11 TRAFFIC AND TRANSPORT

Introduction

11.1 This chapter of the Environmental Statement assesses the likely significant effects of the proposed development terms of vehicle trips, public transport, cycling and pedestrians. The data and analysis is based on the Transport Assessment (TA) that is included in Appendix 11.1.

11.2 The chapter sets out the policy context; relevant to transportation; describes the methodology which has been used to assess the effects of the development; establishes the baseline conditions at the application site and surrounding network; and identifies the mitigation measures required to prevent, reduce or off-set any significant adverse effects, and the residual effects after these measures have been implemented.

Assessment Methodology

11.3 The methodology used in this assessment is based on the Department for Transport (DfT) Guidance on Transport Assessments (2007) and the Institute of Environmental Management and Assessments (IEMA) Guidelines for Environmental Assessment of Road Traffic (1993). This chapter considers the environmental effects related to the traffic generation of the proposed development, and:

- Presents the assessment methodology used to consider the effects of the proposed development on the surrounding transport network and the policy context;
- Sets out the baseline conditions of the surrounding transport network;
- Assesses the likely environmental effects related to traffic generated by the proposed development;
- Identifies mitigation measures required to prevent, reduce or off-set potential adverse effects; and sets out any residual effects after these measures have been implemented.

11.4 The IEMA guidance suggests that the scale and extent of the assessment should be limited to traffic flow increases of 30% (10% if affecting a sensitive area). The guidelines state that projected changes in traffic less than 10% creates no discernible environmental effect, given that daily variations in background traffic flow may fluctuate by this amount, and that a 30% change in traffic flow represents a reasonable threshold for including a highway link in an assessment.

Data Gathering

11.5 In order to establish the baseline situation, traffic survey data was commissioned to establish vehicle flows for both the morning and evening peak periods for all junctions throughout the study area. A detailed site audit has also been undertaken of the local transport network, including opportunities for walking, cycling and public transport.

Planning Policy Context

11.6 Current national, regional and local transport planning policies relevant to the proposed development are reviewed below.

11.7 Current transport policies at the national, regional and local level are built around the central themes of long-term sustainable development, sustained investment in transport and improved accessibility at all levels. These policies promote continued economic growth through the provision of an efficient and reliable transport system, a reduction in traffic congestion, improvements in highway safety, and enhancements to the accessibility of sustainable modes of travel.

11.8 The key objectives of the transport strategy for the proposed development is to deliver sustainable, safe transport to support the development.

Wales Spatial Plan – People, Places, Futures

11.9 The Wales Spatial Plan (WSP) was originally adopted in November 2004 and updated in 2008 to bring it into line with One Wales [see paragraph. 11.26 below].

11.10 In Wales, spatial planning is the consideration of what can and should happen where. It is a principle of the WSP that development should be sustainable. Sustainable development is about improving wellbeing and quality of life by integrating social, economic and environmental objectives in the context of more efficient use of natural resources.

11.11 The purpose of the WSP is to ensure that what is done in the public, private and third sectors in Wales is integrated and sustainable, and that actions within an area support each other and jointly move towards a shared vision for Wales and for the different parts of Wales.

Achieving Sustainable Development

11.12 At paragraph 13.1 the WSP states that:

'Citizens must be able to access job opportunities and public services – health, social services, education, etc – if equality of opportunity is to be successfully promoted in Wales. This is a particular concern for those who face barriers to accessibility, such as people on low incomes, young and old people, disabled people and those living in rural areas.'

11.13 The WSP also states that (paragraph 13.3)

'In the context of responding to and mitigating the effects of climate change, the Wales Spatial Plan supports the development of spatially targeted responses. These include reducing the need to travel by co-locating jobs, housing and services, for instance, and changing behaviour in favour of 'greener' modes of travel, such as car sharing, public transport, walking and cycling.'

Planning Policy Wales – Edition 10

11.14 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs).

Movement

11.15 At paragraph 3.12 PPW states that '*Good design is about avoiding the creation of car-based developments. It contributes to minimising the need to travel and reliance on the car, whilst*

maximising opportunities for people to make sustainable and healthy travel choices for their daily journeys. Achieving these objectives requires the selection of sites which can be made easily accessible by sustainable modes as well as incorporating appropriate, safe and sustainable links (including active travel networks) within and between developments using legal agreements where appropriate. '

11.16 At paragraph 3.45 PPW states that *'spatial strategies should support the objectives of minimising the need to travel, reducing reliance on the private car and increasing walking, cycling and use of public transport.'*

11.17 At paragraph 4.1.1 PPW states that '*the planning system should enable people to access jobs and services through shorter, more efficient and sustainable journeys, by walking, cycling and public transport. By influencing the location, scale, density, mix of uses and design of new development, the planning system can improve choice in transport and secure accessibility in a way which supports sustainable development, increases physical activity, improves health and helps to tackle the causes of climate change and airborne pollution.'*

11.18 At paragraph 4.1.3 PPW states that *'Land use and transport planning must be integrated. The planning system must ensure it enables integration:*

- *Within and between different types of transport;*
- *Between transport measures and land use planning;*
- *Between transport measures and policies to protect and improve the environment; and,*
- *between transport measures and policies for education, health, social inclusion and wealth creation.*'

Sustainable Transport

11.19 At paragraph 4.1.8 PPW states that *'The Welsh Government is committed to reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport. Delivering this objective will make an important contribution to decarbonisation, improving air quality, increasing physical activity, improving the health of the nation and realising the goals of the well-being of Future Generations Act.'*

11.20 At paragraph 4.1.11 PPW states that *'it is Welsh Government policy to require the use of a sustainable transport hierarchy in relation to new development, which prioritises walking, cycling and public transport ahead of the private motor vehicles. The transport hierarchy recognises that Ultra Low Emission Vehicles also have an important role to play in the decarbonisation of transport, particularly in rural areas with limited public transport services.'*

11.21 Finally, at paragraph 4.1.12 PPW states that *'The sustainable transport hierarchy should be used to reduce the need to travel, prevent car-dependent developments in unsustainable locations, and support the delivery of schemes located, designed and supported by infrastructure which prioritises access and movement by active and sustainable transport.'*

Parking

11.22 As stated in PPW (paragraph 4.1.50) *'Car parking provision is a major influence on how people choose to travel and the pattern of development. Where and how cars are parked can in turn be a major factor in the quality of a place'.*

11.23 Paragraph 4.1.51 also states that it is important to recognise that *'a design-led approach to the provision of car parking should be taken, which ensures an appropriate level of car parking is integrated in a way which does not dominate the development'.*

11.24 PPW highlights that parking provision should take into consideration the site location and access to local facilities (paragraph 4.1.51), '*Parking provision should be informed by the local context, including public transport accessibility, urban design principles and the objective of reducing reliance on the private car and supporting a modal shift to walking, cycling and public transport'. PWW encourages that 'Planning authorities must support schemes which keep parking levels down, especially off-street parking, when well designed'.*

11.25 As stated in paragraph 4.1.53 Local authorities will need to ensure that their parking standards reflect local transport provision *'Parking standards should be applied flexibly and allow for the provision of lower levels of parking and the creation of high quality places'.*

One Wales: Connecting the Nation

11.26 National transport policy for Wales is specified within the Wales Transport Strategy, One Wales: Connecting the Nation.

11.27 The goal of One Wales: Connecting the Nation is to:

'Promote sustainable transport networks that safeguard the environment while strengthening our country's economic and social life. The transport strategy identifies a series of high-level outcomes and sets out the steps to their delivery. The One Wales programme is working to achieve a nation with access for all, where travelling between communities and accessing services, jobs and facilities in different parts of Wales is both easy and sustainable, and which support the growth of our economy.'

11.28 The strategy aims to promote active travel (walking and cycling) for short journeys to promote healthy lifestyle. In addition to active travel, the use of public transport is also promoted.

Technical Advice Note (TAN18)

11.29 TAN 18 identifies that PPW and One Wales both aim to secure the provision of transport infrastructure and services, which improve accessibility, build a stronger economy, improve road safety and foster more sustainable communities.

11.30 To achieve this and the core objectives, the following initiatives relevant to the proposed development are:

- Reducing the need to travel;
- Promoting walking and cycling;

- Managing parking provision; and,
- Encouraging the location of development near other related uses to encourage multi-purpose trips.

Wales Active Travel Act (2013)

11.31 The Active Travel Act (2013) encourages local authorities to promote active travel such as walking and cycling. Local authorities are encouraged to improve active travel routes in regard to the needs of walkers and cyclists. The act also encourages local authorities to improve the highway to enhance the provision for cyclists and pedestrians.

11.32 The Act makes provision for:

- '*Approved maps of existing active travel routes and related facilities in the local authority's area;*
- *Approved integrated network maps of the new and improved active travel routes and related facilities needed to create integrated networks of active travel routes and related facilities in a local authority's area;*
- *Requiring local authorities to have regard to integrated network maps in preparing transport policies and to ensure that there are new and improved active travel routes and related facilities;*
- *Requiring the Welsh Ministers to report on active travel in Wales;*
- *Requiring the Welsh Ministers and local authorities, in the performance of functions under the Highways Act 1980, to take reasonable steps to enhance the provision made for walkers and cyclists and to have regard to the needs of walkers and cyclists in the exercise of certain other functions; and,*
- *Requiring the Welsh Ministers and local authorities to exercise their functions under the Act so as to promote active travel journeys and secure new and improved active travel routes and related facilities.'*

Pembrokeshire County Council Local Development Plan (2013)

11.33 The Pembrokeshire County Council (PCC) Local Development Plan (LDP) was adopted in February 2013 and sets out a vision for Pembrokeshire up until 2021.

11.34 Pembroke Dock is included in the strategic Hub of 'Haven Towns' and considered as an important regional role for the area which should be a focus for future investment.

Infrastructure, Transport and Accessibility

11.35 The key strategic objectives derived from the main issues associated with infrastructure, transport and accessibility include:

- To improve access to goods and services; and,
- To mitigate and respond to climate change.

11.36 There are three key Trunk Roads whose routes run into Pembrokeshire, the A40, A477 and A487 which link the two main ferry terminals at Pembroke Dock and Fishguard, together with Milford Haven and Haverfordwest.

11.37 The LDP (para. 3.22) states that *'65.6% of people travel to work by car, however, 21.7% of households are without a car and for them the provision of public transport is critical. Public transport use for travelling to work is low, less than 4% travel by train or bus (Census, 2001)'.*

SP10: Transport Infrastructure and Accessibility

11.38 PCC has identified Infrastructure, Transport and Accessibility (SP 10) as a strategic objective of the LDP, including a need for significant investment in the current transport infrastructure, for example dualling the A40 and improving the A477.

11.39 The overarching aim of the LDP is to ensure that sustainable development is achieved. This means ensuring that the types of development that take place are appropriate for their location and built and designed in such a way as to achieve positive economic, social and environmental impacts, and adverse impacts minimised. Furthermore, the LDP (page 61) states *'improvements to the existing transport infrastructure that will increase accessibility to employment, services and facilities, particularly by sustainable means will be approved'*.

Policy Summary

11.40 It is considered that the proposed redevelopment complies with the relevant national and local transport policies as it:

- Encourages accessibility by walking, cycling and public transport, with good access to key services and facilities;
- Is located near other related uses to encourage multi-purpose trips and reduce the length of journeys; and
- Provides safe access to the highway network and will not cause or exacerbate existing traffic congestion.

Methodology and Assessment Criteria

Scoping

11.41 The scope of the Environmental Statement (ES), that forms the basis for this chapter, has been agreed by PCC, as Highway Authority, prior to the submission of the application. PCC's Scoping Opinion is included as Appendix 4.2 of the ES. Specifically, this section of the ES chapter relates to matters raised in relation to transportation.

Transport Assessment

11.42 The TA, submitted alongside this ES Chapter (as Appendix 11.1), has been produced in line with national guidance and considers the effects of the proposed development on the agreed extent of highway network. A Travel Plan (TP) will also be produced in line with national guidance and submitted as part of the planning application. The TA details all aspects of the proposed development related to its transport characteristics and their effect. The TA is structured as follows:

- Review of national, regional and local policy;
- Sets out the existing transport conditions surrounding the application site;
- Description of the proposed development including means of access;
- Prediction of the transport characteristics associated with the proposed development including development traffic trip rates, distribution and assignment;
- Analysis of the effect of the proposed development on the surrounding highway network for the future year assessment of 2020, 2030 and 2035 with background growth added.

Study area

11.43 In order to assess the impact of the proposed redevelopment on the existing highway network, it is necessary to assess the number of vehicle trips generated by the proposed development. The extent of the study area covered within the TA has been agreed with PCC to include the following links and junctions:

- Junction 1 - Admiralty Way/Meyrick Owen Way/Whites Farm Way mini-roundabout;
- Junction 2 - Fort Road/ Admiralty Way/ Melville St/ Melville Terrance.
- Junction 3 - Melville Street/Market Street mini-roundabout;
- Junction 4 - Meyrick Owen Way/ Market St; and,
- Junction 5 - Pembroke Street/Melville Street/B4322 mini-roundabout;
- Junction 6 - Gate 1 Access/Front St/Commercial Row/ Western Way;
- Junction 7 - B4322/ Meyrick Owen Way/ A4139/Pier Road roundabout;
- Junction 8 - A4139/ Tesco signalised junction; and,
- Junction 9 - A477/ A4139 / London Road/ Waterloo Road roundabout.

Baseline Methodology

Traffic growth

11.44 In terms of background traffic growth, NTEM/Tempro adjusted growth rates, as agreed with the PCC, have been applied to the base (surveyed) flows. The impact of the proposed development has been assessed for 2020, 2030 and 2035 to coincide with the anticipated completion date, 'completion + 10 years' and 'completion + 15 years'.

11.45 NTM growth factors for the 'Pembrokeshire 013' middle layer super output area have been obtained, and these are identified in Table 11.1.

Table 11.1 NTM Growth Factors

Period	NTM Growth Factors
2018 to 2020	
Weekday AM	1.0200
Weekday PM	1.0208
2020 to 2030	
Weekday AM	1.05151
Weekday PM	1.0533
2030 to 2035	
Weekday AM	1.0726
Weekday PM	1.0752

Development Trip Generation

11.46 The likely volume of vehicle trips generated by the proposed development has been obtained from the on-site employment estimates prepared by Hardisty Jones Associates (authors of Chapter 12-socio-economics). The TA presents a full description on how the development will impact of the existing peak hour traffic anticipated including the total arrival and departure rate for all day-time employees, and the arrival rate for the evening shift workers.

11.47 Furthermore, the TA uses 2011 Census data to give a robust understanding of the likely location from which people will travel from and the number of staff that will travel to site via each mode of transport.

Consultation

11.48 A summary of all consultation with stakeholders or consultees provided in Table 11.2 below.

Table 11.2 Consultation Responses Relevant to this Chapter

Date	Consultee and Issues Raised	How/ Where Addressed
30th August 2018	PCC provided feedback on the EIA Scoping Opinion which largely agreed with the scope set out in the Scoping report.	It was raised that an additional junction should be surveyed and analysised as part of the TA (Junction 9: A477/ A4139 / London Road/ Waterloo Road roundabout)
25th April 2019	Communications with Steve Benger (PCC) to agree there are no committed developments within Pembroke Dock or the	This was resolved over a telephone call and confirmed via email.

Assessment Criteria and Assignment of Significance

11.49 The assessment and assignment of significance considers the existing highway network as a baseline and predicts the future effect on the highway for both the construction and operational phases of the proposed development. The assessment takes into consideration the requirement for mitigation measures to reduce the effect of the proposed development. The significance of an effect depends on both the sensitivity of the receptor and the degree to which the receptor would be affected. The magnitude of each potentially significant effect has been considered and an assessment has been made as to whether the proposed development would result in negligible, minor, moderate or major effects. Vehicle routes are identified in terms of their percentage increase in traffic.

11.50 The criteria used to determine the significance and magnitude of each of the traffic-related environmental effects is summarised below (and is based on the IEMA guidelines):

- Construction – transport effects associated during the construction phase in terms of increase in traffic volume and number of HGVs;
- Severance – the perceived division that can occur within a community when it becomes separated by a major traffic artery either physically or by increased traffic volumes. The guidelines advise that changes in traffic flow of 30%, 60% and 90% are regarded as producing slight, moderate and substantial changes in severance respectively. Marginal changes in traffic flow are unlikely to increase or remove severance and consideration should also be given to road width, traffic flow and composition, traffic speed, the availability of crossing facilities and the number of pedestrians likely to cross the affected route;
- Driver delay – delay to non-development traffic as a result of the additional traffic on the network. This is considered significant when the traffic on the network is already at, or close to, capacity (ratio of flow to capacity of 0.85);
- Pedestrian amenity and delay – effects associated with changes in traffic flow, speed and footway width/separation from traffic. The guidelines state that the effect may be considered significant where the traffic flow is halved (beneficial) or doubled (adverse). There are no set thresholds for pedestrian delay;
- Cyclist amenity and delay – effects associated with changes in traffic flow and speed;
- Fear and intimidation – effects experienced by pedestrians associated with increase in traffic volume, speed and HGV composition and the proximity of this traffic. There are no set thresholds for fear and intimidation; and,

- Accidents and safety – effects associated with the change in character of the traffic as a result of the development. Assessment of the likely increase in risk is required but no thresholds are set due to the complexity of potential factors causing personal injury accidents.

11.51 The magnitude of effect has been assessed on the following basis:

- High – considerable deterioration/improvement;
- Moderate – readily apparent change;
- Low – perceptible change; and,
- Negligible – no discernible change.

11.52 A seven-point scale is used (as set out in Table 11.3) to record any likely significant environmental effects. The scale is derived from the interaction of the receptor sensitivity and magnitude of change of effect as detailed in the matrix set out in Table 11.4.

Table 11.3 Seven-point scale of likely significance of effects

Effect	Significance
Beneficial	Major
	Moderate
	Slight
Neutral	Neutral
Adverse	Slight
	Moderate
	Major

Table 11.4 Significance Matrix

Sensitivity	Magnitude of Impact			
	Negligible	**Low**	**Medium**	**High**
Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible or minor	Minor	Moderate	Moderate or major
High	Minor	Minor or moderate	Moderate or major	Major

Baseline Environment

Accessibility by Walking and Cycling

11.53 As set out in the TA (Appendix 11.1) and described in the following paragraphs the application site is accessible by walking, cycling and public transport.

11.54 Pembroke Port is bounded by residential development along Commercial Row to the east, Meyrick Owen Way to the south, and open water to the north and west. Existing pedestrianised footpaths are located to the south of the dockyard which provides good access from the site to local amenities and public transport connections.

11.55 The majority of roads within the vicinity of application the site have footways on one or both sides of the carriageway, providing links between the site and surrounding area, including Meyrick Owen Way, Commercial Row and Western Way.

11.56 Pembroke Dock benefits from being located on Route 4 of the National Cycle Network (NCN) which is a long distance route which passes through Pembroke Dock, from Swansea to Fishguard, known as the Celtic Trail West, and which provides good connections to Pembroke, Milford Haven and Tenby.

Public Transport

11.57 There are bus stops located along Meyrick Owen Way which provide regular connections through Pembroke Dock and the surrounding areas throughout the day. Table 11.5 below outlines the services that call at bus stops within walking distance of the site.

Table 11.5 Bus Routes and Timetable (Weekdays)

Route			Frequency
Sunderland Avenue, Melville Terrace, Pembroke Dock			
	350	Haverfordwest – Tenby	3 per hour
348	350	Tenby – Haverfordwest	1 per hour
349	350	Haverfordwest – Tenby	3 per hour
349	350	Tenby – Haverfordwest	1 per hour
356	350	Milford Haven – Monkton	1 per hour
356	350	Monkton – Milford Haven	1 per hour
Albion Square, B4322, Pembroke Dock			
	600	Tenby – Pembroke Dock	4 per day
	600	Pembroke Dock – Tenby	4 per day

11.58 Pembroke Dock train station is located approximately 1.2 km east of Pembroke Dock and accessible via Commercial Row, Queen Street and Apley Terrace. This provides connections to Tenby, Saundersfoot, Carmarthen and Swansea every two hours. Connections at Swansea can be made to Cardiff, London and elsewhere in England and Wales. The station is operated by Transport for Wales and offers a pay and display car park consisting of 20 spaces.

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11.59 It is approximately an 8-10 minute walk from Pembroke Dock train station to the proposed development site.

Local Highway Network

11.60 Table 11.6 below provides a description of the highway network within the vicinity of the proposed development.

Table 11.6 A Description of Local Highway Network

	Description
Meyrick Owen Way	
Description	Single carriageway acts as the main access route into the development site. Pembroke Dock yard located to the north of the road with open space and residential development to the west.
Width	9m
Speed limit	30mph
Street lighting	Present throughout length of road
Crossing facilities	Double kerb and tactile pavement located near access to Melville Street.
Bus route	No
Character	Wide distributor commuter road connecting Pembroke Dockyard with Pembroke Dock town centre.
Commercial Row	
Description	Residential and shop frontage on the street at the eastern side of the road with parking bays located along the west.
Width	7.6m
Speed limit	30mph
Street lighting	Yes
Crossing facilities	Non-present
Bus route	No
Character	Trees located to the west of the side with residential terrace housing adjacent to the road.
On-street parking	Double yellow lines present at the Albion Square, Pembroke Street junction. Other than this, no restrictions exist. Parking bays are available on the western side of the road with no restrictions.
Pembroke Street	
Description	Consist of a one-way single carriageway heading southbound, which changes into a two-way single carriageway after the Melville Street roundabout.
Width	4.7m along the one-way single carriageway, increases to approximately 9m when the road changes to two-way.
Speed limit	30mph
Street lighting	Yes
Crossing facilities	Non-present
Bus route	Yes
Character	Local amenities including shops, bars and restaurants are located on eastern side of the one-way single carriageway, with residential development fronting the street once the road become two-way.
On-street parking	Within the one-way single carriageway parking bays are located on the eastern side with no restrictions. Once the road becomes two-way, parking bays are located on either side of the carriageway allocated to resident permit holders only.
A4139	
Description	Single carriageway distributor road linking the north of the town.
Width	Generally 9.7m
Speed limit	30mph
Street lighting	Yes
Crossing facilities	Dropped kerb and tactile pavement located at junctions to minor distributor roads. Pedestrian crossings located at the entrance to major supermarket stores.
Bus route	Yes

Character	Residential development fronting the street on both sides of the carriageway. Also the presence of local amenities, including pubs, restaurants and hotels, and major supermarkets and convenience stores.
On-street parking	Double yellow lines present along length of road

Personal Injury Accident Data

11.61 Personal Injury Accident (PIA) data has been obtained for the most recent five-year period (2014-2018) within the study area. The severity of accidents and number of casualties per year is summarised in Table 11.7 below.

Table 11.7 Summary of Personal Injury Accident Data

	Incident severity			
	Fatal	**Serious**	**Slight**	**No. of casualties**
2014	0	2	5	9
2015	0	0	1	1
2016	0	1	1	2
2017	0	0	4	6
2018	0	1	2	4
Total	0	4	13	22

11.62 The results show that there has been a total of 17 accidents within the study area over the most recent five-year period, resulting in a total of 22 casualties. Thirteen accidents resulted in slight injuries being sustained with four accidents resulting in serious injuries being sustained. No accidents resulted in fatal injuries.

11.63 Looking at the accidents in more detail a high proportion of the accidents involved vulnerable users, with child casualties reported in four accidents and pedestrian casualties reported in three accidents. The results show a clusters of accidents occurred on Bush Street, however, this street is unlikely to be on the preferred access route to the proposed development. It is considered therefore that the proposed development would have a limited impact on accidents in the area.

11.64 Given the relatively large area covered, it can be concluded that there is no particular highway safety problem on the local highway network. It is unlikely that the proposed development will have any adverse effect on the current injury accident data and it is unlikely to increase the potential for any accidents to occur.

Future Baseline Conditions

11.65 Traffic counts were used to establish baseline conditions and assess junctions and link capacity. The data sources for all turning movement traffic counts in the morning (AM) and evening (PM) peak hours, at each of the junctions (junctions 1 to 9) are as outlined in TA presented in Appendix 11.1.

11.66 The surveys (junctions 1-8) were undertaken on Thursday 8 February 2018 between 7am-10am and 3pm-6pm. The survey for junction 9 was undertaken on Wednesday 21 November 2018 between 7.30am-9.30am and 4.30pm-6.30pm.

11.67 The 2018 AM and PM peak hour traffic flows are summarised in Appendix 11.1 at the end of this chapter.

Mitigation Measures Adopted as Part of the Project

11.68 The mitigation measures proposed as part of the proposed development are intended to control, avoid, reduce or off-set potentially significant traffic related environmental effects occurring during the construction and operation phase.

Mitigation by Design

11.69 There are two points of access to the proposed development:

- Primary access via Admiralty Way and Meyrick Owen Way (Gate 4); and,
- Secondary access via Gate One off Front Street (Gate 1).

11.70 The primary access via Admiralty Way will be used for staff and those to access the commercial ferry. The secondary access will be used for deliveries into the port.

11.71 As part of the development a modified widened highway access point will be required to the Gate 4 area from Whites Farm Way.

11.72 Also, as part of the proposed development, it is intended to provide:

- A total car parking area of 7,893 m^2 will be provided, together with a 5,000 m^2 area for external light assembly area. This will accommodate the anticipated demand generated by the proposed development, which will avoid the need for staff vehicles to park off-site/on-street within the vicinity of the site;
- Secure covered cycle parking will be provided to encourage the use of sustainable, active travel; and,
- A pedestrian/cycle crossing across Meyrick Owen Way, in the vicinity of the primary vehicle access to the site.

11.73 As shown in the TA presented in Appendix 11.1, this level of on-site parking is considered in appropriate for the proposed development and in accordance with PCC parking policies.

Assessment of Construction Effects

11.74 Throughout the construction phase, traffic will be generated associated with the transportation of construction plant and materials to and from the site. In addition, traffic will be generated by staff working on site, typically in cars and small vans.

11.75 Based on a summary of the Material Assumptions and HGV Calculations an initial assessment has been carried out to determine the likely number of HGVs generated per day throughout the construction phase of the development. This shows that the construction phase of the development is likely to generate a total of 9 HGVs throughout the day. This is presented in Appendix 11.2 and

highlights the assessments for the operational phase of the proposed development is, therefore, a robust assessment. The traffic associated with the construction phase will be lower than the predicted trip generation associated with the operation phase.

11.76 Using the information presented in Chapter 12 'Socio-economics' it is anticipated that the average annual requirement for construction staff is 68-101 person years of employment. Using the 2011 'Travel to Work' census data it is likely that 73% of those employed throughout the construction phase will drive to work. Therefore, the vehicle traffic associated with the construction staff is likely to be a maximum of 73 two-way vehicle trips in the AM peak period and a maximum of 73 two-way vehicle trips in the PM period. This also shows that the assessment for the operational phase of the development is a robust assessment.

11.77 The composition of construction traffic is likely to include a greater proportion of HGVs, which is likely to have a minor effect due to dust and debris on the highway. The increase in the proportion of HGVs within the composition of traffic flow will also increase fear and intimidation for pedestrians and cyclists within the study area.

11.78 In addition to the construction traffic movements that would be generated by on-site activities, there will also be construction traffic associated with the off-site highway works. This will have a minor effect due to dust and debris on the highway, increased proportion of HGVs and increased delay to drivers during the construction of off-site mitigation measures.

Further Mitigation

11.79 In addition to the mitigation by design measures outlined above, a Construction Traffic Management Plan (CTMP) will be prepared and implemented prior to the commencement of any works on site. This will ensure that any adverse effects are minimised and mitigated, and will likely include:

- Details of a construction traffic routeing strategy;
- Delivery and working hours restrictions;
- Wheel washing facilities;
- Dust reducing measures; and,
- Any necessary road closures or diversions.

11.80 Following the implementation of a CTMP, it is anticipated that there is likely to be a residual minor adverse effect.

Assessment of Operational Effects

11.81 As outlined above, a TA has been produced in line with national guidance, that considers the effects of the proposed development on the local highway network. The TA details all aspects of the proposed development related to its transportation characteristics and their effect.

11.82 Six future scenarios of traffic flow on the highway network have been considered including:

- 2020 base;
- 2030 base;
- 2035 base
- 2020 base + Proposed Development;
- 2030 base + Proposed Development; and,
- 2035 base + Proposed Development

11.83 Figure 11.1 shows the two-way traffic flow on a link for both the AM and PM peak periods and the percentage increase in traffic flow associated with the three future scenarios compared to the 2018 base.

11.84 It can be seen from Figure 11.1 above that when the traffic related to the proposed development is added to the base surveyed flows, a number of links/junctions are likely to experience increases in traffic greater than 30%, including:

- Junction 1 - Admiralty Way/Meyrick Owen Way mini-roundabout
  - Admiralty Way (north)
  - Meyrick Owen Way
  - Whites Farm Way
- Junction 4 - Meyrick Owen Way/Market Street junction
  - Meyrick Owen Way (west)
  - Meyrick Owen Way (east)

11.85 The IEMA guidelines recommends that the following potential environmental effects be considered whenever a new development is likely to give rise to changes in traffic flows and their significance be identified:

- Severance;
- Driver delay;
- Pedestrian amenity and delay;
- Fear and intimidation; and,
- Accidents and safety.

Severance

11.86 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. Receptors are likely to experience changes in severance when traffic flows change by 30% or more (minor) with a 60% increase considered moderate and 90% major.

11.87 As outlined above, even though some of the junctions mentioned above experience a minor increase in traffic flow, this is due to the fact that the existing traffic flows are relatively low. It is, therefore, considered that the overall effect of severance along the Admiralty Way, Whites Farm Way and Meyrick Owen Way is considered negligible.

Driver Delay

11.88 The TA considers the potential impact of the proposed development on junctions in the surrounding highway network. It tests a number of scenarios including the 'do-nothing' scenarios in 2018, 2020, 2030 and 2035, together with the following 'with development' scenarios:

- 2020 + Proposed Development;
- 2030 + Proposed Development; and,
- 2035 + Proposed Development.

11.89 Figure 11.2 summarises the results of the junction capacity analysis for all the junctions within the study area, for each future year scenario. Junctions and scenarios operating below 85% ratio of flow to capacity are shown in green, between 85-95% in orange and above 95% in red.

11.90 By comparing the 'do-nothing' and 'with-development' scenarios, it can be seen that the proposed development would result in a minor adverse effect on driver delay at each of the junctions within the study area, as identified above.

11.91 However, based on the results of the junction capacity analysis, it is considered that across the study area, the resultant driver delays are minor to moderately adverse.

Pedestrian Amenity and Delay

11.92 Pedestrian amenity is described as the pleasantness of a journey. Pedestrian delay occurs when increased traffic affects the ability of people to cross the road. The IEMA guidelines note that pedestrian amenity is affected when traffic flow is halved or doubled.

11.93 When traffic related to the proposed development is added to the base 2020, 2030 and 2035 scenario, there are no situations where this occurs. The link with the highest increase in traffic flow is the Admiralty Way (north) and White Farm Way junction, both with an increase in peak hour traffic of 73%. The next largest increase in peak hour trips occurs along the Meyrick Owen Way with a 63% increase. The increase in traffic flow is relatively high, however, due to low levels of existing traffic. As such the increase in traffic flows will still result in relatively low vehicle movements throughout the peak periods and will only result in a minor adverse effect on pedestrian amenity and delay.

11.94 It should also be noted that it is proposed to implement a formal pedestrian and cycle crossing across Meyrick Owen Way, in the vicinity of the primary vehicle access to the site, and therefore, overall, it is considered that the effect on pedestrian amenity and delay is negligible.

Fear and Intimidation

11.95 The scale of fear and intimidation is related to the volume of traffic, the composition of that traffic, speed and the proximity and protection provided to pedestrians. Whilst the volume of traffic is likely to increase on the roads within the study area it is unlikely the proportion of HGV traffic or vehicle speed will increase significantly. Site observation suggests that most of these links have very low levels of pedestrian activity, therefore, increasing the traffic volume is unlikely to have a significant effect on fear and intimidation.

11.96 It is, therefore, concluded that the effect on fear and intimidation is negligible.

Further Mitigation

11.97 Additional mitigation measures are recommended for the surrounding network as set out below.

11.98 It is proposed to produce a Travel Plan in order to encourage staff to use more sustainable modes of travel and reduce their reliance on the private car. This will be achieved through the implementation of a number of measures, including:

- A dedicated car-sharing scheme, with priority parking for high occupancy vehicles, and guaranteed lift home (in the event of emergency);
- Provision of showers, lockers and drying facilities;
- Company intranet site, displaying relevant travel information, public transport routes/timetables, cycle routes and infrastructure, location of cycle parking spaces on-site as well as the location of the showers, lockers and drying rooms.

Assessment of Cumulative Effects

11.99 The above analysis takes account of committed development within the area, as the background traffic is factored using locally adjusted NTM growth factors that are based on the most recent planning data from the LDP.

11.100 In agreement with PCC, no further known or committed developments have been identified, that need to be included in any cumulative or in-combination assessments.

Summary

11.101 A summary of the likely environmental effects relating to transportation is provided in Table 11.9 below.

Table 11.9 Summary of Likely Environmental Effects on Transportation

Receptor	Sensitivity of receptor	Description of impact	Short / medium / long term	Magnitude of impact	Significance of effect	Significant / Not significant	Notes
Construction phase							
Residential and commercial properties							
- Commercial Row - Western Way - Pembroke Street	High High High	Noise, dust and vibration	Short-term	Medium	Moderate adverse	Not significant	
Pedestrians	High	Severance Fear and intimidation Delay	Short-term Short-term Short-term	Medium Medium Medium	Moderate adverse	Not significant	
Operational phase							
Residential and commercial properties							
- Commercial Row - Western Way - Pembroke Street	High High High	Noise, dust and vibration	Long-term	Low	Minor adverse	Not significant	
Pedestrians	High	Severance Fear and intimidation Delay	Long-term Long-term Long-term	Low Low Low	Minor adverse	Not significant	