

LONG ACRES ENVIRONMENTAL STATEMENT

VOLUME 2: CHAPTER C
TRANSPORT

Long Acres, South Tees

Volume 2: Environmental Statement (December 2020)

Chapter C: Transport

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C1.0 Introduction

- C1.1 This Chapter of the Environmental Statement ('ES') has been prepared by Arup on behalf of the applicant, South Tees Development Corporation ('STDC'). It assesses the proposed development described in Chapter B and it considers the effects of the proposed development on the surrounding transport network, including the potential effects of the predicted traffic associated with the proposed development.
- C1.2 The baseline situation is considered before the likely environmental effects of the development are identified, both during construction and operational phases of the development. Mitigation measures to reduce any negative environmental effects are identified as appropriate, before the residual environmental effects are assessed.
- C1.3 This chapter is supported by the following appendix:
- **Appendix C1:** Transport Assessment (TA).
 - **Appendix C2:** Transport Assessment Scoping Note;
 - **Appendix C3:** Consultation Responses.

About the Author

- C1.4 The author of this Chapter, Phill Ayres, is a Member of the Chartered Institute of Highways and Transportation (MCIHT) with over eight years' experience in undertaking transport assessments for Environmental Assessments.
- C1.5 This technical assessment has been reviewed by Nicola Hill, a Chartered Transport Planning Professional (CTPP) with over 17 years' experience in undertaking transport assessments for Environmental Statements.
- C1.6 This assessment has been approved by Steve Wells, an Associate Director at Arup, who is a Chartered Engineer (CEng) and Chartered Environmentalist (CEnv) with 30 years of experience.

C2.0 **Policy Context**

Introduction

C2.1 The following legislation, regulations and policies have been consulted to inform the assessment of the proposed development with relation to transport impacts during the design development.

National Planning Policy Framework (2019)

C2.2 The National Planning Policy Framework (NPPF) [2] sets out the Government's planning policies for England and how these should be applied. In relation to transport, the NPPF specifies that development sites should ensure that:

- 1 Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
- 2 Safe and suitable access to the site can be achieved for all users; and
- 3 Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

C2.3 The NPPF advises that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

Tees Valley Combined Authority Strategic Transport Plan 2020-2030

C2.4 The Strategic Transport Plan (STP) [3] presents a package of transport improvements to transform Tees Valley's transport system and identifies the delivery of the South Tees Regeneration (STDC) Master Plan as one of the key actions towards achieving this goal.

C2.5 With regards to transport, the STP identifies the following two core principles for the Teesworks area:

- 1 Use the regeneration opportunity to strengthen transport connections with Redcar town centre and other urban centres, to realise improved economic and community benefits; and
- 2 Deliver efficient connectivity across the South Tees area through enhanced on-site transport infrastructure to realise optimal functionality.

C2.6 Supporting the STP are implementation plans, including the Tees Valley Local Cycling and Walking Implementation Plan (LCWIP). This document provides a framework for the development and promotion of cycling and walking throughout the Tees Valley.

Tees Valley Design Guide and Specification – Residential and Industrial Estates Development (updated 2018)

C2.7 The Design Guide [4] presents the standards for car parking and cycle parking provisions for residential and industrial developments in the Tees Valley area. For industrial developments, the maximum car parking and minimum cycle parking standards are as follows:

- 1 Sufficient operational car parking and area for manoeuvring within the site;
- 2 1 space per 45m² gross floor area, or 4 spaces per 10 employees (whichever is the greater); and

3 Provision for the parking of 2 cycles per 200m² gross floor area.

C2.8 The Design Guide document also specifies the disabled car parking provision and for employment premises it advises that 5% of spaces should be reserved for disabled users.

Redcar and Cleveland Local Plan (2018)

C2.9 The Local Plan [5] identifies the existing transport connectivity of Teesworks area, which it notes has access to a deep-water port, excellent road and rail links, access to energy and utilities. The Plan is supportive of regenerating the Teesworks area and specifically, in relation to this site and/or transport:

- 1 Policy SD4 relates to the general development principles and includes the requirements for locating development on appropriate sites with compatible surroundings, ensuring development is located in a sustainable and safe location, and ensuring there is adequate infrastructure to serve the development;
- 2 Policy LS4 (South Tees Spatial Strategy) includes the objective to support renewable energy projects and to improve the accessibility of employment sites by a range of transport methods;
- 3 Policy TA1 relates to transport and new development and includes the requirement for new developments to encourage transport choice and non-car modes; and
- 4 Policies TA2 and TA3 relate to improving accessibility by bus across the borough and improving the walking cycling and public rights of way networks respectively.

Redcar and Cleveland Local Transport Plan 2011 – 2021

C2.10 The South Tees area is included in the Local Transport Plan (LTP) [6] as an area to be promoted for major industry, which will help the regeneration of the area and will contribute to the delivery of sustainable, inclusive and cohesive communities.

C2.11 Improving access to existing and proposed employment and regeneration sites throughout the Tees Valley, including the Teesworks area, is one of the key actions within the LTP. In addition, the LTP states that a range of bus services are needed to ensure that the emerging employment opportunities are accessible to everyone, regardless of whether they own a car, and to ensure that developments do not add to congestion on important routes. It does however note that new developments in the Teesworks area are likely to create pressures for vehicle movements on the Strategic Road Network (SRN), particularly at roundabouts on and between the A66, A1053(T), A174(T) and A19(T). These potential pressures will need to be addressed to enable full economic advantage to be taken of the regeneration, but in a manner that does not undermine strategies for the growth of sustainable transport use.

C2.12 The Local Transport Plan has been partially replaced by the Tees Valley Strategic Transport Plan and will be fully replaced when the Local Implementation Plan is adopted in 2021.

Redcar and Cleveland South Tees Area Supplementary Planning Document (2018)

C2.13 One of the key objectives of the Supplementary Planning Document (SPD) [7] is delivering efficient connectivity across the South Tees area through making the best use of existing transport infrastructure, providing new and enhanced on-site transport infrastructure and creating an integrated and safe transport network, which takes account of the needs of a variety of users and includes sustainable travel measures.

- C2.14 The SPD specifies that the area wide Transport Strategy for the Teesworks area will include new and enhanced footpath and cycleway networks enabling ease of movement across the industrial park by non-automated transport modes, and development proposals that align with this strategy will be supported. A Transport Strategy is currently being prepared for the wider Teesworks site and it will be used by Teesworks for the effective delivery of development across the site, recognising the opportunities and benefits the single-ownership of the Teesworks area brings to delivering interventions that will further encourage modal shift away from the private car and an increased use of public transport.

South Tees Regeneration Master Plan (2019)

The South Tees Regeneration Master Plan [8] stated that ease of access to the site by all travel modes will be an essential component of a successful regeneration, also stressing the need for the site to be equipped with adequate, modern infrastructure for efficiently handling freight imports and exports. The Master Plan also notes that consideration will be given to the impact on the local highway network of the planned major increases in traffic resulting from development within the Teesworks area, so that junction capacities are not adversely impacted.

C3.0 Assessment Methodology & Significance Criteria

Assessment Methodology

- C3.1 The Environmental Impact Assessment (EIA) has been carried out in accordance with the EIA Regulations [1] and guidance contained in relevant publications including:
- Environmental Impact Assessment: A Guide to Procedures [9];
 - Guidelines for Environmental Impact Assessment [10]; and
 - Guidance for Travel Plans, Transport Assessments and Statements [11].
- C3.2 The methodology used for the assessment of transport impacts is summarised as follows:
- Consultation with the relevant officers at Redcar and Cleveland Borough Council (RCBC), Middlesbrough Council (MC) and Highways England (HE)
 - Estimate of baseline data (further details in the accompanying TA outlining how the baseline was established in the absence of surveys due to the Covid-19 pandemic and associated lockdown measures – see Appendix C1);
 - Consideration of potential impacts resulting from the operational development;
 - Proposal of any mitigation measures to offset any likely significant impacts in relation to the above; and
 - Assessment of any residual impacts accounting for the implementation of mitigation.
- C3.3 The study area that has been used for this assessment, agreed during the TA scoping process is the transport network that may be affected by the proposed development. The extent of the study area is shown in the traffic flow diagrams within Appendix E of the TA - see Appendix C1.
- C3.4 In accordance with the IEMA Guidelines, the following conditions on the transport network within the study area have been assessed during the operational phase (2033 with development):
- Severance (change in traffic flows);
 - Driver and bus user delay (informed by junction capacity assessments);
 - Pedestrian and cyclist amenity (change in traffic flows on local routes used by pedestrians and cyclists); and
 - Accidents and safety (following a review of existing conditions, a judgement has been made as to whether the proposed development will result in any changes to highway safety).
- C3.5 The assessment considers change between the Future Baseline and the Future Baseline with the proposed development. As this is an outline planning application the specifics of construction are not known at the time of writing. As such, construction traffic has not been included in the quantitative assessment, however a qualitative assessment has been carried out based on the information described in Chapter B of this ES. As set out in Section C5.0 of this Chapter it will be undertaken based on a series of embedded mitigation measures that are in built into the design of development. Those of relevance are included in the Framework Construction Environmental Management Plan (Framework CEMP) and the Construction Traffic Management Plan (CTMP).

Significance Criteria

- C3.6 The classification of a likely effect on transport issues has been derived by considering the magnitude of any forecast change and the sensitivity of the receptor.
- C3.7 In terms of transport, the magnitude of change is defined as:
- Negligible – effects which are unlikely to be perceptible to drivers, bus passengers or those walking and cycling;
 - Minor – effects which will be slight or very localised;
 - Moderate – effects which are likely to be perceptible to drivers, bus passengers or those walking and cycling and may be considered to be significant; and
 - Substantial – considerable changes (by extent, duration or magnitude), or of more than local significance, or breaching identified standards or policy.
- C3.8 The receptors are the roads that will be used by pedestrians, cyclists, bus passengers, car drivers and freight drivers in the Future Baseline and have been defined as:
- Low – receptors which are lightly used relative to other receptors within the study area, have few direct accesses and have a high capacity to accommodate change;
 - Medium – receptors which are used at an average level relative to other receptors within the study area, have direct frontage access and junctions and have a moderate capacity to accommodate change without significant effects arising; and
 - High – receptors which are heavily used, would have a low capacity to accommodate change or are part of the SRN.
- C3.9 Changes to the transport network have been assessed as having a beneficial or adverse effect, and the significance of the effect has been determined relating to the magnitude of change and the sensitivity of the receptors. The significance criteria are defined as:
- Negligible – effects which are unlikely to be perceptible and within the normal variation of daily traffic flow;
 - Minor – effects which will be slight or very localised or only effect receptors that are defined as low sensitivity;
 - Moderate – effects which are likely to be perceptible or effect high sensitivity receptors which may be considered to be significant; and
 - Substantial – considerable changes (by extent, duration or magnitude), or of more than local significance and/or effect high sensitivity receptors.
- C3.10 Note that moderate and substantial beneficial and adverse effects are considered to be ‘significant’. All operational effects are considered to be permanent.
- C3.11 The assessment of severance takes into account the change in traffic flows, and judgement has been made on the magnitude of change in accordance with IEMA guidance. Changes in traffic of less than 10% are considered to have no discernible environmental effect, given that daily variations in background traffic flow may fluctuate by this amount. A 30% change represents a reasonable threshold above which a change would be perceptible.
- C3.12 The IEMA Guidelines note that these driver and bus user delays are only likely to be ‘significant’ when the traffic in the network surrounding the development is already at, or close to, the capacity of the system.
- C3.13 IEMA guidelines recommend pedestrian and cyclist amenity should be assessed where there is a significant increase in HGV flows. A significant change would be where the HGV component of

traffic flow is halved or doubled, and therefore should be assessed if the HGV component of traffic flow increases by 100%.

- C3.14 An assessment of accidents and safety takes into account whether there is a proposed change to the highway network or whether proposed development trips could result in any changes to highway safety.
- C3.15 An assessment of cumulative effects arising from six sites within the Teesworks area, including the proposed development, South Industrial Zone (known as South Bank), and the four other outline planning applications that are being submitted by STDC (including, Lackenby, The Foundry, Dorman Point and Steel House) are assessed within Chapter N of this ES.
- C3.16 Residual effects have been identified in C7.0 if they remain after mitigation has been taken into account.

Consultation

- C3.17 A Transport Scoping Report (see Appendix B of the TA and Appendix C2 of this ES) for the proposed development was issued on 20 November 2020 to the highway authority for the local road network (RCBC) and HE, who are responsible for the SRN. A copy of the scoping report was also sent to Middlesbrough Council (MC), the neighbouring highway authority.
- C3.18 Prior to planning submission, HE and RCBC provided comments on the Transport Assessment Scoping Note and these can be found in Appendix C3. The assessment responds to comments from both consultees.
- C3.19 Specifically, HE asked that the study area extends to includes the SRN and that future growth scenarios should match those applied to the South Bank development. Further information about the mode share assumptions is requested, and it is advised that traffic distributions be informed by Census data. The methodology of the Long Acres assessment for traffic forecasting follows the approach used for South Bank, and Census journey to work data has been analysed to inform trip distributions. The mode share assumptions, and adjustments to car mode share forecasts to account for the provision of a bus service, are outlined in the assessment.
- C3.20 RCBC noted that the assessment should set out how pedestrians and cyclists will access the site from first occupation. In addition, RCBC request that further infrastructure for electric vehicles and hydrogen filling stations should be considered. The application is being submitted in outline and therefore these matters cannot be addressed in detail at this stage. Further information with regards to consultation responses can be found in the Transport Assessment (Appendix C1).
- C3.21 Arup will continue to liaise with all parties following submission and throughout the determination of the application.
- C3.22 Arup is preparing the Transport Strategy for the wider Teesworks site, within which the proposed development is located. For the strategy development, Arup has held Transport Steering Group workshops (on 4th February and 21st May 2020) with representatives from the highway authorities and Tees Valley Combined Authority (TVCA). At these workshops the discussions have focussed on what stakeholders want to achieve, in terms of transport, as the site is developed, and these discussions have been used to inform the expected future transport conditions when the proposed development is operational.

Assumptions and Limitations

- C3.23 Trips by mode has been determined using 2011 census data but reducing car mode by 5% to account for trips transferred onto the proposed bus service and other sustainable travel

initiatives set out in the Transport Strategy. This results in the assumed maximum car mode share for Long Acres to be 77%. Further details about the bus service are provided in C5.7.

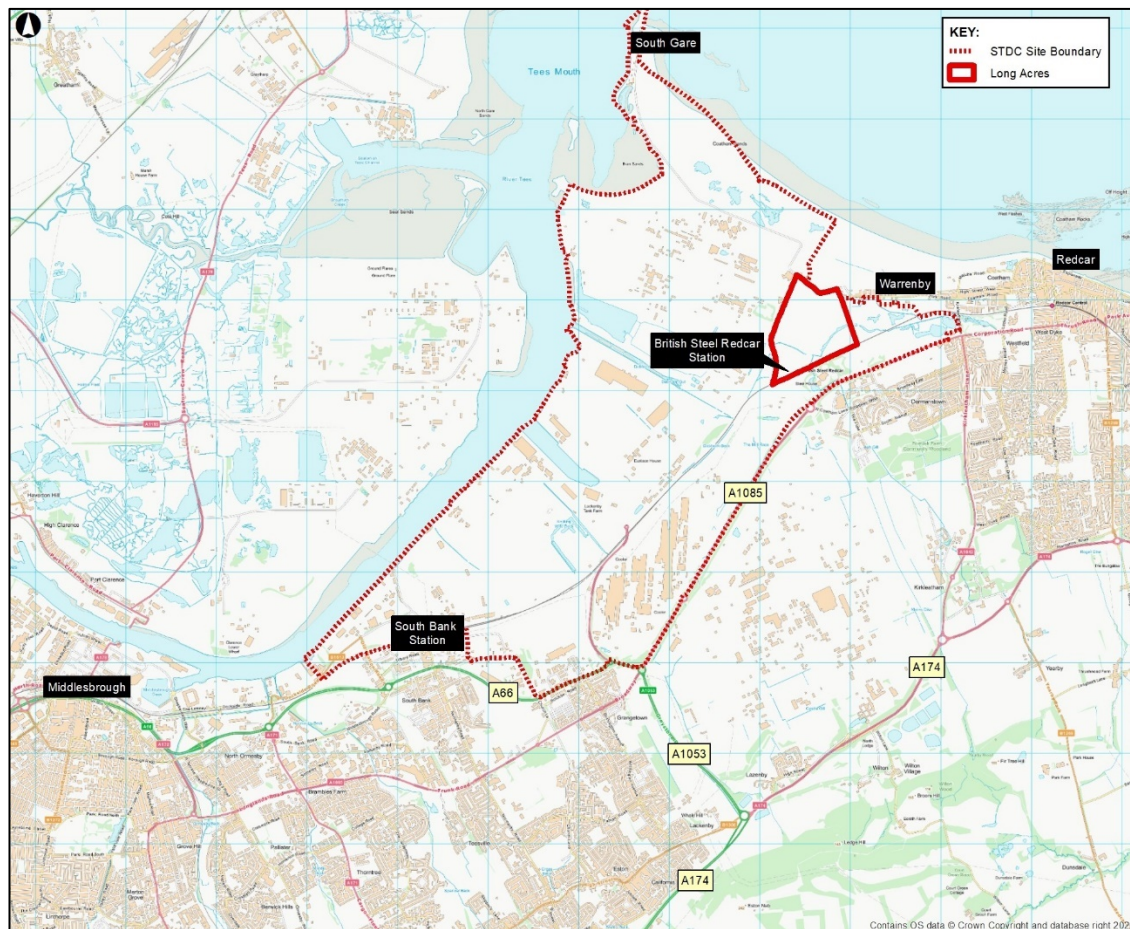
- C3.24 Due to current (winter 2020) circumstances with the Covid 19 pandemic and lockdown measures, it has not been possible for traffic surveys to be undertaken to inform the baseline condition assessment.
- C3.25 Similarly, a review of existing conditions for pedestrians and cyclists has been based on publicly available imagery such as Google Street view, and no site visits to inform the assessment were undertaken. The existing baseline scenario was therefore informed by desktop research and gathering existing data only.
- C3.26 Given the inability to gather site specific baseline data and visit the site, it should be noted that in preparing the baseline traffic flow forecasts Arup relied on information provided by others and whilst all data was checked, Arup and STDC do not accept responsibility for the accuracy of such information. Arup emphasise that any forward-looking projections, forecasts, or estimates have been based upon interpretations or assessments of available information at the time of production. Actual events frequently do not occur as expected, and the differences may be material. For this reason, Arup and STDC accept no responsibility for the realisation of any projection, forecast, opinion or estimate.

C4.0 Baseline Conditions

Existing Conditions

- C4.1 The development site is 67.05ha in size. It currently comprises vacant brownfield industrial land and is thus free of active use. The site is bisected by the Fleet watercourse. The site was previously partially occupied by the Warrenby iron and steel works and in part has been previously used as a licenced landfill for the disposal of by-products from iron and steel making, principally slag.
- C4.2 The site is immediately bounded by:
- The Darlington to Saltburn Railway line to the south east;
 - A private internal road and open industrial land to the north west
 - A section of the former Hot Metal Transfer railway line, open land and South Gare Road to the north; and
 - The boundary wall of Marsh Farm House and adjacent industrial unit and by open land to the north east.
- C4.3 The site was previously partially occupied by the Warrenby iron and steel works and in part has been previously used as a licenced landfill for the disposal of by-products from iron and steel making. The site is therefore well suited to industrial type development.
- C4.4 The site's location and its surroundings are shown on Figure C4.1 below.

Figure C4.1 Long Acres: Site Boundary



Walking and Cycling

- C4.5 Walking facilities in the vicinity of the proposed development are currently limited. All roads have footways on at least one side of the carriageway. Tod Point Road to the north of the site within Warrenby generally has footway provision on either side of the road. The A1085 Trunk Road which runs east to west to the south of the site is facilitated with a footpath on both sides of the carriageway, separated by a grass verge.
- C4.6 Teesdale Way Public Right of Way (PRoW) runs parallel to the railway to the south of the Long Acres Site and terminates just south of Warrenby.
- C4.7 The nearest National Cycle Route (NCR) is Route 1 (NCR1) which can be accessed within Redcar, approximately 2 kilometres from the east of the site. NCR1 provides strategic connections between Saltburn, Marske, Redcar and Middlesbrough.
- C4.8 On-road local cycle routes are also provided through Redcar to the east of the site, (on-road signed routes in some locations and advisory routes through quiet streets in other locations).

Public Transport

- C4.9 The bus stop on West Coatham Lane provides a bus shelter and timetable information on both sides of the carriageway and is situated an approximate 20-minute walk (1.6km) from the development site. This bus stop is served by Arriva bus services including the 62 and 64 services which provide links to Middlesbrough Bus Station. The bus stops are also served by the X3/X3A

which operate between Lingdale and Middlesbrough Bus Station, while the X4/X4A operate between Loftus and Middlesbrough Bus Station.

- C4.10 Redcar Central railway station is located approximately four kilometres from the proposed development which equates to an approximate 48-minute walk. The station is served by Northern, which provides hourly services to Bishop Auckland (via Darlington) and Saltburn.
- C4.11 The Darlington to Saltburn Railway line, which provides the south east boundary of the site is an operational passenger railway line and, the Redcar British Steel station is located on the boundary of the site, just to the south east of the intersection between the two railway lines.
- C4.12 The former Hot Metals Transfer Railway line and adjacent road which cross the site from south to north has an embankment which is around 10m AOD at the southern end, approximately 4m above surrounding ground level, which gradually lowers to meet existing ground levels at its northern end.

Highway Transport

- C4.13 An internal private road network exists across the whole of the Teesworks area. It includes a road running in a north south direction alongside the route of the former Hot Metals Transfer Railway line, which branches in a westerly direction in the northern part of the site. A small internal road network is also present in the south western corner of the site.
- C4.14 The development site does not have direct connections to the public highway network. The local highway network consists of the following key roads:
- The site is accessed via the STDC's internal road network, specifically the road running in a north south direction alongside the route of the former Hot Metals Transfer Railway line. This can be accessed from the Trunk Road/West Coatham Lane roundabout (known as the Steel House roundabout);
 - The A1085 Trunk Road runs in a north-easterly direction to the south of both the site and railway line with two lanes of traffic provided in each direction. The main access into the Teesworks site is via the Steel House roundabout;
 - West Coatham Lane runs parallel to the A1085 Trunk Road to the east towards Redcar and comprises a single lane of traffic in both directions. West Coatham Lane forms part of the 'Steel House roundabout' which sits directly south of the site and comprises a six-arm roundabout; and
 - Tod Point Road lie to the north of the site within the Warrenby area and primarily provides access to a number of industrial units which are situated on either side of the carriageway. This links to A1042 Kirkleatham Lane which runs south through Kirkleatham/Redcar connecting to the A174.
- C4.15 Existing two-way traffic flows across the network are summarised in Table C4.1 and contained within the TA (Appendix A1 of this ES).

Table C4.1: Existing (2020) Traffic Flows

Link	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	2020 Vehicle Flow	2020 HGV Flow	HGV %	2020 Vehicle Flow	2020 HGV Flow	HGV %
A1085 Trunk Road	1,351	95	7%	1,465	103	7%
A1053 Greystone Road	1,794	153	9%	1,601	137	9%
A66 – Eston Road to Tees Dock Road	2,973	298	10%	2,834	284	10%
A174 west of Greystone Road	3,506	71	2%	3,519	71	2%

C4.16 The site has previously been used in iron and steelmaking and houses a redundant railway embankment, therefore as the proposed development site is currently vacant, it does not generate any existing trips on the highway network.

C4.17 With regards to existing road safety conditions, the TA identifies three junctions locally where there is a geographic cluster of previous collisions:

- 1 Trunk Road/A1085 Trunk Road/West Coatham Lane.
- 2 A1085 Trunk Road/A1085 Corporation Road/Kirkleatham Lane; and
- 3 A1085 Corporation Road/West Dyke Road/A1085 Thrush Road.

C4.18 No common causation factors have been identified for the collisions that have occurred throughout the highway network of the study area.

Receptor Sensitivity

C4.19 The receptors in the assessment of transport effects are the roads that will be used by pedestrians, cyclists, bus passengers, car drivers and freight drivers in the Future Baseline. Taking into consideration baseline transport conditions and the assessment methodology (see paragraph C3.8), the sensitivity of each receptor is as summarised in Table C4.2.

Table C4.1: Receptor Sensitivity

Link	Sensitivity	Reason
A1085 Trunk Road/Corporation Road	Medium	Key distributor link with an average level of use that connects the town of Redcar with the A66 and A1053
A1053	High	Distributor link which forms part of the strategic network and connects the A66 with the A174
The A174	High	Highly used routes which form part of the SRN
West Coatham Lane	Medium	Minor road with direct frontages and many junctions with residential streets
A1042 Kirkleatham Lane	Medium	Local distributor road with average traffic flows and several accesses to residential streets

Link	Sensitivity	Reason
A66	High	Distributor link which forms part of the strategic network

Future Baseline

- C4.20 The future baseline considers the position at the site and in the surrounding area if the proposed development were not to come forward for development (i.e. a no development scenario). In reality, this scenario is considered unlikely given the reasons set out within Chapter B (Sites Description and Surroundings), Section 9.0. Should the proposed development not go ahead then it is likely that some alternative development would happen on the site given both the local planning policy position set out in Chapter B and existing permissions. Therefore the future baseline would be similar to that of the proposed development.
- C4.21 The future baseline represents a scenario whereby existing permissions and consents at the site come forward.
- C4.22 The future baseline also includes traffic flows associated with cumulative schemes in the vicinity of the site. To capture the increase in traffic on the highway network as a result of these cumulative schemes, a growth factor has been extracted from the HE North Regional Transport Model (NRTM). This growth factor has been applied to all links within the study area to factor traffic up to 2033 when the site is expected to be operational. Traffic flow diagrams for all scenarios are contained within Appendix F of the TA (Appendix C1 of this ES).

C5.0 **Potential Effects**

Embedded Mitigation

Construction

- C5.1 A Framework Construction Environmental Management Plan ('Framework CEMP') has been prepared and forms part of the embedded mitigation for the development. The CEMP identifies that a Construction Traffic Management Plan ('CTMP') will be implemented either at site level or for each development phase.
- C5.2 A CTMP identifies the scale of construction traffic across the construction programme and provide details including;
- The proposed access arrangements for construction vehicles and staff and where materials and plant will be stored;
 - The arrangements for co-ordinating and controlling delivery vehicles and who is responsible for monitoring this;
 - The management of vehicles on site including loading / unloading arrangements;
 - The location of any wheel wash facilities;
 - Any necessary highway works and any changes to traffic orders to accommodate construction traffic; and
 - Any other mitigation required to minimise the impact of construction traffic on the transport networks will be included.
- C5.3 The volume of construction traffic is unknown at this stage and therefore the detail of this is not available for the CTMP, albeit the measures already anticipated are considered appropriate to address a worst case scenario. Once detailed traffic data for the construction phase is available, the CTMP will be updated to reflect the data.
- C5.4 These mitigation measures will be secured through a range of planning conditions, designed and constructed in accordance with RCBC guidance and will ensure that the development delivers the required primary and tertiary mitigation. This mitigation is taken into account in the potential effects section of this technical chapter.

Operation

- C5.5 For the purpose of the EIA, it is assumed that the main access into the site will be via the internal road network to the south of the site. This can be accessed from the Trunk Road/West Coatham Lane roundabout (known as the Steel House roundabout). The Parameter Plan submitted with the planning application shows the location of this access and a development parameter is set to include a minimum of one access into the site.
- C5.6 A dedicated bus service will be provided to connect the local towns of Middlesbrough and Redcar to the development site. The bus service, will travel into the site to provide a service that connects directly to the development. If at least 5% of people who would usually travel by car could be encouraged to travel by the bus service, it is estimated that it would remove approximately 36 car trips in the AM peak hour. This forecast seems reasonable and would be realistic given that the bus would operate at least every 15 minutes, and therefore be capable of accommodating a much higher number of passengers.
- C5.7 The bus service will be extended as additional development sites are occupied at Teesworks.

- C5.8 A Framework Travel Plan ('FTP') is included in the TA (Appendix C1) This is expected to form part of a Teesworks wide Travel Plan. This will support the proposed bus service to facilitate access to the site and minimise the effects of operational traffic.
- C5.9 The application is in outline, and therefore the detailed internal site layout has not yet been developed, however the proposed development will provide a high-quality industrial site which promotes walking and cycling through the provision of footways and secure cycle parking. Walking and cycling connections to the external network will be provided prior to occupation.
- C5.10 Junctions and internal roads will be designed and constructed in accordance with Redcar and Cleveland Borough Council Guidance.
- C5.11 These mitigation measures will be secured through a range of planning conditions and will ensure that the development delivers the required primary and tertiary mitigation. This be taken into account in the potential effects section of this technical chapter.

Major Hazards and Accidents

- C5.12 The potential for major hazards and accidents associated with the proposed development and surrounding area, other than an assessment of road safety collisions, has not been included in the transport assessment as it is not considered relevant to the technical specialism.

Phasing

- C5.13 For the purpose of this assessment, the construction of Long Acres development is expected to commence in 2022 and be completed in 2033. The assessment of operational effects has been undertaken for a future year scenario of 2033, when the development will be complete. It is however probable that some operational effects will occur prior to 2033.
- C5.14 The phasing of any mitigation measures will be subject to further discussion with the relevant planning and highway authority.

During Construction

- C5.15 As this is an outline planning application the end users of the development site, and therefore specifics of construction, are not known at the time of writing. As such, a quantitative construction traffic has not been included in the assessment. Notwithstanding this, and as referred to above, a CTMP has been embedded into the proposed development and this will be taken into account in any future assessment.
- C5.16 It is expected that construction vehicles will access the site from the A1085, via Steel House Roundabout. The A1085 is a four-lane dual carriageway. Given the function of the A1085, it is not considered to be particularly sensitive to the short-term, temporary effect of construction traffic. It should also be noted that this area is well suited to industrial development, with infrastructure in place to accommodate the type of construction traffic that is expected to arise from the development. Whilst a detailed assessment cannot be undertaken at this stage, professional judgement indicates that, with a CTMP, any impacts would be minor and therefore the severance or amenity effect of construction traffic would not be significant.
- C5.17 Construction traffic could affect driver delay at the A1085 and Steel house Roundabout so there may be short-term effects to driver delay. Whilst detailed data is not available, these short term effects are likely to be Not Significant. Any mitigation will be reflected in the CTMP as described in C5.4.

During Operation

Severance

- C5.18 To assess any severance effects, the change in traffic flow has been assessed for the Future Baseline scenarios. Interpretation and professional judgement have been applied to determine the magnitude of effect. The study area (receptors) is the area identified on the traffic flow diagrams provided in Appendix E of the TA (Appendix C1).
- C5.19 Table C5.1 identifies the percentage change in vehicle and HGV trips on key receptor links between the 2033 Future Baseline and the 2033+ Future Baseline with development in the AM peak hour. Further traffic flow information is available within the TA, Chapter 5 (at Appendix C1 of this ES). As set out in paragraph C3.12, the future baseline with the development includes the cumulative schemes in the vicinity of the site.

Table C5.1: Assessment of Severance, AM Peak Hour (2033 During Operation)

Receptor	Base Vehicle Flow	Base HGV Flow	Development – Vehicle Trips	Development – HGV Trips	Vehicle % Change	HGV % Change
A1085 Trunk Road – north of Steel House roundabout	1,095	88	369	35	34%	40%
A1085 Trunk Road – south of Steel House roundabout	1,452	116	417	39	29%	34%
A1053 – north of Trunk Road	2,670	214	154	15	6%	7%
A1053 – south of Trunk Road	2,017	182	192	18	10%	10%
A66 – west of Tees Dock Road	3,176	318	154	15	5%	5%
A174 east of Greystones roundabout	3,844	77	110	10	3%	13%
A174 west of Greystones roundabout	3,532	141	74	7	2%	5%
West Coatham Lane	891	9	16	1	2%	11%
A1042 Kirkleatham Lane south	855	26	45	4	5%	15%
A1085 Corporation Road	977	78	192	19	20%	24%

- C5.20 Table C5.2 shows the percentage change in vehicle and HGV trips on key receptor links between the 2033 Future Baseline and the 2033 Future Baseline with development in the PM peak hour.

Table C5.2: Assessment of Severance, PM Peak Hour (2033 During Operation)

Receptor	Base Vehicle Flow	Base HGV Flow	Development – Vehicle Trips	Development – HGV Trips	Vehicle % Change	HGV % Change
A1085 Trunk Road – north of Steel House roundabout	1,009	81	335	24	33%	30%
A1085 Trunk Road – south of Steel House roundabout	1,612	129	379	27	24%	21%
A1053 – north of Trunk Road	2,803	224	140	10	5%	4%
A1053 – south of Trunk Road	1,736	156	174	12	10%	8%
A66 – west of Tees Dock Road	3,045	305	140	10	5%	3%
A174 east of Greystones roundabout	3,837	77	101	7	3%	9%
A174 west of Greystones roundabout	3,666	147	66	5	2%	3%
West Coatham Lane	1,022	10	14	1	1%	10%
A1042 Kirkleatham Lane south	957	29	46	3	5%	10%
A1085 Corporation Road	1,018	81	155	11	15%	14%

- C5.21 To assess the change in traffic flows, judgement has been made on the magnitude of change in accordance with IEMA guidance. Changes in traffic of less than 10% are considered to have no discernible environmental effect, given that daily variations in background traffic flow may fluctuate by this amount. A 30% change represents a reasonable threshold above which a change would be perceptible.
- C5.22 Table C5.1 and Table C5.2 show the magnitude of change is greater than 30% at the following location:
- A1085 Trunk Road north of Steel House roundabout has a magnitude of change in the AM peak hour of a 34% increase in vehicles and in the PM peak hour of 33% increase in vehicles.
- C5.23 The sensitivity of this receptor has been reviewed to determine the significance of these changes as follows:
- A1085 Trunk Road/Corporation Road provides access to the development site and allows access to other premises neighbouring the Long Acres site. The sensitivity of this receptor is medium and the increase in HGV flow is due to this being the access. As the magnitude is slightly above the IEMA guideline of 30% in in the AM peak, the significance of the permanent effect will therefore be Minor Adverse. This is considered to be Not Significant.

Driver and Bus User Delay

C5.24 The IEMA Guidelines note that these delays are only likely to be ‘*significant when the traffic in the network surrounding the development is already at, or close to, the capacity of the system.*’

C5.25 To determine the significance of driver and bus user delay, values of delay have been extracted from the junction assessment programs used to assess capacity at the junctions within the study area, alongside professional judgement. Table C5.3 sets out the degree of change in delay forecast at each of the key junctions with the addition of development traffic at 2033. A copy of the junction capacity assessments on which this is based is contained within the TA (contained within Appendix C1 of this ES).

Table C2.3: Average Driver Delay (seconds) During Operation

Location	Receptor Sensitivity	Description of potential effect	Magnitude of change	Effect significance
A1085 Steel House / West Coatham Lane roundabout	Medium	Some delay but the junction operates within capacity with the additional development traffic.	Minor	Negligible
A1085 Trunk Road / A1053 Greystone Road roundabout	High	The junction operates within capacity with the additional development traffic – no significant delay	Minor	Negligible
A174 / Greystone Road Roundabout	High	The junction is over capacity with and without development traffic in the future base.	Moderate	Moderate
A1085 / A1042 Kirkleatham Lane junction	Medium	The junction is over capacity with and without development traffic in the future Base. Delay does however increase on all arms with development traffic, particularly in the AM peak.	Moderate	Moderate

C5.26 The table shows that the proposed development could have a **Significant Moderate Adverse** effect on driver delay at the A174 / Greystone Road roundabout and the A1085 / A1042 Kirkleatham Lane signalised junction. Although the junctions operate over capacity with and without the development traffic, both junctions are of high and medium sensitivity and therefore result in an adverse effect. The A1085 and Kirkleatham Lane are bus routes so any adverse effect on delay will also impact bus users with development traffic.

Pedestrian and Cyclist Amenity

C5.27 IEMA guidelines recommend pedestrian and cyclist amenity should be assessed where there is a significant increase in HGV flows. A significant change would be where the HGV component of traffic flow is halved or doubled, and therefore should be assessed if the HGV component of traffic flow increases by 100%.

C5.28 Pedestrian and cyclist amenity have been assessed by identifying any changes in traffic flow on roads used by pedestrians and cyclists. Baseline pedestrian surveys have not been possible, but it is assumed that existing pedestrian and cyclist activity in the local area is limited as the site is vacant. Any changes are shown in Table C5.4.

Table C5.43: Pedestrian and Cyclist Amenity (During Operation)

Location	Receptor Sensitivity	Description of potential effect	Magnitude of change	Significance
A1085 Trunk Road (North of Steel House roundabout)	Medium	HGV increase on the A1085 Trunk Road north of Steel House roundabout is forecast at 40% in the AM peak and a 30% increase in the PM peak. Increase in vehicular traffic is relatively low and within the normal variation of daily traffic flow.	Minor	Minor
A1085 Trunk Road (south of Steel House roundabout)	Medium	HGV increase on the A1085 Trunk Road south of Steel House roundabout is 34% in the AM peak and a 21% increase in the PM peak. Increase in vehicular traffic is relatively low and within the normal variation of daily traffic flow.	Minor	Minor
A1085 Corporation Road	Medium	HGV increase on the A1085 Corporation Road is 24% increase in the AM peak and a 14% increase in the PM peak.	Negligible	Negligible
A1053 Greystone Road	High	HGV increase on this route is less than a 10% increase. Increase in vehicular traffic is low (less than 18 trips in the AM peak hour) and within the normal variation of daily traffic flow.	Negligible	Negligible
A174	High	Highest increase in HGV traffic is 13% in the AM peak hour on the A174 east of Greystones Roundabout.	Negligible	Negligible
West Coatham Lane	Medium	HGV traffic increases by 11% increase in the AM peak and 10% in the PM peak.	Negligible	Negligible
A1042 Kirkleatham Lane	Medium	HGV increase of 15% increase in the AM peak hour and 10% in the PM peak.	Negligible	Negligible

C5.29 The sensitivity of these receptors has been reviewed to determine the significance of these changes as follows:

- The A1085 Trunk Road north and south of Steel House roundabout is a key distributor link, and therefore has been classed as a medium sensitivity receptor. The traffic flow assessment shows a relatively small increase, proportionally, in HGV traffic, so the effect on pedestrian and cyclist amenity along this route is considered to be Minor Adverse. There is an uncontrolled crossing of the Trunk Road south of the Steel House roundabout, with tactile paving and dropped kerbs. The impact on pedestrian and cyclist amenity along this route is Not Significant.

C5.30 All other receptors are expected to have a Negligible and Not Significant impact.

Accidents and Safety

C5.31 The TA identifies three junctions locally where there are clusters of collisions on the existing network:

- 1 Trunk Road/A1085 Trunk Road/West Coatham Lane;
- 2 A1085 Trunk Road/A1085 Corporation Road/Kirkleatham Lane; and

3 A1085 Corporation Road/West Dyke Road/Kirkleatham Lane.

- C5.32 At the Trunk Road/A1085 Trunk Road/West Coatham Lane junction there are two collisions classified as serious, one involving a pedal cyclist and another involving a motorcyclist, but there appears to be no common causation factor to the collisions. As there is no evidence of a prevailing road safety issue at the junction, the effect of the forecast increase in traffic flow generated by the development in this location is expected to be Negligible. This is Not Significant.
- C5.33 All incidents on A1085 Trunk Road/A1085 Corporation Road/Kirkleatham Lane junction are classified as slight and there appears to be no common causation factor to the collisions. As there is no evidence of a prevailing road safety issue at the junction, the effect of the forecast increase in traffic flow generated by the development in this location is expected to be Negligible. This is Not Significant.
- C5.34 A total of five collisions have been noted to take place at A1085 Corporation Road/West Dyke Road/Kirkleatham Lane, four of which were classified as slight and one classified as serious. Of the four slight incidents, two of the collisions at the roundabout involved a cyclist and led to slight injuries. The proposed development will add additional traffic through this junction but given that there is no evidence of a prevailing road safety issue at any arms of the junction, the effect of the increased traffic flow on accidents and safety is expected to be Negligible. This is Not Significant.

C6.0 **Mitigation and Monitoring**

During Construction

- C6.1 As set out in paragraph C5.4, a Framework CEMP and CTMP has been prepared and will minimise the impact of construction traffic on the transport networks. These are embedded into the proposed development. The qualitative assumptions that have been made for the construction stage do not identify the need for additional mitigation measures over and above the requirements outlined in the CEMP have been identified at this stage. A construction traffic assessment will be undertaken once the detailed design of the scheme is known.

During Operation

- C6.2 Significant effects have been identified on two receptors within the potential effects section of this chapter. In order to reduce these effects, and minimise the impact of the development on the road network, the following additional mitigation measures are proposed:
- 1 Occupier Travel Plan for each of the end occupiers at the development site;
 - 2 Wider travel planning measures to reduce development traffic, encourage sustainable travel and the decarbonisation of the network. These measures are detailed in the Travel Plan Framework, Chapter 8 of the TA (Appendix C1), for example: ensuring footway and cycleway connections are provided, providing secure cycle parking, providing staff up to date information on public transport services and walking/cycling provisions, promotions such as National Travel Awareness day and a 'Walking Buddy' Scheme, promoting car sharing, and consolidating servicing trips and deliveries;
 - 3 A review of junction operation at A1085 / A1042 Kirkleatham Lane junction; and
 - 4 Junction improvements for the A174 / Greystone Road Roundabout.
- C6.3 These mitigation measures will be secured by way of an appropriately worded planning condition or obligation.
- C6.4 In addition to the above, and whilst a commitment cannot be made at this stage of the planning process, once adopted the emerging STDC Transport Strategy may provide an opportunity to further reduce the impacts of the proposed development on the sensitive receptors.
- C6.5 A Transport Strategy is currently being prepared for the wider Teesworks site and it will be used by Teesworks for the effective delivery of development across the site, recognising the opportunities and benefits the single-ownership of the Teesworks area brings to delivering interventions that will further encourage modal shift away from the private car and an increased use of public transport. The strategy will identify opportunities for physical works interventions such as the creation of integrated public transport hubs, as well as walking and cycling infrastructure, together with behavioural interventions such as active travel planning measures. Teesworks, working in conjunction with public transport providers and end-occupiers, will deliver / apply measures identified in the Transport Strategy where it is suitable and feasible to do so (i.e. where delivery is subject to usage demand/critical mass) and when the specific type, scale and layout of development is known.

C7.0 Residual Effects

During Construction

- C7.1 The assessment concludes that the temporary effect on severance and amenity, as a result of construction traffic, is not expected to be significant, albeit it has not been possible to undertake a quantitative assessment at this stage and instead this will be once the detailed design of the scheme is known.

During Operation

- C7.2 The effects, and any residual effects, of the proposed development are summarised in Table C7.1. In EIA terms it is not expected that any residual effects will be significant. The impacts will be permanent in nature, however there are opportunities to reduce the impact further through the emerging Transport Strategy for the Teesworks area, as described in Section C6.0 above, although no commitment is being made to this at this stage of the process.

Table C7.1: Summary of Residual Effects (During Operation)

Receptor	Potential effect	Mitigation	Residual Effect
A1085 Trunk Road/ Corporation Road	Negligible effect on severance	N/A	Negligible
A1085 Steel House / West Coatham Lane roundabout	Negligible effect on Driver and Bus Delay	N/A	Negligible
A1085 Trunk Road / A1053 Greystone Road roundabout	Negligible effect on Driver and Bus Delay	N/A	Negligible
A174 / Greystone Road Roundabout	Moderate adverse effect on Driver and Bus Delay	Junction improvements are expected to be delivered to support wider development on the Teesworks site. Mitigation measures to address the traffic impacts associated with this junction will be agreed. Travel Planning measures will also be introduced at the outset of this development to reduce development traffic in the Future Baseline and therefore reduce the volume of additional traffic through the junction.	Minor Adverse with junction improvements and supporting travel planning measures.
A1085 / A1042 Kirkleatham Lane junction	Moderate adverse effect on Driver and Bus Delay	Junction operation will be reviewed to see if performance of existing infrastructure can be improved. A Travel Plan Framework should introduce measures to encourage local trips to travel more sustainably, thereby reducing the impact of development traffic in the Future Baseline.	Minor Adverse
A1085 Trunk Road – North of Steel House roundabout	Minor adverse effect on pedestrian	N/A	Minor Adverse

Receptor	Potential effect	Mitigation	Residual Effect
	and cyclist amenity		
A1085 Trunk Road – south of Streel House roundabout	Minor adverse effect on pedestrian and cyclist amenity	N/A	Minor Adverse
A1085 Corporation Road	Negligible effect on pedestrian and cyclist amenity	N/A	Negligible
A1053 Greystone Road	Negligible effect on pedestrian and cyclist amenity	N/A	Negligible
A174	Negligible effect on pedestrian and cyclist amenity	N/A	Negligible
West Coatham Lane	Negligible effect on pedestrian and cyclist amenity	N/A	Negligible
A1042 Kirkleatham Lane	Negligible effect on pedestrian and cyclist amenity	N/A	Negligible

C8.0 Summary & Conclusions

- C8.1 The assessment of the environmental effects of the proposed development in respect of transport has covered severance, driver and bus user delay, pedestrian and cyclist amenity and accidents and safety.
- C8.2 A TA has been prepared which details the transport aspects of the proposed development and the data used in its assessment in detail.
- C8.3 The assessment has been undertaken in the context of guidance from the IEMA and in the context of the TA.
- C8.4 A Framework CEMP and CTMP are embedded into the design of the development to minimise the impact of construction traffic on the transport networks. No additional mitigation measures over and above the requirements outlined in the CEMP have been identified at this stage.
- C8.5 Similarly, a bus service is proposed as embedded mitigation to encourage sustainable transport to the development site. Further additional mitigation is expected through the implementation of travel planning measures and contributions towards junction upgrades. However, there are opportunities to reduce the impact further through the emerging Transport Strategy for the Teesworks area, as described in Section C6.0 above, although no commitment is being made to this at this stage of the process.
- C8.6 No allowance has been made to discount the effects of traffic generated by previous uses on site. Trips generated by the previous office use will have been on the transport network prior to the site being cleared.
- C8.7 The effects, and any residual effects, of the proposed development are summarised in Table C8.1. As a high level qualitative assessment has been undertaken for the construction phase of development, the results are not included here.
- C8.8 None of the residual effects as a result of the proposed development are expected to be Significant. At a number of receptors, no effect has been identified and for completeness these are also summarised below.

Table C8.1: Summary of Transport Effects

Receptor	Impact	Potential Effects (taking account of embedded mitigation)	Additional Mitigation and Monitoring	Residual Effects
A1085 Trunk Road/Corporation Road	Minor adverse on Severance	Division can occur within the community and between local businesses when it becomes separated by major traffic	None identified – Eston Road provides the main access into the site	Minor Adverse - as the main access the effect is unlikely to be reduced
A1053	Negligible adverse on Severance	n/a	n/a	n/a
The A174	Negligible adverse on Severance	n/a	n/a	n/a
West Coatham Lane	Negligible adverse on Severance	n/a	n/a	n/a

Receptor	Impact	Potential Effects (taking account of embedded mitigation)	Additional Mitigation and Monitoring	Residual Effects
A1042 Kirkleatham Lane	Negligible adverse on Severance	n/a	n/a	n/a
A66	Negligible adverse on Severance	n/a	n/a	n/a
A1085 Steel House / West Coatham Lane roundabout	Negligible on Driver and Bus Delay	n/a	n/a	n/a
A1085 Trunk Road / A1053 Greystone Road roundabout	Negligible on Driver and Bus Delay	n/a	n/a	n/a
A174 / Greystone Road Roundabout	Moderate adverse effect on Driver and Bus Delay	Junction performance based on capacity could be affected causing delay and queue on the junction during peak hours.	Junction improvements are expected to be delivered. A Travel Plan Framework should reduce the impact of development traffic in the Future Baseline.	Minor Adverse – the measures should increase junction capacity and reduce forecast traffic flows to minimise the impact at the junction.
A1085 / A1042 Kirkleatham Lane junction	Moderate adverse effect on Driver and Bus Delay	Junction performance based on capacity could be affected causing delay and queue on the junction during peak hours.	Junction operation will be reviewed to see if performance of existing infrastructure can be improved. Wider travel planning measures, to encourage sustainable travel and support the decarbonisation of the network, should reduce traffic demand.	Minor Adverse – the measures should increase junction capacity and reduce forecast traffic flows to minimise the impact on delay at the junction.
A1085 Trunk Road (North and south of Steel House roundabout)	Minor adverse effects on Pedestrian and Cyclist Amenity	Potential accidents between pedestrians/ cyclists and the increased HGV flow. Pedestrians may attempt to cross the road; however, the uncontrolled crossing provides a safe	Wider travel planning measures, to encourage sustainable travel and support the decarbonisation of the network, should reduce traffic demand.	Negligible –the measures should reduce forecast traffic flows to minimise the

Receptor	Impact	Potential Effects (taking account of embedded mitigation)	Additional Mitigation and Monitoring	Residual Effects
		crossing and the impact on this is deemed not significant.		impact at the crossing.
A1085 Corporation Road	Negligible on Pedestrian and Cyclist Amenity	n/a	n/a	n/a
A1053 Greystone Road	Negligible on Pedestrian and Cyclist Amenity	n/a	n/a	n/a
A174	Negligible on Pedestrian and Cyclist Amenity	n/a	n/a	n/a
West Coatham Lane	Negligible on Pedestrian and Cyclist Amenity	n/a	n/a	n/a
A1042 Kirkleatham Lane	Negligible on Pedestrian and Cyclist Amenity	n/a	n/a	n/a
Trunk Road/A1085 Trunk Road/West Coatham Lane	Negligible on Accidents and Safety	n/a	n/a	n/a
A1085 Trunk Road/A1085 Corporation Road/Kirkleatham Lane	Negligible on Accidents and Safety	n/a	n/a	n/a
A1085 Corporation Road/West Dyke Road/Kirkleatham Lane	Negligible on Accidents and Safety	n/a	n/a	n/a

C9.0 Abbreviations & Definitions

CEng	Chartered Engineers
CEnv	Chartered Environmentalist
CEMP	Construction Environmental Management Plan
CTMP	Construction Traffic Management Plan
CTTP	Chartered Transport Planning Professional
DETR	Department of the Environment, Transport and the Regions
EIA	Environmental Impact Assessment
ES	Environmental Statement
HGV	Heavy Goods Vehicle
HE	Highways England
IEMA	Institute of Environmental Management & Assessment
LCWIP	Local Cycling and Walking Implementation Plan
LTP	Local Transport Plan
MC	Middlesbrough Council
MHF	Materials Handling Facility
NPPF	The National Planning Policy Framework
NCR	National Cycle Route
NRTM	North Regional Transport Model
PRoW	Public Right of Way
RCBC	Redcar and Cleveland Borough Council
SRN	Strategic Road Network
SPD	Supplementary Planning Document
STDC	South Tees Development Corporation
STP	Strategic Transport Plan
TA	Transport Assessment
TVCA	Tees Valley Combined Authority

C10.0

References

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- 9 Department of the Environment, Transport and the Regions (DETR) (2000) Environmental Impact Assessment: A Guide to Procedures.
- 10 Institute of Environmental Management & Assessment (IEMA) (2004) Guidelines for Environmental Impact Assessment
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