The Great Grid Upgrade

North Humber to High Marnham

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Appendix A Highway Safety Assessment

Executive Summary

This Transport Assessment provides an assessment of potential impacts on the function of the highways network as a result of the Project, which spans East Riding of Yorkshire, North Lincolnshire and Nottinghamshire. It is highly unlikely that there would be any longer-term impacts on the function and use of the highway network as a result of the Project during the Operational phase. The purpose of a Transport Assessment is to identify and assess the effects of construction traffic, with focus on weekday AM and PM peak hour conditions. It should be read alongside **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport**, which considers the environmental effects and interactions with sensitive receptors. The assessment has been informed by statutory consultation with the three relevant local highway authorities, namely East Riding of Yorkshire, North Lincolnshire and Nottinghamshire County Council as well as National Highways. Ongoing engagement has been maintained through regular meetings.

The construction phase of the Project is anticipated to commence in 2028. Works in 2028 are likely to include site clearance, establishment of temporary construction compounds and the installation of temporary access arrangements. Main construction activities are anticipated to commence in 2029 and continue through to 2031, with demobilisation and reinstatement works potentially continuing thereafter where required, through to 2033. A range of construction vehicles will be required on the Project that will use the public highway network. The majority of construction materials will be transported to the construction site by heavy goods vehicles (HGVs). This will include low-loader vehicles used to deliver large plant, such as excavators. Mats and welfare units won't come on low-loaders.. Light goods vehicles (LGVs) including vans, will also be used to transport smaller materials, equipment and site personnel to and from the site.

Baseline traffic conditions were established using Automatic Traffic Count (ATC) surveys undertaken in June and July 2024, with additional surveys on selected Primary Access Routes (PARs), which are the main routes proposed in July 2025 to access the compounds and construction site. The assessment considers the peak year of construction traffic (2029) and compares forecast peak traffic flows against these baseline conditions, which have been ‘growthed’ to 2029 to include anticipated changes in background traffic.

The findings indicate that no notable impacts are expected during peak periods. While some rural links show higher percentage increases in traffic, driven by very low baseline traffic levels, these impacts are not considered material in absolute terms. Increases in numbers of HGVs are generally modest, typically between 7 and 11 additional HGVs forecast during the AM and PM peak hours, with a maximum of 22 hourly HGVs forecast on Lambwell Hill (PAR 13). These volumes of traffic can comfortably be accommodated on the PARs.

The largest increase in LGVs occurs on the M62 (PAR 142), with 17 LGVs expected during each of the peak hours. This represents only a minor change on a high-capacity motorway, with no material impact on the Strategic Road Network anticipated.

The largest increase in total traffic is 35 vehicles, forecast on PAR 43 (B1392 Luddington Road).

In terms of mitigation measures proposed, these include, but are not limited to, construction workers arriving outside of the normal highway peak periods, managed HGV deliveries and localised measures such as temporary passing places. Further details of these mitigation measure, and others, are provided in **Application Document 7.4 Outline Construction Traffic Management Plan.**

1. Introduction

1.1 Overview

1.1.1 National Grid Electricity Transmission plc (National Grid) owns and maintains the national high voltage electricity transmission network throughout England and Wales.

1.1.2 The transmission network connects the power from where it is generated to the regional distribution network operators who then supply businesses and homes.

1.1.3 National Grid holds the Transmission Licence for England and Wales, and its statutory duty is to develop and maintain an efficient, coordinated and economical system of electricity transmission and to facilitate competition in the generation and supply of electricity, as set out in the Electricity Act 1989.

1.1.4 National Grid has developed plans for the North Humber to High Marnham Project (the Project). The Project would support the UK government's net zero target through the connection of new low carbon energy generation and by reinforcing the transmission network.

1.1.5 The Project would establish a new 400 kilovolt (kV) transmission connection approximately 90 kilometres (km) in length between a new substation to be built in the vicinity of Birkhill Wood, located to the north of Hull near Creyke Beck in the East Riding of Yorkshire, and a new substation at High Marnham in Nottinghamshire.

1.1.6 The reinforcement is needed because the existing transmission network, even with current upgrading, will not have sufficient capacity for the new renewable energy (a substantial proportion of which would be generated by offshore wind) that is expected to connect to the network over the next 10 years and beyond. Completion of the Project, together with other new reinforcements across the country, will meet this future energy transmission demand across the UK.

1.1.7 The Project is a Nationally Significant Infrastructure Project (NSIP), and National Grid is seeking development consent under the Planning Act 2008. NSIPs require a type of planning permission known as a Development Consent Order (DCO). Instead of applying to the local authority for planning permission, the developer must apply to the Secretary of State via the Planning Inspectorate for a DCO.

1.1.8 National Grid has submitted an application for development consent to the Planning Inspectorate for the Project. The Examining Authority (consisting of one or more examining inspectors), after a period of public examination, will make its recommendation to the Secretary of State for Energy Security and Net Zero, who in turn will decide on whether development consent should be granted.

1.1.9 The Project has been identified as being critical to delivering a network which supports the clean power pathways for 2030 delivery.

1.2 Purpose of the Report

1.2.1 With respect to issues relating to transport, paragraphs 5.14.5 and 5.14.6 of the Overarching National Policy Statement for Energy (EN-1) (Department for Energy Security and Net Zero, 2025) state the following:

'5.14.5 If a project is likely to have significant transport implications, the applicant's [Environmental Statement] (see Section 4.3) should include a vision for transport and an assessment of potential transport impacts.'

'5.14.6 The DfT's Transport Analysis Guidance (TAG) and Welsh Governments WelTAG provides guidance on modelling and assessing the impacts of transport schemes.'

1.2.2 Noting that the guidance referenced is the guidance relating to Transport Assessments (TAs), EN-1 clearly anticipates that transport-related assessment work should primarily be reported within the Environmental Statement rather than a standalone TA. As such, all traffic baseline, forecasting and assessment work related to traffic and transport is reported in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** and associated appendices.

1.2.3 The purpose of this Transport Assessment (TA) is to report any additional elements typically required under TA guidance but not usually reported in an Environmental Statement. It also includes signposting to the location of information usually included in a standalone TA produced in support of a Town and Country Planning Act application.

1.3 Report Structure

1.3.1 This report is structured as follows:

- Chapter 1: Introduction;
- Chapter 2: Transport Assessment Guidelines;
- Chapter 3: Transport Assessment Component Index;
- Chapter 4: Baseline Conditions;
- Chapter 5: Trip Generation, Distribution and Assignment;
- Chapter 6: Highway Safety and Collision Review;
- Chapter 7: Traffic and Transport Assessment of Impacts; and
- Chapter 8: Summary and Conclusions.

1.4 Project Overview

1.4.1 The Project is a new 400 kilovolt (kV) electricity transmission connection of approximately 90 kilometres (km) in overall length between two proposed new substations: the 400 kV Birkhill Wood Substation and 400 kV High Marnham Substation.

1.4.2 The proposed new substations are subject to separate planning applications. For more information, see **Application Document 5.4 Consents and Licences Required Under Other Legislation**.

1.4.3 The Project comprises:

- Approximately 90 km of new overhead line (Route Code 4AF) between the proposed new 400 kV Birkhill Wood Substation and 400 kV High Marnham Substation;
- Replacement and re-alignment of a section of the existing 400 kV overhead line (Route Code 4ZQ) between Brantingham and east of Broomfleet;
- Replacement and re-alignment of a section of the existing 400 kV overhead line (Route Code ZDA) between Ealand and west of Keadby;
- Line entry connections to a proposed new 400 kV Birkhill Wood Substation;
- Line entry connections to a proposed new 400 kV High Marnham Substation; and
- The Project would include other required works, for example, temporary diversions for works on existing overhead line routes, temporary access roads, highway works, temporary works compounds, work sites and ancillary works. The Project would also include utility diversions and drainage works. There would also be land required for environmental mitigation, offsetting, compensation and Biodiversity Net Gain (BNG).

1.4.4 A full description of the Project is provided in **Application Document 6.4 Environmental Statement Chapter 4 Description of the Project**.

1.5 Study Area

1.5.1 The study area used for the TA is primarily defined by the Primary Access Route(s) (PARs) and associated highway links that connect the site and construction access points to the strategic road network (SRN[1]), or specific A-classification roads managed by the local highway authorities (referred to as the major road network (MRN), as shown in **Application Document 6.14.F1 Environmental Statement Figure 14.1 Primary Access Routes**.

1.5.2 The PARs have been identified for the construction of the Project and are roads studied as part of the assessment; these also include some roads within the SRN at key locations. The PARs have been discussed and agreed with the relevant local highway authorities (LHAs), as detailed in Table 14.4 of **Application Document Environmental Statement 6.14 Chapter 14 Traffic and Transport**.

1.5.3 The study area also includes all Public Rights of Way (PRoWs) and cycle routes that are intersected by the Order Limits.

1.5.4 Sensitive areas have been identified and are defined by the presence of sensitive receptors such as hospitals, residential areas, community centres, conservation areas, schools, places of worship, equestrian facilities or recreation areas.

1.5.5 Consistent with Institute of Environmental Management and Assessment (IEMA) guidelines (IEMA, 2023), the study area includes highway links where construction traffic could result in:

- Noticeable change in traffic flows;

[1] The SRN comprises motorways and major A-roads managed by National Highways.

- Material change in the proportion of heavy goods vehicles (HGVs); or
- Effects on sensitive receptors, such as residential areas, schools, community facilities, equestrian routes, PRoWs, cycle routes and other locations where amenity, severance or safety effects may arise.

1.5.6 Areas beyond the defined study area have been excluded from further detailed assessment on the basis that construction traffic associated with the Project:

- Would be negligible in comparison to baseline traffic conditions;
- Would not result in material changes to traffic flow or composition; and
- Would not give rise to significant effects in accordance with Design Manual for Roads and Bridges (DMRB) LA 104 Environmental Assessment and Monitoring (Highways England, 2020) and IEMA guidelines (IEMA, 2023) principles.

1.6 Consultation

1.6.1 Consultation has been undertaken with a range of key stakeholders throughout the development of the Project. A summary of the consultation carried out is summarised below. Further details on how consultation responses have informed the assessment are provided in **Application Document 5.1 Consultation Report**.

Statutory Consultation

1.6.2 Traffic and transport matters were consulted upon during the statutory consultation stage, including engagement with:

- National Highways, as custodians of the SRN;
- LHAs:
  - East Riding of Yorkshire Council (ERYC);
  - North Lincolnshire Council (NLC); and
  - Nottinghamshire County Council (NCC).

1.6.3 Consultees were provided with information relating to proposed access arrangements, construction traffic routeing, PRoW interactions and the proposed assessment methodology.

1.6.4 Feedback received during statutory consultation informed refinement of the PARs, the identification of sensitive areas, and the development of **Application Document 7.4 Outline Construction Traffic Management Plan**.

Ongoing Engagement

1.6.5 Following statutory consultation, structured technical engagement has continued with the relevant LHAs. Regular monthly meetings along with structured workshops (the latter of which were about PRoW interactions and diversions) have been held with each LHA to:

- Discuss the production of traffic flow diagrams;
- Discuss the weight restrictions;

- Review evolving access designs and bellmouth locations;
- Review construction traffic routeing and zoning assumptions;
- Discuss Temporary Traffic Regulation Order (TTRO) requirements (namely no overtaking, park suspension, traffic management in villages, road closures and speed limit reductions); and

1.6.6 This ongoing engagement, where further details are held in the Statement of Common Ground (SoCG) with each Local Planning Authority (LPA), has ensured that LHAs have been kept informed of design development and that the assessment methodology reflects LHA feedback and local network knowledge. Further details are held in the Statement of Common Ground (SoCG) with each Local Planning Authority (LPA), Matters raised through consultation have been incorporated into:

- Refinement of construction traffic routeing;
- Road closures and resulting diversions;
- Confirmation of the link-based assessment methodology;
- Development of **Application Document 7.6 Outline Public Rights of Way Management Plan**; and
- Identification of TTRO requirements.

1.6.7 The TA reflects this engagement and has been prepared on a proportionate basis having regard to the scale, duration and nature of the Project's construction phase.

1.6.8 The focus of the TA is on the construction phase of the Project, as there are not expected to be any significant impacts during the operation and maintenance phase, as vehicle movements associated with the operation of the site and maintenance requirements are anticipated to be infrequent and low in number.

2. Transport Assessment Guidelines

2.1 Introduction

2.1.1 The purpose of this chapter is to demonstrate that the assessment has been undertaken in line with established national and local guidelines. A review of current TA guidelines has been carried out to ensure that the methodology, assumptions and scope of the assessment are robust and appropriate to the scale of the assessment.

2.1.2 Details of the local and regional policy documents relevant to the project are provided in **Application Document 6.14.A1 Environmental Statement Appendix 14.1 Regional and Local Planning Policy** as well as **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport**.

2.1.3 **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** includes a section on national policy and references the Planning Practice Guidance (PPG) for Travel Plans, Transport Assessments and Statements (Department for Communities and Local Government, 2014), which provides advice on when a TA or Transport Statement is required and what it should contain. A summary of the most relevant paragraphs of the PPG (Department for Communities and Local Government, 2014), and where they are addressed in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport**, is provided below.

2.1.4 Paragraph 002 of the PPG (Department for Communities and Local Government, 2014) states that:

'Travel Plans, Transport Assessments and Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements.'

2.1.5 Paragraph 004 of the PPG (Department for Communities and Local Government, 2014) states that:

'Transport Assessments and Statements are ways of assessing the potential transport impacts of developments (and they may propose mitigation measures to promote sustainable development. Where that mitigation relates to matters that can be addressed by management measures, the mitigation may inform the preparation of Travel Plans).'

2.1.6 An assessment of the impacts and likely significant effects, including the embedded mitigation designed to minimise any impacts from the outset, is provided in section 14.9 in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport**.

2.1.7 Paragraph 005 of the PPG (Department for Communities and Local Government, 2014) states that:

'The primary purpose of a Travel Plan is to identify opportunities for the effective promotion and delivery of sustainable transport initiatives eg walking, cycling, public transport and tele-commuting, in connection with both proposed and existing developments and through this to thereby reduce the demand for travel by less sustainable modes.'

2.1.8 Details on travel planning for workers is included within section 6 (Outline Construction Workforce Travel Plan) of **Application Document 7.4 Outline Construction Traffic Management Plan**.

2.1.9 Paragraph 006 of the PPG (Department for Communities and Local Government, 2014) states that TAs:

'…support national planning policy which sets out that planning should actively manage patterns of growth in order to make the fullest possible use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable.'

2.1.10 Section TR6 of the National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2026) provides details of the elements of the NPPF that are relevant to **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** and where these are covered. The Outline Construction Worker Travel Plan in Chapter 6 of **Application Document 7.4 Outline Construction Traffic Management Plan** outlines the measures for implementing sustainable travel in the construction phase, as well as road safety considerations in Chapter 5.

2.1.11 Paragraph 007 of the PPG (Department for Communities and Local Government, 2014) states that TAs should be:

- '*established at the earliest practicable possible stage of a development proposal;*
- *be tailored to particular local circumstances…;*
- *be brought forward through collaborative ongoing working between the local planning authority/transport authority, transport operators, rail network operators, Highways Agency* [now National Highways] *where there may be implications for the strategic road network and other relevant bodies*.'

2.1.12 Details regarding scoping meetings held with the relevant highway authorities (e.g. LHAs and National Highways) to agree the scope of the traffic and transport chapter and the approach for the supporting deliverables are presented in section 14.3 of **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport**. Addressing feedback received from National Highways in **Application Document 6.5.A2 Environmental Statement Appendix 5.2 Scoping Opinion**, the Project is not expected to result in any adverse impacts on the SRN.

3. Transport Assessment Component Index

3.1 Introduction

3.1.1 There is no standard structure for a TA set out in the PPG (Department for Communities and Local Government, 2014). However, the following list sets out a typical report structure for a TA based on previous experience of preparing such documents.

3.1.2 The list below identifies where information typically included under the given headings within a standalone TA, is addressed within the Environmental Statement and wider suite of application documents.

Site location and description:

- **Application Document 6.1 Environmental Statement Chapter 1 Introduction**; and
- **Application Document 6.4 Environmental Statement Chapter 4 Description of the Project.**

Policy context:

- **Application Document 6.14.A1 Environmental Statement Appendix 14.1 Regional and Local Planning Policy**; and
- Chapter 2 of this TA (Transport Assessment Guidelines).

Consultation:

- **Application Document 6.5.A2 Environmental Statement Appendix 5.2 Scoping Opinion**;
- **Application Document 5.1 Consultation Report**;
- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport – Stakeholder Consultation**; and
- Chapter 1 of this TA (Introduction).

Baseline conditions and accessibility:

- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** – Baseline Conditions;
- **Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**;
- **Application Document 7.6 Outline Public Rights of Way Management Plan**; and

- Chapter 4 of this TA (Baseline Conditions).

Collision review:

- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** – Baseline Safety Review; and
- Chapter 6 of this TA (Highway Safety and Collision Review).

Development proposals:

- **Application Document 6.4 Environmental Statement Chapter 4 Description of the Project**;
- **Application Document 7.4 Outline Construction Traffic Management Plan**; and
- Chapter 1 of this TA (Introduction).

Future baseline:

- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** – Future Baseline;
- **Application Document 6.14.A3 Environmental Statement Appendix 14.3 Future Baseline**; and
- Chapter 4 of this TA (Baseline Conditions).

Trip generation, distribution and construction routeing:

- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** – Assessment of Impacts;
- **Application Document 6.14.F1 Environmental Statement Figure 14.1 Primary Access Routes**;
- **Application Document 7.4 Outline Construction Traffic Management Plan**; and
- Chapter 6 of this TA (Trip Generation, Distribution and Assignment).

Cumulative and committed development:

- **Application Document 6.21 Environmental Statement Chapter 21 Inter-project Cumulative Effects**; and
- Chapter 5 of this TA (Trip Generation, Distribution and Assignment).

Assessment methodology:

- **Application Document 6.5 Environmental Statement Chapter 5 EIA Approach and Methodology**;
- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** – Approach to Assessment; and

- Chapter 7 of this TA (Traffic and Transport Assessment of Impacts).

Pedestrians, cyclists and equestrians:

- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport – Baseline and Assessment**; and
- **Application Document 7.6 Outline Public Rights of Way Management Plan**.

Highway assessment and junction operation:

- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport – Assessment of Impacts**; and
- Chapter 8 of this TA (Summary and Conclusions).

Access design and traffic management:

- **Application Document 7.4 Outline Construction Traffic Management Plan**;
- **Application Document 2.5 Traffic Regulation Order Plans**; and

Mitigation:

- **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** – Embedded and Additional Mitigation;
- **Application Document 7.4 Outline Construction Traffic Management Plan**; and
- **Application Document 7.6 Outline Public Rights of Way Management Plan**.

Conclusions:

- Chapter 8 of this TA (Summary and Conclusions).

4. Baseline Conditions

4.1 Introduction

4.1.1 This chapter describes the traffic and transport baseline in the study area, namely the current transport network within the study area and key movement considerations. The baseline traffic and transport environment in the study area is also presented in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** and **Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**.

4.2 Data Collection

4.2.1 Baseline conditions have been established using a combination of desk-based information and site surveys. Baseline information is presented on an LHA-by-LHA basis where it relates to the local road network (LRN) and, where traffic flows are presented diagrammatically, using Route Sections of the Project for ease of comparison with construction scenarios (as shown on **Application Document 6.1.F1 Environmental Statement Figure 1.1 Project Location and Route Sections**).

4.2.2 Automatic Traffic Count (ATC) surveys were undertaken during June and July 2024, with surveys completed between 23 June and 29 June 2024 and between 1 July and 7 July 2024 (outside of the school holiday period). Further ATCs were carried out on additional PARs between 12 July and 18 July 2025, again before the school summer holidays commenced.

4.2.3 The traffic surveys were undertaken during neutral months (which comprised April, May, June, September and October) and during school term time in the non-neutral month of July. The survey periods did not coincide with abnormal traffic conditions, roadworks or public holiday periods and are therefore considered representative of typical baseline conditions. The traffic survey data are presented in Chapter 7 of this TA.

4.2.4 The data sources and further details of baseline for the highway safety and collision review are provided in section 6 of this report.

4.3 Strategic Road Network

4.3.1 This section describes the roads which form part of the SRN and are within the study area of the Project. These routes have been identified due to their role in accommodating construction traffic movements, including HGVs and (where required) abnormal loads, between the Project and the SRN.

4.3.2 SRN routes extend across multiple LHA areas and they are described collectively within this section. A-roads, B-roads, and more local roads which are managed by local authorities are described in **Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**.

4.3.3 Access between the SRN and individual construction access points is via authority-managed routes, as set out in **Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**.

East Riding of Yorkshire

A63

4.3.4 The A63 is a dual carriageway A-road subject to the national speed limit, which runs between Hull in the east, before leading into the M62 at junction 38, then travelling onward to Leeds. Street lighting is provided at junctions, with pedestrian access restricted to designated crossing points.

M62

4.3.5 The M62 runs east to west, to the north of the study area, from Liverpool in the west, transitioning into the A63 at junction 38 west of Hull. It is a dual carriageway motorway subject to the national speed limit. Street lighting is limited to junctions and pedestrian access is prohibited. At M62 junction 35 northeast of Stainforth, it joins the M18 which routes southwest to the A1(M) at M18 junction 2. Both these roads also form part of the SRN**.**

North Lincolnshire

M180

4.3.6 The M180 routes east to west to the south of Scunthorpe, and runs between M18 junction 5 in Hatfield, eastward to Barnetby le Wold in Lincolnshire at the A15/A180 junction. It is a dual carriageway motorway subject to the national speed limit. Streetlighting is limited to junctions, and pedestrian access is prohibited. The A18 and A161 within North Lincolnshire function as important regional and local distributor routes but are not part of the SRN.

4.4 Local Road Network

4.4.1 The study area has been subdivided by individual LHAs to reflect the differing administrative responsibilities, highway standards and network characteristics along the route. This approach enables the LRN within each LHA area to be described and assessed in a clear and structured manner, ensuring that relevant local context is accurately captured. Presenting the information on an LHA basis also supports engagement with each LHA.

4.4.2 Details of the LRN within each LHA area included within the assessment of traffic and transport impacts presented later in this TA, are outlined in **Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**.

4.4.3 Information relating to sustainable modes of transport across the study area is outlined in **Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**.

4.5 Baseline Traffic Flows

4.5.1 Baseline traffic flow data have been obtained using a combination of Department for Transport (DfT) traffic count data and site-specific ATC surveys, where DfT data were not available or were not considered representative (data being estimated from previous years).

4.5.2 ATC survey periods are described in section 4.2 of this TA. The locations of the ATC survey sites are shown on **Application Document 6.14.F1 Environmental Statement Figure 14.1 Primary Access Routes**.

4.5.3 For consistency and clarity, baseline traffic flows are presented using the same routeing adopted for the construction traffic assessment. The use of a common framework is for presentation and comparison only and does not affect the derivation of baseline traffic, which reflects existing conditions.

4.5.4 The baseline traffic data indicate that the weekday AM and PM peak hours vary between locations within the study area. The assessment presented in Chapter 7 of this TA has therefore considered site-specific peak hours, as appropriate, in order to robustly assess the traffic impacts arising from the Project.

4.5.5 It has not been necessary to undertake junction turning count surveys or to develop a junction capacity baseline. This is because, as reported later in this document, no peak hour construction traffic movements on any PAR are forecast to be above 35 two-way movements, and the majority are below 30 two-way movements which, based on Transport Assessment best practice in section 2 of Guidance on Transport Assessments (Department for Transport, 2007), is not considered a notable traffic increase during the peak hours. Another consideration that supports the decision not to undertake junction capacity assessments is the fact that workers will arrive at work sites before 07:00 and depart after 19:00 i.e. outside the peak hours.

4.5.6 The assessment of construction traffic effects has instead been undertaken with reference to changes in link flows and HGV proportions, which is considered proportionate given the nature of the construction traffic routeing, and aligns with approaches taken on similar DCO projects.

4.5.7 Baseline conditions for non-motorised users, including pedestrians, cyclists and equestrians, have been established through consideration of the nature of the local highway network and identification of PRoW crossings through professional judgement and a desktop review, where no user surveys were undertaken.

5. Trip Generation, Distribution and Assignment

5.1 Introduction

5.1.1 This chapter sets out the methodology, as agreed with the LHAs, followed in this TA to assess the temporary impact of the Project on the transport network during the construction phase. Relevant TA guidance does not prescribe specific thresholds for construction traffic assessment and, as such, the methodology has been developed using professional judgement and experience of comparable linear infrastructure projects.

5.1.2 The methodology has been developed to ensure that construction traffic impacts are assessed on a robust but proportionate basis, reflecting the scale, duration and phasing of the works, while applying reasonable worst-case assumptions.

5.2 Construction Phasing and Programme

5.2.1 Construction activity has been categorised into the following phases for the purposes of the TA:

- Pre-commencement Works;
- Main Construction; and
- Reinstatement.

5.2.2 Separate construction traffic flow diagrams have been prepared for each phase, recognising that access arrangements, routeing and traffic volumes vary materially over the course of the construction programme. While the construction programme will continue to evolve as design and Main Works Contractor(s) methodologies are refined, the dates set out below represent the best available information at the time of assessment and provide a robust basis for the purposes of the TA. Should the programme evolve, the methodology remains applicable as it is based on activity intensity rather than fixed calendar dates.

5.2.3 The indicative construction programme is set out within **Application Document 6.4 Environmental Statement Chapter 4 Description of the Project**.

5.2.4 The enabling works and the main construction periods overlap for a significant time, reflecting the rolling nature of access formation, compound establishment and core construction activities.

5.3 Enabling Works Access

5.3.1 During the enabling works, construction traffic would be concentrated on certain PARs. These routes would be used prior to the completion of bellmouths, haul roads and internal site access.

5.3.2 The PARs proposed to be used during enabling works are:

- Main Street (PAR007), Skidby;
- Little Weighton Road (PAR008), Skidby;
- Meredyke Road West (PAR135), Luddington;
- King Edward Street (PAR055/PAR056), Beltoft;
- Belton Road (PAR057), Beltoft;
- Brackenhill Road / East Lound Road West (PAR069), East Lound;
- Ferry Road (PAR072), Graizelound;
- Stockwith Road (PAR073), Graizelound;
- Forewood Lane/Town Street (PAR108), Treswell;
- Cocking Lane (PAR107), Treswell; and
- Darlton Road (PAR124), Darlton.

5.3.3 The assessment recognises that traffic patterns during enabling works differ materially from those during main construction, therefore this phase is considered separately.

5.4 Construction Traffic Generation, Distribution and Assignment

Source of Construction Traffic Data and Definitions

5.4.1 Construction traffic trip numbers have been derived from experience of developing the numbers and types of vehicles required to construct similar projects and then generated from the construction logistics calculations. A 25% contingency uplift has been applied to all construction vehicle movements within the calculations and retained throughout the assessment to ensure a robust and precautionary approach. This contingency has been added to allow for unforeseen movements, site constraints, site audits/visits and variations in detailed construction methodologies developed by the Main Works Contractor(s). The level of contingency has been based upon professional judgement and is similar to the contingency applied to previous assessments for similar projects.

5.4.2 For the purposes of the report, the following definitions apply:

- Site: Defined as the area beyond the access or bellmouth. Once a vehicle passes through an access/bellmouth, it is considered to be off the public highway and travelling internally via construction access tracks.
- Access/bellmouths: Treated as the boundary of highway impact.
- LRN: Public highway up to and including the bellmouth.
- SRN/MRN: Other higher level public roads that vehicles will use to access the LRN.

Route Zoning for Construction Traffic Assessment

5.4.3 For the purposes of construction traffic assessment and presentation, the route of the Project has been subdivided into a series of zones, defined by extents between major A-roads and key highway junctions.

5.4.4 The zoning has been applied for analytical and reporting purposes only, to enable construction traffic movements to be quantified, assigned and presented in a clear and structured manner along the length of the route. The zones do not represent physical barriers or constraints on construction traffic movement.

5.4.5 Construction vehicle movements are generated, distributed and assigned within each zone in accordance with the methodology set out in this chapter, with traffic subsequently routed onto the wider highway network via the relevant bellmouths.

5.4.6 This approach ensures that construction traffic flows can be assessed in a logical and proportionate manner, while avoiding dilution of impacts across long sections of the route.

5.4.7 A summary of the construction traffic zones, including the principal roads represented within each zone and the relevant LHA areas, is provided in Table 5.1.

Table 5.1 – Construction traffic zones and LHA coverage

Zone	Roads represented	LHA
Zone 1	A164, A1079	ERYC
Zone 2	Dunflat Road, Main Street, Beverley Road, Dale Road, Rowley Road, Riplingham Road, B1230, Brick Dike Lane	ERYC
Zone 3	Ellerker Lane, Norfolk Bank Lane, Sands Lane, Brough Road, Brantingham Road, A63, A164, Ings Lane, Carr Lane, Common Road, Landing Lane, B1230, Tongue Lane, Thornton Dam Lane, Station Road, Staddlethorpe Broad Lane, Blackcroft Lane, Pennyhill Cottages, A161, Kings Causeway	ERYC
Zone 4	Luddington Road, Carr Lane, A161, B1392	ERYC/NLC
Zone 5	Ox Pasture Lane, A18, Bonnyhale Road, Main Street, Outgate	NLC
Zone 6	A161, M180, King Edwards Street, Belton Road, Hollingsworth Lane, Melwood Hill, Newland Lane, Rectory Street, Greengate, Burnham Road, Church Road, East Lound Road, Tower Hill, Ferry Road, Stockwith Road	NLC
Zone 7	Tindale Bank Road, Cornley Road, Cattle Road, B1403, Walkeringham Road	NLC/NCC
Zone 8	B1403, A631	NCC
Zone 9	A620, Sturton Road , Low Street,	NCC
Zone 10	Wheatley Road, Cross Street, Leverton Road, A638, Grove Road, Wood Lane, Main Street, Retford Road, Laneham Road, Hazelwood Lane, Ashley Lane	NCC
Zone 11	Darlton Road, A57, Main Street	NCC

Vehicle Types and Movement Assumptions

5.4.8 Construction traffic is categorised as:

- Light goods vehicles (LGVs) – up to 3.5 tonnes Gross Weight Vehicle, predominantly staff and supervisory vehicles but also small parts equipment vans and service vehicles; and
- Heavy goods vehicles (HGVs) – over 3.5 tonne Gross Weight Vehicle, typically including plant, materials and deliveries.

5.4.9 It should be acknowledged that private cars may also be used by staff to travel to the site, and that these movements would not be restricted to using PARs only.

5.4.10 LGV staff movements are assumed to be split as follows:

- 50% travelling via compounds before accessing the site internally; and
- 50% travelling directly to site via bellmouths.

5.4.11 This assumption reflects logistics proportions for similar schemes, while maintaining consistency with the structure of the logistics data. Further details are provided in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport**, section 14.4 and 14.7.

5.4.12 HGV movements are assumed to comprise:

- Direct access to site via bellmouths for the majority of plant and deliveries; and
- Compound-based deliveries for materials requiring storage prior to onward movement on construction access tracks.

5.4.13 Details of abnormal indivisible loads (AILs) are outlined in **Application Document 7.4 Outline Construction Traffic Management Plan**.

Trip Distribution and Routeing

5.4.14 Construction traffic has been distributed using a gravity model approach assuming a split of 25% arriving/departing north, 25% arriving/departing south, 25% arriving/departing east and 25% arriving/departing west from the nearest A-road or SRN. Potential variation in this distribution is one of the reasons for introducing the 25% contingency uplift.

5.4.15 This distribution reflects the likely dispersal of construction traffic across the wider network and is considered to provide precautionary representation of likely routeing in prior to the availability of Main Works Contractor-specific origin data.

5.4.16 Where HGV suitable routes are not available, localised mitigation measures such as temporary passing places or road widening have been proposed. Further details of the mitigation are provided in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport**.

Trip Assignment to Bellmouths

5.4.17 For the purposes of this TA, trip assignment refers to the process by which construction vehicle movements are allocated to specific access points, bellmouths and highway links following the application of trip generation, distribution and routeing assumptions.

5.4.18 To ensure a worst-case basis of assessment, it was decided that, rather than apportioning construction traffic evenly across multiple bellmouths within a haul road section, the full number of trips associated with constructing that section would be applied to each bellmouth individually. Adopting this approach ensures that the assessment does not rely on assumptions regarding the precise distribution of traffic between individual access points and represents a worst-case scenario for highway impact assessment.

5.4.19 In addition, traffic per zone has been calculated using trip rates for each piece of relevant infrastructure, including towers, working areas etc.

Peak Hour Assumptions

5.4.20 For the purposes of capacity assessment, the following peak-hour assumptions have been applied:

- AM peak hour: approximately 10% of daily construction traffic; and
- PM peak hour: approximately 10% of daily construction traffic.

5.4.21 These assumptions reflect the nature of construction activity and provide a robust worst-case assessment in the absence of Main Works Contractor(s)-specific profiles. For example, based on the proposed standard construction working shift (06:00 to 19:00 Monday to Friday), most construction workers are expected to avoid travelling during the traditional AM and PM peak hours of 08:00 to 09:00 and 17:00 to 18:00. In addition, journeys by LGVs (non-staff) and HGVs will be intentionally staggered throughout the day to minimise any increases during the AM and PM peak hours.

5.5 Peak Construction Year Assessment

5.5.1 In addition to phase-based assessments, a separate assessment has been undertaken to identify the peak construction year for highway impact.

5.5.2 The peak year has been derived by aligning the construction programme with the construction logistics data and reviewing the relative intensity of traffic-generating activities across each year of the programme.

5.5.3 This analysis demonstrates that 2029 contains the highest concentration of high-traffic construction activities, driven by the front-loading of enabling works and early construction work such as compounds, access construction, haul roads and bellmouths, which require the importation of large quantities of stone. These activities generate the greatest HGV intensity and place the highest demand on temporary access arrangements, including PARs within built-up areas.

5.5.4 Although construction activity extends into 2030, that year comprises a longer duration of lower intensity works. As a result, 2029 represents the worst-case year in highway impact terms and has therefore been identified as the peak construction year.

5.6 Committed and Cumulative Developments

5.6.1 In order to develop a future baseline for 2029, a review of committed and emerging (cumulative) development has been undertaken to inform the cumulative construction traffic assessment.

5.6.2 Specific information associated with cumulative developments, are provided in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport** and **Application Document 6.14.A3 Environmental Statement Appendix 14.3 Future Baseline**, as well as **Application Document 6.21 Environmental Statement Chapter 21 Inter-project Cumulative Effects** and **Application Document 6.21.A2 Environmental Statement Appendix 21.2 Short List of Other Developments**.

5.6.3 In summary, as set out in **Application Document 6.21 Environmental Statement Chapter 21 Inter-project Cumulative Effects**, the Project would not result in cumulative impacts on the road network that would be severe.

5.7 Summary

5.7.1 This chapter sets out the methodology used to assess construction traffic associated with the Project.

5.7.2 The methodology defines construction phases, identifies the relevant access arrangements, and establishes a transparent process for the generation, distribution, routeing and assignment of construction traffic. A precautionary worst-case approach has been applied where appropriate, including the use of contingency, conservative peak-hour assumptions and worst-case assignment of flows at individual bellmouths.

5.7.3 Separate assessments have been undertaken for each construction phase, a defined peak construction year, and cumulative construction activity arising from committed development. The resulting construction traffic flows form the basis for the impact assessment presented in the following chapters of this TA.

6. Highway Safety and Collision Review

6.1 Study Area and Data Sources

6.1.1 A desktop review of personal injury collision records has been undertaken for routes within the study area to provide baseline context and to inform the separate road safety review. Collision mapping is found in **Application Document 6.14.F3 Environmental Statement Figure 14.3 Collision Data**, and the analysis is outlined in **Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions,** as well as **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport.**

6.1.2 Personal Injury Collision data has been obtained from the DfT STATS19 database (Department for Transport, 2025) for the most recent five-year period available (2020 to 2024). These data cover the full length of the Primary Access Routes (PARs) and key junctions forming the study area.

6.1.3 Although the study area extends across multiple LHA areas, collision analysis has been undertaken for each PAR individually[2].

6.1.4 The collision data is presented within the Environmental Statement (**Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**), including mapped collision locations (**Application Document 6.14.F3 Environmental Statement Figure 14.3 Collision Data**) and identification of collision clusters.

6.1.5 Collision clusters have been defined in accordance with the criteria set out within the Environmental Statement, namely:

- Six or more injury collisions occurring within a 100 m length or junction; or
- Three or more fatal and/or serious collisions within a 100 m length or junction.

6.2 Strategic Road Network and Major Road Network Collision Review

6.2.1 The collision analysis has identified a number of collision clusters at larger junctions on the SRN and MRN. These clusters are predominantly located at established strategic junctions and roundabouts where traffic volumes are highest.

6.2.2 Review of the available collision records does not identify any recurring causation factors that would indicate a systemic geometric or alignment deficiency. Collisions are generally characteristic of higher-flow strategic junctions and occur under a range of typical highway conditions.

[2] Whilst it is acknowledged that the data include the period of COVID 19 restrictions between the first lockdown in March 2020 and the end of the last lockdown in March 2021, this dataset nonetheless includes more than three years of 'typical' data and the only other data available is 2019 or earlier, which is now considered to be out of date

6.3 Local Road Network Collision Review

6.3.1 These locations generally operate with lower baseline traffic flows compared to the SRN/MRN. The majority of recorded collisions are slight in severity, with isolated serious collisions and no clear recurring contributory factor evident from the dataset.

6.3.2 No consistent spatial pattern is identified along the rural links forming the PARs that would suggest a systemic safety concern related to route alignment, visibility or geometry.

6.3.3 Overall, the baseline collision record on the LRN does not indicate widespread or route-wide safety deficiencies.

6.4 Construction Traffic and Safety Considerations

6.4.1 The forecast construction traffic uplift, further details of which are set out in Chapter 7 of this TA, represents a temporary and dispersed increase in traffic volumes. Absolute HGV uplifts are modest in scale, with the maximum increase being 22 HGVs within a peak hour on Lambwell Hill (PAR 13).

6.4.2 The majority of routes experience substantially lower increases, typically in the order of single-digit HGV movements within a peak hour. This relatively small overall increase in traffic is predicted to lead to a proportionately small impact on highway safety, whereas a higher volume of vehicles could result in an increased probability of interaction with other vehicles and therefore an increased risk of collisions.

6.4.3 Where existing collision clusters have been identified, forecast HGV uplifts remain limited in absolute terms and are not of a scale that would materially alter the operational characteristics or driver behaviour patterns at the affected junctions or links. The largest LGV uplift occurs on the M62 (PAR 142), a strategic motorway operating with substantial available capacity.

6.4.4 From the collision analysis and information about the potential increase in traffic flows, no identified SRN/MRN or LRN collision clusters are located on links where the Project gives rise to a material increase in HGV flows. Where percentage increases appear elevated, these reflect low baseline HGV volumes rather than substantial changes in absolute traffic.

6.5 Additional Highway Safety Assessment

6.5.1 Whilst the desktop assessment outlined the above conclusions, it was deemed appropriate to carry out a more concentrated study, which reviewed key collision hotspots. This report is included as **Application Document 7.15.A1 Appendix 15.1 Highway Safety Assessment** and is referred to further below.

6.5.2 A programme of site inspections was undertaken to supplement the desktop assessment and verify site conditions. The inspections identified a number of existing constraints, varying visibility standards, high traffic flows, periodic congestion and location-specific operational characteristics. Where appropriate, mitigation measures have been identified to reduce safety risks and support the safe operation of the highway network throughout the construction and operational phases of the Project.

6.5.3 The report demonstrates that, subject to the implementation of appropriate traffic management measures, access design standards, signage, visibility improvements and construction management controls, the Project can be accommodated without introducing unacceptable highway safety risks. The assessment concludes that the proposed scheme is capable of operating in accordance with the principles of DMRB LA 104 (Highways England, 2020) and established highway safety best practice while maintaining a safe environment for all road users.

6.5.4 The assessment considers the impact of construction traffic operating on PARs and the following strategic and local highway network locations:

- A161 – Between M180 and Belton, Scunthorpe
- A161 Station Road / A161 Haxey Lane Junction, Haxey
- A620 Gainsborough Road / Haughgate Hill, Retford
- A638 Arlington Way / London Road Junction, Retford
- M62 / Main Road Junction, Brough
- A1034 / B1230 Hunsley Road Junction, Brough
- B1230 Hunsley Road / Brick Dike Lane
- Main Street / A164 Between B1233 Roundabout and A164
- A1079 Beverley Bypass West (Killingwoldgraves Roundabout)
- A15 Boothferry Way / A164 / Riplingham Road Roundabout

6.5.5 The assessment identifies existing highway safety conditions, potential safety consequences from construction vehicle movements and recommends mitigation measures to maintain highway safety throughout construction.

6.5.6 In recognising the risks identified in the Highway Safety Assessment report, and the overall risk associated with construction vehicle movements in terms of safety and congestion risk reduction, the Project has adopted measures to address these, including mandating use of a Vehicle Movement Planning System (VMPS) and adherence to the national Construction Logistics and Community Safety (CLOCS) Standard by the Contractor and their supply chain. More details on risk management processes associated with construction vehicle movements are set out in the **Application Document 7.4 Outline Construction Traffic Management Plan**.

6.5.7 On this basis, the construction traffic associated with the Project is not predicted to result in a material deterioration in highway safety conditions and would not give rise to highway safety impacts.

7. Traffic and Transport Assessment of Impacts

7.1 Introduction

7.1.1 This chapter presents the assessment of traffic and transport impacts associated with the Project. The Project would not give rise to material operational traffic once construction is complete, and as such the operational phase has been scoped out of the assessment. The assessment is therefore concerned primarily with changes in traffic flows, particularly HGVs, on the PARs and associated LRN during construction.

7.2 Assessment Method and Scope

7.2.1 The assessment has been undertaken using a link-based approach, with impacts assessed on each of the PARs used by construction traffic. This approach reflects the temporary and distributed nature of construction traffic movements and is considered proportionate for a linear infrastructure project.

7.2.2 Baseline traffic conditions have been established for each PAR using ATC data. Construction traffic flows have then been added to the baseline to identify changes in daily traffic flows, peak-hour flows and HGV proportions. The assessment focuses on percentage changes in traffic and HGV movements, which provide a robust indicator of potential effects on highway operation, safety and amenity.

7.2.3 The AM and PM peak periods, which vary based on a seven-day average of the surveyed flows, have been assessed separately to reflect differing traffic patterns and construction activity profiles, with results presented in separate tables for clarity.

7.3 Construction Traffic Impacts

7.3.1 Construction traffic flows have been assessed for each construction phase including the identified peak construction traffic year of 2029. The assessment considers weekday peak hours for both LGV and HGV movements, where the weekday represents the peak number of traffic movements.

7.3.2 The highest total vehicle flows occur in Zones 3, 5, 6 and 10, each recording two-way daily totals above 170 vehicles, with Zone 3 peaking at 222 vehicles daily. The average daily trip generation by zone for the 2029 peak construction year has been split into LGVs, HGVs and total vehicles and is set out in Table 7.1 below.

Table 7.1 – Average daily trip generation by zone – 2029 peak construction vehicles

Zone	LGVs		HGVs		Total vehicles	
	Arrivals/ departures	Two-way	Arrivals/ departures	Two-way	Arrivals/ departures	Two-way
Zone 1	12	24	11	22	23	46
Zone 2	36	72	28	56	64	128
Zone 3	61	122	50	100	111	222
Zone 4	30	60	26	52	56	112
Zone 5	50	100	40	80	90	180
Zone 6	50	100	38	76	88	176
Zone 7	25	50	21	42	46	92
Zone 8	6	12	7	14	13	26
Zone 9	10	20	8	16	18	36
Zone 10	48	96	38	76	86	172
Zone 11	14	28	13	26	27	54

7.3.3 Table 7.2 and Table 7.3 present the projected impact in the peak construction year (2029) on traffic flows across the assessed road links for the AM and PM peak hours, disaggregated into LGV and HGV movements. Where the PAR ID and road name are shown to be the same in consecutive rows, this is for where PARs had ATC surveys that were recorded on different sections of that link.

7.3.4 The results in Table 7.2 and Table 7.3 are presented as both absolute changes (number of additional vehicles) and percentage changes. For some PARs, particularly on lower-flow links, percentage changes can appear disproportionately high because the baseline HGV/LGV volumes in the peak hour are low. In these instances, a large percentage increase may represent a very small change in actual vehicle numbers'.

7.3.5 Therefore, percentage changes should not be read in isolation, but interpreted alongside the corresponding absolute change in vehicle numbers, as larger percentage variations do not necessarily indicate a material change in traffic conditions or a level of impact that would be operationally significant.

7.3.6 Where notable percentage changes occur, these are therefore reviewed in the context of the absolute vehicle uplift, the short duration of peak construction effects, and the available capacity and function of the route, rather than percentage change alone.

7.3.7 It should be highlighted that the traffic flow data have been rounded where necessary for the purpose of presentation and that, as discussed earlier, there are different peak hour times for certain PARs.

Table 7.2 – AM peak construction percentage change

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 1A	A1079 Beverley Bypass East (between A164/A1079 int and BM 001)	1292	88	1380	1294	90	1384	2	1	4	0%	2%	0%
PAR 1B	A1079 Beverley Bypass East (east of BM 001)	1250	98	1348	1251	98	1350	1	0	1	0%	0%	0%
PAR 2	A1079 Beverley Bypass West	1229	97	1326	1230	98	1328	1	0	1	0%	0%	0%
PAR 3	A164 - North of A1079	1145	86	1231	1146	86	1233	1	0	1	0%	1%	0%
PAR 4	A164 Beverley Road - Between A1079 and Dunflat Road	1630	101	1730	1630	101	1732	1	0	1	0%	0%	0%
PAR 5	Dunflat Road	277	17	293	282	22	304	5	5	11	2%	33%	4%
PAR 6	A164 - Between Dunflat Road and B1233/A164 Roundabout	1629	98	1727	1639	106	1743	10	8	16	1%	7%	1%
PAR 7	Main Street	326	14	340	331	19	350	5	5	11	2%	39%	3%
PAR 8	Little Weighton Road	185	11	196	190	17	207	5	5	11	3%	48%	5%
PAR 9	A164 - Between B1233/A164 Roundabout and A164/Riplingham Road Roundabout	1615	132	1748	1625	140	1763	10	8	16	1%	6%	1%
PAR 10A	Riplingham Road(between A164/Riplingham Road jn and Rowley Road)	448	30	478	453	35	488	5	5	11	1%	18%	2%
PAR 10B	Riplingham Road(west of Rowley Road)	406	30	436	411	35	446	5	5	11	1%	18%	2%
PAR 11	Rowley Road(between Riplingham Road/ Rowley Road jn and BM 008)	31	2	33	36	7	43	5	5	11	17%	259%	32%
PAR 12	A164 - Between A164/Riplingham Road Roundabout and Wingfield Farm Roundabout	1193	120	1313	1203	128	1329	10	8	16	1%	6%	1%
PAR 13	Lambwell Hill	155	5	160	165	27	192	10	22	32	7%	427%	20%
PAR 14	Westoby Lane	206	11	217	211	11	222	5	0	5	3%	0%	2%
PAR 15	Brick Dike Lane	164	12	176	169	12	181	5	0	5	3%	0%	3%
PAR 16	B1230 - Hunsley Road	550	54	604	556	54	609	5	0	5	1%	0%	1%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 17	A1034 - Between Hunsley Road and A1079/A1034 Roundabout (North)	482	56	538	487	56	543	5	0	5	1%	0%	1%
PAR 18	A1034 - Between Hunsley Road and Beverley Road (South)	615	79	693	620	79	699	5	0	5	1%	0%	1%
PAR 19	A1034 - Beverley Road and A63	615	79	693	620	79	699	5	0	5	1%	0%	1%
PAR 20	Beverley Road	1630	101	1730	1635	101	1736	5	0	5	0%	0%	0%
PAR 21	Ellerker Road	28	4	32	33	10	43	5	5	11	19%	121%	33%
PAR 22	A63 Petuaria Way (South)	2384	465	2850	2395	474	2870	11	9	20	0%	2%	1%
PAR 23	Brantingham Road	28	4	32	33	10	43	5	5	11	19%	121%	33%
PAR 24A	Brough Road(Between A1034 rounabout and Bratingham Road)	500	30	530	512	40	552	12	10	22	2%	34%	4%
PAR 24B	Brough Road(South of Bratingham Road)	490	27	517	502	37	539	12	10	22	2%	38%	4%
PAR 25	A63 Petuaria Way (West)	2194	440	2634	2205	449	2654	11	9	20	1%	2%	1%
PAR 26	Ings Lane	18	0	19	26	0	26	8	0	8	43%	0%	42%
PAR 26B	Main Street	18	0	19	26	0	26	8	0	8	43%	0%	42%
PAR 27	Carr Lane	23	4	27	31	12	43	8	8	16	34%	235%	61%
PAR 28	Tongue Lane	21	7	28	33	17	50	12	10	22	59%	143%	80%
PAR 29	B1230 Main Road (East)	553	43	596	565	53	619	12	10	22	2%	24%	4%
PAR 29	B1230 Main Road (East)	469	52	521	481	62	543	12	10	22	3%	20%	4%
PAR 29	B1230 Main Road (East)	456	48	505	469	58	527	12	10	22	3%	21%	4%
PAR 30	M62	2201	440	2640	2212	449	2660	11	9	20	0%	2%	1%
PAR 31	A161 Tom Pudding Way	459	60	519	465	65	531	6	5	12	1%	9%	2%
PAR 32	A161 Swinefleet Road	370	17	387	376	22	398	6	5	12	2%	32%	3%
PAR 33	A161 King's Causeway	84	10	94	90	15	105	6	5	12	7%	54%	12%
PAR 33	A161 King's Causeway	86	9	95	89	13	102	4	4	7	4%	42%	8%
PAR 34	Pennyhill Cottages	1615	132	1748	1619	132	1751	4	0	4	0%	0%	0%
PAR 35	Main Street	1615	132	1748	1619	132	1751	4	0	4	0%	0%	0%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 36	Church Lane	448	30	478	451	30	481	4	0	4	1%	0%	1%
PAR 37	A161 Field Lane (North of Eastoft)	86	9	95	96	20	116	10	11	21	12%	119%	22%
PAR 38	Luddington Road	32	4	36	36	4	39	4	0	4	11%	0%	10%
PAR 39	Carr Lane	7	0	7	10	0	10	4	0	4	55%	n/a	55%
PAR 40	B1392 Meredyke Road	44	4	48	48	4	52	4	0	4	8%	0%	7%
PAR 41	Ox Pasture Lane	406	30	436	412	37	449	7	7	14	2%	23%	3%
PAR 42	Carr Lane	2	0	2	8	7	16	7	7	14	369%	4700%	702%
PAR 43	B1392 Luddington Road	61	5	66	78	23	100	17	18	35	28%	373%	53%
PAR 44	A161 Crowle Road/Wharf Road - Eastoft to Ealand	168	13	180	174	20	194	7	7	14	4%	56%	8%
PAR 44	A161 Crowle Road/Wharf Road - Eastoft to Ealand	614	41	655	621	48	668	7	7	14	1%	17%	2%
PAR 45	Outgate (West)	50	4	54	60	4	64	10	0	10	20%	0%	18%
PAR 46	Bonnyhale Dale Road	6	1	7	12	9	25	7	8	18	117%	895%	275%
PAR 47	Main Street	206	11	217	212	11	223	7	0	7	3%	0%	3%
PAR 48	Bonnyhale Road	5	1	6	12	1	13	7	0	7	127%	0%	111%
PAR 49	Keadby Power Station Internal Roads / Unamed Roads	155	5	160	155	13	168	0	8	8	0%	158%	5%
PAR 50	A161 - Between Outgate and A18 Interchange	672	48	721	682	56	739	10	8	18	1%	17%	2%
PAR 51	A18 Trunk Road (East)	559	62	621	572	76	648	13	14	27	2%	23%	4%
PAR 52	A18 High Levels Bank (West)	342	32	373	352	40	391	10	8	18	3%	25%	5%
PAR 53	A161 - Between A18 and M180	437	44	481	443	52	495	6	7	14	1%	16%	3%
PAR 53	A161 - Between A18 and M180	453	45	497	459	52	511	6	7	14	1%	16%	3%
PAR 54	A161 - Between M180 and Belton	723	62	785	727	62	789	4	0	4	1%	1%	1%
PAR 55	King Edward Street	106	6	113	113	13	126	6	7	14	6%	115%	12%
PAR 56	Belton Road	66	8	74	73	15	87	6	7	14	10%	95%	18%
PAR 57	Hollingsworth Lane	41	4	46	48	4	52	6	0	6	16%	0%	14%
PAR 58	Melwood Hill South	91	8	99	97	15	113	6	7	14	7%	90%	14%
PAR 59	Blow Row	158	6	164	158	6	164	0	0	0	0%	0%	0%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 60	A161 High Street - Between King Edward Street and Blow Row	569	52	620	575	59	634	6	7	14	1%	14%	2%
PAR 60	A161 High Street - Between King Edward Street and Blow Row	604	53	657	611	60	671	6	7	14	1%	14%	2%
PAR 61	Rectory Street	159	15	174	166	22	187	6	7	14	4%	49%	8%
PAR 62	Melwood Hill North	91	8	99	97	15	113	6	7	14	7%	90%	14%
PAR 63	Newland Lane	18	0	19	25	0	25	6	0	6	35%	0%	34%
PAR 63B	Newland Lane	18	0	19	25	0	25	6	0	6	35%	0%	34%
PAR 64	A161 Epworth Road	473	45	518	483	53	536	10	8	18	2%	17%	3%
PAR 65	A161 Epworth Road	475	43	518	485	51	536	10	8	18	2%	18%	3%
PAR 66	Burnham Road West	23	4	27	29	4	33	6	0	6	28%	0%	24%
PAR 67	Church Walk	32	4	36	39	4	42	6	0	6	20%	0%	18%
PAR 68	East Lound Road	33	5	38	40	5	44	6	0	6	19%	0%	17%
PAR 69	Brackenhill Road / E Lound Road	62	5	67	68	13	81	6	7	14	10%	134%	20%
PAR 70	B1396 Tower Hill	211	14	225	218	21	239	6	7	14	3%	51%	6%
PAR 71	A161 Haxey Lane	263	34	297	273	42	315	10	8	18	4%	22%	6%
PAR 72	Ferry Road / Main Street	58	8	66	64	15	79	6	7	14	11%	90%	21%
PAR 72	Ferry Road / Main Street	30	6	36	36	13	49	6	7	14	21%	131%	38%
PAR 73	Stockwith Road	469	52	521	476	59	535	6	7	14	1%	14%	3%
PAR 74	A161 Station Road	325	34	359	335	42	377	10	8	18	3%	22%	5%
PAR 74	A161 Station Road	313	38	351	317	38	355	4	0	4	1%	1%	1%
PAR 75	Tindale Bank Road	456	48	505	465	53	518	9	5	14	2%	10%	3%
PAR 76	A161 Haxey Road	306	25	331	311	30	340	5	4	9	2%	17%	3%
PAR 77	Cornley Road	7	1	8	10	4	15	3	3	7	45%	380%	82%
PAR 78	Carr Lane	17	1	18	20	5	24	3	3	7	19%	285%	37%
PAR 79	B1403 Church Street	157	14	171	160	16	176	3	2	5	2%	16%	3%
PAR 80	Cattle Road	4	1	5	8	1	9	3	0	3	74%	0%	60%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 81	A161 High Street to A161/A631 Roundabout	259	23	282	261	25	286	3	2	5	1%	10%	2%
PAR 81	A161 High Street to A161/A631 Roundabout	290	18	309	293	21	313	3	2	5	1%	12%	2%
PAR 81	A161 High Street to A161/A631 Roundabout	312	21	333	315	23	338	3	2	5	1%	11%	1%
PAR 81	A161 High Street to A161/A631 Roundabout	334	30	364	337	32	369	3	2	5	1%	7%	1%
PAR 82	B1403 Gringley Road	155	16	170	157	18	175	3	2	5	2%	14%	3%
PAR 83	B1403 Walkeringham Road	181	21	202	185	24	209	3	3	6	2%	14%	3%
PAR 84	A631 (Gringley on the Hill West)	635	86	721	644	93	737	9	8	16	1%	9%	2%
PAR 85	A631 (Gringley on the Hill East)	519	81	600	523	85	607	4	3	7	1%	4%	1%
PAR 86	A631 (Gringley on the Hill East)	517	80	597	519	82	600	1	2	3	0%	2%	1%
PAR 87	A631 - Between A161/A631 Roundabout and Wood Lane	786	60	845	787	61	848	1	2	3	0%	3%	0%
PAR 88	A631 - Between Wood Lane and A620/A631 Roundabout	805	60	865	807	61	868	1	2	3	0%	3%	0%
PAR 89	Wood Lane	2	0	2	3	2	5	1	2	3	78%	n/a	168%
PAR 90	A620 - Between A620/A631 Roundabout to Saundby/Sturton/Gainsborough Road Roundabout	475	38	513	477	39	516	1	2	3	0%	4%	1%
PAR 91	Sturton Road	166	26	192	172	33	205	6	7	13	4%	25%	7%
PAR 92	Gainsborough Road	166	26	192	172	33	205	6	7	13	4%	25%	7%
PAR 93	Station Road	57	5	62	63	5	69	6	0	6	11%	0%	10%
PAR 94	Sturton Road	84	6	91	91	6	97	6	0	6	8%	0%	7%
PAR 95	Low Street	84	6	91	91	6	97	6	0	6	8%	0%	7%
PAR 96	A620 - Gainsborough Road	326	33	358	332	39	371	6	7	13	2%	20%	4%
PAR 97	A620 - Between Low Street in North Wheatley to Spital Hill in Retford	359	38	396	365	44	409	6	7	13	2%	18%	3%
PAR 97	A620 - Between Low Street in North Wheatley to Spital Hill in Retford	502	26	527	508	32	540	6	7	13	1%	26%	2%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 97	A620 - Between Low Street in North Wheatley to Spital Hill in Retford	480	32	512	486	39	525	6	7	13	1%	21%	3%
PAR 98	A620 Amcott Way	1214	65	1279	1220	72	1292	6	7	13	1%	10%	1%
PAR 99	Cross Street	215	12	227	215	19	234	0	7	7	0%	55%	3%
PAR 100	Springs Lane	1	0	1	1	7	7	0	7	7	0%	n/a	1107%
PAR 101	Retford Road West	251	19	270	261	26	288	10	8	17	4%	40%	6%
PAR 102	Leverton Road / Spital Hill	239	14	253	248	22	270	10	8	17	4%	54%	7%
PAR 102	Leverton Road / Spital Hill	302	15	317	312	23	335	10	8	17	3%	51%	5%
PAR 103	A638 Arlington Way/London Road	699	56	755	709	64	772	10	8	17	1%	14%	2%
PAR 103	A638 Arlington Way/London Road	988	57	1045	998	64	1062	10	8	17	1%	13%	2%
PAR 104	A638 Great North Road - To the A1	709	57	766	719	65	784	10	8	17	1%	13%	2%
PAR 105	Cocking Lane	218	11	228	218	17	235	0	7	7	0%	62%	3%
PAR 106	Town Street / Forewood Lane	24	2	26	24	8	33	0	7	7	0%	369%	25%
PAR 107	Wood Lane / Main Street	54	3	57	60	3	64	6	0	6	12%	0%	11%
PAR 108	Grove Road	158	8	166	164	15	179	6	7	13	4%	78%	8%
PAR 109	Main Street	36	3	38	42	9	51	6	7	13	18%	246%	34%
PAR 110	Hazelwood Lane	157	5	162	163	12	175	6	7	13	4%	123%	8%
PAR 111	Ashley Lane	4	0	4	17	13	30	13	13	26	318%	4430%	602%
PAR 112	Retford Road (North of Rampton Hospital)	149	6	155	149	13	161	0	7	7	0%	105%	4%
PAR 113	Laneham Road (between Retford Rd and Main street)	238	20	257	244	26	270	6	7	13	3%	34%	5%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 113	Laneham Road (South of Main Street)	177	17	193	183	23	206	6	7	13	4%	40%	7%
PAR 113	Laneham Road	214	19	233	221	26	246	6	7	13	3%	35%	6%
PAR 114	A57 Broad Gate	594	73	667	603	82	685	9	9	18	2%	13%	3%
PAR 115	A57 - Between Darlton Road and BM 127	585	77	661	594	86	680	9	9	18	2%	12%	3%
PAR 116	A57 - Between BM 127 and BM 126 (Option 3)	585	77	661	588	79	667	3	3	5	0%	3%	1%
PAR 117	A57 - Between BM 126 and A57/Main Street Junction	585	77	661	588	79	667	3	3	5	0%	3%	1%
PAR 118	A57 - Between A57/Main Street Junction East	597	77	674	600	79	679	3	3	5	0%	3%	1%
PAR 119	Main Street	90	16	106	93	18	111	3	3	5	3%	16%	5%
PAR 120	Retford Road (East Drayton)	21	1	22	27	1	29	6	0	6	30%	0%	28%
PAR 121	Top Street / Darlton Road	132	6	138	138	13	151	6	7	13	5%	105%	9%
PAR 122	Dale Road	31	2	33	41	2	43	10	0	10	34%	0%	32%
PAR 123	Willow Flats	335	19	353	342	27	369	8	8	16	2%	45%	5%
PAR 124	Ellerker Lane	54	4	59	62	13	75	8	8	16	14%	188%	28%
PAR 125	Norfolk Bank Lane	25	2	26	32	10	43	8	8	16	32%	471%	62%
PAR 126	Common Rd	45	5	50	53	13	66	8	8	16	17%	176%	33%
PAR 127	Wallingfen Lane	42	7	49	50	15	65	8	8	16	19%	125%	33%
PAR 128	Staddlethorpe Lane	189	13	202	197	21	218	8	8	16	4%	66%	8%
PAR 128	Staddlethorpe Lane	88	8	96	96	17	113	8	8	16	9%	99%	17%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 128	Thornton Dam Lane / Scalby Lane	181	10	190	188	18	207	8	8	16	4%	84%	9%
PAR 128	Thornton Dam Lane / Scalby Lane	11	0	12	19	9	28	8	8	16	69%	2820%	139%
PAR 129	Meredyke Rd East (Between Carr Ln and B1392 Shore Rd)	43	4	47	50	4	54	7	0	7	15%	0%	14%
PAR 130	B1392	93	8	102	100	8	108	7	0	7	7%	0%	6%
PAR 131	Meredyke Rd West	44	4	48	55	15	69	10	11	21	23%	279%	44%
PAR 132	B1392 Eastoft Rd	60	5	66	70	16	87	10	11	21	17%	201%	32%
PAR 133	Outgate East	6	1	7	16	8	24	10	7	17	177%	783%	259%
PAR 134	Greengate	55	1	57	62	1	63	6	0	6	12%	0%	11%
PAR 135	Fledborough Road	82	16	98	84	18	102	2	2	4	2%	11%	4%
PAR 136	A15 (From Wingfield Farm Roundabout to A180 Interchange)	1575	190	1765	1586	199	1785	11	9	20	1%	5%	1%
PAR 137	A63 (From A15 Interchange to A1079)	3390	450	3840	3390	450	3840	0	0	0	0%	0%	0%
PAR 138	M62 (From A614 Interchange to M18 Interchange)	3108	613	3721	3125	627	3752	17	14	32	1%	2%	1%
PAR 139	M180 (Between M18 Interchange and A161)	2128	655	2783	2133	659	2792	5	4	9	0%	1%	0%
PAR 140	M180 (Between A161 and M181)	2204	664	2868	2209	668	2877	5	4	9	0%	1%	0%
PAR 141	M181	1063	183	1246	1068	187	1255	5	4	9	0%	2%	1%
PAR 142	M180 (Between M181 Interchange and A15)	1464	553	2018	1469	557	2026	5	4	9	0%	1%	0%
PAR 143	M180 (Between A15 Interchange and A180)	2175	661	2836	2180	665	2845	5	4	9	0%	1%	0%
PAR 148	Epworth Road North	91	8	99	97	8	105	6	0	6	7%	0%	6%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total	AM LGV	AM HGV	Total
PAR 149	Epworth Road South	71	5	75	77	5	82	6	0	6	9%	0%	8%
PAR 150	Burnham Road East	71	5	75	77	5	82	6	0	6	9%	0%	8%
PAR 151	Church Street	71	5	75	77	5	82	6	0	6	9%	0%	8%
PAR 152	Leverton Rd	239	17	256	239	24	263	0	7	7	0%	38%	3%
PAR 153	Main St	38	5	43	38	12	49	0	7	7	0%	130%	15%
PAR 154	Retford Road East	160	8	168	160	15	175	0	7	7	0%	81%	4%
PAR 155	B1230 Main Road West	456	48	505	464	57	521	8	8	16	2%	17%	3%
PAR 156	A18 Althorpe Byp	559	62	621	566	62	628	7	0	7	1%	0%	1%
PAR 157	Sands Lane	28	4	32	36	13	49	8	8	16	28%	188%	50%
PAR 158	Landing lane	23	4	27	31	12	43	8	8	16	34%	235%	61%
PAR 159	Pasture lane	32	4	36	36	7	43	4	4	7	11%	106%	21%
PAR 160	A1105 (From A15 Interchange)	3390	450	3840	3401	459	3860	11	9	20	0%	2%	1%
PAR 161	M18 (south of M62 J35)	3108	613	3721	3118	621	3739	10	8	18	0%	1%	0%
PAR 162	M62 (West of M18)	3108	613	3721	3125	627	3752	17	14	32	1%	2%	1%

Table 7.3 – PM peak construction percentage change

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 1A	A1079 Beverley Bypass East (between A164/A1079 int and BM 001)	1591	40	1631	1593	41	1635	2	1	4	0%	4%	0%
PAR 1B	A1079 Beverley Bypass East (east of BM 001)	1537	71	1608	1537	72	1609	1	0	1	0%	1%	0%
PAR 2	A1079 Beverley Bypass West	1583	48	1631	1584	48	1632	1	0	1	0%	1%	0%
PAR 3	A164 - North of A1079	1415	36	1451	1416	36	1452	1	0	1	0%	1%	0%
PAR 4	A164 Beverley Road - Between A1079 and Dunflat Road	1919	64	1983	1920	65	1984	1	0	1	0%	1%	0%
PAR 5	Dunflat Road	327	12	339	332	17	350	5	5	11	2%	45%	3%
PAR 6	A164 - Between Dunflat Road and B1233/A164 Roundabout	1879	69	1947	1888	77	1963	10	8	16	0%	11%	1%
PAR 7	Main Street	366	15	381	371	21	392	5	5	11	1%	35%	3%
PAR 8	Little Weighton Road	218	12	230	223	18	241	5	5	11	2%	44%	5%
PAR 9	A164 - Between B1233/A164 Roundabout and A164/Riplingham Road Roundabout	2025	84	2109	2035	92	2125	10	8	16	0%	9%	1%
PAR 10A	Riplingham Road(between A164/Riplingham Road jn and Rowley Road)	550	15	565	555	20	576	5	5	11	1%	36%	2%
PAR 10B	Riplingham Road(west of Rowley Road)	492	17	508	497	22	519	5	5	11	1%	32%	2%
PAR 11	Rowley Road(between Riplingham Road/ Rowley Road jn and BM 008)	44	0	45	50	6	55	5	5	11	12%	1210%	24%
PAR 12	A164 - Between A164/Riplingham Road Roundabout and Wingfield Farm Roundabout	1513	71	1585	1523	79	1600	10	8	16	1%	10%	1%
PAR 13	Lambwell Hill	164	3	167	175	24	199	10	22	32	6%	764%	19%
PAR 14	Westoby Lane	237	8	245	243	8	250	5	0	5	2%	0%	2%
PAR 15	Brick Dike Lane	210	7	217	215	7	222	5	0	5	2%	0%	2%
PAR 16	B1230 - Hunsley Road	815	36	851	821	36	856	5	0	5	1%	0%	1%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 17	A1034 - Between Hunsley Road and A1079/A1034 Roundabout (North)	550	33	583	555	33	588	5	0	5	1%	0%	1%
PAR 18	A1034 - Between Hunsley Road and Beverley Road (South)	763	52	816	768	52	821	5	0	5	1%	0%	1%
PAR 19	A1034 - Beverley Road and A63	763	52	816	768	52	821	5	0	5	1%	0%	1%
PAR 20	Beverley Road	1919	64	1983	1924	64	1988	5	0	5	0%	0%	0%
PAR 21	Ellerker Road	44	1	46	49	7	56	5	5	11	12%	363%	23%
PAR 22	A63 Petuaria Way (South)	2843	279	3122	2854	288	3142	11	9	20	0%	3%	1%
PAR 23	Brantingham Road	44	1	46	49	7	56	5	5	11	12%	363%	23%
PAR 24A	Brough Road(Between A1034 rounabout and Bratingham Road)	611	18	629	624	28	651	12	10	22	2%	58%	4%
PAR 24B	Brough Road(South of Bratingham Road)	599	17	615	611	27	637	12	10	22	2%	62%	4%
PAR 25	A63 Petuaria Way (West)	2603	271	2874	2614	280	2894	11	9	20	0%	3%	1%
PAR 26	Ings Lane	29	1	30	37	1	38	8	0	8	27%	0%	26%
PAR 26B	Main Street	29	1	30	37	1	38	8	0	8	27%	0%	26%
PAR 27	Carr Lane	29	2	32	37	11	48	8	8	16	27%	353%	51%
PAR 28	Tongue Lane	51	3	54	63	13	76	12	10	22	24%	361%	42%
PAR 29	B1230 Main Road (East)	699	40	739	712	50	762	12	10	22	2%	26%	3%
PAR 29	B1230 Main Road (East)	670	32	702	683	42	724	12	10	22	2%	32%	3%
PAR 29	B1230 Main Road (East)	0	0	0	12	10	22	12	10	22	n/a	n/a	n/a
PAR 30	M62	2719	260	2978	2730	269	2998	11	9	20	0%	3%	1%
PAR 31	A161 Tom Pudding Way	502	49	551	508	54	563	6	5	12	1%	11%	2%
PAR 32	A161 Swinefleet Road	474	13	487	481	18	499	6	5	12	1%	42%	2%
PAR 33	A161 King's Causeway	113	7	120	119	13	132	6	5	12	5%	73%	10%
PAR 33	A161 King's Causeway	113	7	120	117	10	127	4	4	7	3%	57%	6%
PAR 34	Pennyhill Cottages	2025	84	2109	2029	84	2113	4	0	4	0%	0%	0%
PAR 35	Main Street	2025	84	2109	2029	84	2113	4	0	4	0%	0%	0%
PAR 36	Church Lane	550	15	565	554	15	569	4	0	4	1%	0%	1%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 37	A161 Field Lane (North of Eastoft)	113	7	120	123	17	141	10	11	21	9%	161%	18%
PAR 38	Luddington Road	32	4	36	36	4	40	4	0	4	11%	0%	10%
PAR 39	Carr Lane	5	0	5	9	0	9	4	0	4	73%	n/a	73%
PAR 40	B1392 Meredyke Road	54	3	57	58	3	61	4	0	4	7%	0%	6%
PAR 41	Ox Pasture Lane	492	17	508	498	24	522	7	7	14	1%	42%	3%
PAR 42	Carr Lane	3	0	3	9	7	17	7	7	14	233%	4700%	457%
PAR 43	B1392 Luddington Road	82	5	87	99	23	122	17	18	35	20%	373%	40%
PAR 44	A161 Crowle Road/Wharf Road - Eastoft to Ealand	182	10	193	189	17	206	7	7	14	4%	67%	7%
PAR 44	A161 Crowle Road/Wharf Road - Eastoft to Ealand	655	36	691	661	43	705	7	7	14	1%	19%	2%
PAR 45	Outgate (West)	49	6	55	59	6	65	10	0	10	20%	0%	18%
PAR 46	Bonnyhale Dale Road	9	0	9	15	8	27	7	8	18	76%	2686%	201%
PAR 47	Main Street	237	8	245	244	8	252	7	0	7	3%	0%	3%
PAR 48	Bonnyhale Road	6	1	7	12	1	14	7	0	7	114%	0%	92%
PAR 49	Keadby Power Station Internal Roads / Unamed Roads	164	3	167	164	11	175	0	8	8	0%	283%	5%
PAR 50	A161 - Between Outgate and A18 Interchange	799	41	840	809	49	858	10	8	18	1%	20%	2%
PAR 51	A18 Trunk Road (East)	716	45	761	729	60	789	13	14	27	2%	31%	4%
PAR 52	A18 High Levels Bank (West)	435	32	467	445	40	485	10	8	18	2%	25%	4%
PAR 53	A161 - Between A18 and M180	542	37	579	549	44	593	6	7	14	1%	20%	2%
PAR 53	A161 - Between A18 and M180	559	39	598	565	47	612	6	7	14	1%	18%	2%
PAR 54	A161 - Between M180 and Belton	887	42	929	891	42	933	4	0	4	0%	1%	0%
PAR 55	King Edward Street	105	10	115	111	17	128	6	7	14	6%	72%	12%
PAR 56	Belton Road	72	7	79	78	15	93	6	7	14	9%	97%	17%
PAR 57	Hollingsworth Lane	59	5	64	66	5	70	6	0	6	11%	0%	10%
PAR 58	Melwood Hill South	96	7	102	102	14	116	6	7	14	7%	105%	13%
PAR 59	Blow Row	201	7	208	201	7	208	0	0	0	0%	0%	0%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 60	A161 High Street - Between King Edward Street and Blow Row	702	29	731	709	36	745	6	7	14	1%	25%	2%
PAR 60	A161 High Street - Between King Edward Street and Blow Row	737	34	771	743	41	784	6	7	14	1%	21%	2%
PAR 61	Rectory Street	175	10	185	182	17	199	6	7	14	4%	70%	7%
PAR 62	Melwood Hill North	96	7	102	102	14	116	6	7	14	7%	105%	13%
PAR 63	Newland Lane	29	1	30	36	1	36	6	0	6	22%	0%	22%
PAR 63B	Newland Lane	29	1	30	36	1	36	6	0	6	22%	0%	22%
PAR 64	A161 Epworth Road	526	31	557	536	39	574	10	8	18	2%	25%	3%
PAR 65	A161 Epworth Road	515	28	544	526	36	562	10	8	18	2%	27%	3%
PAR 66	Burnham Road West	29	2	32	36	2	38	6	0	6	22%	0%	20%
PAR 67	Church Walk	32	4	36	39	4	42	6	0	6	20%	0%	18%
PAR 68	East Lound Road	46	3	49	52	3	55	6	0	6	14%	0%	13%
PAR 69	Brackenhill Road / E Lound Road	74	5	79	80	12	93	6	7	14	9%	142%	17%
PAR 70	B1396 Tower Hill	246	12	258	252	19	271	6	7	14	3%	62%	5%
PAR 71	A161 Haxey Lane	331	22	353	341	30	371	10	8	18	3%	34%	5%
PAR 72	Ferry Road / Main Street	75	6	80	81	13	94	6	7	14	9%	131%	17%
PAR 72	Ferry Road / Main Street	45	4	48	51	11	62	6	7	14	14%	201%	28%
PAR 73	Stockwith Road	670	32	702	677	39	716	6	7	14	1%	23%	2%
PAR 74	A161 Station Road	411	21	432	421	29	450	10	8	18	2%	36%	4%
PAR 74	A161 Station Road	403	24	426	407	24	431	4	0	4	1%	2%	1%
PAR 75	Tindale Bank Road	0	0	0	9	5	14	9	5	14	n/a	n/a	n/a
PAR 76	A161 Haxey Road	390	18	408	395	22	417	5	4	9	1%	25%	2%
PAR 77	Cornley Road	9	1	10	13	4	17	3	3	7	34%	456%	65%
PAR 78	Carr Lane	13	2	15	16	5	22	3	3	7	24%	176%	43%
PAR 79	B1403 Church Street	187	11	199	190	14	203	3	2	5	1%	19%	2%
PAR 80	Cattle Road	4	1	5	7	1	8	3	0	3	77%	0%	61%
PAR 81	A161 High Street to A161/A631 Roundabout	328	16	344	330	18	348	3	2	5	1%	14%	1%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 81	A161 High Street to A161/A631 Roundabout	359	18	377	362	20	382	3	2	5	1%	12%	1%
PAR 81	A161 High Street to A161/A631 Roundabout	387	19	405	389	21	410	3	2	5	1%	12%	1%
PAR 81	A161 High Street to A161/A631 Roundabout	424	21	446	427	24	450	3	2	5	1%	10%	1%
PAR 82	B1403 Gringley Road	176	13	189	179	15	194	3	2	5	1%	17%	2%
PAR 83	B1403 Walkeringham Road	204	18	221	207	21	228	3	3	6	2%	17%	3%
PAR 84	A631 (Gringley on the Hill West)	768	52	820	776	60	836	9	8	16	1%	15%	2%
PAR 85	A631 (Gringley on the Hill East)	659	50	709	663	54	716	4	3	7	1%	7%	1%
PAR 86	A631 (Gringley on the Hill East)	664	49	713	665	50	716	1	2	3	0%	3%	0%
PAR 87	A631 - Between A161/A631 Roundabout and Wood Lane	975	32	1007	976	34	1010	1	2	3	0%	5%	0%
PAR 88	A631 - Between Wood Lane and A620/A631 Roundabout	977	32	1009	979	34	1012	1	2	3	0%	5%	0%
PAR 89	Wood Lane	1	0	2	3	2	5	1	2	3	104%	537%	183%
PAR 90	A620 - Between A620/A631 Roundabout to Saundby/Sturton/Gainsborough Road Roundabout	571	23	594	572	25	597	1	2	3	0%	7%	1%
PAR 91	Sturton Road	221	15	236	227	22	249	6	7	13	3%	43%	6%
PAR 92	Gainsborough Road	221	15	236	227	22	249	6	7	13	3%	43%	6%
PAR 93	Station Road	62	5	67	68	5	73	6	0	6	10%	0%	10%
PAR 94	Sturton Road	75	4	79	81	4	85	6	0	6	9%	0%	8%
PAR 95	Low Street	75	4	79	81	4	85	6	0	6	9%	0%	8%
PAR 96	A620 - Gainsborough Road	355	21	376	361	27	389	6	7	13	2%	32%	3%
PAR 97	A620 - Between Low Street in North Wheatley to Spital Hill in Retford	405	22	426	411	28	439	6	7	13	2%	30%	3%
PAR 97	A620 - Between Low Street in North Wheatley to Spital Hill in Retford	533	18	551	539	24	564	6	7	13	1%	38%	2%
PAR 97	A620 - Between Low Street in North Wheatley to Spital Hill in Retford	518	23	541	524	30	554	6	7	13	1%	29%	2%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 98	A620 Amcott Way	1424	50	1473	1430	56	1486	6	7	13	0%	13%	1%
PAR 99	Cross Street	250	10	260	250	17	267	0	7	7	0%	66%	3%
PAR 100	Springs Lane	0	0	0	0	7	7	0	7	7	n/a	4430%	4430%
PAR 101	Retford Road West	298	19	316	308	26	334	10	8	17	3%	41%	5%
PAR 102	Leverton Road / Spital Hill	293	16	308	302	23	326	10	8	17	3%	48%	6%
PAR 102	Leverton Road / Spital Hill	372	14	386	382	22	404	10	8	17	3%	53%	5%
PAR 103	A638 Arlington Way/London Road	942	43	985	952	50	1002	10	8	17	1%	18%	2%
PAR 103	A638 Arlington Way/London Road	1128	45	1174	1138	53	1191	10	8	17	1%	17%	1%
PAR 104	A638 Great North Road - To the A1	782	44	827	792	52	844	10	8	17	1%	17%	2%
PAR 105	Cocking Lane	225	9	234	225	16	241	0	7	7	0%	70%	3%
PAR 106	Town Street / Forewood Lane	28	2	30	28	8	37	0	7	7	0%	369%	22%
PAR 107	Wood Lane / Main Street	65	4	69	71	4	75	6	0	6	10%	0%	9%
PAR 108	Grove Road	153	6	160	160	13	173	6	7	13	4%	103%	8%
PAR 109	Main Street	38	3	40	44	9	53	6	7	13	17%	261%	32%
PAR 110	Hazelwood Lane	143	4	148	150	11	161	6	7	13	4%	158%	9%
PAR 111	Ashley Lane	5	0	5	17	14	31	13	13	26	277%	2953%	513%
PAR 112	Retford Road (North of Rampton Hospital)	145	6	152	145	13	158	0	7	7	0%	103%	4%
PAR 113	Laneham Road (between Retford Rd and Main street)	262	16	278	268	23	291	6	7	13	2%	41%	5%
PAR 113	Laneham Road (South of Main Street)	198	15	213	204	22	226	6	7	13	3%	43%	6%
PAR 113	Laneham Road	233	18	251	239	25	264	6	7	13	3%	36%	5%
PAR 114	A57 Broad Gate	763	55	818	772	64	836	9	9	18	1%	17%	2%
PAR 115	A57 - Between Darlton Road and BM 127	755	58	813	764	67	832	9	9	18	1%	16%	2%
PAR 116	A57 - Between BM 127 and BM 126 (Option 3)	755	58	813	758	61	819	3	3	5	0%	4%	1%
PAR 117	A57 - Between BM 126 and A57/Main Street Junction	755	58	813	758	61	819	3	3	5	0%	4%	1%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 118	A57 - Between A57/Main Street Junction East	759	54	813	762	57	819	3	3	5	0%	5%	1%
PAR 119	Main Street	109	9	118	112	12	123	3	3	5	3%	29%	5%
PAR 120	Retford Road (East Drayton)	20	1	21	26	1	27	6	0	6	32%	0%	31%
PAR 121	Top Street / Darlton Road	133	7	140	139	14	153	6	7	13	5%	89%	9%
PAR 122	Dale Road	44	0	45	55	0	55	10	0	10	23%	0%	23%
PAR 123	Willow Flats	403	11	414	411	19	430	8	8	16	2%	77%	4%
PAR 124	Ellerker Lane	80	3	83	88	11	99	8	8	16	10%	297%	20%
PAR 125	Norfolk Bank Lane	39	2	41	46	10	57	8	8	16	20%	403%	40%
PAR 126	Common Rd	53	3	55	61	11	72	8	8	16	15%	332%	29%
PAR 127	Wallingfen Lane	53	3	56	61	11	72	8	8	16	15%	332%	29%
PAR 128	Staddlethorpe Lane	35	3	38	43	12	54	8	8	16	22%	269%	43%
PAR 128	Staddlethorpe Lane	122	11	132	130	19	149	8	8	16	6%	80%	12%
PAR 128	Thornton Dam Lane / Scalby Lane	226	8	234	234	16	250	8	8	16	3%	108%	7%
PAR 128	Thornton Dam Lane / Scalby Lane	31	1	31	38	9	47	8	8	16	26%	1128%	52%
PAR 129	Meredyke Rd East (Between Carr Ln and B1392 Shore Rd)	50	4	55	57	4	61	7	0	7	13%	0%	12%
PAR 130	B1392	114	5	120	121	5	126	7	0	7	6%	0%	6%
PAR 131	Meredyke Rd West	54	3	57	65	14	78	10	11	21	19%	345%	37%
PAR 132	B1392 Eastoft Rd	83	4	87	93	15	108	10	11	21	12%	242%	24%
PAR 133	Outgate East	9	0	9	19	7	26	10	7	17	116%	2350%	190%
PAR 134	Greengate	63	2	65	69	2	71	6	0	6	10%	0%	10%
PAR 135	Fledborough Road	106	9	116	108	11	119	2	2	4	2%	19%	3%
PAR 136	A15 (From Wingfield Farm Roundabout to A180 Interchange)	1928	111	2038	1939	120	2058	11	9	20	1%	8%	1%
PAR 137	A63 (From A15 Interchange to A1079)	4220	253	4473	4220	253	4473	0	0	0	0%	0%	0%
PAR 138	M62 (From A614 Interchange to M18 Interchange)	4061	441	4502	4078	456	4534	17	14	32	0%	3%	1%

PAR ID	Road name	2029 Without Development			2029 With Development			Construction traffic			% Change		
		PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total	PM LGV	PM HGV	Total
PAR 139	M180 (Between M18 Interchange and A161)	2708	527	3235	2713	531	3244	5	4	9	0%	1%	0%
PAR 140	M180 (Between A161 and M181)	2772	539	3311	2777	543	3320	5	4	9	0%	1%	0%
PAR 141	M181	1290	116	1406	1296	119	1415	5	4	9	0%	3%	1%
PAR 142	M180 (Between M181 Interchange and A15)	2025	468	2492	2030	471	2501	5	4	9	0%	1%	0%
PAR 143	M180 (Between A15 Interchange and A180)	2819	551	3370	2824	555	3379	5	4	9	0%	1%	0%
PAR 148	Epworth Road North	96	7	102	102	7	109	6	0	6	7%	0%	6%
PAR 149	Epworth Road South	81	3	84	88	3	91	6	0	6	8%	0%	8%
PAR 150	Burnham Road East	81	3	84	88	3	91	6	0	6	8%	0%	8%
PAR 151	Church Street	81	3	84	88	3	91	6	0	6	8%	0%	8%
PAR 152	Leverton Rd	259	12	271	259	19	278	0	7	7	0%	54%	2%
PAR 153	Main St	51	6	57	51	13	63	0	7	7	0%	105%	12%
PAR 154	Retford Road East	182	6	188	182	13	195	0	7	7	0%	105%	4%
PAR 155	B1230 Main Road West	0	0	0	8	8	16	8	8	16	n/a	n/a	n/a
PAR 156	A18 Althorpe Byp	716	45	761	723	45	768	7	0	7	1%	0%	1%
PAR 157	Sands Lane	44	1	46	52	10	62	8	8	16	18%	565%	35%
PAR 158	Landing lane	29	2	32	37	11	48	8	8	16	27%	353%	51%
PAR 159	Pasture lane	32	4	36	36	7	43	4	4	7	11%	106%	21%
PAR 160	A1105 (From A15 Interchange)	4220	253	4473	4231	262	4493	11	9	20	0%	4%	0%
PAR 161	M18 (south of M62 J35)	4061	441	4502	4071	449	4520	10	8	18	0%	2%	0%
PAR 162	M62 (West of M18)	4061	441	4502	4078	456	4534	17	14	32	0%	3%	1%

7.4 Consideration of Results

7.4.1 As shown in Table 7.2 and Table 7.3, a number of lower-flow rural roads record high percentage increases. These generally arise where baseline ('without development') peak hour HGV flows are very low (in many cases fewer than eight HGVs per hour in the baseline, or even zero HGVs per hour). In these circumstances, large percentage increases reflect relatively small absolute uplifts in vehicle numbers (typically an increase of between 7 to 11 HGVs within a peak hour), rather than very large number of construction-related HGVs. The affected routes are predominantly rural in character and are not currently subject to congestion or identified operational constraints. The maximum forecast peak hour increase on any individual link is 22 HGVs on Lambwell Hill (PAR 13).

7.4.2 Construction vehicle movements are temporary in nature and are associated with the peak construction year only (2029), which is forecast to have the notable higher traffic levels. Movements are dispersed across the network in accordance with the agreed PAR strategy, so that traffic is not distributed on a single route or location.

7.4.3 Traffic is predominantly routed along higher standard roads before accessing rural roads for the final approach to site compounds.

7.4.4 Percentage changes should therefore not be read in isolation. The assessment places greater weight on the corresponding absolute change in vehicles, the function and available capacity of the route, and the temporary duration of construction activity.

7.4.5 The highest LGV uplifts occur on the B1392 Luddington Road (PAR 43), the M62 (PAR 138 and PAR 162), where a maximum increase of 17 LGVs in each of the AM and PM peak hours is predicted; however, this represents a small proportional change on a strategic motorway link with substantial available capacity where the % increases are 1% in the AM peak hour less than 1% in the PM peak hour. No material operational effects are anticipated on the SRN. As well, the % increases along the B1392 Luddington Road are 28% and 20% in the AM and PM peak hours respectively.

7.4.6 Regarding total traffic flows, there are only four locations where 30 or more total construction traffic movements are forecast during the AM or PM peak hour (PAR 13, PAR 43, PAR 138, PAR 162); fewer than 30 total construction traffic movements have been identified at all other locations during AM and PM peak hours, where no impacts are anticipated. This 30-vehicle threshold is typically adopted as the starting point for determining whether further assessment may be required, as originally set out within the Guidance on Transport Assessments (Department for Transport, 2007). Although now not an active guidance document, the thresholds are still a useful consideration in determining traffic impacts.

7.4.7 In addition, the 2023 IEMA guidelines(IEMA, 2023) identifies a 30% traffic flow increase as the Rule 1 threshold for identifying potential links for further analysis. The total traffic increase is below 30% during the AM and PM peak hours for three of the four locations referenced above (PAR 13, PAR 138, PAR 162), which demonstrates that impacts are likely to be minimal. The total traffic increase on PAR 43 is 53% and 40% respectively, however the existing traffic volumes on the B-road are low, at 66 and 100 vehicles per hour respectively.

7.4.8 Whilst high HGV percentage increases are identified for two of these locations (PAR 13 and PAR 43), this is again due to low baseline traffic (maximum of five HGVs per peak hour) at each of these locations.

Sensitivity Testing

7.4.9 Under the terms of the DCO, construction could commence any year up to five years from the granting of the DCO which is assumed to be 2028. Consideration has therefore been given to whether the effects reported would be different if the works were to commence in any year up to year five, following the granting of the DCO.

7.4.10 The peak period of construction in terms of total annual forecast construction traffic movements is expected to occur in 2029 (based on works commencing in 2028). This chapter assesses the highest construction year traffic flows for each PAR against 2029 future baseline traffic flows.

7.4.11 Should there be a delay in the commencement of construction of the Project (such as if the works were to commence up to five years later), there would be no additional construction traffic movements generated, and the same PARs would be utilised should there be a delay. The future baseline traffic flows would be expected to be higher during the peak construction phase of the delayed Project (e.g. 2034), reducing proportional traffic increases as a result of the Project (upon which the majority of the assessments have been based). Therefore, whilst total traffic flows may be higher, this would be attributed to background traffic growth rather than the Project.

7.4.12 Furthermore, as the proposed mitigation outlined within **Application Document 7.4 Outline Construction Traffic Management Plan** and **Application Document 7.6 Outline Public Rights of Way Management Plan** would still be provided, there would be no new or different likely significant effects anticipated to those identified in this traffic and transport assessment.

7.4.13 Any potential overlap with newly committed developments arising from a delayed construction start date would be addressed within their respective planning applications, which would need to account for the Project's construction traffic flows in any assessment of cumulative effects. Accordingly, no further assessment of the baseline construction programme is considered necessary.

7.5 Assessment of Peak Hour Impacts

7.5.1 The construction traffic impact has been assessed with regard to the forecast absolute changes in LGV and HGV movements presented in Table 7.2 and Table 7.3.

7.5.2 Whilst percentage changes on some rural links with low baseline traffic flows appear notable, the corresponding absolute uplifts in vehicle numbers are all modest in scale and temporary in duration.

7.5.3 No SRN link is forecast to experience a material increase in traffic numbers that would affect its operation.

7.5.4 The construction phase is not predicted to give rise to notable impacts in relation to highway capacity, network operation, or road safety. Any impacts are considered to be minor and temporary.

7.6 Junction Assessment and Modelling

7.6.1 Junction capacity modelling has not been deemed necessary as part of this assessment. The Project would generate material traffic numbers at the construction stage only, with no material operational traffic numbers once construction is complete. Construction vehicle movements are temporary in nature and dispersed across the network in accordance with the agreed PAR strategy, rather than concentrated at individual junctions.

7.6.2 A review of baseline conditions across the PARs (**Application Document 6.14.A2 Environmental Statement Appendix 14.2 Traffic and Transport Baseline Conditions**) and key junctions has not identified any existing capacity constraints that would be materially affected by the forecast level of uplift as a result of construction traffic. The maximum forecast peak hour uplifts are modest in absolute terms and do not indicate flows approaching operational capacity at any assessed junction.

7.6.3 In this context, a link-based assessment of changes in traffic flows and HGV proportions represents a proportionate and robust approach, consistent with the temporary nature and scale of the predicted effects, with further commentary on this provided in section 7.4 above to further explain why junction capacity modelling has not been deemed necessary.

7.6.4 Where temporary road closures and diversions are required, TTROs have been included within the DCO and are shown in **Application Document 2.5 Traffic Regulation Order Plans** and listed in Schedule 12 of the **Application Document 3.1 Draft Development Consent Order**. Any other traffic management measures required beyond those listed in Schedule 12 of the **Application Document 3.1 Draft Development Consent Order**, will be subject to separate approval processes managed by the relevant highway authorities (EYRC, NLC and NCC) and supported by detailed temporary traffic, and subject to the provisions of Article 48 of **Application Document 3.1 Draft Development Consent Order**. Any other management design, as appropriate, will be secured as part of the CTMP for discharge requirements.

7.6.5 In summary, it can be noted that junction capacity assessments are not required due to the short term, non-permanent nature of the construction traffic impacts and the fact that the maximum forecast peak hour uplifts generally do not exceed 30 two-way vehicle movements in the peak hours.

7.7 Operational Phase

7.7.1 The Project is not anticipated to generate material operational/maintenance traffic. Vehicle movements associated with routine inspection and maintenance are expected to be infrequent, limited in number and negligible in traffic terms.

7.7.2 On this basis, and in accordance with **Application Document 6.5.A2 Environmental Statement Appendix 5.2 Scoping Opinion**, the operational phase has been scoped out of the traffic and transport assessment as it is not anticipated to generate notable traffic impacts.

8. Summary and Conclusions

8.1 Summary

8.1.1 This TA summarises the likely traffic and transport impacts associated with the construction phase of the Project. There are unlikely to be material impacts from the Project during the operational phase. The TA's purpose is to identify and assess the impacts of construction traffic, with a focus on weekday AM and PM peak hour conditions.

8.1.2 The assessment has been undertaken on a proportionate basis, reflecting the linear nature of the Project, the temporary duration of construction activities and the dispersed routeing strategy via agreed PARs so that traffic is not distributed on singular routes.

8.1.3 Baseline traffic conditions have been established using DfT data and site-specific ATC surveys undertaken during neutral survey periods in 2024 and 2025. A link-based assessment has been adopted, which is considered appropriate given the absence of identified baseline junction capacity constraints and the modest scale of forecast construction traffic.

8.1.4 Construction traffic generation has been derived from the Project logistics data, including a precautionary 25% uplift to allow for any uncertainties. Traffic has been distributed across the network using a 25% directional split (north/east/south/west) and assessed by zone and route.

8.1.5 The assessment demonstrates the following:

- Construction traffic increases are temporary in nature.
- Absolute HGV uplifts are small in scale and any high percentage increases are therefore attributed to low baseline HGV flows.
- The maximum HGV uplift is 22 HGVs in the peak hour (Lambwell Hill, PAR 13).
- The maximum LGV uplift is 17 LGVs in the peak hour (B1392 Luddington Road (PAR 43) and the M62(PAR 138 and PAR 162).
- There are only four locations where 30 or more total construction traffic movements are forecast per hour (PAR 13, PAR 43, PAR 138, PAR 162). However, the LGV increase is always below 30% for these four locations and no impacts are therefore anticipated.
- Large percentage increases on certain rural links reflect low baseline flows rather than substantial changes in absolute traffic demand.

8.1.6 No junction capacity modelling has been undertaken as the scale and distribution of forecast traffic is not considered sufficient to materially alter junction performance. This approach is consistent with DMRB and IEMA guidance for proportionate assessment.

8.1.7 A review of five-year STATS19 collision data (2020–2024) has been undertaken. Collision clusters are primarily associated with established higher-flow junctions on the SRN and MRN. No systemic safety deficiencies have been identified along the PARs.

8.1.8 Importantly, no identified collision cluster coincides with a link experiencing a material increase in HGV flows as a result of the Project. As noted, where there are clusters identified, these clusters are predominantly located at established strategic junctions and roundabouts where traffic volumes are highest, where the review of the available collision records does not identify any recurring causation factors that would indicate a systemic geometric or alignment deficiency.

8.1.9 The PRoW network has been reviewed, and a separate **Application Document 7.6 Outline Public Rights of Way Management Plan** sets out the approach to temporary closures, diversions and access management during construction.

8.1.10 TTROs will be implemented where required to maintain highway safety during construction activities, including scaffolding and stringing works. Relevant discussions will be held with the relevant highway authorities (ERYC, NLC and NCC) (see **Application Document 2.5 Traffic Regulation Order Plans**), and they will be notified in advance of works to the highway by the Contractor. Further details are also provided within **Application Document 7.4 Outline Construction Traffic Management Plan**.

8.2 Conclusions

8.2.1 The TA demonstrates that the Project would not give rise to unacceptable impacts on highway safety or cause severe residual cumulative impacts on the road network in the AM and PM peak hour. This is also demonstrated in **Application Document 6.14 Environmental Statement Chapter 14 Traffic and Transport.**

8.2.2 Construction traffic effects are temporary, modest in absolute terms and dispersed across the network. No link is anticipated to experience a material HGV uplift which could materially alter junction operation or driver behaviour patterns.

8.2.3 The assessment confirms that, with the implementation of embedded mitigation measures including agreed routeing strategies and TTROs, the Project accords with the policy and guidance detailed in Chapter 2 of this TA.

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Appendix A Highway Safety Assessment

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The Great Grid Upgrade

North Humber to High Marnham

NHHM-AEC-CNS-REP-0145

North Humber to High Marnham

Volume 7: Other Documents

Document 7.15 Transport Assessment - Appendix A - Highway Safety Assessment

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Executive summary

This Highway Safety Assessment Report has been prepared to support the Transport Assessment (TA) and Environmental Statement (ES) for the proposed North Humber High Marnham (NHHM) project. The assessment has been undertaken in accordance with the requirements of the Design Manual for Roads and Bridges (DMRB) GG 104 Requirements for Safety Risk Assessment and provides an evidence-based review of the existing highway safety environment, together with an assessment of the potential impacts associated with development-related traffic.

The assessment has been informed by baseline traffic, collision and highway data provided by AECOM, with detailed safety review and interpretation undertaken by Jacobs and supporting plans prepared by LSTC. The findings are aligned with the wider Transport Assessment to ensure a consistent approach to the evaluation of highway and transportation impacts.

A review of five years of Personal Injury Collision (PIC) data has been undertaken across the study area, focusing on roads, junctions and access routes that may experience changes in traffic demand during both the construction and operational phases of NHHM project. Attention has been given to routes serving the proposed bellmouth access locations and those identified as having elevated collision frequencies or existing highway safety concerns. Collision trends, severity distributions and recurring patterns have been assessed to identify locations where additional traffic could influence existing risks.

The assessment also reviews the proposed access strategy and associated highway works against relevant design standards, including DMRB guidance and recognised highway design principles. Consideration has been given to visibility requirements, driver expectancy, network operation, emergency access arrangements and the needs of non-motorised users (NMUs), including pedestrians, cyclists and equestrians.

A programme of site inspections was undertaken to supplement the desktop assessment and verify site conditions. The inspections identified a number of existing constraints, varying visibility standards, high traffic flows, periodic congestion and location-specific operational characteristics. Where appropriate, mitigation measures have been identified to reduce safety risks and support the safe operation of the highway network throughout the construction and operational phases of NHHM project.

The report demonstrates that, subject to the implementation of appropriate traffic management measures, access design standards, signage, visibility improvements and construction management controls, the proposed NHHM project can be accommodated without introducing unacceptable highway safety risks. The assessment concludes that the proposed scheme is capable of operating in accordance with the principles of DMRB GG 104 and established highway safety best practice while maintaining a safe environment for all road users

The assessment considers the impact of National Grid construction traffic operating on Primary Access Route (PAR) and the following strategic and local highway network locations:

1) A161 – Between M180 and Belton, Scunthorpe
2) A161 Station Road / A161 Haxey Lane Junction, Haxey
3) A620 Gainsborough Road / Haughgate Hill, Retford

4) A638 Arlington Way / London Road Junction, Retford
5) M62 / Main Road Junction, Brough
6) A1034 / B1230 Hunsley Road Junction, Brough
7) B1230 Hunsley Road / Brick Dike Lane
8) Main Street / A164 Between B1233 Roundabout and A164
9) A1079 Beverley Bypass West (Killingwoldgraves Roundabout)
10) A15 Boothferry Way / A164 / Riplingham Road Roundabout

The assessment identifies existing highway safety conditions, potential safety consequences from construction vehicle movements and recommends mitigation measures that the contractor should consider to maintain highway safety throughout construction.

1. Introduction

1.1 Background

1.1.1 This Highway Safety Assessment Report has been prepared in support of the Transport Assessment (TA) and Environmental Statement (ES) for the proposed development. The report provides an assessment of existing highway safety conditions within the study area and evaluates the potential safety implications associated with development-related traffic. It also outlines the design principles, operational considerations and mitigation measures incorporated into the scheme to ensure the safe interaction of project traffic with the existing highway network.

1.1.2 The assessment has been prepared collaboratively using baseline data, traffic analysis and collision information supplied by AECOM, with highway safety review and interpretation undertaken by Jacobs and supporting plans prepared by LSTC. The methodology and findings have been developed in alignment with the Transport Assessment to provide a consistent and integrated appraisal of transport and highway safety impacts.

1.1.3 The study focuses on the existing safety performance of roads, junctions and access routes within the wider project area, with particular emphasis on Primary Access Routes (PAR) serving the proposed bellmouth access locations and other sections of highway likely to experience changes in traffic demand. A review of Personal Injury Collision (PIC) data covering a five-year period has been undertaken to establish baseline safety conditions and identify any recurring collision trends, locations of concern or existing safety issues that may be affected by the proposed development.

1.1.4 To provide a structured and proportionate assessment, the collision analysis has been undertaken across geographic route sections, generally comprising approximately 10km lengths of the study network. The analysis considers collision frequency, severity and location characteristics to identify areas where additional mitigation or management measures may be required.

1.1.5 The assessment has been undertaken in accordance with the requirements of DMRB GG 104 Requirements for Safety Risk Assessment. GG 104 provides a systematic framework for identifying, assessing, evaluating and managing safety risks associated with highway infrastructure and activities that may affect highway users, construction personnel and third parties. The assessment therefore considers both construction-phase and operational-phase risks and identifies measures necessary to reduce risks so far as reasonably practicable.

1.1.6 In addition to the review of collision data, the report considers highway geometry, visibility standards, speed environments, traffic conditions, emergency access requirements and the provision for non-motorised users (NMUs). Particular attention has been given to local highway characteristics identified through both desktop studies and site inspections, including visibility constraints, traffic congestion, route hierarchy and existing operational conditions.

1.1.7 Where potential risks have been identified, the report outlines appropriate mitigation measures, which may include vegetation management, Temporary Traffic Regulation Orders (TTROs), construction traffic management measures, signage, road markings and other engineering or operational controls. Any locations where full compliance with standard design guidance cannot be achieved are clearly identified, together with the proposed mitigation strategy and justification.

1.1.8 The report also considers highway signage, road marking requirements, site security arrangements and emergency access protocols necessary to ensure the continued safe operation and resilience of the highway network throughout the construction and operational phases of the development. Coordination with the relevant highway authorities forms an important part of the proposed management strategy to minimise disruption and maintain network performance.

1.1.9 Whilst this assessment identifies existing highway safety issues and evaluates potential development-related risks, responsibility for the design and implementation of wider highway mitigation measures remains with AECOM through the Transport Assessment process and subsequent scheme development.

1.1.10 Overall, this report provides a comprehensive and evidence-based assessment of highway safety considerations associated with the proposed development. It demonstrates how the scheme has been reviewed against relevant standards, guidance and industry best practice to maintain, and where practicable enhance, safety for all users of the highway network.

Purpose of Assessment

1.1.11 The purpose of this assessment is to:

- Identify existing highway safety risks along the proposed construction access routes.

1.1.12 Assess whether additional construction traffic movements could increase or exacerbate these risks.

- Evaluate the suitability of the routes against relevant DMRB requirements and Local Highway Authority standards.
- Determine any mitigation measures necessary to maintain an acceptable level of highway safety for all road users.

2. Locations Assessment Findings

2.1 Assessment Approach / Overview

2.1.1 The assessment follows the principles established by GG 104 including:

- Identification of affected populations.
- Establishment of safety baseline.
- Hazard identification.
- Risk assessment and evaluation.
- Development of mitigation measures.
- Ongoing monitoring and review.

2.1.2 Affected populations include:

- General highway users
- Construction workers
- HGV drivers
- Pedestrians
- Cyclists
- Equestrians
- Public transport operators
- Emergency services

2.1.3 DMRB GG 104 Safety Risk Assessment highway inspection visits were undertaken on Thursday 16 and Friday 17 July 2026 (10:00 – 17:00hrs). During both inspections, weather conditions were dry, sunny and warm, with good visibility throughout. Road surface conditions were dry at all locations visited and no weather-related factors were observed that would have adversely influenced highway operation or safety.

2.1.4 Traffic conditions were generally heavy across the study routes/locations during both inspection periods, with frequent congestion and stop-start traffic observed at a number of locations. These conditions provided a representative indication of peak demand, network performance and operational constraints across the highway network and assisted in identifying potential highway safety risks associated with existing traffic conditions and future development-related traffic movements.

2.2 Assessment Locations

2.2.1 The assessment covers the following principal construction traffic routes and known hotspot junctions.

2.2.2 A review of the supplied five-year Personal Injury Collision (PIC) dataset has identified top 10No collision hotspots along the proposed National Grid Primary Access Route (PAR) network (see Table 2.1). The assessment considers collision frequency, severity and casualty numbers to identify 10No. locations where National Grid construction traffic could have the greatest potential to intensify existing highway safety risks.

Table 2.1 – Assessment locations

Reference	Location	Affected LHA
1	A161 M180 to Belton	North Lincolnshire
2	A161 Station Rd / Haxey Lane	North Lincolnshire
3	A620 Gainsborough Rd / Haughgate Hill	Nottinghamshire
4	A638 Arlington Way / London Rd	Nottinghamshire
5	M62 / Main Road Junction	East Riding
6	A1034 / B1230 Hunsley Road	East Riding
7	B1230 Hunsley Road / Brick Dike Lane	East Riding
8	Main Street / A164 Corridor	East Riding
9	A1079 Killingwoldgraves Roundabout	East Riding
10	A15 Boothferry Way Roundabout	East Riding

3. Personal Injury Collision (PIC) Assessment – Hotspot Analysis

3.1 PIC Review

3.1.1 A review of supplied five-year Personal Injury Collision (PIC) dataset has identified ten collision hotspots located on the proposed National Grid Primary Access Route (PAR) network. The analysis considers collision frequency, severity and casualty numbers to determine where National Grid construction traffic has the greatest potential to exacerbate existing highway safety risks.

Table 3.1 – Collision Severity Classification

Severity Category	Definition
Sev1	Fatal Collision
Sev2	Serious Injury Collision
Sev3	Slight Injury Collision

Table 3.2 – Overall PIC Summary

Severity	Number
Fatal (Sev1)	0
Serious (Sev2)	12
Slight (Sev3)	54
Total Casualties	72
Total Collisions	100

3.1.2 The absence of fatal collisions is encouraging; however, 12No serious injury collisions and 100No recorded collisions across the identified hotspots demonstrates an existing underlying highway safety risk. Increased HGV movements associated with National Grid construction activities could increase exposure to these risks, particularly at major junctions, roundabouts and rural priority junctions.

Table 3.3 – Ranked Collision Hotspots

Rank	Location	Serious	Slight	Total Casualties	Total Collisions	Risk Ranking
1	A620 Gainsborough Road / Haughgate Hill, Retford	4	5	9	16	Very High
2	A1034 / B1230 Hunsley Road Junction	2	9	11	13	Very High
3	B1230 Hunsley Road / Brick Dike Lane	2	3	11	13	Very High
4	Springfield Farm Roundabout (A15/A164 Corridor)	0	10	10	12	High
5	A161 Station Road / Haxey Lane Junction	1	5	6	11	High
6	Main Street / A164	1	6	7	9	Medium-High
7	A1079 Beverley Bypass West Roundabout	1	3	4	9	Medium
8	A161 M180 to Belton	0	5	5	6	Medium
9	A638 Arlington Way / London Road Junction	0	5	5	6	Medium
10	M62 / Main Road Junction	1	3	4	5	Medium

4. Design Standards and Basic Design Principles

4.1 Applicable Standards

4.1.1 The access design has been developed to ensure safe and efficient construction traffic movements while maintaining highway safety for all users. The proposed arrangements comply with DMRB GG 104, LHA standards, Manual for Streets guidance and relevant DMRB design requirements with safety risks and hazards assessed throughout the design process.

4.1.2 The following have informed the assessment:

- DMRB GG 104 – Requirements for Safety Risk Assessment
- DMRB CD 109 – Highway Link Design
- DMRB CD 116 – Geometric Design of Roundabouts
- Traffic Signs Manual
- Manual for Streets
- Local Highway Authority Design Guides

4.2 Bellmouth Accesses Design Approach

4.2.1 Construction access points have been designed as simple junction bellmouths connecting the public highway to temporary site access tracks/haul road (Refer to Document 2.12 Typical Design Drawings for drawing). Key principles adopted include accesses:

- Be designed to appropriate design vehicle requirements
- Accommodate articulated HGV turning movements
- Minimise vehicle overrun risk
- Avoid reversing onto public highway
- Provide suitable drainage
- Maintain visibility splays

4.2.2 Typical features include:

- Tapered bellmouth geometry
- Surfaced radii
- Positive drainage
- Gate setback distances
- Swept path compliance

4.3 Highway Widening and Passing Places

4.3.1 Where widening is required:

- Existing carriageway width maintained
- Structural integrity verified
- Traffic signs provided
- Temporary restraint barriers (Edge protection) installed where required

4.3.2 Passing places should:

- Accommodate HGV encounters
- Maintain forward visibility
- Minimise environmental impacts

4.3.3 Passing place dimensions have been developed to accommodate anticipated HGV movements while maintaining safe clearance from existing highway users. Refer to Document 2.12 Typical Design Drawings for drawing.

4.4 Utility Diversions and Highway Occupation

4.4.1 Utility diversions may be required where overhead lines, underground services, drainage infrastructure or statutory undertaker apparatus conflicts with the proposed access arrangements.

4.4.2 All utility diversion works affecting the public highway will be planned and delivered in liaison with:

- Highway Authorities
- Statutory Undertakers.
- National Grid.
- Contractors.
- Relevant utility asset owners

4.4.3 The objective is to minimise disruption whilst maintaining safety for highway users, road workers and adjacent land users.

Utility Diversion Management Measures

4.4.4 Early identification of services prior to construction:

- Utility record searches will be undertaken
- Ground investigation and service detection surveys will be completed
- Existing utility assets will be verified on site where necessary
- Trial holes undertaken where service locations are uncertain

Construction Phase Controls

4.4.5 The following controls will be implemented:

- Permit-to-dig procedures
- Safe excavation practices
- Temporary protection of exposed services
- Exclusion zones around critical infrastructure
- Competent supervision of excavation activities

4.4.6 Temporary works affecting the highway shall include:

- Temporary Traffic Regulation Orders (TTROs)
- Chapter 8 traffic management
- Safe pedestrian routes
- Temporary lane management
- Safe working zones

5. Location Specific Assessment

5.1 A161 M180 to Belton

Issues Identified During Highway Safety Inspection

The following safety concerns were identified during the highway safety inspection at the A161 junction with the M180 (Junction 2) near Belton:

5.1.1 The location is a busy motorway junction comprising a single carriageway subject to a 50mph speed limit with significant volumes of heavy goods vehicles (HGVs) and agricultural traffic using the route. There is no dedicated pedestrian footway for vulnerable road users (VRUs).

5.1.2 Vehicles exiting the M180 at Junction 2 and approaching the A161 junction via the off-slip road were observed travelling at excessive speeds.

5.1.3 The dedicated left-turn lane from the M180 Junction 2 off-slip road onto the A161 is negotiated at relatively high speeds, with some drivers appearing to take the sharp bend without sufficient caution.

5.1.4 While the road surface is generally in good condition, carriageway markings on the approaches to the A161 junction are faded and require refreshing to improve visibility.

5.1.5 Although the posted speed limit on the A161 is 50mph, visibility at the junction is often compromised by turning HGVs. This reduces sight lines for approaching drivers, resulting in reduced reaction times and an increased risk of turning conflicts.

5.1.6 Additional right-turning conflicts were identified where vegetation restricts visibility, limiting drivers' ability to assess oncoming traffic safely.

Recommendations

5.1.7 Consider reducing approach speeds on all slip roads leading to the A161 junction as increased vehicle movements associated with construction activities may temporarily exacerbate existing operational and safety issues.

5.1.8 Refresh and enhance existing road markings to improve driver awareness and visibility.

5.1.9 Install additional warning signage and carriageway markings, such as "SLOW" markings, on all slip-road approaches to the A161 junction to encourage lower vehicle speeds and reduce the likelihood of collisions

5.1.10 Consider regular speed monitoring and enforcement activities along the A161 to improve compliance with the posted speed limit and enhance overall road safety.

Image 5.1 – A161 M180 to Belton



Vegetation and HGVs blocking visibility





Road markings to improve driver awareness

5.2 A161 Station Road / A161 Haxey Lane Junction

Issues Identified During Highway Safety Inspection

5.2.1 The A161 Station Road / A161 Haxey Lane junction is a rural priority T-junction subject to a 30mph speed limit with the following safety issues identified during inspection:

5.2.2 Restricted visibility at junction due to presence of trees, vegetation, hedgerows, road signs and a private boundary fence.

5.2.3 Limited visibility splays for drivers emerging from the side road.

5.2.4 Evidence of high-speed vehicle approaches to the junction with visible skid marks on the carriageway.

5.2.5 Worn and deteriorated road markings at the junction.

5.2.6 Narrow rural carriageways accommodating a significant number of agricultural and HGVs.

5.2.7 Potential conflict between turning HGVs and opposing traffic movements due to limited road width at junction.

5.2.8 Increased interaction and potential conflict between motor vehicles and vulnerable road users including pedestrians and cyclists.

Recommendations

To mitigate identified safety concerns, the following measures should be considered:

5.2.9 Improve junction visibility splays through vegetation management and relocation of existing road signage to a lower-profile position where appropriate.

5.2.10 Consider putting ASL back, which would necessitate the signalisation of the junction

5.2.11 Undertake regular junction monitoring during peak construction phases to assess traffic conditions and safety performance.

5.2.12 Review the feasibility of implementing a temporary speed reduction during construction activities.

5.2.13 Consider the installation of additional “Caution” warning signs with a supplementary plate stating “Reduced Visibility” on all approaches to the junction to alert drivers to restricted sightlines and potential hazards.

5.2.14 Introduce supplementary carriageway markings including "SLOW" markings on all junction approaches.

5.2.15 Refresh and reinstate worn road markings to improve driver awareness and junction definition

Image 5.2 – A161 Station Road / A161 Haxey Lane Junction



Visible skid marks on the carriageway and presence of trees, vegetation, hedgerows, road signs & private boundary fence restricting visibility



5.3 A620 Gainsborough Rd / Haughgate Hill

Issues Identified During Highway Safety Inspection

The A620 Gainsborough Road / Haughgate Hill junction is located on a strategic route subject to a 50mph speed limit and carries significant volumes of commuter and commercial traffic, safety concerns identified during inspection:

5.3.1 The junction has the highest recorded casualty rate within the study area indicating an elevated level of collision risk.

5.3.2 Existing collision records suggest a history of junction-related conflicts and turning movement incidents.

5.3.3 Increased traffic associated with the proposed development may result in a higher frequency of right-turn manoeuvres particularly by HGVs.

5.3.4 Additional right-turning vehicles may increase the risk of rear-end shunt collisions on the main carriageway.

5.3.5 Reduced acceptable gap lengths for right-turning traffic may lead to increased driver frustration and risky manoeuvres.

5.3.6 Queue formation is already evident during peak traffic periods with potential for further congestion at the A620 Gainsborough Road / Haughgate Hill junction.

5.3.7 Increased vehicle movements associated with construction activities may exacerbate existing operational and safety issues.

Recommendations

The following measures should be considered to address concerns:

5.3.8 Review feasibility of a temporary speed limit reduction on the approaches to the junction during construction activities.

5.3.9 Install temporary advance warning signage to alert drivers to increased turning movements and construction-related traffic.

5.3.10 Introduce supplementary carriageway markings including "SLOW" markings on approaches to the junction to improve driver awareness.

5.3.11 Undertake regular junction monitoring during peak construction phases to assess traffic conditions, queue lengths and safety performance.

5.3.12 Monitor collision data throughout the construction period and implement additional mitigation measures if required.

5.3.13 Consider the provision of temporary traffic management measures should significant queueing or safety concerns be identified during construction operations.

Image 5.3 – A620 Gainsborough Rd / Haughgate Hill



Right-turning vehicles may increase the risk of rear-end shunt collisions on the main carriageway

5.4 A638 Arlington Way / London Rd

Issues Identified During Highway Safety Inspection

5.4.1 The following highway safety considerations were identified during inspection:

Site Characteristics

5.4.2 Busy multi-phase signalised junction operating within a 30-40mph speed environment.

5.4.3 High traffic volumes resulting in regular congestion.

5.4.4 Multiple pedestrians crossing facilities located throughout the junction.

Positive Observations

5.4.5 Good visibility was observed across the junction in most directions.

5.4.6 One directional sign was identified as having the potential to restrict visibility for HGV drivers.

5.4.7 Pedestrian accessibility is very good, with multiple signal-controlled pedestrian crossing phases provided.

5.4.8 Street lighting provision appears adequate; however, it could not be verified during the inspection whether all lighting units are operational during hours of darkness.

Recommendation

5.4.9 Relocate identified directional sign to eliminate the potential visibility restriction for HGV drivers and improve overall junction safety

Image 5.4 – A638 Arlington Way / London Rd



Directional sign to eliminate the potential visibility restriction for HGV

5.5 M62 / Main Road Junction

Issues Identified During Highway Safety Inspection

5.5.1 The following highway safety considerations were identified during inspection:

Site Characteristics

5.5.2 60mph slip road junction with merge/diverge traffic movements.

5.5.3 Advance “SLOW” warning signs provided on the approach to B1230.

5.5.4 Sharp turning movement observed between the B1230 and the motorway slip roads.

Safety Observations

5.5.5 The bend from the B1230 onto the slip road is relatively sharp requiring significant speed reduction for vehicles negotiating the turn.

5.5.6 Vehicles travelling along the B1230 were observed approaching at speeds in excess of 60mph before braking sharply to enter the slip road.

5.5.7 The combination of high approach speeds, sudden deceleration and sharp turning manoeuvre presents a potential road safety concern.

Recommendations

5.5.8 Undertake an assessment to determine the suitability of a temporary speed restriction on the B1230 approach to the slip road junction.

5.5.9 Consider the installation of additional advance warning signage, including “SLOW” and sharp bend warning signs to provide earlier driver awareness of the required reduction in speed and upcoming turning movement.

Image 5.5 – M62 / Main Road Junction



B1230 onto the slip roads bend

B1230 - vehicles speeds in excess of 60 mph

5.6 A1034 / B1230 Hunsley Road

Issues Identified During Highway Safety Inspection

5.6.1 The following highway safety considerations were identified during inspection:

Collision History and Junction Risk

5.6.2 The A1034 / B1230 Hunsley Road junction has the second-highest recorded casualty rate within the study area indicating an elevated level of collision risk.

5.6.3 Existing collision records suggest a history of junction-related conflicts involving turning movements.

5.6.4 The rural setting and high-speed approaches increase the potential for vehicle conflicts at the junction.

A1034 Observations

5.6.5 Single carriageway road subject to a 50mph speed limit.

5.6.6 Dedicated right-turn lane provided for vehicles turning into the B1230.

5.6.7 Good visibility is available in all directions at the junction.

5.6.8 Potential for rear-end shunt collisions exists due to queuing and delays associated with right-turning vehicles.

5.6.9 Vehicles turning onto the B1230 can experience difficulty finding suitable gaps in traffic due to high vehicle speeds on the A1034 and congestion at the junction.

5.6.10 No dedicated footway is provided for pedestrians or other vulnerable road users (VRUs).

B1230 Observations

5.6.11 Single carriageway road subject to a 50mph speed limit and a 7.5tonne environmental weight restriction.

5.6.12 Dense vegetation is present along both sides of the carriageway.

5.6.13 No dedicated footway is provided for pedestrians or other vulnerable road users (VRUs).

5.6.14 Multiple advance warning signs and “SLOW” markings are already in place.

5.6.15 Route is used by equestrians increasing the presence of vulnerable road users within the highway environment.

Recommendations

5.6.16 Consider a reduction in speed limit on the approaches to junction subject to a formal assessment.

5.6.17 Review and enhance advance warning measures including A1034 additional “SLOW” signage and road markings where appropriate.

5.6.18 Install advance HGV warning signage to improve driver awareness of junction constraints and vulnerable road users.

5.6.19 Undertake a temporary speed reduction assessment for the duration of construction activities.

5.6.20 Provide a comprehensive driver route briefing to all construction-related vehicle operators, highlighting junction risks, speed management requirements, weight restrictions and the presence of vulnerable road users.

Image 5.6 – A1034 / B1230 Hunsley Road



5.7 B1230 Hunsley Road / Brick Dike Lane Junction

Issues Identified During Highway Safety Inspection

5.7.1 The following highway safety issues were identified during inspection and should be considered as part of assessment and any future improvement proposals.

Key Safety Concerns

5.7.2 Junction has the third-highest recorded casualty rate within the study area indicating an elevated risk of collisions.

5.7.3 Existing collision data suggests a history of junction-related conflicts involving vehicles crossing or turning at the junction.

5.7.4 The rural setting and high-speed approaches on the B1230 increase the potential for vehicle conflicts at the Brick Dike Lane Junction.

5.7.5 Noticeable equestrian presence resulting in regular interaction between motorised traffic and horse riders.

5.7.6 No dedicated footway or pedestrian infrastructure for Vulnerable Road Users (VRUs), requiring pedestrians and other non-motorised users to share the carriageway with vehicles.

5.7.7 Narrow carriageway widths combined with limited lateral clearance, reduce available space for passing and overtaking manoeuvres.

5.7.8 The B1230 is subject to a single carriageway national speed limit (60mph). Despite the presence of advance "SLOW" warning signs on approaches from both directions, site observations indicated that many drivers do not significantly reduce speed when approaching the junction.

5.7.9 The carriageway surface is generally in good condition; however, several road markings are faded, reducing their effectiveness and visibility.

5.7.10 The rural road geometry may contribute to driver perception and approach-speed issues.

5.7.11 Junction visibility is potentially constrained by overgrown vegetation and trees, particularly for vehicles undertaking turning manoeuvres from the side road. Existing stop signs may not provide sufficient mitigation where visibility is restricted.

5.7.12 The collision history indicates a level of risk that is higher than would typically be expected for the traffic volumes using the junction.

5.7.13 Evidence of HGV tyre overrun on the verge was observed, suggesting insufficient turning space for larger vehicles, particularly for the left-turn movement from The Avenue/B1230 westbound onto Brick Dike Lane.

Recommendations

5.7.14 Improve and maintain junction visibility splays, removal or management of vegetation and other obstructions.

5.7.15 Refresh and repaint all road markings to improve driver guidance, visibility and awareness.

5.7.16 Consider route management measures and a reduction in speed limit to better reflect junction conditions and improve safety.

5.7.17 Install temporary warning signage to increase driver awareness of junction and associated hazards.

5.7.18 Provide junction-specific driver information and awareness measures where appropriate.

5.7.19 Consider the introduction of additional "SLOW" carriageway markings on the approaches to the B1230/Brick Dike Lane junction north & southbound to reinforce the need for reduced speeds when approaching junction.

5.7.20 Review junction layout and turning provision for HGVs to reduce verge overrun and improve manoeuvrability.

Image 5.7 – B1230 Hunsley Road / Brick Dike Lane Junction



No dedicated footway or pedestrian infrastructure for VRUs, several road markings faded, reduced visibility & HGV tyre overrun on the verge

5.8 Main Street / A164 Corridor (Springfield Farm Roundabout)

Issues Identified During Highway Safety Inspection

5.8.1 The following highway safety issues were identified during inspection and should be considered as part of assessment and any future improvement proposals.

Key Safety Concerns

5.8.2 The A164 corridor operates as a dual carriageway subject to a 40mph speed limit, resulting in relatively high vehicle speeds on approaches to the roundabout.

5.8.3 Overall visibility at the roundabout and its approaches is generally good.

5.8.4 The location has experienced the highest concentration of slight-injury collisions within the study area, indicating a notable level of road user conflict.

5.8.5 The roundabout incorporates multiple entry and exit points, creating numerous vehicle conflict opportunities and increasing complexity of traffic movements.

5.8.6 No signal-controlled crossing facility for Vulnerable Road Users (VRUs), which may contribute to severance issues for pedestrians and cyclists seeking to cross the corridor.

5.8.7 Existing pedestrian infrastructure includes dropped kerbs and tactile paving, providing accessibility for mobility-impaired users; however, crossing opportunities remain limited.

5.8.8 The area is considered a VRU hotspot with pedestrian and cyclist movements occurring in close proximity to high traffic volumes.

5.8.9 Congestion during peak periods combined with lane-changing and weaving behaviour is likely to contribute to increased collision risk.

5.8.10 Localised skid resistance concerns were identified on the approaches to roundabout, where road surface treatment appears worn or faded.

5.8.11 Potential conflicts associated with roundabout entry and merging manoeuvres were observed during periods of increased traffic demand.

Recommendations

5.8.12 Investigate and address identified skid resistance deficiencies and renewal of high-friction surfacing where required.

5.8.13 Install or enhance advance warning signage including "SLOW" signs on approaches to the roundabout and pedestrian crossing areas.

5.8.14 Provide temporary directional signage for construction-related traffic to minimise driver confusion and unnecessary manoeuvring.

5.8.15 Consider implementing peak-hour delivery restrictions to reduce traffic congestion and conflicts during the busiest periods.

5.8.16 Introduce additional lane discipline signage and road markings to assist drivers in selecting the correct lane and maintaining appropriate positioning through the roundabout.

5.8.17 Review opportunities to improve VRU crossing facilities, enhanced crossing points and measures to reduce pedestrian severance across the corridor.

5.8.18 Monitor vehicle speeds and driver behaviour on the approaches to roundabout and consider additional speed management measures where appropriate.

Image 5.8 – Main Street / A164 Corridor (Springfield Farm Roundabout)



Skid resistance concerns

Non-signal-controlled crossing facility for VRUs

5.9 A1079 Beverley Bypass West Roundabout (Killingwoldgraves Roundabout)

Issues Identified During Highway Safety Inspection

5.9.1 The following highway safety issues were identified during inspection and should be considered as part of assessment and any future improvement proposals.

Key Safety Concerns

5.9.2 The A1079 Beverley Bypass operates a 40mph speed limit, carrying relatively high traffic volumes throughout the day.

5.9.3 The roundabout incorporates multiple entry and exit arms, creating several potential vehicle conflict points and increasing the complexity of traffic movements.

5.9.4 Visibility at the roundabout and on its approaches is generally good.

5.9.5 Potential conflicts associated with roundabout entry, merging and lane positioning manoeuvres were observed during periods of higher traffic demand.

5.9.6 The roundabout carriageway exhibits a poor road surface condition which may affect vehicle control and driver comfort.

5.9.7 Existing road markings are faded and lack conspicuity, reducing driver guidance and lane discipline through the roundabout.

5.9.8 The route is regularly used by agricultural vehicles and recreational cyclists, resulting in interactions between vehicles travelling at differing speeds and with varying manoeuvrability characteristics.

5.9.9 The presence of slow-moving agricultural traffic and VRUs increases the potential for collisions on roundabout approaches and exits.

Recommendations

5.9.10 Resurface the roundabout carriageway where required and renew all associated road markings to improve visibility, driver guidance and vehicle safety.

5.9.11 Consider the installation of additional advance warning signage, "SLOW" signs on approaches to the roundabout to encourage reduced approach speeds and improve driver awareness.

5.9.12 Review the adequacy of existing road markings and lane guidance to improve lane discipline through the roundabout.

5.9.13 Consider measures to increase construction driver awareness of agricultural vehicles and cyclists during periods of seasonal agricultural activity and higher recreational cycling demand.

5.9.14 Monitor operational performance and collision trends to determine whether further speed management or safety interventions are required.

Image 5.9 – A1079 Beverley Bypass West Roundabout



Poor road surface condition

Faded Road markings

5.10 A15 Boothferry Way Roundabout

Issues Identified During Location Highway Safety Inspection

5.10.1 The following highway safety issues were identified during inspection and should be considered as part of the safety assessment process

Key Safety Concerns

5.10.2 PIC data indicates that this location has one of the highest concentrations of slight injury collisions within the area.

5.10.3 The roundabout operates with high-speed approaches with National Speed Limit and 40mph routes, creating a challenging traffic environment.

5.10.4 The junction experiences multiple entry and exit conflict points, high traffic volumes, lane-changing manoeuvres and entry-related conflicts.

5.10.5 Collision trends suggest that congestion and weaving behaviour are likely contributing factors to the recorded incidents.

5.10.6 Site observations identified vehicles approaching the roundabout at excessive speeds from all directions, with limited advance warning measures such as "SLOW" carriageway markings.

Route-Specific Observations

A1105 Boothferry Road Approach

5.10.7 The A1105 Boothferry Road (40mph, 4-lane dual carriageway) approach has restricted visibility due to overgrown trees and hedges within the central reservation.

5.10.8 Vegetation obstructs sightlines for both pedestrians using the uncontrolled crossing facilities and drivers approaching the roundabout.

5.10.9 A shared-use footway/cycleway continues around the roundabout towards A15 Humber Road; however, overgrown vegetation significantly reduces the available width, forcing VRUs closer to live traffic and increasing conflict risk.

A15 Humber Road Approach

5.10.10 The A15 Humber Road (40mph, 4-lane dual carriageway) approach also suffers from restricted visibility caused by overgrown trees and hedges within the central reservation.

5.10.11 Sightlines for pedestrians at uncontrolled crossing points and for approaching motorists are adversely affected.

A15 Boothferry Road

5.10.12 The A15 Boothferry Road (40mph, 4-lane dual carriageway) currently has no dedicated pedestrian crossing facilities.

5.10.13 Pedestrians were observed crossing informally through verge areas indicating a desire line and a potential safety concern.

A164 Approach

5.10.14 The A164 is a single carriageway subject to the National Speed Limit.

5.10.15 There is no dedicated footway provision along this route with pedestrians required to use verge areas.

5.10.16 On the approach to the roundabout, an uncontrolled crossing point has been provided; however, it lacks tactile paving, reducing accessibility for visually impaired users.

Surrounding Environment

5.10.17 The A1105 Boothferry Road corridor contains a dense built environment comprising residential properties extending towards the A164.

5.10.18 Commercial and business developments are located along the A15 Boothferry Road corridor, generating significant pedestrian and vehicular activity within the area.

Recommendations

The following measures should be considered to improve safety at the roundabout and its approaches:

5.10.19 Review the existing speed limits and consider introducing reduced speed limits on the roundabout approaches.

5.10.20 Undertake vegetation maintenance including removal or trimming of trees and hedges to improve visibility for drivers, pedestrians and cyclists.

5.10.21 Introduce additional "SLOW" carriageway markings and advance warning signage on all approaches to increase driver awareness.

5.10.22 Improve pedestrian crossing facilities through the provision of dedicated crossing points, tactile paving and enhanced driver warning measures.

5.10.23 Provide temporary directional signing for construction traffic where applicable.

5.10.24 Consider implementing peak-hour delivery restrictions to reduce congestion and vehicle conflicts.

5.10.25 Install additional lane discipline signage to improve lane choice and reduce weaving movements through the roundabout.

5.10.26 The A15 Boothferry Way Roundabout presents several highway safety concerns, including high approach speeds, restricted visibility, pedestrian facility deficiencies, and collision patterns associated with congestion and weaving behaviour. Targeted improvements to visibility, speed management, pedestrian infrastructure and driver guidance measures should be considered to reduce conflict points and enhance overall network safety.

Image 5.10 – A15 Boothferry Way Roundabout



Roundabout approaches have restricted visibility due to overgrown trees and hedges within the central reservation

6. Emergency Vehicle Access Provision

6.1 Emergency Access Philosophy

6.1.1 Construction activities shall not materially delay emergency services response times along PAR/strategic access routes serving:

- Residential communities.
- Agricultural premises.
- Industrial premises.
- National Highways network interfaces.

6.1.2 Emergency access shall be maintained at all times during:

- Temporary road occupations.
- Temporary lane closures.
- Utility works.
- Bellmouth construction.
- Highway widening works.

Table 6.1 – Emergency Route Hierarchy

Priority Level	Route Type	Requirement
Priority 1	SRN (A15, A1079, M62 Junctions)	Continuous access
Priority 2	Principal A Roads / PAR	Continuous access
Priority 3	Local Roads	Alternative route available

The Full Road Closure Protocol

6.1.3 Where emergency access may be affected:

Pre-Closure Measures

- Emergency service consultation.
- Temporary diversion review.
- 24hour emergency contact established.
- Closure management plan issued.

During Closure

6.1.4 The following shall be maintained:

Table 6.2 – Temp Closure Emergency Protocol

Requirement	Provision
Emergency Contact	24hour coverage
Access Key Holder	Available at all times
Traffic Management Crew	On standby
Barrier Removal Capability	Immediate
Recovery Vehicle	Available if required

7. Non-Motorised Users (Walking, Cycling, Horse-riding) and Vulnerable Users

7.1 Vulnerable Road User Assessment

7.1.1 Construction traffic introduces the greatest risk to:

- Pedestrians.
- Cyclists.
- Horse riders.
- Mobility-impaired users.
- School-age children.
- Public transport users.

7.1.2 Attention is required along PARs where construction traffic intersects local communities around:

- Haxey.
- Retford.
- Brough.
- Beverley.
- Hessle.

7.2 Vulnerable Road User Hotspots

7.2.1 A summary of vulnerable road user hotspots is identified in Table 7.1.

Table 7.1 – Vulnerable Road User Hotspots

Location	Risk Group	Risk Level
Main Street / A164	Pedestrians	High
A1079 Beverley Bypass West Roundabout (Killingwoldgraves Roundabout)	Cyclists	High
A1034 / B1230 Hunsley Road	Cyclists and equestrians	Medium
A161 Haxey	Pedestrians	Medium
A164 Corridor / Springfield Farm Roundabout	Cyclists	High
A15 Boothferry Way Roundabout /A164 Corridor	Mixed users	High

7.3 Pedestrian Protection Measures

7.3.1 The following measures shall be adopted where footways are affected:

- Temporary pedestrian routes.
- Physical segregation barriers.
- Temporary crossings.
- Illuminated diversion routes.
- Footway closure signing.
- Pedestrian marshal support where necessary.

7.4 Cyclist Protection

7.4.1 Cyclists represent one of the highest-risk groups during construction activities due to interaction with large construction vehicles. Measures shall include:

- Advance warning signs
- Temporary cycle diversions
- Reduced HGV speeds near cyclist routes
- Driver awareness briefings
- Cyclist visibility signage
- Prohibition of unnecessary HGV overtaking

7.5 Horse Rider Protection

7.5.1 Several rural sections of the route network may accommodate equestrian users. Controls shall include:

- "Horse Riders Ahead" warning signs
- Driver toolbox talks
- Reduced construction vehicle speeds
- Marshal-controlled movements where required

7.6 Construction Fleet Safety Standards

7.6.1 Principal contractors shall be required to hold membership of the Fleet Operator Recognition Scheme (FORS), operate to a minimum FORS Bronze standard before starting on the project and attain Silver level within six months of the date of their first visit to any project site, and ensure that their vehicles meet the Construction Logistics and Community Safety (CLOCS) Standard.

7.7 Residual GG104 Risk Assessment

Table 7.2 – Residual GG104 Risk Assessment

Hazard I	Initial Risk	Mitigation Measures	Residual Risk
Pedestrian/HGV Conflict	High	Segregation and timing controls	Low
Cyclist Turning Conflict	High	Fleet controls and driver training	Low
Equestrian Interaction	Medium	Speed management	Low
Emergency Access Delay	High	Emergency access protocol	Low
Queue Related Collisions	Medium	Traffic management	Low
Junction Turning Conflicts	High	Visibility and signage improvements	Medium-Low

8. Signage, Road Markings and Security

8.1 Signage Principles

8.1.1 Traffic signing shall comply with:

- Traffic Signs Regulations and General Directions (TSRGD)
- Traffic Signs Manual
- Chapter 8 Requirements

8.1.2 Typical signs include:

- Construction Traffic
- Road Narrows Ahead
- Temporary Access Ahead
- Cyclists Beware
- Pedestrians in Road
- Reduced Speed Ahead

8.2 Temporary Road Markings

8.2.1 Where required:

- Edge lines.
- Temporary lane markings.
- Temporary stop lines.

8.2.2 Temporary hatching.

8.3 Site Security Measures

8.3.1 Measures may include:

- Lockable gates.
- Fencing.
- CCTV.
- Security patrols.
- Anti-trespass barriers.
- Warning signage.

8.4 Conclusion

8.4.1 The proposed PARs for National Grid construction traffic routes have the potential to introduce additional safety risk through increased HGV and other construction traffic movements at rural priority junctions, roundabouts and locations with constrained visibility. Mitigations and actions may be subject to:

- Detailed PIC analysis,
- Visibility improvements,
- Construction traffic management,
- Compliance with DMRB standards,
- Appropriate TTROs and signing,

8.4.2 Notwithstanding the above, with appropriate management and oversight, project construction traffic impacts on these routes can be minimised, adopting measures to be included in the Construction Traffic Management Plan (CTMP). Mandating FORS membership for all operators and CLOCS Standard compliance for HGV operators engaged on the project is crucial in that regard.

8.4.3 The highway safety risks associated with the proposed PAR construction vehicle movements can be reduced to an acceptable and manageable level consistent with the requirements of DMRB GG 104 – Requirements for Safety Risk Assessment.

Abbreviations

Abbreviation	Full Reference
AIL	Abnormal Indivisible Load
ASL	Advanced Stop Line
CLOCS	Construction Logistics & Community Safety (CLOCS)
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
ES	Environmental Statement
FORS	Fleet Operator Recognition Scheme
HGV	Heavy Goods Vehicle
km	Kilometre
LHA	Local Highways Authority
Mph	Miles per hour
MRN	Major Road Network
NHHM	North Humber High Marnham
NMUs	Non-Motorised Users
PAR	Primary Access Route
PIC	Personal Injury Collision
SPA	Swept Path Analysis
SRN	Strategic Road Network
TA	Transport Assessment
TM	Traffic Management
TROs	Traffic Regulation Orders
TSRGD	Traffic Signs Regulations and General Directions
TTROs	Temporary Traffic Regulation Orders
VRUs	Vulnerable Road Users

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