Thurrock Flexible Generation Plant

Environmental Statement Volume 3
Chapter 10: Traffic and Transport

Date: February 2020

Environmental Impact Assessment

Environmental Statement

Volume 3

Chapter 10

Report Number: OXF10872

Version: Final

Date: February 2020

This report is also downloadable from the Thurrock Flexible Generation Plant website at: http://www.thurrockpower.co.uk

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Summary

This document considers the traffic and transport impact of the proposed Thurrock Flexible Generation Plant development. Supporting information on the traffic and modelling results can be found in Volume 6, Appendix 10.1: Transport Assessment.

Qualifications

This document has been prepared by Charles Montgomerie, a Consultant Transport Planner who has three years' experience of environmental impact assessment.

It has been checked by David Archibald, Director, a Member of the Chartered Institution of Highways and Transportation with 20 years' experience of environmental impact assessment.

1. Introduction

1.1 Purpose of this chapter

1.1.1 This chapter of the Environmental Statement (ES) presents the findings of Environmental Impact Assessment (EIA) work undertaken on the potential traffic and transport impacts of the Thurrock Flexible Generation Plant.

1.1.2 The construction phase will generate more Heavy Goods Vehicles (HGV) and staff vehicle movements than the operational or decommissioning phase as the facility will be remotely operated, other than for maintenance, and gas is transported to the site by pipeline. The primary focus of this chapter is therefore on the construction phase.

1.1.3 The level of vehicles generated during the operational and maintenance phase will be low. When the site is decommissioned, the process will require its removal from site which will generate associated vehicle movements, including HGV movements. Since there is no further use for the materials, such materials can be removed in bulk after demolition. This means that larger payloads can be achieved, and the traffic flows associated with decommissioning would be lower than those during construction. Consequently, decommissioning impacts will be of smaller magnitude compared to those produced during construction. As a result, decommissioning effects would be of no greater significance than those assessed for construction. Therefore, on the assumption that the highway network will be maintained or improved going forwards, the assessments undertaken for the construction phase are likely to be similar to those for the decommissioning phase.

1.1.4 This chapter summarises and builds upon information contained within the technical assessment included at Volume 6, Appendix 10.1: Transport Assessment (TA).

1.1.5 This ES chapter:

- presents the existing environmental baseline established from studies, surveys and consultation;
- presents the potential environmental effects on traffic and transport arising from the Thurrock Flexible Generation Plant;
- identifies any assumptions and limitations encountered in compiling the environmental information; and
- highlights any necessary monitoring and/or mitigation measures that could prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

1.2 Planning policy context

1.2.1 Planning policy for energy generation Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to traffic and transport is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1; Department of Energy and Climate Change (DECC), 2011a) and the NPS for Fossil Fuel Electricity Generating Infrastructure (EN-2, DECC, 2011b).

1.2.2 These documents frame the planning policy perspective for this type of development, with EN-2 being the most relevant, given the relatively small scale of gas and electricity grid connection required at this location.

1.2.3 NPS EN-1 includes guidance on what matters are to be considered in the assessment. These are summarised in Table 1.1 below.

Table 1.1: Summary of NPS EN-1 provisions relevant to this chapter.

Summary of NPS EN-1 provision	How and where considered in the ES
Introduction	
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 generated during the construction phase will depend on the scale and type of the proposal (paragraph 5.13.1).	This chapter of the ES considers all relevant potential transport impacts during the construction, operational and decommissioning phases of the proposed development. The traffic and transport study area has been established through discussions with the relevant highway authorities. Noise is considered in Volume 3, Chapter 11: Noise and Vibration, air impacts are considered in Volume 3, Chapter 12: Air Quality, and environmental impacts acting in combination on receptors are considered in Volume 5, Chapter 31: Summary of Inter-Related Effects.
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).	This chapter of the ES identifies possible transport impacts and ways to mitigate them. The mitigation of these impacts is incorporated by design into the proposed development.

Summary of NPS EN-1 provision	How and where considered in the ES
Applicants Assessment	
If a project is likely to have significant transport implications, the applicant's Environmental Statement (ES) should include a TA[1], 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 (paragraph 5.13.3).	A TA is submitted in accordance with the NATA/WebTAG (DfT, 2017) methodology stipulated in Department for Transport (DfT) guidance (DfT, 2007) and its replacement Planning Practice Guidance (PPG) (Ministry for Housing, Communities and Local Government (MHCLG), 2014). The TA is presented at Volume 6, Appendix 10.1: Transport Assessment.
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 (paragraph 5.13.4).	An Outline Construction Worker Travel Plan (CWTP) (document reference A8.9) is submitted with the application for development consent.
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 (paragraph 5.13.5).	Additional transport infrastructure will be funded by the applicant. Co-funding by Government is not being sought.
Decision Making	
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 (paragraph 5.13.6).	Section 4 identifies possible transport impacts resulting from all phases of development. Section 2.9 identifies mitigation measures which (where relevant/necessary) are incorporated into the design of the proposed development.
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 Department for Transport's 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).	Section 4 identifies possible transport impacts resulting from all phases of development. Section 2.9 identifies commitments made to implementing appropriate mitigation measures.
Mitigation	
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).	The proposed mitigation measures relate to the routing and timing of construction HGV movements and management of construction staff movement. Transport infrastructure is considered in Section 2.9.
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).	Transport infrastructure measures are considered in Section 2.9.
The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that: • 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 roads, 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 (paragraph 5.13.11).	Proposed HGV routes are identified and restrictions on HGV timing are proposed to avoid adverse impact on sensitive receptors. The design of the construction works will avoid the risk of HGV parking on the surrounding highway. The transport of abnormal indivisible loads has been subject to appropriate studies and is expected to cause minimal disruption.
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 (paragraph 5.13.12).	The costs of transport mitigation currently envisaged by the applicant will not make the Thurrock Flexible Generation Plant economically unviable.

[1] Transport Assessment (TA)

1.2.4 NPS EN-2 also highlights a number of factors relating to the determination of an application and in relation to mitigation. These are summarised in Table 1.2 below.

Table 1.2: Summary of NPS EN-2 policy on decision making relevant to this chapter.

Summary of NPS EN-2 policy on decision making (and mitigation)	How and where considered in the Chapter
Transport Infrastructure	
Government policy encourages multi-modal transport and materials (fuel and residues) may be transported by water or rail routes where possible. (See Section 5.13 of EN-1 on transport impacts). Applicants should locate new fossil fuel generating stations in the vicinity of existing transport routes wherever possible. Although there may in some instances be environmental advantages to rail or water transport, whether or not such methods are viable is likely to be determined by the economics of the scheme. Road transport may be required to connect the site to the rail network, waterway or port. Any application should therefore incorporate suitable access leading off from the main highway network. If the existing access is inadequate and the applicant has proposed new infrastructure, the IPC should satisfy itself that the impacts of the new infrastructure are acceptable as set out in Section 5.13 of EN-1 (paragraph 2.2.6).	Transport infrastructure measures are considered in Section 2.9.

Other Relevant Policies

National Planning Policy Framework (2019)

1.2.5 The National Planning Policy Framework (NPPF) (MHCLG, 2019) was updated in June 2019 and sets out national policy for delivering sustainable growth and development. The updated NPPF replaces the previous National Planning Framework published in March 2012 and revised in July 2018. The NPPF aims to make the planning system less complex and more accessible. The NPPF sets out the Government's planning policies for England and how these are expected to be applied. In terms of transport the objectives outlined in NPPF are set out in paragraph 102:

"Transport issues should be considered from the earliest stages of plan-making

and development proposals, so that:

a) the potential impacts of development on transport networks can be addressed;

b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;

c) opportunities to promote walking, cycling and public transport use are identified and pursued;

d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and

e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places."

1.2.6 When determining planning applications, Paragraph 108 of the NPPF states it should be ensured that:

"a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

b) safe and suitable access to the site can be achieved for all users; and

c) 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."

1.2.7 Paragraph 109 states that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe."

Local Policy

1.2.8 Local strategy with respect to land use and transport is articulated in statutory documents prepared by planning and highway authorities which, for this development, comprises of:

- Thurrock Core Strategy and Policies for Management of Development (Thurrock Council, 2015);
- Thurrock Transport Strategy (Thurrock Council, 2013);
- Thurrock Council – Parking Strategy and Policies (Thurrock Council, 2016); and
- Essex County Council Development Management Policies (Essex County Council, 2011).

1.2.9 National policy on transport and land use establishes broad policy objectives that reflect the Government's aspirations for integrating the development of land and transport. The role of local government is to develop strategies based on specific local social and spatial requirements, which deliver the national aspirations.

Thurrock Core Strategy and Policies for Management of Development (2015)

1.2.10 The Thurrock Borough Core Strategy and Policies for Management of Development (Adopted December 2011, amended 2015) is a strategic document providing broad guidance on the scale and distribution of development and the provision of supporting infrastructure. It sets out the spatial vision, spatial objectives, the spatial development strategy and policies for Thurrock to 2026 and beyond, together with a monitoring and implementation framework.

1.2.11 The Transport and Access section sets out the Council's strategy for tackling congestion, road safety, air quality and enabling better access to services. Its aims are to reduce the need to travel and encourage the location of new development and delivery of services in places that have good levels of accessibility for people.

1.2.12 Policy CSTP14 (Transport in the Thurrock Urban Area) identifies the measures to be promoted to increase the uptake of travel by sustainable modes, it is identified that the Council will work to deliver at least a 10% reduction in car traffic from forecast 2026 levels. Within Policy CSTP14 it is stated that new development should:

"promote high levels of accessibility by sustainable transport modes and local services are conveniently located to reduce the need to travel by car."

1.2.13 Policy CSTP16 (National and Regional Transport Networks) states that the Council will work with partners to deliver improvements to national and regional networks, in particular to:

"Support the delivery of additional highway capacity, including through the use of technology and information, but only where modal shift will be insufficient to address congestion. Opportunities will be taken to improve public transport as part of any enhancements. Priority will be given to routes that provide access, especially for freight, to Strategic Employment Sites, the ports at London Gateway, Tilbury and Purfleet, and regeneration areas. This will include:

- *M25 between junctions 27 and 30;*
- *M25 junction 30;*
- *A13 from A128 to A1014;*
- *A13 and A1089 junction improvement; and*
- *A1014 from A13 to London Gateway."*

1.2.14 Policy CSTP17 (Strategic Freight Movement and Access to Ports) states that the Council will support the logistics and port sectors and the positive impacts of freight activity in Thurrock and beyond, by:

- *"Facilitating a shift to rail freight and freight carried on the River Thames. This will be through;*
- *Protecting inter-modal, rail and water-borne freight facilities from other development at locations where a demand exists or is expected to exist;*
- *Promoting the use of rail and water borne freight facilities by supporting the development of appropriate infrastructure;*
- *Supporting improvements to facilitate sustainable freight movements, including the rail hub at London Gateway, the South West Thurrock Railhead and improving access to the ports;*
- *Facilitating the provision of 24-hour lorry parks at Tilbury Port, London Gateway and West Thurrock. Subject to compliance with other policies in this plan, other lorry parks will be considered in locations where demand can be shown to exist, which are located away from residential areas and have good access to the Strategic Road Network"*

1.2.15 It is also identified in Policy CSTP17 that the Council will support the logistics and port sectors by working as part of a Freight Quality Partnership and with other relevant partners to:

- *"Maximise modal shift opportunities;*
- *Ensure freight traffic keeps to the most suitable routes as defined in Thurrock Council's Road Network Hierarchy;*
- *Promote the use of less polluting vehicles; and*
- *Reduce the adverse impact of congestion caused by freight on the A13, A1089 and A1306."*

Thurrock Transport Strategy 2013 – 2026

1.2.16 The Thurrock Transport Strategy describes Thurrock Council's transport strategy for the period 2013 to 2026, setting out the aims, objectives and policies for delivering

transport improvements in Thurrock. As such, the document comprises the strategy element of the third Local Transport Plan (LTP3) for Thurrock. Thurrock's Transport Strategy Vision aims to create a transport system for Thurrock that:

- Is fully inclusive, meeting the social needs of residents;
- Is integrated to provide seamless multi-modal journeys;
- Is accessible for everyone, safe and attractive to use;
- Delivers sustainable community regeneration and growth; and
- Reflects the exceptional circumstances of Thurrock as an international centre for logistics and commercial development.

1.2.17 The plan seeks to promote capacity improvements on the Strategic Road Network, with priority for freight routes to key strategic economic hubs.

Thurrock Council – Parking Strategy and Policies (2016-2021)

1.2.18 The Thurrock Parking Strategy outlines the policies and strategies over the five years from 2016-2021.

1.2.19 It is identified that Thurrock Council will:

"Work in close partnership with the ports, freight operators and Essex Police to ensure that freight movements can be accommodated with minimum disruption to residents."

Essex County Council Development Management Policies (February 2011)

1.2.20 The Essex Development Management Policies outlines the key transport policies for Essex County Council. In terms of Transport Assessments, Policy DM13 states that the highway authority will require:

"A Transport Assessment (TA) to accompany a planning application in accordance with the thresholds set out in Appendix B, or where the Highway Authority deems it to be necessary."

1.2.21 In relation to HGV movements, Policy DM19 states:

"The Highway Authority will protect the safety and efficiency of the highway network by ensuring that any proposals which generate a significant number of heavy goods vehicle movements:

- *Are located in close proximity to Strategic Routes / Main Distributors and / or Secondary Distributors;*
- *Are connected to Strategic Routes / Main Distributors and / or Secondary Distributors via short sections of other roads;*
- *Will where appropriate require the developer to submit and agree with the Highway Authority a routing management plan in relation to heavy goods vehicle movements."*

1.2.22 The requirements for the management of construction traffic are set out in Policy DM20:

"The Highway Authority will protect the safety and efficiency of the highway network by ensuring that:

- *Any temporary construction access and / or haul road will be agreed with the Highway Authority prior to commencement of development;*
- *A Construction Traffic Management Plan is submitted and agreed with the Highway Authority prior to commencement of development;*
- *Details of parking and turning for all construction traffic within the development site are submitted and agreed with the Highway Authority prior to commencement of development;*
- *Details of wheel cleaning facilities within the development site are submitted and agreed with the Highway Authority prior to commencement of development.*

1.3 Consultation

1.3.1 Key issues raised during scoping and consultation to date specific to Traffic and Transport are listed in Table 1.3, together with how details of how these issues have been considered in the production of this ES and cross-references to where this information may be found.

Table 1.3: Key points raised during scoping and consultation to date.

Date	Consultee and type of response	Points raised	How and where addressed
August 2018	Thurrock Council and Highways England	An initial meeting between the Applicant and Highway Officers at Thurrock Council and Highways England identified the potential for a haul road to be provided between St Chad's Road and Gun Hill.	Access is considered in Section 2.9 and is based upon the advice received from Highway Officers.
August 2018	Thurrock Council	The Applicant provided details of a potential haul road between St Chad's Road and Gun Hill to a Highway Officer at Thurrock Council, which received positive feedback.	Access is considered in Section 2.9 and is based upon the advice received from Highway Officers.
September 2018	The Planning Inspectorate Scoping Opinion: Proposed Thurrock Flexible Generation Plant	The ES should address cumulative impacts from traffic during operation of the Proposed Development together with traffic from other developments (including Tilbury2, Tilbury Energy Centre and the Lower Thames Crossing) where significant effects are likely.	Cumulative effects are considered in Volume 4, Chapter 23 and have considered these emerging developments.
		The ES should clearly define the study area used for the assessment and explain the approach taken to do so which should be influenced by the extent of likely impacts. The ES should include a plan to depict the study area.	Details on the study area are set out in Section 2.4.
		The ES should assess impacts that may result in likely significant effects on the safety, reliability and operation of the Strategic Road Network, including the M25 (particularly Junction 30), the A13 and the A1039.	An assessment of the significant effects of the development upon the strategic road network is set out in Section 4 and at Volume 6, Appendix 10.1: Transport Assessment.
		Paragraph 8.50 of the Scoping Report indicates that a Construction Worker Travel Plan and Construction Traffic Management Plan are to be provided. Draft/ outline versions of these documents can be appended to the ES.	An Outline CWTP (document reference A8.9) and Outline Construction Traffic Management Plan (CTMP) (document reference A8.8) has been submitted with the application for development consent.
		The ES should confirm the anticipated number of abnormal loads, the types of vehicles required. Any mitigation measures required to facilitate the delivery of abnormal loads should be detailed in the ES.	An estimate of the number of abnormal indivisible loads is set out in Table 2.6. The mitigation proposals to accommodate these are set out in this chapter.
		The ES should explain and justify the locations for the traffic count surveys. The locations should be shown on a supporting plan included within the ES or supporting appendices.	Details on background traffic flows are set out in Volume 6, Appendix 10.1: Transport Assessment.
		The ES should clearly describe the routes to be used for all vehicular access during construction and operation of the Proposed Development. For the assessment of impacts during construction the ES should explain how the proposed access route(s) relate to sensitive receptors.	Details on access routes are set out on Figure 1 of Volume 6, Appendix 10.1: Transport Assessment. The identification of sensitive receptors along the access route is set out in Table 3.1.
		The Traffic and Transport chapter of the ES should include an assessment of impacts resulting from transportation of construction materials/ abnormal loads to the site via water, if this option is pursued.	Consideration on the ability of using the jetty to enable transportation by water is set out in Volume 2, Chapter 2: Project Description.
		It is unclear whether an assessment of impacts during decommissioning is proposed. The ES should set out the likely impacts on Traffic and Transport resulting from decommissioning of the Proposed Development in respect to Traffic and Transport. Any likely significant effects should be assessed.	Consideration of the traffic generated during decommissioning is set out in paragraph 1.1.3.
November 2018	Highways England	Seeking details on the origin of construction HGVs and staff, the quantum of construction car parking and the measures to be proposed as part of a Construction Staff Travel Plan.	Consideration of the construction traffic and car parking is set out in Volume 6, Appendix 10.1: Transport Assessment; a CWTP (document reference A8.9) is submitted with the DCO application.
December 2018	Thurrock Council	Advises that the Transport Assessment submitted with the PEIR covers all of the points previously raised by Thurrock Council in their Scoping Response.	The Transport Assessment submitted with the ES is contained at Volume 6, Appendix 10.1: Transport Assessment, which addresses the points raised by Thurrock Council in their scoping response.
July 2019	Thurrock Council and Highways England	Meeting between the Applicant and Highway Officers at Thurrock Council and Highways England to update on Abnormal Indivisible Loads arriving via a Jetty on the River Thames and to discuss the impact of construction vehicles arriving via the A1089 to the RWE and Tilbury2 access, particularly at the Asda roundabout.	The impact of construction vehicles along the A1089 are set out in Volume 6, Appendix 10.1: Transport Assessment.

Date	Consultee and type of response	Points raised	How and where addressed
November 2019	Highways England	Comment on the number of HGVs using the Asda roundabout as a u-turn to get to the development site and the potential safety aspects of such movements. Comment that Highways England are not clear on the number of construction vehicles and would like to see a CTMP.	Details on the number of construction vehicles and the impact of these along the A1089 and at the Asda roundabout are set out in Volume 6, Appendix 10.1: Transport Assessment. A CTMP (document reference A8.8) is submitted with the DCO application.
January 2020	Thurrock Council	Advises impact on the Highways Network should be minimised and the beachhead option for the delivery of large generators and ancillary equipment. Acknowledgement that the proposals to come in via the Port Access Road will limit the impact on the local highway network.	The impact on the Highways Network from the construction traffic is set out in Volume 6, Appendix 10.1: Transport Assessment.

2. Assessment Approach

2.1 Transport Guidance

2.1.1 The traffic and transport assessment has followed the methodology set out in Volume 2, Chapter 4: Environmental Impact Assessment Methodology. Specific to this chapter, the following guidance documents have also been considered:

- Guidelines for the Environmental Assessment of Road Traffic (Institute of Environmental Assessment (IEA), 1993);
- Volume 11 – Environmental Impact Assessment of the Design Manual for Roads and Bridges (DMRB) (Highways Agency *et al,* 2008); and
- Guidance on Transport Assessment, (DfT, 2007)[2].

2.2 Assessment Methodology

2.2.1 In accordance with the 'Guidelines for the Environmental Assessment of Road Traffic' (IEA, 1993), the significance of effects have been assessed by considering the interaction between the magnitude of the impact and the sensitivity of the receptor in the vicinity of transport corridors. This assessment has compared the future baseline situation in the year of construction, taking into account other schemes that are likely to affect the future baseline condition in the year of construction, against a scenario which includes the development of the Thurrock Flexible Generation Plant.

2.2.2 Consistent with the IEMA guidelines, the following have been considered in this chapter:

- driver delay;
- severance of routes;
- pedestrian delay;
- pedestrian amenity;
- accidents and road safety; and
- hazardous, dangerous and abnormal indivisible loads.

2.3 Baseline study

Desktop study

2.3.1 Information on traffic and transport within the transport study area was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 2.1 below.

Table 2.1: Summary of key desktop reports.

Title	Source	Year	Author
Identification of sensitive receptors	Search along access routes	2018	N/A
Road geometries and layouts	Analysis of access routes	2018	N/A
Identification of facilities for sustainable travel	Desktop analysis	2018	N/A
Analysis of Personal Injury Accident data	Crashmap and Essex Highways	2013 to 2018	Crashmap and Essex Highways

Site specific surveys

2.3.2 Site visits to review the highway network have been undertaken to inform the EIA, as set out in Table 2.2.

[2] Although this guidance has since been withdrawn, it has not been replaced with a like-for-like document and in the absence of any such replacement remains a useful guide that is frequently referred to by Transport and Highways professionals.

Table 2.2: Summary of site-specific surveys undertaken.

Title	Extent of survey	Overview of survey	Survey provider	Year	Reference to further information
Highway inspections	Along the access routes	Highway inspections to consider highway extents, highway geometries and layouts, sensitive receptors and confirm the access route.	RPS	2018	N/A
Site visit, site walkover	Along the access routes and along the potential haul road routes off the public highway	Highway inspections to consider highway layouts. Walkover of land off the public highway to consider potential haul road routes.	RPS	2019	N/A
Highway inspections	Along the access routes	Highway inspections to consider highway extents, highway geometries and layouts.	RPS	2019	N/A

2.4 Study area

2.4.1 Abnormal Indivisible Loads (AILs) have been considered in relation to the weight and dimensional limitations on sections of the public highway and the Station Road railway level crossing. The preferred solution is to deliver AILs via a new causeway from the Thames foreshore in the vicinity of the former Tilbury B Power Station (site owned by RWE) direct into the site, full details of which are set out in Volume 2, Chapter 2: Project Description.

2.4.2 The applicant has considered potential construction access and traffic routes and the constraints associated with each. Construction vehicles comprising of minibuses, coaches, cars and HGVs would route from the A13 via the A1089 through the ASDA roundabout and into the site via the newly realigned A1089 / Fort Road to RWE and Tilbury2 access. Some HGVs may deliver from the Port of Tilbury and these HGVs would utilise the last part of the same road network as above. If the Fort Road Access is unavailable temporarily for any reason, a secondary access is proposed on Station Road via Fort Road and Coopers Shaw Road.

2.4.3 Away from the main facility, access will be provided to the gas compound and an approximate 1.25 km length of gas pipeline on Station Road at East Tilbury, as described in Volume 2, Chapter 2: Project Description.

2.4.4 The study area comprises of the route from the M25 junction 30 to the Station Road access at East Tilbury via the A13, A1089, Fort Road and Coopers Shaw Road which covers all of the highway links that will be used along the access route.

2.4.5 The access route to the site for day to day vehicles from Junction 30 of the M25 is shown on Figure 2.1 and set out in Volume 6, Appendix 10.1: Transport Assessment. These highway links form the study area of this chapter.

2.5 Uncertainties and/or data limitations

2.5.1 The baseline data and survey data have been obtained from recognised sources and methodologies. In this sense, there are few limitations to their use. Traffic flows on Station Road East Tilbury has been estimated using adjacent traffic surveys, professional judgement and experience of other similar road networks in other similar locations. The traffic data is considered representative of current conditions.

2.5.2 At this stage, procurement of materials and contractors has not been undertaken and the resultant origins of materials and construction staff arrangements cannot be confirmed. The assessment has therefore been undertaken by assigning all construction vehicle movements to all highway links to ensure a robust assessment.

2.6 Impact assessment criteria

2.6.1 The significance of an effect is determined based on the magnitude of an impact and the sensitivity of the receptor affected by the impact. This section describes the criteria applied in this chapter to characterise the magnitude of potential impacts and sensitivity of receptors. The terms used to define magnitude and sensitivity are based on those used in the DMRB methodology, which is described in further detail in Volume 2, Chapter 4: Environmental Impact Assessment Methodology.

2.6.2 The criteria for defining magnitude in this chapter are outlined in Table 2.3.

Table 2.3: Criteria for magnitude of impact.

Magnitude of impact	Definition used in this chapter
Major	Substantial or total loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse).
	Large scale improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Moderate	Moderate loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of highway safety. Severe delays to travellers (adverse).
	Moderate improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in highway safety and in delays to travellers (beneficial).
Minor	Some measurable loss of capability for movement along and across transport corridors, some measurable loss of access to key facilities and some measurable loss of highway safety. Some measurable increase in delays to travellers (adverse).
	Some measurable increase in the capability for movement along and across transport corridors, some measurable increase in access to key facilities and some measurable increase in highway safety. Some measurable increase in delays to travellers. Reduced risk of negative impacts occurring (beneficial).
Negligible	Very minor loss of capability for movement along and across transport corridors, very minor loss of access to key facilities and very minor loss of highway safety. Very minor increase in delays to travellers (adverse).
	Very minor increase in capability for movement along and across transport corridors, very minor increase in access to key facilities and very minor increase in highway safety. Very minor decreases in delays to travellers (beneficial).
No change	No loss of capability for movement along and across transport corridors, no change of access to key facilities and highway safety. No delays to travellers.

Figure 2.1: Site Location Plan.

2.6.3 The criteria for defining sensitivity in this chapter are outlined in Table 2.4.

Table 2.4: Criteria for receptor sensitivity.

Sensitivity	Definition used in this chapter
Very High	Very High: Those receptors with greatest sensitivity due to site-specific characteristics which make them particularly sensitive to changes in traffic flow (e.g. community with high incidence of mobility impairment requiring residents to cross roads to access essential facilities)
High	High: Receptors of high sensitivity to traffic flows (e.g. schools, colleges, playgrounds, accident black spots, urban/residential roads without footways that are used by pedestrians)
Medium	Medium: Receptors of medium sensitivity to traffic flows (e.g. congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycle ways, community centres, parks, recreation facilities, retirement homes)
Low	Low: Receptors with some sensitivity to traffic flows (e.g. places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision)
Negligible	Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions

2.6.4 The significance of the effect upon traffic and transport is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The method employed for this assessment is presented in Table 2.5. Where a range of significance of effect is presented in Table 2.5, the final assessment for each effect is based upon expert judgement.

2.6.5 For the purpose of this assessment, any effects with a significance level of minor or less are considered to be not significant in EIA terms.

Table 2.5: Matrix used for the assessment of the significance of an effect.

		Magnitude of impact				
Sensitivity of receptor		***No change***	***Negligible***	***Minor***	***Moderate***	***Major***
	Negligible	No change	Negligible	Negligible or minor	Negligible or minor	Minor
	Low	No change	Negligible or minor	Negligible or minor	Minor	Minor or moderate
	Medium	No change	Negligible or minor	Minor	Moderate	Moderate or major
	High	No change	Minor	Minor or moderate	Moderate or major	Major or substantial
	Very high	No change	Minor	Moderate or major	Major or substantial	Substantial

Screening Tests

2.6.6 In order to establish whether a highway link should be included as part of the detailed environmental assessment the following tests, that are set out in the IEA (1993) Guidelines, are applied:

- 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.

2.6.7 Based on the above, any link where the predicted change in total traffic flows is less than 10% or change in HV flows is less than 30% is screened out of the assessment. Changes in total traffic flows of less than 10% are generally considered to be insignificant given that the daily variations in background traffic flows may fluctuate by this amount. Any link where changes in total traffic flows are predicted to be less than 30% when not in a sensitive location are also screened out of the assessment.

2.6.8 Links that are defined as high or very high sensitivity are deemed as sensitive, in accordance with the IEMA thresholds, and have been assessed against the rule 2 threshold. Links that are defined as medium, low or negligible sensitivity are deemed as not being sensitive, in accordance with the IEMA thresholds, and have been assessed against the rule 1 threshold.

2.7 Maximum design envelope parameters for assessment

2.7.1 The maximum design envelope parameters identified in Table 2.6. The parameters which have been selected are those that have the potential to result in the greatest effect on an identified receptor or receptor group. These parameters have been identified based on the overview description of the development provided in Volume 2, Chapter 2: Project Description, including all potential development options where these are under consideration by the applicant.

2.7.2 Effects of greater adverse significance are not predicted to arise should any other development scenario within the project design envelope be taken forward in the final design scheme.

2.7.3 There is an inter-relationship with this chapter and Volume 3, Chapter 11: Noise and Vibration and Chapter 12: Air Quality in so far as these two chapters consider traffic flows. The traffic flows are used to inform the assessments of these two chapters and are therefore fully consistent with the above.

2.8 Impacts scoped out of the assessment

2.8.1 In light of the baseline environment (Section 3) and the project description outlined in Volume 2, Chapter 2: Project Description, a number of impacts have been scoped out of the Traffic and Transport assessment. These impacts are outlined, together with a justification for scoping them out, in Table 2.7.

2.8.2 During the operational phase, the vehicle movements generated will be from the operational full-time workforce and maintenance visits. The operational full-time workforce will consist of 24 full time staff operating in two 12-hour shifts with 6 staff working in each shift. In terms of the maintenance workforce there will be up to one major maintenance period (duration three weeks) requiring up to 20 staff and four minor maintenance visits per annum, requiring up to six staff on a daily basis served by light vehicles.

2.8.3 These would use the existing road network and the same accesses as construction traffic. The resulting level of vehicle movement is low and maintenance visits infrequent, and is significantly under thresholds (depending upon the sensitivity of receptors, increases of 10 % or 30 % in total traffic flows or 30 % in HVs, as set out in section 2.6) on which assessment is required. Therefore, there will be no significant effects resulting from the traffic generated during the operational and maintenance phase and an assessment of this has been scoped out.

2.8.4 Vehicle movements generated during the decommissioning phase will be lower than those during the construction phase since the removal of materials can be bulk loaded whilst some infrastructure will be retained in-situ. This results in a lower transport requirement with fewer vehicle movements in comparison to the construction phase. Background traffic flows are generally increasing year on year, therefore, in comparison to the construction phase, the combination of lower decommissioning traffic flows against higher baseline traffic flows results in a lower impact. All mitigation measures that are identified for the construction phase will also be adopted during the decommissioning phase, thus, for a maximum design scenario, 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 is therefore scoped out.

2.8.5 The impacts listed in Table 2.7 have been scoped out of the assessment for Traffic and Transport as agreed through the EIA scoping process detailed in Volume 2, Chapter 5: Scoping and Consultation.

Table 2.6: Maximum design envelope parameters assessed.

Potential impact	Maximum design scenario	Justification
Construction		
The temporary impact of construction work on: • severance of routes; • pedestrian delay; • pedestrian amenity; • highway capacity; and/or • accidents and road safety.	Minimum construction period 12 months within each phase (see justification).	Fewer number of days to transport a given amount of material results in a larger number of daily HGV movements
	Construction workforce averaging 250 FTE and peaking at 350 FTE for up to 24 months.	Maximum expected construction workforce maximises daily staff vehicle movements
	10% of construction staff will arrive as a car driver, the remainder will car share and travel by minibus or coach.	A reasonable maximum proportion of staff driving to / from the site (taking account of minibus / coach service) maximises the number of daily staff vehicle movements
	All material removed from the development area is transported by road with an average of 80 HGV movements per day and a peak of up to 160 HGV movements per day.	A reasonable maximum for HGV vehicle movements on public roads, which would be lower if barge transport or local disposal were used for some material
The temporary impact of hazardous, dangerous and abnormal loads during construction works.	Up to 80 abnormal indivisible load movements will originate through the proposed jetty on the River Thames and not occur on the highway network.	Maximum abnormal loads expected.
Operation and maintenance		
The impact of maintenance workforce traffic on traffic and transport receptors.	Up to one major maintenance period (duration three weeks) and four minor maintenance visits (duration one week) per annum, requiring up to 20 and six staff daily respectively.	Maximum reasonably expected operational traffic generation.
The impact of operational full-time workforce traffic on traffic and transport receptors.	The operational full-time workforce will consist of 24 staff operating a four day on / four day off shift pattern resulting in two daily 12 hour shifts with 6 staff working in each shift.	Maximum reasonably expected operational traffic generation.
Decommissioning		
The temporary impact of decommissioning work on: • severance of routes; • pedestrian delay; • pedestrian amenity; • highway capacity; and/or • accidents and road safety.	All building materials, equipment and infrastructure are removed from the site by road. Transport requirements no greater than during the construction period.	A reasonable maximum transport scenario; transport impact if some infrastructure (such as buried assets) were left in place or if flexible generation plant were to continue in operation would be lower.
The temporary impact of hazardous, dangerous and abnormal loads during decommissioning works.		

Table 2.7: Impacts scoped out of the assessment.

Potential impact	Justification
Construction	
N/A	N/A
Operation	
The impacts arising from the operation and maintenance of the Thurrock Flexible Generation Plant.	Vehicle movements when the plant is operational will be irregular and low and are significantly under thresholds on which assessment is required.
Decommissioning	
The impacts arising from the decommissioning of the Thurrock Flexible Generation Plant.	When the site is decommissioned, the process will require its removal from site which will generate associated vehicle movements, including HGV movements. Since there is no further use for the materials, such materials can be removed in bulk after demolition. This means that larger payloads can be achieved and the traffic flows associated with decommissioning are lower than those during its construction. Consequently, decommissioning impacts will be of a smaller magnitude compared to those produced during construction. As a result, decommissioning effects would be of no greater significance than those assessed for construction. Therefore, the assessments undertaken for the construction assessment will therefore cover the decommissioning phase.

2.9 Measures adopted as part of Thurrock Flexible Generation Plant

2.9.1 A number of measures have been designed into the Flexible Generation Plant to reduce the potential for impacts on Traffic and Transport. These are listed in Table 2.8. They are considered inherently part of the design of the Thurrock Flexible Generation Plant and have therefore been considered in the assessment (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development and will be secured as a requirement of the DCO.

Table 2.8: Designed-in measures.

Measures adopted as part of Thurrock Flexible Generation Plant	Justification
HGVs will be required to follow the appropriate routes identified.	To avoid adverse effects on communities and road users.
Temporary reductions in speed limits will be imposed at constrained junctions.	To provide safe access for construction HGVs and to other road users along the highway network.
Abnormal indivisible loads will not be permitted to use the highway network to access the site. Instead the AILs will be required to follow the identified route, which is via the proposed causeway on the River Thames.	To avoid damage to inappropriate highways, to minimise delays and risks to road users and to avoid adverse impacts on local communities.
Where there is a risk of mud being deposited on the road, wheel wash facilities will be provided at each construction site. These include dry wheel 'wash' facility (rumble grids).	To eliminate risks to highway users resulting from mud and debris on the highway.
Measures to minimise dust and dirt associated with the movement of construction vehicles are set out in the CoCP (application document A8.6).	To minimise adverse air quality effects.
Appropriate parking facilities will be provided for construction workers.	To eliminate risks associated with inappropriate parking.
Traffic management measures at those points where cable trenches are cut across highways or where existing access rights are affected.	To minimise delays to existing highway users and to maintain highway safety.
Load sizes and vehicle usage will be monitored and, where possible, loads and deliveries to construction sites will be consolidated using alternative vehicles. The re-use of HGVs, such as backloading, will be encouraged where possible. Where practicable, local suppliers will be used to minimise the distance travelled by HGVs.	To minimise the impact on sensitive receptors.
Where possible the appointed contractor will seek to minimise overall vehicle movement generation through measures to encourage and promote sustainable travel and transport, for example by using a minibus to shuttle staff between key pick up locations and the compounds (main compound and secondary compounds).	To minimise overall emissions and to minimise other traffic and transport impacts.
Vehicle movements will be managed to minimise the risk of vehicles meeting each other on narrow sections.	To minimise highway risk and possible delays.
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.	To maintain highway safety.
An Outline CTMP (document reference A8.8) has been submitted as part of the application for development consent. The DCO will require that no phase of any works may commence until the CTMP has been submitted to and approved by the relevant planning authority, in consultation with the relevant highway authority.	This is to minimise the impacts of construction vehicle movements and to manage those movements in a manner that road safety is maintained.
It is expected that a number of loads which will reach the site via HGV will arrive via the Port of Tilbury. This will minimise the number of HGVs on the strategic highway network.	To minimise disruption and driver delay and to minimise overall emissions and other traffic and transport impacts.
An Outline CWTP (document reference A8.9) has been submitted as part of the application for development consent. The DCO will require that no phase of any works may commence until the CWTP has been submitted to and approved by the relevant planning authority, in consultation with the relevant highway authority.	To minimise and mitigate adverse effects of transport associated with construction worker travel to and from Thurrock Flexible Generation Plant.

3. Baseline environment

3.1 Current baseline

3.1.1 Details of the strategic highway network and the local highway network providing access to the Thurrock Flexible Generation Plant are set out in Volume 6, Appendix 10.1: Transport Assessment.

3.1.2 Details of baseline traffic flows and the public transport network are set out in Volume 6, Appendix 10.1: Transport Assessment. A summary of the future baseline traffic flows are set out in Section 3.2.

3.1.3 An analysis of road safety via Personal Injury Accidents is set out in Volume 6, Appendix 10.1: Transport Assessment. Figure 3 of the TA shows the location of the personal injury accidents in relation to the location of the Thurrock Flexible Generation Plant.

3.1.4 Table 3.1 sets out the sensitivity assessment for each of the road links along the access routes. The sensitivity for each road link has been defined using the justification set out in Table 3.1, using professional judgement and by incorporating all receptor groups identified and discussed above.

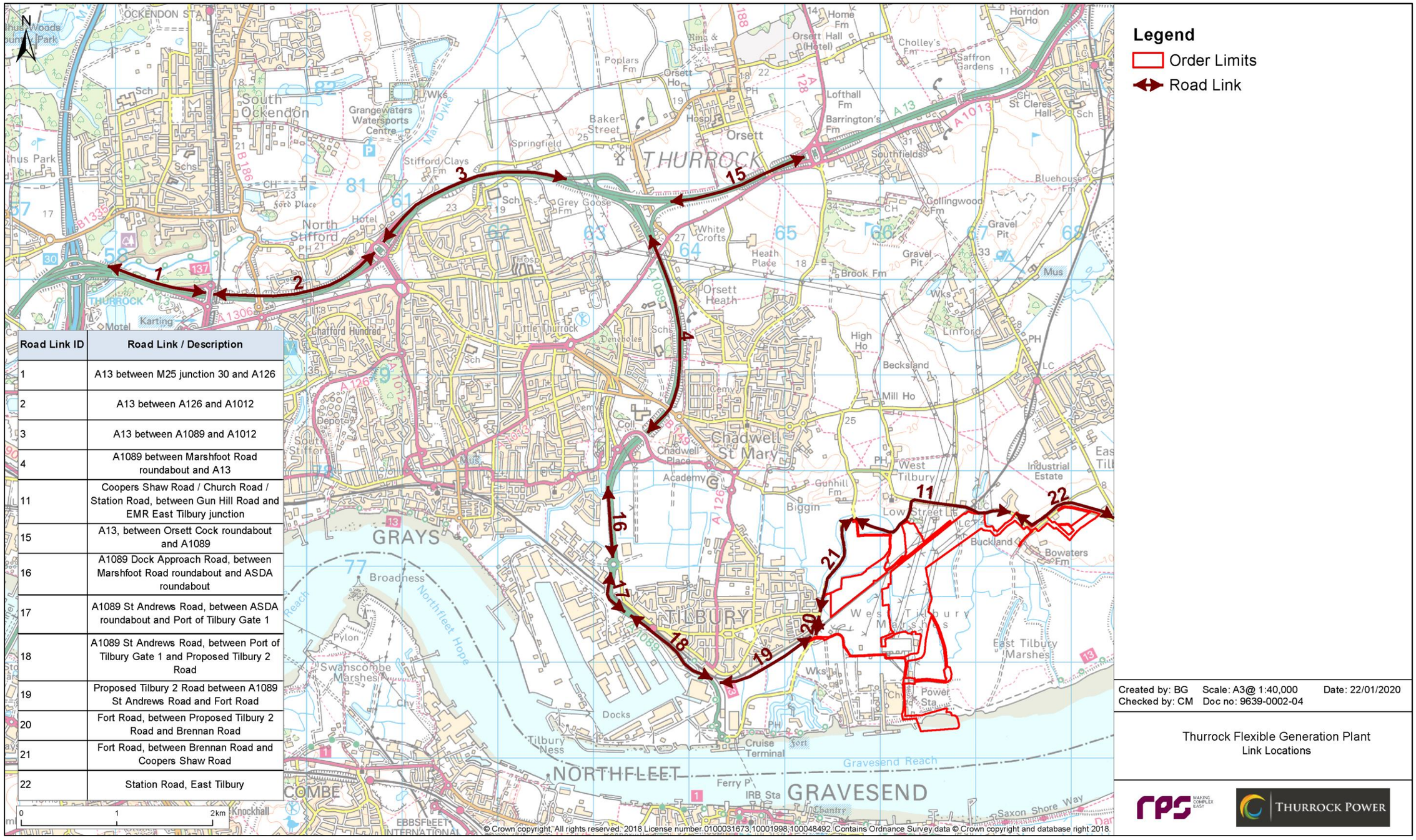
3.1.5 Figure 3.1 shows the links in relation to the development site.

3.1.6 On the basis of Table 3.1, all road links are assessed against the Rule 1 threshold.

Table 3.1: Sensitivity of Receptor.

Link Number	Link Description	Link Sensitivity	Justification
1	A13 between M25 junction 30 and A126	Negligible	Trunk Road Network with no sensitive receptors.
2	A13 between A126 and A1012	Negligible	Trunk Road Network with no sensitive receptors.
3	A13 between A1089 and A1012	Negligible	Trunk Road Network with no sensitive receptors.
4	A1089, between Marshfoot Road roundabout and A13	Negligible	Trunk Road Network with no sensitive receptors.
11	Coopers Shaw Road / Church Road / Station Road, between Gun Hill Road and EMR East Tilbury junction	Low	Railway crossing located to the west of the EMR access. Provides access to some farmland. No street lighting. Limited pedestrian and cyclist movement.
15	A13, between Orsett Cock roundabout and A1089	Negligible	Trunk Road Network with no sensitive receptors.
16	A1089 Dock Approach Road, between Marshfoot Road roundabout and ASDA roundabout	Low	There is a good standard footway / cycleway on its western side with an informal crossing to the north of the ASDA roundabout and streetlighting. The road is part of the Trunk Road Network with no other sensitive receptors.
17	A1089 St Andrews Road, between ASDA roundabout and Port of Tilbury Gate 1	Low	There is a good standard footway on its western side with an informal crossing to the south of the ASDA roundabout and streetlighting. The road is part of the Trunk Road Network with no other sensitive receptors.
18	A1089 St Andrews Road, between Port of Tilbury Gate 1 and Proposed Tilbury 2 Road	Low	There is a good standard footway / cycleway on its eastern and western sides with an informal crossing at the Tilbury Town Rail Station and a bus stop to the south of the Station. Access is provided to Tilbury Town Rail Station. Street lighting is provided.
19	Proposed Tilbury 2 Road between A1089 St Andrews Road and Fort Road	Negligible	Road link does not contain any sensitive receptors as advised by the IEA (1993) Guidelines.
20	Fort Road, between Proposed Tilbury 2 Road and Brennan Road	Low	There is a good standard footway on its western side which narrows at railway bridge. There is no streetlighting. Road link does not contain any other sensitive receptors as advised by the IEA (1993) Guidelines.
21	Fort Road, between Brennan Road and Coopers Shaw Road	Low / Negligible	There are enclosed residential properties located on its western side that are set back from the carriageway and screened. Road link does not contain any other sensitive receptors as advised by the IEA (1993) Guidelines.

Link Number	Link Description	Link Sensitivity	Justification
22	Station Road East Tilbury	Low	Provides access to some farmland and limited residential properties. No street lighting. Limited pedestrian and cyclist movement.



Road Link ID	Road Link / Description
1	A13 between M25 junction 30 and A126
2	A13 between A126 and A1012
3	A13 between A1089 and A1012
4	A1089 between Marshfoot Road roundabout and A13
11	Coopers Shaw Road / Church Road / Station Road, between Gun Hill Road and EMR East Tilbury junction
15	A13, between Orsett Cock roundabout and A1089
16	A1089 Dock Approach Road, between Marshfoot Road roundabout and ASDA roundabout
17	A1089 St Andrews Road, between ASDA roundabout and Port of Tilbury Gate 1
18	A1089 St Andrews Road, between Port of Tilbury Gate 1 and Proposed Tilbury 2 Road
19	Proposed Tilbury 2 Road between A1089 St Andrews Road and Fort Road
20	Fort Road, between Proposed Tilbury 2 Road and Brennan Road
21	Fort Road, between Brennan Road and Coopers Shaw Road
22	Station Road, East Tilbury

Figure 3.1: Link Locations

3.2 Future baseline

3.2.1 The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017, as amended, require that "*an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge*" is included within an assessment.

3.2.2 The peak construction period typically occurs in earlier phases of construction works and therefore an assessment year of 2022 has been adopted being the first year of construction. Therefore, for assessment purposes, the traffic flows on the adjacent highway network have been estimated for a future year of 2022. Details of the derivation of 2022 future baseline traffic flows are set out in Volume 6, Appendix 10.1: Transport Assessment. A summary of the 2022 baseline traffic flows are set out in Table 3.2.

Table 3.2: 2022 baseline traffic flows

Link	Link Description	2022 Baseline	
		AADT	HV AADT
1	A13 between M25 junction 30 and A126	132736	17487
2	A13 between A126 and A1012	110772	16744
3	A13 between A1089 and A1012	114614	16382
4	A1089, between Marshfoot Road roundabout and A13	37249	11960
11	Coopers Shaw Road / Church Road / Station Road, between Gun Hill Road and EMR East Tilbury junction	1138	269
15	A13, between Orsett Cock roundabout and A1089	102630	10220
16	A1089 Dock Approach Road, between Marshfoot Road roundabout and ASDA roundabout	42502	12112
17	A1089 St Andrews Road, between ASDA roundabout and Port of Tilbury Gate 1	18521	9640
18	A1089 St Andrews Road, between Port of Tilbury Gate 1 and Proposed Tilbury 2 Road	8953	3976
19	Proposed Tilbury 2 Road between A1089 St Andrews Road and Fort Road	4640	2673
20	Fort Road, between Proposed Tilbury 2 Road and Brennan Road	1786	307
21	Fort Road, between Brennan Road and Coopers Shaw Road	2204	334
22	Station Road East Tilbury	500	0

AADT = Annual Average Daily Traffic

3.2.3 The construction phase generates more vehicle movements than the operational and decommissioning phases. Therefore, undertaking assessments with a future baseline for the construction phase equates to an assessment of the maximum design scenario, and as such it is not necessary to individually assess the other phases. This was agreed through the EIA scoping process detailed in Volume 2, Chapter 5: Scoping and Consultation.

Climate change

3.2.4 The Met Office Hadley Centre (MOHC) UK Carbon Projections ('UKCP18') dataset (MOHC, 2018) provides probabilistic projections of change in climatic parameters over time for 25 km grid squares across the UK. Projected changes for a RCP8.5[3] future global greenhouse gas emissions scenario have been reviewed for the 2050–2069 and 2080–2099 periods, representing changes towards the end of the proposed development's initial 35-year operating lifetime and changes for the period beyond that should operation continue.

3.2.5 The likely ranges of change in climatic parameters including precipitation, temperature, wind speed, humidity and frequency of extreme weather are not considered to materially affect the future baseline described above for traffic and transport or increase the sensitivity of receptors to impacts beyond that described in Section 4.

[3] RCP8.5 refers to a high-emissions scenario assuming 'business as usual' growth globally with little additional mitigation. This is a conservative (worst-case) approach for the assessment

4. Assessment of Effects

4.1 Construction phase

4.1.1 The potential impacts arising from the maximum design scenario for the construction of the Thurrock Flexible Generation Plant have been assessed.

4.1.2 The identification of the traffic and transport environmental effects requires an assessment of the amount of traffic associated with construction activities and the significance of this additional traffic.

4.1.3 Details on the construction trip generation are set out in Volume 6, Appendix 10.1: Transport Assessment. In summary, it predicted there will be an average of 80 two-way daily HGV movements (or four HGVs on average in each direction every 60 minutes over a ten-hour day) throughout the whole construction period and up to 160 daily HGV movements during the peak construction period. In terms of staff movements, it is predicted there will be an average of 50 daily car movements throughout the whole construction period and up to 70 daily car movements during the peak construction period. It is also estimated that there would be an average of 36 daily minibus movements and an average of 4 daily coach movements during the average construction period. In the peak construction period, there would be a peak of up to 52 daily minibus movements and 4 daily coach movements.

4.1.4 Of the construction HGV movements, some will be associated with the works for the gas compound and the gas pipeline accessed from Station Road East Tilbury. It is estimated that these works will be over a few months and would generate up to 10 HGV movements per day. Construction staff are expected to report to the main compound and travel together to the works at the gas compound and generate up to 10 car movements per day. It is only these construction vehicles that will travel along Station Road East Tilbury. Given the short timeframe for these works, they have been considered in the peak construction assessment below, but not in the average construction assessment.

4.1.5 The gas pipeline crosses Station Road East Tilbury in two locations. It is expected that these works would be undertaken by way of open cut trenching. Given the width of Station Road East Tilbury, the length of time to undertake the open cut trenching is expected to be short and a matter of days. During the open cut trenching works, Station Road East Tilbury will have to be closed and a local diversion put in place. The contractor may choose to undertake these works over a series of nights meaning that the local diversion is only in place at nights. This method will be developed with Thurrock Council, as the Local Highway Authority. The management measures to be adopted for these works are set out in the Outline CTMP (document reference A8.8) and will be confirmed post consent as an amendment to the CTMP in agreement with Thurrock Council.

4.1.6 All vehicles have been assigned onto all road links to ensure a robust assessment. This covers the scenario of construction vehicles accessing via the RWE and Tilbury2 access via the realigned A1089 / Fort Road and also the scenario where this access is unavailable for any reason and construction vehicles access via Station Road.

4.1.7 Given the limited amount of potential temporary accommodation for construction staff, it is expected that the majority of all construction staff would route along these road links, which would enable pick up via minibus or coach. Any traffic that routes along local roads at the boundaries of the study area would be negligible and would be de-minimis in the context of traffic flows along such routes.

4.1.8 HGVs which deliver material from the Port of Tilbury could arrive to the port from the A13, collect the material, turn left onto the A1089 to exit the port, perform a U-turn at the ASDA roundabout, continuing southbound on the A1089 to the site and then exit the site northbound from the site to the A13 via the A1089. Such events would result in eight daily HGV movements on the section of the A1089 between the Port of Tilbury and the ASDA roundabout. As the Port of Tilbury already has planning consent for the HGV to arrive and depart the Port to collect the material and to avoid double counting, HGV movements have been assessed originating from the Port of Tilbury to the proposed development.

Screening for assessment of Transport Environmental Impacts

4.1.9 Table 4.1 calculates the percentage change in daily two-way traffic flows arising from the average construction traffic flows based upon the numbers of total vehicles and HVs predicted as a result of the Thurrock Flexible Generation Plant.

4.1.10 Table 4.2 calculates the percentage change in daily two-way traffic flows arising from the peak construction traffic flows based upon the numbers of total vehicles and HVs predicted as a result of the Thurrock Flexible Generation Plant.

4.1.11 In terms of total vehicle flows and HV movements, none of the links exceed their respective threshold for either the average or the peak (rule 1 or rule 2) construction traffic flow as explained below.

Table 4.1: Average Daily Construction Traffic Flow Percentage Impact.

Link	Link Description	2022 Baseline		Average Construction Traffic Flows				2022 Base + Average Construction	
		AADT	HV AADT	AADT	HV AADT	Percentage Impact (AADT)	Percentage Impact (HGV AADT)	AADT	HV AADT
1	A13 between M25 junction 30 and A126	132736	17487	170	83	0.13%	0.48%	132906	17570
2	A13 between A126 and A1012	110772	16744	170	83	0.15%	0.50%	110942	16827
3	A13 between A1089 and A1012	114614	16382	170	83	0.15%	0.51%	114784	16465
4	A1089, between Marshfoot Road roundabout and A13	37249	11960	170	83	0.46%	0.69%	37419	12043
11	Coopers Shaw Road / Church Road / Station Road, between Gun Hill Road and EMR East Tilbury junction	1138	269	170	83	14.95%	30.86%	1308	352
15	A13, between Orsett Cock roundabout and A1089	102630	10220	170	83	0.17%	0.81%	102800	10303
16	A1089 Dock Approach Road, between Marshfoot Road roundabout and ASDA roundabout	42502	12112	170	83	0.40%	0.69%	42672	12195
17	A1089 St Andrews Road, between ASDA roundabout and Port of Tilbury Gate 1	18521	9640	170	83	0.92%	0.86%	18691	9723
18	A1089 St Andrews Road, between Port of Tilbury Gate 1 and Proposed Tilbury 2 Road	8953	3976	170	83	1.90%	2.09%	9123	4059
19	Proposed Tilbury 2 Road between A1089 St Andrews Road and Fort Road	4640	2673	170	83	3.67%	3.11%	4810	2756
20	Fort Road, between Proposed Tilbury 2 Road and Brennan Road	1786	307	170	83	9.52%	27.02%	1956	391
21	Fort Road, between Brennan Road and Coopers Shaw Road	2204	334	170	83	7.72%	24.89%	2374	417
22	Station Road East Tilbury	500	0	N/A	N/A	N/A	N/A	N/A	N/A

4.1.12 In terms of total vehicle flows, none of the links exceed the rule 1 threshold set out above as a result of the average construction flows.

4.1.13 As can be seen, the daily percentage increases in traffic flows along all links are no more than 14.95% for total vehicles and 30.86% for HVs for the average construction period located on the Coopers Shaw Road / Church Road / Station Road link, between Gun Hill Road and EMR East Tilbury junction. This is the only link exceeding the Rule 1 threshold set out previously. This link would only be used in circumstances when the Fort Road access is not available and is thus assessed for robustness. All other links for the average construction do not exceed the Rule 1 threshold and therefore no assessment is required on those links as the impact is negligible.

4.1.14 In accordance with the IEA (1993) Guidelines the sensitivity of receptors along all links with the exception of the Coopers Shaw Road / Church Road / Station Road link are considered to be low / negligible and the magnitude of impact is deemed to be negligible. The significance of effect is therefore considered to be negligible along all links, which is not significant in EIA terms, with the exception of Coopers Shaw Road / Church Road / Station Road.

4.1.15 The daily increases in HV traffic flows along the Coopers Shaw Road / Church Road / Station Road link exceed the Rule 1 threshold. Daily total percentage increases do not exceed the Rule 1 threshold.

4.1.16 The percentage increase of 30.86% in HV flow slightly exceeds the Rule 1 threshold largely as a result of the low baseline HV flows. Due to this increase being over the Rule 1 threshold, assessment has been undertaken below to assess the effect in detail along Coopers Shaw Road / Church Road / Station Road.

The temporary impact of the average construction works on driver delay

4.1.17 Driver delay can result from the following:

- an increase in traffic flows, particularly during peak hours resulting in increased queues on links and at junctions;
- the passage of slower moving vehicles such as HGVs; and
- reduction in link capacity resulting from changes in carriageway width or other highway characteristics.

Magnitude of impact

4.1.18 Coopers Shaw Road / Church Road / Station Road is lightly trafficked with approximately 1000 vehicle movements per day along it. Site visits have confirmed that congestion does not occur, and vehicles travel along it in free flow conditions.

4.1.19 The increases in traffic flow along Coopers Shaw Road / Church Road / Station Road are estimated at 170 two-way vehicle movements per day which is low and will not cause or result in congestion. The impact of driver delay as a result of the average construction flows along Coopers Shaw Road / Church Road / Station Road is therefore predicted to be negligible.

4.1.20 The negligible delay on Coopers Shaw Road / Church Road / Station Road is predicted to be a direct effect of local spatial extent, short term duration, continuous and fully reversible. The magnitude is therefore considered to be **negligible**.

Sensitivity of the receptor

4.1.21 Coopers Shaw Road / Church Road / Station Road has few sensitive receptors and is deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore, considered to be **low**.

Significance of effect

4.1.22 Overall, it is predicted that the sensitivity of the receptors on Coopers Shaw Road / Church Road / Station Road is considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.23 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.24 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the average construction works on severance of routes

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

4.1.26 The IEA (1993) guidance identifies that increases in total traffic volumes of between 30% and 60% could result in a slight impact (the lowest category) upon severance.

Magnitude of Impact

4.1.27 The change in total traffic flow on all links as a result of the total construction traffic is lower than the 30% that the IEA (1993) guidance sets out is required for a slight effect (the lowest category) to occur.

4.1.28 The impact on Coopers Shaw Road / Church Road / Station Road is predicted to be of local spatial extent, short term duration, continuous and fully reversible. The magnitude is therefore, considered to be **negligible**.

Sensitivity of the Receptor

4.1.29 Coopers Shaw Road / Church Road / Station Road has few sensitive receptors and is deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore considered to be **low**.

Significance of the Effect

4.1.30 Overall, it is predicted that the sensitivity of the receptors on Coopers Shaw Road / Church Road / Station Road is considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.31 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.32 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the average construction works on pedestrian delay

4.1.33 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. The IEA (1993) guidance set out above notes 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 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.

4.1.34 Although there are Public Rights of Way adjoining Coopers Shaw Road / Church Road / Station Road, there are no footways along it.

Magnitude of Impact

4.1.35 Traffic flows along Coopers Shaw Road / Church Road / Station Road are 1138 vehicle movements per day in the 2022 baseline scenario, which in itself is below the 1,400 vehicle movements per hour identified in the IEA (1993) guidance.

4.1.36 Site visits have confirmed that traffic flows are low and do not result in any pedestrian delay. The increases in traffic flow along Coopers Shaw Road / Church Road / Station Road are estimated at 170 two-way vehicle movements per day or eight every 60 minutes on average in each direction which will not cause or result in pedestrian delay. The impact of pedestrian delay as a result of the construction flows along Coopers Shaw Road / Church Road / Station Road is therefore predicted to be negligible.

4.1.37 The negligible impact on pedestrian delay is predicted to be a direct effect of local spatial extent, short term duration, continuous and fully reversible. The magnitude is therefore considered to be **negligible**.

Sensitivity of the Receptor

4.1.38 Coopers Shaw Road / Church Road / Station Road has few sensitive receptors and is deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore considered to be **low**.

Significance of the Effect

4.1.39 Overall, it is predicted that the sensitivity of the receptors on Coopers Shaw Road / Church Road / Station Road is considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.40 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.41 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the average construction works on pedestrian amenity

4.1.42 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.

4.1.43 The IEA (1993) guidance refers to a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HV component) is halved or doubled.

4.1.44 HV flows on Coopers Shaw Road / Church Road / Station Road total 269 HV flows in the 2022 baseline scenario. There are no footways and pedestrian movements are observed to be limited.

Magnitude of Impact

4.1.45 The impact on Coopers Shaw Road / Church Road / Station Road is predicted to be a direct effect of local spatial extent, short term duration, intermittent and fully reversible. The increases in HV movements for the average construction period are 30.86% which is well below the tentative threshold. Given that the baseline traffic levels remain low and pedestrian activity along the link is limited, the magnitude is considered to be **negligible**.

Sensitivity of the Receptor

4.1.46 Coopers Shaw Road / Church Road / Station Road has few sensitive receptors and is deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore, considered to be **low**.

Significance of the Effect

4.1.47 Overall, it is predicted that the sensitivity of the receptor on Coopers Shaw Road / Church Road / Station Road is considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.48 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.49 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the average construction work on accidents and road safety

Magnitude of Impact

4.1.50 The impact of construction work in terms of road safety affects receptors directly and would be short-term, continuous and fully reversible once construction work is complete. The magnitude of increase in total vehicle movements on Coopers Shaw Road / Church Road / Station Road is negligible.

4.1.51 An analysis of injury accidents has been undertaken and concluded that Coopers Shaw Road / Church Road / Station Road currently operates in a safe manner and there are no road safety concerns along it.

4.1.52 There would be a temporary addition of HVs to Coopers Shaw Road / Church Road / Station Road only when the Fort Road access is not available, in exceptional circumstances. HGV movements would be under contract and would be under the construction traffic management conditions and measures. There is no reason to suggest that the HVs would travel in a manner that is unsafe or that the injury accident rate would change.

4.1.53 The impact is predicted to be a direct effect of local spatial extent, short term duration, intermittent and fully reversible. The magnitude is considered to be **negligible**.

Sensitivity of the Receptor

4.1.54 An analysis of injury accidents has been undertaken and concluded that Coopers Shaw Road / Church Road / Station Road currently operates in a safe manner and thus there are no road safety concerns along it. It is considered that the vulnerability and value of the receptor with regards to accidents and road safety is low and fully recoverable. The sensitivity of the receptor is therefore considered to be **low**.

Significance of the Effect

4.1.55 Overall, it is predicted that the sensitivity of the receptor on Coopers Shaw Road / Church Road / Station Road is considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further Mitigation

4.1.56 On the basis of the above, no further mitigation is considered necessary in relation to the temporary impact in terms of accidents and road safety during construction.

Residual effect

4.1.57 The residual effect following further mitigation is predicted to be not significant in EIA terms.

Future monitoring

4.1.58 No traffic and transport monitoring, to test the predictions made within the construction phase, is considered necessary.

Table 4.2: Peak Daily Construction Traffic Flow Percentage Impact.

Link	Link Description	2022 Baseline		Peak Construction Traffic Flows				2022 Base + Peak Construction	
		AADT	HV AADT	AADT	HV AADT	Percentage Impact (AADT)	Percentage Impact (HV AADT)	AADT	HV AADT
1	A13 between M25 junction 30 and A126	132736	17487	286	164	0.22%	0.94%	133022	17651
2	A13 between A126 and A1012	110772	16744	286	164	0.26%	0.98%	111058	16908
3	A13 between A1089 and A1012	114614	16382	286	164	0.25%	1.00%	114900	16546
4	A1089 between Marshfoot Road roundabout and A13	37249	11960	286	164	0.77%	1.37%	37535	12125
11	Coopers Shaw Road / Church Road / Station Road, between Gun Hill Road and EMR East Tilbury junction	1138	269	286	164	25.15%	61.04%	1424	434
15	A13, between Orsett Cock roundabout and A1089	102630	10220	286	164	0.28%	1.61%	102916	10384
16	A1089 Dock Approach Road, between Marshfoot Road roundabout and ASDA roundabout	42502	12112	286	164	0.67%	1.36%	42788	12276
17	A1089 St Andrews Road, between ASDA roundabout and Port of Tilbury Gate 1	18521	9640	286	164	1.54%	1.70%	18807	9804
18	A1089 St Andrews Road, between Port of Tilbury Gate 1 and Proposed Tilbury 2 Road	8953	3976	286	164	3.20%	4.13%	9239	4140
19	Proposed Tilbury 2 Road between A1089 St Andrews Road and Fort Road	4640	2673	286	164	6.17%	6.15%	4926	2837
20	Fort Road, between Proposed Tilbury 2 Road and Brennan Road	1786	307	286	164	16.02%	53.45%	2072	472
21	Fort Road, between Brennan Road and Coopers Shaw Road	2204	334	286	164	12.98%	49.23%	2490	498
22	Station Road East Tilbury	500	0	20	10	4.0%	N/A	520	10

4.1.59 In terms of total vehicle flows, none of the links exceed the Rule 1 threshold.

4.1.60 During the peak construction period, the daily percentage increases in traffic flows along all links are all under the Rule 1 threshold with the exception of four links. Coopers Shaw Road / Church Road / Station Road has a total vehicle percentage increase of 25.155 and an HV increase of 61.04%, this link shows the maximum impact. Two other links which exceed the Rule 1 threshold are Fort Road, between Proposed Tilbury 2 Road and Brennan Road and Fort Road, between Brennan Road and Coopers Shaw Road. These links have a total vehicle increase of 16.02% and 12.98% respectively and an HV increase of 53.45% and 49.23% respectively. These three links will only be used by construction traffic in circumstances when the Fort Road access is not available and are assessed for robustness. Station Road East Tilbury where there are no HV movements in the baseline scenario and a percentage increase caused by 10 additional HGV movements per day cannot be calculated, is also judged to exceed the Rule 1 threshold.

4.1.61 All other links do not exceed the Rule 1 threshold set out above and the impact is therefore negligible and can be screened out of the assessment. In accordance with the IEA (1993) Guidelines the sensitivity of receptors along all other links are considered to be low / negligible and the magnitude of impact is deemed to be negligible. The significance of effect is therefore considered to be negligible along all other links, which is not significant in EIA terms, with the exception of the four links mentioned.

4.1.62 On the basis of the above and in accordance with the IEA (1993) Guidelines, assessment will be undertaken of the effects of the proposed site upon sensitive receptors along the Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury links. Fort Road is formed of two links, it has been assessed as one due to the similar traffic flows and road environment, with the greatest impact of each link assessed, unless there is a need to consider each individually, in which case this is done so.

The temporary impact of the peak construction works on driver delay

4.1.63 Driver delay can result from the following:

- an increase in traffic flows, particularly during peak hours resulting in increased queues on links and at junctions;
- the passage of slower moving vehicles such as HGVs; and
- reduction in link capacity resulting from changes in carriageway width or other highway characteristics.

Magnitude of impact

4.1.64 Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury are lightly trafficked with approximately 1,000 vehicle movements, 2200 vehicle movements and 500 vehicle movements respectively per day along them. Site visits have confirmed that congestion does not occur, and vehicles travel along it in free flow conditions.

4.1.65 The increases in traffic flow along Coopers Shaw Road / Church Road / Station Road and Fort Road are estimated to be 286 two-way vehicle movements and along Station Road East Tilbury are estimated at 20 two-way vehicle movements per day which is low and will not cause or result in congestion. The impact of driver delay as a result of the construction flows along Station Road East Tilbury is therefore predicted to be negligible.

4.1.66 The negligible delay on Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury are predicted to be a direct effect of local spatial extent, short term duration, continuous and fully reversible. The magnitude is therefore considered to be **negligible**.

Sensitivity of the receptor

4.1.67 Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury have few sensitive receptors and are deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore, considered to be **low**.

Significance of effect

4.1.68 Overall, it is predicted that the sensitivity of the receptors on Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury are considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.69 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.70 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the peak construction works on severance of routes

4.1.71 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.

4.1.72 The IEA (1993) guidance set out previously identifies that increases in total traffic volumes of between 30% and 60% could result in a slight impact (the lowest category) upon severance.

Magnitude of Impact

4.1.73 The change in total traffic flow on all links as a result of the total construction traffic is lower than the 30% that the IEA (1993) guidance sets out is required for a slight effect (the lowest category) to occur.

4.1.74 The impact on Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury is predicted to be of local spatial extent, short term duration, continuous and fully reversible. The magnitude is therefore, considered to be **negligible**.

Sensitivity of the Receptor

4.1.75 Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury have few sensitive receptors and are deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore considered to be **low**.

Significance of the Effect

4.1.76 Overall, it is predicted that the sensitivity of the receptors on Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury are considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.77 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.78 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the peak construction works on pedestrian delay

4.1.79 Highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross roads. The IEA (1993) guidance set out above notes 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 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 would perceive a delay.

4.1.80 There is a footway along the western side of Fort Road, south of Brennan Road, but no Public Rights of Way.

4.1.81 Although there are Public Rights of Way adjoining Coopers Shaw Road / Church Road / Station Road and Station Road East Tilbury, there are no footways along them.

4.1.82 There are no footways or Public Rights of Way along Fort Road, north of Brennan Road.

Magnitude of Impact

4.1.83 Traffic flows along Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury for the 2022 baseline scenario are 1,138, 2,200 and 500 vehicle movements respectively per day, which in itself is below the 1,400 vehicle movements per hour identified in the IEA (1993) guidance.

4.1.84 Site visits have confirmed that traffic flows are low and do not result in any pedestrian delay. The increases in traffic flow along Coopers Shaw Road / Church Road / Station Road, Fort Road are estimated at 286 two-way vehicle movements per day or ten every 60 minutes on average in each direction which will not cause or result in pedestrian delay. The increases in traffic flows along Station Road East Tilbury are estimated at 20 two-way vehicle movements per day or one every 60 minutes on average in each direction which will not cause of result in pedestrian delay. The impact of pedestrian delay as a result of the construction flows along Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury is therefore predicted to be negligible.

4.1.85 The negligible impact on pedestrian delay is predicted to be a direct effect of local spatial extent, short term duration, continuous and fully reversible. The magnitude is therefore considered to be **negligible**.

Sensitivity of the Receptor

4.1.86 Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury have few sensitive receptors and are deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore considered to be **low**.

Significance of the Effect

4.1.87 Overall, it is predicted that the sensitivity of the receptors on Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury are considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.88 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.89 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the peak construction works on pedestrian amenity

4.1.90 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.

4.1.91 The IEA (1993) guidance refers to a tentative threshold for judging the significance of changes in pedestrian amenity where the traffic flow (or its HV component) is halved or doubled.

4.1.92 HV flows on Coopers Shaw Road / Church Road / Station Road and Fort Road in the 2022 baseline scenario are 269 and 334 respectively.

4.1.93 HV flows will be introduced to Station Road East Tilbury (the construction HGVs only), where no HV flows have been currently observed. There are no footways along Station Road East Tilbury and pedestrian movements are observed to be low.

Magnitude of Impact

4.1.94 The impact on Coopers Shaw Road / Church Road / Station Road and Fort Road is predicted to be a direct effect of local spatial extent, short term duration, intermittent and fully reversible. The increases in HV movements for the peak construction period are 61.04% and 53.45% respectively which is below the tentative threshold. Given that the baseline traffic levels remain low and pedestrian activity along the links are negligible, the magnitude is considered to be **negligible**.

4.1.95 The impact on Station Road East Tilbury is predicted to be a direct effect of local spatial extent, short term duration, intermittent and fully reversible. Given that there are no existing HV flows here, the magnitude is considered to be **moderate**.

Sensitivity of the Receptor

4.1.96 Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury has few sensitive receptors and is deemed to be of low vulnerability, fully recoverable and low value. The sensitivity of the receptors is therefore, considered to be **low**.

Significance of the Effect

4.1.97 It is predicted that the sensitivity of the receptor on Coopers Shaw Road / Church Road / Station Road and Fort Road is considered to be low and the magnitude is deemed to be negligible. Therefore, this would result in a negligible effect, which is not significant in EIA terms.

4.1.98 Overall, it is predicted that the sensitivity of the receptor on Station Road East Tilbury is considered to be **low** and the magnitude is deemed to be **moderate**. Therefore, this would result in a **minor adverse** effect, which is not significant in EIA terms.

Further mitigation or enhancement

4.1.99 No significant adverse effects have been predicted and no further mitigation is considered to be required.

Residual effect

4.1.100 The residual effect following further mitigation is predicted to be not significant in EIA terms.

The temporary impact of the peak construction work on accidents and road safety

Magnitude of Impact

4.1.101 The impact of construction work in terms of road safety affects receptors directly and would be short-term, continuous and fully reversible once construction work is complete. The magnitude of increase in total vehicle movements on Coopers Shaw

Road / Church Road / Station Road, Fort Road and Station Road East Tilbury is negligible.

4.1.102 An analysis of injury accidents has been undertaken and concluded that Coopers Shaw Road / Church Road / Station Road and Fort Road currently operates in a safe manner and there are no road safety concerns along it. There have not been any along Station Road East Tilbury during the latest available five-year period. It is therefore considered that Station Road East Tilbury currently operate in a safe manner and there are no road safety concerns along them.

4.1.103 There would be a temporary addition of construction HGVs to Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury. Such HGV movements would be under contract and would be under the construction traffic management conditions and measures. There is no reason to suggest that the HGVs would travel in a manner that is unsafe or that the injury accident rate would change.

4.1.104 The impact is predicted to be a direct effect of local spatial extent, short term duration, intermittent and fully reversible. The magnitude is considered to be **negligible**.

Sensitivity of the Receptor

4.1.105 An analysis of injury accidents has been undertaken and concluded that Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury currently operate in a safe manner and thus there are no road safety concerns along them. It is considered that the vulnerability and value of the receptor with regards to accidents and road safety is low and fully recoverable. The sensitivity of the receptor is therefore considered to be **low**.

Significance of the Effect

4.1.106 Overall, it is predicted that the sensitivity of the receptor on Coopers Shaw Road / Church Road / Station Road, Fort Road and Station Road East Tilbury is considered to be **low** and the magnitude is deemed to be **negligible**. Therefore, this would result in a **negligible** effect, which is not significant in EIA terms.

Further Mitigation

4.1.107 On the basis of the above, no further mitigation is considered necessary in relation to the temporary impact in terms of accidents and road safety during construction.

Residual effect

4.1.108 The residual effect following further mitigation is predicted to be not significant in EIA terms.

Future monitoring

4.1.109 No traffic and transport monitoring, to test the predictions made within the construction phase, is considered necessary.

4.2 Cumulative effects

4.2.1 Cumulative effects are those arising from impacts of the proposed development in combination with impacts of other proposed or consented development projects that are not yet built or operational. An assessment of cumulative effects for traffic and transport has been made and is reported in Volume 4, Chapter 23.

4.3 Transboundary effects

4.3.1 Screening of transboundary impacts has been carried out and is presented in Volume 6, Appendix 4.1: Transboundary Impacts Screening Note. This screening exercise identified that there was no potential for significant transboundary effects with regard to traffic and transport from Thurrock Flexible Generation Plant upon the interests of other EEA States.

4.4 Inter-related effects

4.4.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the construction, operation or decommissioning of Thurrock Flexible Generation Plant on the same receptor. The following assessments have been made and a description of the likely inter-related effects on traffic and transport is provided in Volume 5, Chapter 31: Summary of Inter-Related Effects.

Project lifetime effects

4.4.2 Assessment of the potential for effects that occur during more than one stage of the development's lifetime (construction, operation or decommissioning) to interact such that they may create a more significant effect on a receptor than when assessed in isolation for each stage

Receptor-led effects

4.4.3 Assessment of the potential for effects via multiple environmental or social pathways to interact, spatially and temporally, to create a greater inter-related effect on a receptor than is predicted for each pathway (in its respective topic chapter) individually.

5. Conclusion and Summary

5.1.1 The construction phase of the Thurrock Flexible Generation Plant will generate up to 80 two-way HGV movements on average per day, which is equivalent to four HGV on average in each direction every 60 minutes, over a ten-hour day, with operational traffic flows negligible in comparison. Decommissioning will generate fewer HGV movements than construction.

5.1.2 This ES chapter has set out the estimated construction HGV movements along the adjacent highway network.

5.1.3 Environmental assessments have been undertaken and conclude that the effects on driver delay, severance, pedestrian delay, accidents and road safety and hazardous, dangerous and abnormal indivisible loads would be negligible.

5.1.4 The assessment has identified that there would be no significant effects as a result of the construction vehicle movements.

5.1.5 A summary of the findings of the EIA related to traffic and transport are presented in Table 5.1.

5.1.6 An Outline CTMP and Outline CWTP have been submitted with the application for development consent (application documents A8.8 and A8.9), the details of which may be varied in agreement with Thurrock Council.

Table 5.1: Summary of potential environment effects, mitigation and monitoring.

Description of impact	Measures adopted as part of the project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
Construction							
Driver Delay	See Table 2.8	Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Severance	See Table 2.8	Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Pedestrian Delay	See Table 2.8	Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None
Pedestrian Amenity	See Table 2.8	Negligible (moderate on Station Road East Tilbury, during gas compound works only)	Negligible / Low	Negligible (minor adverse on Station Road East Tilbury) (not significant in EIA terms)	None	Negligible (minor adverse on Station Road East Tilbury) (not significant in EIA terms)	None
Accidents and Road Safety	See Table 2.8	Negligible	Negligible / Low	Negligible (not significant in EIA terms)	None	Negligible (not significant in EIA terms)	None

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