

13 ACCESS AND TRANSPORT

13.1 Introduction

- 13.1.1 This Chapter reports assesses the likely significant effects of the proposed development in terms of Access & Transport in the context of the site and surrounding area. It considers the likely significant effects of traffic levels on severance; driver stress and delay; pedestrian, cyclist and equestrian amenity and delay; fear and intimidation; and highway safety.
- 13.1.2 This chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment and reference should be made to the other chapters of this Environmental Statement (ES) (i.e., Chapters 1 – 5), in particular Chapter 17 ‘Cumulative Effects’ and the ‘Summary of Residual Effects’ (Chapter 18). Reference should also be made to the Transport Statement (TS), a Travel Plan (TP) and a Framework Construction Environmental Management Plan (CEMP) provided.
- 13.1.3 The main elements of an outline Construction Traffic Management Plan (CTMP) are set out later in this chapter and are included within the CEMP. A detailed CTMP, in line with the principles of the outline CTMP will be agreed with the Sunderland City Council (SCC) prior to commencement of construction.

Consultation & Scope of the Assessment

- 13.1.4 During the preparation of this chapter, scoping discussions were held with SCC (as Local Highway Authority) and National Highways (NH). The principles to the approach of this chapter were broadly agreed.

About the Author

- 13.1.5 This chapter has been prepared by Shaun Edwards B.Eng (Hons), MCIHT, Associate Director at SYSTRA Limited. Shaun has 29 years’ experience in civil engineering, the majority of which has been in highways and transportation, assessing the transport related impacts of developments. Shaun has prepared numerous transport ES chapters for a range of developments over the past 15 years.

13.2 Methodology

Policy and guidance

- 13.2.1 This section sets out national and local planning policy and guidance of relevance to the technical assessment within this chapter.

National Planning Policy Framework (NPPF)

- 13.2.2 The NPPF was last updated in December 2023 and sets out the Government’s planning policies for England and how these are expected to be applied. It provides a framework for local planning authorities and decision makers, both in drawing up plans and as a material consideration in determining planning applications.
- 13.2.3 The document identifies that the purpose of the planning system is to contribute towards sustainable development, which is defined in terms of economic, environmental and social sustainability.
- 13.2.4 Transport specific policies play a key role in supporting and achieving the core planning principles and are intrinsically linked to the objective of sustainable development. Paragraph 110 of the NPPF specifically states that planning policies should support an appropriate mix of uses across an area, and to be prepared with the active involvement of local highway authorities and other transport providers so sustainable transport implementation is aligned.

PPG – Travel Plans, Transport Assessments and Statements, Ministry of Housing, Communities and Local Government

- 13.2.5 The PPG web-based resource was published in 2014 by the Department for Communities and Local Government (DCLG).

Guidance on establishing the need for a Transport Assessment states that: *“The need for, scale, scope and level of detail required of a Transport Assessment or Statement should be established as early in the development management process as possible as this may therefore positively influence the overall nature or the detailed design of the development.”*

- 13.2.6 The PPG states that Transport Assessments are thorough assessments of the transport implications of development and therefore provides guidance on key issues which should be considered prior to the preparation of a Transport Assessment, including:
- The planning context of the development proposal.
 - Appropriate study parameters (i.e. area, scope and duration of study).
 - Assessment of public transport capacity, walking/cycling capacity and road network capacity.
 - Road trip generation and trip distribution methodologies and/or assumptions about the development proposal.

- Measures to promote sustainable travel.
- Safety implications of the development.
- Mitigation measures (where applicable) - including scope and implementation strategy.

Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement, 2023

13.2.7 The Institute of Environmental Assessments published a document ‘Guidelines for the Environmental Assessment of Traffic and Movement’ in 2023 and the advice relating to the detailed Environmental Impact Assessment of development proposals.

13.2.8 The IEMA Guidelines suggests the following factors are significant when considering base level traffic for an individual development, these are:

- Severity
- Delay
- Pedestrian delay
- Pedestrian amenity
- Accidents and safety; and
- Hazardous loads.

Paragraph 2.20 states that: *“it is recommended that, as a starting point, a 30% change in traffic flow represents a reasonable threshold for including a highway link within an environmental assessment”*

Paragraph 3.12 of the Guidelines advises: *“for many effects, there are no simple rules or formulae that define appropriate assessment thresholds and therefore there is a need for interpretation and judgement on the part of the competent traffic and movement expert, backed up by data or quantified information wherever possible.”*

The Strategic Road Network and the Delivery of Sustainable Development, DfT Circular 01/2022

13.2.9 The Strategic Road Network and the Delivery of Sustainable Development published by the Department for Transport is a document that sets out how Highways England (now ‘National Highways’) will interact with stakeholders and interested parties to maintain a fully functional Strategic Road Network (SRN), in regard to economic and sustainable growth.

13.2.10 The document provides ample guidance on how the SRN should be assessed when accompanying planning applications which may affect the SRN.

13.2.11 The document also details that development proposals are likely to be accepted if the volume of traffic it is to generate are within the available capacity of the network, or if they do not increase the demand for a specific link or junction.

The Strategic Road Network: Planning for the future (A guide to working with Highways England on planning matters), 2015

13.2.12 The document expands further and updates the Government's latest planning policies and outlines the willingness of National Highways to support economic growth. Indeed, the document details the eagerness of National Highways to support economic and sustainable growth, providing foundations for businesses to grow, and to develop further growth around prospective development, whilst enhancing trade relationships with developers.

13.2.13 Additional assessments are required when circular tests are not satisfied. These assessments will usually demonstrate how the proposals will reduce the need to travel by car; improve accessibility by sustainable modes of transport, influence travel behaviours and influence appropriate mitigation measures to ensure sustainable transport is promoted efficiently.

Transport White Paper 'Creating Growth, Cutting Carbon - Making Sustainable Local Transport Happen'

13.2.14 The Government's vision for a sustainable local transport system is set out in this White Paper, which acknowledges that transport provision is essential for economic growth. The Paper also recognises, however, that the current levels of carbon emissions from transport cannot be sustained if the nation is to meet its national commitments on climate change, as well as creating a safer and cleaner environment in which to live. The Government highlights sustainable transport solutions as a means by which the economy can grow, which will also see a positive impact on the local environment.

13.2.15 Whilst the Paper outlines the funding options which will be available for sustainable transport schemes, it also recognises that investment alone will not be enough and that help needs to be given to people to ensure that the transport choices they make are good for society. The Paper recognises that it is at the local level where most can be done to encourage sustainable transport modes and implement sustainable

transport schemes. Solutions should be developed for the places they serve, tailored for the specific needs and behaviour patterns of individual communities.

13.2.16 Within the Paper, sustainable transport considers more than just public transport, walking and cycling schemes, and acknowledges that it is not feasible for some trips to be undertaken by these modes. There is therefore a realisation that the car will continue to be an important mode of transport and a focus should be given to making car travel greener through electric and other low emission vehicles.

Strategic Transport Plan, Transport for the North (TfN)

13.2.17 The Strategic Transport Plan (February 2019) is a plan that aims to transcend major connectivity improvements through-out the North of England. The plan poses to create and encourage trade and facilitate investment by improving the connectivity between the region's ports, airports and roads to create faster links between the economic assets that they serve, and in doing so make the North a more attractive place for business.

13.2.18 There are four pan-Northern transport objectives which detail the development of the Strategic Transport Plan and TfN's work programmes:

- 1 Transforming economic performance,
- 2 Increasing efficiency, integration and resilience in transport systems
- 3 Enhancing inclusivity and access
- 4 Promoting and sustaining our natural, historic and built environments

13.2.19 The overall wider aims of the objectives are to connect people, connect businesses and facilitate the free movement of goods efficiently across all modes of transport.

13.2.20 It should be noted that there is also a consultation draft Strategic Transport Plan from May 2023 which seeks to update and evolve the principles set out above.

Local Transport Plan (LTP) for Tyne and Wear (2021-2035)

13.2.21 The Local Transport Plan (LTP) for Tyne and Wear comprises a ten-year strategy (2021-2035) covering all forms of transport in Tyne and Wear. The LTP is underpinned by three-year delivery plans setting out how the strategy will be implemented at a local level.

13.2.22 The Plan has been produced by the Tyne and Wear Integrated Transport Authority on behalf of the six LTP Partners – the five local authorities in Tyne and Wear (Gateshead,

Newcastle, North Tyneside, South Tyneside and Sunderland) plus Nexus, the local Passenger Transport Executive.

13.2.23 The overall vision of the LTP is “Moving to a green, healthy, dynamic and thriving North East”. The objectives of the plan are as follows:

- A Carbon neutral North East
- Overcome inequality and grow our economy
- Create a healthier North East
- Provide appealing sustainable transport choices
- Ensure a safe, secure transport network

13.2.24 The proposed development is uniquely positioned in the region to respond to and support the five objectives set out in the latest version of the LTP

Sunderland Unitary Development Plan (UDP)

13.2.25 The UDP was adopted in September 1998, with a key function to provide a starting point in the consideration of planning applications for the development or use of land. Due to the need to provide a more up-to-date planning framework for the Central Sunderland area, a partial revision of the UDP policies for this area was required. This was taken forward through the statutory planning process as a formal Alteration to the UDP (Alteration No. 2) and was adopted in September 2007.

13.2.26 UDP Alteration No. 2 is not relevant, given that it relates to Central Sunderland, outside the area of consideration of this planning application.

13.2.27 All of the policies of the UDP were saved with the following exceptions: EC10, H3, H5, H9, S5, M4, M7, SA8, SA15, SA41, SA44, SA56, SA59, SA72, SA87, SA91, NA33, NA41, WA4, WA10, WA23. The UDP Proposals Map allocates Nissan, which lies to the south of the Proposed Development, as an area to be retained and improved for economic development (Policy EC2).

Sunderland Core Strategy and Development Plan (2015-2033) (Adopted January 2020)

13.2.28 The Core Strategy and Development Plan sets out the long-term plan for development across the city to 2033. It will ensure that the right type of development is focused in the right places to meet the needs for local people and businesses.

13.2.29 The Core Strategy and Development Plan includes development policies and site allocations, land use designations and development management policies. It states that:

13.2.30 “Sunderland City Council in partnership with South Tyneside Council are seeking to deliver IAMP on land to the north of the existing Nissan plant to build upon the inherent strengths of the area in manufacturing, and particularly the automotive sector. The IAMP will cover an area of 100 hectares, with a further 50 hectares of land safeguarded for future development. It is anticipated that the IAMP will create over 5,000 jobs directly on the site with many more in the wider area.”

13.2.31 Policy CC1: Sustainable travel, states that the council will promote sustainable travel and seek to enhance connectivity for all users by:

- 1 Focusing development close to public transport links and enhancing opportunities for walking and cycling;
- 2 Enhancing the city’s transport network to improve connectivity from homes to employment sites, designated centres, and to other key trip generators;
- 3 Utilising traffic management measures in order to manage congestion and mitigate against the environmental and health impacts of traffic;
- 4 Ensuring that transport initiatives support the development of safer, cleaner and more inclusive centres and neighbourhoods; and
- 5 Working with the North East Combined Authority (NECA), neighbouring councils and other partners to promote cross-boundary transport initiatives.

13.2.32 Policy CC2: Connectivity and transport network, stated that to improve connectivity and enhance the city’s transport network. Of relevance to this study, the Council and its partners will seek to:

- 1 Deliver new highways schemes and initiatives including key junctions on the A19 and providing access to IAMP;
- 2 Improve the existing main transport routes to reduce congestion and encourage walking and cycling, including A1231 Sunderland Highway (west of the A19), Washington Road (east of A19);
- 3 Improve the operating conditions for buses throughout the city, through securing improvements to the major bus corridors; and
- 4 Improve and extend the cycle network within the city.

International Advanced Manufacturing Park Area Action Plan

13.2.33 The IAMP Area Action Plan (AAP) is a policy framework to guide the comprehensive

development of the IAMP Site. The AAP was prepared jointly by Sunderland City Council and South Tyneside Council, in support of the Sunderland City Deal (in partnership with South Tyneside), and was adopted on 30 November 2017. The IAMP AAP is a plan for the next 15 years (covering the period 2017 to 2032). Within the IAMP AAP, the following policies are applicable to Infrastructure, Transport and Access:

- 1 Policy T1: Highway Infrastructure – A public realm strategy is required to accompany the development proposals along with a supported Transport Assessment to assess highway improvements.
- 2 Policy T2: Walking, Cycling and Horse Riding – The development must promote walking and cycling by design and connecting to the surrounding network.
- 3 Policy T3: Public Transport – The development must promote sustainable transport by enhancing the existing provisions and consider new improvements as appropriate.
- 4 Policy T4: Parking – The development must ensure that appropriate provision for car parking is provided in accordance with the Councils’ standards.

Extent of the Study Area

13.2.34 The study area is shown in Figure 13.1, which also includes the link Labels which are referenced within this chapter and summarised in Table 13.1.

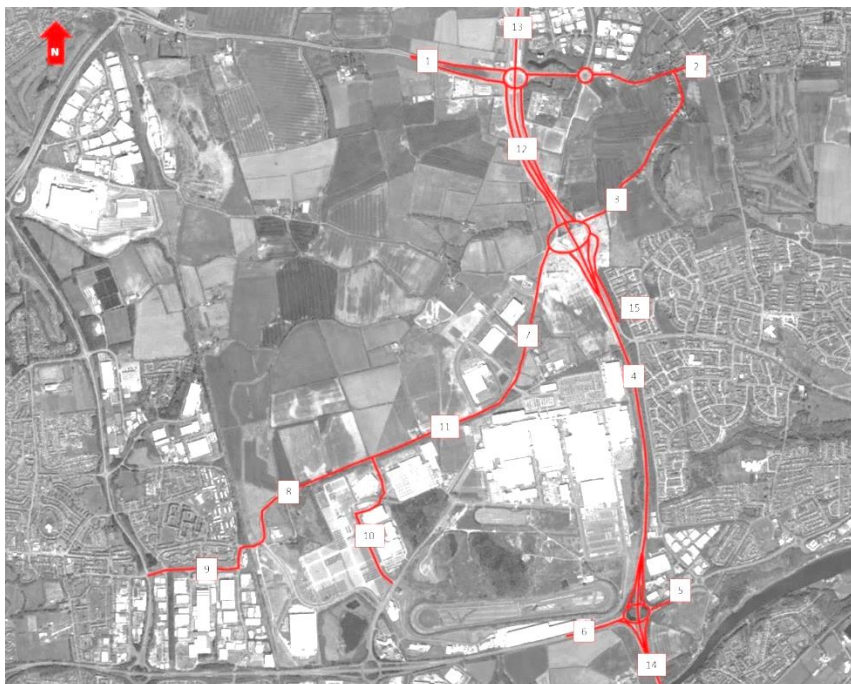


Figure 13.1 – Study Area

Table 13.1: Study Area Link References	
Ref	Description
1	A184 west of Testos
2	A184 east of Testos
3	Downhill Lane east of A19
4	A19 south of DHL
5	A1231 east of A19
6	A1231 east of Nissan Way
7	A1290 north of Nissan
8	A1290 south of Nissan
9	Glover Road
10	Cherry Blossom Way
11	A1290 south of Nissan
12	A19 north of DHL
13	A19 north of Testos
14	A19 south of A1231
15	Washington Road

Assessment Methodology

13.2.35 The methodology adopted in the chapter follows the ‘Guidelines for the Environmental Assessment of Traffic and Movement’ (IEMA Guidelines) published by the Institute of Environmental Management and Assessment (IEMA), which sets out a methodology for assessing the traffic related environmental effects of a Proposed Development due to changes in traffic flows.

13.2.36 IEMA Guidelines set out the criteria against which the environmental impacts of development related traffic are assessed. However, where there are no established criteria IEMA Guidelines states that there is “a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible.” In these cases, professional judgement has been applied to assess whether the effects on access and transport are likely to be significant.

Sensitive Receptors

13.2.37 IEMA recognises that it is useful to identify groups of people or locations that may be sensitive to changes in traffic conditions. IEMA Guidelines details which groups or locations are considered sensitive, defined by the presence of sensitive receptors.

13.2.38 Consistent with other planning applications in the area, the sensitive receptors located near the Proposed Development are considered to be:

- 1 Nissan Sunderland Plant and surrounding employers on Cherry Blossom Way.

- 2 Washington Community Fire Station.
- 3 Elm Tree Farm Garden Nursery and Tea Room.
- 4 Schools and nurseries (including Marlborough Primary School, Castle View Enterprise Academy and Washington School).
- 5 Sites of ecological value (Barmston Pond Local Natural Reserve, Seven Houses Wildlife Site and Hylton Dene Local Nature Reserve).
- 6 Residential areas (Town End Farm, Hylton Castle, Castletown and West Boldon)

13.2.39 IEMA Guidance acknowledges that the perception of changes in traffic by humans, and the impact of traffic changes on the various ecological systems, will vary according several factors, such as existing traffic levels, location, time of day, temporal and seasonal variation, design and layout of the road, land-use and ambient conditions adjacent to the route.

13.2.40 Through a combination of several site visits (undertaken between 2014 – 2023) and desktop studies using online mapping tools and related transport documents and studies considering other planning applications in the area, a sensitivity rating has been applied to each link within the study area. Table 13.2 sets out the parameters used to determine the link sensitivity rating and Table 13.3 sets out the sensitivity rating applied to each link in the study area, along with the respective justification.

Table 13.2: Link Sensitivity Rating Categories	
Link Sensitivity Rating	Typical Characteristics
Low	Very few nearby sensitive receptors. High standard of highway with separation of vulnerable users and can accommodate changes in traffic volume.
Medium	Small number of sensitive receptors and less separation of vulnerable users from traffic
High	High number of sensitive receptors and little separation of vulnerable users from traffic

Table 13.3: Link Sensitivity Rating			
Link	Description	Sensitivity	Justification
1	A184 west of Testos	Medium	Dual carriageway trunk road with limited residential access
2	A184 east of Testos	Medium	High standard road with residential and commercial properties adjacent
3	Downhill Lane east of A19	Low	Rural road with a limited number of residential properties adjacent,
4	A19 south of DHL	Low	Dual carriageway trunk road with limited residential

			access
5	A1231 east of A19	Low	Dual carriageway forming part of the primary road network
6	A1231 east of Nissan Way	Low	Dual carriageway forming part of the primary road network
7	A1290 north of Nissan	Low	High standard road designed and improved to carry high traffic volumes
8	A1290 south of Nissan	Medium	High standard Road designed to carry high traffic volumes. Segregated pedestrian/cycle route along entire length.
9	Glover Road	Medium	Route through predominately commercial area with few pedestrian movements
10	Cherry Blossom Way	Medium	High standard of road accommodating high number of movements involving vehicles, pedestrian and cyclists
11	A1290 south of Nissan	Medium	High standard Road designed to carry high traffic volumes. Segregated pedestrian/cycle route along entire length.
12	A19 north of DHL	Low	Dual carriageway trunk road
13	A19 north of Testos	Low	Dual carriageway trunk road
14	A19 south of A1231	Low	Dual carriageway trunk road
15	Washington Road	Medium	Distributor road with residential properties offset and no direct frontage access screened by tree belt.

Potential Environmental Impacts

13.2.41 IEMA Guidelines form the basis for the assessment of environmental impacts within this ES chapter, which will be:

- Severance;
- Driver stress and delay;
- Pedestrian and cyclist (and equestrian) amenity
- Pedestrian and cyclist (and equestrian) delay;
- Fear and intimidation; and
- Highway safety.

Screening Process

13.2.42 IEMA guidance explains how to determine the scale and extent of the assessment an initial screening for severance, pedestrian and cyclist amenity and delay, fear and intimidation and highway safety should be undertaken, following two rules:

- Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGV traffic is predicted to increase by more than 30%).
- Include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

13.2.43 The screening analysis is set out in 13.10 Potential Effects, followed by the detailed assessment of highways links screened into the assessment.

Severance

IEMA defines severance as: “the perceived division that can occur within a community when it becomes separated by major transport infrastructure. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure”. (Paragraph 3.31)

Severance is defined in the Design Manual for Roads and Bridges (DMRB) (Vol 11 Section 3 part 8) as “...the separation of residents from facilities and services they use within their community caused by new or improved roads or by changes in traffic flows.”

13.2.44 The DMRB provides a set of measures for the identification of community severance, based on the level of two-way traffic flows on a link using Annual Average Daily Traffic (AADT) data. DMRB offers guidance as to the level of pedestrian diversion that may occur because of changes in the two-way traffic flow present on a link. The thresholds for changes in traffic are established as 30% - slight; 30-60% moderate; 60% substantial.

13.2.45 DMRB also defines quantitative traffic volumes resulting in defined categories of severance:

- 1 Slight: In general, the current journey pattern is likely to be maintained, but there will probably be some hindrance to movement - Typical on roads with at grade crossings carrying less than 8,000 vehicles AADT;
- 2 Moderate: Some residents, particularly children and elderly people, are likely to be dissuaded from making trips - Typical on roads with at grade crossings carrying between 8,000 – 16,000 vehicles AADT; and

- 3 Severe: People are likely to be deterred from making trips to an extent sufficient to induce a re-organisation of their habits - Typical on roads with at grade crossings carrying over 16,000 vehicle AADT.

Driver stress and delay

- 13.2.46 Driver stress, as outlined in the DMRB (Vol 11, Sec 3 Part 9), comprises three principal elements: frustration; fear of potential collisions; and uncertainty relating to the route being followed. The weight of these factors varies depending on the driver, leading to a subjective assessment. For example, drivers commuting will frequently experience a higher stress threshold due to experience and knowledge of a route compared to those who may only drive occasionally for leisure or personal purposes. There is no information as to composition of each driver type, and so this requires consideration when judging the effects of a Proposed Development.
- 13.2.47 The IEMA screening thresholds do not apply to this effect, as the potential impact is defined as significant when the network surrounding the development is at, or close to, capacity.
- 13.2.48 Driver stress incorporates qualitative elements, such as driver perceptions. It also incorporates quantitative assessments related to vehicle speeds and the ability for drivers to overtake slower vehicles, which in turn influences driver delay. Delays usually occur at junctions, especially when they are operating close to, or at, capacity.

Pedestrian and Cyclist (and Equestrian) Amenity and Delay

- 13.2.49 Amenity is defined as the relative pleasantness of a journey. It is therefore concerned with changes in the degree and duration of peoples' exposure to traffic – fear/safety, noise, dirt and air quality – and the impact of the road itself – primarily any visual intrusion associated with the scheme and its structures. IEMA outlines that a significant change in pedestrian amenity would be if traffic flow (or Heavy Goods Vehicle “HGV”) proportion is halved or doubled.
- 13.2.50 Regarding delay, several factors may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. No thresholds are set in the IEMA guidelines and it is suggested that assessors use professional judgement. IEMA does not set any thresholds for delay suggesting that professional judgement is applied.

Fear and Intimidation

- 13.2.51 Pedestrians can experience fear and intimidation related to traffic. Fear and

intimidation criteria are considered within IEMA to be dependent on the volume of traffic, its HGV component and its proximity to people, or the lack of protection caused by other factors, such as narrow footway widths.

13.2.52 The latest IEMA guidelines set out an assessment methodology to help assessors provide a first approximation of the likelihood of pedestrian fear and intimidation.

Average traffic flow over 18-hour day – all vehicles/hour 2-way (a)	Total 18-hour heavy vehicle flow (b)	Average vehicle speed (c)	Degree of hazard score
+1,800	+3,000	->40	30
1,200 – 1,800	2,000 – 3,000	30-40	20
600 – 1,200	1,000 – 2,000	20-30	10
<600	<1000	<20	0

13.2.53 The total score from all three elements is combined to provide a ‘level’ of fear and intimidation for all three elements. (Table 13.4 provides an example.)

Level of fear and intimidation	Total hazard score (a) + (b) + (c)
Extreme	71+
Great	41-70
Moderate	21-40
Small	0-20

13.2.54 The magnitude of impact is approximated with reference to the changes in the level of fear and intimidation from baseline conditions (Table 13.5).

Magnitude of Impact	Change in step/traffic flows (AADT) from baseline conditions
High	Two step changes in level
Medium	One step change in level, but with <ul style="list-style-type: none"> >400 veh increase in average 18hr AV two-way all vehicle flow; and/or >500 HV increase in total 18hr HV flow
Low	One step change in level, with <ul style="list-style-type: none"> <400 veh increase in average 18hr AV two-way all vehicle flow; and/or <500 HV increase in total 18hr HV flow
Negligible	No change in step changes

Highway Safety

13.2.55 Where a Proposed Development is expected to produce a change in the character of traffic, then data on existing collision levels may not be sufficient. Professional judgement is also required to assess the implications of a Proposed Development on highway safety. This assessment should include local considerations or factors, which

may impact the risk of collisions.

13.2.56 IEMA guidance outlines that a review of existing collisions in the study area should be undertaken. The purpose being, to establish if a pattern of collision types exists, by reviewing collision clusters. Cluster sites are sensitive receptors as they could potentially be impacted by changes in traffic flows.

Significance criteria

13.2.57 IEMA and DMRB establish thresholds for magnitude of impact in relation to severance, pedestrian/cycle amenity and fear and intimidation as set out in Table 13.6.

Environmental Impact	Magnitude			
	Very Low	Low	Medium	High
Severance	Change in traffic <30%	Change in traffic 30%-60%	Change in traffic 60%-90%	Change in traffic >90%
Pedestrian/Cycle / Equestrian Amenity	Changes in traffic (or HGV flows) <100%	Changes in traffic (or HGV flows) >100% Individual link to be assessed by review of vehicle volume, speeds and pedestrian/cycle demands		
Fear & intimidation	Average traffic flows over 18 hours less than 600 vehicles per hour or 1,000 HGV over 18 hrs.	Average traffic flows over 18 hrs between 600-1,200 veh/hr or 1,000–2,000 HGV over 18 hrs	Average traffic flows over 18hrs > 1,200 veh/hr or > 2,000 HGV over 18hrs.	

13.2.58 Impacts on driver stress and delay will be measured using modelled journey times, as well as changes to queue lengths at individual junctions and the magnitude of effect informed by professional judgement following a detailed review.

13.2.59 Impacts on pedestrian/cyclist/equestrian delay will be estimated using professional judgement and experience following a review of crossing facilities and demand, and the forecast levels of traffic.

13.2.60 The significance of transport related environmental impacts is derived through a combination of the magnitude of the impact and the sensitivity of nearby receptors subject to the impact. Thus, a matrix can be established combining these two measures and quantifying the significance of the impact, this matrix is set out in Table 13.7.

		Magnitude of Effect			
		High	Medium	Low	Very Low
Receptor Sensitivity	High	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Negligible	Negligible

13.2.61 The impact significance identified in Table 13.7 can be either Adverse or Beneficial. Table 13.8 sets out generic definitions for the impact significance categories.

Table 13.8: Impact Significance Category Descriptions	
Category	Description
Major Adverse	Very large or large change in receptor condition, which is likely to be important at a regional or district level because it contributes to achieving national, regional or local objectives, or could result in breaches of legislation.
Moderate Adverse	Intermediate change in receptor condition, which are likely to be important considerations at a local level.
Minor Adverse	Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision-making process.
Negligible	No discernible change in receptor condition.
Minor Beneficial	The impact is of minor significance, but has been assessed as having some environmental benefit
Moderate Beneficial	The impact is assessed as providing a moderate gain to the environment
Major Beneficial	The impact is assessed as providing a significant positive gain to the environment with a large or very large change in receptor condition which is likely to be important at a regional or district level because it contributes to achieving national, regional or local objectives, or could result in an exceedance of statutory objectives.

13.2.62 Major and Moderate impacts will be considered significant and assessed in greater detail within this ES chapter. Minor impacts will be reviewed to ascertain whether there are any likely cumulative combinations of minor impacts which may warrant further assessment. Negligible impacts will not be considered beyond the screening stage.

13.3 Baseline conditions

Existing Conditions

13.3.1 This section provides a general overview of the site and existing transport conditions, including sustainable access connections and the operations of the local highway and strategic road network. It also gives a commentary of traffic operations and road safety.

Highway Network Study Area

13.3.2 The highway network that forms the study area for this chapter (and the accompanying Transport Assessment) are shown in Figure 13.1 along with the respective link referencing numbers used in this ES.

Local Road Network

13.3.3 The following provides an overview of the local road network in the immediate vicinity of the Proposed Development.

- **A184:** The A184 is a major arterial commuter route into South Tyneside and Gateshead and runs in an east-west direction to the north of the site.
- **Washington Road:** To the east of the A19, Washington Road is a single carriageway road as it approaches the Downhill Lane junction. To the west of the A19, Washington Road is a no-through road from its junction with the A1290, becoming a shared footway/cycleway at its eastern end before meeting the footbridge over the A19. The North East Land, Sea and Air Museum is located on Washington Road and also the Three Horse Shoes Public House. This route also provides a Non-Motorised User (NMU) route to Nissan and Gateshead College.
- **A1231:** The A1231 is a dual carriageway which runs parallel to the River Wear, passing the Sunrise Enterprise Park, the Sunderland Enterprise Park and Hylton Riverside Retail Park. Wessington Way ends at the junction with the Queen Alexandra Bridge. In recent years, the A1231 has also recently been the subject of widening works to the eastbound approach to the A19
- **Nissan Way:** Nissan Way is the main access to Nissan from the A1231 and is a dual carriageway road with two lanes in each direction, and a footway on its eastern side.
- **A195:** The A195 runs in a north-south direction to the west of the site and meets the A194 (M) to the north.
- **A1290:** The A1290 runs in an east-west direction and provides access to several commercial areas and Infiniti Drive that serves the Hillthorn Business Park. At its western end, a shared use footway is available on both sides of the carriageway, although on the northern side this reduces to a narrow footway towards its eastern end. A T-junction provides access to the Nissan entrance from the A1290. The junction is signalised for all main road movements and for right turn movements into and of the side road. The left turn out from Nissan is signalised on demand by the controlled pedestrian crossing. Vehicles turning into the Nissan plant from the off-side lane of the A1290 east are required to give way, as are vehicles travelling west from the Nissan plant. The Nissan plant access has two lanes for journeys into the Nissan plant and three lanes for vehicles leaving. In this area, a shared use footway is available on the

northern side of the road and a narrow footway on the south. As the A1290 continues north towards the A19, the road is single carriageway and is subject to a 40mph speed limit. There is a short length of footway on the northern side of the road between the Nissan access and the bus stop to the east, but no footway between the Nissan access and Usworth Cottages. A shared use footway is however available between Usworth Cottages and the A19 Downhill Lane junction. Along this link is the junction that provides the northern point of access to the wider IAMP site.

- **Glover Road:** Glover Road runs in an east-west direction and includes four conventional roundabouts and two priority junctions. It is a single carriageway road which sometimes flares to two lanes on the approach to roundabouts. Most of the road is subject to a 30mph speed limit, except a short section near Vermont roundabout when a derestricted speed limit applies. A shared use footway is available to the northern edge. The footway is set back considerably from the road and has signposts that indicate use by both pedestrians and cyclists. Street lighting is present along Glover Road.
- **Spire Road:** Spire Road links to the A1231 Sunderland Highway in the south to Glover Road in the north. It is a single carriageway road subject to 30mph speed limit. Access to commercial units along Spire Road is via priority junctions.
- **Cherry Blossom Way:** Cherry Blossom Way connects Nissan Way to commercial units and car parking adjacent to Nissan. It is a single carriageway road subject to 40mph speed limits. Parking is prohibited with trief kerbs and double yellow lines used to enforce this prohibition. Access to units or car parks along Cherry Blossom Way is via priority junctions. A conventional roundabout is also situated on Cherry Blossom Way. Footways and street lighting are present on both sides of the road. One footway has signage that indicates shared use for cyclists and pedestrians.
- **International Drive:** Two new junctions on the A1290 have been established and a new spine road, called 'International Drive' connects the two new junctions. One junction is located approximately 400m south of the A19 / A1290 Downhill Lane junction and the other junction is provided approximately 300m west of the Nissan access junction and approximately 760m east of Cherry Blossom Way. A 3-metre wide shared use footway is provided along both sides of the junctions which tie into provisions on the

A1290. Dropped kerbs, tactile paving and pedestrian refuge are provided to access from the A1290. These are located immediately south of the northern junction and immediately west of the southern junction. This road also provides access to the AESC Plant 2 site and the proposed development.

Strategic Road Network

13.3.4 The following provides an overview of the A19 and A184, both of which are de-restricted all-purpose dual carriageway routes forming part of the strategic road network, operated and maintained by National Highways.

- **A19 Testo's Junction:** The Testo's junction is located where the A184 and the A19(T) meet, approximately 3 miles south of the New Tyne Crossing. Improvements to this junction have seen the A19 carriageway raised to an elevation of 7.5m above ground level, passing over an enlarged roundabout linked by slip roads. Traffic on the A19 now flows freely above the roundabout, while traffic using the A184 still travel around the roundabout.
- **A19 Downhill Lane Junction:** The A19(T) Downhill Lane junction is grade-separated and provides access to Nissan and IAMP ONE. To the east of this junction there is access to the residential areas of Town End Farm, Downhill and Hylton Castle Estate. Recent improvement works to this junction have provided a second bridge to the south and established a full circulatory system. The north-facing slip roads tie in, to the link roads that form part of the A19/A184 Testo's Junction. Washington Road to the east of the A19 and the A1290 to the west of the A19 have been realigned to tie-in to the Downhill Lane junction circulatory system. At a later stage, the western side of the junction will tie-in with the A1290 as a dual carriageway. Downhill Lane to the east of the A19 has been realigned to the south to tie in to Washington Road at a location further away from the circulatory system.
- **A19 Wessington Way Junction:** The A1231 Sunderland Highway meets the A19 at North Hylton / Castletown to form a grade-separated junction. The junction is signalised on all approaches and has a three-lane circulatory carriageway. The northbound off-slip has a free-flow left turn lane onto the A1231.
- **A184:** The A184 is a major east-west route. East from the White Mare Pool junction the A184 is rural dual carriageway which ends at the Testo's junction, where it meets the A19. The A184 loses its trunk road status at Testo's and

becomes single carriageway as it continues eastward and becomes more urban in nature as it runs through West Boldon and East Boldon and then meets the B1299.

Options for Walking and Cycling

- 13.3.5 There is generally a good network of footways in the vicinity and connections to the IAMP infrastructure, which offer a choice of suitable routes to nearby bus stops. External pedestrian routes in the vicinity are well lit and generally in good condition. Figure 13.2 and Figure 13.3 show the level of accessibility to the site by walking and cycling respectively.
- 13.3.6 Cycling has the potential to cater for many trips and is considered a viable mode of travel for journeys less than five kilometres. The potential for cycling trips is significant, as a 30-minute journey from the Proposed Development covers northwest Sunderland, Washington, Wardley, Hedworth and Boldon.
- 13.3.7 Near the Nissan access junction on the A1290, there is a controlled pedestrian crossing facility, which includes a central refuge island, dropped kerbs and tactile paving. There is also a pedestrian guardrail on the A1290 near the bus stops.
- 13.3.8 Pedestrians can travel along Washington Road to access a footbridge over the A19. This route links to the residential area of Town End Farm. To the west of the footbridge is a direct pedestrian access to Nissan for staff.
- 13.3.9 New pedestrian links and footways are provided within the wider IAMP development. These include the creation of a NMU route along the section of Follingsby Lane within the IAMP ONE site, which has been introduced by virtue of a prohibition of motor vehicles along this route, allowing walkers, cyclists and horse riders to pass through without conflict with motor vehicles.

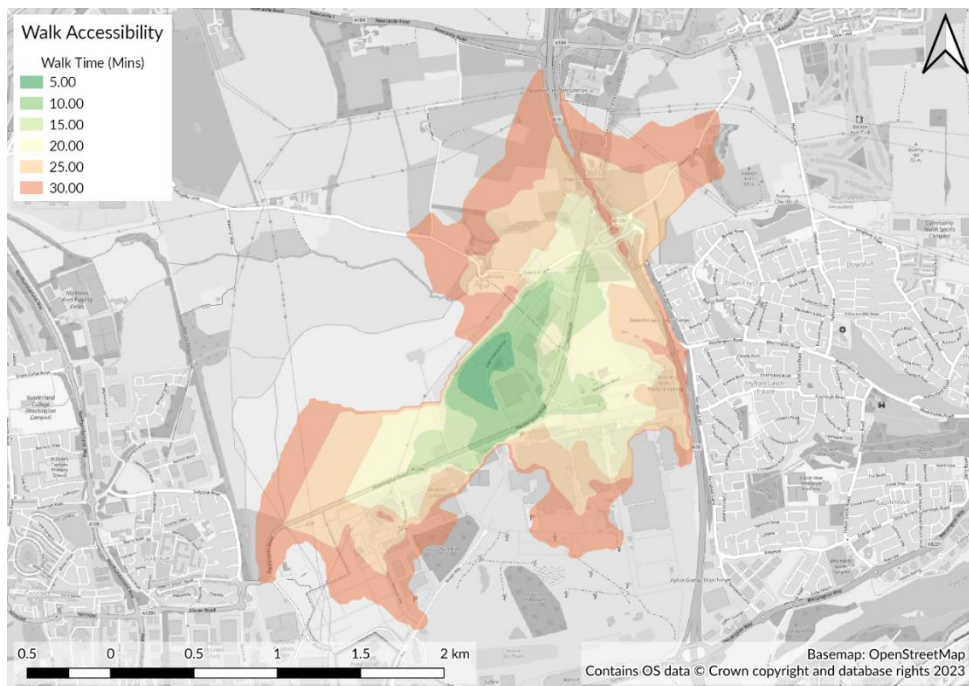


Figure 13.2 – Walking Accessibility

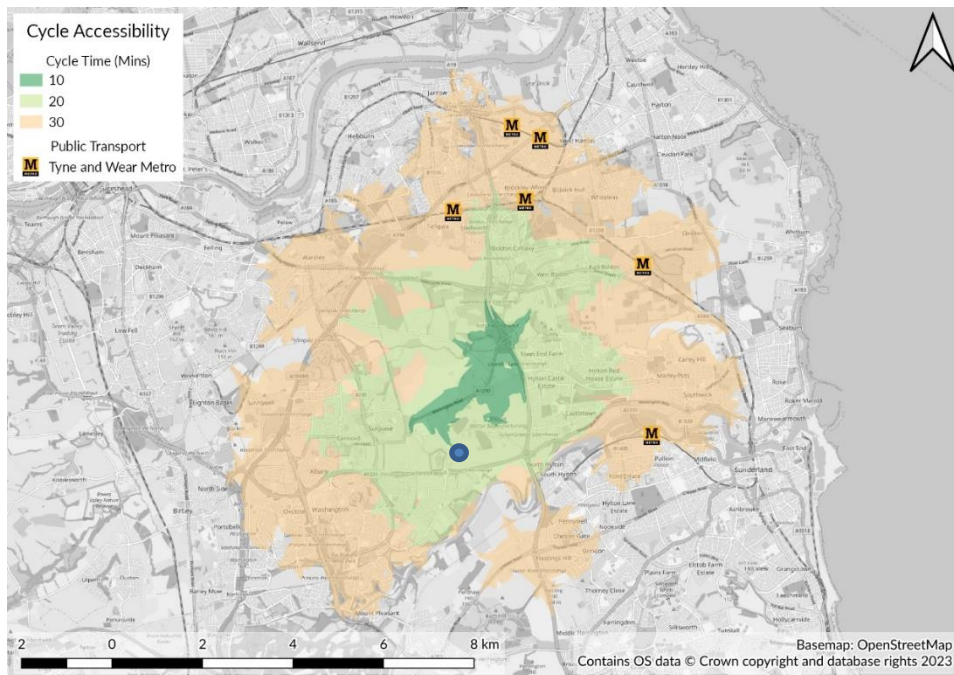


Figure 13.3 – Cycling Accessibility

Options for Equestrians

13.3.10 Formal equestrian routes in the vicinity of the Proposed Development are limited although horse riders are permitted along the NMU route along Follingsby Lane, which has horse corrals at the road cross-over on International Drive. A Pegasus crossing is also available on the A1290 to provide a safe connection for onward journeys.

13.3.11 Most bridleways, byways and restricted byways in the Tyne and Wear area are linear, limiting the opportunity for horse riding as a leisure pursuit. However, it should be noted that looking at rights of way in isolation understates the equestrian access resource. It may be possible to link up public rights of way using minor roads and other access resources.

Bus Services

13.3.12 The bus is generally considered a viable mode of travel over short and medium distances although some routes and services with limited stops and make longer distances viable. Indeed, bus travel plays an important part of the access equation for the Proposed Development. Figure 13.4 provides a visual representation of accessibility to the site by public transport.

13.3.13 In relation to the Proposed Development, the nearest bus stops are on the eastern side of the International Drive junction on the A1290; bus stops on either side of the A1290 at the Usworth Cottages junction; and bus stops on either side of the A1290 near the Nissan access.

13.3.14 The north bound bus stop near the Nissan access has a shelter with lighting, seating and timetable information. The southbound bus stop has flag/pole and timetable information.

13.3.15 Bus services 50 and '56 Fab Fifty-Six' are located on the A1290, offering a 30-minute and 15-minute frequency respectively Monday to Saturday. On Sunday, the frequency of service is 60 minutes and 20 minutes respectively.

13.3.16 The potential for public transport trips is significant as a 30-minute travel journey from the A1290 bus stops covers north Sunderland, Washington, parts of Pelaw, parts of Hebburn, South Shields, Southwick and Castletown.

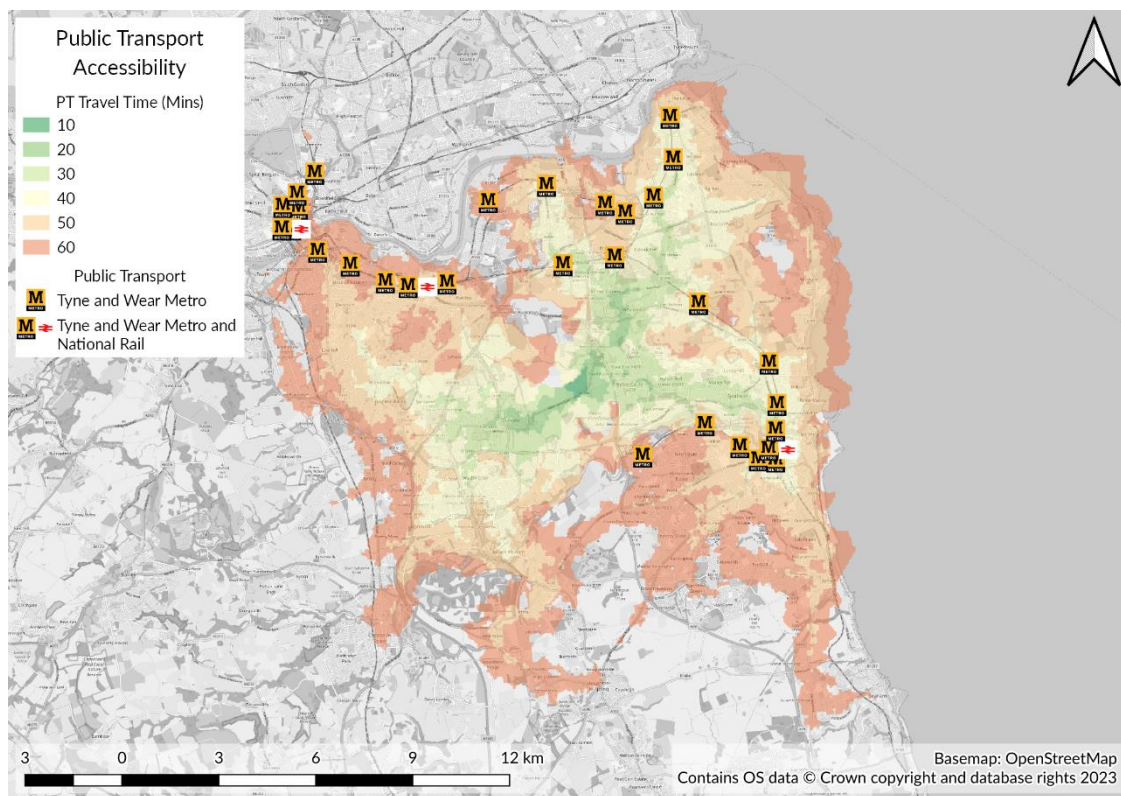


Figure 13.4 – Public Transport Accessibility

Highway Safety

- 13.3.17 Personal Injury Collision (PIC) data has been sourced from the Department for Transport's most recent road safety dataset for the study area. The data includes all PIC for the five-year period from 2018 to 2022 inclusive. The statistics relate only to PICs on public roads that were reported to the police, and subsequently recorded, using the STATS19 accident reporting form. The area of the road network for which collision data has been reviewed broadly replicates the study area shown in Figure 13.1 and is presented in Figure 13.5 which shows a high-level summary of the distribution of collision locations. A full record of the obtained PIC data is included in the Transport Assessment.
- 13.3.18 A review of the collision records has been undertaken to identify patterns or clusters of collisions which could be exasperated by the increases in traffic generated by the Proposed Development. Any pattern or cluster of collisions are discussed within this section.
- 13.3.19 It should be noted that the A19 Testo's junction and A19 Downhill Lane junction have been omitted from this study. Major improvement scheme have recently been completed at these junctions by National Highways and these improvements change the operation of the junctions, with expected improvements to road safety.

Therefore, examining the historical PIC data at these junctions is not informative.

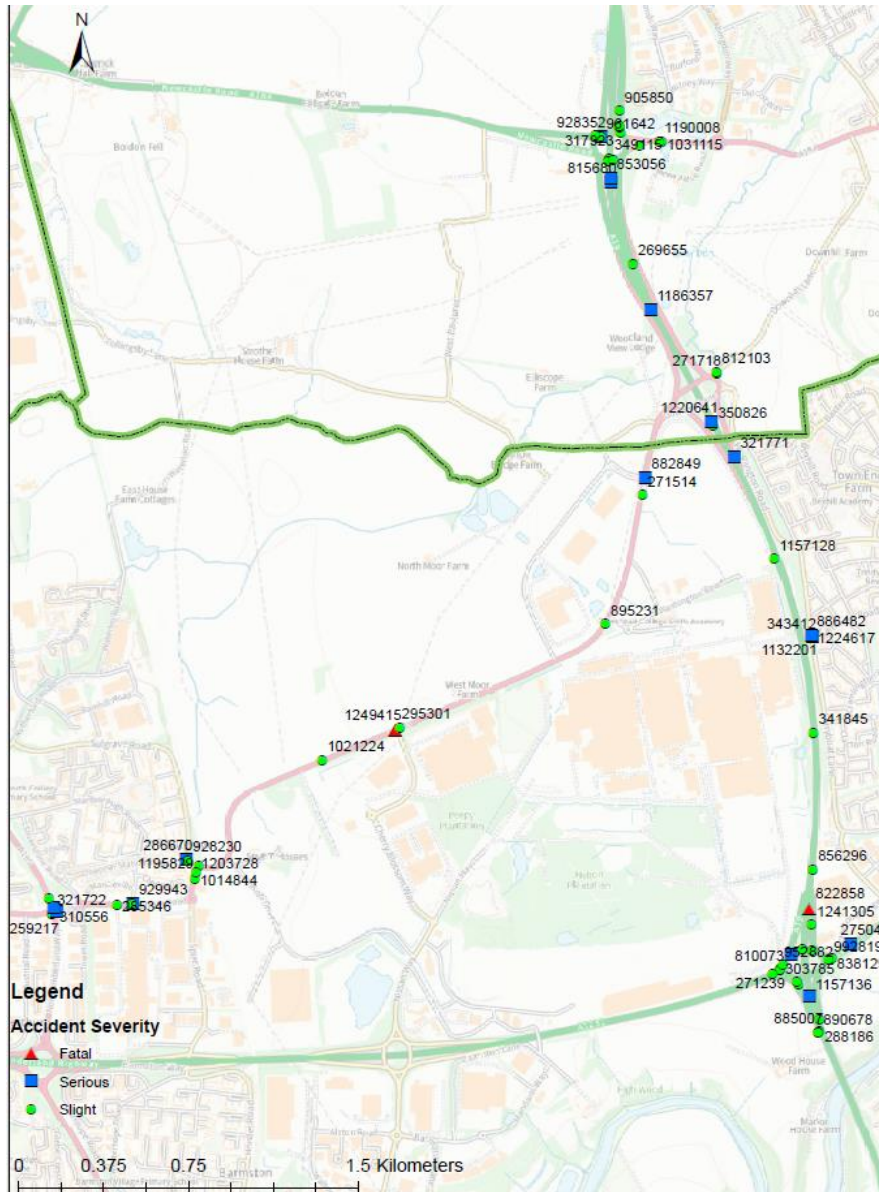


Figure 13.5 – PIC Location Plot

Summary of Recorded Collisions

13.3.20 Table 13.9 presents a summary of the total recorded PIC data within the study area, broken down by year and severity, along with the summary of whether the collisions occurred at a junction or link.

Overview		Severity			Location	
Year	Total	Slight	Serious	Fatal	Junction	Link
2018	16	13	2	1	5	11
2019	11	9	1	1	6	5
2020	3	2	1	0	2	1

2021	7	4	3	0	6	1
2022	13	11	2	0	6	7
Total	50	39	9	2	25	25

13.3.21 Table 13.9 shows that during the five-year study period, a total of 50 collisions were reported, of which 39 were slight in severity, nine were serious and two were fatal.

13.3.22 Looking specifically at the junctions within the study period, Table 13.10 presents a summary of the total recorded PIC data by junction for each year.

Junction	2018	2019	2020	2021	2022	Total
A1290/Nissan Access	0	1	0	0	0	1
A1290/Cherry Blossom Way	1	0	0	0	1	2
Vermont Roundabout	2	0	0	2	1	5
A19 / A1231 Wessington Way	0	0	0	0	2	2
Total	2	5	2	3	3	15

13.3.23 From a review of data for the junctions, there were no clusters identified and, therefore, suggesting that there are no underlying issues.

Future Baseline

13.3.24 The future baseline considers the position at the site and the surrounding area if the Proposed Development did not come forward (i.e. a no development scenario).

13.3.25 Due to the large amount of committed development in the area it has been agreed with SCC and NH that there is unlikely to be any additional ‘background’ traffic growth beyond that which is ‘committed’. Therefore, the future baseline includes traffic flows associated with cumulative schemes / ‘committed developments’ near the Proposed Development, as this represents the traffic growth within the study area. The included committed developments are detailed below.

Committed Developments

13.3.26 The assessment of the traffic and transport impacts uses the 2023 baseline conditions and compares these with a ‘Base + Committed Development’ and ‘Base + Committed Development + AESC Plant 3’ scenarios.

13.3.27 When forecasting future year traffic conditions, it is important that consideration is given to how operations will be influenced by other developments and planned road network improvement schemes.

13.3.28 The following development sites have been agreed to be included in the future

scenario assessments due to them being considered to likely come forward within the next three-year period, or are consented:

- IAMP Early Infrastructure and Northern Employment Area – 21/02807/HE4 – Hybrid planning application – Approved August 2023.
- Industrial unit to be used for the manufacture of batteries for vehicles - 21/01764/HE4 – Detailed planning application – Approved October 2021.
- IAMP ONE Phase One, Washington – 18/00092/HE4 – Hybrid planning application – Approved May 2018 – First unit and infrastructure delivered.
- IAMP ONE Phase One, Washington – 19/00245/REM – Reserved matters application – Approved May 2019 – Unit built and now occupied.
- IAMP ONE Phase One, Washington – 19/00280/REM – Reserved matters application – Approved April 2019 – Unit built and currently being used at Nightingale Hospital / COVID-19 vaccination centre.
- Unipres, Washington Road – 18/02055/FUL – Full planning application – Approved March 2019.
- Three Horseshoes, Washington Road – 18/01964/FUL – Full planning application – Approved December 2019.
- Unipres UK Ltd, Cherry Blossom Way. 18/01869/FUL and 19/02161/VAR - Full planning application and variation of condition - Approved October 2019 March 2020.
- Elm Tree Nursery, Washington Road - 18/01964/FUL - Full planning application - Approved December 2019.
- Hillthorn Farm - 21/00401/HE4 - Full planning application – September 2021.
- Hillthorn Farm - 21/00605/OU4 - Outline planning application – September 2021.
- Follingsby International Enterprise Park and Follingsby Park South - DC/17/01117/OUT - Outline planning application - Approved June 2018.
- Follingsby International Enterprise Park and Follingsby Park South - DC/18/00111/REM - Reserved matters application - Approved April 2018.
- Follingsby International Enterprise Park and Follingsby Park South - DC/18/00237/OUT - Outline planning application - Approved May 2018.
- Follingsby International Enterprise Park and Follingsby Park South - DC/18/00574/FUL - Variation of condition - Approved April 2019.

- Follingsby International Enterprise Park and Follingsby Park South - DC/18/00573/COU - Change of use application - Approved September 2018.
- Follingsby International Enterprise Park and Follingsby Park South - DC/20/00021/REM - Reserved matters Application - Approved March 2020.
- Follingsby International Enterprise Park and Follingsby Park South - DC/20/00208/REM - Reserved matters application.
- Follingsby International Enterprise Park and Follingsby Park South - DC/20/00021/REM and DC/20/00208/REM relate to the outline application (DC18/00574/FUL). The outline application is for no more than 225,000 m² of gross external floorspace for Class B2/B8 use, with class B2 use restricted to a maximum of 27,000 m². The total GIA for Unit A is 187,024 m², (which is subject to RM application DC/20/00021/REM) and the total GIA for Plot B is 13,667. The total is therefore 200,691 m² which is 24,309 m² floorspace less than that consented under permission DC/18/00574/FUL and under DC/18/00573/COU.
- Follingsby Park, Gateshead - DC/18/00860/OUT - Outline planning application - Approved September 2018.
- Land North of Follingsby Lane, Gateshead - DC/19/01252/OUT - Outline planning application – Approved September 2022.
- Former Wardley Colliery, Gateshead - DC/16/00698/OUT - Outline planning application – Approved June 2019.
- Former Wardley Colliery, Gateshead - DC/19/00813/REM - Reserved matters application - Approved November 2020.
- Northern Area Playing Fields Stephenson Road, Washington - 17/02425/LP3 - Approved April 2018 – Works now delivered.
- Unit 1 Spire Road Glover Washington- 18/02226/FUL- Approved October 2019.
- Local Plan Site H3.62, South Tyneside, Residential, 400 dwellings.
- Local Plan Site MSGP1.12, Gateshead, Employment, B2 16,500m².
- Local Plan Site H3.25, South Tyneside, Residential, 19 dwellings.
- Local Plan Site H3.65, South Tyneside, Residential, 54 dwellings.
- Local Plan Site MSGP1.10, Gateshead, Employment, B2 4650m².

13.3.29 Of these sites considered, the following developments have been identified as generating traffic movements that will increase traffic flows within the study area:

- IAMP Early Infrastructure and Northern Employment Area – 21/02807/HE4 – Hybrid planning application – Approved August 2023.
- Industrial unit to be used for the manufacture of batteries for vehicles - 21/01764/HE4 – Detailed planning application – Approved October 2021.
- 07/03132/OUT, 10/03039/EXT1 Turbine Business Park, Sunderland.
- 18/00459/FUL, Unipres Extension, 90 parking spaces & 11,100m² B2 extension.
- 18/00092/HE4, IAMP ONE.
- 21/00401/HE4, Hillthorn Farm.
- DC/18/00237/OUT, DC/20/00021/REM, DC/20/00208/REM, Follingsby International Enterprise Park, Industrial / Warehousing, totalling 200,841m² B8 Use.
- DC/18/00860/OUT, Gateshead, Industrial Unit, 7,433m².
- DC/19/01252/OUT – Gateshead - Industrial Unit, 4,600m².
- 19/01427/FU4 – Sunderland - Residential, 105 dwellings.
- DC/16/00698/OUT - Gateshead - Residential, 144 dwellings.
- 18/01869/OUT - Sunderland, 36 bed Hotel.
- Local Plan Site H3.62 - South Tyneside - Residential, 400 dwellings.
- Local Plan Site MSGP1.12 - Gateshead - Employment, B2 16,500m².
- Local Plan Site H3.25, South Tyneside – Residential, 19 dwellings.
- Local Plan Site H3.65, South Tyneside - Residential, 54 dwellings.
- Local Plan Site MSGP1.10, Gateshead - Employment, B2 4650m².

13.3.30 Trip generation and distribution for committed developments has been taken from the respective Transport Assessments, which contains full details of their robust assumptions.

13.4 Assessment of Effects

Primary and Tertiary Mitigation

13.4.1 Primary mitigation considered relevant to the assessment of transport effects are inherent to the design of the Proposed Development, to provide increased capacity.

13.4.2 Other embedded mitigation relevant to the assessment of transport effects include a Construction Traffic Management Plan (CTMP).

13.4.3 Prior to the commencement of construction, a detailed CTMP will be submitted to the

Council by the Main Contractor, including limitations of site delivery times and routing. This will be agreed with the Council and National Highways and adhered to throughout the construction period. The proposed construction working hours will be similar to those deployed for IAMP ONE.

- Construction (excluding deliveries): Monday to Friday – 07:00 to 18:00hrs; Saturday – 08:00 to 17:00hrs; No Sunday or bank holiday working.
- Deliveries: Monday to Saturday – 08:00 to 14:30hrs.

Major Hazards and Accidents

13.4.4 The potential for major hazards and accidents associated with the Proposed Development is not considered applicable to this Chapter.

Phasing

13.4.5 There are no proposals to phase the works, i.e. once on site, the contractor will carry out all works necessary to deliver the permitted scheme.

During Construction

Screening

13.4.6 A robust approach has been adopted when considering screening and assessment of the construction traffic stage for the Proposed Development. Screening has been conducted against the 2023 Base + Committed Development AADT flows. There is a possibility that during the construction of the Proposed Development, concurrent construction traffic activities will be taking place with other developments, such as the dualling of the A1290, AESC Plant 2 and possibly development associated with the IAMP Northern Employment Area.

13.4.7 For the assessment of the Proposed Development during construction, the construction programme extract shown in Figure 13.6 has been used. The numerical values within the construction programme present the total number of HGVs anticipated per day for each respective activity. Also presented are the assumptions regarding workforce movement and other light goods vehicles (LGV).

	2024				2025												2026													
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		
Warehouse & Packaging	Mobilisation of team	10																												
	Land entry		10																											
	Site compound set-up		10																											
	Earthworks			50	50	50	50	25	25																					
	Building Construction					50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
	Fit out																20	20	20	20	20	20	20	20	20	20	20	20	20	20
	Misc LGV - Deliveries and Removal Cars - Workers & Visitors	2	5	30	30	30	30	30	20	20	20	20	20	20	20	20	30	30	30	30	30	30	30	30	30	30	30	30	30	30
	50	75	75	100	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	
Battery Plant 3	Mobilisation of team			10																										
	Land entry				10																									
	Earthworks					25	25	25	25	50	50	50	50																	
	Building Construction							50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	
	Fit out																					20	20	20	20	20	20	20	20	
	Misc LGV - Deliveries and Removal Cars - Workers & Visitors			2	5	30	30	30	30	30	30	30	30	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
				50	75	75	100	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125	125
Total	TOTAL HGV	10	20	60	60	125	125	150	150	150	150	150	100	100	120	120	120	120	140	70	70	70	70	70	70	70	70	70	70	
	TOTAL LGV	2	5	32	35	60	60	60	60	50	50	50	50	40	40	50	50	50	50	60	30	30	30	30	30	30	30	30	30	
	TOTAL CARS	50	75	125	175	200	225	250	250	250	250	250	250	250	250	250	250	250	250	250	125	125	125	125	125	125	125	125	125	125
	TOTAL All Vehicles	62	100	217	270	385	410	460	460	450	450	450	390	390	420	420	420	420	420	450	225	225	225	225	225	225	225	225	225	

Figure 13.6: Assumed Construction Program

13.4.8 It can be seen from Figure 13.6 that March/April 2025 is forecast to represent the worst case for the assessment of construction activities associated with the Proposed Development, with a possible 460 vehicles, including 150 HGVs.

13.4.9 As stated above, it is expected that the construction activities at the on the A1290 and IAMP Northern Employment Area could be ongoing concurrently and therefore for robustness, construction traffic at their respective forecast peaks has been included in the Cumulative assessment.

13.4.10 Screening will therefore identify links with the greatest potential for environmental impacts from construction activities.

13.4.11 The routing of construction traffic is not yet known, and materials will be delivered from a range of sources and as such, a number of routes to/from site are possible. It is however expected that most traffic will travel via the A19 and this has been confirmed by the contractors currently on site constructing AESC Plant 2.

13.4.12 The following high level, robust assumption scenarios have been made with regard to construction traffic routing:

- 1 60% of construction traffic might travel to/from the A19 North;
- 2 60% of construction traffic might travel to/from the A19 South;
- 3 100% of construction traffic will travel on the A1290;
- 4 5% of construction traffic might travel on Sulgrave Road and the A1290.

13.4.13 It can therefore be seen that there is a degree of double counting and over estimation in the level of construction traffic, which ensures a robust screening process. The construction phase screening is presented in Table 13.11.

Table 13.11: Construction Phase Screening

Link	Description	Sensitivity	2023 Base		Base + Construction		Increase (%) from Construction		Base + Cumulative Construction		Increase (%) from Cumulative Construction	
			Total AADT	AADT HGV	Total AADT	AADT HGV	Total AADT	AADT HGV	Total AADT	AADT HGV	Total AADT	AADT HGV
1	A184 west of Testos	Medium	32536	1133	32812	1223	0.85%	7.94%	32971	1322	1.34%	16.68%
2	A184 east of Testos	Medium	17403	301	17403	301	0.00%	0.00%	17403	301	0.00%	0.00%
3	Downhill Lane east of A19	Low	3413	20	3413	20	0.00%	0.00%	3413	20	0.00%	0.00%
4	A19 south of DHL	Low	63031	3130	63307	3220	0.44%	2.88%	63466	3319	0.69%	6.04%
5	A1231 east of A19	Low	32016	1234	32016	1234	0.00%	0.00%	32016	1234	0.00%	0.00%
6	A1231 east of Nissan Way	Low	54537	3368	54537	3368	0.00%	0.00%	54537	3368	0.00%	0.00%
7	A1290 north of Nissan	Low	15330	188	15767	331	2.85%	75.70%	16018	487	4.49%	159.0%
8	A1290 south of Nissan	Medium	10108	208	10131	216	0.23%	3.61%	10144	224	0.36%	7.57%
9	Glover Road	Medium	9191	321	9191	321	0.00%	0.00%	9191	321	0.00%	0.00%
10	Cherry Blossom Way	Medium	3693	348	3693	348	0.00%	0.00%	3693	348	0.00%	0.00%
11	A1290 south of Nissan	Medium	9216	156	9239	163	0.25%	4.81%	9252	172	0.39%	10.10%
12	A19 north of DHL	Low	60951	2977	61227	3067	0.45%	3.02%	61386	3166	0.71%	6.35%
13	A19 north of Testos	Low	48830	2652	48830	2652	0.00%	0.00%	48830	2652	0.00%	0.00%
14	A19 south of A1231	Low	93438	5119	93714	5209	0.30%	1.76%	93873	5308	0.47%	3.69%
15	Washington Road	Medium	8495	196	8495	196	0.00%	0.00%	8495	196	0.00%	0.00%

13.4.14 During the construction phase, only one link (Link 7 – A1290 N of Nissan) is shown to exceed the IEMA threshold based on the increased in the number of HGVs and will be assessed further. All other links fall below the IEMA threshold and so are not considered further in the assessments of Severance, Pedestrian and Cyclist Amenity and Fear and Intimidation. The effects have therefore been screened out of the further assessment and are considered Negligible and **Not Significant**.

13.4.15 The cumulative screening exercise has identified Link 7 as exceeding the IEMA threshold. As this impact is cumulative it is expected that all concurrent developments will work cooperatively to minimise any adverse impacts. For example, all developments will have detailed CTMPs which will be approved by the local planning authority.

Severance

13.4.16 The assessment of severance has been based on the DMRB measure of community severance, relying on the level of two-way traffic flows on a link. Changes in traffic flow of less than 30% are categorised as having a very low magnitude effect, changes between 30%-60% are of low magnitude, changes between 60%-90% are of medium magnitude and changes greater than 90% are of a high magnitude.

13.4.17 Table 13.12 sets out the percentage increase on the remaining link after the initial

screening. It provides the percentage increase in traffic flows on these links, identifies whether it is possible to cross the link or whether there is a demand to cross, and classifies the magnitude and significance of the effect.

Link	Description	Sensitivity	% Increase AADT	Demand / Ability to cross	Magnitude of Effect	Significance of Effect
7	A1290 (North of Nissan)	Low	1.61	No	Very Low	Negligible

13.4.18 Table 13.12 demonstrates that the magnitude of the effect is assessed as Very Low on all links. This results in an assessment of the severity of the short-term impact as being Negligible and **Not Significant**.

Driver Stress and Delay

13.4.19 Delays tend to occur at junctions that operate close to capacity, resulting in increased queue lengths and journey times. Congestion may occur on the roads near the Proposed Development during peak network periods, however, the number of construction trips occurring during times of congestion is expected to be very small. Construction activities and deliveries will be scheduled to occur outside of the peak traffic periods when operations will be more free-flowing and congestion and capacity is not a limiting factor - as such, the need for any junction capacity assessments for the construction traffic operations is not warranted.

13.4.20 Abnormal load deliveries have the potential to cause some driver delay. However, the number of these is anticipated to be small, if any, and timing and routing of deliveries will be agreed in advance with the highway authorities and the police, should they be required. Details of abnormal load movements would also be detailed in the CTMP.

13.4.21 Construction traffic volume and distribution forecasts are robust and impacts would only occur for short periods of time within the construction programme. As the volume of construction traffic is relatively low compared to baseline levels and given the infrequent nature of potential delays and the avoidance of sensitive time-periods, drivers experiencing delays due to construction traffic is considered a very low magnitude effect.

13.4.22 When the link is considered in the context of the very low magnitude of impact, the resultant classification of effect on severance is Negligible and **Not Significant**.

Pedestrian and Cyclist (and Equestrian) Amenity

13.4.23 Using the IEMA guidance on thresholds for assessment, Link 7 is expected to

experience changes in daily traffic that warrant further consideration. Table 13.13 sets out the changes in daily traffic and HGV flows anticipated on these links during the construction phase.

Link	Description	Sensitivity	2023 Base		Cumulative Construction		Increase (%) from Construction	
			TotalAADT	AADT HGV	TotalAADT	AADT HGV	TotalAADT	AADT HGV
7	A1290	Low	15330	188	26634	2607	1.61%	75.70%

13.4.24 The overall increase in vehicular traffic on link 7 is only 1.61% and such, would fall below the threshold for assessment, however the percentage increase in HGV traffic on this link during the construction period results in the link being screened in for further assessment. It should however be noted that the increase is based on a relatively low baseline and worst-case assessments of vehicle generation and routing for the construction period, which are extremely unlikely to be experienced by this route - especially given that it is assumed that 100% construction traffic will route via this link, when alternative routes to the west are available. Even with this worst-case assessment, the increase in HGV traffic spread across the whole day is 150 HGVs. Given the availability of other routes, the percentage increase in HGV movements is likely to be notably less than the figure being assessed.

13.4.25 Pedestrian demand to cross the A1290 at Link 7 is very low and there are segregated routes running along the A1290. Furthermore, a new Pegasus crossing has been installed on the A1290 as part of the A19 Downhill Lane junction scheme and a signal-controlled crossing is available at the Nissan access serving the pair of A1290 bus stops.

13.4.26 Given the segregation between pedestrians, cyclists and other NMUs, the magnitude of the impact on link 7 has been taken as Low and **Not Significant**.

Pedestrian and Cyclist (and Equestrian) Delay

13.4.27 The number of pedestrians, cyclists and equestrians is relatively small and, although these non-motorised users will have high sensitivity, those that could be affected by construction traffic are already travelling alongside or on a road, and therefore are considered to have a low sensitivity. Pedestrians, cyclists and equestrians would be in proximity to the increased traffic for a brief time. Any deviations from existing routes would be minimised and clearly signed in advance to provide safe alternatives – such information would be detailed in the CTMP.

13.4.28 Pedestrian, cyclist and equestrian delay along the A1290 is unlikely to be affected by changes in traffic flow due to the wide pedestrian / cycle route segregated from the carriageway. Signal-controlled crossing provisions are available to the south on the A1290, which aid movements for access to the bus stops. The ‘green time’ allocations within the stages and phases of a signal-controlled crossing for pedestrians / cyclists / equestrians is only marginally influenced by traffic volume.

13.4.29 When the low sensitivity highway link 7 is considered in the context of the very low magnitude of impact, the resultant classification of effect is Negligible and **Not Significant**.

Fear and Intimidation

13.4.30 Assessing this impact in accordance with the thresholds outlined in IEMA, Table 13.14 **Error! Reference source not found.** sets out the respective flows of the links to be assessed.

Link	Scenario	Average traffic flow over 18-hour day – all vehicles/hour 2-way (a)	Total 18-hour heavy vehicle flow (b)	Average vehicle speed (c)	Degree of hazard score
7	Base	14527	178	40	50
7	Base + Construction	14774	321	40	50

13.4.31 Table 13.14 shows that the base scenario has the same degree of hazard score as the Base + Construction scenario. Both are considered to have a level of fear and intimidation defined as ‘Great’ according to the IEMA guidance. However, as there is no change in the score between scenarios the resulting fear and intimidation magnitude of impact is considered to be Negligible and **Not Significant**.

During Operation

Screening

13.4.32 IEMA guidelines outline that the screening of links within a study area should be based on the sensitivity of the link and the level of change in traffic flow. It continues that, for links that experience traffic flow increases by more than 30% (or the number of HGVs increases by more than 30%) the link should be assessed. Also, assessment should be conducted on links with a high sensitivity that are forecast to experience traffic flow increases of more than 10%.

13.4.33 Operational traffic flows have been derived for the ‘Base + Committed’ and ‘Base + Committed + Proposed Development’ scenarios. Table 13.15 sets out the screening assessment for the operational phase of the Proposed Development.

Table 13.15: Operational Phase Screening

Link	Description	Sensitivity	Base + Committed		Base + Committed + Proposed Development		Increase (%)	
			Total AADT	AADTHGV	TotalAADT	AADT HGV	TotalAADT	AADT HGV
1	A184 west of Testos	Medium	35466	1354	35740	1359	0.77%	0.38%
2	A184 east of Testos	Medium	18808	380	19037	382	1.20%	0.48%
3	Downhill Lane east of A19	Low	3937	23	4051	23	2.82%	0.30%
4	A19 south of DHL	Low	69402	4355	70063	4384	0.94%	0.65%
5	A1231 east of A19	Low	34233	1711	34416	1722	0.53%	0.65%
6	A1231 east of Nissan Way	Low	57410	4386	57866	4410	0.79%	0.54%
7	A1290 north of Nissan	Low	26387	2465	27505	2518	4.06%	2.11%
8	A1290 south of Nissan	Medium	14576	308	14690	310	0.78%	0.75%
9	Glover Road	Medium	11710	340	11847	340	1.16%	0.13%
10	Cherry Blossom Way	Medium	6509	2795	6851	2844	5.00%	1.72%
11	A1290 south of Nissan	Medium	16047	2376	16504	2428	2.77%	2.13%
12	A19 north of DHL	Low	66781	4181	67557	4210	1.15%	0.67%
13	A19 north of Testos	Low	52566	4023	52954	4055	0.73%	0.79%
14	A19 south of A1231	Low	97607	6028	98269	6049	0.67%	0.35%
15	Washington Road	Medium	9783	266	10011	268	2.28%	0.62%

13.4.34 During the Operational Phase, all links as they fall below the IEMA threshold and so are not to be considered further in the assessments of Severance, Pedestrian and Cyclist Amenity and Fear and Intimidation. The effects have, therefore, been screened out of the further assessment and are considered Negligible and **Not Significant**.

13.5 Mitigation measures

During Construction

13.5.1 No additional mitigation is proposed during the construction phase.

During Operation

13.5.2 A Travel Plan to reduce the number of employees commuting by single occupancy car. This includes measures relating to:

- encouraging walking, cycling and public transport;
- encouraging greener car travel (car sharing/ultra-low emissions vehicles/car clubs);
- encouraging smart business travel; and
- minimising the need for travel by sourcing locally.

13.5.3 Service and Delivery Strategy to ensure freight movements are carefully managed. This includes measures relating to:

- encouraging sustainable freight;
- sourcing products and service locally (where possible); and
- restricting delivery times during shift change over periods.

13.6 Residual effects

During Construction

13.6.1 The impacts of traffic and transport during the construction phase of the Proposed Development have been assessed in Section 13.1 Potential Effects of this chapter.

13.6.2 No additional mitigation has been identified and, therefore, the significance of the residual effects of the construction phase of the Proposed Development remains as Minor Adverse and **Not Significant**.

During Operation

13.6.3 The impacts of traffic and transport during the construction phase of the Proposed Development have assessed in the Potential Effects of this chapter.

13.6.4 No additional mitigation has been identified and therefore, the significance of the residual effects of the operation phase of the Proposed Development remains as Minor Adverse and **Not Significant**.

Cumulative effects

13.6.5 Cumulative effects scenario considers the impact of the discrete projects which are likely to affect the agreed study area that are existing, approved or likely to come forward these are listed in section 13.3. The IEMA screening exercise has been reconsidered considering the increase in traffic from all these developments including the proposed development.

Link	Description	Sensitivity	Base		Base + Committed + Proposed Development		Increase (%)	
			Total AADT	AADT HGV	TotalAADT	AADT HGV	TotalAADT	AADT HGV
1	A184 west of Testos	Medium	32536	1133	35740	1359	8.96%	16.63%
2	A184 east of Testos	Medium	17403	301	19037	382	8.58%	21.18%
3	Downhill Lane east of A19	Low	3413	20	4051	23	15.75%	13.45%
4	A19 south of DHL	Low	63031	3130	70063	4384	10.04%	28.61%
5	A1231 east of A19	Low	32016	1234	34416	1722	6.97%	28.34%
6	A1231 east of Nissan Way	Low	54537	3368	57866	4410	5.75%	23.63%
7	A1290 north of Nissan	Low	15330	188	27505	2518	44.27%	92.52%
8	A1290 south of Nissan	Medium	10108	208	14690	310	31.19%	32.97%

9	Glover Road	Medium	9191	321	11847	340	22.42%	5.84%
10	Cherry Blossom Way	Medium	3693	348	6851	2844	46.10%	87.76%
11	A1290 south of Nissan	Medium	9216	156	16504	2428	44.16%	93.58%
12	A19 north of DHL	Low	60951	2977	67557	4210	9.78%	29.28%
13	A19 north of Testos	Low	48830	2652	52954	4055	7.79%	34.59%
14	A19 south of A1231	Low	93438	5119	98269	6049	4.92%	15.37%
15	Washington Road	Medium	8495	196	10011	268	15.14%	26.87%

13.6.6 As shown in table 13.16 due to the large amount of development in the area, Links 7,8 10,11 and 13 are expected to exceed the IEMA screening threshold due to the increase in HGV numbers. In addition, Links 7, 8, 10 and 11 are also expected to exceed the threshold for increase in total AADT.

13.6.7 It is expected that that the committed developments will work together to minimise their cumulative impact. As an example of this, all developments within the wider IAMP development will sign up and contribute to an overarching Travel Plan. This includes the entire AESC development and will allow for a joined-up approach when developing incentives to encourage travel by sustainable modes.

13.7 Limitations of study

13.7.1 The assessments within this chapter are based on assumptions regarding future capacity and network performance with and without the Proposed Development, using traffic modelling techniques. Details relating to the trip generation and distribution assumptions are set out in the Transport Assessment. As with any numerical-based model that seeks to predict future conditions, there is inherent uncertainty in the forecasts. The forecast operations, while appropriately representing the complex factors involved in traffic movement, are subject to uncertainty. To compensate, robust assumptions are used throughout.

13.7.2 Assumptions have also been made in relation to the trip generation and distribution of traffic through the study area associated with committed development sites included in this ES chapter.

13.7.3 A contractor has not yet been appointed to deliver the Proposed Development infrastructure, or indeed the construction works associated with the IAMP Early Infrastructure and Northern Employment Area development. Furthermore, the level of information and detail regarding other nearby construction activities is limited. As such, details relating to the likely construction traffic are currently unknown and therefore, professional judgement has been applied alongside robust assumptions.

13.8 Summary and Conclusion

Summary

- 13.8.1 This chapter has assessed the potential transport related environmental effects of the Proposed Development within the identified study area. The assessment of the environmental effects has been undertaken in accordance with the IEMA guidance and uses data and results contained within the Transport Assessment and calculated AADT and 18-hour AAWT flows.
- 13.8.2 Using the IEMA guidance, a screening process has been adopted to delimit the scale and extent of the assessment. Technical assessments of the environmental effects have then been undertaken on severance, driver stress and delay, pedestrian and cyclist (and equestrian) amenity and delay, fear and intimidation and highway safety.
- 13.8.3 Embedded primary and tertiary mitigation has been identified for the construction phase and operational phase. Following a screening process the severity of the potential environmental effects for the construction and operational phases of the Proposed Development have been assessed.

Conclusion

- 13.8.4 This ES Chapter has assessed the environmental impact of the Proposed Development for the construction and operational stages and concluded that the most severe environmental effect will be Minor Adverse and **Not Significant**.