
FENWICK SOLAR FARM

Preliminary Environmental Information Report

Volume I Chapter 13: Transport and Access

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Fenwick Solar Project Limited

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13. Transport and Access

13.1 Introduction

- 13.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents a preliminary assessment of the likely significant effects of the Fenwick Solar Farm (hereafter referred to as the 'Scheme') concerning transport and access. The preliminary assessment follows the methodology outlined in the Scoping Report (**PEIR Volume III Appendix 1-1: EIA Scoping Report**) and is based on information obtained to date and the current Scheme design (**PEIR Volume II Figure 1-2: Site Boundary**).
- 13.1.2 This chapter should be read in conjunction with the Scheme description provided in **PEIR Volume I Chapter 2: The Scheme**. Additionally, transport and access interfaces with many other topics and as such, should be considered alongside **PEIR Volume I Chapter 11: Noise and Vibration** and **PEIR Volume I Chapter 14: Other Environmental Topics**.
- 13.1.3 This chapter is supported by the following figures (**PEIR Volume II**) and technical appendices (**PEIR Volume III**):
- a. **Figure 13-1: Transport and Access Study Area;**
 - b. **Figure 13-2: Traffic Survey Locations;**
 - c. **Figure 13-3: Indicative HGV Routing;**
 - d. **Figure 13-4: Roads to Access Site;**
 - e. **Figure 13-5: Traffic Accident Locations;**
 - f. **Appendix 13-1: Legislation, Policy and Guidance (Transport and Access);**
 - g. **Appendix 13-2: Traffic Flow Diagrams;**
 - h. **Appendix 13-3: Base Counts;**
 - i. **Appendix 13-4: Communications with the Local Highways Authorities;**
 - j. **Appendix 13-5: Indicative Access Appraisal for Solar PV Site;**
 - k. **Appendix 13-6: Indicative Access Appraisal for Grid Connection Corridor; and**
 - l. **Appendix 13-7: High-Level Route Assessment.**

13.2 Legislation, Policy and Guidance

Legislation

- 13.2.1 There is currently no specific legislation related to transport and access that should be referenced as part of the PEIR.

National Policy

- 13.2.2 The following national policies have been considered as part of this chapter. Further details are provided within **PEIR Volume III Appendix 13-1: Legislation, Policy and Guidance (Transport and Access)**.
- a. Overarching National Policy Statement for Energy (EN-1) (November 2023) (Ref. 13-1);
 - b. National Policy Statement for Renewable Energy Infrastructure (EN-3) (November 2023) (Ref. 13-2);
 - c. National Policy Statement for Electricity Networks Infrastructure (EN-5) (November 2023) (Ref. 13-3)
 - d. National Planning Policy Framework (NPPF) (December 2023) (Ref. 13-4);
 - e. Department for Transport's (DfT) guidance on Travel Plans, Transport Assessments, and Statements in Decision Taking (Ref. 13-5); and
 - f. DfT Circular 01/2022, Strategic Road Network (Ref. 13-6).

Local Policy

- 13.2.3 The following local policies have been considered as part of this chapter.
- a. Doncaster Local Plan 2015 – 2035 (Ref. 13-7);
 - b. Doncaster Infrastructure Strategy 2019 (Ref. 13-8); and
 - c. Sheffield City Region Transport Strategy 2019 (Ref. 13-9).

Guidance

- 13.2.4 The following guidance has also been considered as part of this chapter:
- a. Institute of Environmental Management and Assessment (IEMA) Guidelines – Environmental Assessment of Traffic and Movement (2023)¹ (hereafter referred to as the 'IEMA Guidelines') (Ref. 13-10); and
 - b. Design Manual for Road and Bridges (DMRB) CD 123 Geometric Design of at Grade Priority and Signal-Controlled Junctions (Ref 13-11).

13.3 Scoping Opinion and Additional Consultation

- 13.3.1 A scoping exercise was undertaken in Spring 2023 to establish the content of the assessment and the approach and methods to be followed. The scoping exercise outcomes were presented in the Scoping Report (**PEIR Volume III Appendix 1-1: EIA Scoping Report**) which was submitted to the Planning Inspectorate on 1 June 2023. The Scoping Report records the findings of the scoping exercise and details the technical guidance, standards, good practice and criteria to be applied in the assessment to identify and evaluate the likely significant effects of the Scheme on transport and access.

¹ The updated IEMA guidance on Environmental Assessment of Traffic and Movement was released in July 2023 during the process of developing this chapter, which supersedes the 1993 Guidelines for the Environmental Assessment of Road Traffic.

- 13.3.2 A Scoping Opinion was received from the Planning Inspectorate on 11 July 2023 (**PEIR Volume III Appendix 1-2: EIA Scoping Opinion**).
- 13.3.3 A full review of all comments raised in the Scoping Opinion is provided in **PEIR Volume III Appendix 1-3: EIA Scoping Opinion Responses**. This also outlines how and where the Scoping Opinion comments have been addressed within this PEIR or will be addressed within the ES.

Additional Consultation

- 13.3.4 At this stage of the assessment the only additional consultation which has been necessary, has been in the form of agreeing additional count locations with City of Doncaster Council along the Grid Connection Corridor to the south of the Study Area.

13.4 Assessment Methodology

- 13.4.1 This section sets out the scope and methodology for the preliminary assessment of the impacts of the Scheme on transport and access.

Study Area

- 13.4.2 Due to the nature of the Scheme, consideration will need to be given to locations on the surrounding highway network. **PEIR Volume II Figure 13-1: Transport and Access Study Area** provides an overview of the Site. Based on the extent of the Site, a number of roads on the local and strategic highway network have been identified as roads that would be used by Scheme traffic and therefore could be subject to increases in traffic. The roads identified cover likely routes to the Site from the strategic road network and from local/regional population centres between a 45-60 minute drive time of the Site. This is the likely catchment area for construction workers.
- 13.4.3 The roads within the Study Area were therefore determined as follows:
- a. M62;
 - b. M18;
 - c. M180;
 - d. A19 Selby Road;
 - e. Moss Road;
 - f. Fenwick Common Lane;
 - g. Trumfleet Lane;
 - h. Marsh Road;
 - i. Thorpe Bank;
 - j. Fordstead Lane West;
 - k. Fordstead Lane East;
 - l. Kirkhouse Green Road;
 - m. West Lane;
 - n. Sykehouse Road;

- o. A614;
 - p. Sour Lane; and
 - q. Fishlake Nab.
- 13.4.4 Automatic Traffic Counts (ATCs) have been carried out at specific locations on the road links above, which together form the Study Area. ATCs collect details of traffic flows passing a point on the road network in both directions. Further details of the ATCs are provided within Section 13.4 with details of the locations provided in Table 13-11 and a plan of the locations provided in **PEIR Volume II Figure 13-2: Traffic Survey Locations**.

Assessment Methodology

- 13.4.5 This section presents the methodology used to assess the transport and access effects, including the criteria for determining the sensitivity of receptors and the magnitude of change from the baseline condition for construction phase traffic.
- 13.4.6 The impact of additional development-generated traffic on the surrounding road network during the construction and decommissioning phases is anticipated to be the most significant stage of the Scheme, with the operation and maintenance phase anticipated to create much less traffic.
- 13.4.7 Decommissioning is anticipated to take place approximately 40 years after final commissioning and it is expected to result in less traffic than the construction phase (and over a shorter period). Therefore, decommissioning is expected to lead to effects that are no worse than during the construction phase. The decommissioning phase impact has therefore not been specifically quantified due to significant levels of uncertainty in forecasting that far into the future. The effects and mitigation for construction are considered applicable to the decommissioning phase, as a robust assessment. Any decommissioning effects will be mitigated by a Decommissioning Traffic Management Plan, which will be produced prior to the commencement of the decommissioning phase and will be based in part on the Framework CTMP.
- 13.4.8 The methodology for assessing the impact of development-generated traffic is based on that outlined in the IEMA Guidelines (Ref. 13-10).
- 13.4.9 The IEMA Guidelines state that a link on the highway network should be included within the study if one of the following criteria is met:
- a. **Rule 1** – Include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%); or
 - b. **Rule 2** – Include highway links of high sensitivity where traffic flows have increased by 10% or more.
- 13.4.10 The IEMA Guidelines recommend that several environmental effects may be considered important when considering traffic from an individual development. This chapter provides preliminary assessment of the following effects:
- a. Severance of communities;
 - b. Road vehicle driver and passenger delay;

- c. Non-motorised user delay;
- d. Non-motorised amenity;
- e. Fear and intimidation on and by road users;
- f. Road user and pedestrian safety; and
- g. Hazardous/large loads.

13.4.11 The impacts of worker traffic and HGV traffic increases associated with the Scheme are fundamental to determining the effects in the above categories.

13.4.12 The significance of effect is determined through consideration of two elements: the magnitude of the impact and the sensitivity of the receptor. The following sections outline the approach that has been used to determine to what extent an effect is environmentally significant.

13.4.13 The overall effect will be determined by measuring the magnitude of the impact following the introduction of embedded mitigation measures (where applicable) against criteria including the predicted increase in traffic; the type and sensitivity of the receptor; and the type of impact.

13.4.14 The impact of the development will be assessed in relation to the following baseline traffic flows:

- a. 06:00 to 07:00 – construction AM peak hour; and
- b. 19:00 to 20:00 – construction PM peak hour.

Receptor Sensitivity

13.4.15 As stated above the methodology for assessing the impact of the Scheme’s generated traffic will be based on that outlined in the IEMA Guidelines. The general criteria for defining the importance or sensitivity of receptors are set out below.

Table 13-1: Receptor Sensitivity Criteria (Transport and Access)

Receptors	Built Environment Indicator on Highway Link	Highway Link Sensitivity to Changes in Traffic Flow
Residents	Residential properties	<p>High: Where there is a high concentration of properties with direct frontage to the highway link being used as a construction route.</p> <hr/> <p>Medium: Where there are several properties with direct frontage to the highway link being used as a construction route.</p> <hr/> <p>Low: Where there are few properties with direct frontage to the highway link being used as a construction traffic route.</p> <hr/> <p>Very Low: Where there are no properties with direct frontage to the</p>

Receptors	Built Environment Indicator on Highway Link	Highway Link Sensitivity to Changes in Traffic Flow
Workers	Offices, industrial units, employment uses	<p>highway link being used as a construction traffic route.</p> <hr/> <p>High: Where there is a high concentration of offices/other workplaces with direct frontage to the highway link being used as a construction route.</p> <hr/> <p>Medium: Where there are several offices/other workplaces with direct frontage to the highway link being used as a construction route.</p> <hr/> <p>Low: Where there are few offices/other workplaces with direct frontage to the highway link being used as a construction traffic route.</p> <hr/> <p>Very Low: Where there are no offices/other workplaces with direct frontage to the highway link being used as a construction traffic route.</p>
Sensitive groups (children, elderly and disabled)	Schools, play areas, care/retirement homes, disabled parking bays	<p>High: Where there are multiple indicators of sensitive groups with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Medium: Where one indicator of sensitive groups is present with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Low/Very Low: Where no indicator of sensitive groups is present.</p>
Sensitive locations (hospitals, places of worship, schools, historic buildings)	Hospitals, places of worship, schools, historic buildings	<p>High: Where there are multiple indicators of sensitive locations with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Medium: Where one indicator of sensitive locations is present with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Low/Very Low: Where no indicator of sensitive locations is present.</p>

Receptors	Built Environment Indicator on Highway Link	Highway Link Sensitivity to Changes in Traffic Flow
People walking	Footways, Public Rights of Way (PRoW), crossings	<p>High: Where there are multiple indicators of sensitive locations with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Medium: Where one indicator of sensitive locations is present with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Low/Very Low: Where no indicator of sensitive locations is present.</p>
People cycling	On/off-road designated cycle routes	<p>High: On-road designated cycle routes present along highway link plus other significant cycle infrastructure present.</p> <hr/> <p>Medium: On-road designated cycle routes present along highway link.</p> <hr/> <p>Low/Very Low: Off-road designated cycle routes present along highway link.</p>
Open spaces, recreational sites, shopping areas	Parks, play areas, shops, community centres	<p>High: Where there are multiple indicators of sensitive groups with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Medium: Where one indicator of sensitive groups is present with direct frontage onto the highway link being used as a construction traffic route.</p> <hr/> <p>Low/Very Low: Where no indicator of sensitive groups is present.</p>
Road users	Roads, junctions, road classification, baseline traffic volumes, signage	Sensitivity determined by other receptors, together with professional judgement to assess the implications of local circumstances or factors which may elevate or lessen risks of accidents, e.g. junction conflicts.

Magnitude

13.4.16 General criteria for defining the magnitude of an impact are set out in Table 13-2. Key factors influencing this include:

- a. The physical or geographical scale of the impact²;
- b. The duration of the impact – will it be short-term (lasting for a few days or weeks), medium-term (lasting months) or long-term (lasting for several years);
- c. The frequency of the impact – will it occur hourly, daily, monthly or will it be permanent lasting for the duration of the Scheme; and
- d. The reversibility of the effect – can it be reversed following the completion of construction of the Scheme.

13.4.17 The IEMA Guidelines (Ref. 13-10) set out several criteria by which the magnitude of impact can be measured, outlined below. Many of the criteria do not provide specific thresholds by which such impacts can be measured, and as a result, will be measured qualitatively where appropriate, and professional judgement will be used where necessary. The use of professional judgement in these instances is supported by the IEMA Guidelines. These are described below and summarised in Table 13-2.

13.4.18 ‘Severance’ is defined in the IEMA Guidelines as the “...*perceived division that can occur with a community when it becomes separated by major traffic infrastructure*”. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure. IEMA Guidelines suggest that a change in the traffic flow of 30%, 60%, and 90% are regarded as producing ‘slight’, ‘moderate’, and ‘substantial’ changes in severance respectively. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic.

13.4.19 ‘NMU Amenity’ is defined within the IEMA Guidelines as “...*the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic*”. The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenity would be where the traffic flow (or HGV component) is halved or doubled.

13.4.20 The ‘Road vehicle driver and passenger delay’ assessment approach set out in the IEMA Guidelines states that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. The capacity of a road or a particular junction can be determined by establishing the ratio of flow to capacity (RFC). For this assessment, criteria from the IEMA Guidelines will be used to assess the effects on traffic levels and driver delay, which states the need for assessment where changes in traffic flows exceed 30%.

13.4.21 ‘Fear and Intimidation’ is defined within the IEMA Guidelines as “...*dependent on the total volume of traffic, HGV composition, the speed vehicles are passing, the proximity of traffic to people and/or the feeling of the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping further away from moving vehicles*”. Subsequently, the

² Note that this will be relative to the scale of the receptor or resource affected.

impacts are based on thresholds defined within the IEMA Guidelines and the link sensitivity defined in Table 13-1. For example, each road link is given a 'degree of hazard' score, which includes a combination of total vehicles and average vehicle speeds. Based on the total hazard score, a level of fear and intimidation for each link can then be identified, e.g. extreme, great, moderate or small. The magnitude of impact can then be approximated with reference to the changes in the level of fear and intimidation from baseline conditions. More details of this are provided in Table 13-2.

- 13.4.22 A detailed assessment of 'Road user and pedestrian safety' will be conducted by examining road traffic accident data for the most recent five-year period available. This assessment is undertaken to highlight if there any existing safety issues on the local road network that may be exacerbated by the Scheme. The outcome of the assessment is presented in this chapter.
- 13.4.23 Information provided in Table 13-2 shows further details of the individual aspects of the assessment and the thresholds to be applied for each.
- 13.4.24 As noted in the table, professional judgement will be applied where baseline traffic flows are low, and a percentage change criterion is not appropriate. In such instances, it is possible for a high percentage change to be associated with a small number of trips that can be easily accommodated within the road network, where the magnitude should not be considered 'High'.

Significance Criteria

- 13.4.25 Information provided in Table 13-2 shows further details of the individual aspects of the assessment and the thresholds to be applied for each, considering the increase in traffic. The thresholds for assessing the impacts of construction vehicles are also included within the table along with the categories stated within the IEMA guidelines.

Table 13-2: Impact Magnitude Criteria (Transport and Access)

Magnitude	Description	Illustrative Criteria
High ³	Construction traffic	High number of construction vehicles using roads over a protracted period: More than a 40% increase for more than 6 months.
	NMU amenity	Increase in total traffic flows of 100% or above.
	Severance of communities	Increase in total traffic flows or HGV flows of 90% and above.
	Road vehicle driver and passenger delay	Change in total traffic or HGV flows over 90%.

³ Professional judgement will be applied where baseline traffic flows are low, and a traffic percentage change criterion is not appropriate. Therefore, where a high magnitude of impacts is apparent based on low baseline traffic flows, the overall magnitude will be reduced to medium.

Magnitude	Description	Illustrative Criteria
	Road user and pedestrian safety	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis.
	Fear and intimidation	Two step changes in level, e.g. if the level of fear and intimidation rises from small to great/extreme or moderate to extreme.
Medium	Construction traffic	Moderate number of construction vehicles using roads over a protracted time: 16-39% increase for more than 6 months; or More than 40% increase for 3-6 months.
	NMU amenity	Increase in total traffic flows of 70-99%.
	Severance of communities	Increase in total traffic flows of 60-89% (or increase in HGV flows of 40-89%).
	Road vehicle driver and passenger delay	Change in total traffic or HGV flows of 60-89%.
	Road user and pedestrian safety	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis.
	Fear and intimidation	One step change in level (e.g. small to moderate), but with >400 vehicle increase in average 18 hr two-way all vehicle flow; and/or >500 HGV increase in total 18 hr HGV flow.
Low	Construction traffic	Small number of construction vehicles using roads over a short period of time: 6-15% increase for more than 6 months; or 16-39% for 3-6 months; or More than 40% increase for less than 3 months.

Magnitude	Description	Illustrative Criteria
	NMU amenity	Increase in total traffic flows of 50-69%.
	Severance of communities	Increase in total traffic flows of 30-59% (or increase in HGV flows of 20-39%).
	Road vehicle driver and passenger delay	Change in total traffic or HGV flows of 30-59%.
	Road user and pedestrian safety	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis.
	Fear and intimidation	One step change in level (e.g. small to moderate), with <400 vehicle increase in average 18 hr two-way all vehicle flow; and/or <500 HGV increase in total 18 hr HGV flow.
Very Low	Construction traffic	Occasional construction vehicles using roads over a short period of time: Less than 5% Increase for more than 6 months; or Between 6-30% increase for 3 - 6 months; or Between 31-40% for less than 3 months.
	NMU amenity	Increase in total traffic flows of 49% or under.
	Severance of communities	Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%).
	Road vehicle driver and passenger delay	Change in total traffic or HGV flows of 29% or under.
	Road user and pedestrian safety	Increase in total traffic flows of 30% or under (or increase in HGV flows under 10%).
	Fear and intimidation	No step changes.

13.4.26 As noted in the Table 13-2, professional judgement will be applied where baseline traffic flows are low, and a percentage change criterion is not appropriate. In such instances, it is possible for a high percentage change to

be associated with a low number of trips that can be easily accommodated within the road network, where the magnitude should not be considered 'High'.

Significance

13.4.27 The general approach adopted for evaluating the significance of effects considering the sensitivity of the receptor and the magnitude of impact is outlined in Table 13-3. Effects are defined as beneficial or adverse.

Table 13-3: Significance of Effects Matrix (Transport and Access)

Receptor Sensitivity	Magnitude			
	High	Medium	Low	Very Low
High	Major (S)	Major (S)	Moderate (S)	Minor (NS)
Medium	Major (S)	Moderate (S)	Minor (NS)	Negligible (NS)
Low	Moderate (S)	Minor (NS)	Negligible (NS)	Negligible (NS)
Very Low	Minor (NS)	Negligible (NS)	Negligible (NS)	Negligible (NS)

S = Significant; NS = Not Significant

13.4.28 Effects predicted to be 'major' or 'moderate' are considered 'significant' whilst effects predicted to be 'minor' or 'negligible' are considered 'not significant'.

Rochdale Envelope

13.4.29 To ensure a robust assessment of the likely significance of the environmental effects of the Scheme, the assessment is being undertaken by adopting the principles of the 'Rochdale Envelope' approach in line with Planning Inspectorate guidance. This involves assessing the maximum (or where relevant, minimum) worst-case parameters for the elements where flexibility needs to be retained (facility dimensions or operational modes for example).

Assumptions, Limitations and Uncertainties

13.4.30 In line with Planning Inspectorate guidance above, the following assumptions have been made about the Scheme as applicable to this preliminary transport and access assessment.

13.4.31 The information presented in this chapter is accurate at the time of reporting and is based on the maximum extent of land required for the Scheme construction, operation and maintenance, and decommissioning phases.

13.4.32 The findings of this chapter may be subject to change as the design of the Scheme is developed and refined further through the assessment and consultation processes, and as further research and investigative surveys are completed to fully understand its potential effects. However, the assessment is based on conservative assumptions to reflect levels of

uncertainty and is therefore considered to represent the worst case based on the information available at this time.

- 13.4.33 The Scheme is located within a rural area where access is likely to be constrained in terms of highway design and access to public transport. It is assumed that the road network and local services will remain as they are currently (i.e. the future baseline will broadly align with the present-day baseline). This future baseline relates to the construction period only. A further assessment of baseline traffic conditions would be carried out prior to the decommissioning date.
- 13.4.34 Baseline traffic surveys are representative of average traffic conditions and construction traffic flows have been based upon a robust estimate of likely construction requirements.
- 13.4.35 The approach used within this chapter considers a worst-case assessment, based on the construction period's highest number of hourly two-way road trips (for vehicles) and the construction period's highest daily two-way movements for HGVs. The assessment considers that construction will occur across multiple locations simultaneously, which provides a robust worst-case scenario.
- 13.4.36 The impact of traffic during the construction and decommissioning phases are anticipated to be the most significant stage of the Scheme, with the operation and maintenance phase anticipated to create substantially less traffic. Decommissioning is anticipated to take place 40 years after final commissioning and it is expected to result in less traffic than the construction phase (over a shorter period and occurring too far in the future to be accurately forecasted); therefore, decommissioning is expected to lead to effects that are no worse than during the construction phase. At this stage, reasonable professional assumptions have been made despite the fact it is not possible to forecast actual baseline traffic levels. The decommissioning phase has therefore not been specifically quantified and the effects and mitigation for construction are considered applicable for decommissioning.

Construction Programme

- 13.4.37 Core construction working hours will be within a 12-hour period during the summer months, with staff working 12-hour shifts (Monday to Friday 07:00 to 19:00). This means peak construction traffic movements of workers will fall between 06:00 to 07:00 and 19:00 to 20:00 during a working weekday. These hours represent the Scheme peaks and not the road network peaks, hence the road network peak hours have not been evaluated at this stage. All workers are expected to travel by either private car or minibus as a worst case scenario. Further efforts will be made to encourage other modes of sustainable travel.
- 13.4.38 Minibus travel for workers, implemented by the site contractor, would transfer non-local staff from local worker accommodation or pick-up locations to the Site. This will help to reduce vehicle trips on the surrounding highway network.
- 13.4.39 During the winter months, lower numbers of workers would be expected, possibly arriving at the Site later and departing the Site earlier and working shorter hours. These traffic movements could potentially occur closer to the

network peak hours; sensitivity tests of these numbers will be carried out at the ES stage. However, the percentage increase in traffic would likely be lower in this situation due to higher traffic baseline in the network peak hours.

- 13.4.40 Core working hours for Saturdays will be 07:00 to 13:00, with no work planned for Sundays or Bank Holidays unless crucial to construction, such as emergency works or the works for Horizontal Directional Drilling (HDD) which will accommodate the Grid Connection Corridor and is necessary to be a continuous activity.
- 13.4.41 It is also anticipated that HGV movements would be restricted from travelling before 09:00 and after 17:00 to avoid increasing traffic levels on the surrounding highway network during the weekday peak hours.
- 13.4.42 For the Solar PV Site, all workers will access via Hags Lane off Fenwick Common Road during construction and operation and maintenance, whilst HGVs will access from a new access point off Moss Road.
- 13.4.43 For the Grid Connection corridor, workers and HGVs will access required construction locations from other points on the local road network.

Baseline Conditions

- 13.4.44 This section reviews the transport facilities and baseline environmental characteristics of the Site, with specific reference to the highway network, walking, cycling, equestrian, and public transport facilities on the strategic and local highway network.
- 13.4.45 The Scheme will be located nearby the village of Fenwick and approximately 4.5 kilometres (km) north east of the village of Askern, which lies on the A19. Further details of the Scheme and its surroundings are provided in **PEIR Volume I Chapter 2: The Scheme**.
- 13.4.46 The following data sources were used to inform the baseline conditions:
- Personal Injury Collision (PIC) data has been obtained from City of Doncaster Council between 2018 to 2023, which is the latest available five-year full calendar period, which includes causation as well as the severity of the collisions;
 - ATCs have been undertaken at several locations in the vicinity of the Site to determine the baseline traffic conditions on the surrounding highway network. The resulting traffic flow diagrams are presented in **PEIR Volume III Appendix 13-2: Traffic Flow Diagrams** and the traffic data is summarised in Table 13-11.
 - Local travel information has been gathered from various sources including local bus and rail operators;
 - Ordnance Survey (OS)/Architectural Base Mapping has been used to ascertain an accurate geographical representation of the areas in the vicinity of the Scheme; and
 - Travel mode share data from the 2011 Census (Ref 13-12).
- 13.4.47 The information below is also complemented by observations carried out during a site visit on 12 July 2023.

Existing Baseline

13.4.48 This section provides a description of the existing baseline including a description of the SRN, the local road, accessibility in terms of walking, cycling, and public transport, road safety, and the baseline traffic flows, **PEIR Volume II Figure 13-1: Transport and Access Study Area** shows the Site, with key roads shown on **PEIR Volume II Figure 13-4: Roads to Access Site**.

Strategic Road Network

- 13.4.49 The M62 forms part of the SRN and is a 172 km motorway that connects Liverpool to Hull via Bradford and Leeds. The motorway generally has three lanes heading in each direction with a hard shoulder separation. The road is managed by National Highways and provides a link for onward strategic journeys in all directions.
- 13.4.50 The M18 is also located to the east of the Scheme which runs from Junction 35 of the M62 towards Doncaster towards the east of Sheffield in a southerly direction. The M18 is characterised by two lanes between the M18 Junction 5 and Junction 2 with three lanes on the remainder of the M18.
- 13.4.51 Furthermore, the M180 joins the M18 at Junction 5 near Stainforth which provides travel in an easterly direction towards the Humber Estuary and Scunthorpe, Grimsby and Cleethorpe.
- 13.4.52 The M62 Junction 34 is approximately 14 km to the north west of Fenwick which provides the nearest vehicular access from the SRN to the Scheme. This link provides access from major urban areas such as Leeds to the north west of the Scheme, as well as other small surrounding towns.
- 13.4.53 To the east the M62 meets the M18 at Junction 35, which provides access from areas to the north of the Humber Estuary such as Hull. This then leads onto the M18 in which access to the Scheme is then achieved through the local road network which is described in the section below.

Local Highway Network

- 13.4.54 This section describes detail surrounding the local highway network which is supported by **PEIR Volume II Figure 13-3: Indicative HGV Routing** and **PEIR Volume II Figure 13-4: Roads to Access Site**.
- 13.4.55 From the west the A19 runs for approximately 18 km between the M62 Junction 34 and St Mary's Roundabout in Doncaster to the west of the Scheme. The A19 passes through more built-up areas such as Whitley to the north of the A19 and Askern, where it joins with Moss Road via a 3-arm signalised junction.
- 13.4.56 The A19 is characterised as a primary route with a single carriageway with a variable speed limit ranging between 60 mph in the areas with limited urban build-up and 30 mph within Askern itself with areas along the link also 40 mph. A level crossing is also present to the north of Askern adjacent to the Aldi store approximately 650 m from the A19/Station Road junction.
- 13.4.57 Moss Road is a single carriageway road that runs east to west from the A19 through Askern and the village of Moss before changing to Kirkhouse Green Road just before the New Junction Canal near Kirkhouse Green.

- 13.4.58 Moss Road has a speed limit of 30 mph imposed within Askern before changing to 50 mph on the eastern edge of the village which then continues until the outskirts of Moss in which it then changes to 40 mph approximately 650 m to the west of the level crossing near the 3-arm priority with Fenwick Common Lane.
- 13.4.59 Fenwick Common Lane runs north from Moss Road for approximately 2 km before entering the village of Fenwick which then forms a junction with Lawn Lane and Fenwick Lane.
- 13.4.60 Fenwick Common Lane is characterised by a single-lane carriageway with no lane markings and no footways present on either side of the carriageway. The link is also subject to the national speed limit for much of the link before changing to 30 mph before entering Fenwick approximately 225 m on from the priority junction with Shaw Lane. It is proposed that Fenwick Common Lane will provide the main access route to the Scheme.
- 13.4.61 Approximately 1 km along Fenwick Common Lane, Haggs Lane forms a stopped-up priority junction that is currently not available for vehicular use, however as part of the Scheme will be altered to allow vehicular access. A PRoW exists on the northern side of the existing track and separation between vehicles and the PRoW will be managed through the measures secured within the CTMP.
- 13.4.62 From the east, access towards the Scheme is achieved via the A614/Between Rivers Lane priority junction. The A614 runs in a north/south direction in which it forms a roundabout with the A1041 near the village of East Cowick before continuing into the village of Snaith.
- 13.4.63 The A1041 then continues north towards the A63 near Selby. From here the A63 links to both the A1(M) towards Leeds and north towards York along the A19. To the south, the A614 meets the SRN at M18 Junction 6 which then provides further access to the wider area as described in the SRN section above.
- 13.4.64 Between Rivers Lane is located approximately 1 km south of the A1041/A614 roundabout and is accessed from the east off the A614 via a large priority bellmouth junction. Between Rivers Lane is characterised as a rural single-carriageway with verges on either side subject to the national speed limit. Between Rivers Lane leads onto Oak Road near the PD Tattersall trucking depot.
- 13.4.65 Oak Road continues in an east/west direction onto Pincheon Green Lane, Marsh Hill Lane, Sykehouse Road, Broad Lane, West Lane, and then Flashley Carr Lane before forming into Moss Road in which the link then continues through Moss before meeting Fenwick Common Lane.

Walking and Cycling

- 13.4.66 The Scheme generally falls within a rural setting with local country lanes making up the predominant road type. As a result, there are limited footways and other pedestrian/cycle facilities in the area apart from in towns and villages such as Askern where there are footways present to facilitate pedestrian movements.

- 13.4.67 There are no segregated footways present along Fenwick Common Lane with only grass verge present on both sides of the carriageway. To the south on Moss Road there are also no footways present meaning a continuous journey by foot would likely be undesirable to the Solar PV Site from the surrounding area.
- 13.4.68 There are no specific cycle facilities on local roads within the Study Area, such as advisory cycle lanes. The nearest section of the National Cycle Network is part of route 62 and lies approximately 4 km to the east and south of the Solar PV Site. It is therefore possible that some construction workers would cycle to the Solar PV Site, however due to proximity to population centres numbers are likely to be small (if any).
- 13.4.69 In terms of PRow there are a variety of routes that intersect within the Site. These include Footpath Fenwick-16 which continues along Higgs Lane in an east west direction (the location of the site access point) into the fields beyond. At the end of Higgs Lane, Footpath Fenwick-11 runs in a north-south direction towards the village of Fenwick to the north and into the fields to the south. There are also other PRow that continue off Footpath Fenwick-11 and Fenwick 16 within the Site.
- 13.4.70 This includes Footpath Fenwick-10 which runs in an east-west direction to the north of Higgs Lane which connects into the village of Fenwick to the west and into the fields towards Bunfold Shaw surrounding the Scheme to the east. Footpath Fenwick-14 runs from the terminus of Footpath Fenwick-16 in a north-south direction between Fenwick Footpath-10 to the north before terminating at the Ell Wood and Fenwick Grange Drain and continuing south from there towards Moss via the Footpath Moss-6. Footpath Fenwick 15 also runs through the Site in an east-west direction just to the north of Fenwick Footpath-16 which then meets Footpath Fenwick-13. This runs in a north south direction from Bunfold Shaw in the north before also terminating in the south at Ell Wood and Fenwick Grange Drain to the south before continuing onto the outskirts of Moss via Footpath Moss-7. Observations on site indicated that the routes are infrequently used, and generally used by people for dog walking and leisure purposes.
- 13.4.71 At this stage of the assessment, it is understood that these PRow are the only ones that will be affected directly by the Scheme proposals. A full PRow Management Plan will be produced alongside the ES chapter to establish any potential impacts on these PRow and how these will be mitigated.
- 13.4.72 It is unlikely that construction workers would walk to the Solar PV Site or other areas of construction, due to proximity to population centres, therefore numbers are likely to be small (if any).

Public Transport Facilities – Bus

- 13.4.73 The area surrounding the Scheme is predominately rural in nature with only one bus route (51 Doncaster to Norton) within relative proximity of the Scheme, which runs through Askern off the A19 through a residential estate within Askern and then back onto the A19. However, this bus stop is approximately 4.3 km from the proposed site access into the Scheme.
- 13.4.74 There are bus stops along Moss Road and within Fenwick, however, these are designated as being school bus services and as such operate once in

the morning and once in the afternoon. Therefore, these services would not be usable by staff.

13.4.75 The relative distance, the lack of sufficient safe footways and the lack of services within the area indicate that public transport will not be a viable option for workers seeking to use the bus to access the Scheme.

Public Transport Facilities – Rail

13.4.76 The nearest rail facilities to the Scheme include Adwick (10 km), Hatfield and Stainforth (10.6 km) and Thorne North (14.7 km), to the west, south, and east respectively. As such, based on these distances and the lack of other public transport facilities alongside insufficient footway provision, using the train from these locations would likely be unviable for workers.

13.4.77 In summary, it can be concluded that opportunities to support sustainable travel are mostly related to car sharing and the potential for the contractor to operate a worker minibus. People wishing to cycle will also be encouraged and accommodated, but not relied on in terms of trip assessment. These opportunities will be further covered within the CTMP.

13.4.78 Therefore, it has been assumed for assessment purposes that all staff working on-site in the Solar PV Site, will predominantly travel by private vehicles (sole occupancy or car sharing) or minibus (dependent on location).

Road Safety

13.4.79 A review of road safety on the local highway network has also been carried out.

13.4.80 Personal Injury Collision (PIC) data has been obtained from City of Doncaster Council between January 2018 to March 2023.

13.4.81 The PIC Study Area includes key routes that are anticipated to be used by HGV and construction worker traffic travelling to the Solar PV Site and the Grid Connection Corridor. The accident Study Area is shown in **PEIR Volume II Figure 13-5: Traffic Accident Locations**.

13.4.82 A total of 51 collisions occurred over the five-year period within the accident Study Area, categorised as slight, severe, or fatal accidents. A slight accident is one in which at least one person has been slightly injured. A serious accident is one in which at least one person has been seriously injured and a fatal accident is one in which at least one person has been killed.

13.4.83 Table 13-4 provides a summary of collisions by severity and year and shows that the greatest number of collisions occurred in 2020 with a total of 14 collisions (10 slight and 4 serious), 2019 recorded a slightly lower number of recorded with a total of 12 collisions (6 slight and 6 serious). The information also shows that since 2020 collisions have generally reduced with a slight upturn in 2022.

Table 13-4: Collisions by Year and Severity

Year	Severity			Total
	Slight	Serious	Fatal	
2018	6	2	0	8

Year	Severity			Total
	Slight	Serious	Fatal	
2019	6	6	0	12
2020	10	4	0	14
2021	3	2	0	5
2022	4	5	0	9
2023	1	2	0	3
Total	30	21	0	51

13.4.84 The data has been split to show accidents on road links, as shown in Table 13-5, and accidents that occurred at or near junctions, as shown in Table 13-8. The highest number of collisions (12) were recorded on the A19 Doncaster Road and Moss Road with the remaining links having significantly fewer recorded incidents.

Table 13-5: Collisions by Link and Severity

Link	Severity			Total
	Slight	Serious	Fatal	
Broad Lane	1	0	0	1
Doncaster Road	3	1	0	4
Doncaster Road (A19)	6	6	0	12
Heyworth Lane	1	0	0	1
High Street (A19)	2	0	0	2
Instone Terrace	0	1	0	1
Market Place (A19)	2	1	0	3
Moss Road	6	6	0	12
Rushey Moor Lane	1	0	0	1
Selby Road	1	1	0	2
Selby Road (A19)	2	2	0	4
Selby Road (A614)	0	1	0	1
Sykehouse Road	0	1	0	1
Station Road	2	0	0	2
Sutton Road	1	0	0	1
Trumfleet Lane	1	1	0	2

Link	Severity			
	Slight	Serious	Fatal	Total
West Lane	1	0	0	1
Total	30	21	0	51

13.4.85 The information in Table 13-6 further analyses the temporal variation in terms of collisions on Doncaster Road (A19) and Moss Road.

Table 13-6: Collisions on Doncaster Road (A19) and Moss Road by Year

Year	Doncaster Road (A19)	Moss Road
2018	2	2
2019	5	0
2020	5	4
2021	0	2
2022	0	3
2023	0	1
Total	12	12

13.4.86 The collision record on Doncaster Road (A19) shows all the collisions occurred prior to 2021 with two in 2018, five in 2019 and five in 2020 with no recorded collisions since. In terms of Moss Road there is much more of a spread with the highest number (four) occurring in 2020 followed by two in 2021 and three in 2022 with only one recorded collision in 2023.

13.4.87 To further the collision analysis on these links, Table 13-7 below then shows the causation of accidents along Moss Road and Doncaster Road (A19), as these were the locations showing the highest number of collisions, to further understand the types of collisions occurring on these links.

Table 13-7: Collision Causation Factor Doncaster Road (A19) and Moss Road

Causation Factor	Doncaster Road (A19)	Moss Road
Aggressive driving	0	0
Careless/Reckless/In a hurry	2	1
Crossed road masked by stationary or parked vehicle	0	1
Cyclist entering road from pavement	0	1
Dazzling sun	1	0

Causation Factor	Doncaster Road (A19)	Moss Road
Deposit on road (e.g. oil, mud, chippings)	0	0
Exceeding speed limit	0	2
Failed to judge other persons path or speed	2	1
Failed to look properly	4	3
Fatigue	0	0
Following too close	0	0
Impaired by alcohol	0	0
Inexperience with type of vehicle	0	0
Junction overshoot	0	1
Loss of control	0	1
Not coded	1	1
Other	1	0
Poor turn or manoeuvre	0	0
Vehicle blind spot	1	0
Total	12	12

13.4.88 As can be shown the main contributory factor is associated with vehicles failing to look properly which accounts for 33% of collisions on Doncaster Road (A19) and 25% of collisions on Moss Road. A further 33% of collisions on Doncaster Road (A19) is associated with careless driving (2) and failing to judge another persons' path or speed (2). In terms of Moss Road the next highest contributory factor was exceeding the speed limit (2) along with other reasons such as loss of control and failing to judge another persons' path or speed.

13.4.89 Table 13-8 shows the accidents that occurred at or close to junctions with those that occurred away from a junction discarded from the dataset.

Table 13-8: Collisions by Junction and Severity

Junction	Severity			Total
	Slight	Serious	Fatal	
Broad Lane/Whispering Meadows	1	0	0	1
Doncaster Road (A19)/Manor Way	1	0	0	1
Doncaster Road (A19)/Rockley Lane	1	1	0	2

Junction	Severity			Total
	Slight	Serious	Fatal	
Doncaster Road (A19)/Rockley Road	0	1	0	1
Doncaster Road (A19)/Sutton Road	1	3	0	4
Doncaster Road/Sutton Road	1	0	0	1
High Street (A19)/Lakeside Rise	1	0	0	1
High Street (A19)/Station Road	1	0	0	1
Market Place (A19)/Station Road	2	0	0	2
Moss Road/Doncaster Road	3	0	0	3
Moss Road/Flashley Carr Lane	1	0	0	1
Moss Road/Kings Road	0	1	0	1
Moss Road/Old Green Lane	0	1	0	1
Moss Road/Sunnymede Avenue	0	1	0	1
Moss Road/Thompson Terrace	1	0	0	1
Rushy Moor Lane/Moss Road	1	0	0	1
Selby Road (A19)/Norton Common Road	2	0	0	2
Selby Road (A19)/Private Drive	0	1	0	1
Selby Road (A19)/Private Entrance	0	1	0	1
Selby Road/Campsall Road	1	0	0	1
Station Road/High Street (A19)	1	0	0	1
Station Road/Pool Avenue	1	0	0	1
Sutton Road/Doncaster Road (A19)	1	0	0	1
Trumfleet Lane/Private Drive	0	1	0	1
Total	21	11	0	32

13.4.90 The data shows that the highest number of recorded incidents occurred at the Doncaster Road (A19)/Sutton Road junction to the south of Askern with four recorded collisions (one slight and three serious) followed by Moss Road/Doncaster Road in which three slight collisions occurred. This information has then been further analysed in Table 13-9 below using the given causation factor.

Table 13-9: Collisions by Junction and Causality

Causation Factor	Doncaster Road (A19)/Rockley Lane	Doncaster Road (A19)/Sutton Road	Market Place (A19)/Station Road	Selby Road (A19)/Norton Common Road	Moss Road/Doncaster Road
Aggressive driving	0	0	0	0	0
Careless/Reckless/In a hurry	0	0	0	0	0
Crossed road masked by stationary or parked vehicle	0	0	0	0	0
Cyclist entering road from pavement	0	0	0	0	0
Dazzling sun	1	0	0	0	0
Deposit on road (e.g. oil, mud, chippings)	0	0	0	0	0
Exceeding speed limit	0	0	0	0	1
Failed to judge other persons path or speed	1	1	0	1	0
Failed to look properly	0	1	0	1	1
Fatigue	0	0	0	0	0

Causation Factor	Doncaster Road (A19)/Rockley Lane	Doncaster Road (A19)/Sutton Road	Market Place (A19)/Station Road	Selby Road (A19)/Norton Common Road	Moss Road/Doncaster Road
Following too close	0	0	0	0	0
Impaired by alcohol	0	0	0	0	0
Inexperience with type of vehicle	0	0	0	0	0
Junction overshoot	0	0	0	0	0
Loss of control	0	0	0	0	0
Not coded	0	0	2	0	1
Other	0	1	0	0	0
Poor turn or manoeuvre	0	0	0	0	0
Vehicle blind spot	0	1	0	0	0
Total	2	4	2	2	3

13.4.91 As can be seen for those collisions that have been coded the most common factor is associated with failing to judge a persons' speed or path or failing to look properly.

13.4.92 Moreover, in terms of collisions involving NMUs, Table 13-10 shows the locations of incidents involving either a pedestrian or a cyclist.

Table 13-10: NMU Collisions by Link

Link	Pedestrians				Cyclists			
	Slight	Serious	Fatal	Total	Slight	Serious	Fatal	Total
Broad Lane	0	0	0	0	0	0	0	0
Doncaster Road	0	0	0	0	0	0	0	0
Doncaster Road (A19)	1	0	0	1	1	2	0	3
Heyworth Lane	0	0	0	0	0	0	0	0
High Street (A19)	0	0	0	0	0	0	0	0
Instone Terrace	0	0	0	0	0	0	0	0
Market Place (A19)	0	1	0	1	1	0	0	1
Moss Road	1	1	0	2	1	0	0	1
Rushey Moor Lane	0	0	0	0	0	0	0	0
Selby Road	0	0	0	0	0	0	0	0
Selby Road (A19)	0	0	0	0	0	0	0	0
Selby Road (A614)	0	0	0	0	0	0	0	0
Sykehouse Road	0	0	0	0	0	0	0	0
Station Road	0	0	0	0	0	0	0	0
Sutton Road	0	0	0	0	0	0	0	0
Trumfleet Lane	0	0	0	0	0	0	0	0

Link	Pedestrians				Cyclists			
	Slight	Serious	Fatal	Total	Slight	Serious	Fatal	Total
West Lane	0	0	0	0	1	0	0	1
Total	2	2	0	4	4	2	0	6

13.4.93 Table 13-10 shows there were a total of four collisions involving pedestrians, two slight in nature and two serious. One slight and one serious collision occurred on Moss Road, one serious on Market Place (A19) with a further slight collision on Doncaster Road (A19).

13.4.94 In terms of cyclists there were a total of six collisions (four slight and two serious). Three of these collisions (one slight and two serious) occurred on Doncaster Road (A19) with a further slight collisions on Market Place (A19) and Moss Road. The final slight collision in terms of cyclists occurred on West Lane.

13.4.95 Based on the information available the PIC data provided did not show incidents occurring frequently at any location in any given year.

Baseline Traffic Flows

13.4.96 ATC surveys were carried out at 23 locations with 13 of these surveyed during the week of Friday 14 to Thursday 20 July 2023 and the remainder conducted between Wednesday 6 to Tuesday 12 December 2023. The surveys carried out in December were undertaken to cover the roads potentially affected by traffic accessing the Grid Connection Corridor construction accesses. The surveys on the SRN were extracted from the National Highways WEBTRIS portal, which represent ATCs 1 to 6.

13.4.97 Survey locations were set out in the Scoping Report and City of Doncaster Council agreed on the proposed locations (**PEIR Volume II Appendix 13-4: Communications with the Local Highways Authorities**). The ATC locations are shown in **PEIR Volume II Figure 13-2: Traffic Survey Locations**. The ATC locations form the extent of the Study Area.

13.4.98 Data was recorded for 7 days, 24-hours a day at 15-minute intervals. The surveys were timed outside of the school holidays to provide representative traffic levels.

13.4.99 The following traffic data has been included representing the summer construction traffic peaks and local road network peak periods:

- a. 06:00 to 07:00 – construction AM peak hour;
- b. 08:00 to 09:00 – network AM peak hour;
- c. 17:00 to 18:00 – network PM peak hour;
- d. 19:00 to 20:00 – construction PM peak hour; and
- e. 24 hr AADT.

13.4.100 At this stage of the assessment the Winter working hours are yet to be confirmed and as such this will be included once the information is available.

13.4.101 Table 13-11 below shows the baseline traffic flows for 2023 that will be used as the basis for assessment.

Table 13-11: Baseline Traffic Flows 2023 – Total Vehicles

ATC	Link Description	06:00- 07:00	08:00- 09:00	17:00- 18:00	19:00- 20:00	24 Hour AADT
1	M62 West of Junction 34	2,763	4,017	4,761	2,001	59,494
2	M62 Between J34 and J35	2,606	3,540	4,039	1,650	51,544
3	M62 East of J35	2,069	2,893	3,335	1,412	42,909
4	M18 Between M62 Junction 35 and M18 Junction 6	2,326	3,098	3,569	1,573	46,686
5	M180	1,793	2,700	2,988	1,307	39,985
6	M18 Between M18 Junction 4 and Junction 5	2,419	3,598	4,376	1,915	55,862
7	A19 Selby Road - South of Station Road A19	441	614	647	328	9,220
8	A19 Selby Road - North of Station Road A19	501	908	908	558	13,802
9	Moss Road - Askern Village	154	358	326	212	5,129
10	Moss Road - East of Askern	106	229	207	132	3,302
11	Fenwick Common Lane	11	18	23	22	363
12	Trumfleet Lane - South of Moss	28	91	93	26	1,042
13	Marsh Road	39	117	98	26	1,240
14	Thorpe Bank	51	191	134	33	1,719
15	Fordstead Lane West	161	380	458	154	5,277
16	Fordstead Lane East	119	285	372	140	4,757
17	Moss Road - East of Moss	71	131	167	77	1,949

ATC	Link Description	06:00-07:00	08:00-09:00	17:00-18:00	19:00-20:00	24 Hour AADT
18	Kirkhouse Green Road	62	112	100	66	1,674
19	West Lane - West of Sykehouse	10	37	30	30	611
20	Sykehouse Road - East of Sykehouse	8	39	33	13	458
21	A614	196	305	91	179	4,915
22	Sour Lane	62	114	24	73	1,769
23	Fishlake Nab	45	111	14	93	1,842

13.4.102 Table 13-12 below shows the baseline HGV traffic flows for 2023 that will be used as the basis for assessment.

Table 13-12: Baseline Traffic Flows 2023 – HGVs

ATC	Link Description	06:00-07:00	08:00-09:00	17:00-18:00	19:00-20:00	24 Hour AADT
1	M62 West of Junction 34	638	926	1,093	459	13,687
2	M62 Between J34 and J35	690	934	1,062	433	13,585
3	M62 East of J35	434	608	701	297	9011
4	M18 Between M62 Junction 35 and M18 Junction 6	639	839	961	425	12,632
5	M180	572	862	953	417	12,755
6	M18 Between M18 Junction 4 and Junction 5	470	700	850	372	10,865
7	A19 Selby Road - South of Station Road A19	71	81	87	20	1,078
8	A19 Selby Road - North of Station Road A19	97	143	113	37	1,536
9	Moss Road - Askern Village	17	31	34	9	417
10	Moss Road - East of Askern	17	26	26	6	318

ATC	Link Description	06:00-07:00	08:00-09:00	17:00-18:00	19:00-20:00	24 Hour AADT
11	Fenwick Common Lane	1	1	3	0	27
12	Trumfleet Lane - South of Moss	2	9	4	2	90
13	Marsh Road	2	9	3	1	79
14	Thorpe Bank	2	28	7	1	180
15	Fordstead Lane West	11	59	28	11	578
16	Fordstead Lane East	6	33	17	7	475
17	Moss Road - East of Moss	11	13	10	5	192
18	Kirkhouse Green Road	12	15	10	5	201
19	West Lane - West of Sykehouse	1	4	2	2	49
20	Sykehouse Road - East of Sykehouse	0	3	5	1	56
21	A614	37	45	7	15	627
22	Sour Lane	3	5	0	1	70
23	Fishlake Nab	3	13	1	6	146

Link Sensitivity

13.4.103 The road link sensitivity has been based upon the worst-case sensitivity of the whole link considering the criteria outlined in Table 13-1. The links are represented by the ATC locations.

Table 13-13: Link Sensitivity

ATC Ref.	Link Description	Sensitivity	Sensitivity Rating Justification
1	M62 West of Junction 34	Very Low	The link is unlikely to be sensitive as it is part of the strategic road network and additional Scheme traffic will not lead to a significant increase.
2	M62 Between J34 and J35	Very Low	The link is unlikely to be sensitive as it is part of the

ATC Ref.	Link Description	Sensitivity	Sensitivity Rating Justification
			strategic road network and additional Scheme traffic will not lead to a significant increase.
3	M62 East of J35	Very Low	The link is unlikely to be sensitive as it is part of the strategic road network and additional Scheme traffic will not lead to a significant increase.
4	M18 Between M62 Junction 35 and M18 Junction 6	Very Low	The link is unlikely to be sensitive as it is part of the strategic road network and additional Scheme traffic will not lead to a significant increase.
5	M180	Very Low	The link is unlikely to be sensitive as it is part of the strategic road network and additional Scheme traffic will not lead to a significant increase.
6	M18 Between M18 Junction 4 and Junction 5	Very Low	The link is unlikely to be sensitive as it is part of the strategic road network and additional Scheme traffic will not lead to a significant increase.
7	A19 Selby Road - South of Station Road A19	Medium	There are several properties with direct frontage on the highway link being used as a construction route in Askern. There are there also other workplaces such as pubs and vehicle related workshop and dealerships, with direct frontage along the A19.
8	A19 Selby Road - North of Station Road A19	Medium	There are several properties with direct frontage on the highway link being used as a construction route in Askern. There are there also a variety of other workplaces such as Co-op Food, Aldi,

ATC Ref.	Link Description	Sensitivity	Sensitivity Rating Justification
			Pharmacy, Car Dealership with direct frontage along the A19.
9	Moss Road - Askern Village	High	Askern Moss Road Infant School is present between Marlborough Road and Rushy Moor Lane with a direct frontage to Moss Road. There is also Askern Community Library located adjacent to the level crossing that passes over Moss Road. There is also a pelican crossing located at the Eastfield Hall Close/Moss Road junction. Moreover, there are there also a variety other workplaces with direct frontage along the A19.
10	Moss Road - East of Askern	Medium	There are several properties with direct frontage onto the highway link which is being used for the construction route in Askern. There are also a variety of other workplaces with direct frontage along Moss Road.
11	Fenwick Common Lane	Medium	The only receptor along this link is the Moss and Fenwick village hall located approximately 600 m from the Fenwick Common Lane/Moss Road junction.
12	Trumfleet Lane - South of Moss	Medium	There are several properties with direct frontage to the highway link being used as a construction route. The Fir Tree Farm Equestrian centre is also present at the north of the link which may be sensitive to an increase in vehicles due to the nature of the activity.

ATC Ref.	Link Description	Sensitivity	Sensitivity Rating Justification
13	Marsh Road	Medium	There are several properties with direct frontage on the highway link being used as a construction route.
14	Thorpe Bank	Medium	There are several properties with direct frontage on the highway link being used as a construction route.
15	Fordstead Lane West	Low	Little to no build up of residential or industrial buildings along the frontage of the highway link. There are no formalised footways or crossing facilities. The land use is predominately rural farmland.
16	Fordstead Lane East	Low	Little to no build up of residential or industrial buildings along the frontage of the highway link. There are no formalised footways or crossing facilities. The land use is predominately rural farmland.
17	Moss Road - East of Moss	Low	Little to no build up of residential or industrial buildings along the frontage of the highway link.
18	Kirkhouse Green Road	Low	Little to no build up of residential or industrial buildings along the frontage of the highway link.
19	West Lane - West of Sykehouse	Low	Little to no build up of residential or industrial buildings along the frontage of the highway link.
20	Sykehouse Road - East of Sykehouse	Medium	There are several properties with direct frontage on the highway link being used as a construction route. The route passes the Holy Trinity Church in Sykehouse, the Old George Inn and the Sykehouse Village Hall. The

ATC Ref.	Link Description	Sensitivity	Sensitivity Rating Justification
			remainder is rural farmland with little development including footways and crossing facilities.
21	A614	Very Low	Little to no build up of residential or industrial buildings along the frontage of the highway link. There are no formalised footways or crossing facilities. The land use is predominately rural farmland.
22	Sour Lane	Medium	There are several properties with direct frontage on the highway link being used as a construction route, particularly in the village of Fishlake. The remainder of the link is generally rural in nature with no formalised footways or crossing points.
23	Fishlake Nab	Medium	There are several properties with direct frontage on the highway link being used as a construction route, particularly in the village of Fishlake. The remainder of the link is generally rural in nature with no formalised footways or crossing points.

13.4.104 The link sensitivities outlined above will be used to assess the significance of the impact of the Scheme combining the magnitude of change.

Future Baseline

13.4.105 Subject to being granted development consent and following a final investment decision, the earliest construction could start is in 2028. Construction of the Solar PV Site and Grid Connection Cables would start in tandem. The Grid Connection Cables would require approximately 12 months, and the construction of the Solar PV Site would require an estimated 24 months, with operation and maintenance anticipated to commence in 2030. The construction period could be of longer duration; however, these timings have been used within the PEIR as a worst case assumption to present the maximum predicted daily traffic flows and the amount of construction activity that could occur at any given time.

13.4.106 The use of a short-duration construction period may over-estimate the number of jobs during peak construction, however, the overall amount of construction activity, associated employment, and spending benefits would remain unchanged.

13.4.107 The peak year for traffic movements is assumed to be 2028 (when construction of both the Solar PV Site and the Grid Connection will occur). As such, 2028 has been used as the future assessment year.

13.4.108 Future year baseline traffic flows for the assessment year of 2028 for the peak of construction have been derived by applying the national standard Trip End Model Presentation Program v8.1 (TEMPro) to derive traffic growth factors as indicated in Table 13-14. The following locations were used to growth the baseline data:

- a. Doncaster 002 – E02001540 – Askern, Campsall and Norton
- b. Doncaster 004 – E02001542 – Stainforth

13.4.109 This growth factor has been considered when comparing the baseline and future traffic scenarios.

Table 13-14: TEMPro Growth Factors 2023–2028

Period	Growth Factor
2023-2028	1.03485

13.4.110 The 2028 Baseline traffic flows are shown below in Table 13-15. These are the anticipated baseline flows for the peak of the construction period, with the absence of the scheme along local road links.

Table 13-15: 2028 Baseline Flows

ATC	Link Description	06:00- 07:00	08:00- 09:00	17:00- 18:00	19:00- 20:00	24 Hour AADT
1	M62 West of Junction 34	2,907	4,227	5,008	2,104	62,668
2	M62 Between J34 and J35	2,742	3,725	4,248	1,736	54,294
3	M62 East of J35	2,177	3,044	3,507	1,485	45,198
4	M18 Between M62 Junction 35 and M18 Junction 6	2,448	3,260	3,754	1,654	49,177
5	M180	1,887	2,841	3,143	1,375	42,118
6	M18 Between M18 Junction 4 and Junction 5	2,546	3,786	4,602	2,015	58,842
7	A19 Selby Road - South of Station Road A19	464	646	680	345	9,712

ATC	Link Description	06:00-07:00	08:00-09:00	17:00-18:00	19:00-20:00	24 Hour AADT
8	A19 Selby Road - North of Station Road A19	527	955	955	587	14,538
9	Moss Road - Askern Village	162	376	343	223	5,402
10	Moss Road - East of Askern	111	241	218	138	3,478
11	Fenwick Common Lane	12	19	25	24	383
12	Trumfleet Lane - South of Moss	29	96	97	27	1,098
13	Marsh Road	41	123	103	28	1,306
14	Thorpe Bank	54	201	141	35	1,811
15	Fordstead Lane West	169	400	481	162	5,558
16	Fordstead Lane East	125	300	391	148	5,011
17	Moss Road - East of Moss	74	138	176	81	2,053
18	Kirkhouse Green Road	65	118	105	69	1,764
19	West Lane - West of Sykehouse	11	39	31	31	643
20	Sykehouse Road - East of Sykehouse	8	41	34	14	482
21	A614	207	321	96	189	5,178
22	Sour Lane	66	120	25	77	1,864
23	Fishlake Nab	47	117	14	97	1,940

Table 13-16: 2028 Baseline Flows – HGVs

ATC	Link Description	06:00-07:00	08:00-09:00	17:00-18:00	19:00-20:00	24 Hour AADT
1	M62 West of Junction 34	672	975	1,150	483	14,417
2	M62 Between J34 and J35	726	983	1,117	456	14,310
3	M62 East of J35	457	639	737	312	9,492

	ATC Link Description	06:00-07:00	08:00-09:00	17:00-18:00	19:00-20:00	24 Hour AADT
4	M18 Between M62 Junction 35 and M18 Junction 6	672	883	1,011	447	13,306
5	M180	602	907	1,002	439	13,436
6	M18 Between M18 Junction 4 and Junction 5	495	737	894	391	11,444
7	A19 Selby Road - South of Station Road A19	74	85	91	21	1,136
8	A19 Selby Road - North of Station Road A19	102	151	119	39	1,618
9	Moss Road - Askern Village	18	33	36	10	440
10	Moss Road - East of Askern	18	27	27	6	335
11	Fenwick Common Lane	1	2	3	0	29
12	Trumfleet Lane - South of Moss	2	9	4	2	95
13	Marsh Road	2	10	3	1	83
14	Thorpe Bank	2	29	8	1	190
15	Fordstead Lane West	11	62	30	12	609
16	Fordstead Lane East	6	35	18	7	500
17	Moss Road - East of Moss	11	14	11	5	203
18	Kirkhouse Green Road	13	15	11	6	211
19	West Lane - West of Sykehouse	1	4	2	2	52
20	Sykehouse Road - East of Sykehouse	0	3	5	1	59
21	A614	39	48	7	16	661
22	Sour Lane	3	6	0	1	74
23	Fishlake Nab	3	13	1	6	153

13.5 Embedded Mitigation

13.5.1 Embedded measures are taken into account prior to the assessment of effects to avoid considering assessment scenarios that are unrealistic in practice i.e. effects do not take account of measures even though they are likely to be standard practice and/or form part of the Scheme design. These have been followed through into the assessment to ensure that realistic likely environmental effects have been identified.

Transport Management Measures Embedded into the Scheme Design

13.5.2 The Scheme has been designed, as far as practicable, to avoid and reduce impacts and effects on transport and access through the process of design development, and by embedding measures into the Scheme design. In addition, how the Scheme is constructed, operated and maintained, and decommissioned will be appropriately managed in order to minimise potential environmental effects. The specific measures proposed are set out below in respect of the construction/decommissioning phases and operation and maintenance phase respectively.

13.5.3 The delivery of these embedded mitigation measures will be secured through the detailed Construction Environmental Management Plan (CEMP), detailed Operational Environmental Management Plan (OEMP) and detailed Decommissioning Environmental Management Plan (DEMP) via Requirements in the DCO. A Construction Traffic Management Plan (CTMP) will also be developed with the ES chapter which sets out the routes that HGVs would adhere to when accessing the Site and measures to improve the sustainability of worker travel, along with other measures to minimise transport effects from construction traffic.

Construction and Decommissioning

13.5.4 During both the construction and decommissioning phases, a CTMP/DTMP would be in operation to ensure the safe management of traffic in each phase. These documents would contain the required embedded mitigation for each phase, to include:

- a. Suitable access points have been identified to enable movement of vehicles into the Site, where appropriate;
- b. All access points that require the creation of a junction bellmouth would be designed based on the relevant standard from Design Manual for Roads and Bridges (DMRB) CD 123 Geometric Design of at Grade Priority and Signal-Controlled Junctions and in consultation with the local highway authority, thereby negating any potential safety impact associated with construction activity. Further details on access designs are provided within **PEIR Volume III Appendix 13-5: Indicative Access Appraisal for Solar PV Site** and **PEIR Volume III Appendix 13-6: Indicative Access Appraisal for Grid Connection Corridor**.
- c. Swept path analysis for AILs, HGVs, and tractor/trailers has been conducted to ensure there is knowledge of where routing is appropriate. This information has been compiled within **PEIR Volume III Appendix 13-5: Indicative Access Appraisal for Solar PV Site**, **PEIR Volume III**

Appendix 13-6: Indicative Access Appraisal for Grid Connection Corridor and PEIR Volume III Appendix 13-7: High Level Route Assessment.

- d. HGVs and AILs will be routed in accordance with the findings of the routing review for large vehicles as set out in the Framework CTMP, which will be produced alongside the ES chapter. There are expected to be five movements associated with the delivery of transformers to the On-Site Substation;
- e. Utilising internal routes within the Solar PV Site to avoid using the existing road network where practicable;
- f. Managing the areas where traffic may have to use the road network, by providing adequate visibility splays between construction vehicles and other road users, implementing traffic management (e.g. advanced signage to advise other users of the works, as well as manned controls at each crossing point (marshals/banksmen)), with a default priority that construction traffic will give-way to other users. This will also apply where construction traffic and PRow may intersect;
- g. Restricting HGV movements to certain routes as follows:
 - i. Moss Road – SRN, A19, Moss Road
- h. To restrict HGV movements to ensure arrivals/departures between 09:00 and 17:00 to avoid increasing traffic levels on the surrounding highway network during the traditional weekday peak hours;
- i. Implementing a Delivery Management System to control the bookings of HGV deliveries from the start of the construction period. This will be used to regulate the arrival times of HGVs via timed delivery slots, as well as to monitor compliance of HGV routing. In addition, adequate space will be made available within the Solar PV Site to ensure no queuing back onto the surrounding road network occurs;
- j. Implementing a monitoring system to record the route of all HGVs travelling to and from the Scheme, to record any non-compliance with the agreed routing strategy/delivery hours and to communicate any issues to the relevant suppliers to ensure the correct routes and times are followed;
- k. Workers will be directed to take the most direct route to the Scheme using 'higher' order roads, such as A and B classified roads or the SRN;
- l. Encouraging local construction workers to car share to reduce single occupancy car trips. This will promote the benefits of car sharing, such as reduced fuel costs. A car share system will be implemented to match potential sharers and to help staff identify any colleagues who could potentially be collected along their route to/from the Scheme;
- m. Implementing a shuttlebus service to transfer non-local workers to/from local worker accommodation or pick-up locations (assumed minibus capacity of 25), to reduce vehicle trips on the surrounding highway network;
- n. Providing limited (but sufficient) on-site car and cycle parking to accommodate the expected parking demand of workers for the Scheme;

- o. A specialised haulage service will be employed to allow AILs to transport components with the necessary escort, permits and traffic management, with the contractor consulting the relevant highways authorities to ensure the correct permits are obtained. The police will also be given advanced notification under the Road Vehicle Authorisation of Special Types Order 2003 (Ref. 13-13); and
- p. Construction staff will be encouraged to take the most direct route to the Scheme using 'higher' order roads, such as A and B classified roads or the SRN.

Operation and Maintenance

13.5.5 During the operation and maintenance phase, the following embedded design mitigation measures are proposed:

- a. Operation and maintenance staff will be encouraged to take the most direct route to the Scheme using 'higher' order roads, such as A and B classified roads or the SRN;
- b. HGV movements are anticipated to be low across the 40-year operation and maintenance phase, but when required HGV movements will be restricted to certain times of day (between 09:00 and 17:00) and restricted to the SRN and other 'higher' order roads where applicable (M62, M18, M180, A19)
- c. Ensuring operation and maintenance staff park within the Solar PV Site during operation and maintenance as to limit impact on parking available within the local road network; and
- d. Providing sufficient protection/separation between existing PRow, permissive paths, and the Site Boundary where necessary using perimeter fencing installed at a minimum distance of 20 m either side of the centre of the PRow where solar infrastructure lies to both sides, or 15 m if solar infrastructure is to one side only.

13.6 Assessment of Likely Impacts and Effects

13.6.1 This section sets out the likely impacts and effects of the Scheme on transport and access, taking account of the embedded mitigation measures as detailed in Section 13.7.

Trip Generation

- 13.6.2 The number of vehicles expected to travel to/from the Scheme during the construction phase has been estimated based on experience working on previous solar farm sites and expected requirements. The trip generation includes all vehicles associated with the construction including all deliveries/removal of materials and waste along with the associated workforce and will be reviewed as part of the studies associated with the ES chapter to ensure that it is still valid.
- 13.6.3 As stated, the peak year of construction is expected to be 2028 and as such this scenario has been assessed as part of this preliminary assessment.
- 13.6.4 The current estimate is that a peak of 250 Full Time Equivalent (FTE) workers will be on site per day split between the Solar PV Site and Grid

Connection Corridor. In terms of HGVs, it is estimated there would be a peak of up to 18 HGVs deliveries (including waste removal) per day (18 movements in and 18 movements out). These numbers include workers and HGVs associated with the construction of the Solar PV Site, On-Site Cables and the Grid Connection Cables.

- 13.6.5 During construction, there is expected to be a total of five AIL movements associated with the delivery of transformers to the On-Site Substation within the Solar PV Site.
- 13.6.6 For the purposes of the assessment, it is assumed that the contractor will use minibuses to transport some construction workers to/from key towns/cities where significant numbers of people could originate. Based on the population weighting exercise carried out to inform traffic distribution (see Table 13-18), proportions of construction workers that could be expected to use the minibuses have been assumed. This indicated a proportion of 40% (100 out of 250 workers) that could be expected to use the minibus services.
- 13.6.7 Minibuses (e.g. a 25-seater has been assumed) would be allocated where needed, with double the required amount assumed. This has been done to reflect inefficiencies and to ensure a robust assessment.
- 13.6.8 This equates to a requirement of 8 minibuses per day to transport the 100 workers out of the 250 total workforce.
- 13.6.9 Of the remaining 150 workers not expected to use the minibus services, approximately 55% (84) of workers could be targeted for car sharing measures. This percentage has been assumed based on general uptake of car sharing and propensity to car share at other developments. Based on a realistic car share assumption of 1.5 workers per car (based on experience of other developments), this would result in 56 car movements. This number can then be added to the remaining 45% (68) of workers using their own car to travel to the Scheme and the 8 movements (16 two-way) associated with the minibuses, totalling 140 staff movements.
- 13.6.10 Therefore, for the purposes of the assessment there would a total of 140 vehicle trips during the morning development peak hour (06:00-07:00) and 140 vehicle trips during the evening development peak hour (19:00-20:00) in the summer months.
- 13.6.11 Table 13-17 provides an overview of the trip generation by vehicle type within each of the time periods.

Table 13-17: Trip Generation by Time Period (Two-Way)

Time Period	Cars	Minibuses	HGVs	Total
06:00-07:00	124	16	0	140
08:00-09:00	0	0	0	0
17:00-18:00	0	0	0	0
19:00-20:00	124	16	0	140
24 hr AADT	248	32	36	316

13.6.12 It is noted that currently there are no movements of either workers or HGVs within the traditional network peak hours of 08:00-09:00 or 17:00-18:00.

13.6.13 As a result of measures to be introduced as part of the embedded mitigation described in Section 13.5, the number of vehicle trips during the network peak hours is expected to be zero, with workers instead arriving between 06:00-07:00 and leaving between 19:00-20:00 during summer months, plus restrictions on HGV arrivals. This is indicated in Table 13-17.

Trip Distribution

13.6.14 The origins of construction workers have been informed using a gravity model approach, which assumes a weighted distribution of surrounding settlements based on population and distance (e.g. a 45-60 minute journey time). This has been used to inform both private car journeys and the minibus pick up locations.

13.6.15 This is considered to be a robust methodology as the exact location of the construction workforce is not known at this preliminary stage. The locations, weightings and ultimate distribution are provided below.

Table 13-18: Worker Distribution

Town	Pop	Dis (km)	Dist ²	Pop/Dis ²	Distribution
Leeds	536,321	50.9	2,591	207	14.8%
Bradford	333,931	63.1	3,982	84	6.0%
Huddersfield	141,692	71.9	5,170	27	2.0%
Wakefield	97,582	43.3	1,875	52	3.7%
Barnsley	71,442	33.3	1,109	64	4.6%
Sheffield	500,552	55.9	3,125	160	11.5%
Rotherham	71,542	49	2,401	30	2.1%
Chesterfield	76,402	63.3	4,007	19	1.4%
Worksop	43,439	48.5	2,352	18	1.3%
Retford	23,740	54.9	3,014	8	0.6%
Gainsborough	21,908	47.7	2,275	10	0.7%
Scunthorpe	81,286	41.7	1,739	47	3.3%
Hull	270,806	73.3	5,373	50	3.6%
York	141,671	48.8	2,381	59	4.3%
Selby	92,000	26.8	718	128	9.2%
Goole	20,173	28.1	790	26	1.8%
Castleford	45,351	28.7	824	55	3.9%

Town	Pop	Dis (km)	Dist ²	Pop/Dis ²	Distribution
Pontefract	32,978	26.3	692	48	3.4%
Doncaster	87,457	17	289	303	21.7%

13.6.16 The potential route choices from these origins to the Site have then been assumed using an iterative process within an online interactive mapping tool. No restrictions have been applied to possible routes workers could take to the Scheme.

13.6.17 HGVs will use suitable routes to access the Scheme and for the purposes of the assessment it is assumed that they will approach from the wider SRN and then enter onto the local road network at Junction 34 of the M62 to the north west of Fenwick. **PEIR Volume II Figure 13-3: Indicative HGV Routing** outlines the predicted routes associated with HGV movements.

13.6.18 This is considered to be an acceptable methodology as the exact location of construction material required for the Scheme is not known at this preliminary stage. The potential route choices from these origins have then been assumed using an online interactive mapping tool. Indicative HGV routing is illustrated in **PEIR Volume II Figure 13-3: Indicative HGV Routing**.

Site Access

In terms of proposed site access there are two proposed access points namely Higgs Lane (associated with worker access) and an access point off Moss Road that will be constructed to accommodate HGV access.

13.6.19 Higgs Lane is an existing access point that has been gated in the past, however this will be upgraded where required to make it appropriate for access. The access proposal utilises an existing footprint, this access is predicted to be a right in, left out access and therefore no bell mouth widening is required on the north side. This will limit any interaction or modification to the existing drainage ditch.

13.6.20 In terms of the proposed HGV access this would be established to the east of the Fenwick Common Lane/Moss Road priority junction, where the Site Boundary lies closest to Moss Road.

13.6.21 An access at this location would move construction vehicle turning movements away from the level crossing, therefore minimising any potential disruption caused by construction vehicles turning. Upon completion of construction, this access point would be removed, and long-term operation and maintenance could continue to utilise Moss Road, Fenwick Common Lane and Higgs Lane, with Lawn Lane also used as the main access point for the operation and maintenance phase.

13.6.22 There are also a variety of access proposals associated with the construction of the Grid Connection Corridor as well as the On-Site Substation, which are set out within **PEIR Volume III Appendix 13-6: Indicative Access Appraisal for Grid Connection Corridor**.

13.6.23 The location and optioneering associated with the site accesses will be refined as the assessment continues and further information will be provided once this is known.

Trip Assignment

13.6.24 Based on the trip distribution exercise and the proposed trip generation outlined in the section above Table 13-19 outlines the total numbers of expected construction workers to drive (private car and car share) and use minibuses from each location.

Table 13-19: Trip Generation Overview

Town	Total Worker	Total using Minibus	Total Driving	No of minibus	Private Car	Car Share vehicle (1.5 ratio)
Leeds	37	28	9	2	4	3
Bradford	15	11	4	1	2	1
Huddersfield	5	0	5	0	2	2
Wakefield	9	0	9	0	4	3
Barnsley	12	6	6	1	3	2
Sheffield	29	14	15	1	6	6
Rotherham	5	0	5	0	2	2
Chesterfield	3	0	3	0	2	1
Worksop	3	0	3	0	1	1
Retford	1	0	1	0	1	1
Gainsborough	2	0	2	0	1	1
Scunthorpe	8	0	8	0	4	3
Hull	9	0	9	0	4	3
York	11	0	11	0	5	4
Selby	23	12	11	1	5	4
Goole	5	0	5	0	2	2
Castleford	10	0	10	0	4	4
Pontefract	9	0	9	0	4	3
Doncaster	54	27	27	2	12	10
Total	250	98	152	8	68	56

13.6.25 Table 13-20 outlines the number of peak construction hour two-way trips on each of the links within the Site during the peak construction year (2028), with traffic flow diagrams provided in **PEIR Volume III Appendix 13-2: Traffic Flow Diagrams**.

Table 13-20: Trip Assignment – Peak of Construction (2028)

ATC	Link Description	Peak Construction Total Traffic (Total Two-Way Vehicles)		
		06:00-07:00	19:00-20:00	24 hr AADT
1	M62 West of Junction 34	44	44	96
2	M62 Between J34 and J35	0	0	27
3	M62 East of J35	7	7	23
4	M18 Between M62 Junction 35 and M18 Junction 6	7	7	32
5	M180	4	4	17
6	M18 Between M18 Junction 4 and Junction 5	0	0	9
7	A19 Selby Road - South of Station Road A19	53	53	105
8	A19 Selby Road - North of Station Road A19	63	63	163
9	Moss Road - Askern Village	116	116	268
10	Moss Road - East of Askern	116	116	268
11	Fenwick Common Lane (Access Point)	130	130	261
12	Trumfleet Lane - South of Moss	20	20	47
13	Marsh Road	20	20	47
14	Thorpe Bank	20	20	47
15	Fordstead Lane West	0	0	0
16	Fordstead Lane East	14	14	29
17	Moss Road - East of Moss	10	10	20

ATC	Link Description	Peak Construction Total Traffic (Total Two-Way Vehicles)		
		06:00-07:00	19:00-20:00	24 hr AADT
18	Kirkhouse Green Road	10	10	20
19	West Lane - West of Sykehouse	0	0	0
20	Sykehouse Road - East of Sykehouse	0	0	0
21	A614	0	0	0
22	Sour Lane	11	11	22
23	Fishlake Nab	11	11	22

13.6.26 The trip assignment data has then been used to form the basis for the preliminary assessment.

13.6.27 As shown above, four links would experience an increase of 60 or more vehicles during the assessment hours (e.g. at least one vehicle per minute). The highest number of trips on any link expected during the assessment hours would be 130 on Fenwick Common Lane. This equates to approximately 2 vehicles per minute.

Construction Preliminary Assessment of Likely Significant Effects

13.6.28 Table 13-21 provides an overview of the total percentage increase for total vehicles on each of the links associated with the scheme during the peak construction year (2028).

Table 13-21: 2028 Base + Peak of Construction AM, PM and AADT Development Peak Two-Way Flows

ATC	Link	AM Dev Peak (06:00-07:00)				PM Dev Peak (19:00-20:00)				24 hr AADT			
		Base	Dev	Total	%Inc	Base	Dev	Total	%Inc	Base	Dev	Total	%Inc
1	M62 West of Junction 34	2,907	44	2,951	1.5%	2,104	44	2,148	2.1%	62,668	96	62,764	0.2%
2	M62 Between J34 and J35	2,742	0	2,742	0.0%	1,736	0	1,736	0.0%	54,294	27	54,321	0.0%
3	M62 East of J35	2,177	7	2,184	0.3%	1,485	7	1,492	0.5%	45,198	23	45,221	0.0%
4	M18 Between M62 Junction 35 and M18 Junction 6	2,448	7	2,455	0.3%	1,654	7	1,661	0.4%	49,177	32	49,208	0.1%
5	M180	1,887	4	1,891	0.2%	1,375	4	1,379	0.3%	42,118	17	42,135	0.0%
6	M18 Between M18 Junction 4	2,546	0	2,546	0.0%	2,015	0	2,015	0.0%	58,842	9	58,851	0.0%

ATC	Link	AM Dev Peak (06:00-07:00)				PM Dev Peak (19:00-20:00)				24 hr AADT			
		Base	Dev	Total	%Inc	Base	Dev	Total	%Inc	Base	Dev	Total	%Inc
	and Junction 5												
7	A19 Selby Road - South of Station Road A19	464	53	517	11.3%	345	53	397	15.3%	9,712	105	9,817	1.1%
8	A19 Selby Road - North of Station Road A19	527	63	591	12.0%	587	63	650	10.8%	14,538	163	14,700	1.1%
9	Moss Road - Askern Village	162	116	278	71.5%	223	116	339	51.9%	5,402	268	5,670	5.0%
10	Moss Road - East of Askern	111	116	227	104.0%	138	116	254	83.8%	3,478	268	3,746	7.7%
11	Fenwick Common Lane	12	130	142	1084.0%	24	130	154	552.6%	383	261	643	68.1%
12	Trumfleet Lane -	29	20	50	69.2%	27	20	48	74.6%	1,098	47	1,144	4.3%

ATC	Link	AM Dev Peak (06:00-07:00)				PM Dev Peak (19:00-20:00)				24 hr AADT			
		Base	Dev	Total	%Inc	Base	Dev	Total	%Inc	Base	Dev	Total	%Inc
	South of Moss												
13	Marsh Road	41	20	62	49.3%	28	20	48	73.6%	1,306	47	1,353	3.6%
14	Thorpe Bank	54	20	74	37.8%	35	20	55	58.2%	1,811	47	1,857	2.6%
15	Fordstead Lane West	169	0	169	0.0%	162	0	162	0.0%	5,558	0	5,558	0.0%
16	Fordstead Lane East	125	14	139	11.5%	148	14	162	9.7%	5,011	29	5,039	0.6%
17	Moss Road - East of Moss	74	10	84	13.5%	81	10	91	12.4%	2,053	20	2,073	1.0%
18	Kirkhouse Green Road	65	10	75	15.5%	69	10	79	14.5%	1,764	20	1,784	1.1%
19	West Lane - West of Sykehouse	11	0	11	0.0%	31	0	31	0.0%	643	0	643	0.0%

ATC	Link	AM Dev Peak (06:00-07:00)				PM Dev Peak (19:00-20:00)				24 hr AADT			
		Base	Dev	Total	%Inc	Base	Dev	Total	%Inc	Base	Dev	Total	%Inc
20	Sykehous e Road - East of Sykehous e	8	0	8	0.0%	14	0	14	0.0%	482	0	482	0.0%
21	A614	207	0	207	0.0%	189	0	189	0.0%	5,178	0	5,178	0.0%
22	Sour Lane	66	11	76	16.7%	77	11	88	14.2%	1,864	22	1,886	1.2%
23	Fishlake Nab	47	11	58	23.2%	97	11	108	11.2%	1,940	22	1,962	1.1%

13.6.29 With reference to the IEMA Guidelines – Environmental Assessment of Traffic and Movement (Ref 13-10) a two-rule approach can be used to assess the extent of any traffic assessment as follows:

- a. **Rule 1** – include highway links where traffic flows will increase by more than 30% (or the number of HGVs will increase by more than 30%).
- b. **Rule 2** – include any other specific sensitive areas where traffic flows have increased by 10% or more.

13.6.30 Table 13-22 indicates that some of the links would experience an increase in traffic of more than 30% during a development peak hour which are highlighted in **bold**.

13.6.31 It should be noted that where there is an increase of more than 30%, the 2028 baseline hourly two-way traffic flows were very low (between 2023 and 2028 depending on the link and time period). As such to take account of this low baseline the impact has been lowered by one step so that the impact is therefore medium instead of high, which given the low baseline is considered to be a robust method.

13.6.32 Table 13-22 below shows the links where the peak flow is considered to be very low which for the purposes of this assessment is less than 150.

Table 13-22: Links with Low AM and PM 2028 Base Development Flows

ATC Number	Link	AM Dev Peak 06:00-07:00	PM Dev Peak 19:00-20:00
10	Moss Road - East of Askern	111	138
11	Fenwick Common Lane	12	24
12	Trumfleet Lane - South of Moss	96	27
13	Marsh Road	123	28
14	Thorpe Bank	54	35

13.6.33 With the addition of construction traffic, this then resulted in a high percentage increase, particularly on Fenwick Common Lane (link 11) which is the link that will be used by workers to access the Solar PV Site. The additional hourly traffic numbers, on links 9,10,11,12,13 and 14 are therefore considered low and it is expected there would be sufficient capacity on the road network to accommodate the additional trips.

13.6.34 During the construction phase the impact would be temporary and would be managed through the embedded mitigation measures including a Framework CTMP and the above impact represents the very peak of the activity on site.

13.6.35 The following sections summarise the likely effects on receptors in terms of total construction traffic, severance, pedestrian amenity, fear and intimidation and highway safety.

13.6.36 Table 13-23 and Table 13-24 indicate the magnitude of impacts for the AM and PM respectively measured against the criteria set out within Table 13-2.

13.6.37 As noted, for the purposes of the assessment, professional judgement has been used to amend the 'High' magnitudes for road links to 'Medium' where baseline flows are low, and it is considered there is sufficient capacity on the road network to accommodate the additional Scheme trips. The basis of this assumption is detailed as part of Table 13-2.

13.6.38 For the purposes of the highway safety analysis, all links estimated to experience increases in total traffic flows above 30% will be analysed further on a case-by-case basis, based on the collision analysis.

Table 13-23: Magnitude of Impact (Construction) – 2028 AM 06:00-07:00

ATC	Link Description	Sensitivity	All Traffic Increase %	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety
1	M62 West of Junction 34	Very Low	1.5%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
2	M62 Between J34 and J35	Very Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
3	M62 East of J35	Very Low	0.3%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
4	M18 Between M62 Junction 35 and M18 Junction 6	Very Low	0.3%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
5	M180	Very Low	0.2%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
6	M18 Between M18 Junction 4 and Junction 5	Very Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
7	A19 Selby Road -	Medium	11.3%	Low	Very Low	Very Low	Very Low	Very Low	Very Low

ATC	Link Description	Sensitivity	All Traffic Increase %	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety
	South of Station Road A19								
8	A19 Selby Road - North of Station Road A19	Medium	12.0%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
9	Moss Road - Askern Village	High	71.5%	High	Medium	Medium	Medium	Medium	Medium
10	Moss Road - East of Askern	Medium	104.0%	Medium	Medium	Medium	Medium	Medium	Medium
11	Fenwick Common Lane (Access Point)	Medium	1084.0%	Medium	Medium	Medium	Medium	Medium	Medium
12	Trumfleet Lane - South of Moss	Medium	69.2%	Medium	Medium	Medium	Medium	Medium	Medium
13	Marsh Road	Medium	49.3%	Medium	Low	Low	Low	Low	Low
14	Thorpe Bank	Medium	37.8%	Medium	Low	Very Low	Low	Low	Low

ATC	Link Description	Sensitivity	All Traffic Increase %	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety
15	Fordstead Lane West	Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
16	Fordstead Lane East	Low	11.5%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
17	Moss Road - East of Moss	Low	13.5%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
18	Kirkhouse Green Road	Low	15.5%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
19	West Lane - West of Sykehouse	Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
20	Sykehouse Road - East of Sykehouse	Medium	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
21	A614	Very Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
22	Sour Lane	Medium	16.7%	Medium	Very Low	Very Low	Very Low	Very Low	Very Low
23	Fishlake Nab	Medium	23.2%	Medium	Very Low	Very Low	Very Low	Very Low	Very Low

Table 13-24. Magnitude of Impact (Construction) – 2028 PM 19:00-20:00

ATC	Link Description	Sensitivity	All Traffic Increase %	Construction Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety
1	M62 West of Junction 34	Very Low	2.1%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
2	M62 Between J34 and J35	Very Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
3	M62 East of J35	Very Low	0.5%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
4	M18 Between M62 Junction 35 and M18 Junction 6	Very Low	0.4%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
5	M180	Very Low	0.3%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
6	M18 Between M18 Junction 4 and Junction 5	Very Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
7	A19 Selby Road - South of Station Road A19	Medium	15.3%	Low	Very Low	Very Low	Very Low	Very Low	Very Low

ATC	Link Description	Sensitivity	All Traffic Increase %	Construction Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety
8	A19 Selby Road - North of Station Road A19	Medium	10.8%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
9	Moss Road - Askern Village	High	51.9%	High	Low	Low	Low	Low	Low
10	Moss Road - East of Askern	Medium	83.8%	Medium	Medium	Medium	Medium	Medium	Medium
11	Fenwick Common Lane	Medium	552.6%	Medium	Medium	Medium	Medium	Medium	Medium
12	Trumfleet Lane - South of Moss	Medium	74.6%	Medium	Medium	Medium	Medium	Medium	Medium
13	Marsh Road	Medium	73.6%	Medium	Medium	Medium	Medium	Medium	Medium
14	Thorpe Bank	Medium	58.2%	Medium	Low	Low	Low	Low	Low
15	Fordstead Lane West	Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
16	Fordstead Lane East	Low	9.7%	Low	Very Low	Very Low	Very Low	Very Low	Very Low

ATC	Link Description	Sensitivity	All Traffic Increase %	Construction Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety
17	Moss Road - East of Moss	Low	12.4%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
18	Kirkhouse Green Road	Low	14.5%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
19	West Lane - West of Sykehouse	Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
20	Sykehouse Road - East of Sykehouse	Medium	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
21	A614	Very Low	0.0%	Very Low	Very Low	Very Low	Very Low	Very Low	Very Low
22	Sour Lane	Medium	14.2%	Low	Very Low	Very Low	Very Low	Very Low	Very Low
23	Fishlake Nab	Medium	11.2%	Low	Very Low	Very Low	Very Low	Very Low	Very Low

13.6.39 As shown in Table 13-23 and Table 13-24, a number of links would experience either a medium or high magnitude of impact within at least one of the assessment criteria, e.g.:

- a. Link 9: Moss Road - Askern Village;
- b. Link 10: Moss Road - East of Askern;
- c. Link 11: Fenwick Common Lane
- d. Link 12: Trumfleet Lane - South of Moss
- e. Link 13: Marsh Road; and
- f. Link 14: Thorpe Bank.

13.6.40 As noted above, links 9,10 and 11 have been manually lowered to one magnitude step below based on the low baseline flow.

13.6.41 The medium/high magnitude of effects is mostly related to the high percentage increase of vehicles, which is driven by the low baseline hourly traffic flows.

13.6.42 With reference to Table 13-3 (significance of effects matrix), and based upon the above impact magnitudes and applied sensitivity of the transportation links, project traffic and transportation-related significance of effects are detailed in Table 13-25 and Table 13-26 during the peak construction year (2028) within the AM and PM peak respectively.

Table 13-25: Summary of Preliminary Assessment (Significance of Effect) – 2028 Base + Construction AM (06:00-07:00)

ATC	Link Description	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety	Overall Significance
1	M62 West of Junction 34	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
2	M62 Between J34 and J35	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
3	M62 East of J35	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
4	M18 Between M62 Junction 35 and M18 Junction 6	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
5	M180	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
6	M18 Between M18 Junction 4 and Junction 5	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
7	A19 Selby Road - South of Station Road A19	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
8	A19 Selby Road - North of	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant

ATC	Link Description	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety	Overall Significance
	Station Road A19							
9	Moss Road - Askern Village	Major– Significant	Major– Significant	Major– Significant	Major– Significant	Major– Significant	Further Assessment at ES Stage	Significant
10	Moss Road - East of Askern	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
11	Fenwick Common Lane (Access Point)	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
12	Trumfleet Lane - South of Moss	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
13	Marsh Road	Moderate– Significant	Minor– Not Significant	Minor– Not Significant	Minor– Not Significant	Minor– Not Significant	Further Assessment at ES Stage	Significant
14	Thorpe Bank	Moderate– Significant	Minor– Not Significant	Negligible – Not Significant	Minor– Not Significant	Minor– Not Significant	Further Assessment at ES Stage	Significant
15	Fordstead Lane West	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant

ATC	Link Description	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety	Overall Significance
16	Fordstead Lane East	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
17	Moss Road - East of Moss	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
18	Kirkhouse Green Road	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
19	West Lane - West of Sykehouse	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
20	Sykehouse Road - East of Sykehouse	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
21	A614	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
22	Sour Lane	Moderate– Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
23	Fishlake Nab	Moderate– Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant

Table 13-26: Summary of Preliminary Assessment (Significance of Effect) – 2028 Base + Construction PM (19:00-20:00)

ATC	Link Description	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety	Overall Significance
1	M62 West of Junction 34	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
2	M62 Between J34 and J35	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
3	M62 East of J35	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
4	M18 Between M62 Junction 35 and M18 Junction 6	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
5	M180	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
6	M18 Between M18 Junction 4 and Junction 5	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
7	A19 Selby Road - South of Station Road A19	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
8	A19 Selby Road - North of	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant

ATC	Link Description	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety	Overall Significance
	Station Road A19							
9	Moss Road - Askern Village	Major– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
10	Moss Road - East of Askern	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
11	Fenwick Common Lane (Access Point)	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
12	Trumfleet Lane - South of Moss	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
13	Marsh Road	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Moderate– Significant	Further Assessment at ES Stage	Significant
14	Thorpe Bank	Moderate– Significant	Minor– Not Significant	Minor– Not Significant	Minor– Not Significant	Minor– Not Significant	Further Assessment at ES Stage	Significant
15	Fordstead Lane West	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant

ATC	Link Description	Con Traffic	Severance of communities	NMU Amenity	Fear and Intimidation	Road vehicle driver and passenger delay	Road user and pedestrian safety	Overall Significance
16	Fordstead Lane East	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
17	Moss Road - East of Moss	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
18	Kirkhouse Green Road	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
19	West Lane - West of Sykehouse	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
20	Sykehouse Road - East of Sykehouse	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
21	A614	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
22	Sour Lane	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant
23	Fishlake Nab	Minor– Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Negligible – Not Significant	Not Significant

13.6.43 As shown in Table 13-25 and Table 13-26 a number of links have the potential to experience a significant effect within at least one of the assessment criteria, e.g.:

- a. Link 9: Moss Road - Askern Village;
- b. Link 10: Moss Road - East of Askern;
- c. Link 11: Fenwick Common Lane
- d. Link 12: Trumfleet Lane - South of Moss
- e. Link 13: Marsh Road; and
- f. Link 14: Thorpe Bank.

13.6.44 This information is then summarised within Table 13-27.

Operation and Maintenance Effects

13.6.45 During operation and maintenance, activity on the Solar PV Site would be restricted principally to vegetation management, equipment maintenance and servicing, ad hoc replacement of any components that fail or reach the end of their lifespan, periodic fence inspection, monitoring to ensure the continued effective operation and maintenance of the Scheme and other ancillary activities.

13.6.46 Along the route of the Grid Connection Cables, operation and maintenance activity would consist of routine inspections and any reactive maintenance such as where a cable has been damaged.

13.6.47 It is anticipated there would be up to two permanent staff on-site at any one time during the operation and maintenance phase, based at the Operations and Maintenance Hub. Additional staffing/visitors, such as maintenance workers and deliveries, would be ad hoc as needed. It is assumed this would equate to an average of four additional workers per month.

13.6.48 There should be no requirement for regular HGV movements during the operation and maintenance of the Scheme. All movements during the operation and maintenance phase are not anticipated due to the delivery of spare transformer phases during construction.

13.6.49 A small number of private vehicles for up to two permanent staff and ad hoc maintenance workers and visitors would use the local road network along with light goods maintenance and delivery vehicles when required.

13.6.50 Additionally, any waste components (e.g. faulty or damaged Solar PV Panels, Solar PV Mounting Structures, BESS batteries, cables, and connectors) would be securely stored at the Scheme's storage facilities until such time as the volume of waste is sufficient to allow transport to an approved, licensed third party waste management facility. It is anticipated that these movements would also be undertaken by LGV (not by HGV).

13.6.51 Currently existing field accesses are proposed for operation and maintenance access where this is practicable and would re-use construction accesses.

13.6.52 These low levels of operation and maintenance traffic would remain constant for the operational lifetime of the Scheme and therefore the predicted

impacts would not be influenced by the operation and maintenance phase being extended beyond 2070 (i.e. the predicted start of decommissioning).

13.6.53 The impact of additional development-generated traffic on the surrounding road network during the construction and decommissioning phases is anticipated to be the most significant stage of the Scheme, with the operation and maintenance phase anticipated to create much less traffic.

13.6.54 Therefore, as predicted traffic levels owing to the operation and maintenance phase are so low, operation and maintenance effects are therefore expected to be negligible.

Decommissioning Effects

13.6.55 For the purposes of the EIA, the decommissioning assessment year is assumed to be 2070 or later, as described in **PEIR Volume I Chapter 5: Environmental Impact Assessment Methodology**. The decommissioning period is expected to be similar in duration and nature to the construction phase and could be phased. It is expected that fewer road trips will be required, particularly if cables are left *in situ* which will be determined in accordance with good industry practice at the time.

13.6.56 Therefore, as the decommissioning phase is planned to commence 40 years after final commissioning and is likely expected to result in less traffic than the construction phase (and over a shorter period), decommissioning is expected to lead to effects that are no worse than during construction. The decommissioning phase has therefore not been specifically quantified and the effects and mitigation for construction are considered applicable for decommissioning and represent a worst case scenario.

13.6.57 A summary table of the preliminary assessment of effects for Transport and Access is provided in Table 13-27.

Table 13-27: Preliminary Assessment of Effects (Transport and Access)

Phase	Potential Impacts	Duration	Embedded Mitigation	Likely Significance of Effect
Construction	Construction traffic increase	Short Term Temporary (construction phase only)	Embedded mitigation as described in Section 13.5.	Significant at link 9,10, 11,12,13 and 14 Not Significant at all other locations
	Moderate adverse at link 10 and 11,12,13 and 14 Major adverse at 9 Negligible/minor adverse at all other links			
	Severance of communities	Short Term Temporary (construction phase only)	Embedded mitigation as described in Section 13.5.	Significant at link 9,10, 11,12 and 13. Not Significant at all other locations
	Moderate adverse at link 9,10,11,12, and 13 Negligible/minor adverse at all other links			
	NMU Amenity	Short Term Temporary (construction phase only)	Embedded mitigation as described in Section 13.5.	Significant at link 9,10, 11,12 and 13. Not Significant at all other locations
	Moderate adverse at link 9,10,11,12, and 13 Negligible/minor adverse at all other links			

Phase	Potential Impacts	Duration	Embedded Mitigation	Likely Significance of Effect
	<p>Fear and Intimidation</p> <p>Moderate adverse at link 9,10,11,12 and 13</p> <p>Negligible/minor adverse at all other links</p>	<p>Short Term Temporary (construction phase only)</p>	<p>Embedded mitigation as described in Section 13.5.</p>	<p>Significant at link 9,10, 11,12 and 13.</p> <p>Not Significant at all other locations</p>
	<p>Road vehicle driver and passenger delay</p> <p>Moderate adverse at link 9,10,11,12, and 13</p> <p>Negligible/minor adverse at all other links</p>	<p>Short Term Temporary (construction phase only)</p>	<p>Embedded mitigation as described in Section 13.5.</p>	<p>Significant at link 9,10 and 11</p> <p>Not Significant at all other locations</p>
	<p>Road user and pedestrian safety</p> <p>Further assessment required at ES stage for Links 9,10,11,12 and 13</p> <p>Negligible at all other links</p>	<p>Short Term Temporary (construction phase only)</p>	<p>Embedded mitigation as described in Section 13.5.</p>	<p>Further assessment required at ES stage for Links 9,10,11,12 and 13, therefore potential for significant effects exists.</p> <p>Not Significant at all other locations</p>
<p>Operation and maintenance</p>	<p>The impact of additional development-generated traffic on the surrounding road network during the construction and decommissioning phases is anticipated to be the most significant stage of the Scheme, with the operation and maintenance phase anticipated to create much less traffic.</p> <p>Therefore, as predicted traffic levels owing to the operation and maintenance phase are low, operation and maintenance effects are therefore expected to be negligible.</p>			

Phase	Potential Impacts	Duration	Embedded Mitigation	Likely Significance of Effect
Decommissioning	As the decommissioning phase is planned to commence 40 years after final commissioning and expected to result in less traffic than the construction phase (and over a shorter period), decommissioning is expected to lead to effects that are no worse than during construction. The decommissioning phase has therefore not been specifically modelled and the effects and mitigation for construction are considered applicable for decommissioning and represent a worst case scenario.			

13.7 Additional Mitigation and Enhancement Measures

13.7.1 Based on the outcome of the preliminary assessments, it has been identified that with embedded mitigation measures in place, there could still be potentially significant adverse effects at links 9, 10, 11, 12, 13 and 14. These significant effects are generally driven by low baseline traffic movements experienced at these links such that the relatively low number of additional traffic movements as a consequence of the Scheme result in high percentage increases in traffic.

Residual Effects

13.7.2 Although the majority of mitigation that seeks to reduce the impact of vehicles will be embedded, with further options developed for inclusion in the CTMP, options will also be considered post consultation where practicable. If it is considered that these options would not mitigate the effects beyond what has been secured by way of the embedded mitigation, these options would not be taken forward.

13.7.3 For example, local off-site highway improvements (e.g. verge clearance, hedge cutting and/or carriageway widening) where required to support HGV movements could be implemented.

13.7.4 For the purpose of the assessment at this stage, the residual effects will however remain the same as stated in the preliminary assessment, with potentially significant adverse effects at:

- a. Link 9: Moss Road - Askern Village;
- b. Link 10: Moss Road - East of Askern;
- c. Link 11: Fenwick Common Lane
- d. Link 12: Trumfleet Lane - South of Moss
- e. Link 13: Marsh Road; and
- f. Link 14: Thorpe Bank.

13.7.5 This is likely to occur during construction and decommissioning phases.

13.7.6 The predicted traffic levels owing to the operation and maintenance phase are so low, operation and maintenance effects are therefore expected to be negligible and not significant.

Cumulative Effects

13.7.7 Developments in the vicinity of the Scheme that have the potential to generate cumulative effects have been shortlisted which takes into account the scale of the development and its potential to generate significant environmental effects, the location of the development, and how the development's programme relates to that of the Scheme. A list of the shortlisted developments is presented in **PEIR Volume I Chapter 15: Cumulative Effects and Interactions**.

13.7.8 The traffic and transport cumulative effects study is based on the location of the surveyed ATCs and their interaction with any of the proposed

developments below. This involves a review of the relevant information provided within each of the planning applications including, Transport Assessments/Statements, construction traffic management plans to establish the likely distribution and subsequent generation within their assessment area. This information is then compared to the trip generation based on the Scheme Study Area within this assessment with the likely impact then assessed based on common links assessed.

13.7.9 The cumulative assessment methodology is presented within **PEIR Volume I Chapter 5: Environmental Impact Assessment Methodology**. Cumulative transport and access effects will be fully assessed in the ES, following statutory consultation.

13.7.10 The cumulative developments included in the cumulative shortlist are shown in Table 13-28 below.

Table 13-28: Cumulative Development Shortlist

Application Number	Name	Proposal	Location	Status	Cumulative Effects
23/00793/FULM	Former Thorpe Marsh Power Station Marsh Lane Barnby Dun Doncaster DN3 1 ET	Construction and operation of up to 50 MW Battery Energy Storage, substation and associated infrastructure.	Located to the south of the Site adjacent to Fordstead Lane to the west of Thorpe Bank.	Pending consideration	<p>The proposed access for HGVs and workers is via Fordstead Lane before accessing the former Thorpe Marsh Power Station at Marsh Lane.</p> <p>Based on the trip generation information presented in the Transport Statement, produced in March 2023 by AECOM, there are predicted to be a total of 1-2 LGVS per week once operational associated with maintenance visits. In terms of construction, traffic materials will be transported to site via a proposed railhead as such HGVs associated with the development will be negligible (1-5 daily HGV arrivals).</p> <p>The construction traffic routing plan produced as part of the transport statement shows that HGVs will access the local highway network via Junction 37 of the A1 to the west of Bentley before travelling along the A19 and then onto Fordstead Lane. Based on this there is predicted to be no interaction between the Battery Energy Storage and the Scheme in terms of HGVs as the Fenwick HGV trips will travel via the M62 to the north, south down the A19 before heading east along Moss Road. As such there is zero interaction in terms of HGV traffic.</p> <p>Based on the proposed HGV vehicle routing, trip generation within the TS, alongside that there are predicted to be no development trips (either workers or HGVs) associated with the Scheme passing</p>

Application Number	Name	Proposal	Location	Status	Cumulative Effects
					along Forstead Lane West (through ATC 15), no significant cumulative effects are expected.
21/02567/FULM	Land At Warren Farm High Street Dunsville Doncaster DN7 4 BX	Installation of a solar farm and battery storage facility with associated infrastructure	Located along the A18 between Hatfield and Edenthorpe.	Approved on 15 March 2022	<p>The construction routing as proposed within the CTMP indicates there will be no interaction within the Fenwick Study Area, with only the potential for interaction on the M18 mainline at Junction 4 for access to the site before utilising the local highway network to travel towards the site. In terms of access away from the development the construction routing shows that HGVs will use the A18 to travel toward the M18 Junction 5 before utilising the mainline. The proposed HGV routing associated with the Scheme indicates that vehicles will travel via the M62 to the north of Fenwick, south down the A19 before heading east along Moss Road at Askern.</p> <p>In addition, this development is only proposed to generate a maximum of 18 daily 2-way (9 in/9 out) HGV trips and up to a further 5 LGV visits a day (5 in/5 out), during the construction period of approximately 30 weeks, although no specific date is included within the information.</p> <p>As such based on the information provided above, no significant cumulative effects are expected.</p>
22/01537/LBC and 22/01536/FUL	Riddings Farm Lawn Lane Fenwick Doncaster DN6 0 HB	Demolition of Grade II listed 'Lily Hall' and erection of 1 replacement	Located off the eastern side of Lawn Lane to the north of the Site.	Pending consideration	The development at Lily Hall is associated with the demolition of an existing dwelling and the subsequent erection of a dwelling in the same location. As noted in the planning documents in terms of the highway response there is no

Application Number	Name	Proposal	Location	Status	Cumulative Effects
		residential farmworker's dwelling and associated works.			requirement for a CTMP for the minor works on constructing one new dwelling in a semi-rural location. Given the scale of development and that no CTMP is required, the works are considered to only generate negligible amounts of daily traffic, and such is unlikely to cause a significant cumulative effect.
23/01746/FULM	Land At Fordstead Lane Almholme Doncaster DN5 0 LN	Installation of a battery energy facility and association works	Located to the south of the Site near the village of Almholme.	Pending consideration	<p>For this development, the proposed access for HGVs and workers is via Fordstead Lane, before accessing the site to the east of Almholme.</p> <p>Based on the trip generation information presented in the Transport Statement produced in December 2023 by Local Transport Projects, during the construction phase of 18 months, the development is proposed to generate a maximum of 21 HGVs (10 in, 11 out) a day, based on an average 10 hour working day, which equates to around 2 HGVs per hour. In terms of workers accessing the site there is predicted to be a maximum of 15 staff (worse case generation of 30 two-way trips).</p> <p>The construction traffic routing plan produced as part of the transport statement shows that HGVs will access the local highway network via Junction 37 of the A1 to the west of Bentley before travelling along the A19 and then onto Fordstead Lane. Based on this there is predicted to be no interaction between the Battery Energy Storage and the Scheme in terms of HGVs as the Fenwick HGV trips will travel via the M62 to the north, south down the A19 before</p>

Application Number	Name	Proposal	Location	Status	Cumulative Effects
					<p>heading east along Moss Road. As such there is zero interaction in terms of HGV traffic.</p> <p>Based on the proposed HGV vehicle routing, the trip generation within the transport statement, alongside that there are predicted to be no development trips (either workers or HGVs) associated with the Scheme passing along Forstead Lane West (through ATC 15), no significant cumulative effects are expected.</p>
19/03034/FULM	Land At Marsh Lane Barnby Dun Doncaster DN3 1 ET	Excavation of approximately 4 million tonnes of by-product material comprising mostly silica sand and also soda lime glass and iron oxides (also known as burgy) from previous glass manufacturing and the reinstatement of the flood plain, creating new habitats.	Located to the south of the Site near the village of Almholme.	Pending consideration	<p>The proposed access for HGVs and workers is via Fordstead Lane, before accessing the development site to the east of Almholme.</p> <p>Based on the trip generation information presented in the Transport Statement produced in November 2019 by SWECO, the site will operate Monday to Friday between 08:00 and 17:00 generating 10 movements per hour (five arrivals and five departures). However, based on the response by the highway officer they would limit the trips to a maximum of 40 HGV movements per day (20 in and 20 out).</p> <p>The construction traffic routing plan produced as part of the transport statement shows that HGVs will access the local highway network via Junction 36 of the A1 to the west of Doncaster before travelling along the A630, A638 and then onto Fordstead Lane via the A19 in Bentley.</p>

Application Number	Name	Proposal	Location	Status	Cumulative Effects
20/01774/TIPA	Land North West Of Sandall Stones Road Kirk Sandall Doncaster DN3 1 QR	The construction of an energy recovery facility involving the thermal treatment of residual waste and associated infrastructure including engineering, access, landscape, ground and landscaping works.	Located within Kirk Sandall to the south east of the Site.	Approved on 16 August 2022	<p>Based on this there is predicted to be no interaction between the excavation operations and the Scheme in terms of HGVs as the Fenwick HGV trips will travel via the M62 to the north, south down the A19 before heading east along Moss Road.</p> <p>Based on the proposed HGV vehicle routing, the trip generation within the transport statement, alongside that there are predicted to be no development trips (either workers or HGVs) associated with the Scheme passing along Forstead Lane West (through ATC 15), no significant cumulative effects are expected.</p> <p>The development is located within Kirk Sandall to the south of the Site.</p> <p>The proposed development will not result in a change to required staff numbers or the number of HGV movements compared to the consented development. The extant permission allows for up to 78 HGV trips (156 two-way) per 12-hour operating period. Moreover, in terms of light vehicle trips a maximum of 22 staff members will be on site at any time and this will be during the day.</p> <p>Based on the HGV distribution presented within the traffic flow diagrams that accompany the transport assessment, HGVs will utilise the A630, the A18 and Barnby Dun Road. Based on this there will be no interaction between the HGV distribution associated with the Scheme and this application.</p>

Application Number	Name	Proposal	Location	Status	Cumulative Effects
					Based on the proposed HGV vehicle routing, it is therefore expected that no vehicle movements associated with the energy recovery facility will pass through the Fenwick Study Area, as such no significant cumulative effects are expected.
23/01082/SCRE	Land Off The Balk Almholme Doncaster DN5 0 LL	Request for a screening opinion in relation to a joint solar farm and energy storage project on land located off The Balk, Almholme, Doncaster	Located to the south of the Site near the village of Shaftholme along Shaftholme Lane.	Screening Opinion provided on 4 July 2023	<p>As this is only a screening opinion, the traffic and transport details related to construction and operation are not yet included, however it is stated a Transport Assessment and CTMP would be included within the planning application. However, given the location there is likely no be interaction in terms of HGVs given that as part of the Scheme HGVs will utilise a separate route and as such there will be no crossover on the local highway network.</p> <p>As noted in the screening opinion, given the nature of the proposed development as a solar farm and ESS facility, no permanent employees would be required at the site and there would be no regular operational traffic. As such it is unlikely any significant cumulative effects will be expected.</p>
22/02088/FULM	Croft Farm Askern Road Carcroft Doncaster DN6 8 DE.	The installation of a 2.5 MW solar PV array, 0.9 MW green hydrogen plant and associated landscaping	Located to the south west of the Site within Adwick le Street near Carcroft.	Approved on 11 May 2023	<p>The access point for the installation of the solar development at Croft farm is located approximately 3.1 km to the south of the main access point associated with the Scheme. As such there is the potential for a cumulative impact around this area in terms of workers arriving to the site.</p> <p>Although there is the potential for some overlap (only in terms of workers trips) the development</p>

Application Number	Name	Proposal	Location	Status	Cumulative Effects
					<p>construction vehicle numbers are expected to be very low, with 5 vans on site per day during installation with sporadic HGV trips within the 3-4 month construction programme.</p> <p>Based on this information there are unlikely to be any significant cumulative effects given the location, length of construction and the predicted trip generation.</p>

- 13.7.11 Table 13-28 above provides a review of the likelihood of cumulative effects from a range of additional developments within the vicinity. This has considered transport implications based on information submitted with planning applications. Where this has not been available, a qualitative review of potential implications has been considered based on-site scale and location, and professional experience. Based on this review, it is considered that there are unlikely to be significant effects arising from cumulative development, due to limited overlap of Study Areas and limited levels of traffic being generated by cumulative developments.
- 13.7.12 It also noted that many of the developments are still pending consideration and those sites that have had a determination (prior to 2023) are unlikely to be built and as such will not be included in any 2023 baseline traffic assessment.
- 13.7.13 As such, at this time the TEMPro growth factor that has been applied to the 2023 flows to growth to 2028 is considered a robust methodology for assessing the future development flows within the area.
- 13.7.14 These assumptions will be reviewed as part of the final ES submission and updated if required.

13.8 Summary and Conclusions

- 13.8.1 This chapter of the PEIR presents the preliminary findings of an assessment of the likely significant effects from Transport and Access as a result of the Scheme.
- 13.8.2 The preliminary assessment of effects concludes that following implementation of the embedded mitigation, impacts would be not significant, except at the following links which are predicted to experience significant effects:
- a. Link 9: Moss Road - Askern Village;
 - a. Link 10: Moss Road - East of Askern;
 - b. Link 11: Fenwick Common Lane
 - c. Link 12: Trumfleet Lane - South of Moss
 - d. Link 13: Marsh Road; and
 - e. Link 14: Thorpe Bank.
- 13.8.3 The actual increase in traffic levels at these links due to the Scheme is small. However, as these routes currently experience low baseline traffic numbers, these represent high percentage increases and result in significant effects being assessed.
- 13.8.4 A Transport Assessment and Construction Traffic Management Plan will be developed as part of the ES submission, providing further details on the proposals to reduce any potentially significant likely effects identified in this chapter.

Table 13-29: Summary of Residual Significant Effects – Transport and Access

Note: Lt = long term, Mt = medium term, St = short term, P = permanent, T = temporary, D = direct and In = indirect

Development Stage	Environmental Effect (taking account of embedded mitigation)	Classification of Effect	Additional Mitigation Requirements (if required)	Significance of Residual Effect	Nature of Effect (Lt/Mt/St and P/T and D/In)
Construction	Construction traffic Increase	Moderate adverse at link 10 and 11,12,13 and 14 Major adverse at 9 Negligible/minor adverse at all other links	Additional mitigation will be identified within the CTMP.	Significant at link 9, 10, 11,12,13 and 14 Not Significant at all other locations	St, T, D
	Severance of communities	Moderate adverse at link 9,10 and 11,12, and 13 Negligible/minor adverse at all other links	Additional mitigation will be identified within the CTMP.	Significant at link 9, 10, 11,12 and 13. Not Significant at all other locations	St, T, D
	NMU Amenity	Moderate adverse at link 9,10 and 11,12, and 13 Negligible/minor adverse at all other links	Additional mitigation will be identified within the CTMP.	Significant at link 9, 10, 11,12 and 13. Not Significant at all other locations	St, T, D
	Fear and Intimidation	Moderate adverse at link 9,10,11,12 and 13 Negligible/minor adverse at all other links	Additional mitigation will be identified within the CTMP.	Significant at link 9, 10,11,12 and 13. Not Significant at all other locations	St, T, D

Development Stage	Environmental Effect (taking account of embedded mitigation)	Classification of Effect	Additional Mitigation Requirements (if required)	Significance of Residual Effect	Nature of Effect (Lt/Mt/St and P/T and D/In)
	Road vehicle driver and passenger delay	Moderate adverse at link 9,10,11,12, and 13 Negligible/minor adverse at all other links	Additional mitigation will be identified within the CTMP.	Significant at link 9, 10 and 11 Not Significant at all other locations	St, T, D
	Road user and pedestrian safety	Further assessment required at ES stage for Links 9, 10,11,12 and 13 Negligible at all other links	Additional mitigation will be identified within the CTMP.	Further assessment required at ES stage for Links 9,10,11,12 and 13, therefore potential for significant effects exists. Not Significant at all other locations	St, T, D
Operation and maintenance	<p>The impact of additional development-generated traffic on the surrounding road network during the construction and decommissioning phases is anticipated to be the most significant stage of the Scheme, with the operation and maintenance phase anticipated to create much less traffic.</p> <p>Therefore, as predicted traffic levels owing to the operation and maintenance phase are low, operation and maintenance effects are therefore expected to be negligible.</p>				
Decommissioning	<p>As the decommissioning phase is planned to commence 40 years after final commissioning and expected to result in less traffic than the construction phase (and over a shorter period), decommissioning is expected to lead to effects that are no worse than during construction. The decommissioning phase has therefore not been specifically modelled and the effects and mitigation for construction are considered applicable for decommissioning and represent a worst case scenario.</p>				

13.9 References

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An aerial photograph of a vast solar farm at sunset. The rows of solar panels stretch across the landscape, creating a strong sense of perspective. The sky is a deep, dark orange, and the sun is low on the horizon, casting long, soft shadows across the panels.

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