



Botley West Solar Farm

Preliminary Environmental Information Report

Volume 1

Chapter 12: Traffic and Transport

30 November 2023

Approval for issue

Christopher Lecointe

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Appendices (See Volume 3, Appendix)

Appendix number	Appendix title
12.1	Description of network links and sensitivities

Glossary

Term	Meaning
Abnormal Indivisible Loads (AILs)	Loads or vehicles that exceed maximum vehicle weight, axle weight or dimensions as set out in the Road Vehicles (Construction and Use) Regulations 1986 as amended.
Applicant	SolarFive Ltd. (SolarFive)
Code of Construction Practice (CoCP)	A document detailing the overarching principles of construction, contractor protocols, construction-related environmental management measures, pollution prevention measures, the selection of appropriate construction techniques and monitoring processes.
Construction Traffic Management Plan (CTMP)	A plan managing all construction traffic, including protocols for delivery of Abnormal Indivisible Loads to site, personnel travel, measures for road cleaning and sustainable site travel measures.
Growthed	The application of traffic growth rates to traffic flows.
Heavy Goods Vehicle (HGV)	A lorry with a gross weight exceeding 7.5 tonnes.
Heavy Vehicle (HV)	A vehicle with a gross weight exceeding 7.5 tonnes.
Local Highway Authority	A body responsible for the public highways in a particular area of England and Wales, as defined in the Highways Act 1980.
Pedestrian Amenity	The convenience or comfort of movement on foot.
Severance	Real or perceived difficulties moving between one part of a community to another.
TEMPro	A computer software program developed by the Department for Transport providing traffic growth projections used in transport models and intended to act as a nationwide standardised distribution of growth in trip ends.
Transport Assessment (TA)	A transport assessment is a comprehensive and systematic process that sets out transport issues relating to a proposed development. It identifies what measures will be taken to deal with the anticipated transport impacts of the scheme and to improve accessibility and safety for all modes of travel, particularly for alternatives to the car such as walking, cycling and public transport.
Transport Statement	A simplified version of a transport assessment where the transport issues arising from development proposals are limited and a full transport assessment is not required.

Abbreviations

Abbreviation	Meaning
AIL	Abnormal Indivisible Load
AADT	Annual Average Daily Traffic
BEIS	Department for Business, Energy and Industrial Strategy
CDC	Cherwell District Council

Abbreviation	Meaning
CoCP	Code of Construction Practice
CTMP	Construction Traffic Management Plan
DCO	Development Consent Order
DECC	Department of Energy and Climate Change (now BEIS)
DESNZ	Department for Energy Security and Net Zero
DFT	Department for Transport
DMRB	Design Manual for Roads and Bridges
EIA	Environmental Impact Assessment
ES	Environmental Statement
IEMA	Institute of Environmental Management and Assessment
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicles
HV	Heavy Vehicle
LRN	Local Road Network
NCN	National Cycle Network
NPPF	National Planning Policy Framework
NPS	National Policy Statement
NSIP	Nationally Significant Infrastructure Project
OCC	Oxfordshire County Council
PDE	Project Design Envelope
PEIR	Preliminary Environmental Information Report
PIA	Personal Injury Accident
PPG	Planning Practice Guidance
PRoW	Public Right of Way
SRN	Strategic Road Network
TA	Transport Assessment
TEMPro	Trip End Model Presentation Programme
VWHDC	Vale of White Horse District Council
WODC	West Oxfordshire District Council

Units

Unit	Description
km	Kilometre
m	Metre
m ²	Metres Squared
mph	Miles per Hour
s	Seconds
%	Percentage

12 Traffic and Transport

12.1 Introduction

12.1.1 Overview

12.1.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) has been prepared by RPS on behalf of Photovolt Development Partners GmbH. (PVDP) for the Applicant, SolarFive Ltd. (SolarFive). SolarFive is a licence holder under the Electricity Act 1989. SolarFive is also a company registered in England and Wales (company no. 12602740).

12.1.1.2 PVDP intends to submit an application on behalf of SolarFive for development consent to the Planning Inspectorate (PINS) under the Planning Act 2008. The proposal is to install and operate approximately 840 MWe of solar generation in parts of West Oxfordshire, Cherwell and Vale of White Horse Districts (the Project). The application will be accompanied by an Environmental Statement (ES) prepared in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended (the EIA Regulations), and other required documents including a statement on pre-application consultation.

12.1.1.3 This PEIR summarises preliminary results of the assessment to date, before being further refined and reported within the Environmental Statement. The assessment was carried out in accordance with the approach set out in the Scoping Report. The purpose of the PEIR is to inform the statutory consultation process, enabling consultees to understand and comment on the likely significant effects of the Project.

12.1.1.4 This chapter also draws upon information contained within Appendix 12.1: Description of network links and sensitivities. This chapter also contains a preliminary integrated 'Transport Statement' based on the preliminary work undertaken to date.

12.1.1.5 The PEIR will inform pre-application consultation. Following consultation, comments on the PEIR will be reviewed and taken into account in preparation of the Environmental Statement (ES) that will accompany the application to the Planning Inspectorate on behalf of the Secretary of State for the Department of Energy Security and Net Zero (DESNZ) for development consent.

12.2 Legislative and policy context

12.2.1 Planning policy context

12.2.1.1 The Botley West Solar Farm (Botley West) Project will be located in the county of Oxfordshire, across an area of approximately 1,300 ha. The Project extends from an area of land in the north, situated between the A4260 and the Dorn River Valley near Tackley and Wootton, through a central section, situated broadly between Bladon and Cassington, and connecting to a section further south near to Farmoor Reservoir and north of Cumnor, where the Project will

connect to the National Grid transmission network. The name 'Botley West' is derived from the location of the grid connection point.

12.2.1.2 The Project lies within the administrative areas of Cherwell (CDC), West Oxfordshire (WODC) and Vale of White Horse (VWHDC) District Councils, and Oxfordshire County Council (OCC). The majority of the Project lies within West Oxfordshire.

National Policy Statements

12.2.1.3 There are currently six energy National Policy Statements (NPSs), three of which contain policy relevant to solar farms and the Project, specifically:

- Overarching NPS for Energy (NPS-EN1) which sets out the UK Government's policy for the delivery of major energy infrastructure (DECC 2011a);
- NPS for Renewable Energy Infrastructure (NPS EN-3) (DECC 2011b); and
- NPS for Electricity Networks Infrastructure (NPS EN-5) (DECC 2011c).

12.2.1.4 **Table 12.1** sets out a summary of the policies within these NPSs, relevant to traffic and transport. This only includes NPS EN-1 and NPS EN-3 since no policy specific to traffic and transport is set out in NPS EN-5.

Table 12.1: Summary of designated and draft NPS document requirements relevant to Traffic and Transport

Summary of NPS requirement	How and where considered in the PEIR
NPS EN-1	
The transport of materials, goods, and personnel to and from a development during all project phases can have a variety of impacts on the surrounding transport infrastructure and potentially on connecting transport networks, for example through increased congestion. Impacts may include economic, social, and environmental effects. Environmental impacts may result particularly from increases in noise and emissions from road transport. Disturbance caused by traffic and Abnormal Indivisible Loads (AILs) generated during the construction phase will depend on the scale and type of the proposal. (paragraph 5.13.1 of NPS EN-1).	Section 12.9 of this chapter provides a preliminary analysis of the impacts on traffic and transport during the construction of the Project. The initial traffic and transport study area has been established to include all relevant routes along the connecting transport network. Noise is considered in Volume 1, Chapter 13: Noise and vibration and inter-related effects are considered in Volume 1, Chapter 18 Cumulative effects and inter-relationships.
The consideration and mitigation of transport impacts is an essential part of Government's wider policy objectives for sustainable development as set out in Section 2.2 of NPS EN-1. (paragraph 5.13.2 of NPS EN-1).	Section 12.9 of this chapter provides a preliminary analysis of the impacts on traffic and transport during construction of the Project and identifies preliminary ways to mitigate them, which will be confirmed in the ES chapter to be submitted in support of the application for Development Consent.

Summary of NPS requirement	How and where considered in the PEIR
<p>If a project is likely to have significant transport implications, the applicant's Environmental Statement (ES) should include a TA, using the NATA/WebTAG methodology stipulated in Department for Transport (DfT) guidance (DfT, 2007), or any successor to such methodology. Applicants should consult the Highways Agency and Highways Authorities as appropriate on the assessment and mitigation.</p> <p>(paragraph 5.13.3 of NPS EN-1).</p>	<p>This chapter contains a preliminary integrated Transport Statement throughout to consider the potential impacts and effects on the operation of the highway network arising from the Project in accordance with guidance and best practice set out in the Planning Practice Guidance (PPG) (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2014) 'Travel Plans, Transport Assessments and Statements', which is the successor to the DfT guidance (DfT, 2007).</p>
<p>Where appropriate, the applicant should prepare a travel plan including demand management measures to mitigate transport impacts. The applicant should also provide details of proposed measures to improve access by public transport, walking and cycling, to reduce the need for parking associated with the proposal and to mitigate transport impacts.</p> <p>(paragraph 5.13.4 of NPS EN-1).</p>	<p>Movement by sustainable means will be facilitated and encouraged.</p> <p>The preparation of an Outline Construction Traffic Management Plan (CTMP) will be submitted in support of the application for Development Consent and this will incorporate an outline travel plan for construction staff.</p>
<p>If additional transport infrastructure is proposed, applicants should discuss with network providers the possibility of co-funding by Government for any third-party benefits. Guidance has been issued in England which explains the circumstances where this may be possible, although the Government cannot guarantee in advance that funding will be available for any given uncommitted scheme at any specified time.</p> <p>(paragraph 5.13.5 of NPS EN-1).</p>	<p>Additional transport infrastructure is limited to the provision of several mostly temporary construction accesses. Accesses will be removed where appropriate and where agreed with landowners and the land reinstated when construction is finished. Where accesses are not removed, they will remain in-situ as agreed with landowners.</p>
<p>A new energy NSIP may give rise to substantial impacts on the surrounding transport infrastructure and the Secretary of State should therefore ensure that the applicant has sought to mitigate these impacts, including during the construction phase of the development. Where the proposed mitigation measures are insufficient to reduce the impact on the transport infrastructure to acceptable levels, the Secretary of State should consider requirements to mitigate adverse impacts on transport networks arising from the development, as set out below. Applicants may also be willing to enter into planning obligations for funding infrastructure and otherwise mitigating adverse impacts.</p> <p>(paragraph 5.13.6 of NPS EN-1).</p>	<p>Section 12.9 of this chapter provides a preliminary analysis of the impacts on traffic and transport during construction of the Project and ensures measures (where relevant/necessary) are incorporated into the scheme and mitigation (where relevant/necessary) identified.</p>

Summary of NPS requirement	How and where considered in the PEIR
<p>Provided that the applicant is willing to enter into planning obligations or requirements can be imposed to mitigate transport impacts identified in the NATA/WebTAG TA, with attribution of costs calculated in accordance with the DfT guidance, then development consent should not be withheld, and appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure. (paragraph 5.13.7 of NPS EN-1)</p>	<p>Section 12.9 of this chapter provides a preliminary analysis of the impacts on traffic and transport during construction of the Project and identifies preliminary ways to mitigate them which will be confirmed in the ES chapter to be submitted in support of the application for Development Consent.</p>
<p>Where mitigation is needed, possible demand management measures must be considered and if feasible and operationally reasonable, required, before considering requirements for the provision of new inland transport infrastructure to deal with remaining transport impacts. (paragraph 5.13.8 of NPS EN-1).</p>	<p>The measures proposed to be adopted as part of the Project consider the routing and timing of Heavy Goods Vehicle (HGV) movements and management of construction staff movement in advance of considering the provision of any new inland transport infrastructure (such as the construction of new roads) apart from temporary improvements to the construction compound and Horizontal Directional Drilling (HDD) compound access points.</p>
<p>The Secretary of State should have regard to the cost-effectiveness of demand management measures compared to new transport infrastructure, as well as the aim to secure more sustainable patterns of transport development when considering mitigation measures. (paragraph 5.13.9 of NPS EN-1).</p>	<p>As stated above, no new provision of inland transport infrastructure apart from mostly temporary (with some remaining in-situ where appropriate) improvements to the construction compound and HDD compound access points is expected.</p>
<p>The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that:</p> <ul style="list-style-type: none"> • Control numbers of HGV movements to and from the site in a specified period during its construction and possibly on the routing of such movements • Make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid ‘overspill’ parking on public road, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and • Ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force. <p>(paragraph 5.13.11 of NPS EN-1).</p>	<p>HGV routes are being identified and any restrictions that may be required on HGV timing will be proposed within the ES chapter and Outline CTMP to be submitted in support of the application for Development Consent if necessary to avoid any adverse impacts on sensitive receptors, particularly schools. The layout of the construction compounds will avoid the risk of HGV parking on surrounding highway and this will be a measure set out within the Outline CTMP to be submitted in support of the application for Development Consent. The transport of AILs will be subject to an AIL route access study and is expected to cause minimal disruption. This study will be submitted in support of the application for Development Consent.</p>

Summary of NPS requirement	How and where considered in the PEIR
<p>If an applicant suggests that the costs of meeting any obligations or requirements would make the proposal economically unviable this should not in itself justify the relaxation by the Secretary of State of any obligations or requirements needed to secure the mitigation.</p> <p>(paragraph 5.13.12 of NPS EN-1).</p>	<p>The costs of transport mitigation currently envisaged by the applicant will not make the proposal economically unviable.</p>
NPS EN-3	
<p>The extent to which generic impacts set out in EN-1 are relevant may depend upon the phase of the proposed development being considered. For example, land-based traffic and transport and noise issues may be relevant during the construction and decommissioning periods only, depending upon the specific proposal.</p> <p>(paragraph 2.6.4 of NPS EN-3).</p>	<p>This has been described and considered within the assessment located within section 12.9 of this chapter.</p>

12.2.1.5 These NPSs are currently being updated and draft versions were published for consultation in March 2023 (DESNZ, 2023a; DESNZ, 2023b; DESNZ, 2023c).

12.2.1.6 These March 2023 draft NPSs are similar to the 2011 NPSs and there are largely no text changes or new requirements that need considered or affects the content of this chapter.

The National Planning Policy Framework

12.2.1.7 The National Planning Policy Framework (NPPF) was published in 2012 and updated in 2018, 2019, 2021 and 2023 (Department for Levelling Up, Housing and Communities, 2023). The NPPF sets out the Government’s planning policies for England.

12.2.1.8 **Table 12.2** sets out a summary of the NPPF policies relevant to this chapter.

Table 12.2: Summary of NPPF requirements relevant to this chapter

Policy	Key provisions	How and where considered in the PEIR
110.	<p>a) appropriate opportunities to promote sustainable transport modes can – or have been – taken up, given the type of development and its location;</p> <p>b) safe and suitable access to the site can be achieved for all users</p> <p>c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and</p> <p>d) any significant impacts from the development on the transport network (in terms of capacity and congestion) or on highway safety, can be cost effectively mitigated to an acceptable degree.</p>	<p>Existing sustainable transport infrastructure is considered within section 12.5 of this chapter which includes a review of public transport services and pedestrian and cycle infrastructure.</p> <p>Section 12.9 of this chapter assesses access routes and the impact of construction vehicle movements arising from the Project on the Local Road Network (LRN) and Strategic Road Network (SRN).</p>
113.	<p>All development that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.</p>	<p>This chapter contains a preliminary integrated Transport Statement throughout to consider the potential impacts and effects on the operation of the highway network arising from the Project.</p> <p>An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.</p>

- 12.2.1.9 The PPG (Department for Levelling Up, Housing and Communities and Ministry of Housing, Communities and Local Government, 2014) supports the NPPF and provides guidance across a range of topic areas.
- 12.2.1.10 ‘Travel Plans, Transport Assessments and Statements’ provides a concise report on the use and importance of Transport Assessments/Statements and Travel Plans. It considers that Transport Assessments/Statements and Travel Plans should be proportionate to the size and scope of the proposed development, be tailored to particular local circumstances and be established at the earliest practicable possible stage of a development proposal.
- 12.2.1.11 It sets out that the scope and level of detail in a Transport Assessment or Statement will vary from site to site and then lists a host of elements that should be considered.
- 12.2.1.12 This chapter contains a preliminary integrated Transport Statement throughout and has been tailored to the local circumstances and is proportionate in size and scope to the Project.

Strategic road network and the delivery of sustainable development (DfT Circular 12/2022)

- 12.2.1.13 The DfT Circular 12/2022 policy paper explains how National Highways will engage with the planning system to assist the delivery of sustainable development whilst maintaining, managing, and operating a safe and efficient SRN.
- 12.2.1.14 In relation to the assessment of development proposals, it states the following in Paragraph 47:
- ‘Where the company is requested to do so, it will engage with local planning authorities and development promoters at the pre-application stage on the scope of transport assessments/statements and travel plans. This process should determine the inputs and methodology relevant to establishing the potential impacts on the SRN and net zero principles that will inform the design and use of the scheme. Development promoters are strongly encouraged to engage with the company to resolve any potential issues and maximise opportunities for walking, wheeling, cycling, public transport and shared travel, as early as possible’.*
- 12.2.1.15 Paragraph 48 relating to transport assessment states the following:
- ‘Where a transport assessment is required, this should start with a vision of what the development is seeking to achieve and then test a set of scenarios to determine the optimum design and transport infrastructure to realise this vision. Where such development has not been identified in an up-to-date development plan (or an emerging plan that is at an advanced stage[footnote 19]), developers should demonstrate that the development would be located in an area of high accessibility by sustainable transport modes[footnote 20] and would not create a significant constraint to the delivery of any planned improvements to the transport network or allocated sites’.*
- 12.2.1.16 Paragraph 49 continues to state the following:
- ‘A transport assessment for consideration by the company must also consider existing and forecast levels of traffic on the SRN, alongside any additional trips from committed developments that would impact on the same sections (link or junction) as the proposed development. Assumptions underpinning projected levels of traffic should be clearly stated to avoid the default factoring up of baseline traffic. The scenario(s) to be assessed, which depending on the development and local circumstances may include sensitivity testing, should be agreed with the company; where a scenario with particularly high or low growth is proposed, this should be supported by appropriate evidence’.*
- 12.2.1.17 Paragraph 69 states the following:
- ‘Access to the site for construction, maintenance and de-commissioning should be obtained from the local road network. A direct connection to the SRN will only be permitted in exceptional circumstances’.*
- 12.2.1.18 This chapter contains a preliminary integrated Transport Statement throughout which considers accessibility by sustainable transport modes and existing and forecast levels of traffic on the SRN.

Local planning policy

12.2.1.19 The relevant local planning policies applicable to traffic and transport based on the extent of the study areas for this assessment are summarised in **Table 12.3**. **Table 12.3** also summarises relevant OCC transport policies applicable to traffic and transport based on the extent of the study areas for this assessment.

Table 12.3: Summary of local planning policy relevant to this chapter

Policy	Key provisions	How and where considered in the PEIR
Oxfordshire Local Transport and Connectivity Plan 2022 - 2050		
Policy 2: Walking and Cycling	Ensure that all new developments have safe and attractive walking and cycling connections to the site, include a connected attractive network for when people are walking and cycling within the development and that the internal routes connect easily and conveniently to community facilities and the local cycle and walking network.	Section 12.5 of this chapter sets out the existing pedestrian and cycling infrastructure within the initial traffic and transport study area, highlighting the walking and cycling connections available for construction staff.
Policy 11: Healthy Place Shaping	OCC will “Work with employers and businesses in the county to improve promotion and education of travel choices.”	Section 12.5 of this chapter sets out the existing pedestrian and cycling infrastructure within the initial traffic and transport study area, highlighting the sustainable transport options available for construction staff. An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.
Policy 15: Vision Zero	OCC will “Adopt the vision zero approach, which seeks to eliminate all fatalities and severe injuries on Oxfordshire’s roads and streets, to have safer, healthier, and more equitable mobility for all.”	A preliminary road safety analysis has been undertaken in Section 12.5 of this chapter.
Policy 33: Parking Management	Ensure the parking requirements of all modes of transport are considered, in line with OCC transport user hierarchy. Work to embed parking guidance into relevant guidance and decision-making processes and progress the associated actions.	An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.
Policy 47: Freight and Logistics Strategy Policy 49: Local Movement	Develop and deliver measures to encourage use of the most appropriate routes for HGVs. Support a range of additional measures to improve the safety of local goods movement and encourage uptake of zero-emission vehicles.	The movement of construction vehicles has been considered to make best use of the existing network to ensure efficient movement on the network. Section 12.9 of this chapter assesses the impact of construction vehicle movements arising from the Project on the LRN and SRN.

Policy	Key provisions	How and where considered in the PEIR
West Oxfordshire District Council Local Plan 2011-2031 (adopted September 2018)		
<p>Policy T1: Sustainable Transport</p>	<p>Priority will be given to locating new development in areas with convenient access to a good range of services and facilities and where the need to travel by private car can be minimised, due to opportunities for walking, cycling and the use of public transport, particularly where this would help to reduce traffic congestion on the routes around Oxford and the Air Quality Management Areas at Witney and Chipping Norton.</p> <p>All new development will be designed to maximise opportunities for walking, cycling and the use of public transport, ensure the safe movement of vehicles and minimise the impact of parked and moving vehicles on local residents, business and the environment.</p> <p>Proposals for new developments that have significant transport implications either in themselves or in combination with other proposals will be required to include a TA, and a travel plan, in accordance with County Council requirements.</p>	<p>Section 12.5 of this chapter sets out the available public transport and the existing pedestrian and cycling infrastructure within the initial traffic and transport study area, highlighting the sustainable transport options for construction staff.</p> <p>An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.</p>
<p>Policy T2: Highway Improvement Schemes</p>	<p>All development will be required to demonstrate safe access and an acceptable degree of impact on the local highway network.</p> <p>Development proposals that are likely to generate significant amounts of traffic, shall be supported by a Transport Assessment (TA) and a Travel Plan.</p>	<p>Section 12.9 of this chapter assesses the impact of construction vehicle movements arising from the Project on the LRN and SRN.</p> <p>An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.</p>
<p>Policy T3: Public Transport Walking and Cycling</p>	<p>All new development will be located and designed to maximise opportunities for walking, cycling and the use of public transport.</p> <p>Where opportunities for walking, cycling and using public transport are more limited, other measures will be sought to help reduce car use as appropriate (e.g. measures to promote home working or the opportunity for linked trips e.g. through mixed-use development).</p>	<p>Section 12.5 of this chapter sets out the available public transport and the existing pedestrian and cycling infrastructure within the initial traffic and transport study area, highlighting the sustainable transport options for construction staff.</p> <p>An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.</p>

Policy	Key provisions	How and where considered in the PEIR
Cherwell District Council Local Plan 2011-2031 (adopted July 2015)		
Policy SLE 4: Improved Transport and Connections	All development where reasonable to do so, should facilitate the use of sustainable modes of transport to make the fullest possible use of public transport, walking and cycling. Encouragement will be given to solutions which support reductions in greenhouse gas emissions and reduce congestion. Development which is not suitable for the roads that serve the development, and which have a severe traffic impact will not be supported.	<p>Section 12.5 of this chapter sets out the available public transport and the existing pedestrian and cycling infrastructure within the initial traffic and transport study area, highlighting the sustainable transport options for construction staff.</p> <p>An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.</p> <p>Section 12.9 of this chapter assesses the impact of construction vehicle movements arising from the Project on the LRN and SRN.</p>
Policy ESD 5: Renewable Energy	<p>Planning applications involving renewable energy development will be encouraged provided that there is no unacceptable adverse impact, including cumulative impact, on the following issues, which are considered to be of particular local significance in Cherwell:</p> <ul style="list-style-type: none"> • Landscape and biodiversity including designations, protected habitats and species, and Conservation Target Areas • Visual impacts on local landscapes • The historic environment including designated and non designated assets and their settings • The Green Belt, particularly visual impacts on openness • Aviation activities • Highways and access issues, and Residential amenity. 	Section 12.9 of this chapter assesses the impact of construction vehicle movements arising from the Project on the LRN and SRN.

Policy	Key provisions	How and where considered in the PEIR
Vale of White Horse District Council Local Plan 2031 Part 1 (adopted December 2016)		
Core Policy 22: Promoting Sustainable Transport and Accessibility	<p>The Council will work with Oxfordshire County Council and others to:</p> <ul style="list-style-type: none"> i. actively seek to ensure that the impacts of new development on the strategic and local road network are minimised ii. ensure that developments are designed in a way to promote sustainable transport access both within new sites, and linking with surrounding facilities and employment iii. support measures identified in the Local Transport Plan for the district, including within the relevant local area strategies iv. support improvements for accessing Oxford v. ensure that transport improvements are designed to minimise any effects on the amenities, character and special qualities of the surrounding area, and vi. promote and support improvements to the transport network that increase safety, improve air quality and/or make our towns and villages more attractive. 	<p>Section 12.5 of this chapter sets out the available public transport and the existing pedestrian and cycling infrastructure within the initial traffic and transport study area, highlighting the sustainable transport options for construction staff.</p> <p>An outline travel plan will be prepared as part of an Outline CTMP to be submitted in support of the application for Development Consent.</p> <p>Section 12.9 of this chapter assesses the impact of construction vehicle movements arising from the Project on the LRN and SRN.</p>

12.3 Consultation and engagement

12.3.1.1 On 15 June 2023, the Applicants submitted a Scoping Report to the Planning Inspectorate, which described the scope and methodology for the technical studies being undertaken to provide an assessment of any likely significant effects for the construction, operation and maintenance and decommissioning phases. It also described those topics or sub-topics which are proposed to be scoped out of the EIA process and provided justification as to why the Project would not have the potential to give rise to significant environmental effects in these areas.

12.3.1.2 Following consultation with the appropriate statutory bodies, the Planning Inspectorate (on behalf of the Secretary of State) provided a Scoping Opinion on 24 July 2023. Key issues raised during the scoping process specific to traffic and transport are listed in **Table 12.4**, together with details of how these issues have been addressed within the PEIR.

Table 12.4: Summary of scoping responses

Comment	How and where considered in the PEIR
Planning Inspectorate	
<p>The Applicant proposes to scope out the impact of additional vehicle movements on LRN and SRN during operation and maintenance of the Proposed Development on the basis that a limited number of additional vehicle movements, associated with infrequent maintenance activities, are likely to be generated. The number of vehicle movements likely to be required during operation and maintenance are not provided in the Scoping Report.</p> <p>The Inspectorate has considered the characteristics of the Proposed Development. The Inspectorate agrees to scope this matter out subject to confirmation of the type of operational/maintenance visits and vehicles and confirmation that these would not exceed relevant thresholds of effect (e.g. as set out in Environmental Assessment of Traffic and Movement, July 2023), taking account of any potential cumulative traffic effects.</p>	<p>This has been scoped out of the assessment for traffic and transport and is considered in section 12.4 of this chapter which includes confirmation of the type of operational/maintenance visits and vehicles and confirmation that these would not exceed relevant thresholds of effect.</p>
<p>The Applicant proposes to scope out the impact of additional vehicle movements on the LRN and SRN during decommissioning, on the basis that the number of vehicle movements generated would be less than the construction phase. The Scoping Report also states that a CTMP, updated as necessary, will be employed during the decommissioning phase.</p> <p>Indicative traffic numbers for either the construction or decommissioning phases are not provided within the Scoping Report. Therefore, no evidence is provided to support the claim that traffic numbers during decommissioning would be lower than during construction. As such, the Inspectorate is not in a position to scope this matter out at this stage. The ES should identify the likely traffic generated during construction and operation, along with the basis for estimating traffic movements and any measures to manage the impact of traffic on the road network. Where the potential for a significant effect is identified, then this should be fully assessed within the ES.</p>	<p>This has been scoped out of the assessment for traffic and transport on the basis that the number of vehicle movements generated are not expected to exceed those generated during the construction phase.</p> <p>Construction traffic flows are detailed in Section 12.9 of this chapter.</p> <p>Vehicle movements generated during the decommissioning phase are not expected to exceed those during the construction phase since the removal of materials does not need to be delicately transported and can be bulk loaded whilst some infrastructure will be retained in-situ. Given that some infrastructure will be left in-situ, this results in less transport requirement which results in fewer vehicle movements in comparison to the construction phase. Thus, it can be determined that the identification of significant effects resulting from traffic generated during the construction phase, would also apply to the decommissioning phase. An assessment of the decommissioning phase specifically is therefore scoped out.</p> <p>Traffic management measures for decommissioning will be submitted and agreed with the relevant highway authorities prior to any decommissioning works commencing which will identify and set out appropriate mitigation measures for decommissioning generated vehicle movements that are identified and required at that time.</p>

Comment	How and where considered in the PEIR
<p>The Scoping Report notes that access routes and arrangements are not yet known at this stage. It is not clear whether highway improvement works are proposed as part of the Proposed Development. Paragraph 7.6.23 states that there may be a requirement for a new junction to access the construction work areas and Table 7.11 states that highway works may be required to facilitate the movement of AILs during construction. Paragraph 7.6.20 states that the Proposed Development could result in “<i>improved connectivity</i>” however it is not clear what this refers to.</p> <p>The ES should provide a description of the proposed access routes along with any associated highways works and identify works/accesses on a Figure. The ES should assess any associated significant effects that may arise as a result of any highways works where they are likely to occur.</p>	<p>Details on access routes and arrangements and any associated highway works will be set provided in the ES chapter to be submitted in support of the application for Development Consent. Preliminary details on access routes are set out in section 12.6 of this chapter.</p>
<p>The Scoping Report states that impacts on safety from the use of AILs will be assessed within the ES. Appropriate measures to ensure safe transportation of hazardous loads should be included within the outline CEMP.</p>	<p>Section 12.9 of this chapter assesses the impact of AILs on the safety of users of the LRN, SRN and other transport receptors. A CEMP will be submitted in support of the application for Development Consent.</p>
<p>Scoping Report paragraphs 7.6.9 to 7.6.15 characterise the SRN, identifying A roads that link to the Proposed Development. It is noted that all A roads are described aside from the A4095 and it is unclear whether this is an omission or whether this is not considered part of the SRN. The ES should explain which roads form the SRN and why and describe the baseline in full.</p>	<p>Section 12.4 and 12.5 of this chapter sets out the initial traffic and transport study area and the baseline environment and includes all parts of the LRN and SRN that would be used by construction vehicles. This includes the A4095 which forms part of the LRN.</p>
<p>National Highways</p>	
<p>We do not offer a view of the scope of EIA’s as this is for the Planning Inspectorate to determine. However, we note that the applicant states in section 7.6 of the scoping report that a Transport Statement (TS) will be produced to accompany the application. Based on what is known about the development proposals, it is highly likely that the A34 will be impacted by the development, particularly during construction. Therefore, we would recommend that the applicant contacts us to determine any requirements we may have for the scope of the TS.</p>	<p>This chapter contains a preliminary integrated Transport Statement throughout to consider the potential impacts and effects on the operation of the highway network arising from the Project in accordance with guidance and best practice.</p> <p>The preparation of a Transport Statement to be submitted in support of the application for Development Consent will be discussed and agreed with the relevant Highway Authorities, including National Highways.</p>

Comment	How and where considered in the PEIR
<p>In addition, section 7.6.25 of the scoping report states that the applicant intends to submit a CTMP alongside the DCO. This should properly assess the impact of construction traffic on the A34.</p>	<p>An Outline CTMP will be submitted in support of the application for Development Consent.</p>
Oxfordshire County Council	
<p>The proposals are to scope out the decommissioning phase of the works due to the construction phase presenting a worst-case scenario, two main reasons for this are given. Firstly, that the number of vehicle movements associated with the decommissioning would be lower than construction. This is difficult to validate however does seem likely, it is expected however that given the scale of the scheme the number of movements would still be significant.</p> <p>Secondly it is considered that the decommissioning traffic would be set against a higher level of background traffic in the future. This assumption conflicts with the LTCP ambition to remove approximately half of car trips from the network. The point of decommissioning is unknown however likely to be 2050 or later at which time if policy objectives are met whilst the overall level of network movements would be higher the mode by which these are taken would be materially changed. The number of active travel movements is likely to increase significantly, and these modes are more susceptible to impact from construction traffic.</p>	<p>This has been scoped out of the assessment for traffic and transport on the basis that the number of vehicle movements generated are not expected to exceed those generated during the construction phase.</p> <p>Construction traffic flows are detailed in Section 12.9 of this chapter.</p> <p>Vehicle movements generated during the decommissioning phase are not expected to exceed those during the construction phase since the removal of materials does not need to be delicately transported and can be bulk loaded whilst some infrastructure will be retained in-situ. Given that some infrastructure will be left in-situ, this results in less transport requirement which results in fewer vehicle movements in comparison to the construction phase. Thus, it can be determined that the identification of significant effects resulting from traffic generated during the construction phase, would also apply to the decommissioning phase. An assessment of the decommissioning phase specifically is therefore scoped out.</p> <p>Traffic management measures for decommissioning will be submitted and agreed with the relevant highway authorities prior to any decommissioning works commencing which will identify and set out appropriate mitigation measures for decommissioning generated vehicle movements that are identified and required at that time.</p> <p>Given OCCs ambition with future reduced vehicle movements and increased active travel movements, traffic management measures for decommissioning will be prepared just prior to decommissioning when the effects of OCCs ambition can be determined in terms of vehicle movements and active travel movements at that time. This will enable the traffic management measures for decommissioning to consider these movements at that time and determine the mitigation measures that would be required specific for those movements.</p>

12.3.1.3 A summary of the key issues raised during consultation activities undertaken to date is presented in **Table 12.5**, together with how these issues have been considered in the production of this PEIR chapter.

Table 12.5: Summary of consultation relevant to this chapter

Date	Consultee	Issues raised	How and where considered in the PEIR
20 January 2023	Meeting OCC	OCC advised that some surrounding villages were isolated for pedestrians and cyclists and that opportunities and connections for cycling and walking through the Project site should be identified.	Existing rights of way through the Project site are considered in Volume 3 Chapter 6 Land use and recreation of the PEIR. Such opportunities and connections are being considered and will be set out within the ES and Transport Statement to be submitted in support of the application for Development Consent.
20 January 2023	Meeting OCC	OCC advised that the laying of cables would need input from the Network Management Team at OCC.	Meeting with OCC Network Management Team arranged for 02 February 2023.
20 January 2023	Meeting OCC	OCC advised that Traffic Management Plans will be required and that access points should be agreed.	An Outline CTMP will be submitted in support of the application for Development Consent.
02 February 2023	Meeting OCC Network Management Team	Discussed the proposals and the requirements for cable laying in the verge and/or highway.	Agreed to set up two workshops to discuss in more detail during March 2023.
02 March 2023	Workshop with OCC Network Management Team	Discussion on the alignment of the cable route and the requirements for cable laying in the verge and/or highway.	Agreed that OCC Network Management Team would study the broad location of the cable corridor during workshop on 09 March 2023 with a view to identifying any restrictions that may affect the laying of cables.
09 March 2023	Workshop with OCC Network Management Team	OCC Network Management Team studied the broad location of the cable corridor in the context of known constraints and known infrastructure within the verge and highway.	OCC Network Management Team advised they had no concerns with any of the cable route or its laying along the alignment proposed. This has provided confidence in the Project and there is no need for any specific assessment within this PEIR. Agreed that the Applicant would arrange to undertake trial pits at key locations along the cable route to inform micro-siting and whether the cable could be located within the verge or would be within the highway. This will be undertaken prior to and to inform the application for Development Consent.

12.4 Baseline methodology

12.4.1 Relevant guidance

12.4.1.1 For EIA methodology specific to the assessment of traffic and transport, the following guidance documents have been considered:

- Guidelines for the Environmental Assessment of Road Traffic (IEMA, 1993) (the 'IEMA guidelines'); and
- Design Manual for Roads and Bridges (DMRB) LA104: Environmental Assessment and Monitoring (Highways England (now National Highways), Transport Scotland, Welsh Government and Department for Infrastructure, 2020).

12.4.1.2 It should be noted that new IEMA guidelines (Environmental Assessment of Traffic and Movement, July 2023) have been released at the time of preparing this PEIR Chapter. The new guidelines do not fundamentally change the methodology of assessment and do not introduce any new form of assessment or methodologies, therefore the new guidelines will not alter the conclusions of this PEIR chapter. The ES chapter to be submitted in support of the application for Development Consent will be updated to fully reflect these new guidelines.

12.4.2 Scope of the assessment

12.4.2.1 The scope of this PEIR is detailed in **Table 12.4** and **Table 12.5**. This will be refined if required in consultation with relevant statutory and non-statutory consultees within the ES chapter to be submitted in support of the application for Development Consent.

12.4.2.2 Taking into account the scoping and consultation process, **Table 12.6** summarises the issues considered as part of this assessment.

Table 12.6: Issues considered within this assessment

Activity	Potential effects scoped into the assessment
Construction phase	
The impact of increases in traffic flows as a result of construction traffic or works due to, for example, cable trenching, upon driver and pedestrian delay and pedestrian amenity for users of the LRN and SRN.	Additional vehicle movements or works required to facilitate construction of the Project may impact the effective operation of the LRN, SRN and other transport receptors (e.g., Public Rights of Way PRoW)) and cause driver and pedestrian delay/impact on pedestrian amenity.
The impact of increases in traffic flows as a result of construction traffic or works due to, for example, cable trenching, upon community severance for users of the LRN and SRN.	Additional vehicle movements or works required to facilitate construction of the Project could limit the mobility/access of users of the LRN, SRN and other transport receptors (e.g., PRoW), causing severance between communities (including community facilities).
The impact of temporary delays to public transport services caused by increases in traffic flows as a result of construction traffic or works due to, for example, cable trenching.	Construction of the Project may disrupt public transport services (e.g., buses) due to the construction works themselves or additional vehicles movements causing delays.
The impact of increases in traffic flows as a result of construction traffic or works due to, for example, cable trenching, upon accidents and safety for users of the LRN, SRN and other transport receptors.	Additional vehicle movements required to facilitate construction of the Project could impact the safety of users of the LRN, SRN and other transport receptors (e.g., PRoW).
The impact of AILs on the safety of users of the LRN, SRN and other transport receptors.	Construction of the Project will require the transportation of AILs, which may impact the safety of users of the LRN, SRN and other transport receptors.

12.4.2.3 Effects which are not considered likely to be significant have been scoped out of the assessment. A summary of the effects scoped out is presented in **Table 12.7**.

Table 12.7: Issues scoped out of the assessment

Issue	Justification
Operation and Maintenance Phase	
<p>The impact of additional vehicle movements on the LRN and SRN on driver and pedestrian delay, pedestrian amenity, community severance, public transport delay and accidents and safety during operation and maintenance of the Project.</p>	<p>Operation and maintenance of the Project is likely to generate a limited number of additional vehicle movements on the LRN and SRN. The Project does not require any manned facilities and requires only infrequent maintenance activities. Maintenance visits will be undertaken by a light vehicle (typically a 4x4) and would be between weekly and monthly. Thus, at most, there would be one arriving light vehicle movement and one departing light vehicle movement per week which is significantly below the assessment thresholds set out in section 12.8 and is therefore scoped out of the assessment.</p> <p>Therefore, the potential impact of additional vehicle movements on the LRN, SRN and other transport receptors during operation and maintenance of the Project is unlikely to result in significant effects and is proposed to be scoped out of the assessment for traffic and transport.</p>
Decommissioning Phase	
<p>The impact of additional vehicle movements on the LRN and SRN on driver and pedestrian delay, pedestrian amenity, community severance, public transport delay and accidents and safety during decommissioning of the Project.</p>	<p>Vehicle movements generated during the decommissioning phase are not expected to exceed those during the construction phase since the removal of materials does not need to be delicately transported and can be bulk loaded whilst some infrastructure will be retained in-situ. Given that some infrastructure will be left in-situ, this results in less transport requirement which results in fewer vehicle movements in comparison to the construction phase. Thus, it can be determined that the identification of significant effects resulting from traffic generated during the construction phase, would also apply to the decommissioning phase. An assessment of the decommissioning phase specifically is therefore scoped out.</p> <p>Traffic managements measures for decommissioning will be submitted and agreed with the relevant highway authorities prior to any decommissioning works commencing which will identify and set out appropriate mitigation measures for decommissioning generated vehicle movements that are identified and required at that time.</p> <p>Given OCCs ambition with future reduced vehicle movements and increased active travel movements, traffic management measures for decommissioning will be prepared just prior to decommissioning when the effects of OCCs ambition can be determined in terms of vehicle movements and active travel movements at that time. This will enable the traffic management measures for decommissioning to consider these movements at that time and determine the mitigation measures that would be required specific for those movements.</p>

12.4.4 Study area

- 12.4.4.1 The initial study area for the assessment of traffic and transport (the initial traffic and transport study area) focuses on areas where potential impacts could occur. This incorporates the LRN and SRN to be used by construction traffic as determined from the preliminary access routes set out in section 12.6 of this chapter.
- 12.4.4.2 The A34 forms the outer boundary of the initial traffic and transport study area. It forms part of the SRN and is located on the eastern side of the Project, routing broadly north to south between the M40 and the M4/M3 respectively (in a local context).
- 12.4.4.3 There are several 'A' classification roads in proximity to the Project that form part of the LRN which can be accessed from the A34 and there are some lower classification roads providing local access to local areas which also form part of the LRN.
- 12.4.4.4 The initial traffic and transport study area is shown at Volume 3, Appendix 12.1 Description of network links and sensitivity and presents the highway links that form the initial traffic and transport study area and is formed of those parts of the SRN and the LRN to be used by construction traffic to/from the construction compounds and HDD compounds as determined from the preliminary access routes set out in **section 12.6** of this chapter.

12.4.5 Methodology for baseline studies

Desk studies

- 12.4.5.1 Information on traffic and transport within the initial traffic and transport study area was collected through a detailed desktop review of existing studies and data sets of the following:
- Identification of sensitive receptors as defined in **Section 12.8** of this chapter;
 - Road geometries and layout;
 - Identification of facilities for sustainable travel;
 - Identification of potential route options;
 - Existing publicly available traffic survey/traffic flow data that is up to date and suitable for assessment purposes; and
 - Personal Injury Accident locations.

12.5 Baseline environment

12.5.1 Desk study

- 12.5.1.1 Information on traffic and transport within the initial traffic and transport study area was collected through a detailed review of existing studies and datasets. These are summarised at **Table 12.8**.

Table 12.8: Summary of desk study sources used

Title	Source	Year	Author
Identification of sensitive receptors	https://www.google.co.uk/maps (This will be supplemented at the ES stage by undertaking further site visits in key locations to validate the contents of this PEIR) https://publicrightsofway.oxfordshire.gov.uk/standardmap.aspx	N/A	N/A
Road geometries and layouts	https://www.google.co.uk/maps (supplemented and confirmed by site visits in key locations)	N/A	N/A
Identification of facilities for sustainable travel	https://www.google.co.uk/maps Public Transport operators and travel guides within the initial traffic and transport study area: https://www.chilternrailways.co.uk/ https://www.gwr.com/ https://www.stagecoachbus.com/ https://www.thetrainline.com/ https://www.oxfordbus.co.uk/	N/A	N/A
Identification of potential route options	https://www.google.co.uk/maps (supplemented and confirmed by site visits. This will be supplemented at the ES stage by undertaking further and ongoing site visits to validate the contents of this PEIR)		
Existing publicly available traffic survey data	https://roadtraffic.dft.gov.uk/#6/55.254/-6.064/basemap-regions-countpoints https://oxfordshire.maps.arcgis.com/apps/webappviewer/index.html?id=afe8bef2e7514f91bb1bf6ec034fb69b (this will be supplemented at the ES stage by undertaking further traffic surveys at key locations to validate the contents of this PEIR)	Various	N/A
Personal Injury Accident Locations	www.crashmap.co.uk (this will be supplemented at the ES stage by purchasing further Personal Injury Accident data from OCC to validate the contents of this PEIR)	Latest available five years data of 2017 to 2021 inclusive	N/A

12.5.2 Future baseline conditions

Highway network

- 12.5.2.1 The A34 forms the outer boundary of the initial traffic and transport study area and forms part of the SRN which is operated and maintained by National Highways.
- 12.5.2.2 All other roads within the initial traffic and transport study area, form part of the LRN and are operated and maintained by OCC.
- 12.5.2.3 The highway network within the initial traffic and transport study area includes the A34 and relevant parts of the LRN (determined as being likely to be used

by construction vehicles) and has been depicted into highway links at Volume 3, Appendix 12.1 Description of network links and sensitivity of this PEIR.

12.5.2.4 A description of all these highway links, their geometries and layout and their local environs have been presented at Volume 3, Appendix 12.1 Description of network links and sensitivity of this PEIR.

Public transport network

12.5.2.5 Details of local bus services accessible from bus stops located within the initial traffic and transport study area are summarised in **Table 12.9**

Table 12.9: Summary of local bus services

Service	Operator	Route	Frequency (Monday to Friday)	Frequency (Saturday)	First Service	Last Service
E1	Stagecoach Oxfordshire	Oxford – Eynsham	Every 30 minutes	Every 30 minutes	05:45	00:15
H2	Stagecoach Oxfordshire	JR Hospital – Carterton	Every hour	Every hour	06:30	20:30
S1	Stagecoach Oxfordshire	Oxford – Witney and Carterton	Every 20 minutes	Every 20 minutes	05:50	00:45
S2	Stagecoach Oxfordshire	Oxford – Witney and Cheltenham	Every 2 hours	Every 2 hours	07:00	19:25
S3	Stagecoach Oxfordshire	Oxford – Woodstock – Charlbury/Chipping Norton	Every 30 minutes	Every 30 minutes	06:23	00:59
S4	Stagecoach Oxfordshire	Oxford - Banbury	Every hour	Every hour	07:25	23:05
S7	Stagecoach Oxfordshire	Oxford – Woodstock - Witney	Every 30 minutes	Every 30 minutes	04:23	00:28
S9	Stagecoach Oxfordshire	Oxford – Wantage	Every 30 minutes	Every 30 minutes	06:24	23:42
2/2A	Stagecoach Oxfordshire	Oxford - Kidlington	Every 10 minutes	Every 10 minutes	04:35	00:35
300 Park&Ride	Oxford Bus Company	Redbridge Park&Ride – Pear Tree Park&Ride via Oxford City Centre	Every 15 minutes	Every 15 minutes	06:00	23:15
33	Oxford Bus Company	Oxford via Wootton and Abingdon	Every hour	Every hour	06:25	23:16
411	First & Last Mile	Eynsham Church – Hanborough Station	Every 2 hours	No Saturday service	08:45	17:05
418	First & Last Mile	Eynsham – Stanton Harcourt – Standlake – Eynsham	Every 2 hours	No Saturday service	09:30	18:05
63	Oxford Bus Company	Oxford City Centre - Southmoor	Every hour	No Saturday service	09:00	17:49

12.5.2.6 Oxford Parkway Railway Station is located in Oxford on the Chiltern Railway Line and Hanborough Railway Station is located in Long Hanborough on the Great Western Railway Line, both in close proximity to the initial traffic and transport study area. Details of train services at Oxford Parkway Railway Station and Hanborough Railway Station are summarised in **Table 12.10**.

Table 12.10: Summary of rail services

Origin	Destination	Weekday			Saturday		
		First Service	Last Service	Typical Frequency	First Service	Last Service	Typical Frequency
Oxford Parkway	London Marylebone	05:41	22:50	Every 30 minutes	06:17	22:17	Every 30 minutes
	Oxford	06:06	01:06	Every 30 minutes	07:13	00:20	Every 30 minutes
Hanborough	Worcester Foregate Street	07:02	21:56	Every hour	07:00	20:58	Every hour
	London Paddington	07:19	22:11	Every hour	07:19	22:26	Every hour
	Great Malvern	07:02	21:56	Every hour	07:00	20:58	Every hour

Pedestrian and cyclist infrastructure

12.5.2.7 The Project is located within sections of Oxfordshire consisting of primarily agricultural land, however there are some built up residential areas adjacent to the Project including Eynsham, Farmoor, Cassington and Bladon which have commensurate footway provision throughout.

12.5.2.8 There are three National Cycle Network (NCN) routes that are in close proximity to the Project. These include:

- NCN Route 5, which routes broadly north-west to south-east between the Northern and Central site areas and then through the Northern site area;
- NCN Route 51, which routes broadly south-west to north-east on the eastern side of the Northern site area; and
- NCN Route 442, which routes broadly north-west to south-east on the western side of the Central site area.

12.5.2.9 A description of the highway links with footway provisions is set out at Volume 3, Appendix 12.1 Description of network links and sensitivity of this PEIR.

Base traffic flows

12.5.2.10 **Table 12.8** sets out that existing publicly available traffic surveys have been obtained from both the DfT and OCC. These have both been used to create base traffic flows for the highway links within the initial traffic and transport study area as set out within Table 12.11 along with the source and base year of the traffic.

- 12.5.2.11 For the purposes of this PEIR, DfT Annual Average Daily Traffic Flows (AADT) data was interrogated first to obtain base traffic flows within the initial traffic and transport study area. For those highway links where there was no available DfT AADT data, OCC AADT data was used. No traffic survey data from during Covid-19 related restrictions has been utilised and all traffic survey data is pre-Covid-19. An analysis of traffic flow statistics published by DfT shows that current traffic flows across England has returned to pre- Covid-19 levels. Therefore, the base traffic flows within the initial traffic and transport study area are representative of current conditions and are suitable for assessment.
- 12.5.2.12 **Table 12.11** includes total vehicles (all classifications of all vehicles) and HGVs, which comprise all vehicles in excess of 7.5 tonnes gross weight and includes buses.
- 12.5.2.13 It should be noted that AADT data for Link 19 (Wharf Road) is unavailable at this preliminary stage. Further interrogation of the base traffic flows of Link 19 will be conducted and included within the ES chapter and the Transport Statement to be submitted in support of the application for Development Consent. However, **Table 12.11** and the subsequent relevant tables include Link 19 for completeness given its inclusion within the initial traffic and transport study area.

Table 12.11: Base traffic flows

Link Reference	Description	Annual Average Daily Traffic Flows (AADT)		Source	Base Year
		Total Vehicles	HGVs		
Link 1	A4260 between Access and B4027	10,300	424	OCC AADT	2019
Link 2	B4027 between Access and A4260	3,200	58	OCC AADT	2019
Link 3	A4260 between B4027 and A4095	10,900	449	OCC AADT	2019
Link 4	A4260 between A4095 (NE) and A4095 (SW)	19,622	808	DfT AADT	2019
Link 5	A4095 between A4260 and A44	10,069	715	DfT AADT	2019
Link 6	A4095 between A44 and Cassington Road	13,400	952	OCC AADT	2019
Link 7	Cassington Road between A4095 and Access	750	10	DfT AADT/estimated	Estimated for a future construction year of 2026
Link 8	A44 between A4095 and Langford Lane	24,295	1,008	DfT AADT	2019
Link 9	A44 between Langford Lane and Cassington Road	26,000	1,175	OCC AADT	2019

Link Reference	Description	Annual Average Daily Traffic Flows (AADT)		Source	Base Year
		Total Vehicles	HGVs		
Link 10	A44 between Cassington Road and A4260	26,000	1,175	OCC AADT	2019
Link 11	A44 between A4260 and A34	29,817	1,459	DfT AADT	2019
Link 12	A34 northeast of Kidlington	70,501	7,841	DfT AADT	2019
Link 13	A44 between A34 and A40	30,353	1,604	DfT AADT	2019
Link 14	A40 between A44 and Eynsham Road	22,700	1,808	OCC AADT	2019
Link 15	A40 between Eynsham Road and Lower Road	24,738	1,970	DfT AADT	2019
Link 16	Lower Road between A40 and Access	6,472	317	DfT AADT	2019
Link 17	B4449 between A40 and Access	10,600	689	OCC AADT	2018
Link 18	B4449 between Access and Access on B4044 Oxford Road	10,600	689	OCC AADT	2018
Link 19	Access on Wharf Road (HDD 6 Exit and HDD 5C Entry)	-	-	-	-
Link 20	B4044 Oxford Road between Access and Cumnor Road	10,300	670	OCC AADT	2019
Link 21	Cumnor Road between B4044 Eynsham Road and Access	3,000	81	OCC AADT	2019
Link 22	B4044 Eynsham Road between Cumnor Road and A420	9,800	637	OCC AADT	2019
Link 23	A420 between B4044 Eynsham Road and A34	29,400	2,176	OCC AADT	2019
Link 24	A34 (SB) at junction with A420	69,233	6,550	DfT AADT	2019
Link 25	A34 between A420 and Peartree Roundabout	79,325	7,478	DfT AADT	2019

Road safety

12.5.2.14 Personal Injury Accident (PIA) data obtained from Crashmap covering the latest available five year period 2017 to 2021 (inclusive) has been used to

consider road safety within the initial traffic and transport study area. This is the latest available period and covers the same period as the base traffic flows.

- 12.5.2.15 The Crashmap database has been interrogated for the area comprising the highway links shown at Volume 3 Appendix 12.1: Description of network links and sensitivity of this PEIR and which form the initial traffic and transport study area to identify clusters of PIAs. These are set out in **Table 12.12**.
- 12.5.2.16 PIA clusters are determined as areas with four or more injury accidents in one location.

Table 12.12: PIA clusters within the initial traffic and transport study area

Cluster ID	Location	Number of PIAs
1	A44 onslip junction at Peartree Roundabout (L11)	4
2	Wolvercote Roundabout at A40 westbound junction (L14)	4

- 12.5.2.17 The analysis identified two clusters of PIAs within the initial traffic and transport study area during the five year period. These clusters were formed based upon, amongst other things, traffic patterns and traffic flows during the period 2017 to 2021 inclusive. The analysis has identified that there are no existing road safety concerns within the initial traffic and transport study area.

12.5.3 Future baseline conditions

- 12.5.3.1 For the purposes of this PEIR, future baseline traffic flows have been calculated by applying traffic growth rates to the base traffic flows set out in **Table 12.11** of this chapter.
- 12.5.3.2 Trip End Model Presentation Programme (TEMPro) is a computer software program developed by the DfT for providing traffic growth projections. The software has been used to derive traffic growth rates to 2026 (the predicted first full year of construction of the Project) for the respective road types and growth years for the highway links set out in **Table 12.11** of this chapter.
- 12.5.3.3 These traffic growth rates have been applied to the base traffic flows set out in **Table 12.11** of this chapter and the resultant 2026 baseline traffic flows are set out in **Table 12.20** of this chapter.

12.5.4 Key receptors

- 12.5.4.1 **Table 12.13** identifies the receptors taken forward into the assessment. These are the highway links within the initial traffic and transport study area as identified at Volume 3, Appendix 12.1 Description of network links and sensitivity of this PEIR to be used by construction vehicles as set out in **section 12.6** of this chapter.
- 12.5.4.2 Descriptions of sensitive receptors are set out in **section 12.8** of this chapter and link sensitivities are qualified using the criteria set out in **section 12.8** of this chapter and professional judgement.

Table 12.13: Key receptors taken forward to assessment

Link	Sensitivity	Qualification
Link 1: A4260 between Access and B4027	Low	Single carriageway road subject to the NSL. Few sensitive receptors including a hotel and restaurant, and car dealership, all set back from the carriageway.
Link 2: B4027 between Access and A4260	Negligible	No sensitive receptors
Link 3: A4260 between B4027 and A4095	Negligible	No sensitive receptors
Link 4: A4260 between A4095 (NE) and A4095 (SW)	Negligible	No sensitive receptors
Link 5: A4095 between A4260 and A44	Low	Single carriageway road with speed restriction variances based on section (NSL and 50mph). Frontage to some residential dwellings, set back from the carriageway with good hedgerow screening between vehicles on the carriageway and people in their home.
Link 6: A4095 between A44 and Cassington Road	High	Single carriageway road with speed restriction variances based on section. 30mph and 20mph speed restriction throughout Bladon village. Throughout Bladon village there are sensitive receptors including a school, church, and extensive frontage access to residential dwellings.
Link 7: Cassington Road between A4095 and Access	Low	Single carriageway road subject to the NSL. Few sensitive receptors including residential properties and a small commercial area. Sensitive receptors are set back from the carriageway.
Link 8: A44 between A4095 and Langford Lane	Low	Dual carriageway road with speed restriction variances based on section (NSL and 50mph). Frontage to some residential dwellings with shared footways/cycleways segregated from the carriageway by a verge.
Link 9: A44 between Langford Lane and Cassington Road	Low	50mph dual carriageway road with frontage to some residential dwellings. Shared footways/cycleways segregated from the carriageway by a verge.
Link 10: A44 between Cassington Road and A4260	Low	50mph dual carriageway road with frontage to some residential dwellings and a public house, set back from the carriageway with good screening between vehicles on the carriageway and people in their home. Footway provision commensurate with footfall and use.
Link 11: A44 between A4260 and A34	Negligible	No sensitive receptors
Link 12: A34 northeast of Kidlington	Negligible	No sensitive receptors
Link 13: A44 between A34 and A40	Low	Dual carriageway road with speed restriction variances based on section (50mph and 30mph). Limited frontage to a petrol station and car garage and footway provision commensurate with footfall and use.

Link	Sensitivity	Qualification
Link 14: A40 between A44 and Eynsham Road	Low	Dual carriageway and single carriageway road with speed restriction variances based on section (40mph and NSL). Receptors of low sensitivity including a petrol station and car garage. Good footway provision commensurate with footfall and use.
Link 15: A40 between Eynsham Road and Lower Road	Low	Single carriageway road subject to NSL. Receptors of low sensitivity including a petrol station. Good footway provision commensurate with footfall and use.
Link 16: Lower Road between A40 and Access	Negligible	No sensitive receptors
Link 17: B4449 between A40 and Access	Negligible	No sensitive receptors
Link 18: B4449 between Access and Access on B4044 Oxford Road	Low	50mph single carriageway road. Adequate footway provision commensurate with footfall and use to Eynsham village.
Link 19: Access on Wharf Road (HDD 6 Exit and HDD 5C Entry)	Medium	Single carriageway road with frontage to some sensitive receptors including a large employment area and allotments. Some on street parking and adequate footway provision in locations of demand.
Link 20: B4044 Oxford Road between Access and Cumnor Road	Medium	Single carriageway road with variance in speed restrictions at different sections. 40mph speed restriction throughout Farmoor village with frontage to residential dwellings and footway provision. Residential dwellings and footways through Farmoor are set back from the carriageway by a wide verge.
Link 21: Cumnor Road between B4044 Eynsham Road and Access	Medium	Single carriageway road with variance in speed restriction at different sections (40mph and NSL). Some sensitive receptors including frontage to residential dwellings, village hall, nursery and commercial areas with footway provision commensurate with demand.
Link 22: B4044 Eynsham Road between Cumnor Road and A420	Low	Single carriageway road with variance in speed restriction based on section. Frontage to some residential dwellings and commercial areas, set back from the carriageway and well screened by hedgerow.
Link 23: A420 between B4044 Eynsham Road and A34	Negligible	No sensitive receptors
Link 24: A34 (SB) at junction with A420	Low	Dual carriageway trunk road with 50mph speed restriction. Some frontage to residential dwellings and footway provision commensurate for its use and footfall.
Link 25: A34 between A420 and Peartree Roundabout	Negligible	No sensitive receptors

12.6 Key parameters for assessment

12.6.1 Maximum design scenario

- 12.6.1.1 The maximum design scenarios identified in **Table 12.14** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the Project Design Envelope provided in Volume 1, Chapter 6: Project Description of the PEIR. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Design Envelope (e.g., different infrastructure layout), to that assessed here be taken forward in the final design scheme.
- 12.6.1.2 There is an inter-relationship with this chapter and the Air Quality, Noise and Vibration and Human Health chapters in so far as these chapters consider traffic flows. The traffic flows and conclusions of the chapter will be made available, and these chapters will utilise these as part of their assessments and are therefore fully consistent with the above.

Table 12.14: Maximum design scenario considered for the assessment of potential impacts.

Potential impact	Phase ^a			Maximum Design Scenario	Justification
	C	O	D		
<p>The temporary impact of the construction work may affect severance of communities.</p> <p>The temporary impact of the construction work may affect pedestrian delay.</p> <p>The temporary impact of the construction work may affect pedestrian amenity.</p> <p>The temporary impact of the construction work may affect highway capacity.</p> <p>The temporary impact of the construction work may affect accidents and road safety.</p> <p>The temporary impact of hazardous, dangerous and abnormal loads during construction works.</p>	✓	×	×	<p>Construction phase</p> <p>The maximum duration of construction is 30 months. A construction assessment year of 2026 is adopted.</p> <p>The peak generation of daily HGV movements will occur when compounds are being set up. There will be one compound in the Northern site area, two compounds in the Central site area and one compound in the Southern site area.</p> <p>The maximum number of HDD locations along the Cable Corridor is 6.</p> <p>It is assumed that all materials etc are transported by road.</p> <p>A 6-day working week (Monday to Saturday) 07.00 to 19.00 has been adopted.</p>	<p>Adopting the first full year of construction for assessing the impact of construction traffic represents the year in which the greatest impact will result. This is because baseline traffic flows may continue to grow year-on-year for a small number of years until OCCs measures to realise their ambitions to reduce vehicle movements have a significant effect to result in reduced vehicle movements. Therefore such an assumption is reasonable and results in the greatest increases in traffic flows relative to the baseline traffic flows.</p> <p>The period during which compounds are being set up generates the peak generation of daily HGV movements transporting aggregate and represents the greatest potential for impacts on pedestrian delay and amenity; community severance; temporary delays to public transport services; and accidents and safety for transport receptors as a result of larger numbers of HGV movements.</p> <p>Traffic movements are generated to HDD locations and a maximum number of HDD locations will result in a maximum number of daily HGV movements.</p> <p>Assuming transportation of material by road generates the largest number of daily HGV movements.</p> <p>Assuming a reasonable estimation of working days and working hours results in a reasonable balance of maximum construction traffic flows for both daily and weekday peak hour periods.</p>
<p>The impact of Abnormal Indivisible Loads on the safety of users of the LRN, SRN and other transport receptors.</p>	✓	×	×	<p>Construction phase</p> <p>A reasonable maximum estimate for construction elements such as the cable drum dimensions and weights, will maximise the transportation requirements for AILs in terms of highway geometries. These will be confirmed in the ES to be</p>	<p>The maximum weight and dimensions of the cable drums will maximise the AIL requirements and present the greatest potential for impact on transport receptors.</p> <p>The greatest number of heavy electrical components will maximise the number of and present the greatest potential for impact on transport receptors.</p>

Potential impact	Phase ^a			Maximum Design Scenario	Justification
	C	O	D		
				<p>submitted in support of the application for development consent.</p> <p>A reasonable maximum estimate of the number of heavy electrical components will maximise the number of AILs. These will be confirmed in the ES to be submitted in support of the application for development consent.</p>	
The impacts arising from traffic associated with operation of the Project may affect traffic and transport receptors.	x	✓	x	<p>Operational and maintenance phase</p> <p>Maintenance visits will be undertaken by a light vehicle (typically a 4x4) and would be between weekly and monthly. Thus, at most, there would be one arriving light vehicle movement and one departing light vehicle movement per week.</p>	Maximising the number of routine inspections and maintenance/repairs/replacements would maximise the number of vehicle movements.

^a C=construction, O=operational and maintenance, D=decommissioning

12.6.2 Construction vehicle trip generation, distribution and assignment

12.6.2.1 The estimates of construction vehicle movements associated with the construction of the Project has been undertaken by the Applicant using a first principles approach based upon estimates of construction materials, construction and engineering requirements and construction programme etc. The estimates use the maximum design scenario set out in **Table 12.14** of this chapter.

12.6.2.2 The estimates of construction HGV movements are as follows:

- Construction Compound – Peak of up to 105 total HGV movements (all arrivals plus all departures) per day to/from each construction compound. Average of 66 total HGV movements (all arrivals plus all departures) per day to/from each construction compound over the 30 month period.
 - Although the working day may be between 07:00 and 19:00, HGV movements may not be generated over that whole 12 hour period. If a 10 to 12 hour working day for HGV movements is assumed, this equates to:
 - A typical peak of nine to 11 total HGV movements per hour;
 - An average of six to seven total HGV movements per hour over the 30 month period;
- HDD Compound – 2 total HGV movements (all arrivals plus all departures) per day to/from each HDD compound.

12.6.2.3 The origin of construction HGV movements cannot be determined at this stage and will be predicated upon the procurement of materials at the time of construction. However, they will arrive from the A34 which forms the outer boundary of the initial traffic and transport study area, therefore the precise origin does not affect the assessments contained within this chapter.

12.6.2.4 To ensure a robust assessment whereby a reasonable maximum number of construction HGVs are assigned onto each highway link, it is assumed that all materials are procured from outside of the initial traffic and transport study area. This ensures that construction HGVs are assigned onto all relevant highway links within the initial traffic and transport study area.

12.6.2.5 There are two entry highway links to the initial traffic and transport study area as follows:

- The A34 northeast of Peartree Roundabout (highway link 12); and
- The A34 southeast of Botley Interchange (highway link 24).

12.6.2.6 There may be days when construction HGVs arrive wholly from the A34 northeast of Peartree Roundabout (highway link 12) and days when construction HGVs arrive wholly from the A34 southeast of Botley Interchange (highway link 24).

12.6.2.7 When these construction HGVs leave the A34 and enter onto the LRN, their origin (A34 northeast of Peartree Roundabout or A34 southeast of Botley Interchange) does not affect the number of construction HGVs that are on the LRN.

- 12.6.2.8 From the SRN perspective, the proportion of construction HGVs on the A34 northeast of Peartree Roundabout (highway link 12) and the A34 southeast of Botley Interchange (highway link 24) would total 100% over the 30 month construction period, however, the proportion on each would change on a day-by-day basis.
- 12.6.2.9 For the purposes of this PEIR, and to ensure a robust assessment, it is assumed that up to 100% of all construction HGVs could arrive from (and then depart to) both the A34 northeast of Peartree Roundabout (highway link 12) and the A34 southeast of Botley Interchange (highway link 24). The construction HGV movements then converge onto the LRN and have then been assigned along the other highway links to their respective construction compounds and HDD compounds along the access routes set out in the below paragraphs. This method results in construction HGVs being assigned onto all potential access routes allowing for day-to-day fluctuations in delivery origins but no more than 100% of construction HGVs on any part of the access route.
- 12.6.2.10 Consistent with the assumption for construction HGVs whereby to ensure a reasonable maximum number of construction staff vehicle movements are assigned onto each highway link, for the purposes of this PEIR it is assumed that all construction staff arrive from outside of the initial traffic and transport study area.
- 12.6.2.11 The same assumptions have been made with regards to the two entry highway links to the initial traffic and transport study area whereby it is assumed that up to 100% of all construction staff vehicles could arrive from (and then departing to) both the A34 northeast of Peartree Roundabout (highway link 12) and the A34 southeast of Botley Interchange (highway link 24).
- 12.6.2.12 The estimates of construction staff vehicle movements associated with the construction of the Project has been undertaken by the Applicant using the same first principles approach as above. Full details of these calculations that derived the construction vehicle movements will be set out in the ES to be submitted in support of the application for development consent. The estimates of construction staff vehicle movements are as follows:
- Construction Compound – 28 total light vehicle movements (14 arrivals plus 14 departures) per day to/from each construction compound during peak construction; and
 - HDD Compound – eight total light vehicle movements (four arrivals plus four departures) per day to/from each HDD compound during peak construction.
- 12.6.2.13 At this stage, accesses have not yet been designed. Full details of the Project access junctions onto the highway and their layouts and geometries to demonstrate accordance with highway design standards will be detailed in the ES chapter and Transport Statement to be submitted in support of the application for Development Consent.
- 12.6.2.14 For the purposes of this PEIR, the peak daily construction vehicle movements as derived from the maximum design scenario in **Table 12.14** of this chapter and the estimates of the Applicant have been assigned onto the highway links

accordingly as set out in **Table 12.20** of this chapter and in accordance with the access routes as follows:

- Construction compound 1 (Northern site area):
 - A34, A44, A4095, A4260;
- Construction compound 2 (Central site area):
 - A34, A44;
- Construction compound 3 (Central site area):
 - A34, A44, A40, Lower Road;
- Construction compound 4 (Southern site area):
 - A34, A420, B4044 Eynsham Road, B4017 Cumnor Road;
- HDD 1:
 - A34, A44, A4095, A4260 (Entry Point);
 - A34, A44, A4095, A4260, B4027 (Exit Point);
- HDD 2:
 - A34, A44 (Entry Point);
 - A34, A44, A4095 (Exit Point);
- HDD 3:
 - A34, A44, A4095, Cassington Road (Entry Point);
 - A34, A44, A4095, Cassington Road (Exit Point);
- HDD 4:
 - A34, A44, A40, Lower Road (Entry Point);
 - A34, A44, A40, Lower Road (Exit Point);
- HDD 5 Option A:
 - A34, A44, A40, B4449, B4044 Oxford Road (Entry Point);
 - A34, A420, B4044 Eynsham Road (Exit Point);
- HDD 5 Option B1:
 - A34, A44, A40, B4449, B4044 Oxford Road (Entry Point);
 - A34, A420, B4044 Eynsham Road (Exit Point);
- HDD 5 Option B2:
 - A34, A44, A40, B4449, B4044 Oxford Road (Entry Point);
 - A34, A420, B4044 Eynsham Road (Exit Point);
- HDD 5 Option C:
 - A34, A44, A40, B4449, B4044 Oxford Road, Wharf Road (Entry Point);
 - A34, A420, B4044 Eynsham Road (Exit Point);
- HDD 6:

- A34, A44, A40, B4449 (Entry Point); and
- A34, A44, A40, B4449, B4044 Oxford Road, Wharf Road (Exit Point).

- 12.6.2.15 As above, construction traffic to/from the access for the construction compound in the Southern site area has been assigned onto the A34, the A420, the B4044 Eynsham Road and the B4017 Cumnor Road.
- 12.6.2.16 This would require construction HGVs to turn through the B4044 Eynsham Road/B4017 Cumnor Road mini roundabout. HGVs currently turn through this mini roundabout, however, the Applicant is analysing this and the ability for construction HGVs to turn efficiently through it.
- 12.6.2.17 This will be reported further within the ES chapter and Transport Statement to be submitted in support of the application for Development Consent.
- 12.6.2.18 This may be achieved by adopting traffic management at the B4044 Eynsham Road/B4017 Cumnor Road mini roundabout to control vehicle movements and allow HGVs to turn through it efficiently. An alternative to construction HGVs turning through the B4044 Eynsham Road/B4017 Cumnor Road mini roundabout is for a haul road to be created that would bypass it. This may be via Denman's Lane.
- 12.6.2.19 Such a route could make use of the current, albeit improved, junction of Denman's Lane/B4044 Eynsham Road, then along the northern section of Denman's Lane before routeing west into the Project site. This will be reported further within the ES chapter and Transport Statement to be submitted in support of the application for Development Consent.
- 12.6.2.20 Another alternative to improve the efficiency of construction HGVs turning through the B4044 Eynsham Road/B4017 Cumnor Road mini roundabout is to instead route them to / from the north west via the Swinford Bridge and the A40 (instead of to / from the east via the A420).
- 12.6.2.21 This would make use of the existing highway along which other HGVs currently travel. This will be reported further within the ES chapter and Transport Statement to be submitted in support of the application for Development Consent.

12.7 Mitigation measures intended to be adopted as part of the Project

- 12.7.1.1 For the purposes of the EIA process, the term 'Measures adopted as part of the Project' is used to include the following types of mitigation measures (adapted from IEMA, 2016):
- Primary (inherent) mitigation - measures included as part of the project design. IEMA describes these as '*modifications to the location or design of the development made during the pre-application phase that are an inherent part of the project and do not require additional action to be taken*'. This includes modifications arising through the iterative design process. These measures will be secured through the consent itself through the description of the project and the parameters secured in the DCO. For example, a reduction in footprint or height.

- Secondary (foreseeable) mitigation. IEMA describes these as ‘actions that will require further activity in order to achieve the anticipated outcome’. These include measures required to reduce the significance of environmental effects (such as lighting limits) and may be secured through environmental management plan.
- Tertiary (inexorable) mitigation. IEMA describes these as ‘actions that would occur with or without input from the EIA feeding into the design process. These include actions that will be undertaken to meet other existing legislative requirements, or actions that are considered to be standard practices used to manage commonly occurring environmental effects’. It may be helpful to secure such measures through a Code of Construction Practice or similar.

12.7.1.2 For the purposes of this PEIR, mitigation measures set out are those considered to be appropriate for the Project at this time. They may evolve and/or be refined in response to the statutory consultation process and/or other considerations.

12.7.1.3 Where relevant, measures have been identified that may result in enhancement of environmental conditions. The mitigation measures relevant to this chapter are summarised in **Table 12.15**

12.7.1.4 Primary and tertiary measures that are intended to form part of the final design (and/or are established legislative requirements/good practice) have been taken into account as part of the initial assessment presented in **section 12.9** below (i.e., the initial determination of impact magnitude and significance of effects assumes implementation of these measures). This ensures that the measures that the Applicants are intending to commit to, are taken into account in the assessment of effects.

12.7.1.5 Where an assessment identifies likely significant adverse effects, further mitigation measures may be applied. These are measures that could further prevent, reduce and, where possible, offset these effects. They are defined by IEMA as actions that will require further activity in order to achieve the anticipated outcome and may be imposed as part of the planning consent, or through inclusion in the Environmental Statement (referred to as secondary mitigation measures in IEMA, 2016) and would be secured appropriately through a requirement of the DCO. For further or secondary measures both pre-mitigation and residual effects are presented.

Table 12.15: Mitigation measures intended to be adopted as part of the Project.

Mitigation number	Measure adopted	How the measure will be secured
12.1	Suitable HGV routes will be identified.	Proposed to be secured as a requirement of the DCO.
12.2	Adoption of an Outline CTMP which will set out that road condition surveys will be undertaken before the start of works and after the substantial completion of works on minor road links and new junctions used by HGVs to access the Project. Damage to the highway that has been demonstrably caused by construction traffic will be repaired.	Proposed to be secured as a requirement of the DCO.
12.3	<p>Adoption of an Outline CTMP which will set out the construction working hours. For the Project, the core working hours will be 07:00 to 19:00 Monday to Saturday, save for any works that require 24 hour operations. Some HDD works may require 24 hour working depending on the nature and scale of the crossing.</p> <p>Other activities that will require 24-hour operation will be: site security, oil filling of transformers, possible remedial works in response to severe weather events and construction critical operations such as major plant item installation and concrete pours. .</p> <p>It is expected that in some circumstances working hours could be extended when this would reduce the magnitude of environmental impacts of construction (e.g., to increase safety, reduce driver delays, reduce the duration of impacts etc.) which would be agreed with the relevant planning authorities in advance.</p>	Proposed to be secured as a requirement of the DCO.
12.4	Adoption of an Outline CTMP which will set out any restrictions that may be required on HGV operating hours, for example along sections of the highway network that provide access to local schools.	Proposed to be secured as a requirement of the DCO.
12.5	Adoption of an Outline CTMP which will set out any restrictions that may be required on HGV operating hours and measures to minimise the number of HGV movements through sensitive areas when access to construction compounds and HDD sites is essential.	Proposed to be secured as a requirement of the DCO.
12.6	Adoption of an Outline CTMP which will set out the requirement for wheel cleaning methods at appropriate locations where it is necessary to eliminate the risk of mud and debris on the highway.	Proposed to be secured as a requirement of the DCO.
12.7	Adoption of an Outline CTMP which will set out measures to minimise dust and dirt associated with the movement of construction vehicles.	Proposed to be secured as a requirement of the DCO.

Mitigation number	Measure adopted	How the measure will be secured
12.8	The provision of appropriate parking facilities for construction workers in terms of quantum and location to prevent any parking on the public highway.	Proposed to be secured as a requirement of the DCO.
12.9	Adoption of an Outline CTMP which will set out traffic management measures at those points where trenches are cut into highways or where existing access rights are affected.	Proposed to be secured as a requirement of the DCO.
12.10	Adoption of an Outline CTMP which will encourage the re-use of HGVs wherever possible, such as backloading. Where practical, local suppliers will be used to minimise the distance travelled by HGVs.	Proposed to be secured as a requirement of the DCO.
12.11	Adoption of an Outline CTMP which will set out the local management of vehicle movements to minimise the risks of vehicles meeting each other on narrow sections of highway.	Proposed to be secured as a requirement of the DCO.
12.12	The design of HGV access points, including visibility standards and, where necessary, temporary speed restrictions on the adjacent highway will be agreed with the relevant highway authorities.	Via the ES chapter and Transport Statement to be submitted in support of the application for Development Consent and via a subsequent Section 278 Agreement with the relevant highway authorities.
12.13	At all vehicle accesses where accommodation works are being undertaken to allow the movement of vehicles between the Project and the highway, the original highway will be reinstated after construction work is completed.	Via the ES chapter and Transport Statement to be submitted in support of the application for Development Consent and via a subsequent Section 278 Agreement with the relevant highway authorities.
12.14	For HDD crossings, the drilling compound anticipated is anticipated to receive a greater number of HGV movements than that receiving compound. Where reasonably practicable, the drilling direction will be set so as to minimise the number of HGV movements through sensitive receptors.	Proposed to be secured as a requirement of the DCO.
12.15	Outline CTMP	An Outline CTMP will form part of the Code of Construction Practice (CoCP) and will be secured through a requirement of the DCO for the Project.

Mitigation number	Measure adopted	How the measure will be secured
12.16	A route for AILs will be identified (this will be between the port of entry, the SRN and the Project). The route timing and method of transport of AILs will be discussed and agreed with the relevant highways and bridge authorities and the police.	As part of the process to receive a Special Order to permit the movement of AILs on the highway as issued by the Secretary of State for Transport following an application by the appointed heavy haulage contractor.
12.17	The heavy haulage contractor appointed to transport the AILs will be required to comply with statutory regulations in terms of consulting with the relevant highways and bridge authorities and the police.	As part of the process to receive a Special Order to permit the movement of AILs on the highway as issued by the Secretary of State for Transport following an application by the appointed heavy haulage contractor.
12.18	The timing of AIL deliveries will be discussed with the relevant highway authorities to minimise delay for other road users and to minimise risk to highway users.	As part of the process to receive a Special Order to permit the movement of AILs on the highway as issued by the Secretary of State for Transport following an application by the appointed heavy haulage contractor.
12.19	The routing of AIL deliveries will be agreed with the relevant highway authorities. The delivery of AILs would be undertaken under escort. Where AILs require the full width of the carriageway or for unusual manoeuvres at junctions, appropriate temporary traffic management will be put in place as appropriate to maintain the safety of other road users.	As part of the process to receive a Special Order to permit the movement of AILs on the highway as issued by the Secretary of State for Transport following an application by the appointed heavy haulage contractor.
12.20	Traffic management measures for decommissioning will be submitted and agreed with the relevant highway authorities prior to any decommissioning works commencing which will identify and set out appropriate mitigation measures for decommissioning generated vehicle movements that are identified and required at that time.	Proposed to be secured as a requirement of the DCO.

12.8 Impact assessment methodology

12.8.1 Overview

- 12.8.1.1 The initial assessment within this chapter has been prepared in accordance with the IEMA guidelines with reference to DMRB LA104: Environmental Assessment and Monitoring (Highways England et al, 2020) where relevant.
- 12.8.1.2 The significance of transport environmental effects has been assessed by considering the interaction between the magnitude of the impacts and the sensitivity of the receptors in the vicinity of transport corridors. The assessment within this chapter has assessed the construction traffic flows against the baseline traffic flows.
- 12.8.1.3 Consistent with the IEMA guidelines, the following is considered in this chapter:
- Driver delay including delay to public transport;
 - Severance;
 - Pedestrian delay;
 - Pedestrian amenity;
 - Accidents and road safety; and
 - Abnormal indivisible loads.
- 12.8.1.4 Paragraph 4.5 of the IEMA guidelines recognises that professional judgement should be used as part of the assessment and states the following:
- ‘For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgements will include the assessment of the numbers of people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources’.*
- 12.8.1.5 The movement of AILs can impact the safety of users of the LRN, SRN and other transport receptors and result in delay. At the point of writing this PEIR an assessment of the routeing of AILs is not finalised. A preliminary assessment of the environmental effects of the movement of AILs is set out in section 12.9 of this chapter. When the routeing of the AILs has been confirmed, an assessment of any highway geometry improvements or measures will be completed and included within the ES chapter and Transport Statement submitted in support of the application for Development Consent.
- 12.8.1.6 The effects of construction traffic are also considered upon the following:
- Upon noise and vibration within Volume 1 chapter 13 Noise and vibration of the PEIR;
 - Upon PRoW and any diversions within Volume 3 chapter 6 Land use and recreation of the PEIR; and

- Upon air quality within the Air Quality Technical Report in Volume 3, Appendix 4.5.

Screening Tests

- 12.8.1.7 In terms of the assessment of the environmental impacts of traffic, the IEMA guidelines sets out that the following two ‘rules’ should be followed as a screening test to establish whether a full assessment of effects is required for any identified highway link:
- Rule 1: include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%); and
 - Rule 2: include any other specifically sensitive areas where traffic flows will increase by 10% or more.
- 12.8.1.8 The assessment therefore identifies the sensitivity of affected transport routes, taking into account the presence and location of sensitive receptors or route users as set out in **section 12.8.2** of this chapter.
- 12.8.1.9 In accordance with the IEMA guidelines, for rule 1, highway links with increases in total traffic flows that exceed 30% or HGVs that exceed 30% are screened into the assessment whilst for rule 2, highway links with increases in total traffic flows that exceed 10%.
- 12.8.1.10 The IEMA guidelines note that changes in traffic of less than 10% are generally considered to be insignificant given that the daily variations in background traffic flows may fluctuate by this amount.

Impact Assessment Criteria

- 12.8.1.11 The approach to determining the significance of effects is a two-stage process that involves defining the magnitude of the impact and the sensitivity of the receptor. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in Volume 1, Chapter 4: Approach to Environmental Assessment of the PEIR.

12.8.2 Receptor sensitivity/value

- 12.8.2.1 The criteria for defining sensitivity in this chapter are outlined in **Table 12.16** below.

Table 12.16: Sensitivity criteria

Sensitivity	Definition
Very High	Those receptors with greatest sensitivity with site-specific reasons for being particularly sensitive to changes in traffic flow (e.g. community with high incidence of mobility impairment requiring to cross roads to access essential facilities).
High	Those receptors with high sensitivity due to site-specific characteristics which make them particularly sensitive to changes in traffic flow including schools, colleges, playgrounds, accident black spots (with reference to injury accident data), retirement homes, urban/residential/built-up roads without commensurate footway provision, high footfall, severely congested junctions.
Medium	Receptors of medium sensitivity to traffic flows including congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycleways, community centres, parks, recreation facilities, roads with high incidence of injury accidents (with reference to injury accident data).
Low	Receptors with some sensitivity to traffic flows including places of worship, public open space, nature conservation areas, listed buildings, tourist attractions, urban/residential/built-up areas with good/adequate footway provision commensurate for its use and footfall and other receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.
Negligible	Receptors with negligible sensitivity to traffic flows and those sufficiently distant from affected roads and junctions or where no receptors are present.

12.8.2.2 Rules 1 and 2 are used as a screening tool to determine whether or not a full assessment of effects is required for any identified highway link. Highway links which are identified as negligible, low and medium sensitivity have been considered against the Rule 1 threshold. Highway links which are identified as high and very high sensitivity have been considered against the Rule 2 threshold. Where predicted changes in traffic flow fall beneath these levels, a full assessment of effects is not required and no significant effects upon that highway link would be predicted.

12.8.3 Magnitude of impact

12.8.3.1 The criteria for defining magnitude in this chapter follows the advice set out in the IEMA guidelines and are outlined in **Table 12.17** below.

Table 12.17: Impact magnitude criteria

Sensitivity	Negligible	Low	Medium	High
Driver Delay	Defined in conjunction with the Transport Statement and a review of the change in operation of a junction or highway link with a particular focus on the weekday peak hour periods when baseline traffic flows are at their highest			
Severance	Change in total traffic flow of less than 30%	Change in total traffic flow of 30% to 60%	Change in total traffic flow of 60% to 90%	Change in total traffic flows of over 90%

Sensitivity	Negligible	Low	Medium	High
Pedestrian Delay	Defined from a review of baseline traffic flows, pedestrian infrastructure and a guide (as set out in the IEMA Guidelines) that a 10 second pedestrian delay in crossing a road is considered to be perceptible or considered significant which broadly equates to a two-way traffic flow of approximately 1,400 vehicle movements per hour			
Pedestrian Amenity	Change in traffic flow (or HGV component) less than 100%		Change in traffic flow (or HGV component) more than 100%	
Accidents and Road Safety	Defined from a review of PIA data along highway links and the predicted changes in traffic flow			
AILs	Defined by an assessment of the suitability of the access routes to accommodate AILs			

12.8.4 Significance of effect

- 12.8.4.1 The significance of the effect upon traffic and transport has been determined by taking into account the sensitivity of the receptor and the magnitude of the impact. The method employed for this assessment is presented in **Table 12.18**. Where a range of significance levels is presented, the final assessment for each effect is based upon expert judgement.
- 12.8.4.2 In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached.
- 12.8.4.3 For the purpose of this assessment, any effects with a significance level of minor or less are not considered to be significant in terms of the EIA Regulations.

Table 12.18: Assessment matrix

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

- 12.8.4.4 Where the magnitude of impact is ‘no change’, no effect would arise.
- 12.8.4.5 The definitions for significance of effect levels are described as follows:
- Major: These beneficial or adverse effects are considered to be very important considerations and are likely to be material in the decision-making process. These effects are generally, but not exclusively, associated with sites or features of international, national or regional importance that are likely to suffer a most damaging impact and loss of resource integrity. However, a major change in a site or feature of local importance may also enter this category. Effects upon human receptors may also be attributed this level of significance.

- Moderate: These beneficial or adverse effects have the potential to be important and may influence the key decision-making process. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse or beneficial effect on a particular resource or receptor.
- Minor: These beneficial or adverse effects are generally, but not exclusively, raised as local factors. They are unlikely to be critical in the decision-making process but are important in enhancing the subsequent design of the project.
- Negligible: No effects or those that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.
- No change: No loss or alteration of characteristics, features or elements; no observable impact in either direction.

12.8.5 Assumptions and limitations of the assessment

- 12.8.5.1 The base traffic flow data has been obtained from recognised sources and methodologies and is considered representative of current conditions.
- 12.8.5.2 The construction traffic flows have been estimated from first principles using reasonable assumptions based upon knowledge and experience and are suitable for assessment purposes.
- 12.8.5.3 A peak rate of construction delivery has been assumed, in which one construction compound is set out at a time with all other construction activities following afterwards. This is a reasonable assumption for assessment purposes based on the typical procurement and delivery of stone to set out the construction compounds.
- 12.8.5.4 The assessment is a preliminary assessment based upon daily traffic flow increases. Further assessments will be undertaken with regards to any specific sensitive time periods, for example, localised peak periods in a particular location, etc, and reported further within the ES chapter and Transport Statement submitted in support of the application for Development Consent.

12.9 Assessment of effects

- 12.9.1.1 The impacts of the construction phase of the Project on traffic and transport have been assessed. The potential impacts arising from the construction phase of the Project are listed in **Table 12.6** and the maximum design scenario in **Table 12.14** against which each impact has been assessed.
- 12.9.1.2 As set out in **Table 12.7**, the impacts of the operations and maintenance and decommission phases of the Project have been scoped out of the assessment.
- 12.9.1.3 A description of the potential effect on receptors caused by each identified impact is given below.

12.9.2 Screening for assessment of transport environmental impacts

12.9.2.1 An assessment of the peak daily construction vehicle movements for the Project are assessed against the baseline traffic flows in **Table 12.19**.

Table 12.19: Impact of the Project peak daily construction traffic flows

Link Reference	2026 Base Traffic Flows		Construction Traffic Flows		% Increase	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Link 1: A4260 between Access and B4027	11,566	476	133	105	1.2%	22.1%
Link 2: B4027 between Access and A4260	3,584	65	10	2	0.3%	3.1%
Link 3: A4260 between B4027 and A4095	12,239	504	133	105	1.1%	20.9%
Link 4: A4260 between A4095 (NE) and A4095 (SW)	22,033	907	133	105	0.6%	11.6%
Link 5: A4095 between A4260 and A44	11,306	803	133	105	1.2%	13.1%
Link 6: A4095 between A44 and Cassington Road	14,775	1,049	10	2	0.1%	0.2%
Link 7: Cassington Road between A4095 and Access	750	10	10	2	1.3%	20.0%
Link 8: A44 between A4095 and Langford Lane	26,788	1,111	133	105	0.5%	9.5%
Link 9: A44 between Langford Lane and Cassington Road	28,668	1,296	133	105	0.5%	8.1%
Link 10: A44 between Cassington Road and A4260	28,668	1,296	133	105	0.5%	8.1%
Link 11: A44 between A4260 and A34	32,877	1,609	133	105	0.4%	6.5%
Link 12: A34 northeast of Kidlington	78,317	8,710	133	105	0.2%	1.2%
Link 13: A44 between A34 and A40	33,468	1,769	133	105	0.4%	6.0%
Link 14: A40 between A44 and Eynsham Road	25,030	1,993	133	105	0.5%	5.3%
Link 15: A40 between Eynsham Road and Lower Road	27,277	2,172	133	105	0.5%	4.8%
Link 16: Lower Road between A40 and Access	7,248	355	133	105	1.8%	29.6%
Link 17: B4449 between A40 and Access	11,912	774	10	2	0.1%	0.3%
Link 18: B4449 between Access and Access on B4044 Oxford Road	11,912	774	10	2	0.1%	0.3%

Link Reference	2026 Base Traffic Flows		Construction Traffic Flows		% Increase	
	Total Vehicles	HGVs	Total Vehicles	HGVs	Total Vehicles	HGVs
Link 19: Access on Wharf Road (HDD 6 Exit and HDD 5C Entry)	-	-	10	2	-	-
Link 20: B4044 Oxford Road between Access and Cumnor Road	11,393	741	10	2	0.1%	0.3%
Link 21: Cumnor Road between B4044 Eynsham Road and Access	3,360	91	133	105	4.0%	116.0%
Link 22: B4044 Eynsham Road between Cumnor Road and A420	10,975	713	133	105	1.2%	14.8%
Link 23: A420 between B4044 Eynsham Road and A34	32,417	2,399	133	105	0.4%	4.4%
Link 24: A34 (SB) at junction with A420	76,909	7,276	133	105	0.2%	1.4%
Link 25: A34 between A420 and Peartree Roundabout	88,119	8,307	133	105	0.2%	1.3%

12.9.2.2 All of the increases in total traffic flows and HGVs along the highway links are within their respective rule 1 and rule 2 thresholds. The only exception to this is Link 21 (Cumnor Road between B4044 Eynsham Road and Access) where the rule 1 threshold is exceeded as set out in **Table 12.20**.

12.9.2.3 The predicted HGV increase on Link 16 (Lower Road between A40 and Access) is just below the rule 1 threshold. As **Table 12.13** sets out, there are no sensitive receptors along this link and its sensitivity was classified as negligible. On this basis, it does not need to be screened into the assessment on a precautionary basis because even if the magnitude of impact along it was high, the effect would be minor, which is not significant in EIA terms.

Table 12.20: Highway links for Environmental Impact Assessment

Link Reference	Sensitivity of Receptor	% Increase	
		Total Vehicles	HGVs
Link 21: Cumnor Road between B4044 Eynsham Road and Access	Medium	4.0%	116.0%

12.9.2.4 On this basis and in accordance with the IEMA guidelines, one highway link (Link 21) has been screened into the assessment of effects.

12.9.2.5 In terms of the other highway links (all highway links save for Link 21), in accordance with the IEMA guidelines, these highway links are screened out of the assessment and no significant effects are predicted along these highway links.

12.9.1 The impact on driver delays caused by construction works or construction traffic (including temporary delays to public transport services)

12.9.1.1 Driver delays during the construction phase can result from the following:

- An increase in the traffic flows, particularly during peak hours resulting in increased queues on links and at junctions; and
- Reduction in link capacity resulting from changes in carriageway width or other highway characteristics.
- Construction works within the highway resulting in lane closures and traffic management measures.

12.9.1.2 In terms of construction works laying the cable within the highway, these would be within trenches and would be within the verge wherever possible, however, there may be locations where they are laid within the carriageway.

12.9.1.3 There may be requirements for parts of the highway to be coned off whilst cables are laid. This may require carriageway lane closures on occasion. Full road closures are not expected due to the carriageway widths along the cable route and the ability to retain one lane open to traffic at all times. In such instances, temporary traffic signals or temporary stop/go boards would be deployed, albeit the road would remain open to all traffic.

12.9.1.4 In such instances, there may be some delays incurred. However, in such instances, the lane closures would be advertised in advance as a measure within the Outline CTMP to be secured as a requirement of the DCO and regular users of the roads affected would be forewarned so as to be able to manage their journeys accordingly.

12.9.1.5 The Applicant is arranging to undertake trial pits at key locations along the cable route to inform micro-siting of the cable and whether it can be located within the verge or would need to be within the carriageway. At this stage, this is to be confirmed and will be reported further within the ES chapter and Transport Statement submitted in support of the application for Development Consent.

Sensitivity of the receptor

12.9.1.6 Link 21 has some sensitive receptors including frontage to residential dwellings, a village hall, nursery, and commercial areas. Link 21 is lightly trafficked and on typical days does not suffer from congestion.

12.9.1.7 Link 21 is deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Magnitude of impact

12.9.1.8 An analysis of the base traffic flows along Link 21 determines this to be low and, using professional knowledge and experience, lower than the level at which it could create congestion. Similarly, the Project construction traffic flows are also low, therefore the resultant base plus Project construction traffic

flows would, using professional knowledge and experience, remain lower than the level at which it could create congestion.

- 12.9.1.9 The impact in terms of driver delay resulting from daily traffic flows associated with the construction is predicted to be of local spatial extent, short to medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Significance of the effect

- 12.9.1.10 Overall, the magnitude of impact is deemed to be negligible, and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of minor adverse significance, which is not significant in EIA terms.

12.9.2 The impact on pedestrian delay caused by construction work or construction traffic

- 12.9.2.1 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. The IEMA guidelines note that studies have shown that pedestrian delay is perceptible or considered significant beyond a delay threshold of 10 seconds, for a link with no crossing facilities. It goes on to say that a 10 second pedestrian delay in crossing a road broadly equates to a two-way link traffic flow of approximately 1,400 vehicles per hour. This means that where two-way traffic flows on a road exceed 1,400 vehicle movements per hour, then a pedestrian seeking to cross that road would perceive a delay.

- 12.9.2.2 Link 21 has footway provision on both sides of the carriageway for an approximate length of 100m to the south of its roundabout junction with the B4044 Eynsham Road. Footway provision then continues on the western side of the carriageway only for approximately a further 260m before footway provision terminates.

- 12.9.2.3 Pedestrians are unlikely to cross Link 21 at locations where footways are not provided on both sides of the carriageway.

Sensitivity of the receptor

- 12.9.2.4 Link 21 has some sensitive receptors and generators of pedestrian demand including access to residential dwellings, a village hall, nursery, and commercial areas. Footway provision is commensurate with demand.

- 12.9.2.5 Link 21 is deemed to be of medium vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Magnitude of impact

- 12.9.2.6 To consider the potential for pedestrian delay to occur on Link 21, the maximum peak hour base traffic flow has been set out below and summarised in **Table 12.21** along with the Project construction traffic flows and the resultant change in predicted pedestrian delay.

Table 12.21: Summary of change in pedestrian delay

Link	Baseline		The Project	Baseline plus the Project			Sensitivity of Receptor	Magnitude of Impact
	Traffic Flow (max hourly)	Pedestrian Delays (s)	Construction Traffic Flow	Traffic Flow (max hourly)	Pedestrian Delays (s)	Change in Pedestrian Delay (s)		
L21	336	2.40	133	11	2.48	0.08	Medium	Negligible

12.9.2.7 **Table 12.21** shows that the base traffic flow (maximum of 336 vehicle movements per hour) is far below the threshold (1,400 vehicle movements per hour) at which any pedestrian delay would be perceived.

12.9.2.8 The maximum pedestrian delay with the base traffic flows is calculated at 2.40 seconds, increasing to 2.48 seconds following the addition of the construction traffic flows generated by the Project. This represents a change of 0.08 seconds which would be difficult to perceive.

12.9.2.9 The impact is predicted to be of local spatial extent, short to medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible.

Significance of the effect

12.9.2.10 Overall, the magnitude of the impact is deemed to be negligible, and the sensitivity of the receptor is considered to be medium. The effect will, therefore, be of negligible adverse significance, which is not significant in EIA terms.

12.9.3 The impact on pedestrian amenity caused by construction works or construction traffic

12.9.3.1 The term pedestrian amenity is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and footway width and separation from traffic.

12.9.3.2 The IEMA guidelines refers to a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HGV component) is halved or doubled.

Sensitivity of the receptor

12.9.3.3 Link 21 has some sensitive receptors and generators of pedestrian demand including access to residential dwellings, a village hall, nursery, and commercial areas. Footway provision is commensurate with demand.

12.9.3.4 Link 21 is deemed to be of medium vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be medium.

Magnitude of impact

12.9.3.5 Link 21 has been assessed against the IEMA guidelines threshold for pedestrian amenity as set out in **Table 12.22**.

Table 12.22: Summary of change in pedestrian amenity

Link	Base Traffic Flow – Total Vehicles	% Increase – Total Vehicles	Base Traffic Flows – HGVs	% Increase – HGVs	% increase >100%? (Total Vehicles or HGVs)	Sensitivity of Receptor	Magnitude of Impact
L21	3,360	4.0%	133	116.0%	Yes	Medium	Medium

12.9.3.6 In terms of total vehicle movements, **Table 12.22** sets out a maximum increase of 4%. Therefore, in accordance with the IEMA guidelines, this on its own should not result in any significant changes in pedestrian amenity.

12.9.3.7 In terms of HGV movements, **Table 12.22** sets out a maximum increase of 116% on Link 21. The impact is predicted to be of local spatial extent, short to medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. In accordance with the IEMA guidelines, the magnitude is therefore, considered to be medium.

Significance of the effect

12.9.3.8 Overall, it is predicted that the magnitude is deemed to be medium, and the sensitivity of the receptor is considered to be medium. The effect will, therefore, be of moderate adverse significance, which is significant in EIA terms.

Further (secondary) mitigation and residual effect

12.9.3.9 The effect is a direct cause of the assumed rate of the setup of the construction compound and in particular the importing of aggregate. A reduced rate of importing aggregate will reduce the number of daily HGV movements, and in turn reduce the magnitude of impact reported within the PEIR to a level which is low instead of medium.

12.9.3.10 In doing so, the significance of the effect would reduce to minor adverse significance, which is not significant in EIA terms.

12.9.3.11 Secondary mitigation will therefore be enacted to limit the daily rate for importing aggregate to the compound on Cumnor Road so as to ensure the significance of the effect is not significant in EIA terms. This will be a measure within the Outline CTMP to be secured as a requirement of the DCO.

12.9.4 The impact on community severance caused by construction works or construction traffic

12.9.4.1 Severance is only likely to occur on highly trafficked roads and result from the perceived division the road and traffic creates between communities on either side.

12.9.4.2 The IEMA guidelines set out above identifies that increases in total traffic volumes of between 30% and 60% could result in a slight impact (the lowest category) upon severance.

Sensitivity of the receptor

12.9.4.3 Link 21 has some sensitive receptors including access to residential dwellings, a village hall, nursery, and commercial areas upon which severance could occur. Baseline traffic flows are low and Link 21 is not highly trafficked.

12.9.4.4 Link 21 is deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Magnitude of impact

12.9.4.5 The change in total traffic flow as a result of the construction traffic on Link 21 is 4.0% which is significantly lower than the 30% that the IEMA guidelines sets out is required for a slight effect (the lowest category) to occur.

12.9.4.6 The impact is predicted to be of local spatial extent, short to medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be negligible.

Significance of the effect

12.9.4.7 Overall, it is predicted that the magnitude is deemed to be negligible, and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of negligible adverse significance, which is not significant in EIA terms.

12.9.5 The impact of construction traffic on accidents and safety

12.9.5.1 It is possible to estimate the effects of increased traffic on accidents and safety from existing accident records, national statistics and the type and quantity of traffic generated.

Sensitivity of the receptor

12.9.5.2 **Table 12.12** shows that there were no clusters of PIAs on Link 21 during the latest available five year period (2017 to 2021 inclusive).

12.9.5.3 Link 21 is deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Magnitude of impact

12.9.5.4 The HGVs routing along Link 21 will all be under traffic management control via the Outline CTMP and signage will be used to alert other drivers of the construction traffic. There would be no significant changes to the proportion of vehicle classifications along Link 21 and there is nothing to suggest that the Project would alter the injury accident rate.

12.9.5.5 The impact is predicted to be of local spatial extent, short to medium term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be low.

Significance of the effect

12.9.5.6 Overall, it is predicted that the sensitivity of the receptor is considered to be low, and the magnitude is deemed to be low. The effect will, therefore, be of minor adverse significance, which is not significant in EIA terms.

12.9.6 The impact of AILs on the safety of users of the LRN, SRN and other transport receptors.

Sensitivity of the receptor

12.9.6.1 The access route used by the AILs would necessarily be of good standard to accommodate the transport delivery vehicles.

12.9.6.2 Any restrictions would also necessarily be removed to accommodate the transport delivery vehicles and they would travel under controlled environments.

12.9.6.3 The passage of heavy AILs would, however, lead to some limited driver delay as the loads would move slowly under escort (police escort where necessary) in a controlled environment.

12.9.6.4 Given the controlled environment, the road users are deemed to be of negligible vulnerability, high recoverability and negligible value. The sensitivity of the receptor is therefore, considered to be negligible.

Magnitude of impact

12.9.6.5 The AILs are expected to be components that exceed standard load weight, width and height. These movements are irregular (there will be four transformer deliveries that will be classified as AILs) throughout the initial traffic and transport study area and not just Link 21 that is being assessed following the screening exercise. The magnitude of impact relating to AILs is therefore considered across the whole initial traffic and transport study area.

12.9.6.6 Depending on the width, length or weight of the vehicle, different notice periods have to be provided to highway authorities, bridge authorities and the police. These can vary between two and five days. The following activities would need to be undertaken in accordance with the Road Vehicles (Authorisation of Special Types) Order 2003 (STGO):

- Before the start of any journey, notify in accordance with Schedule 5 the chief office of police for each area in which the vehicle or vehicle-combination is to be used
- Ensure that the vehicle or vehicle-combination is used in accordance with the requirements of that Schedule

- Ensure that the vehicle or vehicle-combination is accompanied during the journey by one or more attendants employed in accordance with Schedule 6.

12.9.6.7 The number of AIL movements would be low, each load would be present on the network for a short period of time and standard measures would be applied in terms of route, timing and method of delivering to minimise delays to other highway users. This includes prior notification given to the locality via local newspapers/radio etc so that other users have advance notification and can avoid or re-time their journeys so as to negate any impact.

12.9.6.8 Large and heavy AILs would also be under escort (police escort where necessary) who would not only control the AILs but would also interact with other road users to control, guide and protect them accordingly so as to safeguard their safe and expedient passage.

12.9.6.9 The impact is predicted to be of local spatial extent, short term duration, intermittent and highly reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be negligible.

Significance of the effect

12.9.6.10 Overall, it is predicted that the magnitude is deemed to be negligible, and the sensitivity of the receptor is considered to be negligible. The effect will, therefore, be of negligible adverse significance, which is not significant in EIA terms.

12.9.7 Future monitoring

12.9.7.1 **Table 12.23** below outlines the proposed monitoring mitigations.

Table 12.23: Monitoring mitigations

Mitigation number	Measure intended to be adopted	How the measure will be secured
	Limit to the number of daily HGV movements on Cumnor Road to ensure the significance of the effect along Cumnor Road is not significant in EIA terms. The number of daily HGV movements on Cumnor Road to be monitored so as not to exceed this limit (limit to be confirmed as part of further analyses and set out within the ES chapter and Transport Statement submitted in support of the application for Development Consent).	Included within an Outline CTMP, proposed to be secured as a requirement of the DCO.

12.10 Cumulative effect assessment methodology

12.10.1.1 The traffic and transport CEA methodology will follow the methodology set out in Volume 1, Chapter 4: Approach to Environmental Assessment. As part of the assessment, all projects and plans considered alongside the Project have been allocated into ‘tiers’ reflecting their current stage within the planning and development process.

- Tier 1
 - Under construction

- Permitted application
- Submitted application
- Those currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact
- Tier 2
 - Scoping report has been submitted
- Tier 3
 - Scoping report has not been submitted
 - Identified in the relevant Development Plan
 - Identified in other plans and programmes.

12.10.1.2 For clarity, cumulative effects with the generation assets are considered first:

- Botley West Solar Farm

12.10.1.3 This assessment is followed by all other relevant projects, identified by tier.

12.10.1.4 This tiered approach is adopted to provide a clear assessment of the Project alongside other projects, plans and activities.

12.10.1.5 This PEIR chapter sets out the initial traffic and transport study area, the key highway links within this, estimations on the typical daily number of construction vehicle movements and preliminary EIA. Given the nature of other projects and plans evolving as they emerge and progress through the planning process, this evolves the traffic flows generated by those projects and plans accordingly. As such, as the EIA is undertaken, a CEA with these other projects and plans can be undertaken. Full details of the CEA will be set out in the application for Development Consent.

12.11 Transboundary effects

12.11.1.1 A screening of transboundary impacts has been carried out and has identified that there was no potential for significant transboundary effects with regard to traffic and transport for the Project upon the interests of other states. This is because the impacts from traffic and transport are of local spatial extent.

12.12 Inter-related effects

12.12.1.1 Inter-relationships are the impacts and associated effects of different aspects of the Project on the same receptor. These are as follows.

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Project (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three phases (e.g., construction noise effects from piling, operational substation noise, and decommissioning disturbance).

- Receptor led effects: Assessment of the scope for all effects (including inter-relationships between environmental topics) to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on traffic and transport, such as construction dust and noise, increased traffic and visual change etc, may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects may be short term, temporary or transient effects, or incorporate longer term effects.

12.12.1.2 Inter-related effects methodology is provided in Chapter 19: Cumulative Effects and Inter-relationships of the PEIR and will be assessed further at the ES stage.

12.13 Summary of impacts and monitoring

12.13.1.1 Information on traffic and transport within the initial traffic and transport study area was collected through desktop review, scoping and consultation.

12.13.1.2 **Table 12.24** presents a summary of the potential impacts and residual effects in respect to traffic and transport. The impacts assessed include:

- Driver delay including delay to public transport;
- Severance;
- Pedestrian delay;
- Pedestrian amenity;
- Accidents and road safety; and
- Abnormal indivisible loads.

12.13.1.3 It is concluded that, following mitigation, there will be no significant effects arising from the Project during the construction, operation and maintenance or decommissioning phases.

12.13.1.4 No potential transboundary impacts have been identified in regard to effects of the Project.

12.13.1.5 No interrelated effects assessment has been included within this PEIR, this will be included with the traffic and transport chapter of the Environmental Statement for the application in support of Development Consent.

12.13.1.6 No CEA has been included within this PEIR, this will be included within the traffic and transport chapter of the Environmental Statement for the application in support of Development Consent.

Table 12.24: Summary of potential environmental effects and monitoring.

Description of impact	Phase ^a			Magnitude of impact	Sensitivity of the receptor	Significance of effect	Further mitigation	Residual effect	Proposed monitoring
	C	O	D						
The impact on driver delay (including temporary delays to public transport services) caused by construction works or construction traffic using the LRN and SRN	✓			C: negligible to medium	C: negligible to high	Negligible adverse to minor adverse	None	C: Negligible adverse to minor adverse	None
The impact on pedestrian delay caused by construction works or construction traffic using the LRN and SRN	✓			C: negligible to medium	C: negligible to high	Negligible adverse	None	C: Negligible adverse	None
The impact on pedestrian amenity caused by construction works or construction traffic using the LRN and SRN	✓			C: negligible to medium	C: negligible to high	Negligible adverse to moderate adverse	Limit the peak daily construction vehicle movements	C: Negligible adverse to minor adverse	See Table 12.17
The impact on community severance caused by construction works or construction traffic	✓			C: negligible to medium	C: negligible to high	Negligible adverse	None	C: Negligible adverse	None
The impact of construction traffic on accidents and safety for users of the LRN, SRN and other transport receptors	✓			C: negligible to medium	C: negligible to high	Negligible adverse to minor adverse	None	C: Negligible adverse to minor adverse	None
The impact of Abnormal Indivisible Loads (AILs) on the safety of users of the LRN, SRN and other transport receptors	✓			C: negligible to medium	C: negligible to high	Negligible adverse	None	C: Negligible adverse	None

^a C=construction, O=operational and maintenance, D=decommissioning

12.14 Next steps

- 12.14.1.1 Following the preparation of this PEIR, some further site specific traffic surveys will be undertaken to supplement the assessments undertaken to date. This will be discussed with the highway authorities upon their responses to this PEIR.
- 12.14.1.2 The AIL access study will be completed to inform the routing of AILs.
- 12.14.1.3 Finalise the access points in conjunction with comments received on this chapter and landowners and access requirements and to be set out within the ES and Transport Statement to be submitted in support of the application for development consent.
- 12.14.1.4 The Applicant will arrange to undertake trial pits at key locations along the cable route to inform micro-siting and whether the cable could be located within the verge or would be within the highway.
- 12.14.1.5 Continue to analyse the efficiency of construction HGVs turning through the B4044 Eynsham Road/B4017 Cumnor Road mini roundabout. Consider traffic management or whether a haul road should be created that would bypass the B4044 Eynsham Road/B4017 Cumnor Road mini roundabout, potentially via Denman's Lane.
- 12.14.1.6 Undertake further assessments to determine a limit to the number of daily HGV movements on Cumnor Road to ensure the significance of the effect along Cumnor Road is not significant in EIA terms.
- 12.14.1.7 Undertake further assessment with regards to any specific sensitive time periods and any associated mitigation requirements in order to inform the EIA and the application for Development Consent.
- 12.14.1.8 Undertake further assessments to determine any significant effects and any mitigation requirements in order to inform the EIA and the application for Development Consent.
- 12.14.1.9 Consider and identify opportunities and connections for cycling and walking through the Project site between surrounding villages.

12.15 References

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