting the economy in the SEStran region, but it is contributing towards poor air quality, carbon emissions, road safety concerns, congestion, and suffering from a lack of network resilience. However, it also identified a wide range of opportunities to address this.

The interventions that have been appraised as part of the Preliminary Options Appraisal alongside their alignment with the identified Problems and Opportunities from the CfC are set out overleaf.

Further detail regarding these appraised transport interventions is set out in [Section Four](#).

2.3 Report Structure

The report is structured as follows:

- Chapter Two sets out the methodology and process that has been applied to enable the robust and proportionate appraisal of the identified interventions. This includes 13 individual interventions and a further seven packages where two interventions are combined to obtain synergies. The list of 20 interventions follows on the next three pages with a tick box on whether each scheme helps to address the named issue or attribute across 25 different headings.
- Chapter Three provides an overview of stakeholder engagement with key decision makers and commercial actors.
- Chapter Four sets out a summary of the outcomes of the Preliminary Options Appraisal findings, which includes the performance of the options i.e., individual interventions and intervention packages, against:
 - a. the identified Transport Planning Objectives,
 - b. the STAG criteria of Environment, Climate Change, Health, Safety and Wellbeing, Economy and Equality and Accessibility
 - c. Established Policy Objectives
 - d. Deliverability criteria in the form of Feasibility, Affordability and Public Acceptability.

The chapter also details the rationale for the selection or rejection of options.

- Chapter Five sets out the recommendations of the Preliminary Option Appraisal and the identified shortlisted interventions that should be further considered and developed through a Detailed Option Appraisal workstream.

ID	Name	Road freight contributing to poor air quality	Road freight contributing to carbon emissions	Road freight contributing to road safety issues	Road freight contributing to congestion	Congestion disrupting the supply chain	Road freight contributing to uneven road surfaces	Empty vehicle running	Lack of Network Resilience	Decline in Rail Freight in the region
GF11	Food/Retail Hub – Port of Grangemouth	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF12	Food/Retail Hub – Port of Leith	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF13	Multi-User Freight Train Service	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF14	Consolidation Centre – Port of Grangemouth	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF15	Consolidation Centre – Hermiston	✓	✓	✓	✓	✓	✓	✓	✓	
GF16	Consolidation Centre – Port of Leith	✓	✓	✓	✓	✓	✓	✓	✓	
GF17	Development of Alternative Fuelling Infrastructure	✓	✓							
GF18	Edinburgh Freight Tram	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF19	Passenger Freight Trains for Freight	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF110	Maritime Barge – Methil to Grangemouth	✓	✓	✓	✓	✓	✓			
GF111	Hybrid Shunters at Rail Freight Terminals									✓
GF112	Consolidation Centre – Region-wide Concept	✓	✓	✓	✓	✓	✓	✓	✓	✓
GF113	Consolidation Centre – Rural Areas	✓	✓	✓	✓	✓	✓	✓	✓	✓
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure	✓	✓	✓	✓	✓	✓	✓	✓	✓
GFP2	Food/Retail Hub with Alternative Fuelling Infrastructure	✓	✓	✓	✓	✓	✓	✓	✓	✓
GFP3	Food/Retail Hub at Port of Leith with connected Edinburgh Tram for Freight	✓	✓	✓	✓	✓	✓	✓	✓	✓
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges	✓	✓	✓	✓	✓	✓	✓	✓	✓
GFP5	Edinburgh Tram for Freight with connected Urban Consolidation Centres	✓	✓	✓	✓	✓	✓	✓	✓	✓
GFP6	Consolidation Centres at minor Passenger Train Interchanges	✓	✓	✓	✓	✓	✓	✓	✓	✓
GFP7	Multi-User Freight Train serve with integrated Alternative Fuelling infrastructure at terminals	✓	✓	✓	✓	✓	✓	✓	✓	✓

ID	Name	Lack of adequate lorry parking facilities	Enhance the efficiency and sustainability of road freight	Inter-regional goods movements	Consolidation of loads	Rail heads and extant tracks	Scope for increase in rail freight	Levenmouth Line Extension	Development of Alternative Fuelling Infrastructure	Port of Leith's proximity to Edinburgh City Centre
GF11	Food/Retail Hub – Port of Grangemouth		✓	✓	✓	✓	✓			
GF12	Food/Retail Hub – Port of Leith		✓	✓	✓		✓			✓
GF13	Multi-User Freight Train Service		✓	✓	✓		✓	✓		
GF14	Consolidation Centre – Port of Grangemouth		✓	✓	✓	✓	✓			
GF15	Consolidation Centre – Hermiston		✓	✓	✓					
GF16	Consolidation Centre – Port of Leith		✓	✓	✓		✓			✓
GF17	Development of Alternative Fuelling Infrastructure		✓					✓		
GF18	Edinburgh Freight Tram		✓	✓			✓			✓
GF19	Passenger Freight Trains for Freight		✓	✓	✓		✓			
GF110	Maritime Barge – Methil to Grangemouth		✓	✓	✓	✓				
GF111	Hybrid Shunters at Rail Freight Terminals			✓			✓			
GF112	Consolidation Centre – Region-wide Concept		✓	✓	✓		✓			✓
GF113	Consolidation Centre – Rural Areas		✓	✓	✓		✓			
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure		✓	✓	✓		✓	✓		
GFP2	Food/Retail Hub with Alternative Fuelling Infrastructure		✓	✓	✓		✓	✓		
GFP3	Food/Retail Hub at Port of Leith with connected Edinburgh Tram for Freight		✓	✓	✓		✓			✓
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges		✓	✓	✓		✓	✓		
GFP5	Edinburgh Tram for Freight with connected Urban Consolidation Centres		✓	✓	✓		✓			✓
GFP6	Consolidation Centres at minor Passenger Train Interchanges		✓	✓	✓		✓			
GFP7	Multi-User Freight Train serve with integrated Alternative Fuelling infrastructure at terminals		✓	✓	✓		✓	✓	✓	

ID	Name	Available land at Port of Leith	Further Rail Freight Movements at Port of Grangemouth	Significant Political Impetus for modal shift	Water Freight	Scalability of Cycle Logistics	Low Emission Zones	Integration of freight into passenger thought process
GF11	Food/ Retail Hub – Port of Grangemouth		✓	✓				
GF12	Food/ Retail Hub – Port of Leith	✓		✓		✓	✓	
GF13	Multi-User Freight Train Service		✓	✓				
GF14	Consolidation Centre – Port of Grangemouth		✓	✓				
GF15	Consolidation Centre – Hermiston			✓				
GF16	Consolidation Centre – Port of Leith	✓		✓		✓	✓	
GF17	Development of Alternative Fuelling Infrastructure							
GF18	Edinburgh Freight Tram			✓			✓	✓
GF19	Passenger Freight Trains for Freight			✓			✓	✓
GF110	Maritime Barge – Methil to Grangemouth		✓	✓	✓			
GF111	Hybrid Shunters at Rail Freight Terminals		✓	✓				
GF112	Consolidation Centre – Region-wide Concept		✓	✓		✓	✓	
GF113	Consolidation Centre – Rural Areas			✓		✓		
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure		✓	✓		✓	✓	
GFP2	Food/ Retail Hub with Alternative Fuelling Infrastructure		✓	✓			✓	
GFP3	Food/ Retail Hub at Port of Leith with connected Edinburgh Tram for Freight	✓		✓		✓	✓	✓
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges			✓			✓	
GFP5	Edinburgh Tram for Freight with connected Urban Consolidation Centres	✓		✓		✓	✓	✓
GFP6	Consolidation Centres at minor Passenger Train Interchanges			✓		✓	✓	
GFP7	Multi-User Freight Train serve with integrated Alternative Fuelling infrastructure at terminals		✓	✓				

3 Methodology

3.1 Overview

The SEStran Forth Freight Study follows Scottish Transport Appraisal Guidance (STAG)¹, a robust appraisal process that is both proportionate and appropriate to what is required as part of a Preliminary Option Appraisal.

This clear objectives-led methodology and evidence-based approach ensures the interventions presented within this report are informed by problems and opportunities supported by empirical evidence and reflect the priorities of local regional and national government (as outlined in the CfC). A review of existing policy and research, extensive data relating to freight movements and associated externalities, as well as comprehensive stakeholder consultation have provided the basis for identifying the problems and opportunities associated with freight in the region.

The appraisal process for the Forth Freight study therefore considers multiple elements as part of the Preliminary Option Appraisal which are highlighted in the context of the full lifecycle for the appraisal of transport interventions in Figure 1.

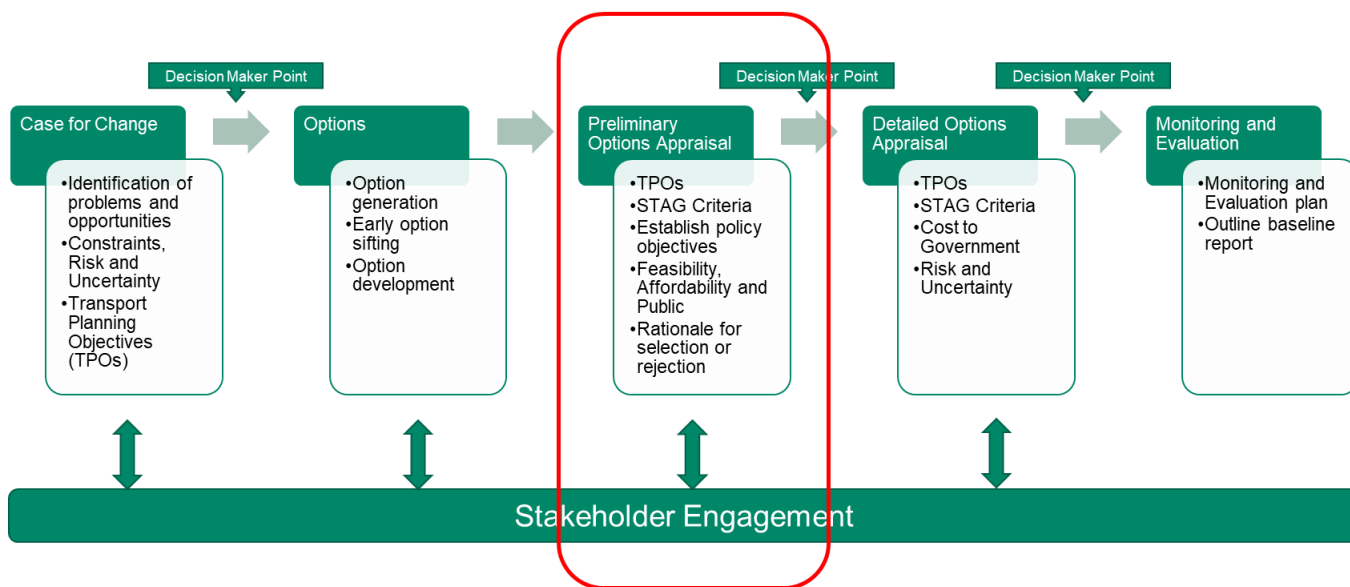


Figure 1 Preliminary Options Appraisal and wider Transport Interventions Appraisal Processes

3.1.1 Transport Planning Objectives

TPO1: Enhance regional freight infrastructure to increase the proportion of freight transported by sustainable modes, whilst stimulating economic growth

TPO2: Reduce the adverse impacts of freight movements on public health and the natural and built environment

¹ Scottish Transport Appraisal Guidance (STAG) – Managers Guide 2022, <https://www.transport.gov.scot/publication/scottish-transport-appraisal-guidance-managers-guide/>

TPO3: Maintain and enhance an integrated, safe, resilient, reliable, and sustainable transport network to aid delivery of consistent conditions for freight operators on the transport network to maximise sustainable business opportunities.

To appraise the performance of the identified interventions against the identified TPOs, a qualitative assessment has been undertaken using a seven-point assessment scale during the Preliminary Options Appraisal as outlined in Figure 2². Where quantitative information is available, this has also been incorporated into the appraisal process.

✓✓✓	✓✓	✓	O	x	x x	x x x
Major Benefit	Moderate Benefit	Minor Benefit	No benefit or impact (Neutral)	Small minor cost or negative impact	Moderate cost or negative impact	Major cost of negative impact

Figure 2 Seven-point assessment scale

The scale is defined as follows:

- Major benefit - these are benefits or positive impacts which, depending on the scale of benefit or severity of impact, the practitioner feels should be a principal consideration when assessing an option's eligibility for funding.
- Moderate benefit - the option is anticipated to have a moderate benefit or positive impact. Moderate benefits and impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together do so.
- Minor benefit - the option is anticipated to have only a small benefit or positive impact. Small benefits or impacts are those which are worth noting, but the practitioner believes are not likely to contribute materially to determining whether an option is funded or otherwise.
- No benefit or impact - the option is anticipated to have no or negligible benefit or negative impact.
- Small minor cost or negative impact - the option is anticipated to have only a moderate cost or negative impact. Minor costs/negative impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together could do so.
- Moderate cost or negative impact - the option is anticipated to have only a moderate cost or negative impact. Moderate costs/negative impacts are those which taken in isolation may not determine an option's eligibility for funding but taken together could do so.
- Major cost or negative impacts - these are costs or negative impacts which, depending on the scale of cost or severity of impact, the practitioner should take into consideration when assessing an option's eligibility for funding.

3.1.2 Strategic Fit

The CfC provided a review of the local, regional, and national policies and strategies relevant to the region and the study in late 2020. Due to a pause on the study, there have been changes and additions to policies, strategies, and legislation at a national, regional and local level of relevance to the study area. These have been reviewed and are shown in Figure 3.

² <https://www.transport.gov.scot/publication/stag-technical-database/section-5/#s54>

These elements that were considered as part of the CfC update are highlighted in Figure 3.

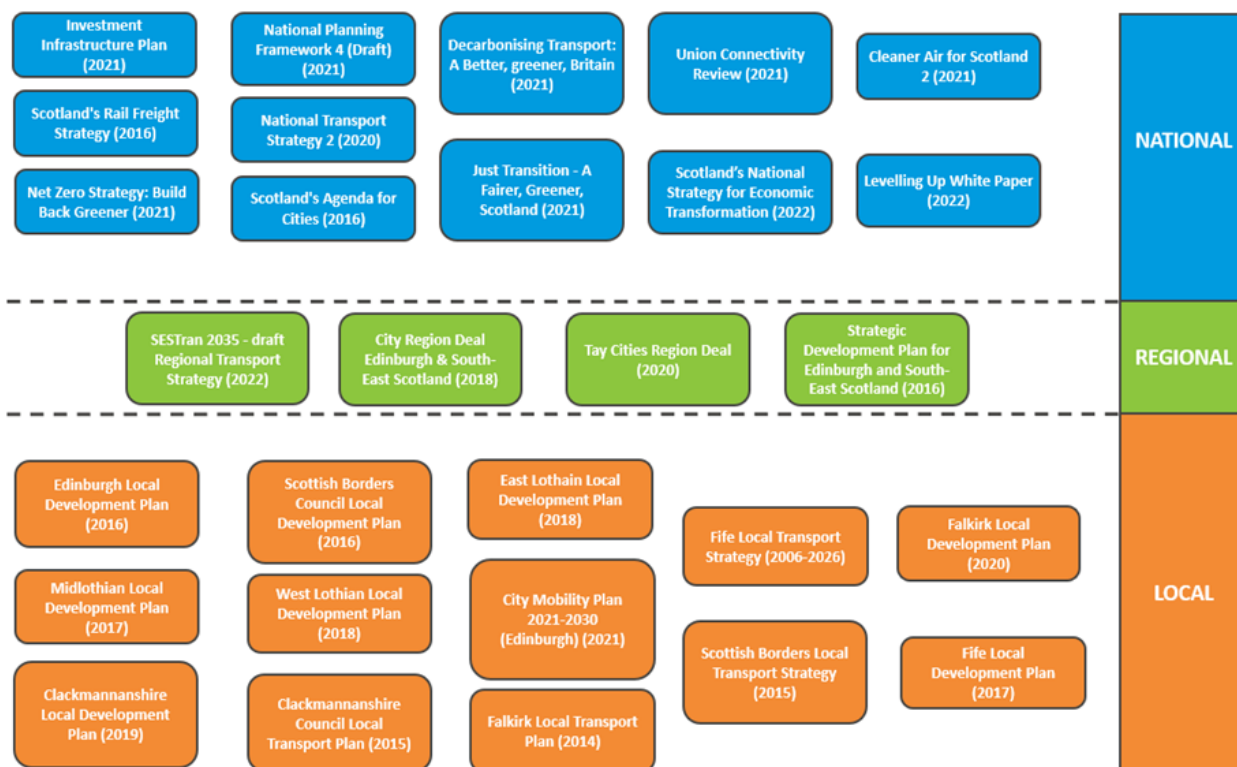


Figure 3 Considered Strategic Fit Elements

There is an increasing impetus being placed on the role of freight, particularly from a political perspective, which is highlighted through recent strategic publications at a UK Government level such as the Future of Freight³ which seeks to address the identified challenge of transforming how freight moves by road and rail, in towns and cities, cross-country and into ports and airports. At a Governmental level, there is a strong acknowledgement of not only the significant contribution that the movement of goods plays in underpinning the economy but also that as a sector, there is a clear role for it to play in adopting new technologies and solutions to help freight go green.

A further Strategic Driver, this time at a Scottish-level, is the second Strategic Transport Projects Review (STPR) process led by Transport Scotland. This multi-modal assessment of the Scottish transport network, initially undertaken in 2008 is currently undergoing a refresh. Through its latest draft publications, STPR2 has set out a series of recommendations of interest to both the SEStran region and the freight sector as a whole⁴: In particular, the STPR2 process has recommended that there be significant enhancements to the existing rail network with the following recommendations of note:

- Enhancement of the Edinburgh / Glasgow to Perth/ Dundee rail corridor for both passengers and freight with an aspiration for the latter to increase volumes that can be carried and support a faster shift from road to rail through integrating rail delivery across passenger and freight services.
- High Speed and cross border rail enhancements targeted at longer-distance cross-border routes to provide higher speed passenger services and increased capacity and reliability for rail freight through releasing capacity for enhanced regional services.

³ Future of Freight: a long-term plan, Department for Transport, 2022, <https://www.gov.uk/government/publications/future-of-freight-plan>

⁴ STPR2 Summary Note, Transport Scotland, 2022, <https://www.transport.gov.scot/publication/summary-report-january-2022-stpr2/>

- A review of rail freight terminals and hubs and rail freight growth in Scotland to identify whether there is currently sufficient provision to appropriately enable a significant shift of freight from road to rail.

Another identified strategic driver is the recent emergence of Green Freeports in Scotland. These hubs are expected to support the regeneration of communities across Scotland and are a key component of the UK Government's Levelling Up Agenda.

The UK and Scottish Governments agreed a landmark deal in 2022 to support the delivery of two Green Freeports in Scotland. Green Freeports will have net-zero targets and will make a pledge to reach Net Zero by 2045.

In the context of the SEStran region, proposals have been recently put forward by a consortium, led by Forth Ports, to deliver a Forth Green Freeport across the region which seeks to deliver 50,000 new jobs, develop 550 hectares of land and act as a catalyst for new green technologies and renewable energy manufacturing.

The bid has identified strategically located sites which are located across Grangemouth, Leith, Rosyth, Burntisland and Edinburgh Airport which is expected to significantly increase trade movements. Through utilising existing high-quality sea and air gateways, a successful bid is likely to transform how goods are transported across the region and increase the proportion transported in a sustainable manner. Key to this bid is the Port of Grangemouth which alone is responsible for distributing goods representing 30% of Scotland's Gross Domestic Product (GDP)⁵.

As part of the Preliminary Options Appraisal, interventions have been considered against their overall Strategic Fit with priorities, objectives and ambition at a Local, Regional and National level.

3.1.3 STAG Criteria

A key element of the appraisal process is understanding the performance of the interventions against criteria as set out within STAG which represents the best practice guidance for transport appraisals in Scotland and follows the structure and methodology that is consistent with the UK Government's Green Book, while embracing Scottish Government policy across a range of areas. An appraisal using STAG is required whenever Scottish Government funding, support or approval is needed to change the transport system and is applicable to all transport interventions, regardless of the transport modes affected.

STAG is an objective led process where appraisals explore location-specific problems and opportunities, set objectives, and demonstrate how options perform against them. The foundation of all appraisals is a clear evidence base which underpins the identification of the problems and opportunities.

A qualitative assessment was undertaken for each intervention against the STAG Criteria, using the seven-point assessment scale outlined in Section 2.1.1. The STAG Criteria which the options were appraised against is set out in Table 2.

Table 2. STAG Criteria

Criteria	Sub-Criterion
Environment	Biodiversity and Habitats, Geology and Soils, Land Use, Water, Drainage and Flooding, Air Quality, Historic Environment, Landscape, Noise and Vibration
Climate Change	Greenhouse Gas Emissions, Vulnerability to the Effects of Climate Change, Potential to Adapt to the Effects of Climate Change
Health, Safety and Wellbeing	Accidents, Security, Health Outcomes, Access to Health and Wellbeing Infrastructure, Visual Amenity
Economy	Transport Economic Efficiency, Wider Economic Impacts
Equality and Accessibility	Public Transport Network Coverage, Active Travel Network Coverage, Comparative Access by People Group, Comparative Access by Geographic Location, Affordability

⁵ Forth Ports Grangemouth, Forth Ports, <https://www.forthports.co.uk/our-ports/grangemouth/>

The Preliminary Options Appraisal also assesses the deliverability of each option, namely:

- **Feasibility** – the feasibility of construction or implementation and operation (if relevant) of an option and the status of its technology (e.g. proven, prototype, in development, etc.) as well as any cost, timescale or deliverability risks associated with the construction or operation of the option, including consideration of the need for any departure from design standards that may be required;
- **Affordability** – the scale of the financing burden on the promoting authority and other possible funding organisations and the risks associated with these. The level of risk associated with an option's ongoing operating or maintenance costs and its likely operating revenues (if applicable); and
- **Public Acceptability** – the likely public response is of importance at this initial appraisal phase and reference to supporting evidence, by providing for example results from a stakeholder engagement exercise where appropriate.

The evidence base for each option that is taken forward to the next stage of the appraisal process – Detailed Appraisal – will be further developed through more data gathering and analysis.

4 Stakeholder Engagement

4.1 Introduction

Following wide-ranging consultation undertaken for the CfC in 2020, further consultation with stakeholders were undertaken for the Preliminary Option Appraisal to further assess the potential options.

Consultees that were reached out to as part of the Case for Change update and Preliminary Options Appraisal with those that were subsequently engaged with are set out in Table 3. These consultees were identified through review of those previously consulted as part of the initial development of the Case for Change, internal discussions between the project team and SEStran, plus those identified through knowledge and industry best practice, and by identifying other appropriate policy and decision makers relating to the freight sector across the region and further afield.

Table 3. Engaged Stakeholders

Key Stakeholders		
Transport Scotland	RistoI Consulting	Fife Council
Edinburgh Napier University	Forth Ports	Edinburgh Trams
Zedify	Samskip	Hapag-Lloyd
Scotch Whisky Association	Scottish Seaford Association	Mineral Products Association
Amazon Logistics	Malcolm Logistics	Scottish Waterways
DHL	Highland Spring	City of Edinburgh Council
Clackmannanshire Council	East Lothian Council	Falkirk Council
Midlothian Council	West Lothian Council	Scottish Borders Council
ScotRail	Russell Group	Network Rail
Edinburgh & South East Scotland City Region Deal	Scottish Freight & Logistics Group (ScotFLaG)	

4.2 Stakeholder Workshop

In addition to one-on-one consultations with stakeholders, a virtual interactive workshop was held in March 2022 where attendees were invited to share knowledge and provide feedback on the interventions which had emerged through the CfC. In addition to gaining knowledge that could be used to inform appraisal of the interventions, was the need to understand whether any further interventions should be considered as well as their potential locations.

Figure 4 provides an insight into the contents of discussions during the stakeholder workshop.

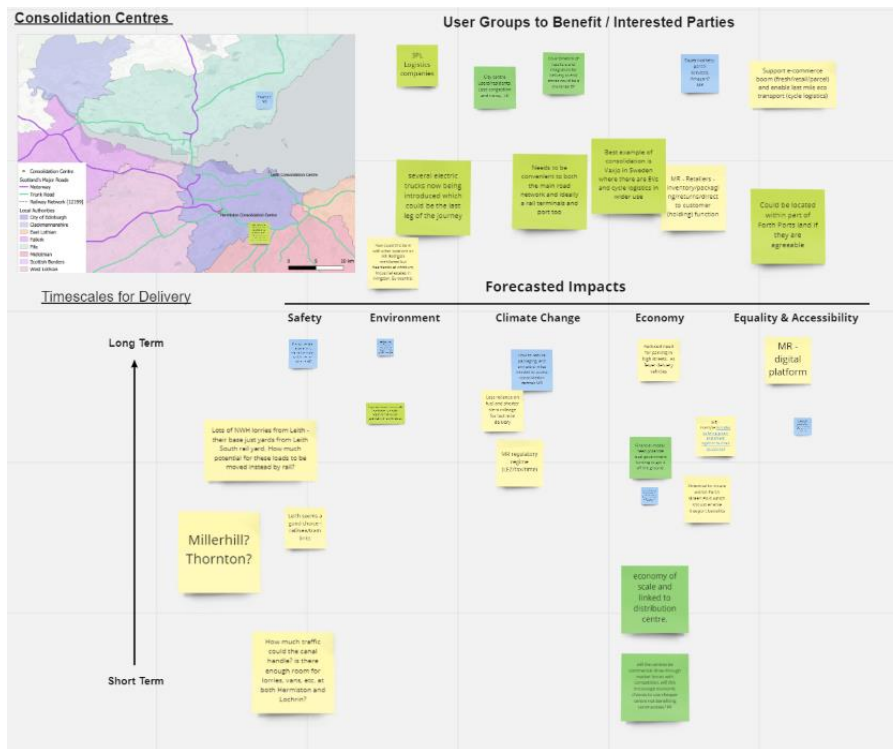


Figure 4 Example of Stakeholder Workshop Discussion

The workshop provided the opportunity to gather thoughts, views, and feedback on the interventions around the following key themes:

- Whether any further locations, not already considered, would be suitable to accommodate an option
- User groups that are likely to benefit / be adversely impacted, through delivery of an option
- The impacts that would arise through delivery of an option
- Timescales for delivery and any key issues and risk relating to wider deliverability

The workshop was also used to gauge stakeholder’s views on options which were viewed in the strongest light. The initial perception from the stakeholders on these interventions is highlighted in Figure 5 with, those interventions that either directly or indirectly facilitate the sustainable movement of goods and are operationally practical being the most attractive.

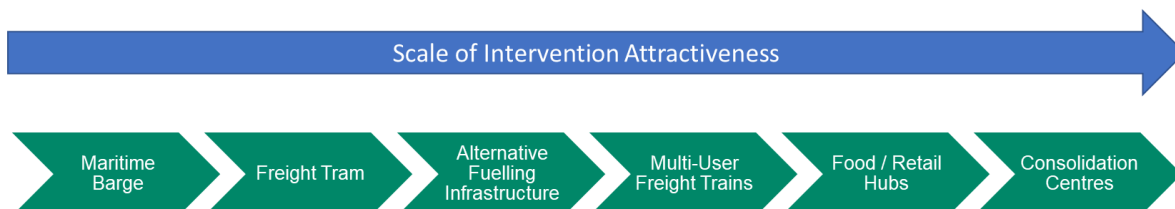


Figure 5 Stakeholder Workshop Intervention Perceptions

The workshop has been used to inform the appraisal of the identified interventions, as well as generating the following key points for consideration:

- Combining Consolidation Centres with alternative fuelling infrastructure would provide the development with a dual-purpose and provide a further potential commercial funding stream. Co-locating may also reduce overall land-take requirements for both options.
- Merit in aligning Consolidation Centres with urban regeneration to facilitate improved efficiencies for goods handling. There is also potential benefit in considering role in supporting recycling activities.
- There may be benefit in aligning first mile / last mile logistics with local policies that influence transport decisions (e.g. Low-Emission Zone).
- Delivering Micro-Consolidation Centres within or adjacent to key retail areas are likely to complement associated activities, reducing the length of trips and increasing the movement of deliveries via sustainable modes.
- Incorporating technological solutions within Consolidation Centres provides the opportunity to act as testbed for innovation and provide learning opportunities for potential rollout across the wider local area / region.

Enhancing the stakeholder workshop outcomes were further targeted one-on-one consultations with key stakeholders across the region. These discussions were valuable in understanding the key priorities from these stakeholders as well as understanding their views on which interventions they would like appraising as part of the Preliminary Options Appraisal. Furthermore, these discussions also provided insight into potential elements for consideration at the next stage of the appraisal – Detailed Appraisal – if the interventions are to be taken forward.

Table 4 outlines how stakeholder feedback has elicited strong support for several of the measures being appraised. This suggests willingness (and desire) of both public and private sector stakeholders to progress them and the commercial attractiveness of these options beyond any initial trial stage.

Table 4. Stakeholder Support

Intervention	Stakeholder Support	Level of support
Consolidation Centres – Various	Feedback from parcel operators showed that they were keen to explore the concept and were actively looking for sites to collate shipments of goods before movement by sustainable means over the ‘last mile’. This is influenced by a desire to reduce the environmental impact of their operations, particularly in urban areas, despite any additional costs that might accrue.	Strong – mirrors industry aspirations
Food/Retail Hub (Grangemouth / Leith)	Forth Ports was very supportive of this measure and feel that there is significant potential for one of their larger ports to act as a regional freight hub given their relative proximity to key population centres and opportunity to bring in goods by rail and sea. The volume of goods coming into the ports, opportunity for growth and available storage space means they are well placed to help	Strong – clear potential for sites in the region
Multi-User Freight Train Service	Forth Ports felt that this measure would be very attractive to potential customers, with several of their clients expressing an interest in such a service and the potential for (once the service is established in a “ramp-up” period) this to operate along commercial lines without subsidy. This was supported by feedback from major food and drink producers in the region, who have invested in rail infrastructure and are working with logistics partners to explore rail freight further. Other stakeholders were keen to explore greater use of rail freight for trunking movements.	Very strong – clear commercial case for trial
Freight Tram	Discussions with Edinburgh Trams demonstrated strong support for enhancing the productivity of the network by introducing dedicated freight trams that run alongside passenger trams. This may require new rolling stock and sidings to ensure sufficient capacity and ability to load and goods without conflicting with passenger movements.	Very strong – clear support from current operator

Discussions suggested there was available land for this and the opportunity to order flexible trams as part of future expansion that could take either passengers or freight.

Potential users of the Freight Tram were also keen to explore how this option could support city logistics.

Passenger Trains for freight	Consultation with ScotRail demonstrated strong support for utilising passenger trains for freight movements where capacity and rolling stock allows. There is scope at several mainline stations to act as consolidation centres for first and last mile delivery and available rolling stock to undertake these movements. This is supported by stakeholders who generate freight movements in the city and want to reduce their environmental impact.	Very strong – clear support from current operator
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The additional stakeholder engagement that has been undertaken as part of the Preliminary Options Appraisal has been pivotal in informing the robust appraisal of the identified interventions, particularly regarding deliverability and gauging acceptability.

Furthermore, the engagement has also enabled the development of broader recommendations for consideration, which are further detailed within Section 5.

5 Preliminary Options Appraisal

5.1 Introduction

This section sets out the appraisal summary of each of the identified interventions that have emerged through both the CfC and subsequent stakeholder engagement.

Summaries are presented on how these interventions have performed against the identified Transport Planning Objectives, policy at national, regional and local level, STAG and Deliverability criteria.

Underpinning these summaries are the detailed Appraisal Summary Tables (ASTs) which are set out in an accompanying Technical Annex to this Preliminary Options Appraisal Report.

5.2 Appraisal Assumptions

For some interventions there is uncertainty regarding their overall size, scale, role and offering which was identified to be particularly prevalent for options which had a land-use development element associated with them, such as for Food / Retail Hubs and Consolidation Centres.

To reduce this uncertainty and to assist in the robust appraisal of the identified interventions, a series of assumptions have been made to provide further clarity on some of the options as part of the Preliminary Option Appraisal process. Interventions identified to have this uncertainty and the assumptions made are set out in Table 5.

Table 5. Appraisal Assumptions

Option ID(s)	Option	Assumption(s)
GF11, GF12	Food / Retail Hubs (Port of Leith and Port of Grangemouth)	<p>Will be delivered on Brownfield Land and therefore will have a reduced impact against some Environmental (e.g. Biodiversity and Habitat) and Land-Use designations.</p> <p>Will be located within the wider Port itself and will therefore be able to benefit from being delivered through Permitted Development. Delivery will have reduced criteria from a Planning perspective.</p> <p>Development itself will have an overall moderate footprint with associated facilities such as parking facilities and ancillary office space. Development will be similar to other regional logistics and warehousing type-development but not of the scale of major actors.</p> <p>Leith Only – Urban location will likely give rise to a number of other vehicles serving the site, predominantly cargo bikes</p>
GF14, GF16	Consolidation Centres (Port of Leith and Port of Grangemouth)	<p>Will be delivered on Brownfield Land and therefore will have a reduced impact against some Environmental (e.g. Biodiversity and Habitat) and Land-Use designations.</p> <p>Will be located within the wider Ports themselves and will therefore be able to benefit from being delivered through Permitted Development. Delivery will have reduced criteria from a Planning perspective.</p> <p>Development itself will have an overall moderate footprint with associated facilities such as parking facilities and ancillary office space. Development will be similar to other regional logistics and warehousing type-development but not of the scale of that of major actors (e.g. Tesco, Amazon etc)</p> <p>Will generate a lower proportion of vehicular trips than more conventional logistics and distribution type-development. Expectation that an increasing proportion of vehicles using the site will be of a more sustainable nature, with a focus on low-emission and zero-emission vehicles. Vehicles transporting goods to local communities will have an overall reduced size and frequency than current deliveries (i.e. a smaller number of HGVs).</p> <p>Leith Only – Urban location will likely give rise to a number of other vehicles serving the site, predominantly cargo bikes</p>
GF15	Consolidation Centre (Hermiston)	<p>Canal-facing location will require land-take on land that has broad allocation for employment purposes, but the site will not be located within Hermiston Village Conservation Area.</p> <p>Development itself will have an overall moderate footprint with associated facilities such as parking facilities and ancillary office space. Development will be similar in function to other regional logistics type-developments but not of the scale of that of major companies (e.g. Tesco, Amazon etc). Option to also include canal-berthing facilities to serve waterborne craft from the site.</p> <p>Will generate a lower proportion of vehicular trips than more conventional logistics and distribution type-development. Expectation that a moderate proportion of vehicles using the site will be of a more sustainable nature, with a focus on low-emission and zero-emission vehicles. Vehicles transporting goods to local communities will have an overall reduced size and frequency than current deliveries (i.e. a smaller number of HGVs).</p>

Option ID(s)	Option	Assumption(s)
GF12	Consolidation Centre (Regional Wide Concept)	<p>Development will seek to be delivered in locations where there is an existing precedent of development and where possible utilise existing brownfield land / vacant development space and therefore will have a reduced impact against some Environmental (e.g. Biodiversity and Habitat) and Land-Use designations.</p> <p>Development itself will have an overall moderate footprint with associated facilities such as parking facilities and ancillary office space. Development will be similar in function to other regional logistics type-development but not of the scale.</p> <p>Will generate a lower proportion of vehicular trips than more conventional logistics and distribution type-development. Expectation that a moderate proportion of vehicles using the site will be of a more sustainable nature, with a focus on low-emission and zero-emission vehicles. Vehicles transporting goods to local communities will have an overall reduced size and frequency than current deliveries.</p>
GF13	Consolidation Centre (Rural Areas Concept)	<p>Development will be in one or more rural towns/villages where there are existing developments and where possible utilise existing brownfield land / vacant development space and therefore will have a reduced impact against some Environmental (e.g. Biodiversity and Habitat) and Land-Use designations. Due to its rural-facing nature, the focus of the option will be to utilise existing vacant space with the last-resort being the delivery of new development.</p> <p>Development itself will have an overall modest footprint with associated facilities such as parking facilities and ancillary office space. Development will be a small-scale warehousing type-development (e.g. small supermarket, local parcel depot etc).</p> <p>Will generate a lower proportion of vehicular trips than more conventional logistics and distribution type-development. Expectation that a moderate proportion of vehicles using the site will be of a more sustainable nature, with an increasing focus on low-emission and zero-emission vehicles. Vehicles transporting goods to local communities will have an overall reduced size and frequency than current deliveries (i.e. a smaller number of HGVs).</p>
GFP5	Freight Tram with Urban Consolidation Centres	<p>Consolidation Centres to be delivered at strategic tram hubs along the network (e.g. Edinburgh Airport, Haymarket and when completed, Port of Leith stations).</p> <p>Consolidation Centres to utilise available vacant space within the immediate local area and if possible, utilise space within the existing footprint close to identified tram stops. Development itself will have an overall modest footprint with associated facilities such as office space, lockers and parcel storage area. Development will be similar to other similar small-scale logistics type-developments (e.g. small supermarket, local parcel depot etc).</p> <p>Will generate a lower proportion of vehicular trips than more conventional logistics and distribution type-development. Expectation that majority of vehicles using the site will be of a more sustainable nature, with a focus on low-emission and zero-emission vehicles. The frequency of trams capable of carrying parcels is yet to be determined.</p>
GFP6	Consolidation Centres with Passenger Freight Train	<p>Consolidation Centres to be delivered at / adjacent to existing Passenger Railway Stations (e.g. Haymarket, Bathgate, Dunbar, Tweedbank)</p> <p>Consolidation Centres to utilise available vacant space within the immediate local area and if possible, utilise space within the existing footprint of identified stations. Development itself will have an overall modest footprint with associated facilities such as parking facilities and ancillary office space. Development will be similar to other similar small-scale logistics and warehousing type-development (e.g. small supermarket, local parcel depot etc).</p> <p>Will generate a lower proportion of vehicular trips than more conventional logistics and distribution type-development. Expectation that a moderate proportion of vehicles using the site will be of a more sustainable nature, with a focus on low-emission and zero-emission vehicles. Vehicles transporting goods to local communities will have an overall reduced size and frequency than current deliveries (i.e. a smaller number of HGVs).</p>

5.3 Individual Option Appraisal

5.3.1 Overview

The individual options which have been appraised are set out in Table 6. Following the CfC and considering the comments from stakeholder engagement, it was appropriate to assess additional interventions. These further interventions for appraisal were identified through the consideration of specific / broad locations that may be suitable for development, (particularly for those relating to Consolidation Centres) to both understand the overall performance of the general concept across the SEStran region but also at existing key locations that are potentially well-suited to accommodate such an intervention.

Table 6. Individual Options for Appraisal

Option ID	Option Title	Option Description
GFI1	Food/Retail Hub (Grangemouth)	A dedicated freight handling facility that acts as a regional distribution hub for major retailers, taking advantage of existing multi-modal connections at the Port of Grangemouth to move goods by rail, road and water.
GFI2	Food/Retail Hub (Port of Leith)	A dedicated freight handling facility that serves the needs of the City of Edinburgh, taking advantage of existing multi-modal connections at the Port and within the local area to move goods by road, water and rail.
GFI3	Multi-User Freight Train Service (Business only)	A rail freight service/ services that can be utilised by various users and share the overall usage of a rail freight service that have historically only been able to be used by users who have enough freight to take over an entire service (e.g. major retailers). It is envisaged that such a service(s) will utilise strategic rail freight terminals to facilitate the movement of goods across the SEStran region but also between the Central Belt and other parts of Scotland and further afield to England.
GFI4	Consolidation Centres (Port of Leith)	A dedicated freight handling facility with a particular focus on sustainable freight movements that serves the needs of the City of Edinburgh, taking advantage of existing multi-modal connections at the Port and within the local area to move goods by road, water and rail.
GFI5	Consolidation Centres (Hermiston)	A dedicated freight handling facility with a particular focus on sustainable freight movements, taking advantage of existing multi-modal connections within the local area. Its proximity to the Union Canal and high-quality highway connections will enable the effective movement of goods across the area and into the centre of the City of Edinburgh.
GFI6	Consolidation Centres (Grangemouth)	A dedicated freight handling facility with a particular focus on sustainable freight movements, taking advantage of existing multi-modal connections at the Port of Grangemouth to move goods by road, rail and water.
GFI7	Development of the necessary infrastructure for alternative fuels	Delivery of Alternative Fuel hubs that potentially dispense a range of fuel sources (e.g. Electric, Hydrogen, other gases) which are located where there are existing high volumes of road-based goods movements (e.g. International Gateways, Business Parks).
GFI8	Edinburgh Tram Freight	Utilising existing Edinburgh Tram infrastructure to provide an alternative means for the sustainable movement of small and medium sized goods between Edinburgh Airport, Edinburgh City Centre and when completed, the Port of Leith. This would likely require new or adapted rolling stock.
GFI9	Passenger Trains for freight	Using existing railway infrastructure, the option seeks to facilitate the sustainable movement of goods of varying sizes along existing passenger rail routes and the use of passenger rail stations to facilitate the handling of goods. This concept is likely to use either adapted compartments on existing trains or conversions of passenger multiple units to carry parcels/goods.
GFI10	Use maritime craft to transfer spirits from Methil to Grangemouth for onward shipping	A dedicated waterborne freight service that serves the Ports of Methil, in Fife, and Grangemouth and provides a direct alternative method for the movement of a significant volume of manufactured goods between the two areas which is currently transported by road.
GFI11	Hybrid shunter to facilitate low-carbon rail freight movements at terminals	The replacement of existing diesel shunter(s) with less-polluting hybrid shunter(s) at rail freight terminals and interchanges to run on electric diesel or battery power. These are being introduced by several major industrial companies across Europe.
GFI12	Consolidation Centre (Regional-wide concept)	The consideration of the broad concept of a dedicated freight handling facility with a particular focus on sustainable freight movements within the SEStran region.

Option ID	Option Title	Option Description
GF13	Consolidation Centre (Rural Areas)	The consideration of the broad concept of a dedicated freight handling facility with a particular focus on sustainable freight movements within the SEStran region where such a development would cater for and support the needs of rural communities and businesses.

The remainder of this section sets out the outcomes of the appraisal of the identified individual interventions.

5.3.2 Transport Planning Objectives Appraisal

Each of the identified interventions have been appraised against the TPOs using the seven-point grading scale as previously highlighted in Section 3.

Table 7 provides an overview of the summary of the appraisal of the individual interventions against the TPOs. Complementing this overview are the ASTs with a full detailed breakdown set out within the supporting Technical Annex.

Table 7. Individual Intervention against TPOs Appraisal Summary

ID	Title	TPO1	TPO2	TPO3
GF11	Food/Retail Hub (Port of Grangemouth)	✓	✓✓	✓
GF12	Food/Retail Hub (Port of Leith)	✓	✓	✓
GF13	Multi-User Freight Train Service (Business only)0	✓✓	✓✓✓	✓
GF14	Consolidation Centre (Port of Leith)	✓✓	✓✓	✓
GF15	Consolidation Centre (Hemiston)	✓✓	✓✓	✓
GF16	Consolidation Centres (Grangemouth)	✓✓	✓✓	✓
GF17	Development of the necessary infrastructure for alternative fuels	✓✓	✓✓	✓
GF18	Edinburgh Freight Tram	✓	✓✓	✓
GF19	Passenger Trains for freight	✓	✓	✓
GF110	Use maritime craft to transfer spirits from Methil to Grangemouth for onward shipping	✓	✓	✓
GF111	Hybrid shunter to facilitate low-carbon rail freight movements at terminals	✓	✓	✓
GF112	Consolidation Centre (Regional-wide concept)	✓✓	✓✓	✓
GF113	Consolidation Centre (Rural Areas)	✓✓	✓✓	✓

In terms of the overall performance against the TPOs, interventions which are likely to demonstrate environmental, transport and wider economic benefits emerge strongly as they align across all the identified TPOs. Options that emerged positively through the appraisal are noted to have elements within the overall proposal that are likely to not only increase the proportion of goods transported by sustainable modes and stimulate economic growth but also reduce the overall impact of freight movements whilst also seeking to maintain and enhance a safe and resilient transport network.

Notable examples for mention include the following:

Strong Alignment: Multi-User Freight Train (GF13), Edinburgh Freight Tram (GF18) Consolidation Centres (GF14, GF15, GF16, GF112 and GF113) and Alternative Fuelling Infrastructure (GF17)

Moderate Alignment: Food / Retail Hubs (GF11 and GF12), Freight Tram (GF18), Passenger Trains for Freight (GF19), Maritime Barge (GF110) and Hybrid Shunter (GF111)

5.3.3 Strategic Fit Appraisal

This sub-section summarises the key outcomes of the Policy Appraisal with the full alignment outcomes set out within the supporting Technical Annex.

There are several key outcomes from the policy appraisal. The Scottish Government outlined a commitment to shift towards meeting net-zero targets with there being an overarching objective to decarbonise all sectors of society. Road Transport is acknowledged as a major contributor to green house gases and local air quality pollutants and hence a critical sector for focus. National Transport Strategy 2 (NTS2) and the second Strategic Transport Projects Review (STPR2) are two examples of strategies where there is a strong focus for Scotland to ensure transport emission levels are significantly reduced, with a particular focus on the freight sector. For rail freight, there is identified alignment at a Scottish and UK level as demonstrated through priorities set out within the recent Future of Freight strategy⁶.

In relation to Climate Change, there are statements within these strategic documents that the current movement of goods via conventional means such as diesel hauled road freight is unsustainable and that a long-term strategy is needed to facilitate a significant modal shift onto more sustainable transport modes such as rail, water and those relating to Active Travel. There is a stated need to address how goods and services are transported and reduce the existing adverse impacts on local communities by existing first-mile / last-mile logistics and distribution. Options for this include cargo bikes and electric vans. For freight that will still need to be moved by Heavy Goods Vehicle these will need to be on zero emission lorries. The sale of new diesel engine HGVs is to be phased out; vehicles up to 26 tonnes will cease in 2035 and for larger HGVs from 2040.

This need to improve the overall perception of place to local communities is becoming an increasing topic of priority for policy and decision makers and the need to radically address how local environments are supported and cared for and address negative aspects associated with the movement of goods and services. Key to this is the need to improve air quality, reduce noise levels and the associated transport and highway traffic impacts through these activities to deliver sustainable places to live, work and play.

From an economic perspective, the SEStran Region and its constituent Local Authorities are a significant contributor to the Scottish economy and collectively, the region is keen to build upon this already-robust economy and further facilitate improvements in economic competitiveness through increasing access to distribution markets, both domestic and abroad, supporting burgeoning and innovative solutions to drive change to reinforce the role of the region as a key economic engine of both the Scottish and wider UK economies.

There are several nationally significant economic clusters and trip generators from a freight perspective across the region such as the Port of Grangemouth. Therefore, considering the above, several of the identified interventions have emerged as having a stronger alignment with these priorities and aspirations and whilst some are noted to be stronger than others, a significant proportion have a perceived robust strategic fit. Notable examples include:

Strong Alignment: Multi-User Freight Train (GFI3), Edinburgh Freight Tram (GFI8) Consolidation Centres (GFI4, GFI5, GFI6, GFI12 and GFI13) and Alternative Fuelling Infrastructure (GFI7)

Moderate Alignment: Food / Retail Hubs (GFI1 and GFI2) and Passenger Trains for Freight (GFI9)

5.3.4 STAG Appraisal

The individual options were appraised against the five STAG criteria, along with the relevant sub criteria. To reflect the current stage of the identified interventions and proportionate to the level of assessment required by a Preliminary Options Appraisal, the appraisal was undertaken using qualitative means with scoring informed by a seven-point grading scale identical to that used as part of the TPO appraisal.

⁶ Future of Freight: a long-term plan, Department for Transport, 2022, <https://www.gov.uk/government/publications/future-of-freight-plan>

A summary of the STAG appraisal from the perspective of each of the five key assessment criteria is set out in Table 8 with detailed outcomes of the STAG appraisal presented within Appendix A. It should be noted that the summary table is informed by numerous sub-criterion which collectively underpin the overall aggregate scoring for each criteria.

Table 8. Summary of Individual Option STAG Appraisal

ID	Title	STAG Criteria				
		Environment	Climate Change	Health & Safety	Economy	Equality & Accessibility
GF11	Food/Retail Hub (Port of Grangemouth)	0	0	✓	✓✓	0
GF12	Food/Retail Hub (Port of Leith)	0	0	0	✓✓	0
GF13	Multi-User Freight Train Service (Business only)	✓✓	0	✓✓	✓✓✓	0
GF14	Consolidation Centre (Port of Leith)	✓	0	✓	✓✓	0
GF15	Consolidation Centre (Hermiston)	✓	0	✓	✓✓	0
GF16	Consolidation Centres (Grangemouth)	✓	0	✓	✓✓	0
GF17	Development of the necessary infrastructure for alternative fuels	✓	✓✓	0	✓✓	0
GF18	Edinburgh Freight Tram	0	0	✓	✓✓	0
GF19	Passenger Trains for freight	✓	0	✓	✓✓✓	0
GF110	Use maritime craft to transfer spirits from Methil to Grangemouth for onward shipping	0	0	✓	✓✓	0
GF111	Hybrid shunter to facilitate low-carbon rail freight movements at terminals	0	0	0	✓	0
GF112	Consolidation Centre (Regional-wide concept)	✓	0	✓	✓✓	0
GF113	Consolidation Centre (Rural Areas)	✓	0	✓	✓✓	0

Notwithstanding the detailed outcomes of the STAG appraisal, it is noted that the main differential in outcomes relates to how an intervention performs from environmental, climate change and economic perspectives. Interventions which are unlikely to require land-take and can utilise existing available assets are likely to have an overall minor / neutral impact against environmental receptors. Furthermore, those which are likely to not only generate transport benefits through journey times and operating costs, but also likely to generate wider economic benefits through agglomeration and potential to support wider nearby activities also emerge better through the appraisal. Lastly, interventions that are likely to reduce emissions through reducing the overall volume of existing movements by more polluting modes (e.g. diesel road freight) as well as not being at significant risks to the impacts of climate change also score well.

Therefore, considering the above, the following interventions have emerged of-note through STAG appraisal:

Strong Performance: Multi-User Freight Train (GF13), Edinburgh Freight Tram (GF18), Passenger Freight Trains (GF19) and Consolidation Centres (GF14, GF15, GF16, GF112 and GF113).

Moderate Performance: Alternative Fuelling Infrastructure (GF17)

5.3.5 Feasibility, Affordability and Public Acceptability

Following the approach set out in Section Two, the identified interventions have also been appraised against their perceived feasibility, affordability and Public Acceptability. The outcomes of this appraisal are also presented within the associated Appraisal Summary Tables for each intervention within the supporting Technical Annex.

Many of the interventions emerge positively from a deliverability perspective, which is attributed to some not requiring any new infrastructure to be delivered and seek to utilise existing assets. A further contributory factor for others is where development is proposed such as Consolidation Centres and Food / Retail Hubs which seek to be delivered in locations which will benefit from existing land-use planning designations and (for the Ports of Grangemouth and Leith) will benefit from Permitted Development rights. Where specific sites have not been proposed, stakeholder discussions have indicated that there is a plethora of suitable sites available for potential development across the region which are well suited for the proposed interventions.

Interventions which are likely to have low operational and maintenance costs and have the potential to generate revenue streams likely to surpass the overall costs in the medium to long-term emerge in a stronger positive light than those which have significant initial costs and the overall rate of return being relatively poor.

The perceived Public Acceptability for each of the identified interventions has been informed through stakeholder engagement and therefore seeks to encompass the views of a range of user-groups, with a particular focus on current decision makers and actors across the freight sector. As a general theme, it is noted that there are broad levels of support across all of the identified interventions and where public acceptability is perceived to be low, this is due to significant identified barriers for delivery which have been identified.

Through this assessment criteria, the following interventions have emerged strongly:

Strong Performance: Multi-User Freight Train (GFI3), Alternative Fuelling Infrastructure (GFI7), Edinburgh Freight Tram (GFI8) and Consolidation Centres (GFI4, GFI5, GFI6, GFI12 and GFI13).

Moderate Performance: Hybrid Shunter (GFI11)

5.3.6 Summary

Appraisal of the individual options across various assessment criteria enabled a comprehensive understanding of their overall position and which should represent a priority for further consideration. For those that emerged the strongest, it was noted that these interventions tended to have multiple elements that would enable them to generate benefits across several fields with a particular focus on environmental benefits (e.g., air quality, noise), ability to contribute towards delivering a Net Zero society as well as generating transport and wider economic benefits. A further key element was the ability of the intervention to be delivered, with minimal associated risks, and able to generate revenue to a scale where it would provide an overall positive return on investment as well as, crucially, having stakeholder support.

The following interventions emerged as the better performing options against the appraisal criteria:

- Multi-User Freight Train (GFI3)
- Alternative Refuelling Infrastructure (GFI7)
- Edinburgh Freight Tram (GFI8)
- Passenger Trains for Freight (GFI9)
- Consolidation Centres (GFI4, GFI5, GFI6, GFI12 and GFI13)

5.4 Package Intervention Appraisal

5.4.1 Introduction

Following the outcomes of the individual appraisal of the interventions, stakeholder engagement and internal discussions within the Delivery Team it was recognised that there would be merit and synergies from amalgamating certain interventions into packages. This was primarily driven by the identification of there being several complementary aspects of individual options which when brought together, are likely to bring cumulative benefits.

Packages that were identified as being appropriate for appraisal are detailed in Table 9 below.

Table 9. Package Interventions for Appraisal

ID	Title	Description
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure	The combination of GF12 and GF17. The option combines two complementary activities to enable the refuelling of vehicles where a notable proportion of those using the facility are envisaged to be of a sustainable nature.
GFP2	Food / Retail Hubs with Alternative Fuelling Infrastructure	The general concept of a distribution hub that is integrated with sustainable refuelling infrastructure and can cater for expected levels of moderate – high demand.
GFP3	Food / Retail Hub (Leith) with connected Edinburgh Freight Tram	The combination of GF14 and GF18. This option combines a significant trip generator with an alternative means of transporting goods to serve local communities within the catchment of the existing tram network.
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges	The combination of GF17 and GF19. This option integrates sustainable refuelling facilities at key stations served by the rail service and they act as a hub for logistics and distribution.
GFP5	Urban Consolidation Centres associated with Edinburgh Freight Tram	This option combines GF18 with the general concept of micro-consolidation centres located at key tram stations on the existing Edinburgh Tram Network such as Edinburgh Airport, Haymarket Station and at the planned Port of Leith stop.
GFP6	Consolidation Centres at Passenger Train Interchanges	An offshoot of GF19, this option adopts the concept of delivering small consolidation centres at modestly sized railway stations served by passenger rail freight services.
GFP7	Multi-User Freight Train with Alternative Fuelling Infrastructure	The combination of GF13 and GF17 integrates alternative refuelling facilities at strategic rail freight facilities to cater for existing and forecasted goods vehicle demand at these locations.

These identified package interventions were also appraised following the same process used for the appraisal of the individual interventions against the identified TPOs, perceived Strategic Fit, STAG criteria and also from the perspective of feasibility, affordability and public acceptability whereby the following sub-sections set out the outcomes of this appraisal.

5.4.2 Transport Planning Objectives Appraisal

Table 10 provides a summary of the preliminary results in regard to the packages against the TPOs. This section provides a summary for each Package with the full breakdown of the preliminary appraisal found in Appendix A.

Table 10. Package Intervention TPO Appraisal Summary

ID	Option Title	TPO1	TPO2	TPO3
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure	✓✓	✓✓✓	✓
GFP2	Food / Retail Hubs with Alternative Fuelling Infrastructure	✓✓	✓✓	✓
GFP3	Food / Retail Hub (Port of Leith) with connected Edinburgh Freight Tram	✓✓	✓✓	✓✓
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges	✓✓	✓✓	✓✓
GFP5	Urban Consolidation Centres associated with Edinburgh Freight Tram	✓✓	✓✓	✓✓
GFP6	Consolidation Centres associated with smaller Passenger Train Interchanges	✓✓	✓✓	✓✓
GFP7	Multi-User Freight Train with Alternative Fuelling Infrastructure	✓✓✓	✓✓✓	✓✓

Notable examples for mention include the following:

Strong Alignment: Multi-User Freight Train with Alternative Fuelling Infrastructure (GFP7)

Moderate Alignment: Consolidation Centre with Alternative Fuelling Infrastructure (GFP1), Food / Retail Hub (Port of Leith) with connected Freight Tram (GFP3), Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges (GFP4), Urban Consolidation Centres associated with Edinburgh Freight Tram (GFP5) and Consolidation Centres associated with smaller Passenger Train Interchanges (GFP6)

5.4.3 Strategic Fit Appraisal

The intervention packages were also appraised against the same number of identified Policy, Strategy and Legislative elements. Again, the full outcomes of the appraisal are set out within the supporting Technical Annex.

It is noted through the outcomes of the package appraisal that, broadly speaking, the packages have a significantly stronger strategic fit because the multiple elements set out within a package are of a complementary nature and increase the overall offering and role of a package.

Of note are options that have elements that will promote economic development as well as elements which specifically aim to encourage the sustainable movement of goods and support decarbonisation activities, which at a cumulative level are likely to deliver greater benefits than in isolation.

However, as it is recognised that some interventions at broad in nature and that site identification is likely to be needed in some instances, the identified strategic fit at a local level is still somewhat unclear however it is expected that this uncertainty will reduce once further development of some interventions at the next stage of the appraisal is undertaken.

Notable examples for mention include the following:

Strong Alignment: Consolidation Centre with Alternative Fuelling Infrastructure (GFP1), Food / Retail Hubs with Alternative Fuelling Infrastructure (GFP2), Alternative Fuelling Infrastructure at Key Passenger Rail Freight Interchanges (GFP4), Consolidation Centres associated with smaller Passenger Train Interchanges (GFP6) and Multi-User Freight Train with Alternative Fuelling Infrastructure (GFP7)

Moderate Alignment: Food / Retail Hubs (Port of Leith) with connected Edinburgh Freight Tram (GFP3) and Urban Consolidation Centres associated with Edinburgh Freight Tram (GFP6)

5.4.4 STAG Appraisal

The package options were appraised against the five STAG criteria, along with the relevant sub criteria. To reflect the current stage of the identified interventions and proportionate to the level of assessment required by a Preliminary Options Appraisal, the appraisal was undertaken using qualitative means with scoring informed by a seven-point grading scale identical to that used as part of the TPO appraisal.

Table 11 provides a summary of the preliminary results in regard to the packages against the STAG criteria with the full breakdown of the preliminary appraisal found in Appendix A.

Table 11. Summary of Package Option STAG Appraisal

ID	Title	STAG Criteria				
		Environment	Climate Change	Health & Safety	Economy	Equality & Accessibility
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure	✓✓	✓✓	✓	✓✓✓	○
GFP2	Food / Retail Hubs with Alternative Fuelling Infrastructure	✓	✓	✓	✓✓	○
GFP3	Food / Retail Hub (Port of Leith) with connected Edinburgh Freight Tram	✓✓	✓	✓	✓✓✓	○
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges	✓✓	○	✓	✓✓	○
GFP5	Urban Consolidation Centres associated with Edinburgh Tram Network	✓✓	✓✓	✓✓	✓✓✓	○
GFP6	Consolidation Centres associated with smaller Passenger Train Interchanges	✓✓	✓✓	✓✓	✓✓✓	○
GFP7	Multi-User Freight Train with Alternative Fuelling Infrastructure	✓✓	✓✓✓	✓✓	✓✓✓	○

The assessment identified that packages that are likely to provide significant economic development benefits in addition to encouraging the sustainable movement of goods and where possible enabling the decarbonisation of the freight sector have emerged in a more-positive light.

The two identified package interventions that have emerged strongest from the appraisal are:

- Urban Consolidation Centres associated with the Tram Network (GFP5); and
- Multi User Freight Train with Alternative Fuelling Infrastructure (GFP7).

5.4.5 Feasibility, Affordability and Public Acceptability

Following the approach set out in Section Two, the identified interventions have also been appraised against their perceived feasibility, affordability and public acceptability. The outcomes of this appraisal are also presented within the associated Appraisal Summary Tables for each intervention within the supporting Technical Annex.

In a similar vein to some of the individual interventions, a proportion of the package interventions utilise existing assets and therefore the overall development timescales are significantly reduced alongside some interventions benefiting from existing land-use planning designations and Permitted Development rights at the Port of Leith and seeking to utilise existing available space in urban locations. For GFP1 and GFP2 which do not have a specific proposed location for a Consolidation Centre and Food / Retail Hub respectively, stakeholder discussions have indicated that there are a plethora of suitable sites available for potential development across the region which are well suited for the proposed interventions.

Interventions which are likely to have low operational and maintenance costs and have the potential to generate revenue streams likely to surpass the overall costs in the medium to long-term emerge in a stronger positive light than those which have significant initial costs and the overall rate of return being relatively poor.

The perceived Public Acceptability for each of the identified interventions has been informed in part through stakeholder engagement and therefore seeks to encompass the views of a range of user-groups, with a particular focus on current decision makers and industry practitioners across the freight sector. As a general theme, it is noted that there are broad levels of support across all of the identified interventions and where public acceptability is perceived to be low, this is due to significant identified barriers to delivery.

Through this assessment criteria, the following interventions have emerged strongly:

Strong Performance: Consolidation Centre with Alternative Fuelling Infrastructure (GFP1), Food / Retail Hub (Port of Leith) with connected Freight Tram (GFP3) and Multi User Freight Train with Alternative Fuelling Infrastructure (GFP7)

Moderate Performance: Food / Retail Hubs with Alternative Fuelling Infrastructure (GFP2), Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges (GFP4), Urban Consolidation Centres associated with the Tram Network (GFP5) and Consolidation Centres associated with smaller Passenger Train Interchanges (GFP6)

5.4.6 Summary

Appraisal of the individual options across various assessment criteria enabled a comprehensive understanding of their overall position and whether there were any interventions which had consistently emerged positively across each of the appraisal stages. For those that emerged stronger as an outcome to the appraisal process, it was noted that these interventions tended to have multiple elements that would enable them to generate benefits across several fields with a particular focus on environmental benefits (e.g. air quality, noise), ability to contribute towards delivering a Net Zero society as well as generating transport and wider economic benefits. A further key element was the perceived ability of the intervention to be delivered, with minimal associated risks. Additionally, those able to generate revenue to a scale where it would provide an overall positive return on investment as well as, crucially, having stakeholder support scored well.

At a package level, the following interventions emerged through the appraisal as better performing options against the appraisal criteria:

- Consolidation Centre with Alternative Fuelling Infrastructure (GFP1)
- Urban Consolidation Centres associated with the Tram Network (GFP5); and
- Multi-User Freight Train with Alternative Fuelling Infrastructure (GFP7).

6 Recommendations and Next Steps

6.1 Introduction

The Preliminary Options Appraisal has assessed, primarily in qualitative terms, the identified individual and package interventions which have been developed through the SESTRAN Forth Freight Study.

Each of these identified transport interventions have been robustly appraised in line with current guidance (STAG) and have been informed by best practice and industry knowledge.

6.2 Recommended Interventions for Detailed Appraisal

The appraisal of the identified interventions has resulted in the recommendation of several transport interventions to be taken forward to the Detailed Options Appraisal Stage as shown in Table 12.

It should be noted that that the Preliminary Options Appraisal process has not prioritised these interventions at this stage. This comes later in the process.

Table 12. Recommended Transport Interventions for Detailed Appraisal

ID	Intervention Title	Rationale for Retention
GF13	Multi-User Freight Train Service (Business only)	<p>This intervention scores well against the appraisal criteria. It offers an opportunity for modal shift and reduced road miles with associated benefits. A regular multi-user service could be used by a variety of customers and help meet climate goals as well as potentially reducing congestion.</p> <p>This intervention is also very deliverable, with clear support from potential users of the service, Forth Ports and extant infrastructure able to facilitate rail freight movements. Potential locations that could be served by a multi-user train include North East Scotland and the Highlands.</p>
GF14	Consolidation Centre (Port of Leith)	<p>The intervention will provide the means for the sustainable movement of goods into Edinburgh City Centre and help alleviate existing issues associated with the movement of goods vehicles within local communities such as air quality, noise and severance for other road users. There is an identified opportunity to utilise available land at the Port and take advantage of its proximity to the City Centre and suitability as an existing industrial development site which provides reduced timescales for deliverability. Delivery is also likely to complement the current activities within the wider Port site and its commercial facing nature is expected to give rise to a modest revenue stream.</p> <p>This proximity is expected to enable a notable proportion of associated trips to be undertaken via less-impactful modes such as cargo bikes.</p> <p>Although somewhat constrained, the site will enable a proportion of goods to be multiple transport modes which will include road, rail and water.</p>
GF15	Consolidation Centre (Hermiston)	<p>The intervention will provide the means for the sustainable movement of goods into Edinburgh City Centre and the wider surrounding area and help alleviate existing issues associated with the movement of goods vehicles within local communities such as air quality, noise and severance for other road users.</p> <p>The location is well-suited to take advantage of excellent high-quality highway infrastructure as well as the Union Canal to facilitate the movement of goods directly into the City of Edinburgh in addition to the site being located next to strategic and local high-quality highway connections which can be utilised.</p> <p>The intervention will benefit from a deliverability perspective through being located at an existing modest employment cluster with there being identified complementary activities from other businesses. The commercial facing nature of the intervention is also expected to give rise to a modest revenue stream.</p>
GF16	Consolidation Centre (Port of Grangemouth)	<p>The intervention is likely to support economic growth at Scotland's main International Gateway for the movement of goods and further reinforce the role of the economic hub. A hub is expected to increase the overall storage capacity for the effective and efficient movement of goods across the local area as well as the wider region.</p> <p>The Port has excellent multi-modal connections and therefore the intervention is likely to enable a proportion of goods to be transported via non-road-based modes. Delivery at an existing industrial development site will provide reduced timescales for deliverability as well as complementing current activities within the wider Port site. The commercial facing nature of the intervention is also expected to give rise to a modest revenue stream.</p>
GF17	Development of the necessary infrastructure for alternative fuels	<p>Delivery of dedicated alternative refuelling infrastructure in strategic locations is expected to increase the overall proportion of low-emission / zero-emission vehicles through increasing the overall network coverage of such infrastructure. Through being targeted in existing high-volume areas, the option is likely to further increase the overall attractiveness for vehicles fleet operators to help transition towards decarbonising their activities.</p>

ID	Intervention Title	Rationale for Retention
		Reducing the overall operation costs associated with the movement of goods and services is expected to further increase the overall economic competitiveness of business with such locations likely to also attract inwards investment where nearby activities may be able to take advantage of using such infrastructure.
GFI9	Passenger Trains for Freight	The option will provide a direct alternative means for how goods are transported, particularly for local communities and business that live along the route of existing passenger rail services. This will enable the effective movement of goods through existing passenger rail stations and the flexibility will allow goods to be moved either between smaller stations and / or major stations across the SEStran region but also further afield such as to England. The expected modal shift away from road will reduce the overall existing impacts associated with current movements via road such as Air Quality, Noise and the traffic itself.
GFI12	Consolidation Centre (Regional-wide concept)	The intervention is expected to facilitate a noticeable increase in the movement of goods via sustainable transport modes across the SEStran Region. The delivery of a dedicated freight facility with a sustainable-focus will provide an alternative to existing logistics and warehousing facilities, particularly in urban areas where there are significant concerns associated with the impact of the movement of goods vehicles on local communities. Stakeholder discussions have indicated that there is a plethora of suitable sites available for potential development across the region which are well suited for the proposed interventions. Through being focussed at core locations, it is likely that timescales can be reduced for development if the site is on land allocated for this type of industrial/distribution land-use. The commercial facing nature of the intervention is expected to give rise to a modest revenue stream.
GFI13	Consolidation Centre Rural Areas	The intervention is expected to facilitate a noticeable increase in the movement of goods via sustainable transport modes across rural communities and settlements across the SEStran Region. The delivery of a dedicated freight facility with a sustainable-focus will provide an alternative to existing logistics and warehousing facilities, particularly in urban areas where there are significant concerns associated with the movement of goods vehicles on local communities. Stakeholder discussions have indicated that there is a plethora of suitable sites available for potential development across the region which are well suited for the proposed interventions. Through being focussed at strategic locations, it is likely that timescales can be reduced for development if the site is on land allocated for this type of industrial/distribution land-use. The commercial facing nature of the intervention is also expected to give rise to a modest revenue stream.
GFP1	Consolidation Centre with Alternative Fuelling Infrastructure	The intervention is expected to facilitate the effective and sustainable movement of goods as well as providing alternative fuelling infrastructure and thereby supporting the continued decarbonisation of the freight and wider transport sector. The integration of these complementary elements is expected to improve the overall efficiencies of the handling of goods to / from the location, delivering wider economic impacts. There are several appropriate sites in strategic locations that are available across the SEStran region where this intervention can be successfully delivered and likely to generate beneficial impacts. The commercial facing nature of the intervention is expected to give rise to a modest revenue stream and provide a reasonable rate of return for an investment.
GFP3	Food / Retail Hub (Leith) with connected Freight Tram	Creating a Food / Retail Goods hub is likely to support economic growth and if this development is at one of Edinburgh's strategic industrial and economic clusters on the tram network at Leith it would enable an option to use an effective and sustainable means of movement of goods by electric freight tram across the City Region to local communities and businesses. There is an identified opportunity to utilise available land at the Port of Leith and take advantage of its proximity to the City Centre and suitability as an existing industrial development site which provides reduced timescales for deliverability. Delivery is also likely to complement the current activities within the wider Port site and its commercial facing nature is expected to result in a potential revenue stream. Although somewhat constrained, the site will enable a proportion of goods to be multiple transport modes which will include road, rail and water. Through use of existing dedicated tram infrastructure, the provision of an alternative mode for the movement of goods is likely to encourage modal shift for moving freight across the City Region.
GFP4	Alternative Fuelling Infrastructure at key Passenger Rail Freight Interchanges	The intervention will facilitate the sustainable movement of goods, with benefits expected to be significant where this occurs over longer-distances between passenger rail stations and that the provision of alternative fuelling needs will support the continued decarbonisation of the freight and wider transport sector. Utilising existing rail infrastructure (especially if electrified lines) and stations presents the opportunity for reduced timescales for deliverability and are likely to be attractive as an alternative transport mode to more conventional modes such as road. The use of dedicated infrastructure is likely to give rise to a higher degree of reliability and resilience for the movement of goods via this mode. The integration of these complementary elements is expected to further improve the overall efficiencies of the handling of goods to / from locations, delivering further wider

ID	Intervention Title	Rationale for Retention
		economic impacts. The commercial facing nature of the intervention is also expected to give rise to a modest revenue stream.
GFP5	Urban Consolidation Centres associated with the Tram Network	<p>The option will provide an alternative means of transporting goods sustainably across Edinburgh City. Through the use of the Edinburgh Tram Network, small and medium sized parcels will be able to be transported between Edinburgh Airport, Edinburgh City Centre and when completed, the Port of Leith. The use of dedicated infrastructure is likely to give rise to a higher degree of reliability and resilience for the movement of goods via this mode.</p> <p>Integration of parcel hubs/consolidation centres to manage first mile and last mile movements will likely help alleviate some issues associated with the movement of goods vehicles within local communities such as air quality and noise from road freight.</p> <p>Seeking to utilise available space to accommodate a limited network of freight tram stations is expected to reduce the associated timescales for delivery through not requiring dedicated development to be constructed. The commercial facing nature of the intervention is also expected to give rise to a modest revenue stream.</p>
GFP6	Consolidation Centres associated with smaller Passenger Train Interchanges	<p>This intervention will facilitate the sustainable movement of goods, with benefits expected to be significant where this occurs over longer-distances between passenger rail stations and facilitate an increase in the movement of goods via sustainable transport modes.</p> <p>Integration of consolidation centres to manage first mile and last mile movements will help alleviate existing issues associated with the movement of goods vehicles within local communities such as air quality, noise and severance for other road users.</p> <p>Utilising existing rail infrastructure and a selection of appropriate railway stations presents the opportunity for reduced timescales for deliverability and as there are several companies investigating the movement of parcels by rail this idea is already attractive as an alternative transport mode to more conventional modes such as road. The use of dedicated infrastructure is likely to give rise to a higher degree of reliability and resilience for the movement of goods via this mode.</p>
GFP7	Multi-User Freight Train with Alternative Fuelling Infrastructure	<p>The use of a Multi-User Freight Train is a popular intervention as is installing alternative fuel infrastructure. Although both individual interventions performed well against the appraisal criteria in isolation, this package intervention has emerged even stronger from the appraisal process. The dedicated rail freight service will provide a sustainable alternative means for the movement of goods, particularly for freight generators who are unable to produce enough volumes to take over a single rail freight service themselves. Enabling a modal shift from road to rail, most notably over longer distances, will significantly reduce the negative impacts associated with the current movement of goods via road such as air quality, noise, collisions and severance.</p> <p>Providing dedicated alternative refuelling infrastructure at strategic rail freight facilities that the service will operate out of will expand the existing coverage of such infrastructure and provide a direct means for the refuelling of low-emission / zero-emission vehicles that operate out of these sites and encourage operators to potentially further increase the proportion of these vehicles within their fleets. Delivery of this element at existing hubs will reduce risks from a deliverability perspective. The commercial facing nature of the intervention is expected to give rise to a modest revenue stream.</p>

In addition to these shortlisted options, it has been noted from the Preliminary Options Appraisal Process that a further outcome has emerged whereby there would be sufficient merit in considering these further in conjunction with the movement of goods via maritime transport.

Although the proposed maritime barge between the Ports of Methil and Grangemouth (GFI10) has not emerged positively through the appraisal process due to land use and deliverability issues, it is noted that the overall concept of using dedicated maritime vessels between Ports across the SE Stran region is positively grounded. Therefore, as with Consolidation Centres it is recommended that the broader concept of maritime feeder services that distribute goods across the region is further considered to understand whether there are any further locations that may be able to support such a service.

6.3 Rejected Interventions

Table 13 provides a summary of the rationale for those transport interventions which have been sifted out as part of the Preliminary options Appraisal. The sifting has been informed through the outcomes of the appraisal of the identified transport interventions against the identified TPOs, perceived Strategic Fit, as well as STAG criteria which are presented in further detail in the supporting Technical Annex.

Table 13. Rejected Transport Interventions

ID	Intervention Title	Rationale for Rejection
GF11	Food/Retail Hub (Grangemouth)	The intervention is likely to support economic growth at Scotland's main International Gateway for the movement of goods and further reinforce the role of the economic hub. A hub is expected to increase the overall storage capacity for the effective and efficient of movement of goods across the local area as well as the wider region. Although the site will take advantage of multi-modal connections at the Port to accommodate the movement of goods via sustainable modes and benefit from reduced timescales for delivery through existing land-use planning designations, the option does not perform as well as other similar -freight handling facilities against the Transport Planning Objectives and STAG criteria.
GF12	Food/Retail Hub (Port of Leith)	Delivery is likely to further support economic growth and development at one of Edinburgh's strategic industrial and economic clusters and be capable of directly serving local communities. The proximity of multiple transport modes such as road, rail and water to the site is likely to increase the proportion of goods transported via sustainable modes and benefit from reduced timescales for delivery through existing land-use planning designations at the Port. However, the option does not perform as well as other similar -freight handling facilities against the Transport Planning Objectives and STAG criteria.
GF18	Edinburgh Freight Tram	Utilising existing segregated infrastructure to move small and medium sized goods across the City of Edinburgh will provide an attractive and alternative means for how goods are transported. The use of dedicated infrastructure should enable freight movements to be undertaken in a more reliable manner and be transported into locations which are not appropriate to be served by conventional freight vehicles (e.g. LGVs and HGVs), alleviating existing concerns associated with the current movement of goods vehicles such as Air Quality, Noise and traffic movements. The committed extension of the tram network to the Port of Leith will enable the option to transport goods from the in a west-east manner across Edinburgh from Edinburgh Airport to Leith via the City Centre, with there being an expectation for a modest modal shift away from road to light rail. However, when assessed against the wider interventions considered, it does not perform as well as other options – particularly where this individual option has been integrated with an other complementary option which has significantly increased the overall appraisal performance.
GF110	Use maritime craft to transfer spirits from Methil to Grangemouth for onward shipping	The intervention seeks to transfer the movement of goods that are currently undertaken via road from significant manufacturers in the local area to waterborne modes which are a more sustainable transport mode. However, the modest distance between the two ports means that movement of goods by road will still remain competitive unless potential financial incentives are provided although there is an industry appetite for such a service. However, there are issues around deliverability due to the lack of land to store goods with recent assets having been significantly reduced and transferred onto owners in other sectors. Although the concept has emerged positively from a TPO and Strategic Fit perspective, significant risks have been identified - primarily from a deliverability perspective.
GF111	Hybrid shunter to facilitate low-carbon rail freight movements at terminals	Whilst this option provides an opportunity for hybrid locomotives to be taken into Port of Grangemouth and at other strategic rail freight hubs, the option has an associated high capital cost and a long payback period which when coupled with actors within the sector unlikely to take up this option without significant financial contribution means that the option does not emerge in a more positive light than other interventions from the appraisal process.
GFP2	Food/ Retail Hubs with Alternative Fuelling Infrastructure	A hub is expected to increase the overall storage capacity for the effective and efficient of movement of goods across the local area as well as the wider region modes as well as providing alternative fuelling needs and thereby supporting the continued decarbonisation of the freight and wider transport sector. The level of uncertainty associated with the overall size, scale and function of such a concept as well as potential locations means that the level of impacts is currently unclear with it being noted that there are likely to be particular issues around deliverability and affordability. As it may be unlikely that there will be a modest shift towards an increased in the movement of goods via sustainable means, the intervention does not perform well against the TPOs than other interventions.

6.4 Detailed Options Appraisal

The next stage of the appraisal process is the Detailed Options Appraisal which will seek to build upon the outcomes of the Preliminary Options Appraisal utilising both qualitative and quantitative assessments.

This includes a detailed appraisal of:

- The performance of the interventions against the Transport Planning Objectives
- The impact of the interventions against the five STAG criteria of Environment, Climate Change, Health and Safety, Economy and Equality and Accessibility

- The financial cost implications to the Public Purse
- Risk and Uncertainty analysis