

### 13.1 INTRODUCTION

This chapter considers the potential traffic and transport impacts arising from the construction and operation of the relocated proposed ferry port. The chapter draws on and summarises the information in the Transport Assessment (TA) report <sup>(1)</sup> (*See Annex N*), prepared for the scheme and which has been submitted with the Order application. The TA has been prepared by RPS, Stena Line's traffic and transport consultant, and fully reflects the outcome of consultation with Transport Scotland on the scope for the TA. The reader should refer to the TA for a detailed account of the traffic and transport impacts of this development.

Drawing on the TA, this chapter of the ES covers the following areas:

- relevant planning and transport planning policy;
- assessment methodology;
- the baseline situation;
- impact assessment;
- mitigation measures; and
- conclusions.

The issues of traffic-related noise and air quality and the potential for impacts on specific roadside receptors are addressed in *Chapters 11* and *12* respectively.

### 13.2 PLANNING AND TRANSPORT PLANNING POLICY

#### 13.2.1 *European Transport Policy*

##### *White Paper on European Transport Policy*

The White Paper 'European transport policy for 2010: time to decide' proposes an Action Plan aimed at bringing about substantial improvements to the quality and efficiency of transport in Europe. It serves as the EC's transport programme for the present decade.

The White Paper puts forward some 60 recommendations, of which one is to shift the balance of transport from air and road to rail, shipping and intermodal operations. The EC sees linkage of different modes of transport as well as developing the Trans-European Network (TEN-T) as key to achieving a shift in transport balance.

(1) Old House Point, Cairnryan (Proposed Stena Line Terminal), Transport Assessment, RPS September 2008

The White Paper encourages a renewed emphasis placed on short sea shipping and the use of shipping to remove freight from the air and road. As a result, the new facility at Loch Ryan Port will revitalise the RORO (Roll On Roll Off) operations and introduce more capacity for the movement of goods between Northern Ireland and the UK mainland, in line with sustainable transportation promoted by the EC.

### 13.2.2 *National Policy*

#### *Scotland's National Transport Strategy*

Scotland's National Transport Strategy emphasises the need for efficient infrastructural capacity across all of Scotland's modes of transport. The paper makes the case for enhancing Scotland's transport infrastructure to allow for economic, social and environmental sustainable transportation.

The strategy demonstrates that ports play a fundamental role in the economy of Scotland. Scotland needs a strategic transport network that will support the increased need for accessibility in the global economic climate and roads, rail and ports play an important part in this progression. Ports are important to all aspects of the economy from freight to tourism.

The role of ports in the logistics chain allows for the effective operation and support of cargo movements by water, which is critical to Scotland's economy. However, due to increase the competitiveness of Scotland's economy it is essential that there are improvements to ports and their inland road and rail links as they "will be vital in supporting the projected changes in the movement of freight." Furthermore, as freight is a major contributor to congestion it is essential that more freight is transferred using seaways and waterways providing environmental benefits as well as removing traffic from our roads.

As a result the National Transport Strategy emphasises the need for improved access to and from ports and increased capacity within ports.

#### *Scotland's Transport Future, The Transport White Paper*

The White Paper identifies that Scotland must have a safe, integrated and reliable transportation system that positions Scotland at the forefront of transport for future decades. It is essential to build and maintain a transport system that will provide links that make communities and businesses accessible.

In relation to Scotland's ferry ports, the White Paper emphasises that they perform a vital function and are essential to Scotland's social and economic structure. It demonstrates the need for Scotland's transport executive to support and facilitate the development of this sector, particularly in relation to Scotland's links to Northern Ireland. The proposed development of the Stena Line port at facility at Loch Ryan port is aligned with this national policy.

### *Scottish Planning Policy 17: Planning for Transport (SSP 17)*

SSP 17 supports the four main aims of the Scottish Government, which are to grow the economy, deliver excellent public services, support communities and develop an ambitious and confident Scotland. SPP 17 specifically focuses on the influence of transport and land use in meeting the stated aims. It is SPP17's intention that these aims should be met whilst committing to sustainability in the economy, society and the environment.

SPP 17 establishes that improving transport infrastructure is fundamental to achieving the overall aims of the Scottish Government. It emphasises the need for enhanced port facilities across Scotland to serve a range of shipping needs from deep sea shipping to local ferries. SPP 17 states that ports are vital in supporting the national economy and all ports should have good levels of accessibility by all modes of transport, including sustainable modes such as walking and cycling. Access by all modes, including walking and cycling, is directly addressed in the design of the proposed new port development (see section below).

Moreover, SPP 17 emphasises the strategic economic importance of freight. It demonstrates that new facilities need to incorporate stringent designs to allow space for parking, loading and servicing to enable water borne freight facilities to be viable. In line with this, the proposed port development will remove freight traffic from Stranraer town centre and provide sufficient space for the parking of freight vehicles. This will address the current problems of the existing port in the town of Stranraer whereby a combination of ferry and school traffic cause congestion on the local signed routes.

### *Planning Advice Note 75 (PAN 75): Planning for Transport*

PAN 75 aims to encourage planning policies and proposals that favour existing business and commercial centres, and to ensure new developments can gain benefit from existing transport services as well as ensure they are fully accessible to all users.

PAN 75 recommends that accessibility to land uses for individual travel is hierarchical and should at its outset focus on sustainable modes of transport such as walking and cycling as a priority and then on vehicular movements. The majority of trips associated with a ferry port are vehicular trips and as a result the relocated port facility will be fully accessible by road, most notably via the A77 for the predominant car and RORO operations. In addition, there will be a walk and cycleway from Cairnryan Village to the port and links to public bus services to allow people to access the port. The existing daily inter city coach services which serve Stena Line are anticipated to continue to operate through the port linking Belfast and other areas of Northern Ireland to major centres in Scotland and England. Consequently, accessibility by non-car modes has been integrated into the port development and planning process in line with national policy. Preliminary talks have taken place with

First Scotrail about operating an integrated ferry/rail service from Old House Point.

### 13.2.3 *Local Area Policies*

*South West of Scotland Regional Transport Partnership (SWESTRANS) Regional Transport Strategy (RTS), March 2007*

SWESTRANS has developed an RTS with the aim of integrating, maintaining and enhancing transportation through the south west of Scotland. The RTS has five core themes, which are to:

- promote economic growth;
- promote social inclusion;
- protect the environment and improving health;
- improve the safety of journeys; and
- improve integration.

The RTS aims to promote sustainable transport and enhance the levels of accessibility in the region allowing its vision to be realised as 'The Natural Place to Live'. Within this area, the ferry ports at Loch Ryan play a fundamental role in sustaining the economy and "*the aim of Dumfries and Galloway Council and the North Channel Partnership is that Loch Ryan retains its competitive advantage over other UK ports based on a short crossing time, frequency of service and reliability*" <sup>(1)</sup>.

In particular there are two policies which emphasis the need for joined up thinking across Scotland and its regions. The proposed port development is in line with these two policies.

#### **Policy 1:**

*The Partnership will promote schemes which will not only benefit Dumfries and Galloway but will add value to the broader Scottish economy and underpin national economic growth, aligning to local and national policy objectives.*

#### **Policy 6:**

*The Partnership will assist the Scottish Executive in delivering on its five high level national objectives and the National Transport Strategy. A presumption will be given in favour of transport improvements linked to the strategic vision based on well defined economic, social and environmental objectives.*

#### *Wigtown Local Plan*

Wigtown Local plan is a strategic document that sets out the planned and potential areas for development and conservation. The plan also brings together local and national policy to create an integrated planning policy for the local area.

(1) South West of Scotland Regional Transport Partnership (SWESTRANS) Regional Transport Strategy (RTS), March 2007, Section 3.6

The local plan aims to:

- support the local economy's development;
- support the local community;
- support the natural environment; and
- allow areas to be used to their most efficient.

**Policy SR8** identifies that the local area of Stranraer, where Stena Line's ferry port is currently situated, will be redeveloped to create an area of waterfront living, which will be a mixed use development incorporating residential, retail and marina activities.

In addition, **Opportunity 3** of the plan promotes the development of a new port on Loch Ryan and states:

"A significant opportunity exists for the redevelopment of this former military port site at the north of Cairnryan" <sup>(1)</sup>.

#### **13.2.4**      *Conclusions*

As set out in all policy documents at national, regional and local level, the key transport objectives reiterate the importance of ensuring sustainable and efficient infrastructure throughout South West Scotland.

As reiterated in the European White Paper, the development of sustainable intermodal freight transport is essential to achieve the goals set out to reduce emissions and encourage appropriate modal shift.

The proposed site is identified in the local plan as an area for port development and the proposed scheme is consistent with transport planning policy at all levels.

### **13.3**      *METHODOLOGY*

#### **13.3.1**      *Assessment Methodology*

##### *Overview*

The construction and operational traffic impacts of the project have been assessed in regard to existing road users, pedestrians, cyclists and other sensitive receptors. The following types of impacts have been assessed:

- changes in traffic conditions and their potential for delays and congestion;
- changes to pedestrians and cyclist conditions; and

(1) Wigtown Local Plan, Dumfries and Galloway Council, 2006, OPP3, page 30.

- changes in traffic related noise levels and air quality (which is assessed in *Chapters 11 and 12* respectively).

The overall objective of the assessment is to estimate the likely significant effects of changes in traffic resulting from the construction and operation of the scheme.

#### *Construction*

The study area for the assessment of construction traffic impacts comprises the A77, A75 and A751, consistent with the study area defined for the TA in consultation with Transport Scotland.

The potential for significant impacts has taken into account:

- levels of baseline traffic (ie in the absence of construction);
- levels of generated construction traffic and their timing and duration;
- the need for physical works (ie new junctions); and
- the potential for disruption to road users or road frontages.

In undertaking the assessment, account has been taken of the Scottish Government's Transport Assessment and Implementation guidelines <sup>(1)</sup>.

#### *Operation*

The study area for the operational assessment of traffic impacts is the A77, A75 and A751. The assessment of operational impacts is set out in the TA report prepared for the proposed scheme and the results summarised in the ES.

The TA assesses two future operational years, namely 2011 (first full opening year) and 2026 (15 years after opening).

The assessment reflects the scope agreed with Transport Scotland and draws on guidance set out in the Scottish Government's Transport Assessment and Implementation guidelines and the IHT's Guidelines for Traffic Impact Assessment <sup>(2)</sup>.

With respect to the assessment of impacts on the local road network, highway capacity and the ability of the road network to operate efficiently, the assessment in the TA is based on the results of ARCADY (Assessment of Roundabout Capacity and Delay) modelling. ARCADY is an industry standard computer program used to used for predicting capacities, queue lengths and delays (both queuing and geometric) at non-signalised major/minor priority junctions. Significant impacts would be deemed to arise where available capacity was taken up and queues and delays were predicted.

(1) Transport Assessment and Implementation: A Guide, (2005) Scottish Government.

(2) Institution of Highways and Transportation (1994) Traffic Assessment Guidelines, IHT.

The assessment also considers the effect of the proposals on public transport users, pedestrians and cyclists. In considering the significance of any effects, account has been taken of the extent to which provision will be made to facilitate access to the port by these modes.

## 13.4 BASELINE

### 13.4.1 The Road Network

#### Overview

The existing road network in the South West of Scotland linking the Loch Ryan Port site is through three trunk roads, namely the A77, A75 and A751 (see Figure 2.2). At present, this area is a key trading route for Scotland, the UK and Europe. Each of the roads are described in the sections below and any potential improvements are detailed.

**Table 13.1 Local Road Network**

A77	The A77 is a trunk road which varies between a dual and a single carriageway along its course. A significant proportion of this traffic is HGVs coming to/from the ferry ports in Loch Ryan. It runs from the town of Stranraer to Glasgow and is a strategic trade route for Ireland and Scotland. The A77 connects directly to the site and passes through the village of Cairnryan to the south. There are a number of improvement schemes for sections of the A77 which are currently under design and construction
A75	<p>The A75 is a trunk road connecting Stranraer to the south of Scotland and the Borders. Moreover, the A75 Euro-route is a strategic road with local, national and international significance. It is the only Scottish Trunk Road to be part of the ESSEN 14 programme as part of the upgrading of Ireland-UK-Benelux Road project.</p> <p>The A75 links Loch Ryan with Northern Ireland and the Republic of Ireland and provides a link with the markets in the UK and Europe. This road varies between a dual and single carriageway along its course. A significant proportion of this traffic is HGVs given its role in serving the existing ferry ports at Stranraer and Cairnryan. According to SWESTRANS (1), the Scottish Executive announced in 2000 a Route Action Plan for the A75 and it is currently being implemented to improve overtaking opportunities and other enhancements that will allow the A75 to remain a strategic route.</p>
A751	The A751 is a trunk road and is the connecting road between the A77 and the A75. It is a vital route for HGVs accessing the proposed port from south of the site. At present, the A751 is used at times of exceptional ferry service disruption (eg cancellations due to severe weather) as an area to stop up and hold HGVs and port based traffic since both the existing ferry ports do not contain sufficient parking capacity. The proposed new Stena Line port will contain sufficient parking capacity to avoid using the A751 for the stopping up and holding of traffic during periods when there is ferry service disruption.

(1) SWESTRANS, Regional Transport Strategy, 2007

At present the combination of ferry and school traffic on the local signed routes into Stranraer town causes major congestion. As well as a net reduction in traffic on the local road network in Stranraer, the relocation of the Stena Line terminal will result in a reduction in the number of heavy vehicles within Stranraer town, especially at the priority junctions of Port junction/Cairnryan Road and Stair Drive/ Cairnryan Road and will provide a number of safety and operational benefits.

There are known to be problems during bad weather cancellations with ferry traffic backing up onto the A77 and in Stranraer town leading to the A751 being used as standing storage.

The current distribution trend is that ferry traffic arrives/departs to/ from the north via the main trunk road A77 and traffic arriving/departing from the south does so by the A75 trunk road. The key Stranraer junctions impacted by this distribution are the priority junctions of Port junction/Cairnryan Road and Stair Drive/ Cairnryan Road.

#### **13.4.2** *Baseline Traffic Volumes*

Existing traffic count data (March 2008), was provided by RPS to establish traffic patterns on the A77, A75 and A751. *Table 13.2 to Table 13.4* below represents a typical week in March on each of the roads listed for 24 hours, broken down by hourly periods. It is important to note that the traffic figures presented above include the HGV, LGV and car traffic currently generated by Loch Ryan to Northern Ireland ferry services.

The traffic survey data indicates that the A77, the road from which direct access would be obtained to the new port site, is relatively lightly trafficked, and from observation pedestrian and cyclist flows along the A77 are also low.

**Table 13.2 Existing (Two Way) Average Daily Traffic 2008 - A77 Cainryan**

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0000 - 0100	25	20	12	20	34	38	26
0100 - 0200	16	36	13	19	20	18	11
0200 - 0300	58	21	27	25	35	28	15
0300 - 0400	48	34	52	39	41	34	3
0400 - 0500	26	27	17	15	20	13	14
0500 - 0600	26	35	28	27	28	28	20
0600 - 0700	22	80	84	74	92	46	22
0700 - 0800	97	112	126	134	113	91	52
0800 - 0900	135	243	201	206	203	144	69
0900 - 1000	214	273	228	259	254	259	146
1000 - 1100	262	172	182	178	176	190	136
1100 - 1200	234	190	195	202	221	226	207
1200 - 1300	224	226	212	224	305	262	271
1300 - 1400	272	225	224	240	270	249	305
1400 - 1500	271	222	256	237	351	281	435
1500 - 1600	199	245	226	214	300	251	360
1600 - 1700	207	246	210	217	262	246	312
1700 - 1800	212	177	178	213	217	201	278
1800 - 1900	264	154	157	194	274	186	276
1900 - 2000	173	97	138	177	232	153	215
2000 - 2100	131	74	50	76	103	82	96
2100 - 2200	142	125	57	70	89	35	73
2200 - 2300	79	59	69	76	85	41	80
2300 - 0000	67	42	25	36	32	30	23

Source: Transport Scotland Unclassified ATC counts provided by RPS

The data provided for the A77 is unclassified and therefore does not include a split of cars/LGVs and HGVs. However using data from the traffic survey carried out for the periods 0600 - 1000 and 1145 - 2100 for the TA, it has been established that that two way baseline HGV flows range from 7 to 29 vehicles per hour.

**Table 13.3 Existing (Two Way) Average Daily Traffic 2008 - A75 South of the A751**

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0000 - 0100	38	26	41	75	50	75	91
0100 - 0200	78	102	33	56	98	61	25
0200 - 0300	87	50	79	103	87	88	25
0300 - 0400	27	65	103	67	30	78	29
0400 - 0500	29	70	54	37	61	45	36
0500 - 0600	45	81	52	45	155	43	30
0600 - 0700	162	131	153	134	300	112	49
0700 - 0800	296	318	306	242	482	140	73
0800 - 0900	511	520	542	395	535	222	125
0900 - 1000	407	517	502	433	458	425	241
1000 - 1100	450	438	465	295	501	403	258
1100 - 1200	494	411	479	349	547	447	305
1200 - 1300	500	514	505	389	501	531	430
1300 - 1400	500	491	488	430	645	455	489
1400 - 1500	500	543	563	556	573	546	556
1500 - 1600	504	586	517	564	561	430	524
1600 - 1700	558	559	547	327	494	372	391
1700 - 1800	530	520	537	517	458	365	369
1800 - 1900	347	387	378	389	356	310	365
1900 - 2000	237	213	287	369	173	270	303
2000 - 2100	217	189	171	174	189	180	153
2100 - 2200	159	246	159	167	200	133	136
2200 - 2300	132	184	162	225	75	127	155
2300 - 0000	80	94	76	79	75	92	77

Source: Transport Scotland Unclassified counts provided by RPS

**Table 13.4 Existing (Two Way) Average Daily Traffic 2008 - A751**

Time	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
0000 - 0100	11	7	12	22	14	22	26
0100 - 0200	22	29	9	16	28	18	7
0200 - 0300	25	14	23	30	25	25	7
0300 - 0400	8	19	30	19	9	22	8
0400 - 0500	8	20	16	11	18	13	10
0500 - 0600	13	23	15	13	45	12	9
0600 - 0700	47	38	44	39	86	32	14
0700 - 0800	85	91	88	70	139	40	21
0800 - 0900	77	79	82	60	81	34	19
0900 - 1000	90	114	111	96	101	94	53
1000 - 1100	118	115	122	77	131	105	68
1100 - 1200	105	87	101	74	116	95	65
1200 - 1300	123	126	124	96	123	130	106
1300 - 1400	100	99	98	86	130	91	98
1400 - 1500	99	108	112	111	114	109	111
1500 - 1600	143	167	147	160	160	122	149
1600 - 1700	134	134	131	150	118	89	94
1700 - 1800	77	76	78	75	67	53	54
1800 - 1900	72	80	78	80	73	64	75
1900 - 2000	49	44	59	76	36	56	63
2000 - 2100	45	39	35	36	39	37	32
2100 - 2200	33	51	33	34	41	27	28
2200 - 2300	27	38	33	46	15	26	32
2300 - 0000	17	19	16	16	15	19	16

Source: Transport Scotland Unclassified counts provided by RPS

### **13.4.3 Public Transport**

#### *Stranraer*

The existing Stena Line terminal at Stranraer has good public transport links as it is located in close proximity to the centre of Stranraer town and adjacent to Stranraer rail station, which services all parts of the UK via Troon.

Passengers can walk from the Stena Line terminal and onto a waiting train. The Stranraer local bus services are also located within an acceptable walking distance (500 metres) of the terminal access. The new port will also retain the existing daily express coach service to Glasgow/Edinburgh, Midlands and London.

#### *Loch Ryan Port*

With regards to the Loch Ryan area, due to the location and existing nature of the vacant coastal site, public transport accessibility is limited in the immediate vicinity of the site. No designated bus stops are currently available on the A77 along the site frontage.

The nearest available bus stop is in the village of Cairnryan. In addition to the P&O shuttle buses a single bus service No 358 currently serves the village and operates a 2 hour frequency during Mondays to Saturday and a three hour frequency during Sunday.

The nearest train station is located six miles south in Stranraer town. Stranraer station is located on the Glasgow, South Western line with a number of Scottish/English towns and cities being accessible from stations along this line. Preliminary discussions have been held with First Scotrail about operating an integrated rail/ferry service, which is further discussed in *Section 13.6.4*.

### **13.4.4 Pedestrians and Cyclists**

#### *Stranraer*

At present pedestrians and cyclists are bussed to/from the ferries/Stena Line reception. Stranraer town is then accessible by walking/cycling from the Stena Line reception area.

#### *Loch Ryan Port*

As the development site fronts the A77 trunk road, there are at present no pedestrian or cycle facilities or links available.

However, Cairnryan is intended to be linked to the National Cycle Networks route 73, which will link Irvine, Kilmarnock, Newton Stewart and Stranraer.

## 13.5 CONSTRUCTION IMPACT ASSESSMENT

### 13.5.1 Overview

The construction of the new ferry terminal is expected to commence in 2009 with the construction expected to last 84 weeks. The construction traffic will access the site directly from the A77.

The presence of construction traffic will be a short term occurrence associated with the duration of the works to build the proposed development.

During the construction period there will be a temporary access in operation to facilitate the movement of construction vehicles in and out of the site, and a roundabout will be built during the construction phase. Once operational the new three armed roundabout will be accessed off the A77, providing entry/exit to the site.

### 13.5.2 Generated Construction Traffic

During construction, traffic movements will be generated by HGVs delivering materials and removing construction waste and by construction workers accessing and leaving the site at the beginning and end of works shifts.

All HGV deliveries where practicable and waste removal trips will be undertaken during the daytime between the hours of 0800 and 1800.

It is anticipated, as a worst case scenario, that there will be up to 80 HGV deliveries to the site per day during peak construction, however in reality, it is more likely that this number will be between 48 and 50 HGVs per day. 80 HGVs per day translates to 160 HGV in/out movements per day (ie each HGV will access the site, deliver its load and leave the site, so that one HGV delivery translates to two movements). These delivery movements will be spread over the day, so that there will be around 16 HGV movements an hour.

The majority of HGV movements will be delivering construction materials such as sub-base, concrete and rock armour etc. Much of the material that will be excavated during construction will be used in the construction works. In addition to dredge arisings which will be removed by barge, there will be approximately four movements per day that will be required to remove waste by road.

The approximate duration of construction is 84 weeks in total including the site preparation works, dredging and main construction which will be tendered as part of the same contract.

With respect to traffic generated by construction workers, at the peak period of construction there will be a maximum number of 210 construction workers on site.

For the purpose of this assessment it is assumed that the working day will be from 0700 – 1900 and that staff will travel to site by private vehicle at an occupancy rate of 1.3 persons per vehicle (based on experience of other construction projects). This occupancy rate is a conservative figure and in actuality it is likely that occupancy rates will be higher (ie more than 1.3 persons per vehicle). Assuming 1.3 persons per vehicle, during the peak period of construction, there will be 161 personnel trips into the worksite at the beginning of each work shift and a further 161 trips out of the worksite at the end of each work shift.

Due to the nature of certain construction activities such as piling, revetment construction and rock armouring, there will be certain activities that will be carried out outside of these hours, ie in the evening low tide. All materials for works during evening low tide periods will be delivered during the daytime.

There will be a work force of approximately 10 employees per shift during low tide work periods. This work force will typically leave the site along the A77, with a proportion likely to pass through Cairnryan. The implications with respect to night-time noise are addressed in *Chapter 11*.

### 13.5.3 Construction Impacts

The majority of employees will work from 0700 – 1900, which means they will arrive at the site in the hour before 0700 and will leave in the hour following 1900. This translates to 161 personnel movements during each of the 0600-0700 and 1900-2000 periods.

**Table 13.5 Anticipated Two Way Construction Traffic**

Time	Existing A75	Generated Construction Traffic	Total Traffic <sup>(1)</sup>	Existing A77	Generated Construction Traffic	Total Traffic
0600 – 0700	300	161	461	92	161	253
0800 – 0900	535	16	551	243	16	259
0900 – 1000	517	16	533	273	16	289
1800 – 1900	387	16	403	274	16	290
1900 – 2000	213	161	374	232	161	393

(1) Total traffic is existing traffic plus generated construction traffic.

*Table 13.5* shows the hourly construction traffic loaded onto the existing traffic on the A77 passing through Cairnryan village, and on the A75 during time when construction staff will be accessing and leaving the site as well as during selected times during the day. The existing traffic numbers have been taken from *Table 13.2* and *Table 13.3*, the highest numbers from that time of the day have been used so as to assess the worst case. For the most part, the number of additional construction vehicles on the road network will be relatively limited. However, between 0600 – 0700 and 1900 – 2000, there will be an additional 161 vehicles on the network made up of staff travelling to/from the site by private vehicle.

While this increase may seem high in comparison to the rest of the day and also compared to the existing baseline for those times, it should be noted that the TA has established that the A77 currently operates well below capacity and as such significant impacts on capacity are not anticipated. It should also be noted that during this period, projected total traffic (ie baseline plus construction traffic) will be less than that modelled in the TA for the operational phase. The TA concluded that no significant impacts will arise with respect to highway capacity.

It is also not anticipated that generated construction traffic will be of a sufficient magnitude so as to make it more difficult for people in Cairnryan fronting the A77 to access/egress their property by car during periods when construction workers are accessing/leaving the main worksite at the beginning and end of the working day.

It is possible that some temporary disruption may be caused to road users during the construction of the new site access off the A77 into the proposed Stena Line site. Appropriate traffic management arrangements will be agreed with Transport Scotland to minimise any disruption. Any disruption will be a short-term effect associated with the duration of the construction period for the new site accesses.

## **13.6 OPERATIONAL IMPACT ASSESSMENT**

### **13.6.1 Operational Assessment Assumptions**

The TA has assessed traffic arriving and departing for a sailing during peak periods however the number of operational employees has not been used in the assessment as they will arrive/depart outside of the peak periods. One of the objectives of the TA is to demonstrate that the junctions will function without any network capacity issues arising.

The TA also uses the following assessment assumptions:

- a current Stena Line vessel of 1700 lane storage metres;
- each vessel arrives and departs operating at 70% capacity utilisation, which is equivalent to 21 freight and 189 non freight vehicles (= 210 vehicles);
- a 70% full sailing on an average ferry is 1228 people;
- 529 foot passengers per sailing;
- 3 cyclists per sailing;
- 50:50% split of cars on the A77 & A75 north/southbound;
- 66:34% split of HGVs on the A77 & A75 north/southbound;
- 32% of HGVs are unaccompanied during day time sailings; and
- 38% of HGVs are unaccompanied during night time sailings.

The assessment also includes a sensitivity analysis based on a maximum sized Stena Line vessel of 2200 lane storage metres at full capacity carrying 44

freight vehicles and 308 cars. The sensitivity test has been carried out to assess how the junction will cope between 0800 - 1000 with the large Ropax vessel as well as the existing local traffic. The hours between 0800 - 1000 is the worst case for network capacity because it is at this time that the disembarking ferries will have a higher ratio of cars to HGVs, which loaded onto the existing vehicles, has the most likelihood of causing queuing and therefore capacity issues at the junction.

### 13.6.2 *Operational Impacts- Traffic Flows and Highway Capacity*

The timing as to when traffic travelling to and from the relocated port will be on the network will be determined by the sailing timings. Although the distance from Belfast to Loch Ryan Port will be shorter than travelling to Stranraer the crossing time is expected to remain the same. The reason for this is that the ferry speed will vary due to the fact that different vessels will be employed. The two tables below show the existing sailing timings over the course of a day.

For robust assessment purposes the existing Stena timetable has been assessed. A two hour period has been assessed in the AM (0800-1000) and PM peak (1800-2000) periods that includes both embarking and disembarking ferry traffic on the network.

It is proposed that a new ferry timetable similar to the one in *Chapter 2's Box 2.2* will be in operation. In operating this timetable, after arriving, ferries would wait in the port for up to two hours before departing rather than the present shorter docking time. This will result in less potential conflict between embarking and disembarking ferry traffic on the external network.

The TA assesses the impacts of the operation of the proposed development. As set out in the TA Scoping Report response from Transport Scotland, the report assesses the arrival and departure of sailings during the *am* and *pm* peak periods. Based on existing sailing times the following periods were assessed in the TA:

- *am* peak: 0800 - 0900 and 0900 - 1000; and
- *pm* peak: 1800 - 1900 and 1900 - 2000.

The TA has assessed a worst case scenario for junction and capacity analysis, (ie more cars and less HGVs). This assesses a situation that will create the greatest network load. However, it is more likely that there will be a higher ratio of HGVs in the evening sailings and lower during day time sailings.

**Table 13.6 Existing Sailing Times - Arrivals**

<b>Stena Line Boats Arriving from Belfast</b>					
		<b>Time Arriving</b>	<b>Days in Operation</b>	<b>All Departed from Port by</b>	
<b>All Boats to Exit in a 20 to 30 minute time frame</b>	Superferry	6:50am	Tues- Sat		
	Stena HSS	09:30am	Daily	0955	AM PEAK
	Superferry	14:15pm	Mon, Wed, Fri		
	Superferry	15:05pm	Sat- Sun		
	Stena HSS	14:15pm	Daily	1435	
	Stena HSS	19:15pm	Daily	1935	PM PEAK
	Superferry	22:15pm	Mon - Fri		
	Superferry	23:15pm	Sat - Sun		
	Stena HSS	00:50pm	Daily	0120	

Source: RPS Transport Assessment, 2008

**Table 13.7 Existing Sailing Times - Departures**

<b>Stena Line Boats Departing to Belfast</b>					
		<b>Time Departing</b>	<b>Days in Operation</b>		
<b>Check in time 30mins prior to departure.</b>	Stena HSS	4:40am	Daily		
	Superferry	7:15am	Tues - Sat		
	Stena HSS	09:55am	Daily		AM PEAK
	Stena HSS	14:50pm	Daily		
<b>Vehicles arrive over a 1.5 hr period</b>	Superferry	15:15pm	Mon, Wed, Fri		
	Superferry	15:50pm	Sat-Sun		
	Stena HSS	19:50pm	Daily		PM PEAK
	Superferry	23:00pm	Mon - Fri		
	Superferry	23:59pm	Sat - Sun		

Source: RPS Transport Assessment, 2008

This data is taken from the TA, which aims to present a likely worst case scenario in regards to road and junction capacity.

Table 13.8 and Table 13.9 below illustrate the number of vehicles that will travel on the A77 and A75 to access the proposed Stena Line port during the *am* and *pm* peaks.

**Table 13.8 Arrival Distribution of Ferry Traffic - Morning (0955) and Evening (1950) Sailing**

	<b>Vehicle</b>		<b>HGV</b>		<b>Total</b>	
	A75	A77	A75	A77	A75	A77
	From south 50%	From north 50%	From south 66%	From north 34%	From south	From north
<b>Arrival for 0955 Sailing</b>						
0800 - 0900	48	48	7	4	<b>55</b>	<b>52</b>
0900 - 1000	47	47	7	4	<b>54</b>	<b>51</b>
<b>Arrival for 1950 Sailing</b>						
1800 - 1900	55	55	8	4	<b>63</b>	<b>59</b>
1900 - 2000	40	40	6	3	<b>46</b>	<b>43</b>

Source: RPS Transport Assessment, 2008

Table 13.8 shows that there will be between 46 and 63 vehicles an hour travelling northbound on the A75 towards the site and through Cairnryan village for the above sailing arrival times.

**Table 13.9 Disembarking Distribution of Ferry Traffic – Morning (0920) and Evening (1905) Sailing**

	Vehicle		HGV		Total	
	A75	A77	A75	A77	A75	A77
	To south 50%	To north 50%	To south 66%	To north 34%	To south	To north
<b>Disembarking Traffic from 0920 Ferry Arrival</b>						
0800 – 0900						
0900 – 1000	95	95	14	7	108	102
<b>Disembarking Traffic from the 1905 Ferry Arrival</b>						
1800 – 1900						
1900 – 2000	95	95	14	7	108	102

Source: RPS Transport Assessment, 2008

Table 13.9 shows that there will be around 108 vehicles an hour travelling southbound from the site and through Cairnryan village for the above disembarkation times.

With respect to assessing the impacts of the proposed scheme on highway capacity, the TA focuses on two assessment years, 2011 (full year of opening year) and 2026 (15 years after opening). The overall conclusion of the TA is that there will be no significant adverse effects on the highway network as a consequence of the new port facility. In fact, the relocation of Stena Line’s ferry facilities to Loch Ryan Port results in a net reduction of traffic on the local road network within Stranraer, especially along the signed routes to the port. The reduction in HGVs within Stranraer, especially at the sub-standard priority junction of Port Road and Cairnryan Road will provide a number of safety and operational benefits. The new terminal will have twice the storage/holding space of that at Stranraer and as such no part of the surrounding road network should be required for standing space. The A751 is currently used to hold vehicles during ferry service disruptions caused by bad weather.

The TA and its sensitivity analysis has established that:

- all assessed junctions will operate within capacity and the relocation of Stena Line’s ferry operations will not adversely affect the surrounding road network;
- new access will operate within capacity;
- there will be no significant impact on the operation of the trunk road network;
- there will be minimal queuing and delay at the A751/ A75 priority junction; and
- the sensitivity modelling shows that the traffic associated with a ferry of 2200 lane storage metres at full capacity will not adversely impact the local trunk network.

Existing hourly two-way traffic flow through Cairnryan on the A77 is shown in *Table 13.2*. The traffic, in addition to local vehicles is associated with the Stena Line port in Stranraer and the P&O port in Cairnryan. Currently around 50% of the cars come to the Stranraer port from the north via the A77 (through Cairnryan) and 50% from the south via the A75. Around 34% of HGVs come from the north (through Cairnryan) and 66% from the south. Upon disembarkation from the Stena Line ferry in Stranraer 34% of HGVs travel north via Cairnryan and 66% travel south, currently avoiding Cairnryan.

When the Stena Line operations are relocated to Old House Point to the north of Cairnryan, it has been assumed that the local and P&O port traffic remains at similar volumes to current levels and that there is still an approximate 50:50 north/south split of car movements. Therefore the main change in traffic flow will be the number of HGVs passing through the village, as the greater proportion coming from the south (ie 66%) will now need to come through Cairnryan to access Loch Ryan Port.

Due to the general operation characteristics associated with Stena Line ferries (1.5 hour check in before sailing and 20-30 minutes disembarkation) traffic will arrive at and depart from the terminal in 'peaks and platoons'. For those living in Cairnryan, it is likely that each disembarkation will create a platoon of traffic through the village for an approximate 20-30 minute period, however it is possible that this could be shorter. It should be noted that 'platoons' already occur on the A77 through Cairnryan village due to the existing ferry terminals of Stena Line in Stranraer and P&O in Cairnryan.

*Table 13.8* and *Table 13.9* identify the level of traffic passing through Cairnryan village for peak *am* and *pm* sailings for a 1700 metre vessel. They also reflect the type of car/HGV split which would provide a worse case for highway capacity and this split has been used as a basis for determining impacts on highway capacity and local access. The TA has established no network capacity issues will arise.

Considering the pattern of HGV traffic arising from the development a number of assumptions have been made based on the existing and anticipated pattern of HGV traffic experienced by the Stena ferries. The ratio of cars to HGVs tends to vary with the time of day, with daytime sailings having a greater proportion of cars and night time sailings comprised of a greater proportion of HGVs. Additionally, it should be noted that some of the freight traffic is carried as unaccompanied trailers that are stored temporarily at the port to be collected and removed at a later time. The proportion of unaccompanied freight trailers at night is typically 38% of the overall HGVs carried and typically 32% during the day.

The new port will be able to facilitate a larger RoPax vessel, which has a 2200m lane storage capacity. In order to consider the likely worst case scenarios for the largest vessel to be used, a sensitivity analysis has been

undertaken to assess the impacts of the larger vessel running at a higher capacity. The key consideration is the change in the number of HGVs passing through Cairnryan village at night. Three scenarios are presented below looking at the likely worst case for traffic disembarking from the ferry at Loch Ryan Port and travelling through Cairnryan Village:

- *Scenario 1* - considers a RoPax vessel at 100% capacity with a worst case car/HGV ratio in terms of network capacity arriving in the period 0900 – 1000 hours;
- *Scenario 2* - considers a RoPax vessel at 100% capacity with a car/HGV ratio for a full ferry disembarking between 0100 – 0200 hours, a period during which night time noise would be a consideration; and
- *Scenario 3* - considers a RoPax vessel at 100% capacity comprised entirely of HGV traffic disembarking between 0100 – 0200 hours; this represents the worst case for traffic noise for a ferry.

#### *Scenario 1*

This scenario considers an arrival of a RoPax vessel (with 2200 lane metres of storage) in the period 0900-1000 hours. The vessel in this scenario is assumed to be at 100% capacity and is also assessed in the TA.

In this scenario the vessel can be expected to be carrying a total of 352 vehicles comprising 44 HGVs and 308 cars or LGVs. Considering a morning arrival (0900 – 1000), with 32% unaccompanied HGV trailers, this would result in 14 HGV trailers remaining on the port, 11 HGVs disembarking and heading north leaving 19 HGVs and 154 cars or LGVs passing south through Cairnryan village. It is anticipated that disembarkation would occur over a 20 – 30 minute period.

Based on Stena Line's experience, approximately 9 HGVs typically disembark a sailing arrival at the Stena Line port at Stranraer and travel up through Cairnryan. The relocation of the port to Loch Ryan would therefore translate to an additional 10 HGVs (ie 19 HGVs less 9 HGVs) passing through Cairnryan village compared to existing pattern of Stena Line HGV traffic.

#### *Scenario 2*

This scenario considers a RoPax vessel (with 2200 lane metres of storage) arriving in the period 0100 - 0200, a period when night time traffic noise would be a consideration. The vessel in this scenario is assumed to be at 100% capacity and has a loading ratio of 1.8 cars to 1 HGV.

In this scenario the vessel can be expected to be carrying a total of 249 vehicles comprised of 89 HGVs and 160 cars/LGVs disembarking in the 0100 - 0200 period. Approximately 38% of HGV trailers would be unaccompanied (ie 34) and would remain at the port. On this basis, approximately 19 HGVs would

travel northbound and as such not pass through Cairnryan, leaving 36 HGVs travelling south through Cairnryan village. It is likely that the disembarkation will occur over a 20 -30 minute period.

This would result in an increase of 27 HGVs passing through Cairnryan village at this time over the existing pattern of HGV traffic through the village arising from disembarkation of Stena Line HGV traffic from the port at Stranraer.

### *Scenario 3*

This scenario considers a RoPax vessel (with 2200 lane metres of storage) that represents the worst possible case for impacts from traffic noise for a full ferry arriving into Cairnryan. The vessel is at 100% capacity and is entirely loaded with HGVs.

A night sailing (0100 – 0200) of the vessel in this scenario will have a maximum of 110 HGVs on board, with 38% being unaccompanied HGV trailers. Upon arrival at the Loch Ryan Port 42 HGVs remain on the port as unaccompanied HGV trailers. The remaining 68 HGVs will leave the port, with 23 HGVs travelling north and as such not travelling through Cairnryan, leaving an anticipated 45 HGVs to travel south through Cairnryan village. It is likely that the disembarkation will occur over a 20 -30 minute period.

This would result in an increase of 36 HGVs passing through Cairnryan village at this time over the existing pattern of HGV traffic through the village arising from disembarkation of Stena Line HGV traffic from the port at Stranraer.

It should be noted that it is unlikely that the 2200m lane storage RoPax ferries will routinely operate at full capacity (100%) or to be loaded entirely with HGVs.

Overall, the level of generated operational traffic anticipated from these situations, and the effects of platooning, is not predicted in the TA to adversely impact on highway capacity or to make it significantly more difficult for people in Cairnryan fronting the A77 to access/exit their property by car during these periods.

During the night-time, baseline traffic flows are much lower and no highway or local access issues are anticipated. However, it is during the night-time period, when baseline traffic and ambient noise levels are lower which introduces the potential for greatest change in traffic noise levels. It is during the night-time period when the HGV traffic split will be at its greatest that the potential for noise impacts is also greatest. These potential impacts are assessed in *Chapter 11*.

It is important to note that the existing pattern of night-time traffic in the Cairnryan area is characterised by HGVs associated with both ferry services.

The pattern of traffic flow through Cairnryan is characterised by platoons of HGVs passing through the village resulting from the disembarkation of ferry traffic. The proposed Loch Ryan Port development will not introduce new night time sailings but will represent an increase in the numbers of HGVs in particular at night, experienced by the village.

There are no records of pedestrian or cyclist accidents in the study area, including the A77 through Cairnryan. The projected operational traffic flows are not predicted to change this situation.

#### **13.6.4**      *Operational Impacts - Public Transport*

The relocated port will retain links with public transport companies Ulsterbus, Scot-Rail and Citilink for combined rail/coach/sail travel.

Private coach/ bus parking will be provided within the confines of the development site. Nine designated coach/bus drop off/pick up points have been designed into the internal layout of the site close to the terminal ferry buildings. Passengers will be picked up and dropped off at the coach/bus bays at the doors of the main terminal buildings.

Preliminary talks have been held with First Scotrail about providing an integrated rail/ferry service and with South West Trans in regards to linking the local buses with the new port.

The measures to encourage the use of public transport by the staff at the proposed Loch Ryan Port ferry terminal will be developed in a travel plan for the Port.

There are a number of Private Hire Taxi companies in operation in the Stranraer area. Provision of taxi pick up / drop off points are designed within the internal layout of the site close to the ferry terminal.

Public transport information, taxi numbers, combined ticket information (e.g. rail/sail tickets) and appropriate signage will be provided throughout the proposed ferry terminal.

Good provision will be made for accessibility to the relocated port by public transport in keeping with current local and national government policy through the use of shuttle bus services alongside the provision for drop/off points of private coach parking and taxis.

#### **13.6.5**      *Operational Impacts - Pedestrians and Cyclists*

The 3.5metre shared pedestrian/ cycleway proposed between the site access and Cairnryan village allied to the Scottish Government's proposed expansion of the cycleway on the A77 towards Stranraer will offer both pedestrians and cyclists the opportunity to access the proposed Loch Ryan Port Stena Line terminal.

The parking space available for passengers parking their cars and travelling on foot at Loch Ryan Port ferry terminal is greater than that currently available at Stranraer and as such it is not expected that foot passenger vehicles will use parking outside the ferry terminal.

The provision of secure cycle racks will provide secure cycle parking for both staff and foot passengers.

### 13.7

#### *MITIGATION*

The following mitigation measures will be adopted to reduce the impact of construction traffic:

- wherever practical, deliveries of abnormal loads will be made outside of peak hours;
- construction vehicles will be required to use identified construction routes;
- materials and equipment will be stored securely on site to minimise unnecessary traffic movements; and
- wheel washing will be carried out to avoid the spread of dirt on the public highway.

With respect to operation, it is Stena Line's intention that a travel plan will be developed for the relocated port facility. This will take into account travel patterns of the users of the port and employees and seek to influence travel behaviour in a way which supports sustainable transport.

With respect to unforeseen disruption to ferry services, Stena Line is committed to preparing an emergency contingency plan with the Dumfries and Galloway Council and the emergency services which will, amongst other things, set out the procedures for dealing with traffic in times of disruption.

### 13.8

#### *CONCLUSIONS*

Construction works will generate traffic, with the greatest increases in flow over the baseline occurring in the early morning and evening periods (0600-0700, 1900-2000). It is possible that some temporary disruption may be caused to road users during the construction of the new site access off the A77 into the proposed Stena Line site. Appropriate traffic management arrangements will be agreed with Transport Scotland to minimise any disruption. Any disruption will be a short-term effect associated with the duration of the construction period for the new site accesses.

With respect to operation, the relocation of Stena Line services to Loch Ryan Port will lead to some additional heavy goods vehicle (HGV) traffic passing

through the village of Cairnryan - a greater proportion of Stena Line HGV traffic currently travels to and from the south and this will need to come through Cairnryan when the Stena Line port is relocated from Stranraer. The distribution of car traffic to the north and south for arrivals and departures will be 50:50 at the new port as it currently is at Stranraer.

Due to the general operation characteristics associated with Stena Line ferries (1.5 hour check in before sailing and 20-30 minutes disembarkation) traffic will arrive gradually but will depart from the terminal in 'platoons'. For those living in Cairnryan, it is likely that each disembarkation will create a platoon of traffic through the village for a 20-30 minute period. It should be noted that 'platoons' already occur in the village due to the existing ferry terminals of Stena Line in Stranraer and P&O in Cairnryan.

Overall, this will not adversely impact on highway capacity and is not expected to be of a sufficient magnitude so as to make it significantly more difficult for people in Cairnryan fronting the A77 to access/egress their property by car during these periods.

The relocation of the port will lead to a reduction in traffic flows in Stranraer, which is a significant positive effect and will also eliminate the use of the A751 as standing storage during ferry service disruptions. Good provision will be made for accessibility to the relocated port by public transport.