

## CHAPTER 18: TRAFFIC AND TRANSPORT



## **18. TRAFFIC AND TRANSPORT**

### **18.1 Introduction**

This chapter, which was prepared by Waterman Infrastructure & Environment Ltd (WIE), presents an assessment of the likely significant effects on traffic and transportation during the construction and operation of the Aberdeen Harbour Expansion Project, which includes effects on traffic movements as well as public transport, pedestrians and cyclists.

The chapter presents a summary of relevant transport and planning policy and a description of the methods used in the assessment. This is followed by a description of the baseline conditions at the site and surrounding area, and an assessment of the likely significant effects of the development during construction and operation. Mitigation measures are identified, where appropriate, to avoid, reduce or offset any adverse effects identified, together with the nature and significance of likely residual effects.

A comprehensive Transport Assessment has been carried out by Fairhurst and is provided in ES Appendix 18-A.

### **18.2 Legislation and Planning Policy**

This section outlines the legislation and planning policy that is specifically relevant to transport and access issues. Policy, legislation and guidance applicable to the wider project can be found in Chapter 4: Planning and Legislation.

#### **18.2.1 National Planning Policy**

##### **18.2.1.1 National Planning Framework 3 (NPF3), 2014**

Paragraph 5.28 of NPF3 identifies the expansion of Aberdeen Harbour, including improved intermodal connections by road, as a National Development.

Annex A of the document states that “current constraints will increasingly limit the ability of the harbour to provide crucial services and limit opportunities for business growth at this nationally important facility. Nigg Bay has been identified as the preferred development option, due to the constraints of the existing sites”.

##### **18.2.1.2 Scottish Planning Policy, 2014**

Scottish Planning Policy (SPP) identifies within Paragraph 104 that the planning system should “locate development which generates significant freight movements, such as manufacturing, processing, distribution and warehousing, on sites accessible to suitable railheads or harbours or the strategic road network”.

In Paragraph 282, SPP states:

“When preparing development plans, planning authorities should consider the need for improved and additional freight transfer facilities... Facilities allowing the transfer of freight from road to rail or water should also be considered”.

#### 18.2.1.3 Planning Advice Note 75: Planning for Transport, 2005

Planning Advice Note (PAN) 75 gives guidance on locating new developments in the context of providing the necessary level of access to transport facilities. Paragraph 42 to paragraph 49 provide guidance with regards to Travel Plans, stating:

“Travel Plans are documents that set out a package of positive and complementary measures for the overall delivery of more sustainable travel patterns for a specific development. Their ability and success in influencing travel patterns is dependent upon the commitment of the developer and occupier of a development.”

### 18.2.2 **Regional Planning Policy**

#### 18.2.2.1 Aberdeen City and Shire Strategic Development Plan (SDP), 2014

The Aberdeen City and Shire SDP was approved in March 2014 and sets out the strategic planning policy for the wider Aberdeen city region. With regard to transport issues, its objectives include:

- “To be a city region which takes the lead in reducing the amount of carbon dioxide released into the air, adapts to the effects of climate change and limits the amount of non-renewable resources it uses;
- To make sure that new development meets the needs of the whole community, both now and in the future, and makes the area a more attractive place for residents and business to move to; and
- To make sure that all new developments contribute towards reducing the need to travel and encourage people to walk, cycle or use public transport by making these attractive choices”.

The SDP makes specific reference to the proposed Aberdeen Harbour Expansion Project, stating:

“The harbour has been identified as a key port in the National Renewables Infrastructure Plan. Work will be needed to set out in more detail the likely implications of this (building on ‘The Case for Growth’) and how the growth of the harbour can be accommodated to inform the next local development plan”.

#### 18.2.2.2 NESTRANS Regional Transport Strategy (RTS), 2014

The latest North-East of Scotland Transport Partnership (NESTRANS) RTS was approved in January 2014. Amongst its objectives are:

- “To make the movement of goods and people within the north-east and to/from the area more efficient and reliable;

- To improve the range and quality of transport to/from the north-east to key business destinations; and
- To improve connectivity within the north-east, particularly between residential and employment areas”.

The RTS acknowledges the importance of enhancing connections by sea, which is particularly relevant to the proposed Development. It states:

“Nestrans and its partners will also seek to promote passenger and freight movements by short sea shipping routes through relevant EU programmes, and similarly will seek to promote coastal shipping services to major UK ports. This will help manage the growth of heavy goods vehicle traffic and allow freight movements to bypass land bottlenecks. Nestrans will encourage the development of existing and new freight/passenger ferry connections and routes between the north-east and Europe and will continue to promote and support projects to enhance the role of the north-east's ports particularly to Scandinavia and the recent EU accession countries in the Baltic”.

### **18.2.3 Local Planning Policy**

#### **18.2.3.1 Aberdeen Local Development Plan (LDP), 2012**

The Aberdeen LDP, adopted in 2012, makes specific reference to a harbour at Nigg Bay. It acknowledges that:

“The harbour is facing significant pressures for expansion that cannot currently be met within the existing site. Scotland’s National Planning Framework 3 recognises this and identifies the expansion of Aberdeen Harbour at Nigg Bay as a National Development. This site is identified in the Local Development Plan as an Opportunity Site for a new harbour development”.

#### **18.2.3.2 Aberdeen LDP Supplementary Guidance: Transport and Accessibility, March 2012**

The LDP’s Supplementary Guidance ‘Transport and Accessibility’ provides advice on preparation of a Transport Assessment, and also sets out Aberdeen City Council’s parking standards for new developments.

#### **18.2.3.3 Aberdeen Local Transport Strategy (LTS) 2008-2012**

Aberdeen’s LTS dates back to March 2008 but still forms the current transport strategy for the city. It outlines the policies and interventions adopted by Aberdeen City Council to guide the planning and improvement of the local road network over a 5 year period. Its key objectives include:

- “Minimise and improve reliability of journey times for people and goods through Aberdeen’s transport networks;
- Improve the condition of road, footway and cycle road network;
- Increase the share of travel by the most sustainable modes to promote economic growth without the associated traffic growth;
- Continue to reduce road casualties;
- Reduce carbon emissions from road transport;

- Improve accessibility (network and cost) to jobs and services to support social inclusion;
- To facilitate and support land use development adjacent to sustainable transport corridors and nodes; and
- To promote healthy living by encouraging safe walking and cycling.”

The LTS specifically recognises the importance of Aberdeen Harbour as a key transport node, noting that:

“Aberdeen Harbour is a major component in the local transport infrastructure and a key economic driver in the region... The Council is committed to the ongoing development of Aberdeen Harbour and supports various policies and initiatives that can deliver improvements. The Council supports Aberdeen Harbour in its efforts to promote short sea shipping as both a viable alternative and complementary to transporting freight by road and rail”.

### **18.3 Assessment Methodology and Significance Criteria**

The methodology employed in this assessment and in the Transport Assessment (ES Appendix 18-A) was developed from guidance given in the Institute of Environmental Management and Assessment (IEMA) Guidelines and the Institution of Highways and Transport (IHT) Guidelines.

Methodologies detailed in the IHT Guidelines recommend that assessments of transportation and access undertaken as part of Environmental Impact Assessments (EIAs) of large developments should be carried out in accordance with the IEMA Guidelines (which requires that traffic flows on the key routes to and from the development are assessed).

To assess the effects of additional traffic generated by the Aberdeen Harbour Expansion Project during the construction and operational phases, the following approach was undertaken:

- The road sections likely to be affected by the development were identified;
- The existing character of the road network was determined;
- The existing traffic levels on the road network were determined;
- The year of assessment was identified;
- The future base traffic levels were predicted;
- The additional traffic generated by the development was estimated;
- The potential effects of the additional traffic were assessed;
- Mitigation measures were proposed to minimise any likely significant effects; and
- Residual effects were assessed.

In addition, a review and qualitative assessment has been carried out of the effects of the development on the public transport. The IEMA guidelines do not include advice on assessing the effects on public transport users.

The Transport Assessment (see ES Appendix 18-A) forms the basis of this chapter. The scope of the Transport Assessment was agreed upon with Roads Officers from Aberdeen City Council. The assessment was conducted in accordance with Transport Scotland's 'Transport Assessment Guidance'.

### **18.3.1 Committed Development**

The Transport Assessment which informs this chapter has considered the following 'committed developments' as agreed with Aberdeen City Council:

- The Aberdeen Western Peripheral Route (AWPR);
- Proposed housing development at Loirston;
- Proposed office development at Hareness Road; and
- Proposed Waste Management Facility at Hareness Place.

### **18.3.2 Traffic Flows**

Baseline traffic flows have been established as follows:

- Automatic Traffic Count (ATC) surveys commissioned by Fairhurst mostly in September 2013 and April 2015;
- Traffic surveys on Wellington Road between Balnagask Road and South Esplanade West in May and June 2015; and
- Annual Average Daily Flow (AADF) data has been calculated using the Department for Transport (DFT) Traffic Counts website.

The Aberdeen Harbour Expansion Project is scheduled for completion in 2020. Appropriate growth factors have been applied to obtain traffic flows for the opening year (2020).

### **18.3.3 Assessment of Sensitivity**

The sensitivity of roads was evaluated based on the proximity and size of residential populations and other relevant sensitive receptors to each road. Although the IEMA Guidelines do not provide specific criteria for evaluating sensitivity, for the purposes of this assessment, the sensitivity of roads to potential environmental impacts was evaluated on a scale of 'very low', 'low', 'medium' and 'high':

- **Very low:** areas of low sensitivity to traffic flows;
- **Low:** public open space, nature conservation areas, residential areas with adequate footways;
- **Medium:** congested junctions, hospitals, community centres, conservation areas; and
- **High:** sections of highways close to schools and colleges or accident black-spots.

### **18.3.4 Assessment of Magnitude**

The magnitude of traffic impacts is a function of base traffic volumes at the year of the harbour opening, the percentage increase due to the proposed development and the changes in type of traffic. The IEMA Guidelines identify thresholds for impact magnitude based on percentage change in traffic levels. The magnitude of impacts arising from the increase in traffic volumes (taken as being either the

traffic flow including all vehicles, or the Heavy Goods Vehicle<sup>1</sup> (HGV) traffic flow, whichever is higher) is categorised as follows:

- **Substantial:** above 90% increase in traffic levels;
- **Moderate:** between 60% and 90% increase in traffic levels;
- **Slight:** between 30% and 60% increase in traffic levels; and
- **Negligible:** under 30% increase in traffic levels.

The determination of the magnitude of the impacts was undertaken by reviewing the proposed development, establishing the parameters of the road traffic that have the potential to cause an impact, and quantifying these impacts against the criteria set out above.

Consideration was given to the composition of the traffic on the road network under both existing and predicted conditions. For example, cars have less impact on traffic and the road system than HGVs.

### 18.3.5 Assessment of Significance

The assessment of the significance of effects was determined by combining the categories of sensitivity and magnitude in accordance with the approach outlined above, as shown in Table 18.1.

**Table 18.1: Significance of effects**

Magnitude	Sensitivity			
	High	Medium	Low	Very Low
Substantial	Major	Major	Moderate	Negligible
Moderate	Major	Moderate	Minor	Negligible
Slight	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible

Effects are adverse where there is an increase in predicted traffic flow associated with the development, and beneficial where there is a predicted decrease. Effects are also assessed as being either temporary or permanent, and a spatial significance is assigned where appropriate (i.e. site wide, local, district, regional etc.).

### 18.3.6 Consultation

Consultation with Aberdeen City Council was carried out during the EIA Scoping process (see Chapter 5: Environmental Impact Assessment Process for further details). Further, extensive consultation was undertaken with Aberdeen City Council to inform the Transport Assessment, as described in full in the Transport Assessment (ES Appendix 18-A).

### 18.3.7 Limitations and Assumptions

Where existing traffic levels are exceptionally low (e.g. <1,000 'annual average daily traffic' (AADT) – see ES Appendix 18-A for a more detailed description), any increase in traffic flow is likely to trigger a 'substantial' magnitude assessment, according to the criteria outlined in Section 18.3.4, based on the

<sup>1</sup> A Heavy Good Vehicle (HGV) is any vehicle with a gross combination mass of over 3,500 kilograms.



volumetric increase calculated as a percentage. On the other hand, where existing traffic flows are already very high, a further increase in traffic may only result in a very small percentage increase, which could trigger a 'negligible' magnitude assessment, according to the criteria outlined in Section 18.3.4, but which could nonetheless be significant, as roads operating near or at capacity become more sensitive to an increase in traffic.

## **18.4 Baseline Conditions**

### **18.4.1 Area of Study**

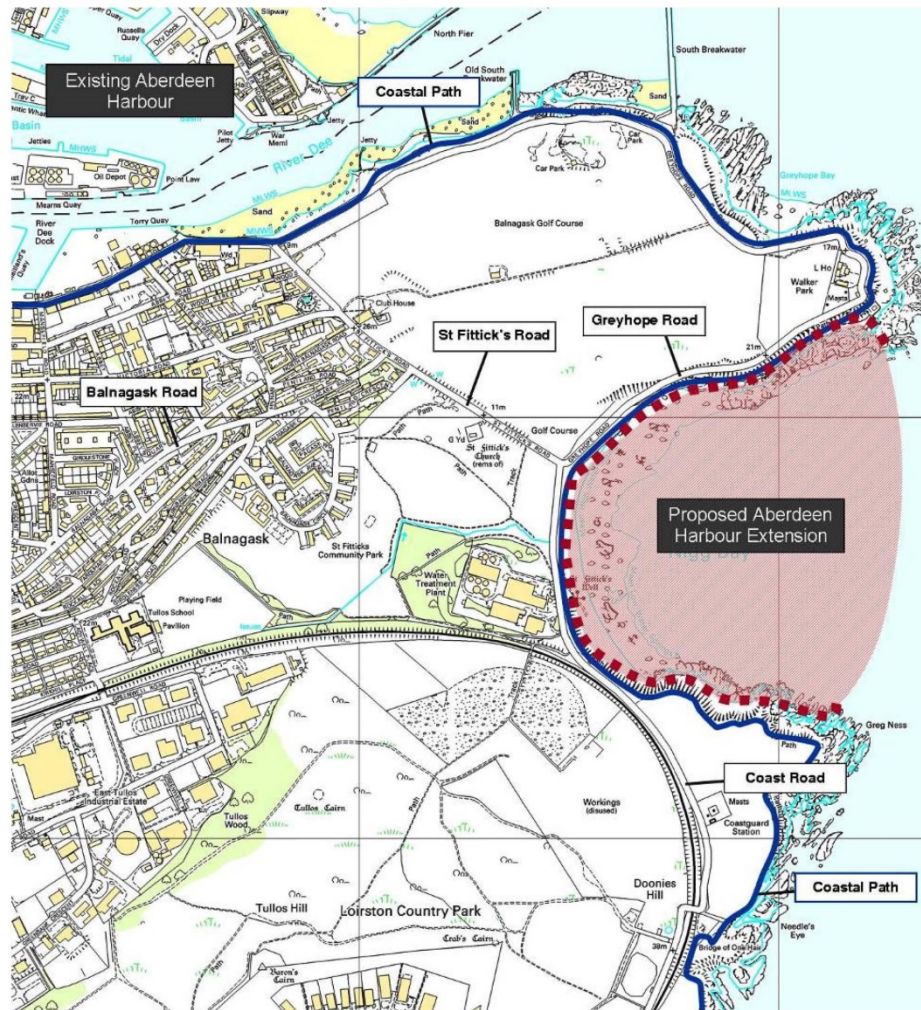
Through correspondence with Aberdeen City Council, it was agreed that the following road junctions should form the basis for assessment in the Transport Assessment (see ES Appendix 18-A):

- Coast Road/Main Site Access;
- Coast Road/St Fittick's Road/Greyhope Road;
- Victoria Road/St Fittick's Road; and
- Coast Road/Hareness Road.

In addition, Fairhurst provided Aberdeen City Council with diagrams showing daily traffic and HGV increases across the local road network which indicated the study for this chapter. The road links, which form the basis for the assessments of road traffic effects in this chapter comprise:

- Coast Road between the site and Hareness Road;
- Wellington Road South of Hareness Road;
- Wellington Road between Hareness Road and Balnagask Road;
- Wellington Road between Balnagask Road and South Esplanade West;
- Victoria Road;
- Market Street;
- Queen Elizabeth Bridge; and
- West Tullos Road between Wellington Road and Abbotswells Road.

Where necessary, additional road links are also considered. The road links in the vicinity of the site are identified on Figure 18.1.



Project Details	WB14221-100: Aberdeen Harbour
Figure Title	Figure 18.1: Transport Infrastructure Surrounding Nigg Bay
Figure Ref	WB14221-100_GR_ES_18.1A
Date	2015
File Location	\\w-intel\wintel\projects\wb14221\100\graphics\es\issued figures
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**Figure 18.1: Transport infrastructure surrounding Nigg Bay**

#### **18.4.2 Road Traffic Access**

The site is accessed from the south by Coast Road. Coast Road runs along the western boundary of the site and links to Cove and Altens in the south. To the south of the site, Coast Road crosses the railway line via a bridge which has a 6.6m wide carriageway. The bridge has no identified weight restriction. Network Rail have confirmed that it can accommodate 'Construction and Use' traffic up to 44 tonnes, and it may be suitable for heavier abnormal loads. The acute access to the bridge necessitates traffic signals which allow one stream of vehicles to cross at a time.

To the south of Nigg Bay Coast Road crosses the railway line via a bridge which has no footways. The carriageway width is 6.6 m, but the northern and southern road alignments on the approaches are acute requiring the bridge to operate on a shuttle basis using traffic signals to control the flow of vehicles. HGVs use the route and use both sides of the carriageway to negotiate the bridge.

Coast Road is not a primary route. and for most of the day traffic flow on the road is relatively low. However, during weekday am and pm peak periods, Coast Road can carry high volumes of traffic, including large vehicles. The existing use of Coast Road by HGVs demonstrates that the road can accommodate HGV movements.

The site is accessed from the north-west by St Fittick's Road which provides access to Aberdeen city centre via Victoria Road. Victoria Road is an urban residential street with frequent pedestrian movements alongside and across the carriageway, car parking bays on both sides of the road, shops and business with frontage and servicing needs, bus stops, and measures such as build outs to assist pedestrians. Victoria Road can accommodate small light vehicles, but it is not well suited to large heavy vehicles.

Greyhope Road is a lightly used, minor road which provides secondary access from the south to the residential properties and lighthouse at the north of the road. It serves few properties and provides access to a number of car parks where people can park for leisure purposes.

Table 18.2 summarises the local baseline traffic flows, including numbers and percentage of HGVs. The flows are presented as AADT (annual average daily traffic).

**Table 18.2: Baseline traffic flows**

Link	Two-way 24 hr AADT (all vehicles)	Two-way 24 hr AADT (HGVs)	%age HGVs
Coast Road between the site and Hareness Road	4,143	610	15%
Wellington Road South of Hareness Road	26,091	3,413	13%
Wellington Road between Hareness Road and Balnagask Road	20,442	3,597	18%
Wellington Road between Balnagask Road and South Esplanade West	23,037	4,213	18%
Victoria Road	3,552	621	17%
Market Street	30,828	3,418	11%
Queen Elizabeth Bridge	24,799	2,435	10%
West Tullos Road between Wellington Road and Abbotswells Road	13,880	1,330	10%

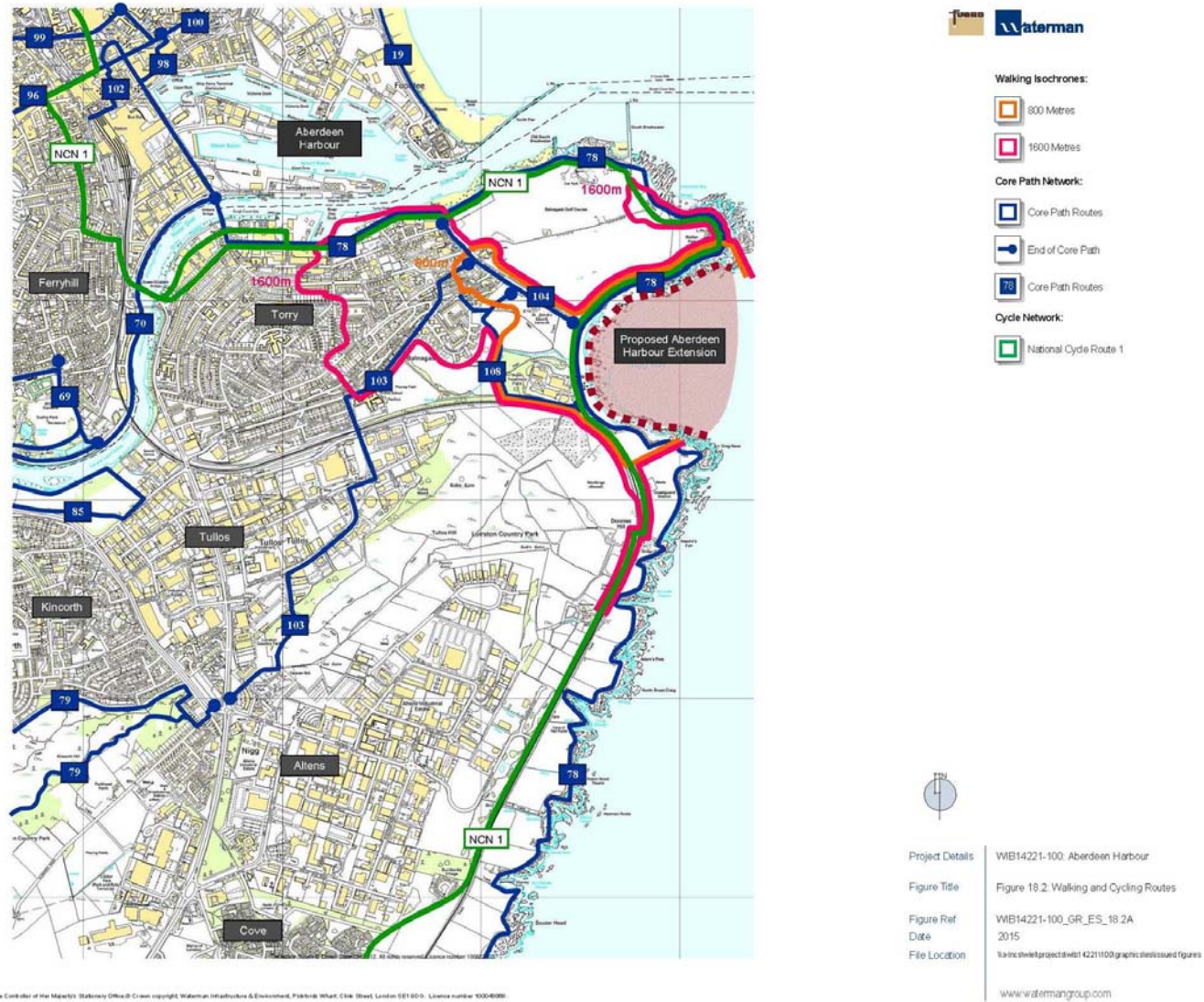
### 18.4.3 Pedestrian Access

Pedestrians can currently access Nigg Bay from the north-west via unsurfaced footways on the north and south side of St Fittick's Road. There are no footways on Coast Road adjacent the site. Greyhope Road has no formal footways for a distance of approximately 220 m north-east from its junction with Coast Road. At that point there is a surfaced footway on the south side of the road heading east.

Figure 18.2 identifies the Core Path network in the vicinity of the site. The Coastal Path forms Core Path 78 and it passes through the site as it follows the coastline from Cove to Torry. The path follows the general alignment of Coast Road and Greyhope Road. Core Path 108 is also within the vicinity of Nigg Bay and provides a link from Coast Road to Torry, through St Fittick's Park. St Fittick's Road is designated as Core Path 104 and it links to Core Path 78 at Greyhope Road by Torry Quay.

These footpaths can accommodate walking trips between Nigg Bay and Torry, which is within reasonable walking distance. Within Torry there are established pedestrian networks and good public transport links providing onward travel through to Aberdeen city centre and surrounding areas.





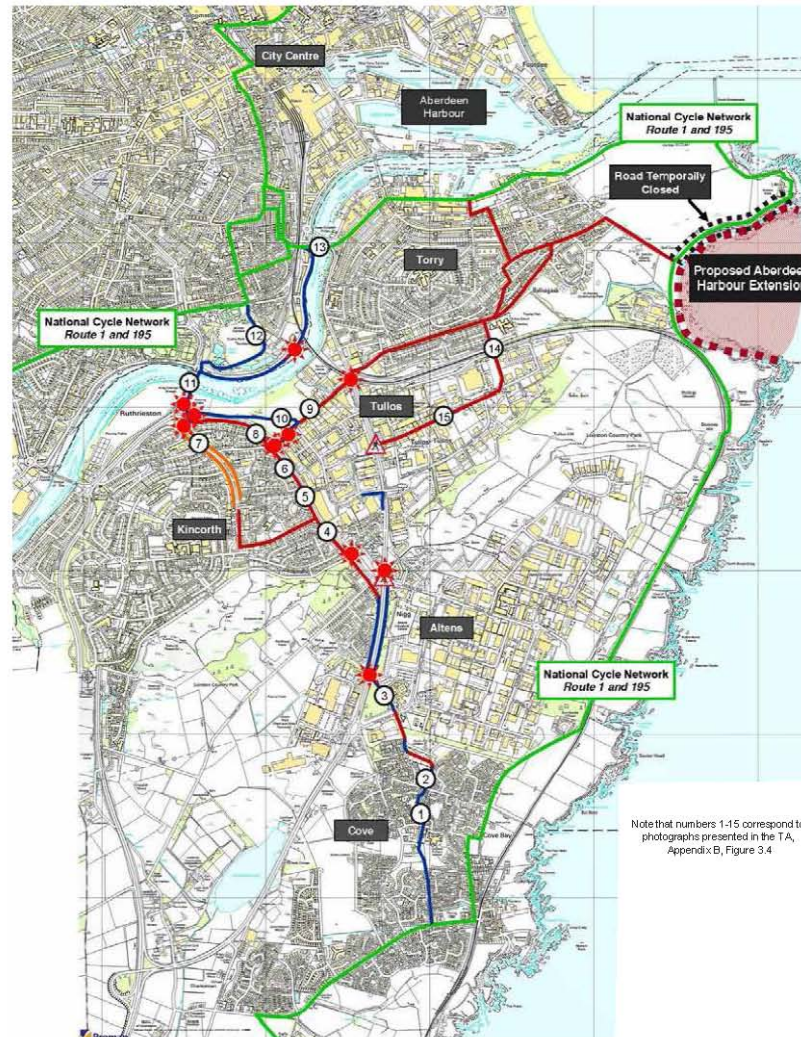
**Figure 18.2: Walking and cycling routes**

#### **18.4.4 Cycle Access**

Coast Road and Greyhope Road both form part of the National Cycle Network Route 1 (NCR1), a long distance cycle route running along the east coast of Britain. Local to Nigg Bay it connects the site directly with Aberdeen to the north and Cove Bay and Portlethen to the south, all of which are within a reasonable cycle distance. The Coast Road and Greyhope Road sections of NCR1 require on-road cycling, though there are no advisory cycle lanes or specific cycling infrastructure. The route of NCR1, together with the wider cycling network, is identified on Figure 18.3.

Surveys indicate that the number of cyclists using NCR1 passing the site is very low (refer to ES Appendix 18-A: Transport Assessment). The number of cyclists using the route on a Saturday is generally double that of an average day, indicating that its use may primarily be for leisure purposes rather than commuting.

The areas surrounding Aberdeen is served by a network of on-road and traffic free cycle routes, providing cycling connectivity to the city centre and surrounding employment zones.



Note that numbers 1-15 correspond to photographs presented in the TA, Appendix B, Figure 3.4



Walking Isochrones:

- Recommended Route
- Dual Use Path
- On-Road Cycle Lanes
- National Cycle Network Route 1 and 195
- Pedestrian Crossing
- Toucan Crossing



Project Details	WIB1 4221-100: Aberdeen Harbour
Figure Title	Figure 18.3: Local Cycle Network
Figure Ref	WIB1 4221-100_GR_ES_18.3A
Date	2015
File Location	18-4-01\work\projects\WIB1 4221\100\gr\es\18.3a\fig18.3
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Figure 18.3: Local cycle network



## 18.4.5 Public Transport Access

### 18.4.5.1 Bus

There are currently no bus services using Coast Road or Greyhope Road past the site. The nearest existing bus services operate on Victoria Road, St Fittick's Road and Balnagask Road within the residential and employment area of Torry to the north-west. Details of local bus routes, services and frequencies operating near the site are summarised in Table 18.3. Further details are presented in ES Appendix 18-A: Transport Assessment.

**Table 18.3: Local bus services**

Service (Operator)	Route	Closest Stop	Peak Frequency
12 (First)	Heathryfold to Torry via Union Square	Balnagask Road	10 mins
59 (Stagecoach)	Northfield to Torry via Royal Infirmary, Cornhill Hospital and City Centre	Balnagask Road	10 mins
3 (First)	Mastrick to Cove via Aberdeen Royal Infirmary and Union Square	Wellington Road	10 mins
5 (First)	Craigiebuckler to Torry via Mannofield and Union Street	Girdleness Road	30 mins

### 18.4.5.2 Rail

Aberdeen railway station is located in the city centre, approximately 3 km west of Nigg Bay. It is well connected with services to Dyce, Inverurie, Elgin and Inverness to the north as well as lines to Glasgow and Edinburgh to the south passing through Stonehaven, Dundee and Perth on route. Additionally there are national connections to London via the English Midlands.

## 18.5 Summary of Likely Changes to Traffic and Access

### 18.5.1 Construction Phase

Traffic flows would change in the vicinity of Nigg Bay during the construction phase as materials are transported to and from the site and, to a lesser extent, as construction staff access the site. Estimates of the likely frequency of new trips to and from the site have been based on similar recent construction works at Torry Quay approximately 1 km north-east of the site.

The breakwater construction is likely to involve the movement of up to 4,000 tonnes of material per day over a 21 month period. This would potentially involve working double shifts, though this would be determined by the contractor once appointed.

The quay construction is likely to involve the movement of approximately 150 m<sup>3</sup> (approximately 360 tonnes) per day of concrete, over a period of approximately 72 weeks. It is anticipated that a batching/fabrication yard would be established at one of the temporary working areas identified in Figure 3.2 in Chapter 3: Description of the Development.

### 18.5.2 Completed Development

There would be approximately 20 to 25 staff based at the proposed development. Staff would work shift patterns with the result that only around 16 staff would be on-site at any time. Staff would be accommodated within two single storey welfare and administration buildings which would each have a



footprint of approximately 15 m × 7.5 m. Parking provision will be provided within the site to accommodate harbour staff and visitors, contractors and agents associated with the vessels.

The predicted annual number of ships that would use the completed development is estimated to be 550 commercial vessels, 1,700 platform supply and offshore vessels, 40 diving support vessels and 30 cruise ships over a 7 month summer period. This would work out as an average of around 45 ships per week.

Once the development is completed and operational, the majority of trips to the site are likely to be by motor vehicle, including HGVs, although there would be opportunities for sustainable travel, including walking, cycling and public transport. The visits by cruise ships to the proposed development would generate road trips by passengers, the majority of which would be by private coach.

## **18.6 Assessment of Effects**

### **18.6.1 Construction**

#### **18.6.1.1 HGV Movements**

The construction period for the development is predicted to be around three years, with construction anticipated to commence in early 2017 and conclude in 2020. Construction would generate additional traffic in the vicinity of the site due to HGV movements.

The designated route for all construction HGV trips would be south along Coast Road and Hareness Road (through the Altens Industrial Estate) and on to Wellington Road. (Although there are none currently envisaged for the construction works, abnormal loads up to 25 m long could negotiate Coast Road rail bridge, subject to approval of swept path analysis. Longer vehicles would need to go via an alternative route.) Within Altens there would also be potential to use Crawpeel Road or Blackness Road to reach Wellington Road via Souter Head Road. Responsibility would be placed on the appointed contractor to ensure that this construction traffic routing requirement is adhered to.

The designated route would utilise roads which have few sensitive residential receptors and would pass mainly through the Altens Industrial Estate. As indicated in Table 18.2, the route is currently utilised by HGVs and the network is therefore considered appropriate to accommodate any proposed HGV movements. This route is therefore considered to be of **'very low'** sensitivity.

As set out in the Transport Assessment (Appendix 18-A), during peak construction activity at the site (breakwater and quay construction) approximately 436 HGV journeys per day are estimated (218 in each direction), based on 20 tonne loads. This assumes that all materials will be transported by road, which is the worst case scenario for the traffic assessment. This equates to a 71% increase in HGV movements on Coast Road and a 90% increase on Hareness Road. In each case the magnitude of this impact is therefore considered to be 'moderate'.

With reference to Table 18.1, the potential effects of HGV movements on the operational capacity of Coast Road and Hareness Road are of **negligible** significance, which is not significant in EIA terms.

#### 18.6.1.2 Road Closures

A temporary closure of Greyhope Road between Coast Road and Girdleness Lighthouse is proposed during the construction phase. This would allow large construction vehicles to access the northern breakwater and the temporary working area at Walker Park (as shown on at Figure 3.2 in Chapter 3: Description of the Development). There would also be a number of movements across Greyhope Road between Walker Park and the northern breakwater. Given that Greyhope Road carries light traffic flows, has no strategic function, and can be accessed from elsewhere, closure of the 1 km section would cause minimal disruption.

During the construction phase, it would still be possible to access the north of Greyhope Road from the St Fittick's Road/Sinclair Road end near Torry Quay to the north. Thus access to the lighthouse, Sea Breeze Cottage and the existing car parks on the route would be maintained. Traffic signs on the route would inform drivers of the temporary road closure ahead.

The potential effects of this temporary road closure on the residents of Sea Breeze Cottage, visitors to the lighthouse and users of the car parks are therefore considered to be **negligible**, which is not significant in EIA terms.

#### 18.6.1.3 Accidents and Safety

Professional judgement and discretion has necessarily been applied to assess the impacts associated with increased traffic on accidents and safety. As described above, the predicted increases in construction traffic can be accommodated by the proposed construction traffic route (i.e. Coast Road and Hareness Road). Additionally, the closure of a 1 km stretch of Greyhope Road, as described above, would remove the potential for conflicts with construction operations and other road users in this part of the site.

Accordingly, construction traffic flows are predicted to have **negligible** effect on accidents and safety on the local road network, which is not significant in EIA terms.

#### 18.6.1.4 Disruption and Driver Delay

The potential for traffic delay to occur on routes used by construction traffic was considered. However, the IEMA Guidelines note that:

*"...these delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system".*

As identified above, Coast Road and Hareness Road are currently utilised by HGVs and are considered appropriate for future site related HGV movements. These links, and their junctions, currently operate well within capacity, with AADT flows of less than 10,000. The potential effects of disruption and driver delay as a result of construction traffic are therefore considered to be **negligible**, which is not significant in EIA terms.

#### 18.6.1.5 Pedestrian and Cycle Routes

The designated route for all construction HGV traffic would be south along Coast Road and Hareness Road (through the Altens Industrial Estate) and on to Wellington Road. Construction traffic will not be

routed along St Fittick's Road through the residential areas of Torry and Balnagask, which are part of Core Path 104. There would therefore be **negligible** effects upon pedestrians and cyclists along this route, which is not significant in EIA terms.

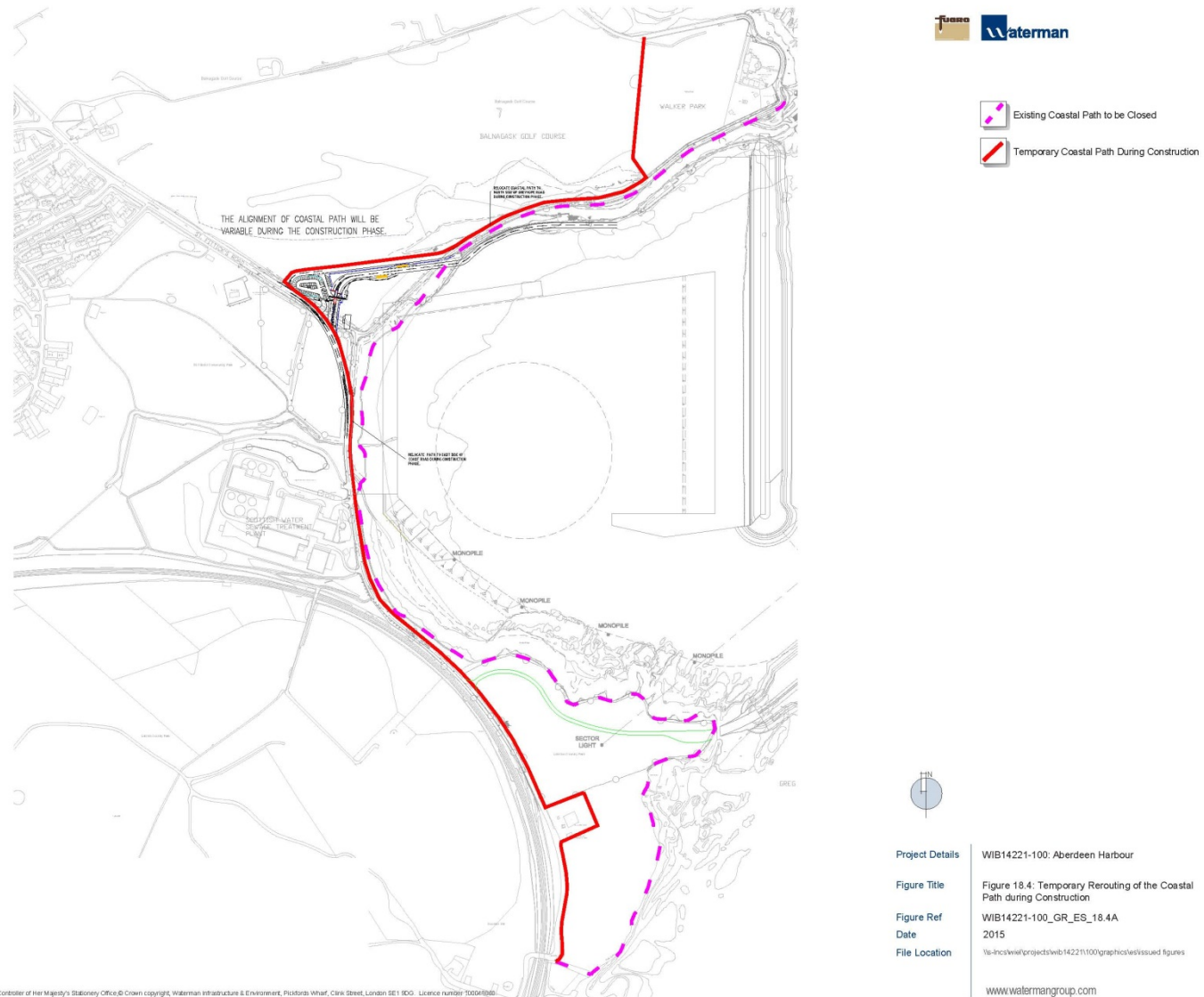
The route of the coastal path would need to be altered during the construction phase. It would be stopped up between a point to the south of the proposed southern breakwater and a point west of the proposed northern breakwater on Greyhope Road. An alternative route is proposed during the construction period which is shown on Figure 18.4.

The temporary rerouting of the coastal path during the construction phase would involve formation of a path mostly within the verge on the east side of Coast Road approximately 1.2 km south from Greyhope Road. The path would also be moved to the north side of the realigned Greyhope Road for a distance of 660 m from Coast Road to Walker Park. At Walker Park, a path could be formed north between Balnagask Golf Course and Walker Park over a distance of 250 m, at which point the path would tie back in to the Coastal Path on Greyhope Road. By taking the temporary path between Balnagask Golf Course and Walker Park the route would avoid using the section of Greyhope Road which would pass by Walker Park, where concrete batching and form works may take place, requiring frequent vehicle movements.

It is considered that the rerouting of the coastal path would have potential **temporary, local, adverse** effects of **minor** significance on users of the path, which is not significant in EIA terms.

Cycle route NCN1 currently uses Greyhope Road which would be temporarily closed between Coast Road and Girdleness Lighthouse during construction works. Cyclists would therefore have to either use St Fittick's Road or the diverted coastal path instead. This is considered to be a potential **temporary, local, adverse** effect of **minor** significance on users of the NCN1, which is not significant in EIA terms.

As already described, construction traffic would be routed to the south along Coast Road. There are no footways on Coast Road adjacent the site and the road is generally 6.0 m to 6.3 m wide to the south of the railway bridge. This stretch of Coast Road forms part of NCN1. During the busiest periods, and in the absence of mitigation, there may be potential **temporary, local, adverse** effects of **moderate** significance on cyclists and pedestrians, which is significant in EIA terms.



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**Figure 18.4: Temporary rerouting of the coastal path during construction**

#### 18.6.1.6 Severance

The IEMA Guidelines note that: "Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery".

Construction traffic would be routed south along Coast Road and through the Altens Industrial Estate, and would not pass through any residential communities.

In considering potential severance of local communities from the coast (a recreational resource), the IEMA Guidance suggests that "changes in flow of 30% ... are regarded as producing 'slight' ... changes in severance". The change in total traffic flow predicted on Coast Road during construction is less than 30%.

Therefore the potential effect of severance is considered to be of **negligible** significance, which is not significant in EIA terms.

Potential impacts due to possible fragmentation of the Green Space Network are addressed in Chapter 17: Seascape, Landscape and Visual Effects.

#### 18.6.1.7 Public Transport

It is expected that the number of construction personnel travelling to the site by public transport (i.e. bus and rail) would be low, and that the significance of effects on the capacity of existing bus and rail services would therefore be **negligible**. This is on the basis that bus services are not likely to be extended to the new harbour until it becomes operational. It is anticipated that construction workers would travel to the harbour site in a sustainable manner by means of shared transport, supplied by the appointed contractor.

### 18.6.2 **Completed Development**

#### 18.6.2.1 Public Road Network

Table 18.4 summarises the opening year (2020) traffic flows, including numbers and percentage of HGVs. This data includes flows from the committed developments listed in Section 18.3.1, excluding predicted flows generated by the operation of the proposed development.

**Table 18.4: 2019 Future baseline + committed development**

Link	Two-way 24 hr AADT (all vehicles)	Two-way 24 hr AADT (HGVs)	%age HGVs
Coast Road between the Site and Hareness Road	4,143	610	15%
Wellington Road South of Hareness Road	24,681	3,116	13%
Wellington Road between Hareness Road and Balnagask Road	18,098	3,074	17%
Wellington Road between Balnagask Road and South Esplanade West	21,008	3,709	18%
Victoria Road	3,552	621	17%
Market Street	29,390	3,076	10%
Queen Elizabeth Bridge	23,125	2,144	9%
West Tullos Road between Wellington Road and Abbotswells Road	13,160	1,137	9%

Table 18.5 summarises the opening year (202) traffic flows, including numbers and percentage of HGVs. This data includes flows from the committed developments listed in Section 18.3.1, as well as predicted flows generated by the operation of the proposed development.

**Table 18.5: 2019 Future baseline + committed development + development traffic**

Link	Two-way 24 hr AADT (all vehicles)	Two-way 24 hr AADT (HGVs)	%age HGVs
Coast Road between the site and Hareness Road	4,919	1,062	22%
Wellington Road South of Hareness Road	25,189	3,388	13%
Wellington Road between Hareness Road and Balnagask Road	18,234	3,210	18%
Wellington Road between Balnagask Road and South Esplanade West	21,144	3,845	18%
Victoria Road	3,947	621	16%
Market Street	29,920	3,212	11%
Queen Elizabeth Bridge	23,261	2,279	10%
West Tullos Road between Wellington Road and Abbotswells Road	13,269	1,193	9%

Table 18.6 compares the year of opening (2020) traffic levels both with and without the proposed development, in order to establish the magnitude and level of significance.

**Table 18.6: Comparison of 2020 ‘without development’ and ‘with development’ AADT Flows**

Link	2020 AADT Without Development	Number of HGVs	2020 AADT With Development	Number of HGVs	% Change AADT	% Change HGVs
Coast Road between the site and Hareness Road	4,143	610	4,919	1,062	+19%	+74%
Wellington Road South of Hareness Road	24,681	3,116	25,189	3,388	+2%	+9%
Wellington Road between Hareness Road and Balnagask Road	18,098	3,074	18,234	3,210	+1%	+4%
Wellington Road between Balnagask Road and South Esplanade West	21,008	3,709	21,144	3,845	+1%	+4%
Victoria Road	3,552	621	3,947	621	+11%	0%
Market Street	29,390	3,076	29,920	3,212	+2%	+4%
Queen Elizabeth Bridge	23,125	2,144	23,261	2,279	+1%	+6%
West Tullos Road between Wellington Road and Abbotswells Road	13,160	1,137	13,269	1,193	+1%	+5%

Table 18.6 shows that, with the exception of Coast Road, the percentage increases in AADT (all vehicles) and HGV trips are all less than 30% and therefore of ‘negligible’ magnitude according to the IEMA Guidelines (see Section 18.3.4).

During the operational phase of the development, two-way HGV trips on Coast Road are predicted to be 74% higher when HGVs generated by the proposed development are taken into account. This equates to a ‘moderate’ magnitude according to the IEMA Guidelines. Coast Road is of ‘very low’ sensitivity.

The Coast Road railway bridge incorporates traffic signals which allow only one stream of traffic to cross at a time. The Transport Assessment (ES Appendix 18-A) presents an analysis potential impacts on the railway bridge and concludes that once the proposed development is operational, there would be slight increases in queuing and delay at the traffic signals, but that they would continue to operate within capacity. During the am peak hour, the addition of development traffic is estimated to increase queuing by around 1 to 2 vehicles and delay by around 1.1 seconds per vehicle. During the pm peak hour, development traffic is estimated to increase queuing by around 2 to 3 vehicles and delay by around 2.4 seconds per vehicle.

A number of possible measures to reduce or remove the predicted increase in queuing time at the railway bridge once the development is operational have been considered, as presented in the Transport Assessment (see ES Appendix 18-A) and summarised in Section 18.7 of this chapter. A balance is required so that improvements mitigate the effects of the additional harbour traffic, but do not attract additional traffic to the Coast Road route, which would induce more traffic through Torry, causing detriment to residential amenity.



The significance of potential effects on the public road network from development-generated traffic on all roads in the vicinity of the site would be **negligible**, which is not significant in EIA terms.

#### 18.6.2.2 Accidents and Safety

With regard to operational traffic, the volumetric impact assessments presented in the Transport Assessment (ES Appendix 18-A) demonstrate that, with the addition of development related traffic, the network would continue to operate in keeping with its present operational characteristics. The greatest expected effects would be on Coast Road to the south of the site since all HGVs and other delivery vehicles would be routed in this direction.

It has been demonstrated in the Transport Assessment that Coast Road has sufficient capacity to accommodate the predicted traffic flows associated with the proposed development. The addition of the development traffic does not result in any increases in traffic flows which cannot be accommodated by the existing road network. No significant capacity issues are predicted to occur at the junctions in the vicinity of the site. Very few development-generated HGVs would be routed north-west along St Fittick's Road towards the residential areas of Torry and Balnagask: these would only be abnormal loads which, by their nature, would be infrequent, outside of peak hours, under escort and likely to be travelling at slow speed. Accordingly, operational traffic flows are predicted to have a **negligible** effect on accidents and safety on the local road network, which is not significant in EIA terms.

#### 18.6.2.3 Disruption and Driver Delay

The potential for traffic delay to occur on routes used by development-generated traffic has been considered. As noted above, Coast Road and Hareness Road are currently utilised by HGVs and are considered appropriate for future development-related HGV trips. As detailed in the Transport Assessment (ES Appendix 18-A), these links, and their junctions, are predicted to be operating well within capacity in the opening year (2020), with AADT flows of less than 10,000.

The potential for disruption and driver delay resulting from operational traffic is therefore considered to be of **negligible** significance, which is not significant in EIA terms.

#### 18.6.2.4 Pedestrian and Cycle Routes

There would be minimal development-generated HGVs or deliveries routed along St Fittick's Road towards the residential areas of Torry and Balnagask. Effects are therefore predicted to be of **negligible** significance to pedestrian and cyclists in these areas, which is not significant in EIA terms.

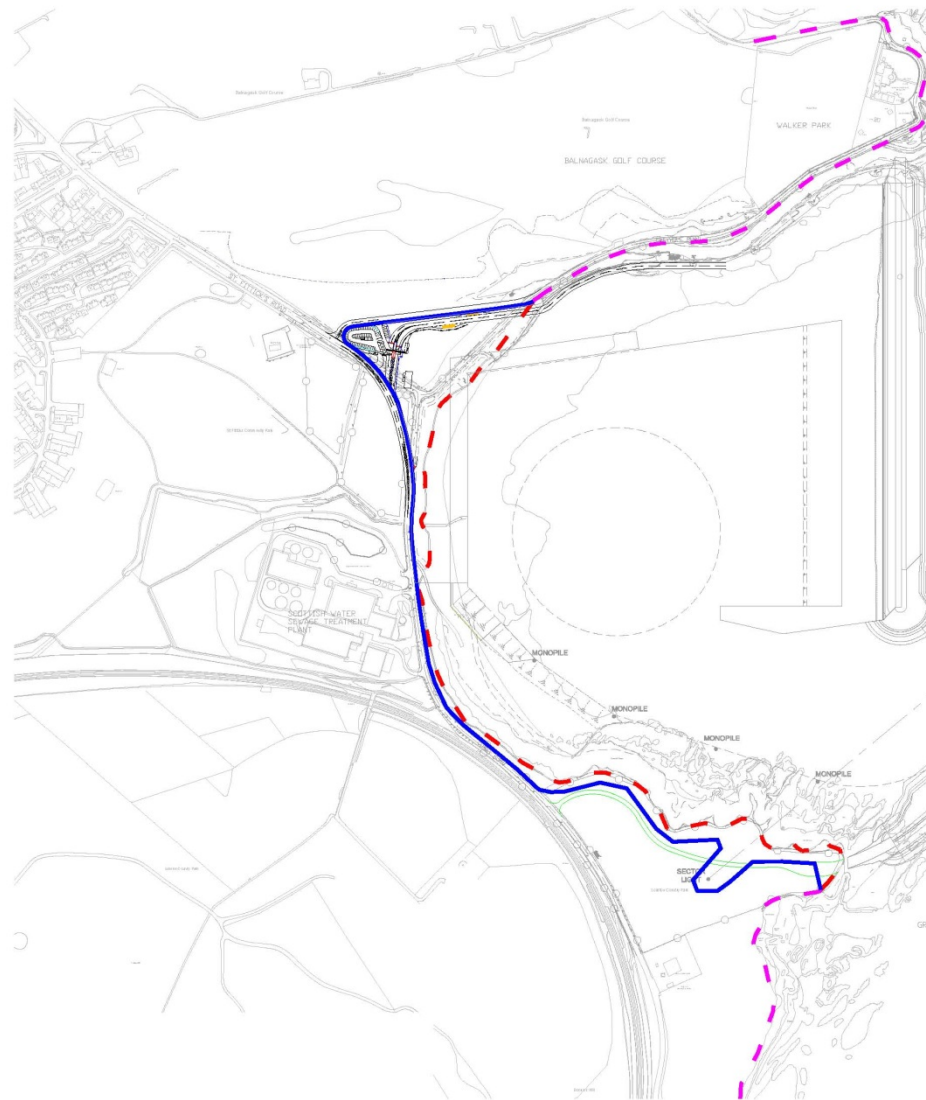
Once the proposed development is operational, much of the diverted coastal path route past the site would become a permanent diversion. Figure 18.5 shows the proposed permanent alteration with the route remaining on the east side of Coast Road and switching back to the south side of Greyhope Road. This route would be largely similar to the existing situation and therefore represents a **negligible** effect on users of the coastal path, which is not significant in EIA terms.




Development traffic would be routed to the south along Coast Road. There are no footways on Coast Road adjacent the site. During the busiest periods, and in the absence of mitigation, there may be



**temporary, local, adverse** effects of **minor** significance on cyclists and pedestrians, which is not significant in EIA terms.

Once the proposed development is operational, Greyhope Road between Coast Road and Girdleness Lighthouse would be reopened, allowing cyclists to once again use this section of NCN1. The proposed development would, therefore have a **negligible** effect on users of the NCN1, which is not significant in EIA terms.



-  Existing Coastal Path to be Retained
-  Existing Coastal Path to be Relocated
-  Rerouted Coastal Path after Harbour Expansion



Project Details	WIB14221-100: Aberdeen Harbour
Figure Title	Figure 18.5: Rerouting of the Coastal Path after Construction
Figure Ref	WIB14221-100_GR_ES_18.5A
Date	2015
File Location	\\s:\inc\w\ef\projects\wib14221\100\graphics\es\issued figures
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**Figure 18.5: Rerouting of the coastal path after construction**

#### 18.6.2.5 Severance

Development generated HGVs and delivery vehicles would be routed via Coast Road and the Altens Industrial Estate and would not pass through any residential communities.

In considering potential severance of local communities from the coast (a recreational resource), the IEMA Guidance suggests that "changes in flow of 30% ... are regarded as producing 'slight' ... changes in severance". As noted in Table 18.6, the change in total traffic flow predicted on Coast Road once the development is operational is less than 30%.

Therefore the potential effect of severance is therefore considered to be of **negligible** significance, which is not significant in EIA terms.

Potential impacts due to possible fragmentation of the Green Space Network are addressed in Chapter 17: Seascape, Landscape and Visual Effects.

#### 18.6.2.6 Public Transport

It is anticipated that approximately 20 to 25 staff would be based at the proposed development, with the majority working shift patterns so that only around 16 staff would be on-site at any time.

##### Public Transport – Bus

The proposed development would include a bus turning circle adjacent to the main site access which would allow a bus stop to be formed off the Coast Road carriageway enabling public buses to travel to the development from Torry. Introduction of a new bus stop would require buses to travel an extra 900 m to service the development.

It is expected that the existing services would have the capacity to accommodate the additional bus users expected as a result of the proposed development. It is therefore considered that the effect of the development on bus services would be **negligible**. As part of the Transport Assessment, Stagecoach and First Bus, who both currently operate frequent bus services within Torry, were consulted. Both operators expressed that they would consider extending their respective bus routes to service the new harbour. However, given that the harbour is not expected to be operational until 2020, neither operator would commit to considering service alterations at this time.

##### Public Transport – Rail

The proposed development is approximately 3 km from the nearest train station (Aberdeen station). Given the existing high numbers of passengers who use this station, it is not expected that the proposed development would have any significant impact on rail services. Therefore it is considered that the development would have a **negligible** effect on rail services.

## **18.7 Mitigation Measures**

### **18.7.1 Construction**

A key mitigation measure during the construction phase will be the development of a Construction Traffic Management Plan (CTMP). A detailed CTMP would be produced once the detailed construction methodology and therefore traffic movements are known. At this stage, the following

bullet points will form the basis of the CTMP by the appointed contractor for the construction of the development, in order to assist in the control of traffic and minimisation of associated effects:

- Appropriate routing of excavation and construction vehicles;
- Proposed measures for temporary speed limit reductions on Coast Road: reduction to 40 mph from the Hareness Road Junction, reducing to 30 mph approaching site entrances;
- Routing of vehicles to consider material origin/destination and seek access to strategic road network by direct routes;
- Introduction of signage on Coast Road at the Hareness Road junction directing all traffic leaving the harbour onto Hareness Road and not through Cove;
- Details of links to the strategic road network to be provided to all personnel, subcontractors and delivery companies;
- Direct access arrangements to the site (which may require plans and phasing details);
- Any particular information on abnormal vehicle requirements;
- Established policy for reversing if turning is not possible (use of banksmen);
- The estimated number of vehicles per day/week (including the type of vehicles anticipated e.g. HGVs, vans, cars, minibuses);
- Staff compound locations and arrangements for staff parking;
- Arrangements for waiting vehicles;
- Details of the vehicle call up procedure if any;
- A named person with responsibility for supervising and controlling vehicle movements to and from the site;
- Estimates for the number and type of parking suspensions and Temporary Traffic Regulation Orders that may be required;
- Details of any diversion, disruption or other abnormal use of the public road during excavation and construction works;
- Potential impacts on vulnerable road users in particular, including cyclists, and details of mitigation strategies;
- Measures to protect pedestrian and cyclist safety from adjacent works;
- Details of safety, signage and accessibility (by mobility impaired) measures for footway diversions;
- Evidence of contact with the utility companies to determine whether they have works programmed for the area around the site and their responses;
- Work programme and/or timescale for each phase of the excavation and construction works;
- Details regarding vehicle sheeting/wheel cleaning etc.
- Procedures for monitoring and reviewing the Construction Traffic Management Plan throughout the construction period;

- Coordination of arrangements with other existing or planned development sites in the area; and
- Procedure for dealing with any direct or indirect complaints from local residents, businesses etc. regarding the construction traffic.

The Construction Traffic Management Plan would form part of the Construction Environmental Management Plan (CEMP) for the development. For further information please refer to Chapter 26: Outline Environmental Management Plan.

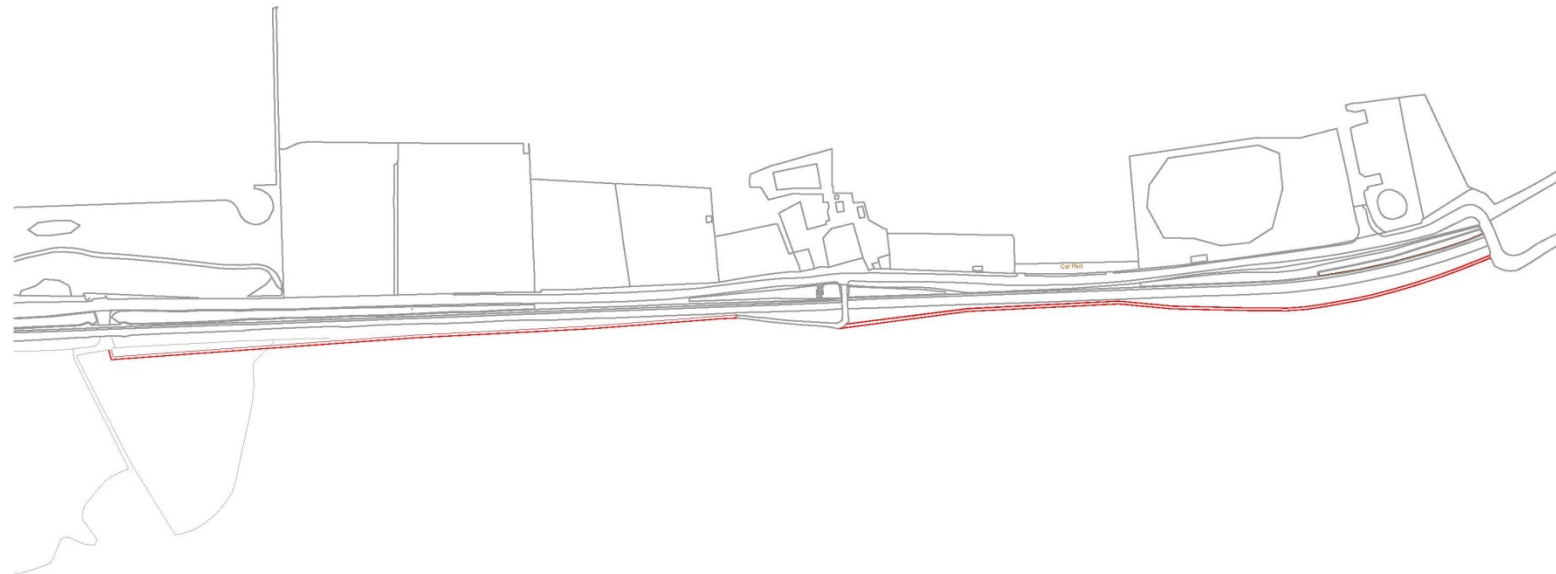
Additional suggested measures to avoid adverse effects of construction traffic are set out in the Transport Assessment (ES Appendix 18-A), including the provision of a lorry 'stop over' area within the site.

The Transport Assessment notes that an alternative cycle route would be created from the railway bridge, along the east side of the railway and then under the railway through an existing bridge close to the junction with Hareness Road. This means that cyclists could avoid the section of Coast Road between the railway bridge and Hareness Road (refer to Figure 18.6).

It is proposed to resurface and significantly improve Coast Road and its margins between the site and Hareness Road before the main construction works commence to improve the condition of the road. The resurfacing and improvement works will, in discussion with Aberdeen City Council, consider the benefits and opportunities for potential areas of road widening or improving of the verge run-off areas to address edge erosion. Condition Surveys of the Coast Road would also be agreed with Aberdeen City Council prior to works commencing and on completion of construction works at the harbour.

The coastal path would be rerouted within the verge on the east side of Coast Road adjacent to the site. A 2 m wide footway is proposed, with the surfacing to be agreed with Aberdeen City Council.

The appointed contractor would be required to manage the route of the coastal path so that safe passage is available during the construction phase. This is likely to mean that the route would be variable around the Coast Road/St Fittick's Road/Greyhope Road junction in order to ensure pedestrian amenity and safety as site access works progress. The appropriate management of the coastal path would form part of the CEMP, adherence to which would be a condition of contract for construction contractors.



Indicative Coast Road Cycleway Alignment



Project Details	WIB14221-100: Aberdeen Harbour
Figure Title	Figure 18.6: Indicative Coast Road Cycleway Alignment
Figure Ref	WIB14221-100_GR_ES_18.6A
Date	August 2015
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**Figure 18.6: Indicative coast road cycleway alignment**

### **18.7.2 Completed Development**

All potential effects to the local road network arising from the proposed development have been assessed as being negligible. Nonetheless some specific mitigation measures are proposed to the Coast Road corridor, as described in the Construction mitigation section above (18.7.1).

It is proposed that the 40 mph speed restriction imposed for the construction phase is permanently extended from St Fittick's Road south to the existing 30 mph speed limit at Burnbanks Village. This would improve safety for walkers and cyclists as well as motorists.

Similarly, negligible effects have been predicted in terms of users of the coastal path, road safety, severance and public transport services. Nevertheless, pedestrians and cyclists would benefit from the mitigation measures brought forward during the construction phase, as described in the Construction mitigation section above (18.7.1).

The main cause of delay to drivers on Coast Road occurs at the railway bridge traffic signals, particularly during weekday peak periods. The measures summarised in this section and described in more detail in the Transport Assessment (ES Appendix 18-A) would allow more 'green time' to be given to drivers, thereby mitigating any possible delays associated with increased harbour traffic.

A Travel Plan Framework has been produced for the Transport Assessment which encourages the use of sustainable modes of transport over private vehicle trips. This may serve to reduce the potential effects of vehicle trips generated by the proposed Development on the local roads network.

## **18.8 Residual Effects**

### **18.8.1 Construction**

#### **18.8.1.1 HGV Movements**

The residual effects of construction traffic on local road network capacity would be of **negligible** significance, which is not significant in EIA terms.

#### **18.8.1.2 Road Closures**

The residual effects of the temporary closure of part of Greyhope Road would be of **negligible** significance, which is not significant in EIA terms.

#### **18.8.1.3 Accidents and Safety**

Construction traffic flows would have a residual effect of **negligible** significance on accidents and safety, which is not significant in EIA terms.

#### **18.8.1.4 Disruption and Driver Delay**

The residual effect from disruption and driver delay resulting from construction traffic is considered to be of **negligible** significance, which is not significant in EIA terms.

#### 18.8.1.5 Pedestrian and Cycle Routes

The diversion of the coastal path would have a **temporary, local, adverse** effect of **minor** significance on this pedestrian route (which is not significant in EIA terms), although the construction contractor will ensure the diverted path is constructed to an appropriate standard. Nevertheless, it is inevitable that the path will have to cross the site access road, and the general amenity of the path would be negatively affected by being adjacent to a construction site.

Similarly, the closure of Greyhope Road during construction works would have an effect on users of NCN1, although cyclists could make use of the temporary coastal path instead of the carriageway. Therefore there would be a residual **temporary, local, adverse** effect of **minor** significance on cyclists using the NCN1, which is not significant in EIA terms.

The creation of a new stretch of off-road cycle path between the Coast Road railway bridge and Hareness Road would be a **permanent, local, beneficial** residual effect of **minor** significance to cyclists (which is not significant in EIA terms since it would mean they could avoid the stretch of Coast Road between the railway bridge and Hareness Road).

All other residual effects to pedestrians and cyclists would be of **negligible** significance, which is not significant in EIA terms.

#### 18.8.1.6 Severance

The residual effect of severance is considered to be of **negligible** significance, which is not significant in EIA terms.

#### 18.8.1.7 Public Transport

Residual effects on public transport capacity during construction are considered to be **negligible**, which is not significant in EIA terms.

### 18.8.2 **Completed Development**

#### 18.8.2.1 Public Road Network

The residual effects on the public road network would be of **negligible** significance, which is not significant in EIA terms.

#### 18.8.2.2 Accidents and Safety

Operational traffic flows would be mitigated by improvement works on Coast Road and the proposed reduced speed limit, so would have a residual impact of **negligible** significance on accidents and safety, which is not significant in EIA terms.

#### 18.8.2.3 Disruption and Driver Delay

The residual effect of disruption and driver delay resulting from operational traffic is considered to be of **negligible** significance, which is not significant in EIA terms.



#### 18.8.2.4 Pedestrian and Cyclist Routes

As noted above in the Construction section, the creation of a new stretch of cycle path between the Coast Road railway bridge and Hareness Road would have a **permanent, local, beneficial** residual effect of **minor** significance on cyclists (which is not significant in EIA terms) since it would mean they could avoid the stretch of Coast Road between the railway bridge and Hareness Road.

All other residual effects to pedestrians and cyclists would be of **negligible** significance (which is not significant in EIA terms).

#### 18.8.2.5 Severance

The residual effect of severance is considered to be of **negligible** significance (which is not significant in EIA terms).

#### 18.8.2.6 Public Transport

The residual effect of the operational development on the capacity of bus and rail services is considered to be **negligible**.

### 18.9 Cumulative Effects

For the purposes of this EIA, no terrestrial schemes have been identified that could have cumulative effects on traffic and transport (refer to Table 5.9 in Chapter 5: Environmental Impact Assessment Process). Nevertheless, for completeness, the Transport Assessment (ES Appendix 18-A) considers possible interactions with nearby 'committed' schemes, as summarised below.

#### 18.9.1 Construction

Disruption due to construction traffic on local roads in the vicinity of the site would be minimised through the implementation of the CEMP and effects on the local road network have been assessed as negligible within this chapter.

It is also assumed that similar controls would be applied to any other simultaneous construction schemes in the vicinity of the site, including the committed developments noted in Section 18.3.1, in accordance with best practice. It is assumed that construction traffic routes for the committed developments would be agreed with Aberdeen City Council, with the intention of avoiding significant adverse cumulative effects, where the committed schemes come forward simultaneously with (or after) the Aberdeen Harbour Expansion Project. Accordingly, the likely cumulative effects would be of **negligible** significance.

#### 18.9.2 Completed Development

In line with best practice methodology, the assessment of transport effects reported in this chapter has taken account of cumulative (or 'committed') schemes, listed in Section 18.3.1 and as set out in the Transport Assessment presented in Appendix 18-A. The baseline scenario, against which the effects of the proposed development on traffic and transport were assessed, therefore inherently incorporates the vehicular trips generated by the cumulative/committed schemes listed in Section 18.3.1.

As a consequence, it is considered that the cumulative effects on traffic and transport would be equivalent to those already identified within this chapter.

### 18.10 Summary and Conclusions

No significant effects are likely as a direct result of construction vehicles (e.g. HGVs) accessing the site, and the implementation of a Construction Traffic Management Plan would ensure that appropriate control measures are enforced.

Once the Aberdeen Harbour Expansion Project is operational, there would be no significant effects on the surrounding road network. Furthermore, no significant effects are likely in terms of: accidents and safety; disruption and driver delay; or severance during either the construction or operational phases of the Aberdeen Harbour Expansion Project. There would also be no significant effects to the capacity of local bus or rail services.

A local, beneficial effect is predicted as a result of rerouting a stretch of NCN1 between the railway bridge on Coast Road and Hareness Road. Some temporary minor adverse effects are predicted on pedestrian and cycle routes in the vicinity of the site during the construction phase.

Table 18.7 summarises the predicted potential effects of the construction and operational phases, suggested mitigation measures and the resulting residual effects.

**Table 18.7: Summary of potential effects, mitigation measures and residual effects**

Issue	Potential Effect/ Significance	Mitigation Measures	Residual Effect/ Significance
<b>Construction</b>			
HGV movements	Negligible	The implementation of a Construction Traffic Management Plan as part of a CEMP	Negligible
Road closures	Negligible		Negligible
Accidents and safety	Negligible		Negligible
Disruption and driver delay	Negligible	Improvements to Coast Road railway bridge traffic signals	Negligible
Pedestrians and cyclists on St Fittick's Road	Negligible	None required	Negligible
Pedestrians on coastal path	Temporary, local, minor adverse	Management of rerouted pedestrian and cycle routes by construction contractor.	Temporary, local, minor adverse
Cyclists on NCN1 Greyhope Road	Temporary, local, minor adverse		Temporary, local, minor adverse
Pedestrians and cyclists on Coast Road	Temporary, local, moderate adverse	Creation of alternative route between Coast Road railway bridge and Hareness Road	Permanent, local, minor beneficial
Severance	Negligible	None required	Negligible
Public transport	Negligible		Negligible

**Table 18.7: Summary of potential effects, mitigation measures and residual effects continued**

Issue	Potential Effect/ Significance	Mitigation Measures	Residual Effect/ Significance
Completed development			
Public road network	Negligible	Travel Plan to be implemented to encourage travel by sustainable modes rather than private vehicle Improvements to Coast Road railway bridge traffic signals	Negligible
Accidents and safety	Negligible		Negligible
Disruption and driver delay	Negligible		Negligible
Pedestrians and cyclists on St Fittick's Road	Negligible	None required	Negligible
Pedestrians on coastal path	Negligible		Negligible
Cyclists on NCN1 Greyhope Road	Negligible		Negligible
Pedestrians and cyclists on Coast Road	Temporary, local, minor adverse	Creation of alternative route between Coast Road railway bridge and Hareness Road	Potential, local, minor beneficial
Severance	Negligible	Travel Plan to be implemented to encourage travel by sustainable modes rather than private vehicle	Negligible
Public transport	Negligible		Negligible

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