Yorkshire GREEN Project

Environmental Impact Assessment

Preliminary Environmental Information Report
Volume two: Chapter 12 Traffic and Transport

October 2021

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Contents

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12. Traffic and Transport

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12. Traffic and Transport

12.1 Introduction

12.1.1 This chapter presents the preliminary assessment of the likely significant effects of the Project with respect to traffic and transport. The preliminary assessment is based on information obtained to date. It should be read in conjunction with the Project description provided in **Chapter 3: Description of the Project** and with respect to relevant parts of the following chapters:

- **Chapter 13: Air Quality** (due to the use of transport data to inform air quality assessments);
- **Chapter 14: Noise and Vibration** (due to the use of transport data to inform noise assessments);
- **Chapter 15: Health and Wellbeing** (due to potential effects on health resulting from changes in traffic and associated noise and air quality emissions); and
- **Chapter 16: Socio-economics** (due to effects of the Project on Public Rights of Way (PRoW)).

12.1.2 This chapter describes:

- the legislation, policy and technical guidance that has informed the assessment (**Section 12.2**);
- consultation and engagement that has been undertaken and how comments from consultees relating to traffic and transport have been addressed (**Section 12.3**);
- the methods used for baseline data gathering (**Section 12.4**);
- overall baseline (**Section 12.5**);
- embedded measures relevant to traffic and transport (**Section 12.6**);
- the scope of the assessment for traffic and transport (**Section 12.7**);
- the methods used for the assessment (**Section 12.8**);
- the preliminary assessment of traffic and transport effects (**Section 12.9**);
- preliminary assessment of cumulative (inter-project) effects (**Section 12.10**);
- a summary of the preliminary significance conclusions (**Section 12.11**);
- additional measures proposed (**Section 12.12**);
- traffic and transport residual effects assessment (**Section 12.13**); and
- an outline of further work to be undertaken for the Environmental Statement (ES) (**Section 12.14**).

12.1.3 This chapter is supported by the following appendices:

- **Appendix 12A: Preliminary Construction Traffic Management Plan ('CTMP')**;

- **Appendix 12B: Preliminary Public Rights of Way Management Plan ('PRoWMP'**); and
- **Appendix 12C: Traffic Generation Calculations**

Project overview

12.1.4 In summary Yorkshire GREEN comprises the following new infrastructure within the draft Order Limits:

- Shipton North and South 400kV cable sealing end compounds (CSECs);
- the YN 400kV overhead line (north of the proposed Overton Substation);
- Overton 400/275kV Substation;
- two new sections of 275kV overhead line south of Overton Substation: the XC 275 kV overhead line to the west and the SP 275kV overhead line to the east;
- Tadcaster Tee West and East 275kV cable sealing end compounds; and
- proposed Monk Fryston 400kV Substation (adjacent to the existing substation).

12.1.5 Works to existing infrastructure within the draft Order Limits would comprise:

- replacement of one pylon on the 2TW/YR 400kV overhead line;
- works to the existing XC/XCP Monk Fryston to Poppleton overhead line comprising a mixture of decommissioning, replacement and realignment east of Moor Monkton and reconductoring works south of Moor Monkton. This overhead line would be reconfigured at its southern end to connect into the proposed substation at Monk Fryston;
- replacement of one pylon on the Tadcaster Tee to Knaresborough (XD/PHG) 275kV overhead line route;
- reconfiguration and removal of a short span of the Monk Fryston to Eggborough 400kV 4YS overhead line to connect this overhead line into the proposed substation at Monk Fryston; and
- minor works at Osbaldwick Substation comprising the installation of a new circuit breaker and isolator along with associated cabling, removal and replacement of one gantry and works to one existing pylon. All works would be within existing operational land.

12.1.6 Please refer to **Chapter 3: Description of the Project** and **Figures 1.1** and **1.2** for an overview of the different components of the Project.

Limitations and assumptions

12.1.7 The information provided in this Preliminary Environmental Information Report (PEIR) is preliminary, the final assessment of likely significant effects will be reported in the ES. The PEIR has been produced to fulfil National Grid Electricity Transmission Plc's (National Grid) consultation duties and enable consultees to develop an informed view of the likely significant effects of the Project, and comment on this during statutory consultation, before the design of the Project is finalised and taken forward to submission of the application for development consent.

12.1.8 The largest limitation to this chapter has been obtaining baseline data. The global COVID-19 pandemic has substantially affected traffic flows on UK roads throughout 2020 and 2021 and as a result it has not been possible to use new baseline traffic data from these years as the data would not represent typical traffic flows. **Section 12.4** sets out the data limitations within this chapter and the how these have been addressed.

12.1.9 Subject to COVID-19 restrictions, a baseline is being collated during 2021 and 2022 in order to support the DCO application.

12.1.10 A second limitation of this chapter is that at this stage of the Project some of the detailed designs may still be revised . Traffic generation assumptions presented within this chapter provide a high level, robust assessment of the likely worst-case. Further refinement of the traffic generation estimation will be undertaken as the design details are progressed. The traffic generation methodology is set out in **Section 12.8.**

12.2 Relevant legislation, planning policy and technical guidance

12.2.1 This section identifies the legislation, planning policy and technical guidance that has informed the assessment of effects with respect to traffic and transport. Further information on policies relevant to the Project is provided in **Chapter 5: Legislation and policy overview**.

12.2.2 The assessment has been undertaken in accordance with relevant transport related planning policy and guidance at the national, regional and local level. This has helped to identify any requirements which the Project needs to consider, aiding the process of defining the scope of assessment and informing the identification of local issues.

12.2.3 There is no legislation specifically relevant to this assessment.

Planning policy

12.2.4 A summary of the relevant national and local planning policy is given in **Table 12.1.**

Table 12.1 - Planning policy relevant to the traffic and transport assessment

Policy	Policy Context
National planning policy	
Overarching National Policy Statement for Energy (EN-1)[1]	Paragraph 5.13.2 The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in section 2.2 of NPS EN-1. Paragraph 5.13.3 If significant transport effects are likely the ES should be accompanied by a Transport Assessment, developed in consultation with

[1] Department of Energy and Climate Change (2011), Overarching National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [Accessed August 2021]

Policy	Policy Context
	National Highways (formerly Highways England) and Local Highways Authorities Paragraph 5.13.4 Where appropriate, the applicant should prepare a Travel Plan and provide details of proposed measures to improve access by public transport, walking and cycling to mitigate transport impacts. Paragraph 5.13.6 The Secretary of State (SoS) should ensure the applicant has sought to mitigate substantial impacts on transport infrastructure. Where mitigation is insufficient the SoS should consider including requirements to mitigate such effects. Paragraph 5.13.11 Where substantial HGV traffic is likely to occur the SoS may attach requirements to control numbers and routing of HGV movements, make sufficient provision for HGV parking and make arrangements for reasonably foreseeable abnormal disruption.
National Planning Policy Framework (NPPF)[2]	If significant transport effects are likely then a Travel Plan is required along with a Transport Statement or Transport Assessment.
Local planning policy	
Harrogate District Local Plan 2014-2035[3]	Policy TI1 (Sustainable Transport) To deliver sustainable, safe and reliable transport the council welcomes working in partnership with all the relevant stakeholders. Policy TI2 (Protection of Transport Sites and Routes) Transport sites and routes will be safeguarded to make sure that any future expansion of these infrastructures is not affected. Policy TI3 (Parking Provision) Promotes sustainable transport modes, sets out parking policy and standards.

[2] Ministry of Housing, Communities and Local Government (2021). The National Planning Policy Framework (NPPF). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf [Accessed August 2021]

[3] Harrogate Borough Council (2020). *Harrogate District Local Plan 2014-2035*. [online]. Available at: https://www.harrogate.gov.uk/planning-policy-guidance/harrogate-district-local-plan-2014-2035 [Accessed 31 March 2021].

Policy	Policy Context
Hambleton Local Development Framework: Core Strategy Development Plan Document, 2007[4]	Policy DP2 (Securing Developer Contributions) To ensure the achievement of sustainable development, contributions from developers will be sought if necessary. Policy DP3 (Site Accessibility) Development should have provision for sustainable forms of transport. A Travel Plan should be prepared and implemented. Policy DP4 (Access for All) Development must ensure safe and easy access for all potential users.
Saved Policies of the York Local Plan, 2005[5]	Policy T2a (Existing Pedestrian/Cycle Networks) Planning permission will not be granted if the Project causes any inconvenience for non-motorists unless sustainable alternative routes will be provided. Policy T5 (Traffic and Pedestrian Safety) Assurance for traffic and pedestrian safety should be provided by implementing appropriate measures suitable for the local area and existing road layouts. Policy T13a (Travel Plan and Contribution) Developments which meet the criteria set down in PPG13, or which are likely to employ more than 30 employees, or a residential site with more than 20 units, will be required to submit a travel plan. Any required contribution for transport improvements will be secured through a Section 106 Agreement. Policy T18 (Highways) Increase in traffic on the local road network will only be allowed in some special circumstances such as boosting the economy, removing traffic from other sensitive areas, improving road safety, reducing conflict between vehicles and non-motorists. Policy T20 (Planning Agreements) Where required applicants will be expected to enter into a Section 106 Agreement in order to

[4] Hambleton District Council (2007). Local Development Framework Development Plan Document Core Framework. (Online) Available from: https://www.hambleton.gov.uk/downloads/file/1667/core-strategy-local-development-framework-development-plan-document [Accessed August 2021].
[5] City of York Council (2005). Local Plan Incorporating the 4th Set of Changes (April 2005). Available at: https://www.york.gov.uk/downloads/file/2822/the-local-plan-2005-development-control-local-plan-full-document-and-appendices [Accessed August 2021].

Policy	Policy Context
	provide or make an appropriate contribution to such improvements.
Saved Policies of the Selby District Local Plan, 2005[6]	Policy T1 Permission for the new development will be subject to the capacity of the local road network unless appropriate off-site highway improvements are undertaken by the developer. Policy T2 Development proposals which would result in the creation of a new access or the intensification of the use of an existing access will be permitted provided highway safety is not compromised and the new access proposal can be created in a location and to a standard which is approved by the highway authority.

Technical guidance

12.2.5 A summary of the technical guidance for traffic and transport is given in **Table 12.2**.

Table 12.2 – Technical guidance relevant to the traffic and transport assessment

Technical guidance document	Context
The Department for Transport (DfT) Circular 02/2013 The Strategic Road Network and the Delivery of Sustainable Development Guidance[7]	Sets out the ways in which National Highways will engage with communities and developers to deliver sustainable development and thus economic growth, whilst safeguarding the primary function and purpose of the Strategic Road Network. The Environmental Impact section states that "*developers must ensure all environmental implications associated with their proposals, are adequately assessed and reported so as to ensure that the mitigation of any impact is compliant with prevailing policies and standards. This requirement applies in respect of the environmental impacts arising from the temporary construction works and the permanent transport solution associated with the development, as well as the environmental*

[6] Selby District Council (2005). Selby District Local Plan. Available at: https://www.selby.gov.uk/selby-district-local-plan-sdlp-2005 [Accessed August 2021].
[7] Department for Transport (2013). The Strategic Road Network and the Delivery of Sustainable Development Guidance. (Online) Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/237412/dft-circular-strategic-road.pdf [Accessed August 2021].

Technical guidance document	Context
	impact of the existing trunk road upon the development itself".
The Institute of Environmental Assessment (IEA)[8] publication Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic (GEART)[9]	This document is still current guidance and sets out the approach to assessing traffic related environmental effects and has been the basis for the assessment in this chapter. **Section 12.8** sets out how the guidelines have been applied.
Design Manual for Roads and Bridges (DMRB)[10]	The DMRB, produced by National Highways, provides standards, advice notes and other published documents relating to the assessment and operation of trunk roads and is frequently used by local highway authorities. A series of documents within the DMRB will be relevant to the design of access proposals. These include CD 109 (Highways Link Design), CD 123 (Geometric Design of at-grade priority and signal-controlled junctions) and CD 143 (Designing for walking, cycling and horse-riding).

12.3 Consultation and engagement

Overview

12.3.1 The assessment has been informed by consultation responses and ongoing stakeholder engagement. An overview of the approach to consultation is provided in **Section 4.4** of **Chapter 4: Approach to preparing the PEIR**.

Scoping Opinion

12.3.2 A Scoping Opinion was adopted by the Secretary of State, administered by the Planning Inspectorate, on 28 April 2021. A summary of the relevant responses received in the Scoping Opinion in relation to traffic and transport and confirmation of how these have been addressed within the assessment to date is presented in **Table 12.3**.

12.3.3 The information provided in the PEIR is preliminary and not all of the Scoping Opinion comments have been addressed at this stage, however all comments will be addressed within the ES.

[8] Now the Institute of Environmental Management and Assessment, IEMA
[9] Institute of Environmental Management & Assessment (IEMA) (1993) Guidelines for the Environmental Assessment of Road Traffic.
[10] National Highways (formerly Highways England) - multiple documents available online

Table 12.3 – Summary of EIA Scoping Opinion responses for traffic and transport

Consultee	Consideration	How addressed in this PEIR
Planning Inspectorate	The Inspectorate agrees that due to the likely low number of staff to be employed at each of the substations and the limited maintenance activity required for the components of the Proposed Development [Effects on roads, PRoW and users of these routes from traffic associated with operation and maintenance] can be scoped out of the ES.	As agreed with the Planning Inspectorate, this has been scoped out of the assessment, as set out in **Section 12.7**.
Planning Inspectorate	The Inspectorate agrees that as no Hazardous Loads are anticipated to be required in the construction, operation or maintenance of the Proposed Development this matter can be scoped out of the ES.However, the ES should consider impacts arising from Abnormal Indivisible Loads where these are likely to give rise to significant effects.	As agreed with the Planning Inspectorate, effects from Hazardous Loads have been scoped out of the assessment, as set out in **Section 12.7.**
Planning Inspectorate	The Inspectorate considers that based on the nature and characteristics of the Proposed Development an operational phase Transport Assessment is not required.	As agreed with the Planning Inspectorate the requirement for a Transport Assessment has not been taken forward and is scoped out
Planning Inspectorate	The Inspectorate notes that the study area will be reviewed and amended as necessary; this should include consideration of any additional roads that should form part of the assessment once the construction access routes are defined.	The Study Area has been amended from that set out in the Scoping Report as further detail on traffic generation, access locations and traffic distribution has been progressed. The current Study Area is set out in **Section 12.7**. The Study Area may be further revised post PEIR based on discussion with the various highway authorities.
Planning Inspectorate	The ES should consider the likely significant construction traffic and transport effects on PRoWs arising from	A **Preliminary PRoW Management Strategy** has been prepared to support this chapter at PEIR and is

Consultee	Consideration	How addressed in this PEIR
	installation of underground cables and associated earthworks, not just in relation to the local and strategic road network.	included as **Appendix 12B**. Assessment of the local and strategic road network is set out in **Section 12.9**.
Network Rail	Assessment of the proposed Project Impact on Network Rail Infrastructure – Assessment should include consideration of how the Project and construction will impact the operational railway.	As requested by Network Rail this chapter is supported by **Appendix 12A (Preliminary Construction Traffic Management Plan**) setting out the details of haulage routes, including where these cross existing rail assets.

Technical engagement

12.3.4 Technical engagement with consultees in relation to traffic and transport will be undertaken post completion of statutory consultation.

Data gathering methodology

12.3.5 The description of the baseline conditions presented in **Section 12.7** is based on currently available data from within the Study Area.

12.3.6 The methodology for baseline data gathering including the desk study and site surveys is set out below.

Study Area

12.3.7 The Study Area for the Traffic and Transport assessment has been informed by:

- Roads providing access for construction traffic generated by the Project and points on the transport network that will be crossed by any element of the Project. Temporary construction working areas and laydown areas will be required throughout the Project and will be located within the draft Order Limits.
- The key routes outside of the draft Order Limits that construction traffic will take to access the construction areas and permanent infrastructure of the Project.

12.3.8 The proposed transport Study Area is set out in **Figure 12.1**. The transport Study Area will be reviewed and amended, if required, as the Project is developed in response to the identification of any additional impact pathways, estimates of construction traffic levels, identification of working and laydown areas and in response to feedback from consultation.

12.3.9 The scope of assessment for the Project has taken into account the key roads that would be affected by predicted traffic generation associated with the construction, refurbishment and dismantling of overhead lines for the Project are set out in further detail in **Section 12.8**.

12.3.10 The Study Area includes the following local highway authority areas:

- Leeds City Council;

- City of York Council; and
- North Yorkshire County Council.

12.3.11 The Study Area also includes access routes along National Highway's Strategic Road Network (SRN).

12.3.12 The Study Area for the Project includes the road links affected by the Project which are set out in **Table 12.4**.

Table 12.4 - Transport Study Area

Study Area – List of Roads			
A162	A62	Rawfield Lane	Butts Lane
A1246	A1(M)	Westfield Lane	B1222
Whitecote Lane	St John's Lane	B1217 Aberford Road/Collier Lane	Copley Lane
Colehill Lane	Paradise Way	A64	Spen Common Lane
Warren Lane	A659	C305 Garnet Lane	Moor Lane
Station Road	Croft Lane	A168	Walton Road
Wighill Lane	Church Lane	M1	B1224 (York Road)
Healaugh Lane	A59	Tockwith Road	Atterwith Lane
Marston Lan	Church Lane	Red House Lane	East Lane
Newlands Lane	Common Croft Lane	Cinder Lane	A1237
A19 (Shipton Road)	Overton Road	Stripe Lane	B1363 (Sutton Road, Wigginton Road)
Corban Lane	Plainville Lane	A1079	Osbaldwick Link Road
Murton Way			

Desk study

12.3.13 A desk study has been undertaken which has included a review of the strategic and local road network, public transport networks, PRoW network, and accident data within the Study Area for the Project.

12.3.14 A summary of the organisations that have supplied data, together with the nature of that data is outlined in **Table 12.5**.

Table 12.5 - Data sources used to inform the traffic and transport assessment

Organisation	Data Source	Data Provided
Ordnance Survey (OS) Mapping	Bing maps allows access online to Ordnance Survey Mapping[11]	1:50,000 and 1:25,000 Ordnance Survey Mapping of the Study Area
Google Traffic	Google maps website[12]	Data on congestion on local roads and junctions within the Study Area
Crashmap	Crashmap website[13]	Accident data for the entire Study Area
Google Street View	Google maps website[12]	Street view imagery of the local highways network
PRoW Information	North Yorkshire County Council website[14]	PRoW information from the definitive NYCC map
Traffic Data	DfT website[15]	Historic data from the DfT permanent count locations at identified Highways Links
Bus Service information	York – Travel York website[16] Selby – Arriva website[17] Leeds – Firstbus website[18]	Bus Service information for the local area from York, Leeds and Selby
National Cycle Network (NCN) Information	Sustrans website[19]	Details of NCN through the Study Area
DfT (2021) – Table TRA2501c	DfT website[20]	Road traffic statistics to inform HGV traffic growth assumptions.

[11] Microsoft Bing (2021). Bing Maps (Online) Available from: https://www.bing.com/maps [Accessed August 2021].
[12] Google (2021). Google Maps (Online) Available from: https://www.google.co.uk/maps [Accessed August 2021].
[13] Crashmap (2020). Crashmap (Online) Available from: https://www.crashmap.co.uk [Accessed August 2021].
[14] North Yorkshire County Council (2021). Base Maps Public Rights of Way (Online) Available from: https://maps.northyorks.gov.uk/connect/analyst/mobile/#/main?mapcfg=roads_footpaths [Accessed August 2021].
[15] Department for Transport (2021). Road Traffic Statistics (Online) Available from: https://roadtraffic.dft.gov.uk [Accessed August 2021].
[16] City of York Council (2021). York Bus Route Map (Online) Available from: https://www.itravelyork.info/york-bus-route-map [Accessed August 2021].
[17] Arriva (2021). Bus travel in Selby. (Online) Available from: https://www.arrivabus.co.uk/yorkshire/bus-travel-in-selby [Accessed August 2021].
[18] FirstBus (North) Limited and FirstBus (South) Limited (2021). Network Maps (Online) Available from: https://www.firstbus.co.uk/leeds/routes-and-maps/network-maps [Accessed August 2021].
[19] Sustrans (2021). The National Cycle Network. (Online) Available from: https://www.sustrans.org.uk/national-cycle-network [Accessed August 2021].
[20] Department for Transport (2021). Provisional Road Traffic Estimates, Great Britain: April 2020-March 2021. (Online) Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/940319/tra2501.ods [Accessed August 2021].

Organisation	Data Source	Data Provided
DfT – Trip End Model Presentation Program (TEMPro)	The National Trip End Model (NTEM) forecasts the growth in trip origin-destinations (or productions-attractions) up to 2051 for use in transport modelling. The NTEM includes planning data to allow for traffic growth as a result of new development. The TEMPro software allows users to view the NTEM dataset and has been used to derive traffic growth factors between years, e.g. from baseline year to forecast year.	Traffic growth rates for the Study Area.
Network Rail	National Rail website[21]	Details of active rail lines in the Study Area

Survey work

12.3.15 A site survey of the local road network with the potential to be affected by the construction traffic generated by the Project was carried out on 15 March 2021. The site survey included detailed notes and photographs recorded on a Global Positioning System (GPS) linked on-site system (collector app). **Table 12.6** below sets out details of this site survey.

Table 12.6 - Transport site survey

Survey Type	Scope of Survey	Coverage of Study Area	Survey Status
Site Survey	The scope of the site survey included: • All roads and junctions that are part of the Study Area; • All proposed site access locations; • The PRoWs potentially affected by the project; • Observations of traffic conditions on the highways network; • Visit to the existing substation at Monk Fryston; • A visit to the proposed construction compound locations; • Observations of key sensitive locations; and • Driving along routes to confirm their suitability for HGV traffic.	Proposed construction traffic routes within and on the periphery of the Study Area	Survey Complete

[21] National Rail (2021). Maps of the National Rail Network of Great Britain (Online) Available from: https://www.nationalrail.co.uk/stations_destinations/rail-maps.aspx [Accessed August 2021].

Data limitations

12.3.16 The COVID-19 pandemic restrictions have had a substantial effect on the traffic levels on roads across 2020 and early 2021. Latest DfT (2020) road traffic statistics indicate that in 2020 UK roads experienced a reduction of 6% in HGVs and 12% in private cars which means that counts undertaken in 2020 would not represent an accurate picture of traffic levels in normal conditions.

12.3.17 As a consequence it is considered that new traffic surveys to inform this assessment could not be undertaken to inform the preliminary assessment reported in the PEIR and a different approach has been undertaken at this stage of the Project. The Planning Inspectorate (2020) Advice Note Seven has set out that:

12.3.18 "*The Inspectorate considers that Applicants should make effort to agree their approach to the collection and presentation of information with relevant consultation bodies. In turn the Inspectorate expects that consultation bodies will work with Applicants to find suitable approaches and points of reference to aid the robust preparation of applications at this time*."

12.3.19 In the absence of new data from traffic counts, the use of historic traffic data from counts undertaken before 2020 and the first UK national wide lockdown has been used for the preliminary assessment. Subject to any further COVID-19 pandemic restrictions, site specific traffic data could be collected to inform the DCO submission and/or validate the traffic data used in this chapter. Relevant local highway authorities will be consulted on this during technical engagement.

12.4 Overall baseline

12.4.1 This section provides a description of the baseline conditions of the local and strategic roads in the Study Area (as set out in **Table 12.4**) which are proposed to be used for access to the Project, as well as potentially affected PRoWs, cycle routes and sustainable travel routes. **Figure 12.2** illustrates the roads that have been included in this section.

Strategic road network

A1(M)

12.4.2 The A1(M) has been split into four separate sections to reflect those parts of the A1 that have been upgraded. The section that forms part of the Project access strategy runs between the M62 at junction 41 and the A194(M) at Junction 65. The road is a motorway with three lanes in both directions, a hard shoulder and is subject to a 70mph speed limit.

M1

12.4.3 The M1 motorway runs from London to Leeds ending beyond Junction 47 where it merges with the A1(M). The road is subject to a 70mph speed limit. In the Study Area the M1 west of A1(M) is a motorway with three lanes in both directions and a hard shoulder.

A64

12.4.4 The A64 is a major road in the North of England which links Leeds to Scarborough via York. In the Study Area east of the A1(M) the road is part of the SRN and, is a dual carriageway from the A1(M) to the east of York to the north-east of its junction with the A1237. and subject to the National Speed Limit (NSL) (70mph).

Local highways network

A162

12.4.5 The A162 runs between Darrington and Tadcaster to the east of the A1(M). The road is a two-lane single carriageway for its length and is subject to the NSL (60mph) for a majority of its length except where it passes through villages such as Barkstone Ash and Towton where the speed limit reduces to 30/40mph. There are footways and lighting along the route only in the villages that the route passes through and around major junctions.

A63

12.4.6 The A63 runs between Leeds and Hull on an east to west alignment. The road is generally a two-lane single carriageway for its entirety with short dual carriageway sections near major junctions and towns. The road is subject to the NSL (60mph) other than where it passes through towns and settlements, where there is also street lighting.

Rawfield Lane

12.4.7 Rawfield Lane routes north to south-west between the A63 and the settlement of Fairburn and is a two-lane single carriageway. It is subject to the NSL (60mph) for the majority of its length other than on the approach to Fairburn where the speed limit reduces to 30mph. There is a 7.5 tonne HGV restriction on the road except for loading. .

Butts Lane

12.4.8 Butts Lane routes from the A63, in the south, to Westfield Lane, in the north, passing through the settlement of Lumby. South of Lumby the road is a narrow single lane carriageway with no centre line and has a 7.5 tonne HGV restriction on the road except for loading. The road is subject to the NSL (60mph) other than in Lumby where the speed limit is 30mph. The road has footways and street lights in Lumby.

A1246

12.4.9 The A1246 is the former A1 between Brotheron and Selby Fork. The road is a two-lane single carriageway subject to the NSL (60mph).

Westfield Lane

12.4.10 Westfield Lane routes from the A63 to Low Street, South Milford, in a west-east orientation. The road is generally a narrow single lane carriageway with no centre line, except where the road crosses the A1(M). It has a 7.5 tonne HGV restriction on the road except for loading and is subject to the NSL (60mph) other than in South Milford where the speed limit is 30mph. The road has footways and street lights in South Milford.

B1222

12.4.11 The B1222 runs between the A19 at York and Fulford via Sherburn in Elmet. The road is subject to the NSL (60mph) other than through settlements such as Naburn (20mph) and Sherburn in Elmet (30mph). The road is a two-lane single carriageway with street lights and footways in the villages only.

Whitecote Lane

12.4.12 Whitecote Lane is a rural two-lane single carriageway between the B1222 and the West Side of South Milford. The road is subject to the NSL (60mph).

St John's Lane/Coldhill Lane/Copley Lane

12.4.13 St John's Lane/Coldhill Lane/Copley Lane is a rural two-lane single carriageway between Sherburn in Elmet and the B1217. The road is subject to the NSL (60mph) other than in Sherburn in Elmet where the limit is 30mph.

B1217 Aberford Road/Collier Lane

12.4.14 The B1217 is a short rural B road that connects Towton to Garforth. The road is a two-lane single carriageway subject to the NSL (60mph).

Paradise Way

12.4.15 Paradise Way routes north to south from the A64/A1(M) junction in the south to Wetherby Road in Bramham in the north. Within the Study Area the road routes from the A64/A1(M) junction to Spen Common Lane, through a rural area. The road is largely single carriage way through this area. The speed limit is the NSL (60mph). There is a shared cycle/footpath on the southbound side of the carriageway.

Spen Common Lane

12.4.16 Spen Common Lane routes between Paradise Way to the west and Warren Lane to the north-east. It routes through a rural area with a warning for slow farm traffic. The road is predominantly single carriageway without a centre line with some potential places for passing and is without footpath provision. The NSL (60 mph) applies.

Warren Lane

12.4.17 Warren Lane is a rural road that routes between Spen Common Lane to its south and Toulston Lane to the north. At the southern extent it passes by residential properties. It is predominantly single carriageway without a centre line. The NSL (60 mph) applies.

A659

12.4.18 The A659 is a two-way single carriageway that routes out of the north-west of Tadcaster and though a rural area to Weatherby via Boston Spa. The road is subject to the NSL (60 mph) other than in built up areas where the speed limit is 30mph. In the vicinity of the Study Area the A659 has a direct junction with the A64.

C305 Garnet Lane

12.4.19 Garnet Lane is a short road that links two points off the A659 just west of Tadcaster. The road is a single lane with passing places. The road is rural in nature with no footways and is subject to the NSL (60 mph).

Moor Lane

12.4.20 Moor Lane is a short road that links Garnet Road to Weedling Gate south-west of Tadcaster. The road is a single lane with passing places. The road is rural in nature with no footways and is subject to the NSL (60mph).

Croft Lane

12.4.21 Croft Lane is a short road that links the A659 into the village of Newton Kyme. The road is a single lane with passing places. The road is rural in nature with no footways and is subject to the NSL (60 mph).

A168 (Walton Road)

12.4.22 The A168 runs through North Yorkshire between Boston Spa and Northallerton via Weatherby. Within the Study Area the A168 runs from junction 45 of the A1(M) and routes north to Wetherby.

Wighill Lane (West)

12.4.23 Wighill Lane West runs from a junction with Walton Road/Wetherby Road in Walton and Church Road south of Wighill. The road is a rural two-lane single carriageway with no footways.

Wighill Lane (East)

12.4.24 Wighill Lane East runs from Wighill to Healaugh. The road is a rural two-lane single carriageway with no footways.

Church Lane

12.4.25 Church Lane routes between two sections of Wighill Lane as it routes though Wighill village. It is a two-lane single carriageway. The speed limit though the village is 30mph and NSL (60mph) either side. There is footway provision on both sides of the carriageway as Church Lane routes through Wighill.

B1224 (York Road)

12.4.26 The B1224 routes between the A59, in the east, and a roundabout junction with the A168 and Deighton Road in the west. Within the Study Area the road routes between the B1224 junction with A1(M) (junction 46) to the junction with Healaugh Lane. The B1224 in this section is generally a two-lane single carriageway. There is some footway provision as the B1224 routes passes through Bickerton and eastwards from this location. Approaching the settlement of Bilton-in-Ainsty, eastbound, the speed limit is 40mph and there is footway and bus provisions. On exiting the settlement, the NSL (60mph) applies.

Healaugh Lane

12.4.27 Healaugh Lane routes south from the B1224. The NSL (60mph) applies. There is a priority junction with the B1224. It is single carriageway with no centre line and has no footway facilities.

A59

12.4.28 The A59 routes from Preston to York. Within the Study Area the road routes between the A1237 and the A1(M)/A168. The speed limit varies from 40mph to the NSL (60mph) as it routes through both rural areas and urban areas. There is footway and street lighting provision along some of its length within built up areas and villages. The road is a high standard two-lane single carriageway.

Tockwith Road

12.4.29 Tockwith Road routes between B1224 York Road and Marston Road through the village of Long Marston. The road is subject to a 7.5 Tonne HGV restriction aside from loading. The road is single carriageway with footpath provision on the north side of the carriageway and street lighting provision through the village. After the village the road is subject to the NSL (60mph).

Atterwith Lane

12.4.30 Atterwith Lane routes between Tockwith Road/Main Street (in Long Marston) and Main Street (in Hessay) and routes though a rural area. The NSL (60mph) applies outside the village and 30mph within the villages. The road is subject to a 7.5 Tonne HGV restriction aside from loading.

Marston Lane

12.4.31 Marston Lane routes between the A59 and Atterwith Lane. There is a priority junction with the A59. The road is a two-lane single carriageway through a rural area subject to the NSL (60mph) and has no footway provision.

Church Lane

12.4.32 Church Lane routes from A59 to Moor Monkton. It is signed as a no through road as it leads to a dead end in Moor Monkton. Shortly beyond the junction with the A59 there is a single carriageway without central road markings and a short section of footway provided but north of this point the road widens to a two-lane carriageway but without centre lines other than near the junction with Red House Lane. The road is subject to the NSL (60mph).

Red House Lane

12.4.33 Red House Lane routes north-east from Church Lane to Hall Lane. It routes through a rural area with access to a small number of properties and is subject to the NSL (60mph). The road is a cul de sac terminating at farm buildings to the north-east.

East Lane

12.4.34 East Lane is to the west of Moor Monkton and follows from Church Lane and Main Street. It passes residential properties and is signed as a no through road for vehicles. It is single carriageway with no centre line. The NSL (60mph) applies.

Newlands Lane

12.4.35 On Newlands Lane the NSL (60mph) applies. It routes between the A59 to the south to a junction with Broad Lane/West Field Lane/Common Croft Lane to the north. There is an HGV restriction for 7.5 tonnes except for loading. The road is single carriageway, with no centre line but with passing places. It routes through a rural area with no footways.

Common Croft Lane

12.4.36 Common Croft Lane routes from Newlands Lane to Cinder Lane/Ouse Moor Lane. It is single carriageway with no centre line markings and some passing places. The road is subject to the NSL (60mph) and does not have footways.

Cinder Lane

12.4.37 Cinder Lane is a single carriageway that runs north-west from a junction with Common Croft Lane/Ouse Moor Lane. The road is a cul de sac as it terminates to the north-west at a farm. The road is single track and subject to the NSL (60mph).

A1237

12.4.38 The A1237 is part of the York Ring Road forming the east and northern sections. It links the A64 at both ends (as that forms the remaining section of the York Ring Road). The road provides access to several strategic roads such as the A64, A19 and A59. The road is a two-lane single carriageway. The road does not have footways but there are signalised and dropped crossings at all the major junctions. Approaching the junction with the A59 the speed limit is 40mph and beyond it the NSL (60mph) applies.

A19 (Shipton Road)

12.4.39 The A19 routes from York (A1237) to the A168 at Thirsk. Within the Study Area the A198 runs from A1237 to Overton Road/Station Lane. The A1237 is subject to a 50mph speed limit just north of York and then the NSL (60mph) applies. There is also a 30mph speed limit in Shipton and 40mph speed limit in Skelton. There is footway provision, including a pedestrian crossing island at the A1237 junction. Within the Study Area the A19 is predominantly a high quality two-lane single carriageway.

Overton Road

12.4.40 Overton Road routes from Stripe Lane towards the A19, through a rural area passing through Overton. The NSL (60mph) applies. Overton Road is a narrow single lane carriageway without a centre line, and with passing places. There is a gradient change due to a bridge crossing over the railway line.

Stripe Lane

12.4.41 Stripe Lane routes from the A19 to Overton Road. The NSL (60mph) applies. It is a single lane carriageway with no central line, with passing points. Routing from the A19 there is a warning sign for vehicles over 10’6” due to a low bridge on the road related to a rail bridge. Stripe Lane routes through a rural area, passing a small number of properties.

B1363 (Sutton Road, Wigginton Road)

12.4.42 The B1363 routes from York (A1237) to the B1257 to the north. Within the Study Area the road routes from A1237 to Goose Lane. The road is generally a two-lane single carriageway subject to the NSL (60mph) but on approach to Wigginton the speed limit reduces to 40mph.

Corban Lane

12.4.43 Corban Lane routes west-east from East Lane to the B1363 through a rural area. There is a priority junction with the B1363. Routing west from the B1363 the road is subject to the NSL (60mph) and has an HGV restriction over 7.5 tonnes. Corban Lane is a two-lane carriageway.

Plainville Lane

12.4.44 Plainville Lane is a narrow single lane carriageway without a centre line, and with passing places. It routes between Corban Lane and Bull Lane in a north south-orientation through a rural area with a small number of properties. The road is a dead end. The road is subject to the NSL (60mph).

A1079

12.4.45 The A1079 routes from Hull (A1079/A165) city centre to York city centre (A1078/A1036/Foss Islands Road). Within the Study Area the road runs between Osbaldwick Link Road and the junction with the A64/A166. The junction with Osbaldwick Link Road is signalised and is shortly followed by another signalised junction. The road in this section is dual carriageway with a speed limit of 40mph with a shared pedestrian and cycle pathway on both sides of the road and a bus lane on the westbound carriageway.

Osbaldwick Link Road

12.4.46 Osbaldwick Link Road routes between Hull Road (A1079) and Murton Way and has a speed limit of 30mph. It has a signalised junction with Hull Road and at that junction the southbound carriageway has two lanes and two bicycle lanes. On the northbound carriageway side of the road there is a split cycle/pedestrian footway and a short stretch of footway on the southbound carriageway side to the south of the junction with Murton Road. The road passes through areas that predominately comprise retail/business uses and has bus service facilities along the road as well as street lighting provision.

Murton Way

12.4.47 Murton Way routes east from Osbaldwick Link Road and routes to the Moor Way/Moor Lane/Murton Lane junction to the east. The speed limit varies between 30mph and the NSL (60mph). Past the existing junction with Osbaldwick Substation there is a 7.5 tonne HGV restriction. Murton Way is single carriageway routing through an area of businesses/residential properties and has a footpath on the westbound carriageway.

Bus network

12.4.48 Bus services are in operation between the major settlements within the Study Area. The following bus services operate along roads which are crossed by existing overhead lines within the draft Order Limits or will be crossed by new overhead lines proposed as part of the Project:

- A659 (West of Tadcaster):
  - City Zap; 843 (both Leeds to York);
  - 825 (York to Harrogate);
- A1079 – X47; X46; 561 (all York to Hull);
- Wighill Lane, Church Lane – 37 (York to Tadcaster);
- Rawfield Lane – 493 (Sherburn in Elmet to Pontefract);
- B1222 – 164 (Selby to Leeds);
- A659 – 492 (Selby to Weatherby via Tadcaster);
- A162:
  - 392 (Selby to Weatherby via Tadcaster);
  - 493 (Sherburn in Elmet to Pontefract);
- Rawfield Lane/A63 - 493 (Sherburn in Elmet to Pontefract);
- B1224 - 412 (York to Weatherby);
- A59 – 22/23 (York to Boroughbridge then Rippon and Knaresborough);
- B1363:
  - 28 (York to Monks Cross/Hedworth);
  - 40 (York to Easingwold);
- A19:
  - 29 (York to Easingwold);
  - 20; 30x (York to Easingwold and Thirsk); and
  - 31x (York to Easingwold and Helmsley);

12.4.49 The key roads above and the bus services running along them are set out in **Figure 12.3**.

Public Rights of Way

12.4.50 The draft Order Limits and existing and proposed Project elements within them potentially affect a number of PRoWs. No National Trails would be affected by the Project.

12.4.51 **Figure 12.4** sets out the locations of the PRoW in relation to the Project. To understand the effects of the Project a Preliminary PRoWMP has been developed and is provided in **Appendix 12B**.

12.4.52 The PRoWMP has set out in detail each PRoW and area of Open Access Land (OAL) that is currently affected by the draft Order Limits of the Project. This includes details on the PRoW number, type of effect and if the impact will be permanent or temporary.

National Cycle Network

12.4.53 Two Sustrans NCN routes fall within the draft Order Limits:

- NCN 65 – Runs between Middlesbrough and Hornsea (via York): within the draft Order Limits NCN runs along Overton Road, Stripe Lane and an off-road section south of Stripe Lane; and
  - NCN 66 – NCN Route 66 runs along Murton Way which provides access to Osbaldwick Substation.

12.4.54 **Figure 12.5** shows the NCN routes and the draft Order Limits for the Project.

Baseline traffic data

12.4.55 As the COVID-19 pandemic has had a substantial effect on road traffic levels during 2020 and 2021, for the PEIR, baseline traffic flows have been derived from existing traffic counts available from an online database maintained by DfT[22]. For most locations this has resulted in the use of data from 2019 prior to traffic levels being affected by the COVID-19 pandemic.

12.4.56 At this stage the available traffic data does not cover all of the roads identified in the Study Area. As part of the ES, it is anticipated that new traffic counts will be undertaken at locations where assessment is required.

12.4.57 As the available traffic data is historic, growth rates have been applied. The growth rates for total vehicles have been derived from the DfT's TEMPro 7.2 software and HGV growth rates have been derived from the DfT National Traffic Statistics. The current year of 2021 has been adopted as the baseline year.

12.4.58 Growth rates from TEMPro have been based on three planning authority areas due to the length of the route: Selby district for the south section; Harrogate district for the for the central section; and the City of York for the north section remainder of the Study Area.

12.4.59 The TEMPro growth rates are as follows:

- 2019 – 2021:
  - Selby – 1.0177;
  - Harrogate – 1.0163; and
  - York - 1.0215.

12.4.60 HGV growth has been based on the DfT (2021) publication 'TRA2501c - Road traffic (vehicle miles) by vehicle type in Great Britain'23. Table TRA2501c provides a summary of annual road traffic (vehicle miles) by vehicle type from October 1995 to June 2021, presented in quarter periods for each year.

[22] Department for Transport (2021). Road traffic statistics (Online). Available from: https://roadtraffic.dft.gov.uk/#6/55.250/-1.000/basemap-regions-countpoints (Accessed October 2021)
Provisional Road Traffic Estimates, Great Britain: July 2020 - June 2021 (Online). Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/940319/tra2501.ods (Accessed October 2021).

12.4.61 To understand traffic growth to 2021, a methodology was required to take into account issues with HGV traffic growth in 2020 and 2021 due to the ongoing COVID-19 pandemic. Traffic growth in these two years saw large reductions in HGV traffic as lockdowns were in place across the UK. As such it was considered that using the last reliable year of HGV growth (2019) would be the best approach for understanding 2020 and 2021 growth. The following methodology was therefore used.

- the growth factor from 2018 to 2019 was 0.375%;
- estimated growth between 2019 and 2021 is assumed as 0.375% per annum, or 0.76% over the two years; and
- the growth for 2019 – 2021 (0.75%) provides a HGV growth rate of 1.00750.

12.4.62 To growth the 2008 and 2009 traffic data to 2021 the growth between the base years and 2019 was calculated from Table TRA2501c and the growth set out above for 2019-2021 was added. This provided the following growth rates:

- 2008 – 2021: 0.9735;
- 2009 – 2021: 0.9735; and

12.4.63 For the two locations where counts from 2008 and 2009 are used to inform this chapter, in the absence of more recent data. Table TRA2501c was also used to inform total vehicle growth rates as TEMPRO does not provide growth rates this far into to the past. This resulted in the following total growth rates for those years to 2021:

- 2008 – 2021: 1.1675; and
- 2009 – 2021: 1.1688.

12.4.64 **Table 12.7** sets out the average annual daily flow (AADF) for the date of survey and the current baseline (2021).

12.4.65 Traffic data for roads within the Study Area is shown in **Table 12.7** which also shows the 2021 baseline traffic flows which have been derived through the application of the growth rates.

Table 12.7 - 2021 baseline traffic data (AADF)

Highways Link	Details	Historic Traffic Data			2021 Base		
		Total vehicles	HGVs	Year of Data	Total Vehicles	HGVs	HGV%
A63	Between Rawfields Lane and A162	14,338	2,176	2019	14,592	2,192	15%
A659	Between A64 and A659	5,387	261	2019	5,475	263	5%
A64	Between Paradise Lane and A659	58,571	3,646	2019	59,526	3,673	6%
Weatherby Road	Between Tower Crescent and Station Road	4,499	35	2019	4,572	35	1%
A1237	Between Askham Bryan Lane and Broad Lane	27,967	1,419	2019	28,568	1,430	5%

Highways Link	Details	Historic Traffic Data			2021 Base		
		Total vehicles	HGVs	Year of Data	Total Vehicles	HGVs	HGV%
A59	Between Cat Lane and Newlands Lane	18,617	804	2019	19,017	810	4%
Common Croft Lane	Between Broad Lane and Lords Lane	117	2	2009	137	2	1%
A59	Between Low Road and Pool Lane	18,617	804	2019	19,017	810	4%
A1237	Between A1237 and Esk Drive	38,923	1,295	2019	39,760	1,305	3%
A19	Between Fairfields Drive and Stripe Lane	9,964	637	2019	10,178	642	6%
Overton Road	Between Stripe Lane and A19	92	11	2019	94	11	12%
B1363	Between Mill Lane and A1237	12,928	196	2008	15,093	191	1%
A1079	Between A64 and Osbaldwick Link Road	13,932	286	2019	14,232	288	2%
A64	Between Common Lane and Forest Lane	50,567	3,119	2019	51,654	3,142	6%
A63	Between Westfield Lane and A1246 Turn Off	10,872	875	2019	11,064	882	8%
A168	Between A58 and Walton Road	12,048	374	2019	12,244	377	3%
Church Lane	Church Lane - Wighill	0	0	TBC[24]	0	0	
Osbaldwick Link Road	Between A1079 and Murton Way	0	0	TBC	0	0	
Station Road	Between A659 and Weatherby Road	0	0	TBC	0	0	
B1222	Church Hill - Sherburn in Elmet	0	0	TBC	0	0	
A1(M)	Between A659/A168 and A64	109,296	17,047	2019	111,078	17,175	15%
A1(M)	Between A53 and M62	143,012	20,216	2019	145,543	20,368	14%

[24] TBC relates to a link that will be assessed in the ES submission of the Traffic and Transport Environmental Chapter but for which no historic data existed for to use in this chapter where COVID-19 restrictions limited the use of new traffic surveys.

Highways Link	Details	Historic Traffic Data			2021 Base		
		Total vehicles	HGVs	Year of Data	Total Vehicles	HGVs	HGV%
M1	Between A63 and A1(M)	80,319	8,047	2019	81,741	8,107	10%

12.4.66 **Table 12.7** indicates there are four locations within the Study Area for which there is no available traffic data and therefore an assessment of these locations has not been reported in the PEIR. It is anticipated that traffic counts will be undertaken at these four locations and a detailed assessment reported in the ES.

High level accident data review

12.4.67 Personal Injury Accident (PIA) data has been obtained from CrashMap (2021) for the latest five-year period (01 January 2015 – 31 December 2019). The extent of the Study Area is illustrated in **Figure 12.6**.

12.4.68 The purpose of assessing recorded PIAs is to determine whether there is a history of accidents on construction traffic routes within the Study Area, and to investigate whether there are any patterns or contributing factors to the accidents recorded. Clusters of accidents could indicate that improvements are required to enable development to proceed as additional traffic generated during the construction phase may exacerbate existing safety issues. Further consideration has been given to those accidents involving vulnerable road users (cyclists/pedestrians) as part of this assessment.

12.4.69 The impact of casualties differs according to the severity of the injuries sustained. Three groups are usually differentiated as follows:

- fatal: any death that occurs within 30 days from causes arising out of the accident;
- serious: records casualties who require hospital treatment and have lasting injuries, but who do not die within the recording period for a fatality; and
- slight: where casualties have injuries that do not require hospital treatment, or, if they do, the effects of the injuries quickly subside.

12.4.70 The accident assessment in this chapter has been undertaken for the entire Study Area. The assessment below only includes links where accidents were noted.

12.4.71 There are several elements of the network where zero accidents were recorded in the time frame set out above. Links with zero accidents are set out in **Table 12.8**. Access numbers used to define link lengths are set out in **Section 12.8**.

Table 12.8 – Links in Study Area with no recorded accidents

Links with Zero Accidents			
Rawfield Lane Between A63 and Access 5	East of Garnet Lane Between A659 and Access 37	Church Lane Between A59 and	Newlands Lane Between A59 and Broad Lane

Links with Zero Accidents			
		Access 80	
Westfield Lane Between A63 and Access 13	Garnet Lane Between A659 and Moor Lane	Red House Lane Between Church Lane and Access 81	Common Croft Lane Between Broad Lane and Newlands Lane
Whitecote Lane Between B1222 and Access 15	Croft Lane Between A659 and Access 50	Marston Lane Between A59 and Atterwith Lane	Cinder Lane Between Common Croft Lane and Access 83
Laith Staid Lane Between St Johns Lane and Access 21	Wighill Lane (N) Between Church Lane and Access 60	Atterwith Lane Between Marston Lane and Tockwith Road	Stripe (N) Lane Between Shipton Road and Access 90
Spen Common Lane Between Paradise Way and Access 35	Healaugh Lane Between B1224 and Access 61	Tockwith Road Between Marston Lane and Access 66	Planville Lane Between Corban Lane and Access 106
Murton Way Between Osbaldwick Road and Access 111	Overton Road Turning Between A19 and Access 87		

Recorded accidents

12.4.72 A total of 218 accidents were recorded over the five-year period on the roads within the Study Area between 01 January 2015 – 31 December 2019 inclusive. Of the 218 accidents recorded, 6 accidents were recorded as fatal, 51 accidents were recorded as serious and 161 accidents were recorded as slight. **Table 12.9** provides a summary of the accidents and location of occurrence.

12.4.73 Where traffic data is available for a road link, a calculation of the accident rate per million vehicle kilometres has been undertaken which is a means of assessing the number of accidents against national statistics. For those links where there is no traffic data available, the accidents recorded have been provided but without the calculation of the accident rate.

12.4.74 Estimated annual flows have been calculated by using the 2021 base year for traffic for 24 hours multiplied by 365 days of the year.

Table 12.9 – PIA data summary (January 2015 – December 2019)

Vicinity	Severity			Total	PIA p.a.	Link Lengths (km)	Estimated Annual Flow	PIA p.a. Million Vehicle km
	Slight	Serious	Fatal					
A162 between Access 1 and A63	1	0	0	1	0.20	1.00	2,226,135	0.09
Butts Lane Between A63 and Redhill Lane	1	1	0	2	0.40	0.80		
A63 Between A1246 and A162	1	2	0	3	0.60	2.64	5,326,445	0.04
Great North Road Between A63 and Selby Road	4	0	1	5	1.00	2.43	4,038,360	0.10
B1222 Between A63 and St Johns Lane	20	8	1	29	5.80	4.18		
St Johns Lane Between B1222 and Laith Staid Lane	0	1	0	1	0.20	0.29		
B1217 Between M1 and Access Point 30	7	6	1	14	2.80	5.99		

Vicinity	Severity			Total	PIA p.a.	Link Lengths (km)	Estimated Annual Flow	PIA p.a. Million Vehicle km
	Slight	Serious	Fatal					
Copley Lane Between B1217 and Coldhill Lane	0	1	0	1	0.20	1.83		
Coldhill Lane Between Coldhill Lane (N) and Access 23	1	0	0	1	0.20	0.78		
Coldhill Lane (N) Between Copley Lane and Access 27	1	0	0	1	0.20	1.15		
Paradise Way Between A64 and Spen Common Lane	1	0	0	1	0.20	0.70		
A659 Between A64 and Station Road	1	1	0	2	0.40	3.23	2,043,635	0.06
Moor Lane Between Garnet Lane and Access 32	0	1	0	1	0.20	0.17		
Station Road Between A659 and A659	1	1	0	2	0.40	0.60		

Vicinity	Severity			Total	PIA p.a.	Link Lengths (km)	Estimated Annual Flow	PIA p.a. Million Vehicle km
	Slight	Serious	Fatal					
A659 Between Station Road and Croft Lane	1	0	0	1	0.20	2.15	1,668,902	0.06
Church Lane Between Access Point 51 and Wighill Lane (N)	2	2	0	4	0.80	2.38	1,668,902	0.20
Wighill Lane (W) Between Church Lane and Wetherby Road	2	1	0	3	0.60	3.54		
Wetherby and Walton Roads Between Wighill Lane and A168	0	1	0	1	0.20	3.21	2,526,530	0.02
A168 Between Walton Road and A1 (M)	0	2	1	3	0.60	2.71	4,469,200	0.05
B1224 Between A1 (M) and Access 64	11	3	0	14	2.80	8.60	2,319,210	0.14
A59 Between B6265 and A1237	27	7	1	35	7.00	11.18	,694,1302	0.09

Vicinity	Severity			Total	PIA p.a.	Link Lengths (km)	Estimated Annual Flow	PIA p.a. Million Vehicle km
	Slight	Serious	Fatal					
A59 Between B6265 and A1(M)	12	4	0	16	3.20	5.04	6,941,302	0.09
A1237 Between A64 and B1224	5	0	1	6	1.20	4.16	10,712,095	0.03
A1237 Between B1224 and A59	8	1	0	9	1.80	1.87		
A1237 Between A59 and A19	10	3	0	13	2.60	2.01	14,154,505	0.09
A19 Shipton Road (N) Between A1237 and Stripe Lane	6	0	0	6	1.20	1.53	3,715,052	0.21
A19 Between Stripe Lane and Overton Road Turning	6	0	0	6	1.20	2.27	3,715,052	0.14
A1237 Between A19 and B1363	15	0	0	15	3.00	2.33		
B1363 Between A1237 and Corban Lane	3	2	0	5	1.00	2.67	5,509,106	0.07
Sutton Road Between Corban	1	0	0	1	0.20	0.89		

Vicinity	Severity			Total	PIA p.a.	Link Lengths (km)	Estimated Annual Flow	PIA p.a. Million Vehicle km
	Slight	Serious	Fatal					
Lane and Access 110								
Corban Lane Between Sutton Road and Access 100	3	0	0	3	0.60	2.98		
A1079 Between Osbaldwick Road and A64	8	3	0	11	2.20	1.03	5,194,511	0.41
Osbaldwick Road Between A64 and Murton Way	1	0	0	1	0.20	0.64		
Murton Way (W) Between Osbaldwick and Distribution Point Murton Way York	1	0	0	1	0.20	0.04		

12.4.75 From the DfT (2019) reported road casualties for Great Britain 2019 presented in RAS10002 table[25], the national accident rate per million vehicle kms by road classification were as follows:

- urban A road: 0.42;
- rural A road: 0.11;
- urban other roads: 0.33; and
- rural other roads: 0.19.

12.4.76 A comparison of the links above and the accident rate per million vehicle km (where available) for the links listed in **Table 12.9** and the national accident rate has been undertaken. This identifies that only three links have an annual accident rate higher than the national average as follows:

- Church Lane between Access 51 and Wighill Lane (N): 0.20 compared to 0.19 for a rural A road;
- A19 Shipton Road (N) between A1237 and Stripe Lane: 0.21 compared to 0.11 for rural A Road; and
- A19 between Stripe Lane and Overton Road Turning: 0.14 compared to 0.11 for a rural A Road.

12.4.77 It should be noted that for the three links where accident rates are higher than the national average, accident rates may be distorted by several factors and should be treated with caution. For two of the links the accident rates are only 0.01 and 0.03 above the national average which will not be perceptively different and with daily traffic variations will be around the national averages. The A19 Shipton Road between the A1237 and Stripe Lane is also a mixture of road types with sections through urban and rural locations.

12.4.78 At this stage of the assessment, road safety has been assessed on a highway link basis. Further detail on the recorded information of the accidents including at junctions, involving vulnerable road users and type of accident will be provided in the ES should this be required as a result of the consultation feedback. Based on the assessment above and the justification for locations where accident rates are calculated to be above national averages for the type of road, it is not considered there is a significant accident record on the local highways network in the Study Area. For the ES the accident assessment will also be updated with detailed accident data which will break down the nature of all accidents in the Study Area to allow for a more refined assessment. to allow for a more refined assessment.

Future baseline

12.4.79 In accordance with GEART, the period in which the level of traffic (future baseline plus traffic from the Project) is at its peak will be considered within the assessment. The peak construction period will be based on the indicative construction programme and the anticipated construction traffic movements. The future baseline will take into account traffic growth as a result of new development which will be based on growth factors from

25 Department for Transport (2021). Reported road accidents, vehicles and casualties tables for Great Britain (Online). Available from: https://www.gov.uk/government/statistical-data-sets/reported-road-accidents-vehicles-and-casualties-tables-for-great-britain (Accessed October 2021).

the DfT NTEM sourced from TEMPro. As the NTEM includes planning data based on development delivery programmes, the use of TEMPro allows for cumulative traffic growth as a result of committed development within the Study Area.

12.4.80 To understand the future year of assessment for the assessment of transport effects in the construction phase, the traffic generation calculations were interrogated (as set out in **Section 12.8**) to understand the peak weeks for all receptors on highways links. This work confirmed that all peak weeks required to be assessed in this chapter occurred during weeks 3 to 107 of the construction programme for the Project which, based on current delivery timescales, places future years of assessment in 2025 and 2026.

12.4.81 The growth rates from TEMPro are as follows:

- 2021 – 2025:
  - York: 1.0273;
  - Selby District: 1.0286;
  - Harrogate District:1.0226;
- 2021 – 2026:
  - York: 1.03415;
  - Selby District: 1.03575; and
  - Harrogate District: 1.0283.

12.4.82 The HGV growth rates derived from DfT Table TRA2501c:

- 2021 – 2025: 1.062; and
- 2021 – 2026: 1.075.

12.4.83 The resultant future year traffic generation is set out in **Table 12.19 – Table 12.21**.

Future highways network changes

12.4.84 A review has been undertaken of committed highways schemes in the local area to understand any future schemes that may need to be included as part of the ES supporting the DCO application for the Project. The following are noted:

- A1237 York Outer Ring Road Dualling – Construction proposed 2023-2025:
  - There may be overlap of construction schemes, or highways restrictions that need to be considered – this will be considered and reported in the ES as appropriate;
- A1(M) Junction 47 Upgrade – Construction ongoing in 2021:
  - It is considered that this capacity improvement scheme will be delivered before construction of the Yorkshire GREEN Project and therefore will form part of the future baseline.

12.4.85 Any additional schemes to those set out above will be discussed with NYCC, LCC, YCC and NH before the submission of final assessments for the DCO application, and any assessments that are required will be undertaken and reported in the ES.

12.5 Embedded measures

12.5.1 A range of environmental measures have been embedded into the Project as outlined in Section 3.4 of **Chapter 3: Description of the Project**. **Table 12.10** outlines how these embedded measures will influence the traffic and transport assessment.

Table 12.10 – Summary of the embedded environmental measures

Receptor	Potential Changes and Effects	Embedded Measures	Compliance Mechanism
Construction			
Local Roads, PRoW and Rail and watercourses	Potential effects from overhead lines being removed from or constructed over existing roads, PRoW, rail and watercourses	A crossing schedule will be prepared which includes a crossing methodology for each crossing of road, rail, PRoW and watercourse.	Outline Construction Environmental Management Plan (CEMP) and DCO requirement
PRoW	Potential effects on users of existing PRoW	Signage and/or temporary PRoW/PRoW diversions will be provided during construction	Outline CEMP/PRoWMP and DCO requirement
Local and strategic roads and associated receptors	Increased traffic at receptors in settlements and villages	The HGV routing during the construction period to individual accesses will be developed to avoid settlements such as Sherburn in Elmet, South Milford, Micklefield, Saxton, Bramham, Clifford, Boston Spa, Tadcaster Center, Healaugh, Tockwith, Long Marston, Rufforth, Askham, Angram, Nether Poppleton, Central York and Haxby. This measure will limit the effects of the Project in these villages and settlements.	Proposed routing set out in the outline CTMP, implemented via DCO requirement
Local and strategic roads	Damage to local and strategic roads and associated highways safety issues	Highways condition surveys will be undertaken before, during and after the construction phase and repairs conducted to any damage to highways as a result of Yorkshire GREEN construction HGVs on the	This will be provided within the outline CTMP, implemented via DCO requirement

Receptor	Potential Changes and Effects	Embedded Measures	Compliance Mechanism
		highways included within the Study Area.	
PRoW	Delays to users of local PRoW	PRoWs that cross the various existing and proposed overhead line routes will be managed or diverted over the shortest practicable distance with potential to provide adjacent crossings.	DCO Requirement/PRoWMP
PRoW	Damage to local PRoW	Condition surveys of PRoW on affected sections such as at the overhead line crossing points will be undertaken before, during and after the construction phase. If damage has been identified as a result of the construction phase, the damage will be repaired. Post-construction, all PRoWs will be returned to their pre-construction condition.	DCO Requirement/PRoWMP
Local highways network	Temporary access to the local highways network during construction	Construction access will be provided with visibility splays designed to DMRB or local design standards, whichever is appropriate, as agreed with the relevant highway authorities. This will provide for safe accesses where construction vehicles can access the highways network in a safe way which should reduce the risk of accidents related to the Project.	Outline CTMP – DCO Requirement, Works plans.
Local Roads	Permanent access to the local highways network	Permanent accesses will be designed to DMRB or local design standards, whichever is appropriate. This measure will allow for a safe and formal access to be provided to the highways	Outline CTMP – DCO Requirement, Works plans

Receptor	Potential Changes and Effects	Embedded Measures	Compliance Mechanism
		network from permanent infrastructure.	
Local and Strategic Highway Network	Highways Safety	All arrangements of scaffolding at road crossings will be agreed with the relevant highway authority. Road closures will be avoided where possible.	Outline CTMP – Requirement, Works plans
PRoW Network	Management of PRoW Routes during Construction	National Grid proposes to manage and provide mitigation for each PRoW that is affected by the Project and a series of mitigation measures have been set out in the PRoWMP which can be applied to different types of PRoW and, where appropriate and agreed with the relevant highway authority, Open Access Land (OAL) affected. Temporary diversions will ensure that the affected PRoW passes around the work areas or is diverted onto routes away from the haul roads or overhead line works at safe locations that can be managed. The proposed signage strategies will inform the public of the construction schedule and the implications for each affected PRoW. The active management of crossing points and shared accesses will be temporary in nature and will required site specific signage to inform the public and construction vehicle drivers.	DCO Requirements and Plans/PRoWMP

12.5.2 As part of the Project design process, a number of embedded measures are proposed to reduce the potential for impacts on transport (see **Table 12.10**). These will evolve over the development process as the EIA progresses and in response to consultation and will be fed iteratively into the assessment process. These measures typically include those that have been identified as good or standard practice and include actions that would be undertaken to meet existing legislative requirements.

12.5.3 In addition to the embedded environmental measures set out in **Table 12.10**, two supporting documents have been prepared to support the PEIR assessment including:

- A **Preliminary CTMP (Appendix 12A)** which sets out details of the construction traffic access strategy that underpins the assessment in this chapter, and the mitigation and management of construction traffic flows; and
- A **Preliminary PRoWMP (Appendix 12B)** which sets out details of the impacts of the Project on the PRoW network and, where appropriate, OAL and the management and mitigation required.

12.5.4 Many of the embedded environmental measures set out in **Table 12.10** form key management and mitigation proposals set out in these additional documents.

12.5.5 As the design of the Project continues to be refined from PEIR to ES stage, the above appendices will also be updated where applicable to reflect changes and updated versions will be submitted to support the DCO application.

12.6 Scope of the assessment

The Project

12.6.1 The key components of the Project can be summarised as follows:

- Overton Substation to the north-west of York, sited to the north of the existing 275kV Poppleton to Monk Fryston (XC/XCP) overhead line route.
- A second new substation at Monk Fryston, located next to, and connecting into, the existing Monk Fryston Substation.
- Approximately 2.8km of new overhead line route (YN 400kV overhead line) between the 400kV Norton to Osbaldwick (2TW/YR) overhead line and the new Overton Substation north of York.
- Replacement of one pylon and installation of two CSECs (Shipton North and South) with a section of connecting underground cable to provide a connection between the YN 400kV and the 400kV Norton to Osbaldwick (2TW/YR) overhead line routes.
- Two new sections of 275kV overhead line (two separate lines of pylons) connecting into Overton Substation from the south. To install these sections, works would be undertaken to the existing 275kV Monk Fryston to Poppleton (XC/XCP) overhead line route to form the two separate overhead lines: the XC overhead line connecting Monk Fryston and Overton Substations and the SP overhead line connecting Poppleton and Overton Substations. Between Moor Monkton in the west and Skelton in the east the existing XC/XCP overhead line (approximately 5km in length) would be replaced with some pylons permanently removed. The overhead line would be realigned from south-east of Moor Monkton to connect into the new Overton Substation forming the realigned XC Overton to Monk Fryston overhead line. This would require:

- the permanent removal of 2.35km of the existing XC/XCP overhead line and six pylons between the ECM railway and Woodhouse Farm to the north of Overton;
- the replacement of four pylons south of the River Ouse and north of Thickpenny Farm along the same overhead line alignment, but in new locations (approximately 25 to 70m east of the existing pylon locations);
- the replacement pylons of three pylons to the south-east of Moor Monkton and south of Redhouse Wood along a new alignment up to 230m south from the existing overhead line alignment;
- the permanent removal of the existing pylon closest to Moor Monkton as the realigned overhead line would lie further to the south; and
- the replacement of pylon XC429 at a location approximately 30m north of the existing pylon.

- South from Moor Monkton to the west of Monk Fryston Substation the existing XC overhead line the existing XC overhead line would be re-conductored.
- South-west of Tadcaster an existing pylon on the existing 275kV XD/PHG overhead line would be replaced. Two CSECs (Tadcaster Tee West and East) and a section of connecting underground cable would be installed.
- At Monk Fryston the existing 275kV Poppleton to Monk Fryston (XC/) overhead line would be reconfigured to connect into the proposed Monk Fryston Substation with a section of underground cable also installed. The existing 4YS 400kV overhead line would also be reconfigured to connect into the new substation.
- At the proposed Osbaldwick Substation a new circuit breaker, gantry and isolator along with associated cabling would be installed, minor works would be implemented for one pylon and an existing gantry would be removed and dismantled to free up space for new equipment. All works would take place within existing operational land.

12.6.0 The draft Order Limits cover the entire area, as identified at this stage of the Project within which development could take place including temporary access roads, construction compounds and laydown areas as well as the new overhead lines, substations and CSECs sealing end compounds and the works to the existing infrastructure.

12.6.1 During construction, compounds will be installed at Overton and Monk Fryston Substations as well as at the CSEC locations (eight compounds in total). Temporary construction accesses will be installed comprising either stone or trackway surfacing so that vehicles can access the working areas at the pylons, CSECs and substations. Temporary diversions of the existing overhead lines will be installed to maintain electricity flows whilst new overhead lines are being installed or works take place to the existing overhead lines.

12.6.2 A more detailed description of the Project design and construction methodology can be found in **Chapter 3: Description of the Project**.

12.6.3 All elements of the project are considered within the traffic generation set out in this chapter however some of the optionality with accesses and Temporary Construction Compounds (TCC) has been taken into consideration using a worst-case assessment approach as set out later in this chapter.

Spatial scope

Overview

12.6.4 The spatial scope of the assessment is based on the most probable routes for traffic generated by the Project, for the movement of deliveries, equipment and of staff. Identification of appropriate routes takes into consideration the following:

- restrictions such as weight and height limits; and
- avoidance of major and small settlements;
- suitability of routes based on a review of road types and widths.

12.6.5 The development of a Study Area for Yorkshire GREEN has focused on the wider road network to be used by traffic for all construction activity which will comprise a range of routes due to the number of potential access points along the proposed Project corridor.

12.6.6 The assessment considers the impact of construction traffic on highway links to be used for HGV access, proposed project accesses and takes into account the sensitivity of local roads, as set out in **Section 12.9**. The proposed highways links to be assessed are set out in **Figure 12.7** and these are detailed in **Table 12.11**.

Table 12.11 – Highways links identified for assessment

Highways Link	Link Names	Highways Link	Link Names
1	A63 between Rawfields Lane and A162	13	A1079 between A64 and Osbaldwick Link Road
2	A659 between A64 and Garnett Lane	14	A64 between Common Lane and Forest Lane
3	A64 between Paradise Lane and A659	15	A63 between Westfield Lane and A1246 Turn Off
4	Weatherby Road between Tower Crescent and Station Road	16	A168 between A58 and Walton Road
5	A1237 between Askham Bryan Lane and Broad Lane	17	Church Lane - Wighill
6	A59 between Cat Lane and Newlands Lane	18	Osbaldwick Link Road - between A1079 and Murton Way
7	Common Croft Lane between Broad Lane and Lords Lane	19	Station Road between A659 and Weatherby Road
8	A59 between Low Road and Pool Lane	20	B1222 Church Hill - Sherburn in Elmet
9	A1237 between A1237 and Esk Drive	21	A1(M) between A659/A168 and A64
10	A19 between Fairfields Drive and Stripe Lane	22	A1(M) between A53 and M62

Highways Link	Link Names	Highways Link	Link Names
11	Overton Road between Stripe Lane and A19	23	M1between A63 and A1(M)
12	B1363 between Mill Lane and A1237		

12.6.7 In order to understand the wider impact of the construction traffic on the SRN, Highways Links 2, 3, 15, 21, 22 and 23 have been used within the assessment in this chapter to allow for robust assessment of the SRN even though as set out in **Section 12.9** these are not sensitive links for traffic.

Temporal scope

12.6.8 The temporal scope of the assessment of traffic and transport is consistent with the period over which the construction of the Project would be carried out and therefore covers the period of 2025 and 2026 which has been identified as the years in which the peak impacts will occur during the construction phase which runs between 2024 to 2028.

12.6.9 The Project is expected to have a life span of more than 80 years. If decommissioning is required at this point in time, then activities and effects associated with the decommissioning phase are expected to be of a similar level to those during the construction phase works, albeit with a lesser duration of two years. Therefore, the likely significance of effects relating to the construction phase assessment will be applicable to the decommissioning phase and decommissioning effects are not discussed further in this chapter.

Potential receptors

12.6.10 The spatial and temporal scope of the assessment enables the identification of receptors which may experience a change as a result of the Project. GEART (IEA, 1993) identifies particular groups and special interests that may be sensitive to changes in traffic conditions which can be defined as:

- local roads and the users of those roads; and
- land uses and environmental resources fronting those roads, including the relevant occupiers and users.

12.6.11 GEART suggests that, in addition to the above, other receptors should be added if considered appropriate. The receptors identified that may experience likely significant transport effects are outlined in **Table 12.12.**

Table 12.12 – Receptors requiring assessment for transport

Receptor Group	Receptors included within group
Traffic and transport highways receptors (IEA, 1993)	People at work
	People at home
	Sensitive groups including children, elderly and disabled
	Sensitive locations such as hospitals, churches, schools and historical buildings
	Pedestrians, equestrians
	Cyclists
	Open spaces, recreational areas and shopping areas
	Sites of ecological and nature conservation value
	Sites of tourist/visitor attractions
	Highway links on the local and strategic network that currently suffer from congestion in the peak hours of the day may also need to be considered for further assessment as this has potential to impact on “users of the roads”.

12.6.12 The list of receptors will be kept under review during the EIA as more detailed information is obtained during baseline surveys and other forms of data collection by other aspects, and this will be reflected in the ES as appropriate.

Likely significant effects

12.6.13 The effects on traffic and transport receptors which have the potential to be significant and have been taken forward for detailed assessment are summarised in **Table 12.13**.

Table 12.13 – Traffic and transport receptors scoped in for further assessment

Receptor	Likely significant effects
Construction phase (including reconductoring and dismantling works)	
All receptors (**Table 12.12**) on identified highways links (**Table 12.11**)	Impact of construction traffic at identified highways receptors
PRoW crossed by the draft Order Limits	Impact of construction activities on local PRoW
Highways Links crossed by the draft Order Limits	Impact of construction activities on local and strategic highways

12.6.14 The receptors/effects detailed in **Table 12.14** have been scoped out from being subject to further assessment because the potential effects are not considered likely to be significant.

Table 12.14 – Summary of effects scoped out of the traffic and transport assessment

Receptors/potential effects	Justification
Effects on users of all local roads, PRoW, Rail lines and navigable watercourses during operation and maintenance	The potential effects of traffic impacts in the operational and maintenance phase of the Project has been scoped out from assessment due to the negligible amounts of traffic generated in this phase as agreed with the Planning Inspectorate and set out in **Table 12.3.**
Impact of conveyance of Hazardous Loads on local and strategic highways during construction, operation and maintenance	There are no Hazardous loads anticipated on the Project so as agreed with the Planning Inspectorate in **Table 12.3** these have been scoped out of assessment.
Potential effects on the capacity of local roads and junctions during construction, operation and maintenance	The requirement for a Transport Assessment and associated capacity assessments has been scoped out of further assessment as agreed with the Planning Inspectorate in **Table 12.3** due to anticipated very low traffic flows in this phase of the development.
Potential effects on bus services and bus routes during the construction phase of the development	Roads along which bus services are provided that fall within the draft Order Limits would be protected through the use of scaffolding (where overhead lines cross the road). This would avoid the need to close the road and therefore would not affect the bus service. It is considered therefore that local bus service provision will not be significantly affected by the Project and no further consideration is made in this chapter.

12.7 Assessment methodology

12.7.1 The generic project-wide approach to the assessment methodology is set out in **Chapter 4: Approach to EIA**, and specifically in Sections 4.7 to 4.10. However, whilst this has informed the approach that has been used in this traffic and transport assessment, it is necessary to set out how this methodology has been applied, and adapted as appropriate, to address the specific needs of this traffic and transport assessment.

12.7.2 The assessment methodology for transport for the PEIR is consistent with that provided in the Scoping Report and no changes have been made since the scoping phase.

General approach

12.7.3 The guidance that is followed when assessing the potential significance of road traffic effects is the GEART, IEA, 1993, which states that:

"The detailed assessment of impacts is likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur." (Paragraph 3.10, IEA,1993).

12.7.4 To assess the impact at its peak, the likely percentage increase in traffic is determined by comparing estimates of traffic generated by the Project with future predicted baseline traffic flows on the highways links within the defined Study Area.

12.7.5 GEART sets out the following transport effects that need to be considered in any assessment:

- severance: the separation of people from places and other people and places or impede pedestrian access to essential facilities;
- driver delay: traffic delays to non-development traffic;
- pedestrian amenity: the effect on the relative pleasantness of a pedestrian journey as a result of changes in traffic flow, traffic composition and pavement width/separation from traffic;
- pedestrian delay: the ability of people to cross roads as a result of changes in traffic volume, composition and speed, the level of pedestrian activity, visibility and general physical conditions;
- fear and intimidation: these may be experienced by people as a result of an increase in traffic volume and its proximity or the lack of protection caused by such factors as narrow pavement widths;
- accidents and safety: the risk of accidents occurring where the Project is expected to produce a change in the character of traffic; and
- hazardous loads.

12.7.6 Cumulative effects on traffic and transport resulting from the effects of the Project and other developments have been assessed at this stage through the use of traffic growth rates derived from the TEMPro and DfT Statistics. Consultation with the highway authorities may result in the need to consider specific developments for inclusion within the ES.

12.7.7 There is potential for the following cumulative effects:

- Permitted/committed developments within and in the vicinity of the transport Study Area that will result in additional traffic on the road network. As set out earlier in this chapter it is considered that permitted/committed developments will be included within the TEMPro traffic growth rate. However, the highway authorities may request that specific developments are included to account for localised impacts on particular parts of the road network, rather than the application of a 'blanket' growth rate. If this is the case, adjustments would need to be made to the growth factor applied. This will be considered and included in the ES as appropriate; and
- Committed transport schemes that will affect the transport network, such as junction improvements and new road links. These will be considered and included in the ES as appropriate.

Determination of significance

12.7.8 The EIA Regulations recognise that developments will affect different environmental elements to differing degrees, and that not all of these are of sufficient concern to warrant detailed investigation or assessment through the EIA process. The EIA Regulations identify those environmental resources that warrant investigation as those that are likely to be significantly affected by the Project.

12.7.9 The EIA Regulations do not define significance and it is necessary to state how this will be defined for the EIA. The significance of an effect resulting from a development during construction or operation is most commonly assessed by reference to the sensitivity (or value) of a receptor and the magnitude of the change. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the Project.

12.7.10 GEART provides two rules that are used to establish whether an environmental assessment of traffic effects should be carried out on receptors:

- Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and
- Rule 2: Include sensitive areas where traffic flows are predicted to increase by 10% or more. These include locations with vulnerable road users, such as schools, nursing homes, and locations with high pedestrian activity.

12.7.11 It should be noted that, according to GEART, predicted traffic flow increases below 10% are generally not considered to be significant as daily variations in background traffic flow may fluctuate by this amount. Changes in traffic flows below this level are, therefore, assumed not to result in significant environmental effects.

12.7.12 **Table 12.15** sets out how significance will be determined based on receptor sensitivity and the magnitude of change.

Table 12.15 -Significance evaluation matrix

		Magnitude of change			
		High	**Medium**	**Low**	**Negligible**
Receptor sensitivity	**High**	Major (Significant)	Major (Significant)	Moderate (Significant)	Negligible (Not significant)
	Medium	Major (Significant)	Moderate (Significant)	Minor (Not significant)	Negligible (Not significant)
	Low	Moderate (Significant)	Minor (Not significant)	Minor (Not significant)	Negligible (Not significant)
	Negligible	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)

12.7.13 The following terms have been used to classify the level of transport effects, where they are predicted to occur:

- major adverse or major beneficial – where the Project will cause a significant deterioration or improvement to the existing environment;

- moderate adverse or moderate beneficial – where the Project will cause a noticeable deterioration or improvement to the existing environment;
- minor adverse or minor beneficial – where the Project will cause a small deterioration or improvement to the existing environment; and
- negligible – no discernible deterioration or improvement to the existing environment.

12.7.14 For the purposes of the transport assessment presented in this chapter, major and moderate effects are considered to be Significant, whilst minor and negligible effects are considered 'Not Significant'.

12.7.15 Effects can also be described, for example, as:

- beneficial, or adverse;
- temporary (short-term, medium-term, long-term) or permanent; and
- local, district, regional or national.

Receptor sensitivity

12.7.16 The sensitivity of each highway link to be included in the assessment will be assigned in accordance with the advice provided in the GEART, as summarised in **Table 12.16** and based on professional judgement.

Table 12.16 - Receptor sensitivity

Sensitivity	Description/reason	Receptor
High	Receptors of high sensitivity to change in traffic flows: schools, colleges, playgrounds, accident blackspots, retirement homes and urban/residential homes without footways that are used by pedestrians and cyclists.	Residents/workers travelling to and from work or home on foot and by bicycle, school children, leisure walkers and equestrians.
Medium	Receptors of medium sensitivity to change in traffic flows including congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycle ways, community centres, parks and recreation facilities.	Residents/workers travelling to and from work or home on foot and by bicycle, people visiting these land uses.
Low	Receptors with low sensitivity to change in traffic flows: places of worship, public open space, nature conservation areas, listed buildings, tourist/visitor attractions and residential areas with adequate footway provision.	Residents/workers travelling to and from work or home on foot or bicycle and people visiting these land uses.
Negligible	Receptors with negligible sensitivity to change in traffic flows including Motorways and Dual Carriageways and/or land uses sufficiently distant from affected routes and junctions.	Residents/workers travelling by foot or bicycle.

12.7.17 In accordance with GEART, where the sensitivity of a road link is judged as high or medium, Rule 2 will be applied and where traffic flows are predicted to increase by 10%

or more, an assessment of environmental effects will be undertaken. Where the sensitivity is judged as low or negligible, Rule 1 will be applied and where traffic flows are predicted to increase by more than 30%, or where the number of HGVs is predicted to increase by more than 30%, an assessment of environmental effects will be undertaken of the road link.

Magnitude of change

12.7.18 GEART recognises that professional judgement should be used as part of the assessment and states the following:

"*For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgements will include the assessment of the numbers of people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources*." (Paragraph 4.5, IEA, 1993)

12.7.19 Based on Rule 1 and Rule 2 and the sensitivity of the receptors, **Table 12.17** shows the magnitude of change which will be applied to the environmental effects to help identify levels of significance. The indicators to assess the magnitude of change are based on advice included within GEART and professional judgement.

Table 12.17 - Magnitude of change

Transport Effect	High	Medium	Low	Negligible
Severance	Change in total traffic or HGV flows over 90%	Change in total traffic or HGV flows of 60%-90%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of less than 30%
Driver Delay	High increase in queuing at junctions and/or congestion on road links	Medium increase in queuing at junctions and/or congestion on roads links	Low increase in queuing at junctions and/or congestion on roads links	Low or no increase in queuing at junctions and/or congestion on roads links
Pedestrian amenity				
Pedestrian delay	Based on general level of pedestrian activity, visibility and physical conditions such as traffic flow, traffic composition, crossing points and pavement width/separation from traffic			
Pedestrian fear and intimidation				
Accident and Safety	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.			

Undertaking further assessments

12.7.20 The approach to the traffic and transport assessment as set out in this section will be in accordance with the GEART. The main transport effects associated with the Project traffic movements within the transport Study Area are:

- construction staff vehicles, including cars and light vans;
- HGVs – vehicles 3.5t gross weight (>3.5t) delivering materials and equipment; and
- AILs – vehicles with abnormal loads.

12.7.21 At PEIR two additional management plans related to traffic and transport have been provided, a Preliminary CTMP and a Preliminary PRoWMP. It has been agreed with the Planning Inspectorate that a TA will not be required as the peak hour traffic flows associated with the Project are anticipated to be very low.

12.7.22 Where likely significant transport effects are identified, mitigation requirements are presented in this chapter in **Section 12.12**.

Project details used to inform the assessment methodology

12.7.23 At this stage of the Project design there remains a level of optionality in the current proposed design. The proposed Project design and layout is provided **in Chapter 3:Description of the Project (specifically Figures 3.3 and 3.6 to 3.12).** There is only one element of the Project design, relevant to the assessment of traffic and transport effects, where there are options in the design, the access locations.

Access optionality

12.7.24 The proposed accesses required to construct the Project are set out in **Figure 12.8.** This shows the need for 112 access, some of which provide access to the same areas to allow for flexibility in the design at this stage.

12.7.25 Not all 112 accesses will be required, and at some locations two access options are included for flexibility at this stage. In order to avoid over-estimating traffic flows, an assumption has been made as to which access would be used for construction traffic. The following section sets out which accesses have been removed from the assessment in this chapter:

- Access 3 – Not Required – Access 2 used for traffic to east of Rawfield Lane;
- Access 5 – Not Required – Access 4 used for traffic east of Rawfield Lane near existing substation;
- Accesses 7 and 8 – Not Required – Access 6 used for traffic west of Rawfield Lane;
- Access 35 – Not Required – Access 36 used for traffic east of Warren Lane;
- Access 85 – Not Required – Access 84 used for traffic west of Overton Road;
- Access 94 – Not Required – Optionality for the Overton Substation Temporary Construction Compound (TCC) and the section of the East option via Access 95 means that Access 94 to the west of Overton Lane and the west option is not required in the PEIR assessment;
- Access 98 and 99 – Not Required – Access south of Corban Lane will be taken via access 97 (direct from the A19);

- Access 101 - Not Required – Access North of Corban Lane will be taken from Access 100; and
- Access 103 – Not Required- Access west of the unnamed road west of Corban Lane taken via access 102.

12.7.26 The accesses used in the PEIR assessment have been considered as these are the worst case assumptions where construction traffic needs to travel further along the local highways network.

12.7.27 **Figure 12.9** sets out the traffic and transport PEIR accesses used to inform the assessment.

12.7.28 The remainder of this section sets out the details of how the traffic generation and distribution used to inform the assessment in **Section 12.9** has been developed.

Temporary Construction Compounds (TCC)

12.7.29 Prior to setting out the details of the traffic generation for the elements of the project it is worth considering the details with regards TCCs on the project.

12.7.30 The Project requires eight TCCs at four locations and each of these locations has two options within the design, one for the substation/CSEC Works and one for the OHL works. **Table 12.18** indicates the locations, the access and which element the TCC is proposed to be used for.

Table 12.18 – TCC PEIR Locations

TCC location	TCC option	TCC Used for
Monk Fryston TCC Content	East – Access 2	Monk Fryston Substation
	West – Access 6 or 7	OHL Works
Overton Substation TCC	East – Access 95	Overton Substation
	West – Access 94	OHL Works
2TW/YR Duck Under	South – Access 100	OHL Works
	North – Access 104	2TW/YR Duck Under and CSEC
XC/XD Duck Under	North – Access 40	XC/XD Duck Under and CSEC
	South – Access 39	OHL Works

12.9Traffic generation

12.7.31 There are several elements of the Project that will generate construction traffic movements during the indicative 156 week (36 month) programme. This section sets out how construction traffic generation has been calculated for each element starting first with a look at consideration of the overall traffic generation and then the traffic across the proposed preliminary programme.

12.7.32 The traffic generation has been split down to that generated by the overhead line works and that generated by the Substations and CSECs. The following section sets out the details of the overall traffic predictions made by engineers on the project for these aspects.

Overhead line works

12.7.33 The overhead line work that would generate traffic has been calculated for the following elements:

- pre-construction works:
  - pre-site surveys;
  - ground investigations; and
  - TTCC establishment.
- access and pylon works winching cable and dismantling:
  - Bellmouth construction;
  - stone/interlocking panels access tracks;
  - bridge and culvert crossings;
  - pylon working areas;
  - pylon foundations;
  - steelwork delivery, assembly and pylon erection;
  - underground cable installation;
  - scaffolding;
  - conductor works including installation, sagging, clamping in, attaching jumpers and conductor spacers; and
  - pylon dismantling.
- reinstatement.

12.7.34 Construction traffic generation of all of these elements has been predicted across the proposed preliminary construction programme. The resultant total traffic generation is presented in **Appendix 12C - Table 12C.1.**

Substation/CSEC works

12.7.35 The Substation and CSEC works that would generate traffic has been calculated for the following elements for each site (as necessary):

- civil enabling works:
  - Bellmouth access;
  - haul roads (temporary access roads);
  - establish temporary compound;
  - establish main compound;

- main works (civil):
  - foundations for electrical equipment;
  - troughing;
  - permanent access roads;
- main works (erection and commissioning):
  - close out and demobilise:
  - reinstate compound;
  - reinstate roads; and
  - landscaping;

12.7.36 Construction traffic generation of these elements has been predicted across the proposed preliminary construction programme. The resultant total traffic generation is presented in **Appendix 12C - Table 12C.2.**

12.7.37 With the total traffic for elements of the project established, consideration is then given to the programme of these works and how the traffic would be distributed across the preliminary programme and to which accesses.

Construction programme

12.7.38 To provide the detail for estimating and modelling construction traffic a proposed preliminary programme across 3 years (2025-2027) from Week 1 to 156 is assumed. Week 1 of the preliminary construction programme has been defined for the calculations in this chapter as 6th of January 2025. It should be noted this is the assumed and indicative programme at this stage of the Project and this may be subject to further refinement and amendment as the Project develops. It should be noted that construction works would take place between 2024 and 2028 to allow flexibility in the programme but this chapter uses a compressed preliminary programme for the construction phase between 2025 and 2027 to allow for a worst case assessment.

12.7.39 The preliminary construction programme for the overhead line works is provided in **Appendix 12C - Table 12C.3** and for the Substation/CSEC in **Appendix 12C - Table 12C.5**.

12.7.40 The preliminary construction programme for the overhead line works breaks down the key works set out above but to a greater level of detail including specifics of works required to the different parts of the proposed overhead line networks such as dismantling and erection of lines during specific line outages. The overhead line programme is a complex arrangement with large periods of time where no work can be undertaken at certain locations because of the need to shut down power at existing overhead lines.

12.7.41 The following section sets out the traffic generation of the differing elements of the preliminary programme. It presents a summary of the way in which traffic flows for the Project have been developed first for the overhead line works and then the works at the substations and CSECs.

12.7.42 For all works described below it is assumed that various staff vehicles would be required including 4x4/pick up, crew bus and welfare van.

Overhead line works

Pre-site surveys

12.7.43 A line survey is required just prior to works commencing along the route and this would take place at the start of the preliminary construction programme in weeks 1-6.

12.7.44 The line survey consists of a route review along the intended path of the overhead line routes and is completed by one team of three staff in one 4x4/pickup. There is no requirement for HGVs to complete this task.

12.7.45 This results in each access requiring 2 two way LV movements in total.

Ground investigations

12.7.46 The initial ground investigations (GI) works are required at the start of the preliminary construction programme prior to works being undertaken and would take place in weeks 1-6.

12.7.47 The GI works are needed to understand existing ground conditions and would require the need for some materials and plant movements facilitated by HGV including a Low Loader and HIAB wagon.

12.7.48 This results in each access requiring 6 two way LV movements in total and 4 two way HGV movements in total.

Temporary Construction Compound (TCC) establishment

12.7.49 There are four TCCs required on the project for the OHL works that need to be established at differing times of the project programme.

12.7.50 The compounds at Overton and Tadcaster and YN1 are predicted to account for 75% of the LV movements for establishing compounds. These three TCCs would be constructed from Week 1 to Week 15 of the programme.

12.7.51 The compound at Monk Fryston would be constructed in weeks 57 – 65 due to the work in this area starting later in the preliminary construction programme and would account for 25% of the LV trips for this activity.

12.7.52 To complete the construction of the compounds including hard standing, staff facilities, fencing and access requirements would require a Low Loader, HIAB wagon, grab wagon, Tipper HGV, skip wagon, utility vehicles, small crane and road sweepers. The HGV split is assumed to be 90% to Overton, Tadcaster and YN1 and 10% to Monk Fryston taking into account complexity of construction at the various sites.

12.7.53 This results in 900 two way LV movements per TCC access in total and 1,550 two way HGV movements to Overton, Tadcaster and YN1 and 520 two way HGV movements in total to Monk Fryston.

12.7.54 Traffic associated with the remaining 4 TCCs is included in the substation traffic generation set out below.

Bellmouth construction

12.7.55 Each of the accesses proposed to the various elements of the Project is proposed to have a bellmouth access provided as a worst-case assessment at this stage of the Project design. As design and survey work progresses this may determine that some

locations would not require such extensive access works but it has been assumed this is required at this stage to provide a robust assessment.

12.7.56 The bellmouths would be constructed in the two weeks before main works commence at each access which results in bellmouth works across Weeks 1 and 76 with the staggered nature of the works proposed.

12.7.57 To complete the construction of the proposed bellmouths, including any visibility requirements, existing carriageway repairs and other gate and fence works, would require HGV including a Low Loader, HIAB wagon, grab wagon, Tipper HGV, skip wagon, crane, tarmac tipper and road sweepers.

12.7.58 This results in each bellmouth requiring 78 two way HGV and 74 two way LV movements across the two week period.

Stone/interlocking panels access tracks

12.7.59 Each working area has a differing need for access tracks (including safety fences and gates) in terms of distance and nature of material required to allow vehicles to leave the local highways network and access various working areas. Estimates used for the assessment in this PEIR as to the length of access track required and whether the access would comprise trackway or stone are provided in **Appendix 12C - Table 12C.5**. These predictions have underpinned the traffic calculations in this chapter. **Appendix 12C - Table 12C.5** also sets out the estimated HGV movements required to install this element of the Project.

12.7.60 The works for installing on-site access tracks are required at differing periods of the preliminary construction programme due to the differing nature of the works that would be undertaken across the preliminary construction programme. The on-site access tracks will be constructed between week 2 and week 75.

12.7.61 To complete the construction of the proposed on-site access roads would require a Low Loader, HIAB wagon, grab wagon, Tipper HGV, skip wagon, and road sweepers.

Bridge and culvert crossings

12.7.62 Bridges and culverts would be installed where watercourse crossings would be needed. At this stage these have not been fully defined but a worst-case estimate has been made for the locations where these elements could be required indicating 10 bridges and 30 culverts could be needed. However, bridges are only likely to be required at Environment Agency main rivers and therefore traffic movements associated with this element of the Project are likely to be less than assumed in the modelling at this stage. It is assumed that each bridge would require 90 two way LV trips and 18 two way HGV trips. Each culvert would require 45 two way LV movements and 14 two way HGVS. **Appendix 12C - Table 12C.6** sets out the locations (by access) of where the culverts are proposed and the associated LV and HGV traffic that would be needed at each access.

12.7.63 The bridges and culverts would be constructed at the same time as the access tracks and would also be provided across weeks 2 to 75.

12.7.64 To complete the construction of the proposed on-site bridge and culverts would require a Grab wagon, low loader, concreate mixer and HIAB wagon.

Pylon working areas

12.7.65 It is currently estimated, as a worst-case, that there is a need for 185 pylon working areas across the entire Project and many of these working areas are located next to each other meaning that there are several working areas required via single access points. The working areas comprise stone based crane pads or other hard standing work areas and would also accommodate the plant and material needed to erect/dismantle or undertake other works at pylons, both permanent and temporary.

12.7.66 Each pylon working area has been predicted as needing 59 two-way HGV movements and 11 two-way LV movements to install the working area. **Appendix 12C - Table 12C.7** sets out, for each proposed access needed for this element of the works, the number of work areas that would be accessed at that access point and the corresponding HGV and LV movements to that access.

12.7.67 The pylon working areas would be constructed at a one week offset from the access works and are proposed to be constructed across weeks 3 to 77.

12.7.68 To complete the construction of the proposed onsite pylon working areas would require a Grab wagon, 20 tonne tipper, low loader, and HIAB wagon.

Pylon foundations/pylon erection (including steelwork delivery and assembly)

12.7.69 This would involve the erection of permanent pylons and temporary structures that need to be removed at a later date. Pylons would comprise tension pylons and suspension pylons.

12.7.70 **Table 12.19** sets out the estimated traffic generation for both pylon types. This is split between the works required to install pylon foundations and the works required to install/construct the pylon.

Table 12.19 - Tension/suspension pylon foundations and erection total traffic generation (Total traffic across the preliminary construction programme)

	Permanent Pylon			Temporary Structure		
	HGV	LV	Total	HGV	LV	Total
Pylon Foundations						
Suspension	22	36	**58**	22	36	**58**
Tension	35	62	**97**	35	62	**97**
Pylon Erection						
Suspension	10	46	**56**	10	46	**56**
Tension	22	81	**103**	22	81	**103**

12.7.71 **Appendix 12C - Table 12C.8** provides details on the access locations from where traffic would access the pylon working areas, and the weeks when this work is required based on the assumed construction programme and various line outages.

12.7.72 To complete the construction of the proposed pylons would require a Low loader, concrete mixer HGV, HIAB wagon, small and large crane.

Underground cable installation

12.7.73 The Project proposes the installation of two sections of underground cable, as well as CSECs at either end of the cables. This comprises an approximately 350m section of 275kV cable at Tadcaster and an approximately 200m section of 400kV cable at Shipton. The Tadcaster works would be accessed via access 39 and the Shipton works via access 104. The estimated traffic predictions for these works are set out in **Table 12.20**. These predictions include traffic associated with site preparation, installation of underground cable

Table 12.20 - Underground cable works traffic generation (Total traffic across the preliminary construction programme)

Voltage (Location)	Underground Cable		
	HGV	LV	Total
275kV (Tadcaster)	96	84	**180**
400kV (Shipton)	158	72	**230**

12.7.74 The preliminary construction programme has the underground cable works taking place in weeks 35-39.

12.7.75 To complete the construction of the proposed underground cables would require a Low loader, concrete mixer HGV, HIAB wagon, small and large crane.

Scaffolding

12.7.76 Scaffolding is required at all locations where the proposed overhead line works (construction and dismantling) are proposed over highways, rail lines and watercourse crossings. This results in there being a need for traffic to deliver scaffolding at 65 accesses across the Project.

12.7.77 Each scaffolding installation has been predicted to need 2 two-way HGVs (for delivery of scaffolding) and 32 two-way LVs for staff to install the scaffolding over a number of days. **Appendix 12C - Table 12C.9** sets out the accesses that require scaffolding, the amount of scaffold structures needed and the resultant HGV and LV traffic predictions and the weeks in which scaffolding would be installed and removed following the overhead line works set out in the programme.

12.7.78 The scaffolding would be delivered on a HIAB wagon.

Conductor works including installation, sagging, clamping in, attaching jumpers and conductor spacers

12.7.79 The works required in this phase of the Project are related to the stringing of the new conductor and pilot wire for the new and refurbished overhead line sections including sagging, clamping in attaching jumpers and adding the conductor spacers. The estimated total two way traffic flows are set out in **Table 12.21**.

Table 12.21 - Conductor works traffic generation

Works	Conductor Works		
	HGV	LV	Total
Pilot Wire Installation	320	756	1,076
Conductor and Earth Wire Pulling	1,957	2,520	4,477
Sagging	810	540	1,350
Clamping In	618	312	930
Attaching Jumpers	276	138	414
Install Conductor Spacers	336	252	588

12.7.80 **Appendix 12C - Table 12C.10** sets out the access locations where stringing is required as well as the works required, the span to be pulled through and the corresponding HGV and LV two-way traffic flows. This figure also sets out the weeks that the works are required according to the various outages on the existing network.

12.7.81 **Appendix 12C - Table 12C.11** shows the same information for the other pylon works and the accesses, traffic flows and weeks of work required.

12.7.82 To complete the conductor works there would be the need for materials and plant to be delivered to the sites in a grab wagon, low loader, HIAB wagon, skip wagon and a medium crane.

Pylon dismantling

12.7.83 In addition to sections of new overhead line being constructed there would be a need to remove sections of overhead line and the associated pylons (both temporary and permanent). It is estimated that each pylon to be fully removed would require 49 two way HGVs and 32 two way LGV movements.

12.7.84 The pylons need to be removed at differing times depending on construction works and outages on the line and would be undertaken from Week 12 to 95. **Appendix 12C - Table 12C.12** indicates the access locations where works to dismantle pylons are required including the type of pylon, the weeks in which the work is scheduled to be undertaken and the proposed traffic generation.

12.7.85 To complete the pylon dismantling there would be the need for a grab wagon, low loader, HIAB wagon, skip wagon and a medium crane.

Reinstatement

12.7.86 At this stage of the Project, a robust worst case approach has been undertaken which assumes that all traffic movements for reinstatement works would be of the same volume as those estimated for the following elements:

- TCC;
- bellmouth construction;
- stone/interlocking panels access tracks;

- bridge and culvert crossings; and
- pylon working areas.

12.7.87 The removal of scaffolding as part of reinstatement has been addressed within the scaffolding calculations above.

12.7.88 The reinstatement works are proposed to take place in phases after the construction and dismantling works have been completed on-site for each phase and would run from weeks 32 to 140.

Overhead line traffic generation summary

12.7.89 Based on the calculations above a series of traffic figures are provided for the overhead line works for each activity across the construction programme, setting out weekly traffic generation per access per week for HGVs and LVs as follows:

- **Appendix 12C - Table 12C.13 and Table 12C.14** for HGV and LV traffic for the overhead line pre-Construction Works (pre site survey, Ground Investigation and construction compounds);
- **Appendix 12C - Table 12C.15 and Table 12C.16** for HGV and LV traffic for the overhead line bellmouth accesses;
- **Appendix 12C - Table 12C.17 and Table 12C.18** for HGV and LV traffic for the on-site access roads;
- **Appendix 12C - Table 12C.19 and Table 12C.20** for HGV and LV traffic for the required bridges and culverts;
- **Appendix 12C - Table 12C.21 and Table 12C.22** for HGV and LV traffic for the required pylon working areas;
- **Appendix 12C - Table 12C.23 and Table 12C.24** for HGV and LV traffic for the required permanent pylon foundations and pylon erections;
- **Appendix 12C - Table 12C.25 and Table 12C.26** for HGV and LV traffic for the required temporary structure foundations and structure erections;
- **Appendix 12C - Table 12C.27 and Table 12C.28** for HGV and LV traffic for the required scaffolding;
- **Appendix 12C - Table 12C.29 and Table 12C.30** for HGV and LV traffic for the required underground cable installation;
- **Appendix 12C - Table 12C.31 and Table 12C.32** for HGV and LV traffic for the required conductoring works;
- **Appendix 12C - Table 12C.33 and Table 12C.34** for HGV and LV traffic for the required other overhead line works such as sagging and conductor spacing;
- **Appendix 12C - Table 12C.35 and Table 12C.36** for HGV and LV traffic for the pylon dismantling (and associated conductor removal); and
- **Appendix 12C - Table 12C.37 and Table 12C.38** for HGV and LV traffic for the reinstatement works.

Substation/CSEC works

12.7.90 Four locations are considered in this section with regard to traffic generation for the construction of the new substations and CSECs:

- Monk Fryston Substation adjacent to the existing substation – Access 4;
- Overton Substation - Access 95;
- Tadcaster Tee CSECs (East and West) – Access 39; and
- Shipton CSECs (North and South) Access 104.

12.7.91 Traffic predictions for each of the four sites (as set out in **Appendix 12C**) and the time frame for the works within the preliminary construction programme (**Appendix 12C**) have been taken into account in the traffic modelling. The traffic associated with the four TCCs relevant to these sites has also been included in these traffic predictions.

12.7.92 The vehicles required to undertake these works will include 4x4 pick-up, welfare van, fuel tanker, tractor/trailer, low loader, 20 tonne tipper wagon, Abnormal Indivisible Loads (AILs) excavators, concrete mixer, small crane and some other smaller bespoke vehicles.

12.7.93 **Appendix 12C - Table 12C.39 and Table 12C.40** sets out the HGV and LV traffic flows at the four sites across the programme.

Total traffic generation

12.7.94 **Appendix 12C - Table 12C.41 and Table 12C.42** sets out the HGV and LV totals for the entire Project across the preliminary construction programme per access per week. **Appendix 12C Appendix 12C - Table 12C.43** sets out the total two-way vehicles for the Project across the preliminary construction programme.

12.7.95 The total two-way traffic generation set out in **Appendix 12C - Table 12C.43** has then been used to calculate which week would be the peak week of development traffic for each of the highways links set out in **Table 12.11.**

Traffic distribution

12.7.96 For this PEIR assessment high level distribution assumptions have been made. For the ES chapter further details will be obtained relating to the following distribution issues that cannot currently be addressed:

- distribution of trips specifically between construction compounds and works sites (and associated reduction in direct to site trips);
- HGV distribution based on anticipated locations of the requirements for materials to be delivered to site such as steel work, stone, geo grid, cranes, plant, concrete and so on;
- LV distribution more defined between staff vehicles and smaller good vehicles in the LV category; and
- a more refined staff LV distribution methodology based on any established works practices that National Grid may bring forward on the Project (local accommodation, works campus).

12.7.97 It is considered that the distribution methodology set out in this chapter is a robust assessment based on the currently available information. The distribution has set out

potential HGV and LV movements across the full extent of the Study Area resulting in potential impacts across the local and strategic network.

HGV traffic distribution

12.7.98 HGV traffic generation in this PEIR chapter has taken into account assumptions as to the origin locations of quarries and sand and gravel sites within the wider area of the north of England as the majority of deliveries are likely to include stone for temporary construction access tracks and temporary construction compounds (and their subsequent removal). Other deliveries of elements of the pylons, such as steelwork, and other materials are also assumed to route from industrial areas of the north.

12.7.99 HGVs would route by means of the SRN into the Study Area via four routes: the A1(M) South; M1 West; A1(M) North; and the A64 North East. **Figure 12.10** sets out the location of the destination/origins of HGV trips in the Study Area.

12.7.100 The HGVs generated as part of the construction of the Project would travel directly to individual accesses and at this stage it assumed that no additional HGV traffic would travel from temporary construction compounds to works sites.

12.7.101 **Table 12.22** sets out the anticipated HGV distribution of construction material deliveries directly to and from the Project accesses.

Table 12.22 - Yorkshire GREEN HGV distribution

Network Exit Point	Distribution
A1(M) North	25%
M1 West	25%
A1(M) South	40%
A64 (North East)	10%

12.7.102 HGV routing from the Project work access locations to the Study Area network entry/exit points has been developed from the HGV access strategy set out in the Outline CTMP. **Figure 12.11** sets out the proposed HGV access strategy.

12.7.103 The HGV Access Strategy has been designed to avoid the need to route HGVs through key settlements and villages. This strategy results in no HGV traffic routing through Sherburn in Elmet, South Milford, Micklefield, Saxton, Bramham, Clifford, Boston Spa, Tadcaster Centre, Healaugh, Tockwith, Long Marston, Rufforth, Askham, Angram, Nether Poppleton, Central York and Haxby and several smaller villages and settlements. It also restricts traffic movements through Tadcaster town centre by only using the route along the A659.

LV distribution

12.7.104 To estimate construction staff traffic movements, into and out of the temporary construction accesses per day, a detailed distribution matrix has been developed. This has been based on journey to work data from the 2011 census for three areas (middle layer super output areas data). The locations are North west of York (E02002782: York 011), Tadcaster (E02005809: Selby 001) and Monk Fryston (E02005812: Selby 004).

Figure 12.12 sets out the locations of the three local areas used to inform construction staff distribution.

12.7.105 The three areas have been selected to allow for an appropriate distribution of LV traffic across the project. The distribution of traffic in Monk Fryston will be different to that from work sites around the north of York.

12.7.106 The resultant distribution that has been applied to construction LV traffic is set out in **Table 12.23** for the three sections of the Project. **Figure 12.13**. There are three settlements in the distribution below internal to the Study Area as these are medium sized settlements that would attract traffic.

Table 12.23 - Yorkshire GREEN LV distribution

Construction LV Traffic Distribution by Area and Accesses within that Area			
Section	**Section 1**	**Section 2**	**Section 3**
Accesses in section	**1-30**	**31-64**	**65-112**
A1 (M) north	0.6%	2.8%	2.5%
A19 North	0.5%	0.2%	6.2%
M1 West	15.4%	16.2%	5.3%
A59 West	1.0%	1.7%	6.5%
A64 East	0.8%	1.5%	5.1%
A1079 East	0.8%	2.3%	5.6%
A19 South	0.0%	1.3%	5.3%
A1 (M) south	30.8%	5.8%	3.6%
B1363 York	0.8%	3.1%	11.5%
A59 York	0.4%	2.5%	25.0%
A19 York	0.4%	1.9%	4.2%
Murton Way	0.4%	1.0%	1.3%
A63 East	19.9%	7.0%	0.0%
A63 West	0.0%	0.0%	0.0%
A64 West	2.9%	8.1%	2.3%
B6164 North	0.9%	1.9%	0.3%
B1224 West	0.3%	0.0%	0.5%
A166 East	0.3%	1.1%	1.0%
A1036 York	2.5%	8.5%	9.0%
Tadcaster	5.4%	25.7%	3.8%
Sherburn in Elmet	14.3%	6.2%	0.7%

Construction LV Traffic Distribution by Area and Accesses within that Area			
Section	**Section 1**	**Section 2**	**Section 3**
Accesses in section	**1-30**	**31-64**	**65-112**
Boston Spa	0.8%	1.0%	0.3%
A659 West	0.5%	0.0%	0.0%
Total	**100%**	**100%**	**100%**

12.7.107 LV distribution has not been fixed to the same HGV access strategy and has been calculated using Google Maps journey planning software 26.

Peak week identification

12.7.108 With a fixed set of temporary accesses, predictions of traffic generation across the construction phase and distribution of HGV and light vehicle traffic the peak week of traffic for each identified highways link has been predicted.

12.7.109 The following peak weeks during the construction phase were noted for each of the identified highways links in the Study Area.

- Week 3 – Highway Link 6, 8;
- Week 5 – Highways Link 1, 5;
- Week 8 – Highway Link 10;
- Week 15 – Highway Link 9;
- Week 16 – Highway Links 2, 3, 4, 12, 19, 21, 22, 23;
- Week 25 – Highway Link 15;
- Week 49 – Highway Links 11,16;
- Week 50 – Highway Links 17, 20;
- Week 83 – Highways Links 13, 14, 18; and
- Week 107 – Highway Link 7.

12.7.110 The construction traffic has been converted to a daily traffic flow by using a seven-day working week, which is currently anticipated on the Project.

12.7.111 The resultant traffic generation is presented on a network plot as **Appendix 12C - Table 12C.44,** while locations of the highways links are presented on **Figure 12.7**.

Proposed construction access

12.7.112 The location of each construction access point is set out in **Figure 12.8**. The majority of these accesses are proposed to be temporary accesses only in place between the start and end of works at that access (i.e. not the full duration of the construction programme).

26 https://www.google.co.uk/maps

12.7.113 At this stage of the Project, the design of the accesses and visibility splays are based on a 60mph speed limit road visibility requirement as set out in DMRB guidance CD123 Geometric Design of at grade priority and signal junctions[27]. Further consideration will be given to the design parameters at some junctions based on speed surveys, impacts of visibility splays on ecology and arboriculture and consultation with the highway authorities at ES stage.

Proposed permanent accesses

12.7.114 There is a need for a permanent access at the new Overton substation, the design of which will be developed and discussed with NYCC after Section 42 consultation has taken place. It is anticipated that this will be from access point 95 off Overton Road. The access will be gated to restrict access to operational traffic only.

12.7.115 The new Monk Fryston substation will not require a new permanent access and it is proposed this will be taken from the existing substation access (Access 4).

12.7.116 It has not yet been established if the two locations where CSECs are proposed require any formal permanent access bellmouth and this will be developed as the Project moves towards submission of the DCO application. There will be a need for permanent stone access tracks from the highway to the CSECs.

12.8 Preliminary assessment of traffic and transport effects

Introduction

12.8.1 To undertake the assessment of effects of the traffic generated by the Project, the traffic flows need to be estimated and trips distributed onto the road network, as undertaken in **Section 12.8**.

12.8.2 Peak traffic movements during the construction phase of the Project have been added to future baseline years to clearly identify the traffic impacts arising from the Project.

12.8.3 The change in traffic flows has been assessed against GEART (IEA, 1993) Rule 1 (30% or above) and Rule 2 (10% or above). Where the change is considered significant, further assessment has been made using the criteria in **Section 12.8**.

12.8.4 The assessment within this section has been undertaken on a worst-case basis for traffic generation considering the optionality that is included within the draft Order Limits and is based on current available information.

12.8.5 The assessment in this section includes all of the relevant embedded mitigation measures the details of which are set out in **Table 12.10.**

Assessment year traffic growth

12.8.6 **Table 12.25** below sets out the 2025 and 2026 traffic flows per receptor based on the traffic growth methodology set out in **Section 12.5.**

[27]DMRB, August 2020, CD 123 – Geometric design of at-grade priority and signal-controlled junctions https://www.standardsforhighways.co.uk/prod/attachments/5770900b-eadc-4adf-b4e0-a80ceb08b839?inline=true

Sensitivity of receptor

12.8.7 Given the potential receptors described in **Section 12.8**, **Table 12.24** identifies the sensitivity of highways links and the GEART (IEA, 1993) rule that applies for the Study Area.

Table 12.24 – Highways links receptor sensitivity

Link No	Highway Link	Comments	Receptor Sensitivity	GEART Rule
1	A63	The link is a two-way single carriageway with no properties fronting the road and no pedestrian footways	Low	1
2	A659	The link is a two-way single carriageway that in part links from the A64 to Tadcaster. The road is rural and there are no houses fronting the carriageway	Negligible	1
3	A64	The link is a two-way dual carriageway that is part of the strategic road network	Negligible	1
4	Wetherby Road	The link is a two-way single carriageway in an urban environment with houses and industrial properties fronting the carriageway and a footway on both sides of the road including a raised table signalised pedestrian crossing	Medium	2
5	A1237	The link is a two-way single carriageway with no properties fronting the carriageway or pedestrian footways.	Low	1
6	A59	This link is a two-way single carriageway on the fringe of York as it passes the York Park and Ride site with houses and footways adjacent to the carriageway	Medium	2
7	Common Croft Lane	The link is a rural single carriageway with no centre line in a rural location with no houses or footways adjacent to the carriageway	Negligible	1

Link No	Highway Link	Comments	Receptor Sensitivity	GEART Rule
8	A59	The link is a rural two-way single carriageway with only farm buildings fronting the carriageway and no pedestrian footways	Low	1
9	A1237	The link is a two-way single carriageway with no properties fronting the carriageway or pedestrian footways	Low	1
10	A19	The link is a two-way single carriageway in the village of Skelton. The village setting has houses and footways adjacent to the carriageway	Medium	2
11	Overton Road	The link is a rural single carriageway with no centre line in a rural location with no houses or footways adjacent to the carriageway	Negligible	1
12	B1363	The link is a two-way single carriageway on the edge of Wigginton. The village setting has houses and footways adjacent to the carriageway	Medium	2
13	A1079	The link is a two lane dual carriageway to the east of York with footways adjacent to the carriageway but with few properties fronting the carriageway	Low	1
14	A64	The link is a two-way dual carriageway that is part of the strategic road network	Medium	2
15	A63	The link is a two-way dual carriageway with no footways or properties adjacent to the carriageway	Low	1
16	A168	The link is a two-way single carriageway with footways on the west side of the road but houses to the east of Weatherby are segregated	Low	1

Link No	Highway Link	Comments	Receptor Sensitivity	GEART Rule
		from the carriageway by hedges/embankments		
17	Church Lane	The link is a two-way single carriageway in the village of Wighill. The village setting has houses and footways adjacent to the carriageway	Medium	2
18	Osbaldwick Link Road	The link is a two-way single carriageway with footways/cycle way on the west side of the road but houses to the east of York are segregated from the carriageway by hedgerows.	Low	1
19	Station Road	The link is a two-way single carriageway in the town of Tadcaster. The edge of town setting has houses and footways adjacent to the carriageway	Medium	2
20	B1222	The link is a two-way single carriageway in the town of Sherburn in Elmet. The edge of town setting has houses and footways adjacent to the carriageway	Medium	2
21	A1(M)	The link is a motorway that is part of the SRN	Negligible	1
22	A1(M)	The link is a motorway that is part of the strategic road network	Negligible	1
23	M1	The link is a motorway that is part of the strategic road network	Negligible	1

Magnitude of change

12.8.8 **Table 12.25** sets out the magnitude of change of the calculated peak daily (24 hour) development traffic on the identified highways links and presents the following information:

- future year baseline traffic per highways link for 2025 or 2026 based on which year the peak week at each highways link is predicted to occur for vehicles and HGVs;

- the predicted daily traffic flows per highways link for total vehicles and HGVs; and
- the percentage impact of the Project traffic per highways link for total vehicles and HGVs.

12.8.9 A percentage impact assessment has not been possible for highway links without traffic data. In **Table 12.25**, percentage impacts that exceed the GEART (IEA,1993) assessment thresholds based on the highways link sensitivity in **Table 12.25** are set out in red.

Table 12.25 - Future year percentage impact

Link No.	Future year Base Traffic (2025/26) (24 Hour)		Project Construction Traffic (per day (24 hour))		Magnitude of Change (percentage impact)	
	Total vehicles	HGVs	Total vehicles	HGVs	Total vehicles	HGVs
1	15,009	2,328	108	78	0.7%	3.3%
2	5,599	279	180	130	3.2%	46.6%
3	60,871	3,901	284	214	0.5%	5.5%
4	4,676	37	38	22	0.8%	58.7%
5	29,348	1,518	130	78	0.4%	5.1%
6	19,536	860	72	34	0.4%	3.9%
7	141	2	58	38	41.0%	1,834.0%
8	19,536	860	110	92	0.6%	10.7%
9	40,845	1,386	224	144	0.5%	10.4%
10	10,456	682	216	152	2.1%	22.3%
11	97	12	46	30	47.6%	254.9%
12	15,505	203	94	64	0.6%	31.6%
13	14,718	310	26	20	0.2%	6.3%
14	53,418	3,378	30	24	0.1%	0.7%
15	11,381	936	106	86	0.9%	9.2%
16	12521	400	94	54	0.8%	13.5%
17	N/A	N/A	40	22	N/A	N/A
18	N/A	N/A	26	20	N/A	N/A
19	N/A	N/A	38	22	N/A	N/A
20	N/A	N/A	22	12	N/A	N/A
21	113,588	18,240	86	80	0.1%	0.4%

Link No.	Future year Base Traffic (2025/26) (24 Hour)		Project Construction Traffic (per day (24 hour))		Magnitude of Change (percentage impact)	
	Total vehicles	HGVs	Total vehicles	HGVs	Total vehicles	HGVs
22	149,706	21,630	204	168	0.1%	0.8%
23	84,078	8,610	138	104	0.2%	1.2%

Significance of residual effect

12.8.10 **Table 12.25** sets out the sensitivity of the highways links assessed based on the receptors present and the GEART (IEA, 1993) rules regarding change in traffic flows. **Table 12.25** sets out the percentage change is traffic flows and HGVs. Where the percentage change is 30% or more on non-sensitive sections (Rule 1) or 10% or more on sensitive sections (Rule 2), an assessment of the environmental effects is needed.

12.8.11 Based on the results presented in **Table 12.25** and the defined sensitivities set out in **Table 12.24**, there are five highway links where the percentage change in total vehicle or HGVs results in the need for further assessment.

12.8.12 The five links that require detailed environmental assessment are as follows:

- Link 4 - Wetherby Road between Tower Crescent and Station Road;
- Link 7 – Common Croft Lane between Broad Lane and Lords Lane;
- Link 10 – A19 between Fairfields Drive and Stripe Lane;
- Link 11 – Overton Road between Stripe Lane and A19; and
- Link 12 – B1363 between Mill Lane and A1237.

12.8.13 On all other highways links, the percentage change in traffic flows or HGVs does not trigger the need for an assessment of environmental effects based on the rules set out in GEART.

Highways Link 4 – Weatherby Road between Tower Crescent and Station Road

12.8.14 As set out in **Table 12.25**, the total HGV flows are predicted to increase on this link by 58.7% over the 24-hour period (an increase of 22 HGVs). Based on **Table 12.24**, the sensitivity of the highways link has been identified as **Medium**.

12.8.15 **Table 12.26** sets out the assessment of the transport environmental effects at the highways link and the significance of effect.

Table 12.26 – Highway Link 4 – assessment of transport environmental effects

Effect	Comments	Magnitude of Change	Significance of Residual Effect
Severance	Wetherby Road (A659) is a two lane single carriageway road which links Tadcaster to Boston Spa. The road is urban in nature as it	Medium	Moderate (Significant)

Effect	Comments	Magnitude of Change	Significance of Residual Effect
	passes though the north section of Tadcaster. The highways link is a key 'A' road in the local area and is designed to accommodate high traffic flows and HGVs. With an increase of 22 HGVs per day across the 12 hour period, this would result in approximately 2 additional HGVs per hour. The change in HGVs on the link is between 60-90% and based on **Table 12.17** as the current baseline for HGV numbers is low. The magnitude of change is **medium**. The significance of effect on severance is therefore **Moderate (Significant).**		
Driver Delay	The increase in traffic at the peak of the construction phase of two additional HGVs per hour (or one HGV approximately every 30 minutes) is unlikely to result in any delay to drivers on the highway link or local junctions and on this basis the magnitude of change is therefore **negligible**. The significance of effect on driver delay is therefore **negligible**.	Negligible	Negligible (Not significant)
Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation	Wetherby Road (A659) in Tadcaster has a signalised pedestrian crossing and has a crossing at the junction of the A659/Station Road. The footway widths in Tadcaster are 2m to 3.9m wide and footways run along both sides of the road. These formal crossings and footways accommodate for the pedestrian desire lines in this built-up area. However, in the peak of the construction phase it is anticipated that an additional HGV will be generated every 30 minutes on the link and based on professional judgement it is considered that this will not be perceptible to pedestrians wishing to cross the road and the magnitude of change is **negligible** for pedestrian amenity, pedestrian delay and fear and intimidation effects. The significance of effect on Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation based on **Table 12.15** is therefore **negligible**.	Negligible	Negligible (Not significant)
Accidents and Safety	The assessment undertaken in **Section 12.5** indicates that the Wetherby Road (A659) between the A259 and A27 has an accident rate of 0.06 per million vehicle kilometres	Negligible	Negligible (Not significant)

Effect	Comments	Magnitude of Change	Significance of Residual Effect
	which is well below the 0.11 rate for Urban A Roads. For pedestrians, crossings of the highway are provided in Tadcaster. With only an additional HGV every 30 minutes in the construction phase peak as a result of the Project the magnitude of change is therefore **negligible**. The significance of effect on accidents and safety is therefore **negligible**.		

12.8.16 Based on **Table 12.26** the overall significance of residual effects at Highways Link 4 and associated receptors is therefore considered to be **Medium** which is considered **Moderate (Significant)**.

Highways Link 7 – Common Croft Lane between Broad Lane and Lords Lane

12.8.17 As set out in **Table 12.25**, the total HGV flows are predicted to increase on this link by 1,834% over the 24-hour period (an increase of 38 HGVs) and total traffic predicted to increase by 41% (an increase of 58 vehicles). Based on **Table 12.24**, the sensitivity of the highways link has been identified as **Negligible**.

12.8.18 **Table 12.27** sets out the assessment of the transport environmental effects at the highways link and the significance of effect.

Table 12.27 – Highway Link 7 – assessment of transport environmental effects

Effect	Comments	Magnitude of Change	Significance of Residual Effect
Severance	Common Croft Lane/Newlands Road is a single lane rural carriageway road which links the A59 to Cinder Lane and Ouse Moor Lane west of Nether Poppleton. With an increase of 38 HGVs per day across the 12 hour period, this would result in approximately three additional HGVs per hour. The increase of 58 vehicles per day would result in five additional total vehicles per hour. The change in HGVs and Total Vehicles on the link is above 90% and based on **Table 12.15** the magnitude of change is High. The significance of effect on severance however based on **Table 12.17** is therefore **negligible**.	High	Negligible (Not significant)

Effect	Comments	Magnitude of Change	Significance of Residual Effect
Driver Delay	The increase in traffic at the peak of the construction phase is three additional HGVs per hour (or one HGV approximately every 20 minutes) and is unlikely to result in any delay to drivers on the highway link or local junctions and on this basis the magnitude of change is therefore **negligible**. The significance of effect on driver delay is therefore **negligible**.	Negligible	Negligible (Not significant)
Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation	There are no pedestrian footways on the link and no clear pedestrian design lines between land uses. In the peak of the construction phase it is anticipated that an additional HGV will be generated every 20 minutes on the link. Based on professional judgement it is considered that this would not be perceptible to pedestrians wishing to cross the road and the magnitude of change is **negligible** for pedestrian amenity, pedestrian delay and fear and intimidation effects. The significance of effect on Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation based on **Table 12.15** is therefore **negligible**.	Negligible	Negligible (Not significant)
Accidents and Safety	The assessment undertaken in **Section 12.5** indicates that the Common Croft Lane/Newlands Road did not have any accidents recorded during the five-year period assessed in this chapter. With only an additional HGV required every 20 minutes in the construction phase traffic peak as a result of the Project the magnitude of change is therefore **negligible**. The significance of effect on accidents and safety is therefore **negligible**.	Negligible	Negligible (Not significant)

12.8.19 Based on **Table 12.27**, the overall significance of residual effects at Highways Link 7 and associated receptors is considered to be **negligible** and **Not Significant**.

Highways Link 10 – A19 between Fairfields Drive and Stripe Lane

12.8.20 As set out in **Table 12.25**, the total HGV flows are predicted to increase on this link by 22.3% over the 24 hour period (an increase of 152 HGVs). Based on **Table 12.24**, the sensitivity of the highways link has been identified as **Medium**.

12.8.21 **Table 12.28** sets out the assessment of the transport environmental effects at the highways link, and the significance of effect.

Table 12.28 – Highway Link 10 – assessment of transport environmental effects

Effect	Comments	Magnitude of Change	Significance of Residual Effect
Severance	The A19 in this location is a two lane single carriageway road which routes from York through the village of Skelton and onwards through Shipton by Beningbrough to Thirsk. The road is primarily rural in nature. The highways link is a key 'A' road in the local area and is designed to accommodate high traffic flows and HGVs. With an increase of 152 HGVs per day across the 12 hour period, this would result in approximately 13 additional HGVs per hour. The change in HGVs on the link is less than 30% and based on **Table 12.17** the magnitude of change is **negligible**. The significance of effect on severance is therefore **negligible**.	Negligible	Negligible (Not significant)
Driver Delay	The increase in traffic at the peak of the construction phase is 13 additional HGV movements per hour (or one HGV approximately every 5 minutes) and is unlikely to result in any delay to drivers on the highway link or local junctions. On this basis the magnitude of change is therefore **negligible**. The significance of effect on driver delay is therefore **negligible**.	Negligible	Negligible (Not significant)
Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation	The A19 in Skelton has several dropped crossings over the road including at the junction of the A19 and Fairfields Drive. The footway widths in Skelton are 3 to 4m wide and run along both sides of the road. These formal crossings and footways accommodate the pedestrian desire lines in this built-up area. In the peak of the construction phase it is anticipated that an additional HGV movement would be generated every 5 minutes on the link. Based on professional judgement it is considered that this would not be perceptible to pedestrians wishing to cross the road and the magnitude of change is **negligible** for pedestrian amenity, pedestrian delay and fear and intimidation effects. The significance of effect on Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation based on **Table 12.15** is therefore **negligible**.	Negligible	Negligible (Not significant)
Accidents and Safety	The assessment undertaken in **Section 12.5** indicates that the A19 between Fairfields Drive and Stripe Lane has an accident rate of 0.21 per million vehicle kilometres which is above the 0.11 rate for Rural A Roads. However, given the more urban nature of this link between Fairfields Drive and Stripe Lane a more	Negligible	Negligible (Not significant)

Effect	Comments	Magnitude of Change	Significance of Residual Effect
	appropriate rate would be the 0.42 for an Urban 'A' Road. For pedestrians, crossings of the highway are provided in Skelton. With only an additional HGV every 5 minutes in the construction phase peak as a result of the Project the magnitude of change is considered **negligible**. The significance of effect on accidents and safety is therefore **negligible**.		

12.8.22 Based on **Table 12.28** the overall significance of residual effects at Highways Link 10 and associated receptors is considered to be **Negligible** and **Not significant**.

Highways Link 11 – Overton Road between Stripe Lane and A19

12.8.23 As set out in **Table 12.25**, the total HGV flows are predicted to increase on this link by 245% over the 24-hour period (an increase of 30 HGVs) and total traffic to increase by 47.5% (an increase of 46 total vehicles). Based on **Table 12.24**, the sensitivity of the highways link has been identified as **Negligible**.

12.8.24 **Table 12.29** sets out the assessment of the transport environmental effects at the highways link and the significance of effect.

Table 12.29 – Highway Link 11 – assessment of transport environmental effects

Effect	Comments	Magnitude of Change	Significance of Residual Effect
Severance	Overton Road in this location is a one lane single carriageway road which routes from a junction with the A19 to a junction with Stripe Lane. The road is rural in nature and is a through route between two different sections of the A19. The road only provides access to small number of houses and farms. With a calculated increase of 30 HGVs per day across the 12 hour period, this would result in approximately 3 additional HGVs per hour. The change in HGVs on the link is more than 90% due to the low number of HGVs in the baseline, and based on **Table 12.17** the magnitude of change is **High**. The significance of effect on severance is therefore **negligible**.	High	Negligible (Not significant)

Effect	Comments	Magnitude of Change	Significance of Residual Effect
Driver Delay	The calculated increase in traffic at the peak of the construction phase of three additional HGVs per hour (or one HGV approximately every 20 minutes) is unlikely to result in any delay to drivers on the highway link or local junctions and on this basis the magnitude of change is therefore **negligible**. The significance of effect on driver delay is therefore **negligible**.	Negligible	Negligible (Not significant)
Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation	Overton Road does not have pedestrian footways or clear pedestrian desire lines. However, in the peak of the construction phase it is anticipated that an additional HGV would be generated every 20 minutes on the link. Based on professional judgement it is considered that this would not be perceptible to pedestrians wishing to cross the road and the magnitude of change is **negligible** for pedestrian amenity, pedestrian delay and fear and intimidation effects. The significance of effect on Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation based on **Table 12.15** is therefore **negligible**.	Negligible	Negligible (Not significant)
Accidents and Safety	The assessment undertaken in **Section 12.5** indicates that no accidents were recorded on Overton Road. With only an additional HGV required every 20 minutes in the construction phase peak as a result of the Project the magnitude of change is therefore considered **negligible**. The significance of effect on accidents and safety is therefore **negligible**.	Negligible	Negligible (Not significant)

12.8.25 Based on **Table 12.29** the overall significance of residual effects at Highways Link 11 and associated receptors is considered to be **Negligible** and **Not significant**.

Highways Link 12 – B1363 between Mill Lane and A1237

12.8.26 As set out in **Table 12.25**, the total HGV flows are predicted to increase on this link by 31.6% over the 24-hour period (an increase of 64 HGVs). Based on **Table 12.24**, the sensitivity of the highways link has been identified as **Medium**.

12.8.27 **Table 12.30** sets out the assessment of the transport environmental effects at the highways link and the significance of effect.

Table 12.30 – Highway Link 12 – assessment of transport environmental effects

Effect	Comments	Magnitude of Change	Significance of Residual Effect
Severance	The B1363 is a two lane single carriageway road which routes northwards from York to various villages and passes though the western edge of Wigginton where the road is urban in nature, though the majority of the link is rural. The highways link is a key B road in the local area and is designed to accommodate moderate traffic flows and HGVs. With an increase of 64 HGVs per day across the 12 hour period, this would result in approximately 5 additional HGVs per hour. The change in HGVs on the link is between 30-60% and based on **Table 12.17** the magnitude of change is **Low**. The significance of effect on severance is therefore **minor**.	Low	Minor (Not significant)
Driver Delay	The predicted increase in traffic movements at the peak of the construction phase of five additional HGVs per hour (or one HGV approximately every 12 minutes) is unlikely to result in any delay to drivers on the highway link or local junctions and on this basis the magnitude of change is therefore **negligible**. The significance of effect on driver delay is therefore **negligible**.	Negligible	Negligible (Not significant)
Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation	The B1363 in Wigginton does not have any pedestrian footways. In the peak of the construction phase it is anticipated that an additional HGV would be generated every 12 minutes on the link. Based on professional judgement it is considered that this would not be perceptible to pedestrians wishing to cross the road and the magnitude of change is **negligible** for pedestrian amenity, pedestrian delay and fear and intimidation effects. The significance of effect on Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation based on **Table 12.15** is therefore **negligible**.	Negligible	Negligible (Not significant)
Accidents and Safety	The assessment undertaken in **Section 12.5** indicates that the B1363 has an accident rate of 0.07 per million vehicle kilometres which is well below the rates for urban or rural “other” roads (0.33 and 0.19). With only an additional HGV required every 12 minutes in the construction phase peak as a result of the Project the magnitude of change is therefore **negligible**. The significance of effect on accidents and safety is therefore **negligible**.	Negligible	Negligible (Not significant)

12.8.28 Based on **Table 12.30** the overall significance of residual effects at Highways Link 12 and associated receptors is considered to be **Negligible** and **Not significant**.

12.9 Preliminary assessment of cumulative (inter-project) effects

12.9.1 A cumulative effects assessment (CEA) will be undertaken for the ES which considers the combined impacts with other developments on the same single receptor or resource (inter-project effects). The detailed method followed in identifying and assessing potential cumulative effects is set out in **Section 4.9** of **Chapter 4: Approach to preparing the PEIR**.

12.9.2 In terms of road traffic, the preferred option for projecting existing or historical traffic data for future year assessments is the use of appropriate local traffic forecasts such as TEMPro as has been undertaken in this chapter, the methodology of which is set out in **Section 12.7**. TEMPro is a program developed by the DfT providing traffic growth projections used to project long-term forecasts in traffic growth. The forecasts take into account national projections of population, employment, housing, car ownership, and trip rates. This is an accepted approach to assess future baseline traffic. This approach to forecasting traffic growth takes into account the traffic associated with all cumulative and anticipated development with the relevant local plans.

12.9.3 At this time, it is assumed that the potential developments identified in **Table 4.5, Chapter 4**, have already been taken into consideration within the TEMPro forecasts used in the assessment. No other committed developments have been identified at this stage that are anticipated to overlap with the Project, and therefore no cumulative transport effects are anticipated..

12.10 Preliminary significance conclusions

12.10.1 A summary of the results of the preliminary traffic and transport assessment is provided in **Table 12.31.**

Table 12.31– Preliminary summary of significance of effects

Receptor and Summary of Predicted Effects	Sensitivity of Receptor[1]	Magnitude of Change[2]	Significance[3]	Summary Rationale
Severance - 5 Links where GEART Thresholds are triggered	4 - Medium 7 - Negligible 10 - Medium 11 - Negligible 12 - Medium	4 – Medium 7 – High 10 – Negligible 11 – High 12 – Low	4 - Moderate (Significant) 7 - Negligible (Not significant) 10 - Negligible (Not significant) 11 - Negligible (Not significant) 12 - Minor (Not significant)	The assessment has indicated that for one of the links assessed in this scenario a moderate impact would be experienced from the worst case construction traffic (Link 4) It is considered that additional mitigation will be required to address this moderate impact

Receptor and Summary of Predicted Effects	Sensitivity of Receptor[1]	Magnitude of Change[2]	Significance[3]	Summary Rationale
				on severance in North Tadcaster. The additional mitigation that will be considered is set out further in **Section 12.12.**
Driver Delay - 5 Links where GEART Thresholds are triggered	4 – Medium 7 – Negligible 10 – Medium 11 – Negligible 12 – Medium	4 – Negligible 7 – Negligible 10 – Negligible 11 – Negligible 12 – Negligible	4 - Negligible (Not significant) 7 - Negligible (Not significant) 10 - Negligible (Not significant) 11 - Negligible (Not significant) 12 - Negligible (Not significant)	There would be a temporary increase in traffic during the peak month of the construction programme but the assessment has indicated that the impacts on driver delay would be **Not Significant**.
Pedestrian Amenity, Pedestrian Delay and Fear and Intimidation - 5Links where GEART Thresholds are triggered	4 – Medium 7 – Negligible 10 – Medium 11 – Negligible 12 – Medium	4 – Negligible 7 – Negligible 10 – Negligible 11 – Negligible 12 – Negligible	4 - Negligible (Not significant) 7 - Negligible (Not significant) 10 - Negligible (Not significant) 11 - Negligible (Not significant) 12 - Negligible (Not significant)	There would be a temporary increase in traffic during the peak month of the construction programme but the assessment has indicated that the impacts on Pedestrian Amenity, delay and fear and intimidation would be **Not Significant**.
Accidents and Safety - 5 Links where GEART Thresholds are triggered	4 – Medium 7 – Negligible 10 – Medium 11 – Negligible 12 – Medium	4 – Negligible 7 – Negligible 10 – Negligible 11 – Negligible 12 – Negligible	4 - Negligible (Not significant) 7 - Negligible (Not significant) 10 - Negligible (Not significant) 11 - Negligible (Not significant) 12 - Negligible (Not significant)	There would be a temporary increase in traffic during the peak month of the construction programme but the assessment has indicated that the impacts on accidents and safety would be **Not Significant**.

1. The sensitivity/importance/value of a receptor is defined using the criteria set out in **Section 12.8** and is defined as Negligible, Low, Medium and High.
2. The magnitude of change on a receptor resulting from activities relating to the development is defined using the criteria set out in **Section 12.8** and is defined as Negligible, Low, Medium and High.
3. The significance of the environmental effects is based on the combination of the sensitivity/importance/value of a receptor and the magnitude of change and is expressed as major (significant), moderate (potentially significant) or minor/negligible (not significant), subject to the evaluation methodology outlined in **Section 12.8**.

12.11 Additional measures

12.11.1 The assessment set out above has concluded that it will be necessary to implement additional measures at Link 4 due to a moderate and significant effect on severance. Potential additional measures have been identified in **Table 12.32** and would be in addition to those embedded measures outlined and assessed in **Section 12.6**. **Table 12.32** outlines how these additional measures would influence the traffic and transport assessment.

Table 12.32 – Summary of the additional environmental measures

Receptor	Potential Changes and Effects	Additional Measures	Compliance Mechanism
Construction			
Severance – Link 4 – A659 Weatherby Road – Tadcaster	Increase In HGV traffic on Link 4 in Tadcaster and effects on severance of the road. There are footways on both sides of the carriageway and the increase in traffic has identified potential severance issues	The A659 in North Tadcaster has already undergone several improvement schemes in recent years to address issues with pedestrian desire lines across the carriageway related to Riverside Community Primary School and the presence of a large industrial site to the west of the road (Molson Corrs). The road has a speed limit reduction to 20mph and a signalised crossing has been implemented. This is supported by parking restrictions near the school entry and speed bumps to reduce speed. As such provision of more physical infrastructure would not be appropriate and additional environmental measures in this area should be focused on traffic routing and timings. Alternative routing of the HGV traffic would be hard to achieve. The River Wharf limits access from the east. To the south and west there are no logical routes other than through Tadcaster. Initially it was considered that the route from the north might be applicable but that would have had impacts in either Clifford or Boston Spa.	Requirement of the DCO within the Outline CTMP.

Receptor	Potential Changes and Effects	Additional Measures	Compliance Mechanism
		Therefore it is considered the additional mitigation that would address the severance issues would be to limit traffic on this route at certain times of the day around school drop off and pick up when the issue would be most prevalent in the area. It is proposed that there would be a Project HGV ban through Tadcaster between 08:00 – 09:00 and 15:00 – 16:00 every school day.	

12.12 Residual effects assessment

12.12.1 As set out in **Table 12.32** the provision of an HGV ban though Tadcaster at school drop off and pick up times is considered to be an appropriate additional mitigation measure to reduce the anticipated severance effects. With this measure it is considered that the residual effect of the project on Highways Link 4 would reduce from medium to low and as such the effect of the Project would be reduced to minor (not significant).

12.12.2 Further discussion with NYCC will be undertaken to agree specific timings for any HGV ban in Tadcaster.

12.13 Further work to be undertaken

12.13.1 The information provided in this PEIR is preliminary, the final assessment of likely significant effects will be reported in the ES. This section describes the further work to be undertaken to support the traffic and transport assessment presented in the ES.

Baseline

12.13.2 Following PEIR and for the ES to support the DCO submission, it is anticipated that a full traffic data set for 2021 will be collected in late 2021 following the lifting of UK COVID-19 pandemic restrictions. This will result in an updated baseline on which to base the ES chapter (and other supporting documents).

12.13.3 Following consultation and feedback on this chapter should other receptors/links be required to be assessed these will be added to the baseline reported in the ES.

Assessment

12.13.4 The assessment methodology presented in this PEIR chapter will be discussed with the relevant highways authorities following section 42 consultation, which could lead to an amended assessment methodology for the ES to support the DCO submission.

12.13.5 It is considered that the assessment in this chapter is robust but it is preliminary. Traffic flows have only been calculated for movements occurring directly to and from the road network and this has not taken into account how trips between TCCs and site accesses would operate. Experience on projects of this nature has indicated that including this in

the EIA can have wide ranging effects including reducing the impact at some receptors and increasing them at others.

Consultation and engagement

12.13.6 Further engagement is expected with the local and strategic highways authorities before DCO submission, building on the work undertaken in this chapter. The nature of this further engagement is set out in **Table 12.33** below.

Table 12.33 – Further engagement proposed

Consultee	Issues to be Addressed	Relevance to Assessment
National Highways	Scope of Assessment on SRN Traffic Growth Committed Highways Schemes	To allow the ES preparation to take into account assessment to NH's satisfaction
North Yorkshire County Council	Scope of assessment of NYCC network HGV Access Strategy Traffic Growth Committed Development HGV Restriction in Tadcaster	To allow the ES preparation to take into account assessment to NYCC's satisfaction
Leeds City Council	Scope of assessment of LCC network HGV Access Strategy Traffic Growth Committed Development	To allow the ES preparation to take into account assessment to LCC's satisfaction
City of York Council	Scope of assessment of CYC network HGV Access Strategy Traffic Growth Committed Development	To allow the ES preparation to take into account assessment to YCC's satisfaction

Additional measures

12.13.7 During the construction phase Overton Lane and NCN 65, which follows this road, would remain open. Therefore no significant traffic and transport or access effects on those using the cycle route are likely. However, in order to minimise the potential for conflict between users of NCN 65 and construction traffic, National Grid is considering the potential to temporarily re-route NCN 65 off the northern extent of Overton Lane between the A19 and ECML Railway bridge. The precise route would be developed as part of the Project design taking into account feedback received from the Section 42 consultation process, but at this stage an off-carriageway route around the compound area to the west of Overton Road before re-joining Overton Lane to the South is being considered.

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