



The Interreg IVB  
North Sea Region  
Programme



SEStran (South East Scotland Transport Partnership)

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# Rail Freight Development and Marketing Study

## Final Report

Scott Wilson Ltd  
April 2010





Revision Schedule

**Rail Freight Development and Marketing Study**

April 2010

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Rev	Date	Details	Prepared by	Reviewed by	Approved by
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## 1 INTRODUCTION

### 1.1 Background

- 1.1.1 Scott Wilson were appointed by SEStran to study the development of rail freight in the Regional Transport Partnership (RTP) area.
- 1.1.2 In September 2008 SEStran became a Scottish Partner, along with TRI, in the European funded Dryport Project, using as its basis the Regional Transport Strategy and the Regional Freight Study. Within the Dryport project, SEStran has identified key elements of the Freight Action Plan that impact on the location and operation of a Dryport. This study represents the next phase in the implementation of the major elements of the Freight Action Plan, which focused on improving freight movements within the SEStran RTP area.
- 1.1.3 This study also compliments previous work examining the development of a Freight Routing Strategy and the reopening of the Levenmouth rail line. This study also compliments a recent study examining ways of improving freight and passenger movements between Alloa and Dunfermline/Rosyth.

### 1.2 Study Tasks

- 1.2.1 The study involved a number of tasks including:
- review existing rail freight infrastructure in the SEStran area including any relevant plans for further development;
  - identify the main movements of rail-based freight traffic in, through, from and to the SEStran area;
  - identify the areas/routes/economic sectors that have the potential for rail freight development, linked in with the Dryport concept;
  - consider the scale of and physical requirements of a rail-based Dryport operation;
  - examine ways that efficiency can be improved especially in relation to the potential operation of Dryports and consolidation centres/distribution (subject of parallel studies);
  - link in the potential marketing of rail freight services, especially in relation to Dryports; and
  - set out the conclusions and recommendations for the way forward.

### 1.3 Structure of this Report

- 1.3.1 The overall structure of this report is as follows:
- Chapter 2* – reviews the current state of rail infrastructure and planned future investment in the SEStran area;
- Chapter 3* – sets out the feedback obtained from the stakeholder consultation;
- Chapter 4* – provides an analysis of existing and future demand for rail freight in the SEStran area;
- Chapter 5* – considers the rail freight based infrastructure requirements and the potential operational structure of a Dryport facility; and
- Chapter 6* – examines rail freight marketing strategies and presents the next steps for the study.

## 2 RAIL INFRASTRUCTURE AND INVESTMENT

### 2.1 Introduction

- 2.1.1 Rail freight plays an important role in the movement of heavy, bulk goods and long distance haulage. Three-quarters of the tonnage lifted by rail is made up of minerals, mainly coal. Most rail freight is long-distance, cross-border traffic with only 20 per cent of the rail freight in Scotland being internal to Scotland.
- 2.1.2 In recent years there has been a sharp increase in the volume of imported coal moved by rail from the Hunterston terminal to power stations throughout the UK, including the Longannet power station in Fife on the western fringe of the SEStran area. Overall nationally, coal has accounted for almost all of the growth in rail freight traffic over the past 10 years. While road freight in Scotland (measured in vehicle-tonne kilometres) has increased at about two per cent per annum over the 10 years to 2004, rail freight has increased at about 10 per cent per annum over this same period – largely driven by the increase in coal transportation.
- 2.1.3 The rail freight sector has also been successful in capturing new retail traffic from companies such as ASDA and Tesco for distribution to their warehouses and shops in Scotland. These supermarket chains are well represented in the SEStran area, with a very large Tesco storage and distribution centre and an ASDA superstore in Livingston, close to the M8 motorway, but which is also connected by rail, and a large ASDA retail outlet close to the rail intermodal terminal at Grangemouth.
- 2.1.4 Intermodal traffic, which is more diverse in terms of final origins and destinations, is now the next most significant market segment for rail freight after coal. This growth has been achieved in partnership with road-based logistics companies, as for example currently occurs with Freightliner, and, in some cases, with the assistance of Freight Facilities Grants.

### 2.2 Constraints to Rail Capacity

- 2.2.1 In terms of existing rail infrastructure, rail freight capacity is constrained at peak periods through south Glasgow and on the approaches to Grangemouth. In addition, there can be problems in finding suitable through paths for freight trains between east and west across the Central Belt.
- 2.2.2 Capacity limitations also affect rail freight between locations within and those outside the Central Belt, both as a result of insufficient paths (especially on routes with single track sections) and inadequate loading gauge for high-sided containers.
- 2.2.3 Where rail route enhancements and additional capacity are being proposed, there are significant advantages in providing extra capacity for freight – in terms of a number of parameters, including:
- additional freight paths;
  - clearance for longer trains; and
  - clearance for larger gauge (taller) trains.
- 2.2.4 The Strategic Transport Projects Review (STPR)<sup>1</sup>, the Government's flagship document for transport investment has highlighted the work planned on the Edinburgh – Glasgow route

<sup>1</sup> Strategic Transport Projects Review, Transport Scotland, December 2008

which will include provision for freight services to use relevant sections of the route and to use other associated diversion routes where appropriate.

- 2.2.5 Route performance between the SEStran area and north east Scotland will be improved with the clearance of gauge restrictions and the provision of additional freight loops on routes to Aberdeen and beyond. This is proposed as part of a wider STPR service enhancement proposal on this route, which should also help to relieve constraints on rail freight movements between south east Scotland and north east Scotland.

### 2.3 Existing Rail Freight Infrastructure in the SEStran Area

- 2.3.1 The current level of rail freight infrastructure will determine the performance of rail freight and its ability to meet the requirements of the markets that rail freight serves. There are a number of parameters that underpin the successful operation of the rail freight sector, and these are now briefly examined in turn. This information has been compiled from the Scottish Route Utilisation Strategy (RUS)<sup>2</sup>.

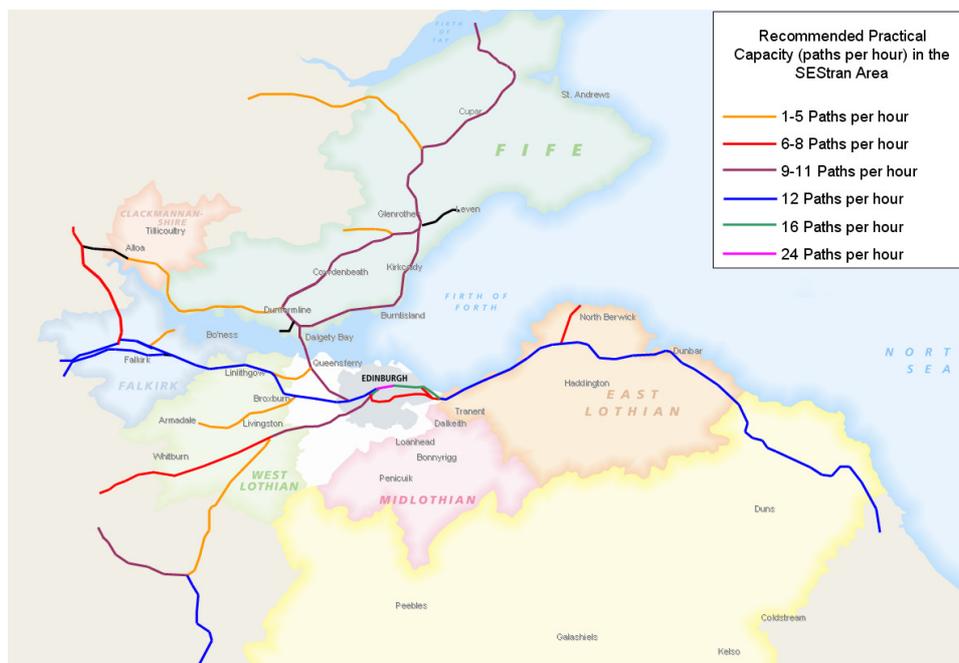
#### *Rail Paths and Route Availability*

- 2.3.2 Route paths describe the operational capacity of the rail track to accommodate a given number of trains per unit of time, over, for example one hour, at different periods of the day. This is generally a function of the competing demands from rail passenger services expressed as track, signalling and junction headways. The following information is based on practical capacity rather than theoretical which may not be possible in operation.
- 2.3.3 Figure 2.1 shows the East Coast line has a standard 12 train paths per hour, as does the Edinburgh to Glasgow Queen Street line. Routes in Fife have 9 paths per hour on average, with the exception, of the single track section to Perth, Westfield Coal terminal branch and Alloa – Dunfermline freight line.
- 2.3.4 The stretch of track from Haymarket to Waverley Station has the largest capacity of 24 paths per hour, reflecting the importance of these two passenger rail stations.

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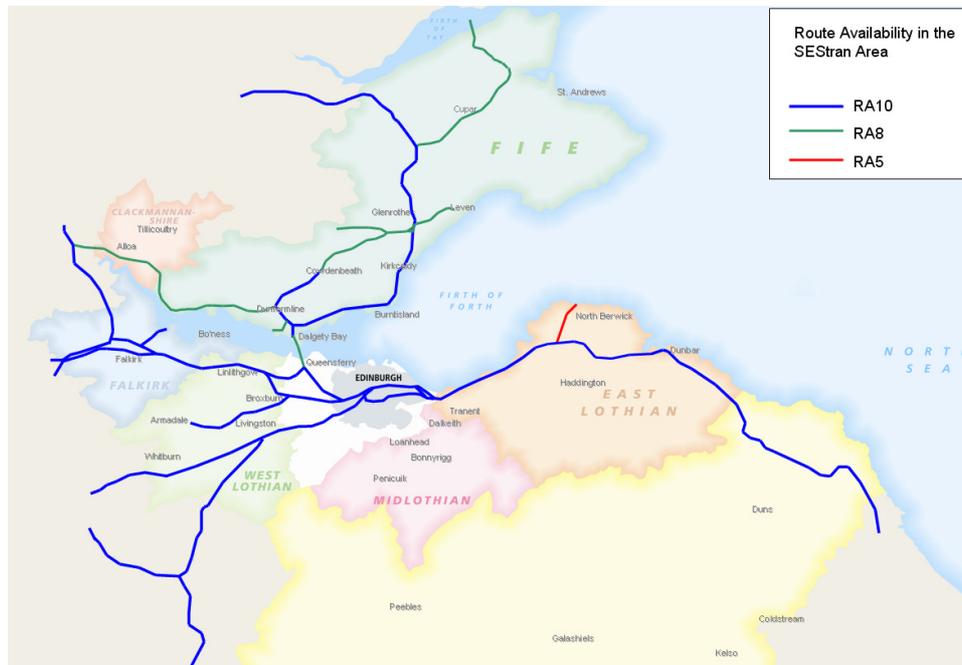
<sup>2</sup> Scottish Route Utilisation Strategy, Network Rail, March 2007

**Figure 2.1 – Recommended Practical Capacity (paths per hour) in the SEStran Area**



- 2.3.5 For the Sub-Edinburgh lines they are currently shown as 6-8 paths per hour although there are slight variations at key junctions such as Millerhill to Niddrie 9 paths per hour, Millerhill to Monktonhall 4 paths per hour and Niddrie to Portobello 3 paths per hour.
- 2.3.6 Route availability (RA) is the system which determines which types of locomotive and rolling stock can travel over any particular route. The main criteria for establishing RA usually concerns the strength of underline bridges in relation to axle loads and speed, although certain routes have abnormal clearance problems (e.g. very tight tunnels). For example, a locomotive of RA8 is not permitted on a route of RA6.
- 2.3.7 Most of the railway infrastructure in the SEStran area is RA10 route availability, shown by blue lines on Figure 2.2 overleaf. The exceptions to this are the Alloa-Kincardine line, sections of the Fife Circle and the line to Dundee which are currently RA8. The only other difference is the Berwick spur which is RA5.

**Figure 2.2 – Route Availability in the SEStran Area**



**Loading Gauge, Standard Loading Units and Freight Depots**

2.3.8 The Loading Gauge is the profile for a particular rail route within which all vehicles or loads must remain to ensure that sufficient clearance is available at all structures. There loading gauge throughout the SEStran area currently varies from W6 on the Alloa Kincardine line to W9 on the main lines between Edinburgh and Glasgow. This is shown in Figure 2.3.

**Figure 2.3 – Loading Gauge Performance in the SEStran Area**



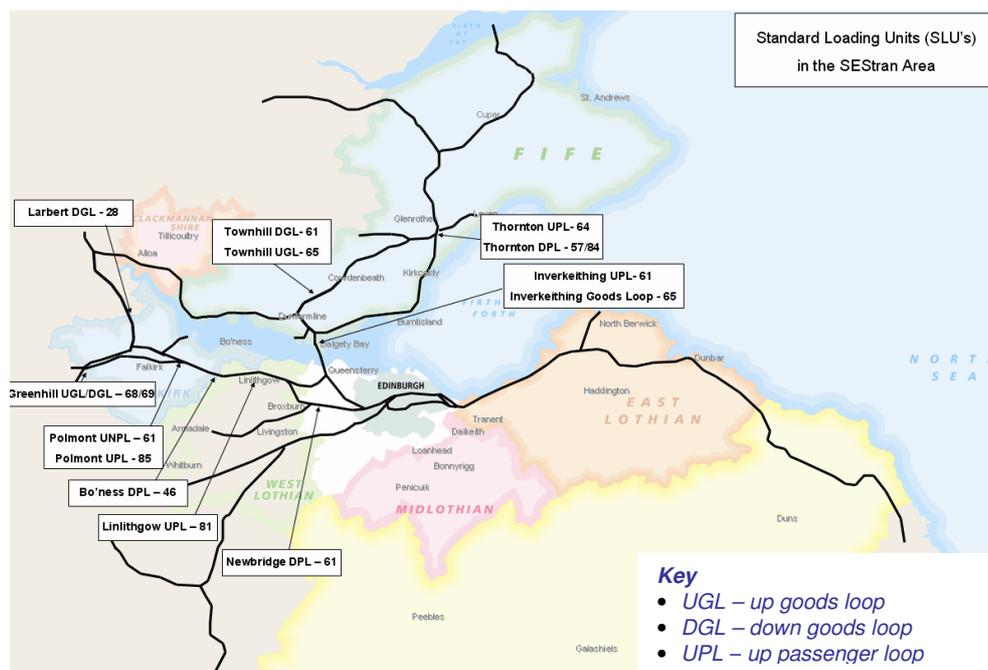
2.3.9 The Edinburgh Sub freight only line is shown as W9 on the map but the following exceptions to this should be noted:

- Niddrie South Junction / Millerhill – W6;
- Craiglockhart / Gorgie/ Haymarket West – W8;
- Gorgie / Haymarket Central Junction – W7;
- Powderhall Branch – W7; and
- Leith Branch – W8.

2.3.10 The only other point to note is the line from Carstairs to Gretna is shown as W10 although this varies from W9 to W10 over the length of the route.

2.3.11 Standard Loading Units (SLUs) give a measure of line capacity in terms of the length of a particular goods train and the capacity of individual goods yards to accommodate trains of this size. Rail line capacity as measured by SLUs is given in Figure 2.4.

**Figure 2.4 – Standard Loading Units in the SEStran Area**



2.3.12 The Figure shows the Standard Loading Unit (SLU) limits along the rail network in the SEStran area in the form of loop lengths, these range from 28 to 85 SLU's.

2.3.13 It should also be noted that the following lines have SLU capacities along their entire length:

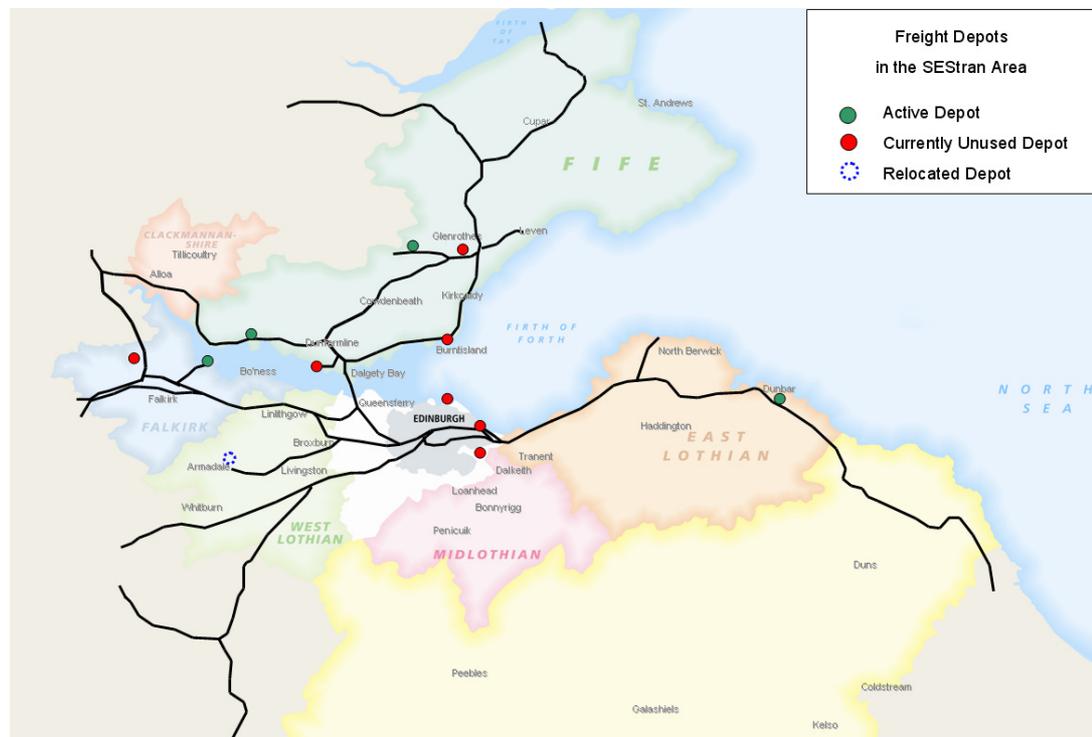
- Dundee – Thornton South Junction including Ladybank – Hilton Junction 71 SLUs throughout; and
- Edinburgh Freight Routes including Leith and Powderhall Branches, Leith – 45 SLUs, Powderhall – 46 SLUs.

- 2.3.14 There are several rail freight depots throughout the SEStran area, as shown in Figure 2.5 overleaf. These include both currently active depots and also those which have been mothballed and are currently unused. Also shown is the proposed location of a new depot at Bathgate which is currently being relocated as part of the new Airdrie - Bathgate rail link. The depot is moving from its current site and it is proposed it will relocate close to the Pyramids Business Park.
- 2.3.15 Of the active rail freight centres in the SEStran area, the principal rail freight facility is Grangemouth. The port has facilities for container handling and cross docking to conventional rail freight movements and is able to accommodate rail wagons of 50m length on at least 6 rail sidings. There is also 600,000 sq. ft. of adjacent rail connected warehousing. The rail facilities at Grangemouth are Channel Tunnel security cleared and the port operates on a 24 hour basis.
- 2.3.16 Forth Ports operates the port of Leith which has three sidings and where DB Schenker (formerly EWS) currently provides rail freight transport out of the port for which there is currently no track access charge. The port has 3 rail sidings and is one of the most active rail freight facilities with approximately 1.5 million tonnes of coal brought through the port each year destined for power plants both in Scotland and in Europe. However, it is understood that the port will be changed to a City Port at some time over the next 10 – 15 years which will result in a cessation of industrial activity. Therefore at some point rail access may well cease.
- 2.3.17 The remaining active rail freight facilities in the SEStran area are dedicated to single sector and / or operator activities. One of the biggest is at the Westfield Coal terminal in Fife operated by Global Energy, which produces both coal and gas, and which has at least 5 sidings. Coal trains loaded at the Westfield opencast mine are required to reverse at Thornton Junction before making their way through Dunfermline to Longannet Power station.
- 2.3.18 The rail freight facilities at Longannet and Cockenzie are committed to the on-site power stations involving equipment suited for coal delivery to these power plants. Each site has at least 3 sidings. One further active rail freight facility in the SEStran region is at West Meikle – Pinkerton, situated about 3 miles south east of Dunbar in East Lothian. This is owned and operated by Lafarge Cement, part of the Blue Circle Group, and has at least 2 sidings, operating 24 hours.
- 2.3.19 In addition to the above, there are a number of rail sites which are, in effect, mothballed. These are:
- Millerhill Marshalling Yards;
  - Rosyth Docks;
  - Portobello Freight Terminal;
  - Cameron Bridge / Leven Yards; and
  - Thornton Yards.
- 2.3.20 The largest mothballed facilities of the above are those at the Thornton Yards (with at least 11 separate sidings). Cameron Bridge / Leven and Millerhill Yards are also substantial facilities, each with approximately 7 sidings; these are all owned by DB Schenker. Although these sites are currently out of commission, EWS use some of the sidings at the Millerhill Marshalling Yards to store wagons. Millerhill has been used, as least up until 2005, as a

marshalling yard, a rail yard where trains can be marshalled or re-marshalled using resident pilot locomotives, ground staff and train examination staff.

- 2.3.21 DRS are in negotiations with Diageo to assess the possibility of starting freight operations at Diageo's bottling plant at Cameron Bridge. The Cameron Bridge yards have been used, relatively recently, as train formation yards, i.e. yards where trains may be split or joined, usually by the train locomotive. DRS are also interested in principal in using the Terminal facilities at Portobello.

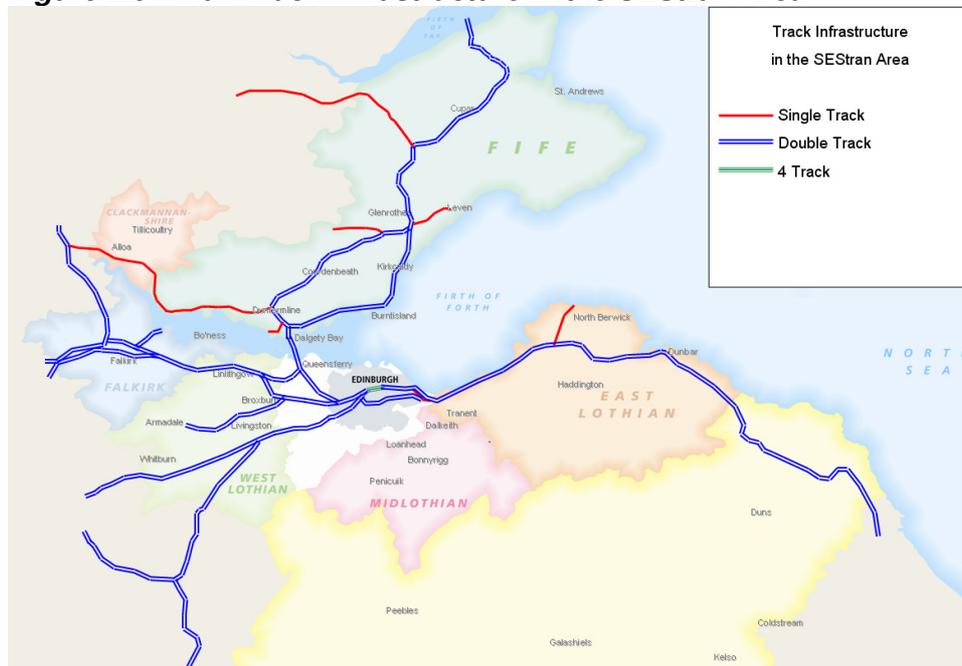
**Figure 2.5 – Rail Freight Depots in the SEStran Area**



**Rail Track Infrastructure, Speed and Electrification**

- 2.3.22 As is shown in Figure 2.6 overleaf, the majority of the rail network in the SEStran area is made up of double track railway, with a few sections of single track including the North Berwick branch, Alloa - Dunfermline railway, Ladybank to Hilton line and several other freight lines including the Edinburgh freight line branches, to Leith, Powderhall and Niddrie/Portobello.

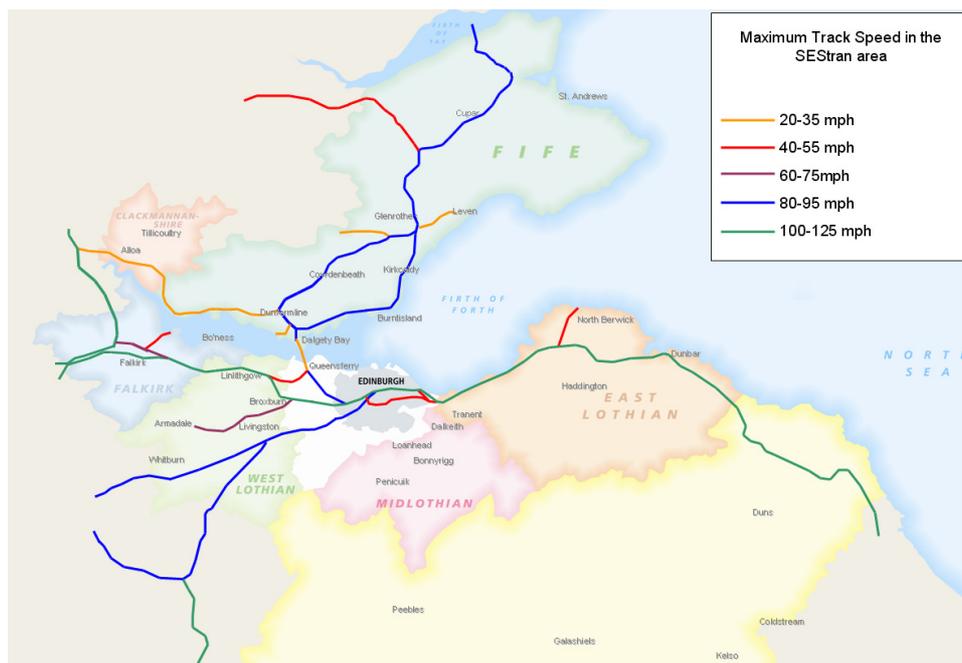
**Figure 2.6 – Rail Track Infrastructure in the SEStran Area**



2.3.23 The only other point to note is the stretch from Edinburgh to Haymarket Junction is composed of 4 tracks.

2.3.24 There is a mixture of line speeds permitted on the rail network in the SEStran area, ranging from 20mph on dedicated freight only lines to 125mph on the East Coast Main Line. This is shown in Figure 2.7.

**Figure 2.7 – Rail Track Speed Limits in the SEStran Area**



2.3.25 Notable speed restrictions include

- Forth Road Bridge 20mph speed limit for freight trains;
- Leith branch 20mph; and
- Powderhall 30mph.

2.3.26 The freight only branches such as that to Methil and Westfield Coal Terminal and Alloa to Dunfermline lines have significant speed restrictions on them, between 20 and 35mph. Furthermore, the Edinburgh Glasgow line via Falkirk varies between 90 and 100 mph over its length.

2.3.27 Figure 2.8 presents the amount of rail electrification in the SEStran area. The vast majority of rail lines in the SEStran area are non-electrified. The sections which are electrified are the East Coast Main Line and West Coast Main Line, providing links to Glasgow and England, and the rail line linking these two routes.

**Figure 2.8 – Rail Track Electrification in the SEStran Area**



### Capacity Utilisation

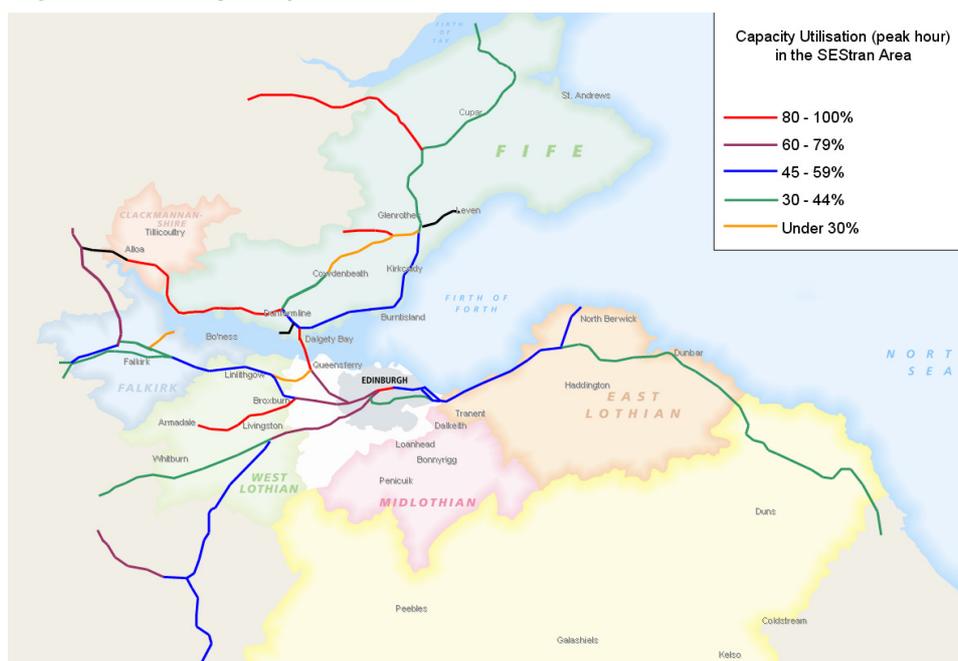
2.3.28 The capacity utilisation of the rail network in the SEStran area is shown in Figure 2.9 overleaf. This is based on the peak hour movements, varying for each stretch of line. This compares the number of trains operating along a stretch to the number of paths available in the hour. The railway industry estimates capacity by including both rail passenger and freight services and hence the analysis presented here is the total capacity utilisation of all services in the Working Timetable. The advantage of this approach is that it shows the potential for adding new freight paths (although it is worth noting not all freight paths are used by rail freight operators and in some cases as little as circa 60% of paths are used).

2.3.29 The Figure below demonstrates that, in terms of capacity available, the approaches to Edinburgh are highly used, with other single track sections also appearing particularly congested. The Forth Rail Bridge is also a heavily trafficked route. Of particular importance are the following sections which are operating close to capacity or indeed exceeding it:

- Bathgate branch (125%);
- Ladybank-Hilton junction (100%);
- Charleston Junction to Longannet (100%); and
- Waverley - Haymarket (96%).

2.3.30 With regards to the Charleston to Longannet section, the RUS was published in 2007 and therefore preceded the opening of the Stirling-Alloa-Kincardine line. Therefore improvements have been made to this section since 2007 and the capacity shown will be higher than at 2009.

**Figure 2.9 – Capacity Utilisation in the SEStran Area**



## 2.4 Rail Freight Investment Plans

2.4.1 Public sector rail freight investment is being pursued by projects described in the following documentation:

- Strategic Transport Projects Review;
- Scottish Route Utilisation Study; and
- Scottish Multi-Modal Freight Locations Study.

2.4.2 Each of these documents represents a national approach to rail investment. However, rail investment on one part of the national network will often have an effect on other parts, and

it is not unreasonable to state that the performance of the network in its entirety tends to be limited by its weakest link, whether this is loading gauge, freight path availability or track capacity. Therefore steps to improve a constraint in one part of the rail network may well release a greater capability in another part of the network. This is as true of rail freight performance in the SEStran area as in other parts of Scotland.

### *Strategic Transport Projects Review*

2.4.3 The Strategic Transport Projects Review (STPR) is the Scottish Government's flagship document for reviewing transport investment requirements. It sets out a series of interventions required to develop the transport network in Scotland beyond 2012, primarily between 2012 and 2022.

2.4.4 Several of these proposed interventions have a direct impact on the rail network in the SEStran area. Those which will potentially affect rail freight are described below.

#### Intervention 6 – Further Electrification of the Strategic Rail Network

2.4.5 This intervention works towards an electrified rail network across the strategic routes in Scotland. Although primarily focused on environmental benefits, there are operational benefits compared with diesel powered trains both in terms of reduced journey times and operating costs. This intervention would take the form of a phased approach as follows:

- Phase 1 - Committed improvements as part of the Edinburgh to Glasgow improvements, comprising the Edinburgh to Glasgow via Falkirk route, Diversion Routes 1 (Haymarket) and 2 (Falkirk Grahamston), and electrification on the route via Cumbernauld and to Dunblane / Alloa;
- Phase 2 - Electrification of the remaining routes in the Central Belt (Shotts, Whifflet, Paisley Canal, Glasgow North Suburban, East Kilbride and Kilmarnock);
- Phase 3 - Electrification of routes between Edinburgh, Perth and Dundee including the Fife Circle;
- Phase 4 - Electrification from Dunblane to Aberdeen; and
- Phase 5 – Electrification from Perth to Inverness.

2.4.6 Initially Phases 1 and 2 would be implemented with Phases 3-5 taking place in the longer term. This intervention would also allow a greater flexibility of operations for services across the network, giving opportunities for new routes and through services.

#### Intervention 12 – Enhancing Rail System Capacity through Targeted Improvements

2.4.7 This intervention would target parts of the rail network that are operating close to or at capacity during peak periods, with limited or no opportunity for additional services to be operated. This intervention would cover operational and relatively small scale infrastructure measures such as:

- provision of additional signal blocks in heavily used parts of the network;
- replacement of two-aspect signals with three or four aspect signals in heavily used parts of the network;
- replacement of single lead junctions with double lead junctions as appropriate to improve efficiency; and

- replacement of low speed junctions and crossovers as appropriate to improve efficiency.
- 2.4.8 This intervention provides upgrades for rail signalling, as well as track and junction layouts to reduce headways and allow more trains to use the network. This intervention would have the effect of improving operational performance and would also lead to reduced journey times where train times are currently constrained by limited capacity and a mix of train speeds.
- 2.4.9 Some parts of this intervention have been developed as part of proposals in Network Rail's Scottish Route Utilisation Strategy which is discussed later.
- Intervention 13 – Rail Enhancements in the East of Scotland
- 2.4.10 This intervention includes an increase in service frequency on rail services across the east of Scotland. Although primarily aimed at increasing passenger train services to Edinburgh the associated remodelling of various parts of the network to enhance capacity for these services, such as Portobello Junction to Newcraighall and Dunbar station and additional capacity enhancements such as resignalling and loops would provide additional benefits for freight trains also using these sections.
- Intervention 15 – Edinburgh to Glasgow (Rail) Improvements Programme
- 2.4.11 Intervention 15 focuses on improvements to the rail corridors between Glasgow and Edinburgh, with some elements of the infrastructure upgrading benefitting freight including diversion routes. This would allow freight trains to be operated from the West Coast Main Line by faster electric locomotives.
- Intervention 20 – Grangemouth Road and Rail Access Upgrades
- 2.4.12 Intervention 20 comprises upgrades to both road and rail access to Grangemouth. The rail access improvements would focus on increasing the numbers of freight trains able to run into Grangemouth terminal. This would be enabled through capacity enhancements at and around Grangemouth Junction, electrification between Coatbridge and Grangemouth as well as increasing loading gauge to allow access for larger containers. Furthermore, track modifications are proposed to provide improved access from the west and a new curve to permit direct access from the east. These rail improvements would tie in with Intervention 15 (Edinburgh to Glasgow Rail Improvements Programme) and allow freight trains to be operated from the West Coast Main Line by faster electric locomotives.
- 2.4.13 These proposals would reduce journey times and increase capacity on the rail networks for freight transport.
- Intervention 23 – Rail Service Enhancements between Aberdeen and Central Belt
- 2.4.14 Intervention 23 will help improve rail connections between Aberdeen and the Central Belt. Implemented in two phases the first would involve:
- provision of bi-directional signalling along the route to reduce the impact of engineering works on the route (permitting the route to remain open for freight throughout the day and week);
  - increased length of freight loops (allowing longer freight trains); and
  - removal of speed limits that are below 75mph for freight trains.
- 2.4.15 The second phase would involve the removal of the single track at Usan, including a new bridge over Montrose Basin.

2.4.16 This intervention would allow the use of low floor wagons permitting standard containers to be carried on existing infrastructure with minimal physical works (e.g. targeted gauge enhancements at appropriate structures). Currently designated as a 'Tier 3' intervention in the Scottish Ministers' High Level Output Specification, development of the option is continuing for possible implementation between 2009 and 2014.

Intervention 28 – Inverkeithing to Halbeath Rail Line

2.4.17 Intervention 28 proposes the idea of a new rail link between Inverkeithing and Halbeath taking the form of a double track rail link. This would improve access to the port of Rosyth and also reduce journey times.

***Scottish Route Utilisation Strategy***

2.4.18 The Scottish Route Utilisation Strategy (RUS) prepared by Network Rail sets out the priorities for improvements to the rail network in Scotland. The aim of the RUS programme is to identify a strategy for the railway to meet expected future requirements in a way that is deliverable, affordable and consistent with performance and safety improvements. The Scotland Route is divided into three Strategic Routes, and the SEStran area is covered by Route 24 (East of Scotland), and also part of the East Coast Main Line (ECML).

2.4.19 A series of gaps where the railway network is insufficient or is predicted to be in the future have been identified, those relevant to this study are:

- Larbert – Stirling. This gap arises as a result of the re-routeing of the existing coal flows to Longannet to operate via Stirling following the reopening of the Stirling/Alloa/Kincardine line;
- M8 – Airdrie to Bathgate rail link. There is potential demand from West Lothian towards Glasgow and from North Lanarkshire towards Edinburgh that have no direct rail service; and
- Shotts Line: Capacity and service - Additional capacity will be required on this route.

2.4.20 The Edinburgh Airport Rail Link was also considered as part of the RUS, although this project is no longer being progressed at this time.

2.4.21 The strategy is set out over three control periods, detailing the proposed timescales for implementation of improvements to address the gaps. These are:

- Short Term (2007-2009);
- Medium Term (2009-2014); and
- Long Term (2014-2019).

2.4.22 The following sets out a summary of the plans for these control periods.

Short Term

2.4.23 The following measures are proposed in the short term to address the current gaps on the network in the east of Scotland:

- Longer trains with increased capacity between Dunblane and Glasgow are recommended; and
- three aspect signalling will be implemented between Larbert and Stirling; and Stirling Middle Junction will be re-modelled.

Medium Term

2.4.24 The following measures are to be implemented in the medium term to upgrade the network in the east of Scotland:

- following the short-term timetable recast on the Edinburgh – Fife passenger services, benefits can be gained which can also assist freight from the implementation of additional signalling to reduce headways between Haymarket and Inverkeithing;
- when the area around the Tay Bridge is re-signalled, the renewal will seek to modify the current operating restrictions that prevent any two trains from passing on the high girders;
- re-double Portobello Junction and the single line through Brunstane to Niddrie to improve the operation of the Scottish Borders Railway towards Tweedbank; and
- in line with Scottish Ministers' aspirations, the Airdrie to Bathgate Railway, and the Scottish Borders Railway will be progressed.

Long Term

2.4.25 The following measures are being considered in the long term to upgrade the railway infrastructure in Scotland:

- increased capacity, particularly on inter-urban routes, are aspirations which will need to be addressed in the longer term. The eastern end of the route into Edinburgh could be developed in a number of radically different ways, but these have not been specified in the RUS.

***Scottish Multi-Modal Freight Locations Study***

2.4.26 The study<sup>3</sup> examined the potential development of Scotland's key freight locations in terms of their economic competitiveness and contribution to other issues such as promoting modal shift and providing wider benefits. As a multi-modal freight location study, the focus was on locations where two or more modes for freight transport (e.g. air, water, rail or road) are able to transfer freight between each other.

2.4.27 In terms of the SEStran area, rail freight is forecast to increase at a greater rate than other freight modes, albeit from a very low base, and is projected to double in volume by 2020 under the high growth scenario adopted in the study.

2.4.28 The consultation exercise carried out for this study identified three potential multi-modal freight locations in the SEStran area, which were:

- Leven / Cameron Bridge;
- Grangemouth; and
- Rosyth.

2.4.29 Each of these locations has either an existing rail link (Grangemouth) or could be potentially linked to the national rail network (Rosyth and Leven / Cameron Bridge - both of which have an existing decommissioned line). The rail links are still in place at Rosyth and were used until fairly recently. It should be noted that although Rosyth already has a rail

<sup>3</sup> Scottish Multi-Modal Freight Locations Study, Scott Wilson for Scottish Government, Scottish Enterprise & HIE, June 2009

station of that name it serves the local settlement rather than the freight transport movements through Rosyth Harbour.

- 2.4.30 Having eliminated the options that had sufficient current and projected capacity to meet freight handling requirements (none of which were in the SEStran area), the study found that both Rosyth and Grangemouth were both economically viable, and the latter being one of the most viable of the 12 remaining options. However the study concluded that, as both of these options were also financially viable, they could both be pursued by the private sector for investment purposes. However, the study added a caveat that Public Sector non-financial assistance could be provided to facilitate development, such as easing planning restrictions and promoting other complementary policies aimed at improving freight transshipment.
- 2.4.31 The proposed rail line at Leven/Cameron Bridge was not found to be financially viable by itself but did offer wider economic and societal benefits. As such this option could be delivered but would require moderate Government support in terms of the costs of establishing the infrastructure and on-going subsidy thereafter.

#### ***Other Infrastructure Provision***

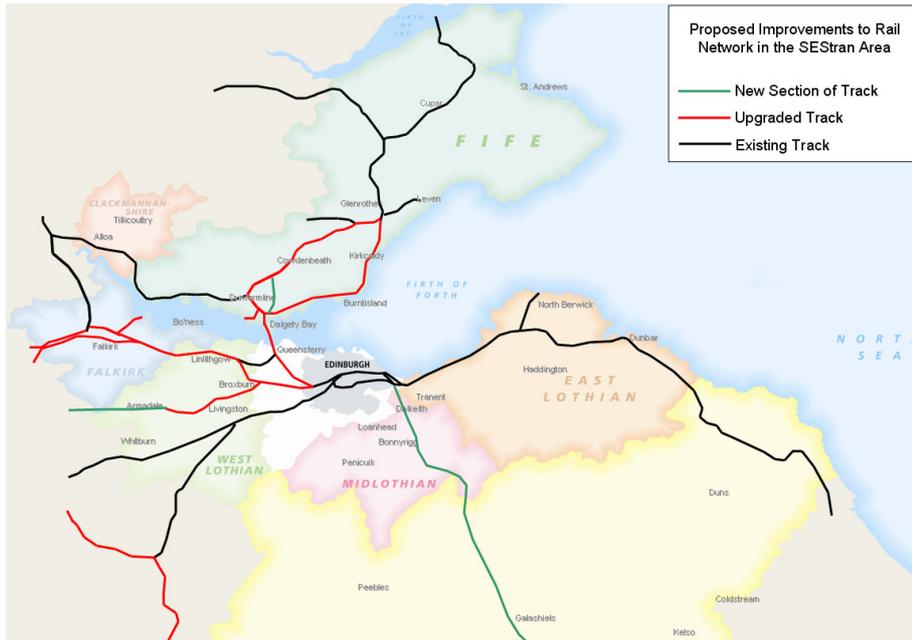
- 2.4.34 Section 2.3 above has described in some depth the current rail freight infrastructure in terms of track performance and capacity. However there are two major rail freight regional distribution centres, both of which are in the SPT area, but are reasonably close to the SEStran area and could be used. These are:
- Eurocentral RDC at Mossend; and
  - Freightliner depot at Coatbridge.
- 2.4.35 Both these locations have substantial rail links to England and southern Scotland via the West Coast Mainline and via the Glasgow and South Western line.
- 2.4.36 The intermodal terminal at Eurocentral, 'Euroterminal', serves both non rail-connected warehousing in the Eurocentral and the wider region with rail borne freight traffic. It also has the capability to handle rail borne automotive traffic and a vehicle distribution company, fed by rail, operates from Eurocentral.
- 2.4.37 Along with the Eurocentral facility at Mossend, Coatbridge is also largely perceived as a railhead terminus. The site is operated by Freightliner, covering 35 acres and shipped approximately 76,000 containers in 2007/8. Freightliner moves more maritime containers than any other haulier with some 22% of the deep-sea container market. The core services are to Southampton, Felixstowe, Tilbury and Thamesport via the West Coast Main Line, although there are sometimes diversions via the East Coast Main Line.

## **2.5 Network Effects of the Planned Improvements**

- 2.5.1 For the purposes of this assessment a future planning year of 2020 has been used. This planning year is consistent with that used for the Strategic Transport Projects Review, Route Utilisation Strategy and Scottish Multi-Modal Freight Locations Study and will therefore ensure continuity with these plans.

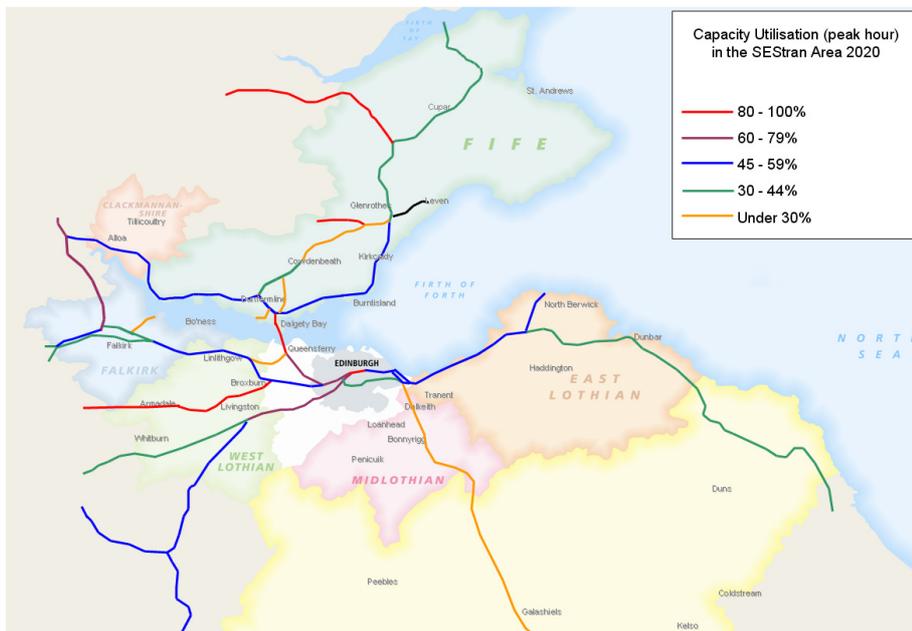
2.5.2 By this planning year of 2020, assuming all the proposed improvements from the identified strategies are taken forward and implemented, the network infrastructure should be upgraded or constructed, as seen in Figure 2.10.

**Figure 2.10 – Improvements to Rail Network in SEStran area by 2020**



2.5.3 Based on these improvements / new track shown above, we have converted these into additional train paths for these stretches and added them to the current available paths on the sections. This indicates the future capacities on the network and level of facilities available, as shown in Figure 2.11. Again, as per industry procedures, the capacity utilisation is based on the Working Timetable which includes both passenger and freight services. These are based on 2007 levels of services.

**Figure 2.11 – Capacity Utilisation in the SEStran Area by 2020**



- 2.5.4 The main areas to note the changes in capacity utilisation are the Stirling – Alloa Kincardine line where the capacity will reduce to 45-59% due to remodelling of Stirling Middle Junction and introduction of three aspect signalling between Larbert and Stirling, making this line easier to access. There will also be a reduction in utilisation on the Newbridge-Winchburgh section to 45-59% as a result of the Edinburgh-Glasgow improvements programme.
- 2.5.5 Many of the other improvements will reduce the capacities on the rail network and introduce new paths although this is not illustrated on the diagram due to the banding system.
- 2.5.6 Figure 2.11 shows there are still a few areas with capacities in the 80-100% band by 2020. These pinch points include:
- Forth Rail Bridge;
  - Haymarket-Waverley stretch;
  - Ladybank to Perth line;
  - Westfield Coal Terminal branch; and
  - Airdrie-Bathgate line.
- 2.5.7 No improvements have been proposed to the Ladybank to Perth Line or Westfield Coal Terminal branch so these remain the same.
- 2.5.8 The Forth Rail Bridge will see utilisation reduced following the short-term timetable recast on the Edinburgh – Fife passenger services and implementation of additional signalling to reduce headways between Haymarket and Inverkeithing, although the overall utilisation remains high due to the nature of the bridge and inability to expand. Similarly the Waverley-Haymarket stretch will have capacity issues due to the nature of this section and tunnels involved.
- 2.5.9 The Airdrie-Bathgate line will involve doubling of the tracks and allow services to run between Edinburgh and Glasgow. However although this will effectively double the number of train paths available, the number of passenger services per hour is also doubling, therefore the utilisation of the line reduces from 125% to around 80-90%.
- 2.5.10 The above map represents the Do-Minimum scenario which will be taken forward and used as the base for the rest of this study. Possible options and future new demand will be tested against this base.

### 3 STAKEHOLDER CONSULTATION

#### 3.1 Introduction

3.1.1 The stakeholder consultation was restricted to only a small number of key stakeholders. The survey was based on a limited number of targeted telephone interviews with businesses and organisations that had been identified early in the commission and discussed/agreed with SEStran.

#### 3.2 Stakeholder Consultation

3.2.1 The key stakeholders successfully contacted by telephone are listed in Table 3.1. The Table includes the sector to which each business interviewed belongs, their business and the date of the interview.

**Table 3.1 – Consultation Respondents**

Respondent	Business	Sector	Date of Interview
Bill Ure	Rail Freight Group	Rail Freight	23 October 2009
Yakov Boglev	Napier University (Transport Research Institute)	Academic	23 October 2009
John Howell	WH Malcolm	Haulier Industry	02 November 2009
David Morton	John Menzies Distribution	Haulier Industry	02 November 2009
David McCutcheon	Bullet Express	Haulier Industry	23 October 2009
Tom Curry	Direct Rail Services	Rail Freight	02 November 2009
Kay Walls	Freightliner	Rail Freight	02 November 2009
Audrey MacArthur	Network Rail	Rail Infrastructure	02 November 2009

3.2.2 As the Table above indicates, the consultees covered rail freight operating companies (FOCs), Network Rail, the Transport Research Institute (TRi) of Napier University, and a number of major road hauliers.

#### *Issues considered*

- 3.2.3 A number of important issues were raised;
- Grangemouth is the only large rail freight terminal and operations centre in the SEStran area used by multiple transshipment companies, which is fully equipped with conventional handling equipment, has multiple sidings and can accommodate trains up to a kilometre in length;
  - although capacity is adequate at Grangemouth in terms of terminal and warehouse area and sidings for wagon storage, access to and from Grangemouth on the rail network is severely constrained;
  - there are gauge restrictions on the Shotts line (Edinburgh to Glasgow via Motherwell), to W9 that prevents the newer larger containers (9' 6" tall) from being transported on one of the main rail paths in and out of the SEStran area;
  - rail freight facilities at Coatbridge are severely constrained, not least by the amount of land available and required for freight movements;

- in terms of south east Scotland there is not that much (rail freight) traffic in the region, and this is reflected in the number of mothballed rail freight facilities in the area; and
  - a relatively large number of hauliers don't use rail freight for their delivery function, particularly as they already have a dedicated fleet of vehicles to provide an efficient point to point operation and therefore see no reason to employ rail freight as part of their delivery system.
- 3.2.4 One of the freight operating companies interviewed (DRS), delivers mainly retail and consumer (white) goods on a daily basis from Grangemouth, Elderslie, Coatbridge and Mossend to Elderslie, Aberdeen and Inverness, and to England. Although the company is content with the location of the termini they use, there are problems with capacity, especially at Coatbridge. The opinion expressed on this was that Freightliner needs to upgrade the facility to allow more capacity, but the scale of investment required means it needs Government support. Furthermore, there is simply not enough land for expansion.
- 3.2.5 DRS is interested in forming a partnership with Diageo in order to re-commission the Cameron Bridge rail yards, and expressed an interest in possibly using the mothballed rail facilities at Portobello. However, one of the biggest problems quoted by DRS was that much of the rail infrastructure in the country, including Cameron Bridge and Portobello, is controlled by DB Schenker, who, it is claimed, stifle competition and are unwilling to allow a potential competitor access to their assets. This has meant that DRS has been looking for another rail yard site to expand operations, but has so far, owing to the ownership structure of assets, been unsuccessful.
- 3.2.6 The constraints on the rail network that are of most importance to DRS are the length of sidings at their principal destinations including Aberdeen and Inverness. However, within the SEStran area, there are gauge and structure issues particularly on the Waverley to Carstairs line.
- 3.2.7 DRS are critical of the STPR proposals for a new rail line between Grangemouth and Mossend. The company considers that a programme of upgraded signalling on the branch line is a much better and more cost effective solution.
- 3.2.8 In terms of the requirement and location of a new Dryport, both of the principal FOCs interviewed expressed qualified support, qualified in the sense that the location of such a facility would have to be consistent with the focus of their freight operations. In the case of Freightliner, this was in the Coatbridge area, and in the case of DRS, Elderslie would be the preferred location, although a facility in the Grangemouth area would also be of interest. WH Malcolm, who work closely with DRS, expressed an opinion that that their present facility at Elderslie, which they claimed undertook many of the functions of a Dryport, reflected their freight operations and so did not see an immediate need for another facility elsewhere.

## 4 EXISTING AND FUTURE FREIGHT DEMAND

### 4.1 Introduction

- 4.1.1 Scott Wilson undertook the Scottish Multi-Modal Freight Locations Study (SMMFLS) on behalf of the Scottish Government, Scottish Enterprise and Highlands and Islands Enterprise (HIE). This was a national freight study which included a detailed consultation and data collection programme as well as the development of a nation-wide Scottish Freight Model (SFM) capable of examining freight movements across the network for various modes, including rail.
- 4.1.2 In order to nest within the emerging national freight study, it was therefore considered beneficial to use as much data from the SFM as possible, refined to a more local level in the SEStran area. This Chapter summarises the results from the demand analysis.

### 4.2 Data Processing

- 4.2.1 The data collected was disaggregated into 6 types of commodities, to take into account specifics of the SEStran region and variations across the country and the different economic sectors. To balance against the key priority industries, the freight data was therefore cross-referenced with the following economic sector groupings [based on the Standard Index Classifications (SIC) codes]:
- Agriculture, Fishing and Foodstuffs;
  - Forestry and Forestry Products (timber/furniture/paper);
  - Solid Fuels and Petroleum Products;
  - Minerals, Building Materials and Construction;
  - Fertilizers and Chemicals; and
  - Other/Miscellaneous.
- 4.2.2 Data was processed and analysed separately for each of the above freight commodities, allowing for a more refined analysis of future freight demand.
- 4.2.3 Freight demand was established for a 2007 base scenario. In order to assess the changes of rail freight movements in the future, a horizon year of 2020 was estimated as being a suitable future modelling year. In particular, two different scenarios were appraised:
- 2020 with low level of freight growth; and
  - 2020 with high level of freight growth.
- 4.2.4 These two scenarios were modelled under a series of assumptions discussed and agreed during the SMMFLS study. These represent low and high growth assumptions of how the economy will develop over time, how background road traffic flows increase, the increase in the value of fuel prices over time, and other relevant factors affecting freight transport.
- 4.2.5 A significant element of the data provided is commercially sensitive and hence the surveys were carried out in accordance with the Market Research Society Code of Conduct (MRSCC) and the Interviewer Quality Control Scheme (IQCS), which stated all information provided by stakeholders, would be treated in strict confidence. This is important since it facilitates a free and candid exchange of information and views from stakeholders, including operators and end-users, which would otherwise not have been available.

4.2.6 Consequently, the information can not be presented at a very detailed level, but it is possible to present information in an outline format and aggregated for the main areas. When future levels of freight demand and traffic patterns are estimated and taken forward into the rest of the study, flows at the aggregate level will be shown in order to maintain the commercial sensitivities requested by stakeholders who donated data.

### 4.3 Estimates of Rail Freight Demand in SEStran

4.3.1 Tables 4.1 and 4.2 below show the 2007 levels and estimated changes by 2020 for both the low and high growth scenarios, by commodities based on the categories outlined in Section 4.2.

4.3.2 Table 4.1 shows the levels of freight within the SEStran area (i.e. internal only demands) or having either an origin or destination in the SEStran area (i.e. internal-to-external or external-to-internal movements), whereas Table 4.2 shows the through movements (i.e. External-to-External freight tonnages), i.e. which are for the rest of Scotland.

**Table 4.1 – Forecast Tonnage per Commodity (2 way flows) – SEStran-related Tonnages Only (i.e. Internal-Internal, Internal-External & External-Internal)**

	2007		2020 Low Growth			2020 High Growth		
	2-way Tons (000)	Prop.	2-way Tons (000)	Prop.	Growth Rates	2-way Tons (000)	Prop.	Growth Rates
Agriculture, Fishing and foodstuffs	350	6.0%	499	5.55%	1.43	634	5.47%	1.81
Forestry and forestry products	174	3.00%	262	2.92%	1.51	295	2.54%	1.70
Solid Fuel and petroleum products	3,252	55.99%	4,891	54.42%	1.50	6,146	52.96%	1.89
Minerals, building materials and construction	811	13.97%	1,295	14.41%	1.60	1,712	14.76%	2.11
Fertilisers and chemicals	350	6.03%	527	5.86%	1.51	662	5.70%	1.89
Other/Miscellaneous	871	14.99%	1,514	16.84%	1.74	2,155	18.57%	2.48
<b>Total</b>	<b>5,808</b>	<b>100%</b>	<b>8,989</b>	<b>100%</b>		<b>11,605</b>	<b>100%</b>	
<b>Index</b>	100		154.8			199.81		

**Table 4.2 – Forecast Tonnage per Commodity (2 way flows) - External-to-External (i.e. Through Trips)**

	2007		2020 Low Growth			2020 High Growth		
	2-way Tons (000)	Prop.	2-way Tons (000)	Prop.	Growth Rates	2-way Tons (000)	Prop.	Growth Rates
Agriculture, Fishing and foodstuffs	22	6.0%	31	5.55%	1.43	39	5.46%	1.81
Forestry and forestry products	11	2.98%	16	2.91%	1.51	18	2.52%	1.69
Solid Fuel and petroleum products	201	56.05%	302	54.45%	1.50	380	53.02%	1.89
Minerals, building materials and construction	50	13.89%	80	14.36%	1.60	105	14.69%	2.11
Fertilisers and chemicals	22	6.02%	33	5.88%	1.51	41	5.69%	1.89
Other/Miscellaneous	54	15.03%	94	16.85%	1.74	134	18.62%	2.48
<b>Total</b>	<b>359</b>	<b>100%</b>	<b>556</b>	<b>100%</b>		<b>717</b>	<b>100%</b>	
<b>Index</b>	100		154.8			199.8		

4.3.3 The estimated growth rates are different for all commodities, but this does not alter significantly their proportions in the SEStran area.

**SEStran Freight Distribution**

4.3.4 The outside origin or destination of rail freight from/to SEStran is illustrated in the following table.

**Table 4.3 –SEStran Rail Freight Distribution**

Origin/Destination of Rail Freight from/to SEStran	Proportion
Highlands	7%
Aberdeen	7%
SPT	47%
Rest of UK	38%
Europe	1%

4.3.5 Close to 50% of rail freight either originating in or travelling to SEStran is between SEStran and the SPT area, and a further 38% occurs between SEStran and England and Wales. The north of Scotland accounts for the remaining 14%, with freight from/to Europe being marginal.

**4.4 Network Assignment of the Future Demand Estimates**

4.4.1 From these future forecast volumes of rail freight we can then calculate the projected increase in the number of trains on the network based on standard formula<sup>4</sup>. Assuming a split of incoming/outgoing traffic of 32%/68% from Scottish Transport Statistics<sup>5</sup>, and a train length of 40 TEUs, a conversion from tonnage to trains can be performed as follows:

- the total tonnage increase of rail freight by 2020 was converted to containers by dividing by 15 (representing the capacity in tons per TEU);
- the number of containers were then split between imports and exports based on the above data giving the total flows in and out of the area;
- the number of trains per week required to carry these containers was then calculated based on the number of containers. This number was divided by 40 (the assumed length of the train) to give the number of trains per annum; and
- finally the number of trains per day was calculated by dividing the figure by a standard annualisation factor.

4.4.2 The number of incoming trains is normally approximately the same, taking into account the empty containers required for loading.

4.4.3 Having calculated the additional number of trains on the network in 2020, these can then be assigned to the rail network based on the distribution splits given in Table 4.3.

<sup>4</sup> Handbook on the Management and Operation of Dry Ports, United Nations Conference on Trade and Development (UNCTAD), Geneva 1991

<sup>5</sup> Scottish Transport Statistics No. 27, Tables 8.13 & 8.14, December 2008

## 5 INFRASTRUCTURE NEEDS ANALYSIS

### 5.1 Introduction

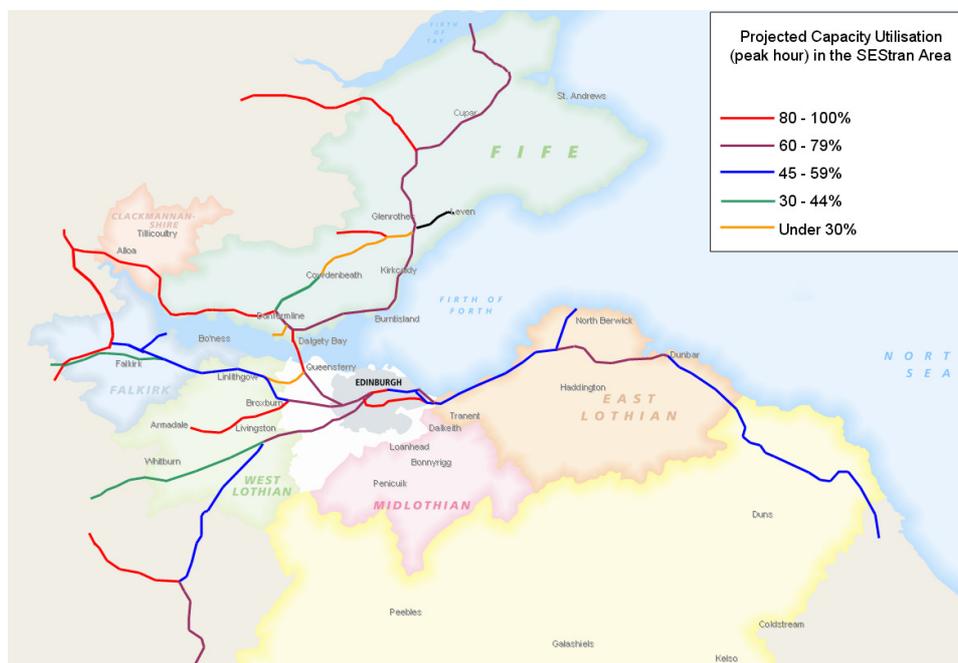
5.1.1 Having identified the future infrastructure provision on the network and carried out the needs analysis for rail freight in the SEStran area this chapter then considers how a consolidation centre/Dryport operation could fit into the rail network.

5.1.2 This Chapter provides a brief overview of the identified infrastructure needs in the area, the Dryport operations and presents a number of case studies before examining the type and level of infrastructure required for a rail-based Dryport operation.

### 5.2 Required Network Improvements

5.2.1 The extra trains on the network by 2020, as calculated in Chapter 4 were added to the baseline capacity utilisation map prepared in Chapter 2 and the impacts assessed. Figure 5.1 shows the resultant impacts. Again, as per industry procedures, the capacity utilisation is based on the Working Timetable which includes both passenger and freight services.

**Figure 5.1 – Forecast Capacity Utilisation in the SEStran Area (2020)**



5.2.2 It is considered anything above 80-100% is likely to require additional capacity or some other form of intervention. Hence assuming 80% as a cut off for indicating where improvements are required we can see there are several areas of the network which become increasingly congested with the addition of these freight services. Sections with capacity issues due to these additional trains include:

- Stirling – Alloa – Dunfermline line;
- Stirling – Larbert – Glasgow line;
- Lanark – Carstairs – West Coast Main Line; and
- Edinburgh Sub-Orbital Freight Line.

5.2.3 The Stirling – Larbert – Glasgow line utilisation will be just over 80% as this is a busy section serving Glasgow, Edinburgh, Stirling, the Highlands and also access to Longannet Power Station. Similarly the approach from Lanark to Carstairs joining the West Coast Main Line also has a utilisation just above 80%.

5.2.4 Therefore although these are not of immediate concern, these sections should be considered for further enhancements in the longer term.

5.2.5 Both the Stirling – Alloa – Dunfermline line and Edinburgh Sub-Orbital Freight Line would be operating close to 100% utilisation with the addition of these new services. However this is from a low base, with 4 paths per hour on the Stirling – Dunfermline line and 3 paths per hour on the Edinburgh Freight Line. Therefore there would be potential to increase these paths significantly. This should be considered and investigated further to cater for growth up to and beyond 2020.

### **5.3 Dryport Facilities**

5.3.1 Currently SEStran are involved in the Dryport project, which is funded by the EU Interreg IVB North Sea Programme. The project partners are:

- South East Scotland Transport Partnership (SEStran), UK;
- Transport Research Institute (TRI), Napier University, UK;
- Essex County Council for Haven Gateway, UK;
- Babergh District Council, UK;
- Falköping Kommun, Sweden;
- Port of Gothenburg, Sweden;
- Banverket Region Västra Sverige, Sweden;
- Vägverket Region Väst, Sweden;
- Port of Zeebrugge, Belgium;
- Kamer van Koophandel West Vlaanderen, Belgium;
- Gemeente Emmen, the Netherlands;
- Provincie Friesland, the Netherlands;
- Provincie Drenthe (sub-partner), the Netherlands; and
- Gemeente Coevorden (sub-partner), the Netherlands.

5.3.2 The concept of a Dryport has been considered in other Scott Wilson studies carried out for SEStran including the Freight Routing Study<sup>6</sup> and Consolidation Centres Study carried out in parallel to this study. Furthermore Napier University TRI and Colin Buchanan are also involved with SEStran on Dryport / Consolidation Centre studies.

<sup>6</sup> Freight Routing Study Final Report, Scott Wilson Ltd, June 2009

## 5.4 Case Studies

- 5.4.1 A brief case study review was conducted to provide an overview of the current operations and structure of Dryports throughout the world. This includes examples from the Netherlands, Denmark, Sweden, North America and Africa. These examples have been chosen to demonstrate a wide range of Dryport set-ups and operations.

### *Venlo Trade Port*

- 5.4.2 The Venlo inland trade port is located in the southeast Netherlands and since its initial development in the 1980's has emerged as one of the primary logistics centres for the European market. Its central location has aided its development as growing traffic congestion in the densely populated agglomerations of western Holland make it harder to access the ports of Rotterdam and Schipol.

- 5.4.3 Venlo trade port covers an area of 800 hectares and caters for nearly any type of combined traffic. The location of the facility means it has direct infrastructure connections to major European economic centres. These include fully integrated road and rail transshipment facilities. The rail facility offers daily direct High-speed Container Shuttle Service between Venlo Trade Port and the Rail Service Centre at the Port of Rotterdam. Furthermore, plans are being finalised for the development of a Venlo barge terminal on the Maas (Meuse) River.

### *Høje Taastrup*

- 5.4.4 Høje Taastrup is the first Danish Dryport project with the aim to strengthen and enhance the efficiency of sustainable and environmentally correct transport of freight, by land and by sea. The Dryport is located on the outskirts of the Greater Copenhagen area in a traffic junction for railway and road transport with direct access to motorways and a main railway line.

- 5.4.5 Currently the rail infrastructure on the site consists of three goods sidings at 300 meters long and one siding at 490 meters. In the future this may be extended to 600 meters if demand is sufficient.

### *Älmhult*

- 5.4.6 Älmhults Terminal AB in Sweden is located close to the southern trunk line between Malmö and Stockholm. The facility was initially set up by IKEA as part of their internal company strategy in conjunction with the Municipality of Älmhult and CargoNet (then SJ Freight Division). It serves the main ports in the south of Sweden such as Malmö (120 km), Trelleborg (150 km), Helsingborg (120 km) and Göteborg (200 km). There are five train shuttles per day from the Dryport to the sea ports.

- 5.4.7 The railway from the Dryport operates as a single loop back and forward to the main rail line with one connection point. With regards to equipment within the facility, two reach-stackers are used for loading and unloading.

- 5.4.8 In 2004, the terminal handled 154,200 units of which 144,000 units were containers, 3,000 units were semi-trailers and the rest were swap bodies.

### *Åmål*

- 5.4.9 The Åmål Transshipment Terminal Värmdal is located 180 kms from the Port of Göteborg. The terminal opened in 2005, replacing an old facility which was no longer fit for purpose in terms of safety or capacity (the facility was limited to 2,000 containers per year).

- 5.4.10 The facility serves the Port of Göteborg with train services running five times a week. With regards to the actual operations of these services, the train arrives at the terminal in the morning (approximately at 7 am) and leaves for the port in the afternoon (approximately at 4:30 pm). The terminal offers transshipment of containers by a side loading truck, separated from the other tracks in the vicinity of the facility by a 400 m long road.
- 5.4.11 The Dryport already handles the previous capacity of 2,000 units and has expectations to double the quantity, at least. Furthermore this facility is located on the shores of the lake Vänern and is one of the very few terminals in Sweden with access to inland waterways.

#### *Virginia Inland Port*

- 5.4.12 The Virginia Inland Port is located 220 miles inland, linking to the Port of Virginia by a rail connection. The port is located to the west of Washington D.C. and services run between the inland port and marine terminals five days a week.
- 5.4.13 The Dryport has significant rail infrastructure on site, consisting of 17,820 feet of on-site rail serviced by one of the largest railroads in the U.S., Norfolk Southern. The location of the port allows it to serve markets in Pennsylvania, Northern Virginia, West Virginia, Maryland, Washington D.C. and Eastern Ohio.
- 5.4.14 The Virginia Inland Port provides an interface between truck and rail for the transport of oceangoing containers to and from the Port of Virginia. Containers are transported by truck to the Dryport for immediate loading on to a rail car or for short-term storage prior to loading. Containers arriving from the Hampton ports are unloaded from the train and dispatched by truck to inland destinations. Infrastructure used in the operation includes dockside cranes, rubber tire gantry cranes, straddle carriers and other heavy equipment.

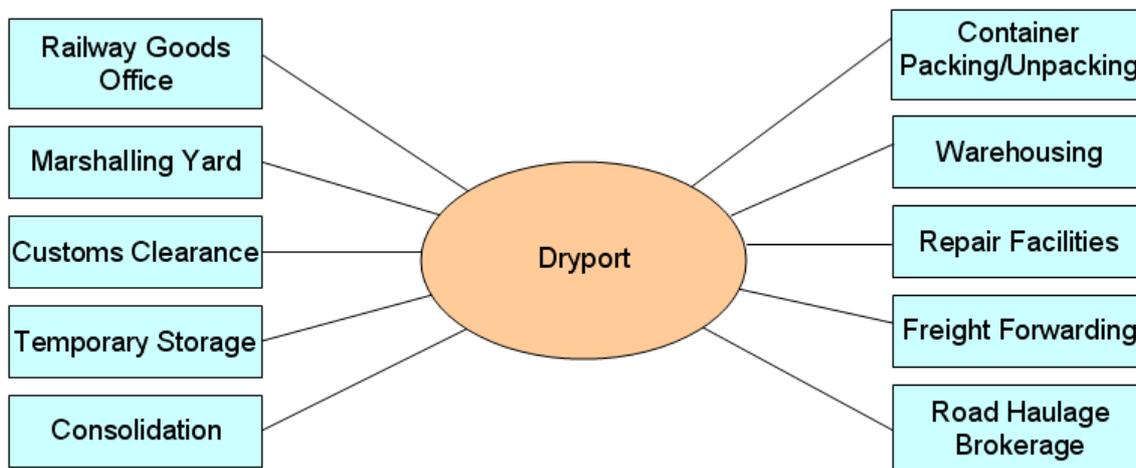
#### *Isaka*

- 5.4.15 Isaka Dryport located in Shinyanga region of Africa operates as an inland terminal serving Dar es Salaam Port. It acts as an interface for traffic to Rwanda and North Eastern Democratic Republic of Congo. Isaka is one of the key transport link to/from Rwanda located on the TRC line between Mwanza and Tabora.
- 5.4.16 Looking at the operational characteristics of the Dryport, the Dryport handles both containerised and general dry cargo and has two transit sheds with storage capacity of 7,000 metric tonnes each and can handle 42,583 metric tonnes of loose cargo per annum. Two railway sidings with a capacity for 22 wagons at a time serve the yards.

### **5.5 Rail Freight Dryport Operations**

- 5.5.1 Dryports are intermodal facilities located inland connecting rail and road facilities with sea ports. They allow containers to be moved around from each mode and can help shift freight from road to rail and sea options. Furthermore, they can help relieve congestion from sea ports and provide them with support functions.
- 5.5.2 Dryports operate 24 hours a day and assist with the transport of Twenty Foot Equivalent Units (TEUs). Essentially they can carry out all the functions and value added services of a sea port required for the shipping and forwarding of cargoes. These functions include customs clearance, storage, information exchange etc. These functions can save time and space at sea ports and reduce loading times. Figure 5.3 overleaf shows the activities carried out at a Dryport.

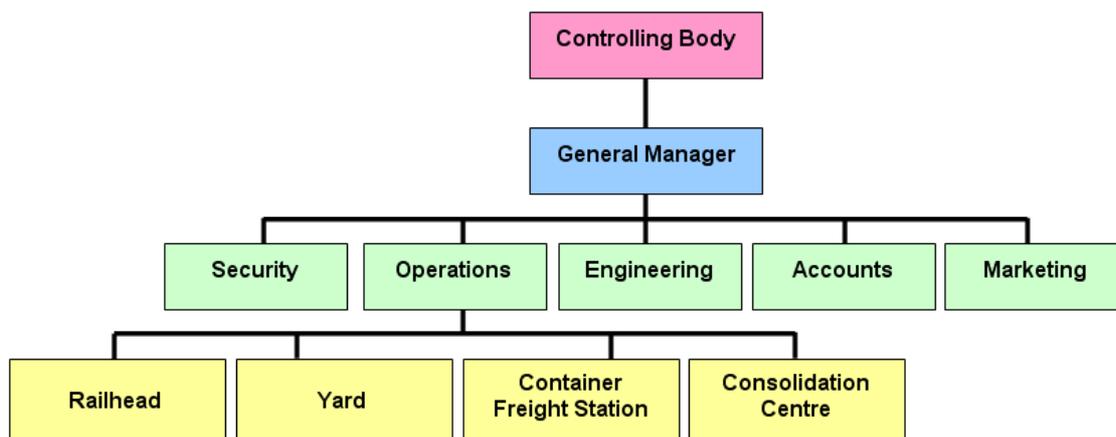
**Figure 5.3 – Activities at a Dryport**



**Management Structure of a Dryport**

5.5.3 In order to manage a Dryport a highly organised management structure must be employed to ensure the facility operates smoothly. Figure 5.4 provides an overview of this management structure.

**Figure 5.4 – Dryport Management Structure**



Staff

5.5.4 The controlling body of the Dryport can vary between publicly run and privately owned sites, depending upon the local conditions / circumstances. The controlling body will be responsible for creating the management structure appropriate to the size of the facility and setting and monitoring objectives for successful management of the Dryport. The controlling body will also appoint a general manager to oversee the day to day running of the facility.

- 5.5.5 The general manager will control the overall site and will be responsible for staff as well as operations. It is therefore important that the general manager has experience of recruiting staff as well as port operations. They are also responsible for building the commercial links with freight transport operators, railway companies, shipping companies and relevant port authorities.
- 5.5.6 The size and operations of the facility will dictate the number of staff required at the next level although each of the five sectors will have a manager responsible for overseeing the running of that sector. It is likely that the Head of Operations will be the next most senior to the general manager, overseeing the handling of the cargo and communicating with the relevant parties to keep them informed of progress.
- 5.5.7 The head of accounts will be responsible for overseeing the financial operations of the Dryport and report to the general manager with accounts statements, operational data and costs. This information will be used to determine the costs charged to individual customers. The accounts department will also be responsible for the staff pay roll and issuing invoices to customers.
- 5.5.8 The engineering manager will be responsible for the everyday maintenance of the Dryport infrastructure. This could include the cranes, forklifts, vehicles and train sidings. They would work closely with the operations manager to deal with any issues arising.
- 5.5.9 The manager of security would be responsible for ensuring the continuing surveillance and security of the facility. This would include patrolling the yard to ensure no unauthorised entry. The security staff would also be responsible for all the customs functions normally carried out at a sea port including monitoring vehicles and personnel, carrying out vehicle searches and ensuring the required tax is paid on goods.
- 5.5.10 Finally the marketing manager would be responsible for the promotion of the Dryport. It is likely they would work directly with the general manager who has close links with freight companies, ports authorities. The marketing would involve the promotion of the facility to an international audience.

#### Operations

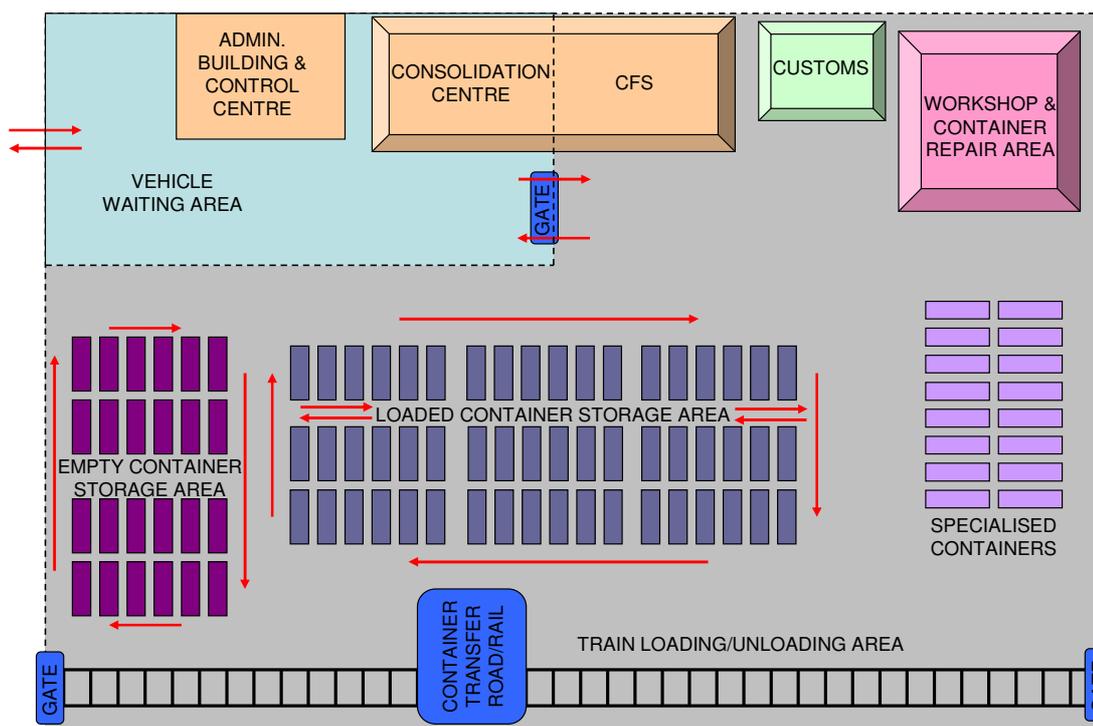
- 5.5.11 With regards to the operations of the Dryport, the railhead is the area where the trains are loaded/unloaded with containers. This normally involves the use of gantry cranes. The yard is the area which holds the containers before dispatch/onward delivery. It is a secure area normally split into several areas separating empty containers, special/high value goods and general containers.
- 5.5.12 The Container Freight Station (CFS) is a shed where break-bulk cargoes from several different consignors are received, aggregated and loaded into a container or where cargoes for several agents are unpacked from a container and separated for onward delivery.
- 5.5.13 The consolidation centre would work similarly to the CFS shed in that it would be consolidating goods from several customers bound for the same destination into one container. On the return journey this facility would again unpack the containers and separate goods for onwards delivery.

#### ***Dryport Operations***

- 5.5.14 With regards to the actual design and layout of a Dryport, these are specific to each individual location depending on several factors, including traffic volume, traffic pattern, special trade requirements and conditions. In the absence of a definitive Dryport layout design, several assumptions have been made as to the actual layout, based on best

practice. Figure 5.5 shows the general layout and important components of a rail based Dryport incorporating a consolidation centre.

**Figure 5.5 – Dryport Operations**



- 5.5.15 The layout of a Dryport as presented in this example means minimising and possibly eliminating the amount of time required for freight vehicles to operate within the stacking and loading area of the Dryport. All movements of containers and of other freight cargos within the Dryport can be undertaken by dedicated handling vehicles such as forklifts, mobile cranes and in the case of the rail line, gantry cranes. This layout adds to the efficiency and safety of the operation of a Dryport, and these properties would be extended to other activities such as aggregating loads that may be undertaken within the facility.
- 5.5.16 The rail freight based Dryport specifications would be assessed covering the infrastructural requirements such as sidings, warehousing and the total storage area of the facility. The assessment would be based on the estimated rail freight demand as expressed as containerised rail freight volumes transiting through the area. The rail freight flows were obtained from the SEStran Freight Model.
- 5.5.17 Having estimated the number of potential trains serving each Dryport per day this would indicate the number of sidings required to handle the rail traffic.
- 5.5.18 Finally, the area requirement per container would be calculated taking into account floor area, space required for handling equipment and a peak load factor, normally giving an average value of 40 square metres per container.

## 5.6 Potential Locations for Dryport

- 5.6.1 Having identified the layout and operations of a Dryport, potential locations for a Dryport can now be considered. Three sources have been used to consider the optimal location for such a facility.
- 5.6.2 Firstly, the consultation feedback presented in Chapter 3 and the views from key stakeholders allows market conditions to be taken into account (i.e. how a Dryport would fit in to the SEStran area and how the market would react). From the consultation, the location suggested within the SEStran area which appeared to meet most of the requirements required of a Dryport, was in the vicinity of Grangemouth. It would be close to the main rail freight facilities at the port of Grangemouth itself where there is ample storage capacity and it would be well positioned with respect to both the national rail and road network. It would also be well placed to integrate with the principal rail freight flows in the region and would be well connected (by rail) to other multimodal freight facilities such as those at Coatbridge and Mossend, which serve both Scotland and the rest of the UK.
- 5.6.3 Next the potential demand in the area was examined using the data from the model presented in Chapter 4. This included network impact assessment such as reductions in HGV flows, time savings, etc.
- 5.6.4 Finally the locations proposed from other studies were examined. This included the SEStran Freight Routing Study which was influenced by the Scottish Multi-Modal Freight Locations Study. This identified 5 possible sites for a Dryport and tested the impacts of these sites on the surrounding network.
- 5.6.5 This was then compared to the sites identified in the SEStran Consolidation Centre Study, two of which were common to both studies; namely Grangemouth/Falkirk and Coatbridge. This study also considered Livingston as a possible location.
- 5.6.6 Therefore the above three sites were considered as demand had been identified at these locations in other studies. The sites were considered in terms of impacts taking into account the dual purpose of both Dryport and Consolidation Centre. The results are shown in Tables 5.1 and 5.2 below, in terms of vehicle kilometre and vehicle hour savings.

**Table 5.1 – Network Impacts of Potential Dryport/Consolidation Centre Sites 2020 High Growth**

Location	Dryport		Consolidation Centre - Retail		Consolidation Centre - Construction	
	Veh - km	Veh - hr	Veh - km	Veh - hr	Veh - km	Veh - hr
Coatbridge	-20,208,000	-350,833	1,885	-395	240,627	1,730
Grangemouth/Falkirk	-17,078,000	-301,650	-17,146	-295	33,597	242
Livingston	-10,044,625	-174,754	-17,353	-499	35,092	-56

**Table 5.2 – Network Impacts of Potential Dryport/Consolidation Centre Sites 2020 Low Growth**

Location	Dryport		Consolidation Centre - Retail		Consolidation Centre - Construction	
	Veh - km	Veh - hr	Veh - km	Veh - hr	Veh - km	Veh - hr
Coatbridge	-18,070,351	-245,643	1,801	-345	216,705	1,561
Grangemouth/Falkirk	-15,520,967	-230,225	-15,058	-260	30,723	221
Livingston	-9,059,307	-128,244	-15,246	-438	33,520	-33

5.6.7 These results were then assessed based on a standard seven-point scale as outlined below:

✓✓✓	major beneficial impact	× × ×	major adverse impact
✓✓	moderate beneficial impact	× ×	moderate adverse impact
✓	minor beneficial impact	×	minor adverse impact
	○	neutral impact	

5.6.8 A score was assigned to each facility based on the above analysis and the scale of impacts of each facility on the surrounding network. From this an appraisal score table was prepared showing the results of the Dryports and consolidation centres at each site and also a combined score for each location. This is shown in Table 5.3.

**Table 5.3 – Appraisal Score Table of Potential Dryport/Consolidation Centre Sites**

Location	Dryport	Consolidation Centre	Overall
Coatbridge	✓✓	×	✓
Grangemouth/Falkirk	✓✓	✓	✓✓✓
Livingston	✓	✓	✓✓

5.6.9 From this analysis we can see Coatbridge has good potential for a Dryport, due to its connections to the rail network and access to Grangemouth and the West Coast Main Line. However in terms of a consolidation centre it has a negative impact on the surrounding area, increasing both vehicle kilometres and vehicle hours. This is as a result of the site being further from the SEStran area.

5.6.10 Grangemouth has slightly less demand for a Dryport than Coatbridge but still has good potential due to its proximity to Grangemouth port and connections to railway lines. The site also has good potential for a consolidation centre as it is close to Edinburgh city.

5.6.11 Livingston currently has the smallest potential for a Dryport of all the sites, mainly due to the fact it does not have a direct connection to any port. To address this issue would require the construction of a new railway line which would involve considerable cost. Livingston does however have the best potential for a consolidation centre due to its proximity to the M8, providing direct connections to both Glasgow and Edinburgh.

**Additional Site Considerations**

5.6.12 There are a number of additional site specific criteria which must be considered when deciding upon the actual location of a Dryport. These relate to the rail infrastructure and also the ongoing operations of a Dryport. For a successful rail freight terminal / Dryport the following characteristics must be considered:

- large size and scale – in order to accommodate large distribution warehousing, intermodal handling facilities and internal railway sidings on the same site. Therefore the selected site must have sufficient land for development;
- suitable rail access – in terms of loading gauge, track capacity and operational flexibility;

- good road access – located close to strategic roads allowing HGVs easy access to the terminal;
- proximity to markets and market need – a significant regional need to justify the development will provide a better commercial basis for a rail freight facility;
- proximity to a workforce – distribution activity is labour intensive, therefore there must be a suitable level of workforce in the area, with the right level of capability to service the facility;
- located away from residential areas – distribution needs to be able to operate at various times, often during late night/overnight periods. Ideally, a facility should be flexible enough to accommodate operating 24 hours/day, 7 days per week. This could lead to noise issues if located close to residential areas; and
- the site must be developed at a reasonable cost – this is especially the case in terms of installing the railway infrastructure and land rental/purchase costs. If capital and/or land costs are overly high the facility may not be able to operate successfully on a commercial basis.

### *Conclusions*

- 5.6.13 From the above analysis we can see there are effectively two different markets, with Dryports and consolidation centres operating separately from each other. Both facilities have different sets of customers and individual needs. Therefore the introduction of such facilities will have different network impacts and benefits.
- 5.6.14 The best performing Dryport site, Coatbridge, is the lowest performing location for a consolidation centre as a result of the increased network kilometres and hours.
- 5.6.15 The best performing consolidation location, Livingston, is the least beneficial site for a Dryport, providing the lowest network kilometre and hour savings.
- 5.6.16 Grangemouth/Falkirk has the second best results for both a Dryport site and a consolidation centre location, but when the two functions are combined, the overall rating suggests this site produces the highest overall benefits.

## 6 RAIL FREIGHT MARKETING

### 6.1 Introduction

6.1.1 The study requires an examination of the current and potential marketing of rail freight services, promoting access to rail freight services for all potential customers, especially in relation to Dryports. This Chapter considers freight customer needs before looking at potential ways to market rail freight to new and existing users.

### 6.2 Existing Market Conditions

6.2.1 The rail freight targets set out in previous national strategies have historically focused on four key market sectors:

- traditional bulk markets;
- niche traditional markets such as cars, manufactured goods and express parcels;
- deep sea containers; and
- general freight, in unitised loads such as swap bodies, containers or trailers.

6.2.2 These products have proven markets and the rail freight sector has shown that it can handle them effectively and efficiently.

6.2.3 The recent growth of rail freight has largely been a result of long distance bulk traffic, and, above all, coal imports to power stations, replacing supplies from coal mines that were close to the power stations. In other words, traffic that would be impossible to move in any other way than rail – a captive market.

6.2.4 However, a shift in the UK from the manufacture of bulk, unprocessed raw materials into end products, and the trend towards the sourcing of finished products, provides a timely opportunity for the rail freight industry and Government agencies like SEStran to capitalise on these changes.

6.2.5 The low profile of marketing historically is the result of the practice by rail companies of running long block trains on set routes, underwritten by others taking the commercial risk. For example, a recent consultation exercise quoted one freight operating company (FOC) as saying that 60% of their trains are paid for by the customer, whether loaded or empty<sup>7</sup>. In the case of shipping lines, they can guarantee to load the trains in both directions with deep sea containers to and from ports.

6.2.6 While the road haulage market is characterised by a large number of operators in a highly competitive market, the rail freight market is dominated by two large operators, created on the privatisation of British Rail, together with two smaller licensed rail freight operators:

- DB Schenker (formerly English Welsh and Scottish Railways): the company carries about 90% of all rail freight in the UK and operates the Channel Tunnel intermodal services; the company owns and operates a network of conventional rail terminals throughout the UK and most Channel Tunnel intermodal rail terminals, including the Euroterminal at Mossend;

<sup>7</sup> Inhibitors to the Growth of Rail Freight, Scottish Executive, 2007

- Freightliner: mainly operates intermodal rail services between deep sea container ports in south east England and a network of regional terminals, including Coatbridge to the east of Glasgow. The company has also diversified into bulk rail services, in competition with EWS, with contracts with Blue Circle;
  - Direct Rail Services (DRS): a subsidiary of BNFL with a core business in the rail carriage of nuclear flasks. The company has recently been more active in the general rail freight market; and
  - First GBRf (formerly GB Railfreight): the youngest player in the market, which has won various contracts to work rail infrastructure trains. The company has merged with First Group, the UK's largest rail passenger service franchise and leased a fleet of locomotives.
- 6.2.7 There are therefore two established players which control terminal networks and operate in fairly distinct markets, and two smaller operators, both of which are actively seeking to increase their presence in the freight market.
- 6.2.8 Rail freight in Scotland is characterised by being dominated by one industry – coal and minerals. Figures from the Scottish Transport Statistics<sup>8</sup> for freight uplifted show that coal consistently contributes close to 61% of total freight movements by volume. The major flows are deep sea coal imports from Hunterston and from coal mines in Ayrshire, Lanarkshire and Fife to power stations such as Longannet and Cockerzie. These are bulk trainload movements, with high volumes, high frequencies and dedicated handling facilities at both ends of the transport chain, which present traditionally attractive operations for rail.
- 6.2.9 The rail distribution of construction materials, particularly cement, within Scotland between rail-connected sites generated about 2.5 million tonnes of traffic in 2004/5. The principal flows are from the Blue Circle cement works at Dunbar to cement terminals at Leith and near Glasgow. Again, these are bulk trainload movements, with high volumes, high frequencies and dedicated handling facilities at both ends of the transport chain.
- 6.2.10 Domestic waste accounts for 1.0 million tonnes of rail freight in 2004/5, with bulk containerised waste being carried from a refuse transfer station in Edinburgh to a landfill site near Dunbar. This flow is over a relatively short distance and requires a road haul for part of the transport chain. Movements of refined petroleum products in trainload volumes account for 1.1 million tones of rail freight in 2004/5. The major flows are bulk liquid trainload volumes from the BP Grangemouth oil refinery to a regional distribution site at Dalston in Cumbria and to various storage facilities in Scotland, mainly for the rail and aviation industries.
- 6.2.11 The majority of rail freight movements originating in Scotland cross the border, and, as noted above, the overwhelming majority of rail-freight traffic in Scotland involves transporting coal. Therefore it is only to be expected that the principal cross border rail-freight traffic originating in Scotland is to the coal fired power stations in England. However, other significant flows of bulk commodities, generally in trainload volumes, include royal mail movements between the Central Belt of Scotland and the English Midlands and London.

<sup>8</sup> Scottish Transport Statistics No. 27, Tables 8.13 & 8.14, December 2008

## 6.3 Freight Customer Needs

- 6.3.1 The FOCs are risk averse and do not run trains where there is insufficient firm evidence for continuous demand for their services. This makes it difficult for them to break into the general haulage market, particularly where flexibility is required in determining loads and destinations. This deters the rail industry from actively pursuing opportunities there.
- 6.3.2 Consumer markets need a freight service provider capable of dealing with high-volume products delivered with varying frequencies. Considering retail logistics as an example, products are, on the whole, moved by HGVs because of the delivery point flexibility these offer. Any one product will be handled or moved on a number of occasions. Every time the product stops moving, it costs money to store. Every time that the product is handled, it costs money to handle. Every time the product is moved, it costs money to move. So, the challenge for the rail-freight industry is whether it can handle the product more efficiently, store it for shorter periods and, ultimately, charge less to move the product.
- 6.3.3 In order to target customers, an examination of their needs must be considered first. The following issues are of importance to freight customers:
- consistent achievement of delivery/collection time;
  - continuity of supply;
  - more out of peak hour deliveries/collections;
  - minimise inventory and handling costs;
  - maximise selling space (retail);
  - optimise use of transport services; and
  - prompt response from service contractors.
- 6.3.4 From these requirements, there are several ways which could promote the uptake of rail as a potential freight mode and help market these services. Potential measures include:
- reliability of rail freight services;
  - better use of existing rail connected facilities;
  - greater accessibility outside road network peak periods;
  - more environmentally friendly delivery vehicles;
  - cross-subsidisation of rail freight by Government;
  - new technology; and
  - innovative solutions.
- 6.3.5 Of the above, two measures (greater accessibility outside road network peak periods and more environmentally friendly delivery vehicles) are being investigated as part of a Sustainable Distribution Study on behalf of SEStran<sup>9</sup>.

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<sup>9</sup>SEStran Sustainable Distribution Study, Colin Buchanan, Ongoing at the time of writing this report

## 6.4 Current Inhibitors to Rail Freight Growth

6.4.1 At present there is a general lack of uptake of rail freight transport among businesses and hauliers. There are many reasons for this, some of which stated in a recent study are as follows<sup>10</sup>:

- the rail price is too expensive compared to road options. Grants are available, but it takes a minimum of six weeks to obtain a decision, and requires a certainty of traffic flow;
- on contacting the rail companies it is often difficult to find the right person to talk to. Furthermore, they can be slow in providing a price, with all the details of POD return, pallet pick up and delivery/de-hire, over the telephone;
- similarly, road hauliers approach customers with a knowledge of the customers' delivery requirements and offer their services based on this. Rail FOCs wait for customers to find them, so there appears to be a lack of pro-activity;
- railway companies quote for moving a train, not a door-to-door service which is the practice of the road haulage and forwarding industries, and this increases the rail industry's delivery costs. In addition, railway companies do not back-load the container, requiring the customer to organise this or to pay a flat charge for the round trip;
- the lack of operating terminals for loading/unloading generates deviation mileage and additional time. For example, Speyside whisky to Glasgow is around 180 miles by road. Travelling via Aberdeen, Dundee and Perth by rail nearly doubles this mileage, and makes it impossible to make a return journey overnight;
- customers are expected to provide containers. However, approximately 80% of hauliers use curtainsider trailers. The FOCs are reluctant to carry such containers due to fears of broken curtains damaging railway infrastructure, with the likelihood of huge compensation payments. The curtains also offer little protection against determined thieves. The next most common road trailer is refrigerated. Neither of these types of container are freely available, or offered by the FOCs. Furthermore, they require gauge enhancement, as they are wider than standard shipping containers; and
- the loading gauge is insufficient in many parts of the country, and the cubic capacity of road vehicles is just not possible with the loading gauge. Neither is it feasible to double stack standard height pallets in containers.

6.4.2 These issues all contribute to the lack of uptake of rail freight transport. Addressing these concerns involves the development and promotion of a pro-active marketing strategy and infrastructure improvements, the latter, for example, includes additional terminals and increased loading gauge.

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<sup>10</sup> Inhibitors to the Growth of Rail Freight, Scottish Executive, 2007

## 6.5 Opportunities to Promote Rail Freight Growth

- 6.5.1 There are several ways to promote and market rail freight, building upon the inhibitors identified above.

### *Marketing Strategy*

- 6.5.2 The FOCs should be encouraged to follow a more pro-active marketing approach. Currently operators wait on customers to approach them for services. The rail companies should investigate those potential customers close to rail lines and contact them to offer their freight services. At present many companies do not know of potential rail freight opportunities.
- 6.5.3 On a similar note, the rail-freight industry may be able to harness the opportunities presented by the trend towards outsourced distribution if the rail freight industry is considered as part of the whole-supply chain. This will be facilitated where rail freight operations, in particular freight handling, storage and freight movement, are all managed by a single entity.
- 6.5.4 The frequency and availability of rail freight services must be increased to maximise the opportunities available to companies to take on rail freight options. Currently many services only operate 5 days a week, but, in many cases, businesses, such as supermarkets, require services to run 7 days a week. Therefore, more flexibility in the rail timetable must be considered. This will involve detailed dialogue with Transport Scotland and Network Rail.

### *Service Diversification*

- 6.5.5 While the rail-freight industry has a solid track record in heavy goods, the industry needs to continue to diversify its business into non-traditional sectors. Rail freight has traditionally dealt with high volume products, delivered at a high level of frequency. However, the change in manufacturing means the consumer markets need a freight service provider capable of dealing with high-volume products delivered at varying rates of frequency, and the rail industry must adjust to this.
- 6.5.6 Where the rail industry is able to provide viable, cost-effective freight services, these will merit increasing consideration where they progressively meet retailers' requirements as the latter further optimise their distribution centres and locations of their stores with regards to local transport network. Rail freight can play its part in an effective integrated logistics system where this makes good financial sense and meets the social and environmental considerations of potential clients. For example, Tesco successfully runs a freight train to Inverness which serves their North of Scotland stores.
- 6.5.7 At present the charging regime of the train operators make it difficult for private customers to assess the viability of rail freight movements. To encourage more companies to use rail and avoid paying for empty units, a system could be setup whereby companies could share trains either for the outward or return journey. This could be assisted by the appointment of an aggregator who could combine loads from various companies and give a one-off cost.
- 6.5.8 Similarly a major obstacle at present is the lack of commitment by various operators to work together to provide an economical and viable service to potential customers. Co-operation should be encouraged by a rail freight champion and also the introduction of an open-access network to stimulate competition.

### *New Technology and Infrastructure Improvements*

- 6.5.9 Looking at potential ways to increase the available infrastructure to accommodate services, there are several new technologies and other innovative solutions which could contribute to, and promote, rail freight. These include:
- intermodal transport and handling techniques for small sidings etc.;
  - new-high performance low cost freight terminal handling facilities; and
  - management of supply chains using intermodal systems.
- 6.5.10 These improvements have the potential to speed up the rail supply chain and reduce the costs involved in rail freight movements.
- 6.5.11 Furthermore the possibilities for rail freight promotion can be facilitated by the upgrading of the loading gauge on the network and capacity increases at key freight terminals, such as Grangemouth.
- 6.5.12 Similarly, constraints on the length of freight trains may also need addressing to provide consistency throughout the network. Also, some rail lines in the SEStran area have restrictive speed limits on freight which could be addressed to speed up freight movements.
- 6.5.13 In addition, the current method for the allocation of freight train paths also needs to be examined as paths are currently allocated regardless of the level of usage or demand. This is further exacerbated by some operators running token trains periodically in order to keep paths to themselves. This therefore restricts the use of paths by various operators and constrains the services which can operate.

### *Promoting Green Credentials*

- 6.5.14 At a time when the Government is setting targets to reduce CO<sub>2</sub> emissions, the potential for rail freight to contribute to this should be exploited. A few key points to note with regards to the benefits of rail transport over road freight are:
- an average freight train can remove 60 HGVs from Scotland's roads;
  - rail produces around 80% less carbon dioxide than road per tonne carried, and
  - HGVs only pay for 59-69% of the social and environmental costs they impose upon society.
- 6.5.15 Therefore, there is a unique opportunity to market rail freight using these green credentials. The Government and the railway sector should encourage and inform businesses on the low-carbon benefits of rail transportation, and encourage businesses to transfer freight to rail transportation of their products over long distances with appropriate distribution points (hubs) for localised retail/manufacturer delivery.
- 6.5.16 A recent national study has called for the introduction of an industry and consumer 'Low Carbon Transit Impact' labelling system – very much like the 'Air Freight' labelling introduced by some supermarkets<sup>11</sup>. This would demonstrate to consumers a company's commitment to reducing its CO<sub>2</sub> output from manufacture to store delivery. This may be another opportunity to promote the uptake of rail freight.

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<sup>11</sup> Rail Freight, Getting on the Right Track, Institution of Mechanical Engineers, 2009



***Risk and Uncertainty***

- 6.5.17 Unfortunately, the risk and uncertainty associated with the transition of non-traditional rail-freighted goods onto rail impedes the shift from road freight to rail freight. Helping businesses investigate these risks and providing a route through which they are able to make long-term decisions under lower-risk scenarios, would help them decide whether rail freight has the potential to fit into their current, or future, business models.

***Financial Assistance***

- 6.5.18 Currently the application procedures for some grants are difficult and have many constraints and conditions. Grants such as the Freight Facilities Grant (FFG) are restricted by EU conditions for State Aid and are focused on environmental benefits, without considering wider benefits such as social and economic factors. The possibilities for reform of these grants should be considered.

## 7 RECOMMENDATIONS

### 7.1 Introduction

7.1.1 This chapter sets out the recommendations for developing rail freight in the SEStran area. These are set out as a series of measures considered under three categories, which include infrastructure, operations and marketing. The appraisal of costs and benefits for each recommendation outlined in this chapter is subjective and is only intended to give an indication of the potential implications.

### 7.2 Infrastructure

7.2.1 The recommendations for the infrastructure include not only the rail network and associated signalling etc. but also the rail terminals within the region. The crucial issues for the infrastructure are considered under the following subheadings.

#### ***Address Areas of Network with Capacity Issues***

7.2.2 As reported in Chapter 5, by 2020 there are several areas of the network which may be experiencing capacity issues based on the projected increase in rail services. Therefore SEStran should engage with Transport Scotland and Network Rail to ensure that the capability of the network is maintained in the long term and that the growth of rail transport is not suppressed.

#### **Recommendation 1 – Address Areas of Network with Capacity Issues**

**Aim:** To ensure the rail network is maintained and growth in freight transport is not constrained.

**Partners:** SEStran, Transport Scotland, Network Rail

**Timescale:** Ongoing

**Cost:** High

**Benefit:** High

#### ***Encourage Use of Rail Freight Terminals***

7.2.3 As investigated in Chapter 2, there are currently a number of unused terminal facilities within the SEStran area which have been mothballed. The re-opening and use of these terminals should be encouraged. This will involve identifying the owners of the facilities and encouraging them to market the facilities. These measures could also involve supporting the development and upgrading of these facilities, via government grants, to provide facilities of the standard required by businesses.

7.2.4 On a similar note, SEStran should support the development of new terminals where no other terminals are available. This aim ties in with other policies such as land-use and development plans, and encourages modal shift from road to rail. This should be supported and possible funding streams investigated. However, in order to minimise costs, the upgrading of existing or mothballed terminals should take priority over new terminal investment.



### **Recommendation 2 – Encourage Use of Rail Freight Terminals**

**Aim:** To encourage use of all existing terminals and/or support development of new facilities, building up capability of network and availability of terminals.

**Partners:** SEStran, Network Rail, Freight Operating Companies, Transport Scotland, Central Government, EU Government

**Timescale:** Ongoing

**Cost:** Medium/High

**Benefit:** High

## **7.3 Operations**

7.3.1 Within the operational aspects of rail freight, there are several measures which SEStran could promote to encourage the uptake of rail freight. Again these are described under the subheadings.

### ***Seek Open Access on Rail Network***

7.3.2 If open access was to be encouraged, there would be more competitive services available to rail freight customers. This would encourage more competition, lower costs and could also lead to a step change in working practices. Furthermore, co-operation from the individual operators should be encouraged to ensure an economical and viable service is provided to customers, this could be facilitated by a rail freight champion.

### **Recommendation 3 – Seek Open Access on Rail Network**

**Aim:** To open up network to all operators and encourage competition. Thereby, ensuring a choice of operator for rail freight users.

**Partners:** SEStran, Transport Scotland, Network Rail, Freight Operating Companies

**Timescale:** Short/Medium Term

**Cost:** Low

**Benefit:** Medium/High

### ***Encourage New Operational Methods***

7.3.3 Many customers want to continue with the reliability and frequency of road transport. Therefore to encourage modal shift from road to rail, a service of comparable or increased quality must be offered. This may include increasing operating hours and operating services at the weekend to ensure a frequent service.



- 7.3.4 Similarly free trials or services at a reduced rate could be offered to potential customers to demonstrate the capability and reliability of the rail services. This could be encouraged by SEStran seeking funding to trial such methods.

**Recommendation 4 – Encourage New Operational Methods**

**Aim:** To encourage more customer focused, on-demand services, comparable to road transport.

**Partners:** SEStran, Network Rail, Freight Operating Companies, Central Government, EU Government

**Timescale:** Short/Medium Term

**Cost:** Low/Medium

**Benefit:** Medium

***Introduce Mixed Loads***

- 7.3.5 Currently freight operators charge for the full train load for the journey and return trip making it difficult for private customers to assess the viability of rail freight movements. To encourage more companies to use rail and avoid paying for empty units, a system could be setup whereby companies could share trains either for the outward or return journey. This could be assisted by the appointment of an aggregator who could combine loads from various companies and give a one-off cost. This would spread the cost of rail freight and make it more available to a wider range and size of companies and reduce empty running.

**Recommendation 5 – Introduce Mixed/Back Loads**

**Aim:** To enable more co-ordination between companies using rail freight and allow them to share trains and spread/reduce costs.

**Partners:** SEStran, Freight Operating Companies, Rail Users

**Timescale:** Ongoing

**Cost:** Low

**Benefit:** Medium

***Introduce New Wagon Types***

- 7.3.6 At present the wagon types available for transport are very limited. To encourage greater uptake, a wider variety of wagon types should be made available. This could include larger wagons (where infrastructure permits), refrigerated containers and other types as required by industry.



- 7.3.7 To implement this, the potential customer base should be investigated and the types of wagon which would be required identified. SEStran could then work in partnership with the rolling stock companies to try and introduce these new wagons onto the network and promote their uptake by customers.

#### **Recommendation 6 – Introduce New Wagon Types**

**Aim:** To introduce new rolling stock offering a variety of wagon types and specific functions such as refrigeration.

**Partners:** SEStran, Freight Operating Companies, Rail Users

**Timescale:** Ongoing

**Cost:** Medium

**Benefit:** Medium/High

#### ***General Measures***

- 7.3.8 There are also several more general measures which SEStran can follow to support the development of rail freight, these include:
- support rail development in South East Scotland at both policy and scheme levels;
  - support terminal development within the region and encourage the use of these facilities;
  - explore new opportunities for rail freight innovation which may include encouraging free trials to new industries/companies, facilitating meetings with interested parties and helping companies with applications for funding; and
  - examine opportunities to expand some of the criteria used in awarding grants such as the Freight Facilities Grant (FFG) to include wider benefits such as social and economic in addition to environment. This may also require careful consideration of the current EU conditions on State Aid.

#### **Recommendation 7 – General Measures**

**Aim:** To support the wider development of rail freight by supporting policies and proposals and providing assistance to companies when required.

**Partners:** SEStran, Freight Operating Companies, Rail Users, Central Government, EU Government

**Timescale:** Ongoing

**Cost:** Low

**Benefit:** Medium



## 7.4 Marketing

7.4.1 The marketing strategy is one of the most important considerations to promote rail freight to a new range of customers. Here, SEStran could have a substantial impact on the measures involved to promote rail freight within this sub-heading.

### *Market to Existing Customers*

7.4.2 The potential to increase the use of rail services by existing freight customers should be a relatively straightforward measure, focused on raising awareness. When improvements are made to the rail network such as increased gauge clearance or further electrification, this should be communicated to existing users. When these improvements make services quicker or allow the use different rolling stock, companies need to be aware of these changes, in addition to the possibilities of increasing wagon loads or service frequencies.

#### Recommendation 8 – Market to Existing Customers

**Aim:** To increase uptake and awareness of rail services amongst existing users and communicate upgrades/improvements when they are in place.

**Partners:** SEStran, Network Rail, Freight Operating Companies

**Timescale:** Ongoing

**Cost:** Low

**Benefit:** Low/Medium

### *Targeting New Customers*

7.4.3 As noted above, new customers should be targeted to raise awareness of the facilities and services available. This should target new industries with significant transport needs. This could be done by SEStran in partnership with the freight operators. As noted above in the operations section, free or reduced fee trials could be offered to users to encourage the uptake of rail freight. Furthermore rail freight operators should be encouraged to take a more pro-active approach to marketing their services.

#### Recommendation 9 – Market to New Customers

**Aim:** To research the potential new customer base for rail services and promote such services to them.

**Partners:** SEStran, Freight Operating Companies

**Timescale:** Ongoing

**Cost:** Low

**Benefit:** Medium



### ***Awareness Raising***

- 7.4.4 In common with the above measures, awareness-raising is an area where SEStran could contribute significantly. A centrally controlled website would be a very useful tool in providing information on all rail freight possibilities and provide contacts for services. Furthermore brochures and flyers on the services available should be sent out through a targeted mail shot. SEStran would have to work in partnership with industry partners such as Network Rail, Transport Scotland and various rail freight companies to co-ordinate this marketing effort. Again a rail freight champion/aggregator as referred to in recommendation 3 would be very useful in helping to promote and market rail freight to the current and potential markets.

#### **Recommendation 10 – Raise Awareness of Rail Freight Services**

**Aim:** To make information on rail freight easily accessible and also promote it in the news etc. when opportunities arise such as improved facilities or services.

**Partners:** SEStran, Network Rail, Freight Operating Companies

**Timescale:** Ongoing

**Cost:** Low

**Benefit:** Medium

## **7.5 Action Plan**

- 7.5.1 The above recommendations have been collated into an Action Plan which sets out the measures under the relevant categories and highlights the key stakeholders to be involved in taking forward the actions. The Action Plan is contained in Appendix A.

# ***Appendix A***

*- Action Plan of Recommendations*

Category	Measure	Action	Partners
Infrastructure	Address areas of network with capacity issues	SEStran should engage with Transport Scotland and Network Rail to address key pinch points/areas with capacity issues to ensure the capability of the network is maintained in the long term and the growth of rail transport is not suppressed.	SEStran, Transport Scotland, Network Rail
	Encourage use of existing rail freight terminals	Identify the owners of mothballed facilities and encourage them to market the facilities. Could also involve supporting the development and upgrading of these facilities via government grants to provide facilities of the standard required by businesses.	SEStran, Network Rail, Freight Operating Companies
	Support development of new rail freight terminals	Support the development of new terminals and tie in with other policies such as land-use and development plans and encourage modal shift from road to rail. Possible funding streams for such plans should be investigated.	SEStran, Transport Scotland, Network Rail, Freight Operating Companies, Central Government, EU Government
Operations	Seek Open Access on Rail Network	Encourage open access and more competitive services.	SEStran, Transport Scotland, Network Rail, Freight Operating Companies
	Encourage New Operational Methods	Encourage increasing operating hours and weekend services – more customer focused operations. Also free trials or services at a reduced rate could be offered to potential customers. This could be encouraged by seeking funding to trial such methods (e.g. FFG or EU).	SEStran, Network Rail, Freight Operating Companies, Central Government, EU Government
	Introduce Mixed Loads	Set up a co-ordination system whereby companies share trains either for the outward or return journey.	SEStran, Freight Operating Companies, Rail Users
	Introduce New Wagon Types	Investigate potential customer base and the types of wagon which would be required. Work in partnership with the Rolling Stock companies to try and introduce these new wagons in the area and promote them to customers (e.g. refrigerated containers).	SEStran, Freight Operating Companies, Rail Users
	General Measures	Support rail development in South East Scotland at both policy and scheme levels, and explore new opportunities for rail freight innovation. This could include encouraging free trials to new industries/companies, facilitating meetings with interested parties and helping companies with applications for funding.	SEStran, Freight Operating Companies, Rail Users, Central Government, EU Government

Category	Measure	Action	Partners
<b>Marketing</b>	Market to Existing Customers	When improvements are made to the rail network such as gauge clearance increases or further electrification this should be communicated to existing users. This could be done via mail shots or e-mails to make users aware of these changes and the possibilities of increasing wagon loads or service frequencies.	SEStran, Network Rail, Freight Operating Companies
	Targeting New Customers	Investigate the possibilities for a new customer base. Contact new customers via mail shot, e-mail and telephone to raise awareness of the facilities and services available. Free or reduced fee trials could be offered to users to encourage the uptake of rail freight.	SEStran, Freight Operating Companies
	Awareness Raising	A centrally controlled website providing information on all rail freight possibilities and people to contact for services should be available. Furthermore brochures and flyers on the services available should be sent out through a targeted mail shot. SEStran could work in partnership with industry players to co-ordinate this marketing effort.	SEStran, Network Rail, Freight Operating Companies

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