CHAPTER 4.0 TRAFFIC AND TRANSPORATION

FIGURES (Volume 2 bound separately)

APPENDICES (Volume 3 bound separately)

4.0 TRAFFIC AND TRANSPORTATION

4.1 Introduction

4.1.1 This Chapter of the EIAR Main Report has been prepared to consider the highways and transport related environmental impacts of the operation of the LSEP, taking into account the Proposal.

4.1.2 Detailed transport-related operational analysis has been considered in a formal Transport Assessment (TA) document, which is provided as a standalone document and can be read in full at Appendix 4-1 to the EIAR. This includes an assessment of development-related traffic forecasts for the operational phase of the LSEP, highway safety, and the accessibility of the LSEP site by non-car modes of transport. This Chapter provides a summary of the key findings of the TA.

The Proposal

4.1.3 The Proposal, as set out in detail within Chapter 3.0 of the EIAR, is principally to vary the s.36 variation consent for the LSEP in order to accommodate a greater annual fuel (waste) throughput. The Proposal will increase the annual waste throughput by 128,000 tonnes per annum (tpa), from the consented 600,000tpa to 728,000tpa in total.

4.1.4 The proposed increase in annual waste throughput, combined with changes to the anticipated mix of waste fuel and delivery vehicles, will result in an increase in the number of HGVs delivering waste fuel to the facility, which will necessitate an amendment to condition 9 attached to the Deemed Planning Permission (DPP) for the LSEP (as varied). This condition applies a limit on the number of HGV movements to and from the LSEP facility.

4.1.5 It is also proposed to extend the HGV delivery hours beyond those set in condition 8 of the DPP. The consented permitted delivery hours stated in this condition are 07:00 to 19:00 on weekdays and 07:00 to 13:00 on Saturdays. The Proposal will extend the weekday delivery hours to 07:00 to 23:00. There will be no change to Saturday hours, and no change to the deliveries on Sundays or Bank Holidays (which there are none consented).

4.1.6 No physical amendments will be required to the LSEP's consented design and therefore it is not necessary to re-assess the impact of construction works in the EIAR (which has previously been assessed in the May 2011 ES work).

4.1.7 The majority of waste will be transported to the LSEP facility from waste transfer stations in large articulated vehicles. However, it will also have the potential to accept some local municipal and commercial / industrial waste which would be delivered to the site in refuse collection vehicles (RCVs). For the purpose of the TA, both the articulated vehicles and RCVs have been included in the total trip generation figures for Heavy Goods Vehicles (HGVs). However, the different vehicle types have different payload capacities, and as such the proportion of waste delivered by each vehicle type will influence the overall number of HGV movements to and from the site. This matter is addressed in detail in Section 6.3 of the TA.

4.1.8 The proposed increase in throughput at LSEP will not result in any change to the anticipated staffing levels at the LSEP site compared to the consented scheme. The development will employ a total of 48 staff, comprising 25 shift workers and 23 office staff. Shift workers will be divided into 5 groups, working across a total of 3 shifts per day as follows:

- Shift Group 1 – 5 staff working 07:00 to 15:00;
- Shift Group 2 – 5 staff working 15:00 to 23:00;
- Shift Group 3 – 5 staff working 23:00 to 07:00; and
- Shift Groups 4 and 5 – 5 staff per group rotating with other shift groups on days off.

4.1.9 HGV and staff access will be via the existing Tata Chemicals Europe site access off Griffiths Road. In addition, staff and light vehicles will be able to access the LSEP site off Manchester Road via Works Lane. Pedestrians will access the LSEP site via the footways on either side of the Tata Chemicals Europe site access as well as the footway on Works Lane. Cyclists will be able to access the LSEP site via either the existing Tata Chemicals Europe or Works Lane accesses.

4.1.10 The Lostock Works site is served by its own rail siding, which extends into the LSEP site, which branches off the Manchester to Chester main line. Relevant to the overall LSEP project and waste fuel delivery, is the fact that the original application was

based around two fuel delivery scenarios. One scenario included some rail transport; the other involved 100% road-based transport. These are set out below:

- Scenario 1: All 600,000 tpa waste fuel imports, plus all consumables / ash imports / exports etc. would be via HGV by road; and
- Scenario 2: 400,000 tpa of waste fuel would be imported via rail and all other imports / exports would be via HGV by road.

4.1.11 Scenario 1 was referred to at the time as the 'worst case scenario'. In this case all waste fuel imports (600,000 tpa) and all other imports / exports were via HGVs by road.

4.1.12 Scenario 2 was referred to in the May 2011 ES as the 'most likely scenario'. In this case 400,000 tpa of fuel would be imported via rail and 200,000 tpa by road. In addition, 120,000 tpa of bottom ash and other exports were also moved via road.

4.1.13 Condition 11 of the DPP requires that opportunities to use, and / or make further use of, non-road modes of transport for the delivery of fuel are kept under review for the LSEP scheme. In accordance with this condition, a study was undertaken an has been reported on in an 'Alternative Transport Modes Scoping Study Report' (June 2021). The report looks into the viability of alternative modes of transport for waste imports to the LSEP and can be viewed in full at Appendix D to the Supporting Statement for the Variation Application (Document 9). The report concludes that the potential for waste being delivered by rail remains economically unviable at the present time, and as such, the opening years of the LSEP are unlikely to utilise rail for deliveries.

4.1.14 Furthermore, the rail element of Scenario 2 would be identical for the LSEP scheme with the Proposal as it was for the original application (i.e. 400,000 tpa of fuel imported by rail in both cases). Accordingly, with the rail re-assessment being largely an academic exercise and the viability not currently an option, rail has not been re-assessed in this TA. The TA focuses on assessing the likely significant effects of Scenario 1 but for the proposed throughput of 728,000 tpa.

4.1.15 As per the requirements of condition 11, opportunities for non-road modes of transport for delivery of fuel to and from the LSEP site will be kept under regular review for the scheme.

4.1.16 Energy recovery facilities, such as the LSEP, do not have a fixed capacity in terms of the annual tonnage they receive and can treat. The throughput tonnage varies within a range that is dictated by the thermal capacity of the boiler, the number of hours in a year that the facility operates and the calorific value (CV) of the waste. If the other factors remain constant, the lower the CV of the waste, the more can be treated in any fixed period.

4.1.17 Based upon the facility design, the planned / expected operational hours (per year) and the forecast CV of the inputs, the likely maximum throughput tonnage would be 728,000 tpa, although the facility may operate at a lower annual tonnage rate, depending on the ultimate CV of the waste. The assumption that there would be a throughput tonnage of 728,000 tpa will therefore result in a highly robust assessment within this EIA.

4.1.18 The LSEP would be capable of generating electricity and heat 24 hours per day, 365 days per year. As previously noted, HGV deliveries would occur six days per week, from Monday to Saturday, excluding 28 days shutdown when there is no bunker capacity. There would be no HGV deliveries on Sundays or Bank Holidays.

Competence

4.1.19 The author of this assessment has 15 years' experience in the field of transport planning with a Master's Degree in Transport Planning.

4.2 Methodology and Scope of Assessment

Legislation and Guidance

4.2.1 Policy contained within the National Planning Policy Framework (NPPF) and the statutory Development Plan are set out in both the TA and Supporting Statement submitted in support of the s.36 variation application and have not been repeated here.

4.2.2 In accordance with best practice, the assessment of transport effects has been undertaken in line with advice set out in the:

- National Planning Practice Guidance (NPPG) 'Transport Assessments and Statements' (Ref: 42-014-20140306);

- Department for Transport's Guidance on Transport Assessment (GTA, 2007); and
- 'Guidelines for the Environmental Assessment of Road Traffic' produced by the Institute of Environmental Assessment (March 1993), now Institute of Environmental Management & Assessment (IEMA). Hereafter referred to as the 'IEMA RTA Guidelines'.

Study Area

4.2.3 The study area for the assessment includes the following road links:

- Link 1 – Lostock Works Site Access Road;
- Link 2 – A530 Griffiths Road north of Site Access Road;
- Link 3 – B5082 Middlewich Road west of A530;
- Link 4 – A530 Griffiths Road between Site Access and B5082;
- Link 5 – A530 King Street between B5082 and A556;
- Link 6 – Penny's Lane east of A530;
- Link 7 – A556 west of A556 / A530 roundabout;
- Link 8 – A530 south of A556 / A530 roundabout; and
- Link 9 – A556 east of A556 / A530 roundabout.

4.2.4 The study area included in the assessment is illustrated in Figure 4.1.

Assessment Methodology

4.2.5 In accordance with the IEMA RTA Guidelines, the significance of effects has been assessed by considering the interaction between the magnitude of the impact and the sensitivity of the receptor in the study area.

4.2.6 The IEMA RTA Guidelines recommend two rules be considered when assessing the impact of development traffic on a road link:

- Rule 1: include highway links where traffic flows will increase by more than 30 % (or the number of heavy goods vehicles (HGV) will increase by more than 30 %); and
- Rule 2: include any other specifically sensitive areas where total traffic flows have increased by 10 % or more.

4.2.7 The above guidance is based upon research, knowledge, and experience of environmental effects of traffic, with less than a 30 % increase generally resulting in imperceptible changes in the environmental effects of traffic. At a simple level, the guidance considers that projected **changes in total traffic flow of less than 10 % creates no discernible environmental effect**, hence the second threshold as set out in Rule 2.

4.2.8 In cases where these thresholds are exceeded, the IEMA RTA Guidelines set out a list of environmental effects that should be assessed for their magnitude of change.

4.2.9 Definitions of each of the potential effects identified in the IEMA RTA Guidelines are summarised below: pedestrian delay, pedestrian amenity; accidents and safety; driver delay; severance of routes; severance of footpaths and hazardous loads. These descriptions are accompanied by explanatory text relating to the assessment criteria used to determine the magnitude of impact. It is on this basis that the assessment in this Chapter has been undertaken.

4.2.10 It is acknowledged at paragraph 2.4 of the IEMA RTA Guidelines that not all of the effects set out below (and as listed in Column 3 of Table 2.1 of the Guidelines) would be applicable to every development. Accordingly, an analysis of the surrounding road network is incorporated, to assist the assessment identify those that are relevant.

4.2.11 The environmental effects of traffic considered in other chapters of this EIAR Main Report include the following:

- Air Quality, Odour and Human Health – the potential effects relating to air quality as a result of traffic and construction dust and dirt from construction traffic are assessed in Chapter 5.0;
- Ecological and Nature Conservation Effects – assessed in Appendix 5-5 ‘Ecological Interpretation of Air Quality Assessment’ and discussed in Chapter 5.0;
- Noise – potential effects relating to traffic related noise are assessed in Chapter 6.0; and
- Landscape and Visual Effects – set out in Chapter 7.0.

4.2.12 The environmental effects of traffic considered in this Chapter are discussed below. Where an effect is not being considered, justification is provided for its omission.

Pedestrian Delay

4.2.13 Changes in the volume, composition or speed of traffic may affect the ability of people to cross over roads. In general terms, increases in traffic levels are likely to lead to increases in pedestrian delay.

4.2.14 The LSEP site is situated within walking distance from a number of residential areas, including the built-up areas around Lostock Gralam and the outskirts of Northwich. The LSEP site therefore provides opportunity for local staff to walk to the facility.

4.2.15 Additionally, there are residential areas on both sides of both the A530 and B5082 Middlewich Road, which creates the potential for a number of pedestrian movements along the roads in the vicinity of the LSEP site. Consequently, the effects of the Proposal in terms of pedestrian delay are considered in this Chapter.

Pedestrian Amenity

4.2.16 The term 'pedestrian amenity' is broadly defined as the relative pleasantness of a journey by foot; it is considered to be affected by traffic flow, traffic composition and pavement width / separation from traffic. This definition also includes pedestrian fear and intimidation and can be considered to be a much broader category including consideration of the exposure to noise and air pollution, and the overall relationship between pedestrians and traffic.

4.2.17 The IMEA RTA Guidelines suggests that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or its lorry component) is halved or doubled.

4.2.18 As set out in the section that discusses pedestrian delay, there are a number of residential areas within the vicinity of the LSEP site, which creates the potential for there to be a number of pedestrian movements in the study area; consequently, the effects of the Proposal in terms of pedestrian amenity are considered in this Chapter.

Accidents and Safety

4.2.19 It is possible to estimate the effects of increased traffic on accidents and safety from existing accident records, national statistics, the type, and quantity of traffic generated, journey lengths and the characteristics of the routes in question.

4.2.20 The TA contains a detailed analysis of recent accident data on the study area which concludes that the existing accident record does not present a material concern in the context of the Proposal.

4.2.21 On this basis the effects of the Proposal in terms of accidents and safety are not considered in this Chapter.

Driver Delay

4.2.22 Where roads affected by development are at or near capacity, the traffic associated with such development can cause or add to vehicle delays. Some roads can typically operate at or near capacity during the weekday AM and PM peak hours.

4.2.23 Sources of delay for non-development traffic could potentially include:

- at the LSEP site access where there would be additional turning movements;
- on the roads passing the LSEP site where there is likely to be additional traffic;
- at other key intersections within the study area which might be affected by increased traffic; and
- on the minor arms of junctions where the ability to find gaps in passing major road traffic may be reduced, thereby lengthening delays.

4.2.24 Where relevant, the effects of the Proposal on driver delay are considered in this Chapter. The TA presents the results of detailed junction capacity assessments that have been undertaken during the weekday AM and PM peak hours and these have been used to undertake the assessment of driver delay.

Severance

4.2.25 Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex

series of factors that separate people from places and other people. Severance can also result from difficulty in crossing a heavily trafficked road (IEMA, March 1993).

4.2.26 The guidance indicates that severance effects are considered ‘slight’, ‘moderate’ and ‘substantial’ with changes in traffic flows of 30%, 60% and 90% respectively.

4.2.27 The Proposal will not create new routes that would cause severance effects to the general public. Furthermore, it will not affect any Public Rights of Way (PRoW) or footways. However, the increase in HGV movements along the local highway network does create the potential for an increase in severance effects, and as such the effect of severance of routes has been considered in this Chapter.

Hazardous Loads

4.2.28 Some developments may involve transporting dangerous or hazardous loads by road in the construction or decommissioning and operational phases of the development, such as special wastes, toxic materials, and chemicals.

4.2.29 The LSEP facility will not accept hazardous waste. However, hazardous loads will be presented through the removal of Air Pollution Control Residue (APCR) and the delivery of some reagents (depending on the concentration).

4.2.30 As set out in the EIA Scoping Report (see Appendix B of the Supporting Statement to the Variation Application), the effects of the transportation of hazardous material are considered within this Chapter.

Assessment of Significance / Assessment Criteria

Receptor Sensitivity / Value

4.2.31 Paragraph 2.5 of the IEMA RTA Guidelines explains that groups or locations that may be sensitive to changes in traffic conditions could include people at home, people in workplaces, sensitive groups such as children, the elderly, or the disabled, sensitive locations such as hospitals, churches, schools or historical buildings or people walking.

4.2.32 Sensitivity to changes in transport conditions is generally focussed on vulnerable user groups who are less able to tolerate, adapt to or recover from changes. Table 4.1 summarises the broad criteria for identifying receptor sensitivity.

Table 4.1: Sensitivity Definition

Sensitivity	Description
High	Receptors of greatest sensitivity to traffic flows – schools, colleges, playgrounds, accident black spots (with reference to accident data), retirement homes, urban/residential roads without footways that are used by pedestrians.
Medium	Traffic flow sensitive receptors – congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with regular pedestrian movement but with narrow / inadequate footways, unsegregated cycleways, community centres, parks, recreation facilities.
Low	Receptors with some sensitivity to traffic flow – 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.

4.2.33 Road links with descriptions of low or negligible sensitivity are considered against the Rule 1 threshold described above (> 30 % increase in traffic flow). Road links with descriptions of high or medium sensitivity are considered against the 'Rule 2' threshold described above (> 10 % increase in traffic flow). Where necessary, professional judgement has been applied in identifying the relevant category for each link.

Magnitude of Impact

4.2.34 The criteria for defining magnitude of impact are based upon advice contained within the IEMA RTA Guidelines, as shown in Table 4.2.

Table 4.2: Magnitude Definition

Sensitivity	Adverse/ Beneficial	Description
High	Adverse	Substantial or total loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of road safety. Severe delays to travellers.
	Beneficial	Large scale improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in road safety and in delays to travellers.
Medium	Adverse	Moderate loss of capability for movement along or across transport corridors, loss of access to key facilities and loss of road safety. Severe delays to travellers.

	Beneficial	Moderate improvement in the capability for movement along and across transport corridors, major improvement in access to key facilities, in road safety and in delays to travellers.
Low	Adverse	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 road safety. Some measurable increase in delays to travellers.
	Beneficial	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 road safety. Some measurable increase in delays to travellers. Reduced risk of negative impacts occurring.
Negligible	Adverse	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 road safety. Very minor increase in delays to travellers.
	Beneficial	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 road safety. Very minor decreases in delays to travellers.
No Change	n/a	No loss of capability for movement along and across transport corridors, no change of access to key facilities and road safety. No delays to travellers.

Significance of Effects

4.2.35 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 particular method employed for this assessment is presented in Table 4.3.

4.2.36 Where a range of significance of effect is presented in Table 4.3, the final assessment for each effect is based upon expert judgement. 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 4.3: Level of Effect Matrix

Sensitivity of Receptor	**Magnitude of Impact**			
	Negligible	**Low**	**Medium**	**High**
Negligible	Negligible	Negligible or minor	Negligible or minor	Minor
Low	Negligible or minor	Negligible or minor	Minor	Minor or moderate
Medium	Negligible or minor	Minor	Moderate	Moderate or major
High	Minor	Minor or moderate	Moderate or major	Major

Consultation

4.2.37 The scope and nature of this Chapter reflects the advice provided by officers of the relevant highway authorities during the formal EIA Scoping process. Advice from Highways England (HE) is contained within an email dated 29th March 2021 and advice from CWACC Highways is presented in an email dated 25th March 2021. Both of these items of correspondence are contained within **Appendix A** of the TA.

Limitations

4.2.38 For the purposes of this assessment, due to the ongoing impact on background traffic levels as a result of the Government's recommendation (issued on 16 March 2020) for people to stay at home due to the Covid-19 outbreak, baseline traffic data was obtained from a number of sources, primarily the Northwich Transport Model (NTM).

4.2.39 The NTM is a strategic traffic model developed using the SATURN modelling software. The model covers the whole of Northwich Town Centre and the surrounding villages.

4.2.40 The model is calibrated and validated to a base year of 2016. From this base year, a future year model for an assessment year of 2030 has been developed, which takes account of future growth associated with proposed and allocated residential and employment development sites, along with any committed highway network upgrades. For both assessment years, the 2016 base year model covers the AM (08:00-09:00) and PM (17:00-18:00) peak hours and an average interpeak period (10:00-16:00). The 2030 model only covers the AM and PM peak hours.

4.2.41 Traffic flows for the intermediate assessment years of 2023 and 2028 were interpolated from these modelled scenarios based on average traffic growth per annum for each individual turning movement.

4.2.42 In order to calculate traffic flows across a full day, a fully classified turning count was undertaken at the A530 / Site Access junction on Tuesday 20th April 2021, covering a 12-hour period between 07:00 and 19:00.

4.2.43 Historic Annual Average Daily Flow data for 2016, concurrent with the NTM base year, from permanent Automatic Traffic Counter sites on the A530 and A556, was also utilised to convert the peak hour modelled flows to daily flows.

4.2.44 Therefore, because of the wide range of data sources used, the baseline traffic flows used in the assessment represent a best estimate of typical traffic conditions.

4.3 Baseline

Highway Network

4.3.1 Vehicular access to the LSEP site would be provided using the existing Tata Chemicals site access off Griffiths Road. Additional access for staff and light vehicles is provided from Manchester Road via Works Lane to the north of the LSEP site.

4.3.2 The existing access off Griffiths Road is a priority-controlled design with a dedicated left-turn lane from Griffiths Road.

4.3.3 Griffith Road runs from the Griffiths Road / Manchester Road priority-controlled junction to the north-north-east of the LSEP site to the Griffiths Road / Middlewich Road and Griffiths Road / Penny's Lane staggered junction, approximately 1.7km to the south.

4.3.4 No developments are in place on the route between the LSEP site and the Griffiths Road / Middlewich Road and Griffiths Road / Penny's Lane staggered junction. There is a pedestrian footway on the western side of the road which provides pedestrian access between Rudheath and the LSEP site.

4.3.5 Currently, the Griffiths Road / Middlewich Road and Griffiths Road / Penny's Lane staggered junction features a priority-controlled design, however a scheme of signalisation and pedestrian crossings across the A530 King Street and Middlewich Road will be provided in the near future. As of the time of writing the details of the junction upgrade scheme have been agreed with CWACC and a Section 278 Agreement ('S278') is in draft.

4.3.6 Penny's Lane is a minor access road which directly serves approximately 15 dwellings. The road is not included within the modelled highway network in the NTM,

and as such the peak hour flows on this link are recorded as zero. The only trips generated by the Proposal that could potentially use Penny's Lane would be RCVs making kerb-side collections. Given the low number of dwellings accessed directly from Penny's Lane, operational related traffic movements (for the LSEP) along this link are anticipated to be nominal.

4.3.7 Continuing southwards from the Griffiths Road / Manchester Road priority-controlled junction, the A530 Griffiths Road transitions into A630 King Street. The A530 King Street runs in an approximately north-west/south-east alignment through the Broken Cross area of Rudheath village.

4.3.8 There are pedestrian footways on both sides of carriageway which are occasionally interrupted, however when considered together they result in a continuous staggered footway along the entire length of the road.

4.3.9 Approximately 450 m to the south-east of the Griffiths Road / Middlewich Road and Griffiths Road / Penny's Lane staggered junction the road forms the northern arm of the A530 / A556 roundabout which provides a link to the east and west via the A556 and to the south via the A530.

Receptors

4.3.10 Receptors to be considered within the impact assessment have been selected based upon the access routes to be taken by vehicle movements generated by the LSEP with the Proposal. Table 4.4 presents the sensitivity for each receptor group.

Table 4.4: Sensitivity of Receptors

Link No.	Link Description	Sensitivity	Qualification
1	Lostock Works Site Access Road	Negligible	Lies within the wider Lostock Works site and is not part of the public highway. A footpath is present on the western side of the road. Pedestrian and cycle movements are anticipated to be low. No highly sensitive receptors present
2	A530 Griffiths Road north of Site Access Road	Negligible	No developments served with direct access from this road. A footway is present on the western side of the road. Pedestrian and cycle movements are anticipated to be low. No highly sensitive receptors.
3	B5082 Middlewich Road west of A530;	Low	Many residential and some commercial properties are served directly from this road. Adequate footways are in place on both sides of the carriageway and there are no highly sensitive receptors present.

Link No.	Link Description	Sensitivity	Qualification
4	A530 Griffiths Road between Site Access and B5082	Negligible	No developments served with direct access from this road. A footway is present on the western side of the road. Pedestrian and cycle movements are anticipated to be low. No highly sensitive receptors.
5	A530 King Street between B5082 and A556	Low	Residential properties are served directly from this road on both sides of the road. No commercial properties are present other than one petrol filling station. Adequate footways are in place on both sides of the carriageway and there are no highly sensitive receptors present.
6	Penny's Lane east of A530	Low	Residential properties are served directly from this road. A footway is present on the southern side of the road. Low number of pedestrian movements anticipated. No highly sensitive receptors present.
7	A556 west of A556 / A530 roundabout	High	Dual carriageway road with no developments served directly from this road. Segregated footways are present on both sides of the road. Rudheath Primary School is located approximately 50m north of the eastbound carriageway.
8	A530 south of A556 / A530 roundabout	Negligible	Dual carriageway road with no developments served directly from this road. A shared foot/cycleway is present on the eastern side of the road. No highly sensitive receptors are present.
9	A556 east of A556 / A530 roundabout	Negligible	Dual carriageway road with no developments served directly from this road. A segregated footway is present on the northern side of the road. No highly sensitive receptors are present.

4.3.11 The LSEP site is considered to be located close to an area characterised as sensitive due to the location of a number of residential properties along the A530 to the south. The impact therefore is considered to fall within the screening threshold (Rule 1) of 30% set out by IEMA.

4.3.12 Due to the presence of a single highly sensitive receptor (Rudheath Primary school) in relatively close proximity to link no. 7, this link will also be assessed against the 'Rule 2' threshold described earlier (> 10 % increase in traffic flow).

Data Collection

4.3.13 As noted in the Limitations section above, in order to establish baseline traffic flows on the local highway network a number of data sources have been investigated, including the Department for Transport's (DfT) online traffic count database, the NTM, and new survey counts. The following data has been obtained:

- Internal construction site (new 7 day, 24-hr ATC survey at two locations, undertaken by independent survey company);

- Site Access / A530 Griffiths Road (new 12-hr manual classified count, undertaken by independent survey company);
- Site Access / A530 Griffiths Road (NTM, AM & PM peak hour);
- A530 Griffiths Road / Middlewich Road / Penny's Lane (NTM, AM & PM peak hour);
- A530 King Street / A556 (NTM, AM & PM peak hour);
- A556 link count (DfT, Annual Average Daily Flows (AADF)); and
- A530 link count (DfT, AADF).

Traffic Flows

4.3.14 In line with scoping advice and NPPG, the assessment of traffic impacts has been undertaken for an opening year of 2023 and a future year of 2028, which is 5 years after the year of opening of the LSEP.

4.3.15 Turning movements at each of the junctions within the study area were obtained from the NTM for the model base year of 2016 and the forecast year of 2030. The 2030 model includes background traffic growth assumptions associated with 61 proposed and allocated residential development sites, totalling 4,134 dwellings. It also included growth associated with 1,707 Ha of allocated employment development sites and 163 Ha of allocated retail development sites. **Appendix H** of the TA details the full list of committed and allocated development sites that have been accounted for in the NTM.

4.3.16 Traffic flows for the 2023 and 2028 assessment years were interpolated from the 2016 and 2030 NTM outputs by calculating the annual percentage growth for each vehicle type and each turning movement.

4.3.17 Turning movements at the site access junction were then adjusted to reflect the observed turning movements recorded in the 2021 traffic surveys. Baseline traffic flows for these movements for the 2023 and 2028 assessment years were calculated by applying TEMPRO growth factors to the 2021 surveyed flows.

4.3.18 For the purpose of this assessment, the DfT AADF link flows for the A530 and the 2021 12-hr turning count data at the A530 / Site Access Road junction has been used to calculate a conversion factor to convert the NTM AM and PM peak hour flows into 16-hr weekday traffic flows for the 2023 and 2028 assessment years, covering the now proposed delivery hours of 07:00 to 23:00.

4.3.19 The assessment compares the traffic-related environmental impacts of the LSEP scheme with the Proposal as measured against the following anticipated future baseline scenarios:

- **Operational Phase (2023)**: Background network traffic + growth + trips associated with any committed developments + consented trips; and
- **Operational Phase (2038)**: Background network traffic + growth + trips associated with any committed developments + consented trips.

Proposed Development Traffic

4.3.20 The likely level of trip generation of the LSEP scheme as consented with the Proposal has been forecast using a 'first principles' approach, which is based on the future operation of the LSEP facility. The method of deriving the trip generation is set out in detail in the TA and summarised in Table 4.5.

Table 4.5: Summary of Daily Trip Generation during Weekdays

Trip Element	Trips (two-way)		
	LSEP as Consented (600,000 tpa)	LSEP with the Proposal (728,000 tpa)	Net Change
HGV Trips			
Import of Waste	210	352	+142
Import of Consumables	2	6	+4
Export of Ash and Recovered Metals	50	76	+26
Total HGV Movements	262	434	+172
Car Trips			
Shift Staff	30	30	0
Day Staff	50	46	0
Total Car Trips	80	76	-4
Total Trips			
Total Trips	342	510	+168

4.3.21 Table 4.5 shows that the LSEP scheme with the Proposal is forecast to generate around 510 two-way trips per weekday, on average. This represents a net increase of 168 two-way daily trips compared to the scheme as consented.

4.3.22 The TA also sets out the methodology that has been used to forecast the distribution of car and HGV trips generated by the Proposal. This follows the same methodology that was used to forecast the trip distribution for the Consented Development. This is summarised in Table 4.6.

Table 4.6 Summary of Distribution of Car and HGV Trips

Route	Car	HGV
A530 north	17 %	0 %
Middlewich Road	0 %	0 %
Penny's Lane	0 %	0 %
A530 south	54 %	30 %
A556 west	3 %	35 %
A556 east	26 %	35 %
Total	100 %	100 %

4.3.23 The vast majority of vehicle movements associated with the Proposal would occur during weekdays over the 16-hour period between 07:00 and 23:00. As noted previously, the Proposal does not include any physical amendments required to the LSEP's buildings or structures (as consented and currently under construction) and therefore it will not be necessary to consider assessment of construction works. The effects have therefore been assessed during the weekday over this 16-hour period during the operational phase only.

4.3.24 Detailed junction capacity assessments, which form the basis for assessing driver delay, have been undertaken for the weekday peak hours. The peak hours assessed are in line with the modelled peak hours included in the NTM, as follows:

- AM peak hour, 08:00 to 09:00; and
- PM peak hour, 17:00 to 18:00.

4.3.25 Detailed junction assessments have been undertaken at the A530 Griffiths Road / Site Access junction, the A530 / Middlewich Road / Penny's Lane junction, and the A556 / A530 roundabout.

2023 Baseline Traffic Flows

4.3.26 Table 4.7 summarises the resultant estimated 2023 Baseline 16-hr weekday traffic flows.

Table 4.7: Summary of 2023 Baseline 16-hour Weekday Traffic Flows

Link	Link Description	2023 Background Traffic Flows (vehicles)		Consented Trips		Total 2023 Baseline Flows	
		Vehicles	HGVs	Vehicles	HGVs	Vehicles	HGVs
1	Lostock Works Site Access Road	920	222	346	264	1,266	486
2	A530 Griffiths Road north of Site Access Road	7,954	46	14	0	7,968	46
3	B5082 Middlewich Road west of A530	10,111	249	0	0	10,111	249
4	A530 Griffiths Road between Site Access and B5082	8,526	224	331	264	8,858	488
5	A530 King Street between B5082 and A556	17,318	521	331	264	17,649	785
6	Penny's Lane east of A530	0	0	0	0	0	0
7	A556 west of A556 / A530 roundabout	39,747	1,646	95	92	39,842	1,739
8	A530 south of A556 / A530 roundabout	17,637	673	124	79	17,760	752
9	A556 east of A556 / A530 roundabout	39,448	2,136	113	92	39,561	2,229

4.3.27 Review of this traffic flow information identifies that the maximum two-way flows are noted as occurring on the A556 to the east and west of the A556 / A530 roundabout, where flows are in the order of 39,500 two-way vehicle movements during the 16-hour weekday period.

2028 Baseline Traffic Flows

4.3.28 Table 4.8 summarises the resultant estimated 2028 Baseline 16-hr weekday traffic flows.

Table 4.8: Summary of 2028 Baseline 16-hour Weekday Traffic Flows

Link	Link Description	2028 Background Traffic Flows (vehicles)		Consented Development Trips		Total 2028 Baseline Flows	
		Vehicles	HGVs	Vehicles	HGVs	Vehicles	HGVs
1	Lostock Works Site Access Road	959	231	346	264	1,305	495
2	A530 Griffiths Road north of Site Access Road	8,441	48	14	0	8,455	48
3	B5082 Middlewich Road west of A530	10,227	239	0	0	10,227	239
4	A530 Griffiths Road between Site Access and B5082	9,096	226	331	264	9,428	490
5	A530 King Street between B5082 and A556	18,092	506	331	264	18,424	770
6	Penny's Lane east of A530	0	0	0	0	0	0
7	A556 west of A556 / A530 roundabout	40,949	1,655	95	92	41,044	1,747
8	A530 south of A556 / A530 roundabout	18,126	658	124	79	18,250	737
9	A556 east of A556 / A530 roundabout	40,366	2,118	113	92	40,479	2,211

4.3.29 Review of this traffic flow information identifies that the maximum two-way flows are noted as occurring on the A556 to the east and west of the A556 / A530 roundabout, where flows are in the order of 40,500 two-way vehicle movements during the 16-hour weekday period.

4.4 Assessment of Effects

Incorporated Mitigation

4.4.1 The May 2011 ES TA identified the following transport and highways mitigation measures required to deliver the LSEP facility:

- The Broken Cross junction will be signalised before the LSEP becomes operational;
- The A556/A530 roundabout will be improved before the LSEP becomes operational;
- The speed limit on Griffiths Road will be reviewed and consideration will be given to reducing this to 30mph;

- The road surface along Griffiths Road and King Street will be assessed and, where appropriate, resurfacing works will be undertaken to rectify existing poor surface conditions causing vehicle noise;
- Although it is inappropriate to develop a Travel Plan specifically for this Proposal, measure to encourage sustainable travel, including provision of covered and secure cycle parking, shower and changing facilities, and provision of sustainable transport information, will be introduced at the LSEP site (in accordance with condition 16 of the DPP). This will also include a commitment to participate in wider Travel Plan activities should these come forward; and
- If the improvement of the Broken Cross junction is brought forward before the proposed development, in association with other committed development(s) in the area, a contribution will be made towards other highways improvements that will benefit pedestrian and residential amenity in the vicinity of the development.

4.4.2 The original s.36 consent required delivery of a series of off-site highways works, some of which have been implemented or partially implemented. Table 4.9 summarises the current status of each of these at the time of writing:

Table 4.9 Off-Site Highway Works, Delivery Mechanism and Status

Off-Site Highway Works	Drawing Number	Delivery Mechanism	Programme / Status
Signalisation of Broken Cross crossroads (A530 King Street / A530 Griffiths Road / Penny's Lane / Middlewich Road)	JNY6882-31A (Drawing 1 in UU)	First Schedule of 30-11-2011 Unilateral Undertaking (UU) and S278 Agreement	Not complete. The detailed design drawing package, prepared by Wilde consulting, has been agreed. However, Cheshire West and Chester Council (CWACC) sent an email to Wilde Consulting on 24th November 2020 requesting further information so that the draft S278 Agreement could be finalised and sent to Legal Services. The information requested included works programme and bond budget information. The drawings for this improvement were subsequently agreed and the council's legal services were instructed to draft the S278 Agreement on 19th April 2021.
Resurfacing of A530 King St near residential area	JNY6882-37A (Drawing 2 in UU)	First Schedule of 30-11-2011 UU and S278 Agreement	Not complete, except insofar as the resurfacing that has been carried out for 50m on either side of the new pedestrian crossing (see below). CWACC have indicated that it would be prudent to carry out the further resurfacing when the Broken Cross crossroad are upgraded (see above).

Entry widening to A530 King St arm and A556 eastern arm of the A556 / A530 roundabout	JNY6882-32C (Drawing 3 in UU)	First Schedule of 30-11-2011 UU and S278 Agreement	The kerb widening works have been carried out however the carriageway resurfacing, and lining have not been completed. This is because there is highway deformation in the area which CWACC are minded to remedy by partial depth reconstruction of the underlying road (from their own capital works budget, and by extending the works of the appointed contractor, Warren Construction)
Signalised pedestrian crossing on A530 King St north of School Road North and south of Britannia Drive	JNY6882-43A (Drawing 4 in UU)	First Schedule of 30-11-2011 UU and S278 Agreement	Complete, but implemented in a different position from that originally proposed following consultation with stakeholders (crossing is now located to the north of Cookes Lane instead).
Extension of the current 40mph speed limit northwards along A530 Griffiths Road from Middlewich Road junction, and introduction of 30 mph speed limit on A530 King Street between Middlewich Road junction and A556	JNY6882-45 (Drawing 5 in UU)	First Schedule of 30-11-2011 UU and S278 Agreement	Complete / in force

Construction Phase

4.4.3 As previously mentioned, the Proposal will not involve any change to the built development of the LSEP project. Therefore, it is not necessary to consider construction works for the Proposal when assessing the effects.

Operational Phase

2023 Assessment of Effects during Operational Phase

4.4.4 The trip generation that is forecast during the operational phase of the LSEP is described in detail in the TA. Table 11.9 presents the predicted changes in vehicle movements, in terms of overall vehicle movements and HGV movements, based on the trip generation rates during the operational phase for 2023, the opening year.

Table 4.10: 2023 Assessment for Operational Phase

Link	Site Description	2023 Baseline Flows (inc. s.36 consented trips) (vehicles)		Proposal related Trips		% Increase	
		Vehicles	HGVs	Vehicles	HGVs	Vehicles	HGVs
1	Lostock Works Site Access Road	1,266	486	170	170	13 %	35 %
2	A530 Griffiths Road north of Site Access Road	7,968	46	0	0	0 %	0 %
3	B5082 Middlewich Road west of A530	10,111	249	0	0	0 %	0 %
4	A530 Griffiths Road between Site Access and B5082	8,858	488	170	170	2 %	35 %
5	A530 King Street between B5082 and A556	17,649	781	170	170	1 %	22 %
6	Penny's Lane east of A530	0	0	0	0	0 %	0 %
7	A556 west of A556 / A530 roundabout	39,842	1,739	59	59	0.1 %	3.4 %
8	A530 south of A556 / A530 roundabout	17,760	752	51	51	0.3 %	6.8 %
9	A556 east of A556 / A530 roundabout	39,561	2,229	59	59	0.1 %	2.7 %

4.4.5 Table 4.10 shows that during the operational phase of the LSEP (due to commence in 2023), the changes in total two-way vehicle movements resulting from the Proposal are well below the IEMA Rule 1, 30 % threshold on all links. However, with regard to HGV movements, the increase in the number of two-way HGV movements is shown to be slightly greater than the 30 % threshold on Link 1, the Site Access Road, and Link 4, the A530 between the site access and the Middlewich Road junction.

4.4.6 In accordance with the IEMA RTA Guidelines, the sensitivity of receptors along all links (apart from Link 7) is considered to be low or negligible. The magnitude of impact on all links apart from Links 1 and 4 is deemed to be negligible. On Links 1 and 4, the impact is deemed to be moderate, although the sensitivity of these links is deemed to be negligible. The sensitivity of Link 7 is deemed to be high, but the magnitude of impact on this link is below the IEMA Rule 2, 10 % threshold and is therefore deemed to be negligible.

4.4.7 Accordingly, there would be a negligible or minor level of effect on all links, which is not significant in EIA terms. On this basis, no further assessment of operational traffic impacts is considered necessary.

2028 Assessment of Effects during Operational Phase

4.4.8 Table 4.11 presents the predicted changes in vehicle movements, in terms of overall vehicle movements and HGV movements, based on the trip generation rates during the operational phase of the LSEP in the future assessment year. This has been undertaken for 2028, which is 5 years after the year of opening.

Table 4.11: 2028 Assessment for Operational Phase

Link	Site Description	2028 Baseline Flows (inc. s.36 consented trips) (vehicles)		LSEP Proposal Development Trips (proposed 128,000 tpa uplift)		% Increase	
		Vehicles	HGVs	Vehicles	HGVs	Vehicles	HGVs
1	Lostock Works Site Access Road	1,305	495	170	170	13 %	34 %
2	A530 Griffiths Road north of Site Access Road	8,455	48	0	0	0 %	0 %
3	B5082 Middlewich Road west of A530	10,227	239	0	0	0 %	0 %
4	A530 Griffiths Road between Site Access and B5082	9,428	490	170	170	2 %	35 %
5	A530 King Street between B5082 and A556	18,424	767	170	170	1 %	22 %
6	Penny's Lane east of A530	0	0	0	0	0 %	0 %
7	A556 west of A556 / A530 roundabout	41,044	1,747	59	59	0.1 %	3.4 %
8	A530 south of A556 / A530 roundabout	18,250	737	51	51	0.3 %	6.9 %
9	A556 east of A556 / A530 roundabout	40,479	2,211	59	59	0.1 %	2.7 %

4.4.9 Table 4.11 shows that during the operational phase in 2028, the changes in total two-way vehicle movements resulting from the LSEP Proposal (taking into account the consented and proposed vehicle movements) are well below the IEMA Rule 1 30 % threshold on all links. However, with regard to HGV movements, the increase in the

number of two-way HGV movements is shown to be slightly greater than the 30 % threshold on Link 1, the Site Access Road, and Link 4, the A530 between the site access and the Middlewich Road junction.

4.4.10 In accordance with the IEMA RTA Guidelines, the sensitivity of receptors along all links (apart from Link 7) is considered to be low or negligible. The magnitude of impact on all links apart from Links 1 and 4 is deemed to be negligible. On Links 1 and 4, the impact is deemed to be moderate, although the sensitivity of these links is deemed to be negligible. The sensitivity of Link 7 is deemed to be high, but the magnitude of impact on this link is below the IEMA Rule 2 10 % threshold and is therefore deemed to be negligible.

4.4.11 Accordingly, there would be a negligible or minor level of effect on all links, which is not significant in EIA terms.

4.4.12 The operation-related environmental transport effects on driver delay, hazardous loads, pedestrian delay and amenity, and severance are given further consideration in the subsections below.

Driver Delay

4.4.13 Any significant effects of delay to other road users are typically made most apparent during the weekday peak hours, when congestion may occur. The TA includes detailed capacity assessments of the key junctions in the study area during the worst-case, weekday peak hours, and concludes that the impact of the increased traffic flows is negligible upon junction performance and driver delay.

4.4.14 The operation of the junctions that comprise the route between the A556 / A530 roundabout and the LSEP site access have been assessed during the network AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hours. These assessments represent the worst case in terms of background traffic demands during the operational phase of the LSEP, and thus assess the highest level of driver delay. The assessments take into account the junction improvement schemes agreed as part of the original s.36 consent (and as varied in July 2019). The results of these assessments are contained within Section 8 of the TA.

4.4.15 Based on the junction capacity assessment results set out in the TA, the impact of traffic from the Proposal is minimal and so the magnitude of impact upon driver delay is deemed to be negligible. The effect on driver delay along the links considered would therefore be of negligible or minor significance and is consequently not significant in EIA terms.

4.4.16 During the non-peak hour periods, the background (i.e. non-development-related) traffic flows will be lower than during the peak hours. Given this, it is considered that the junctions would continue to operate well within their capacity and drivers would not therefore experience any material change in driver delay compared to the peak hours.

Hazardous Loads

4.4.17 Some developments may involve transporting hazardous loads by road. The consented LSEP facility will not accept hazardous waste. However, some non-waste deliveries will be required that may be regarded as hazardous, such as removal of APCR and some reagent deliveries (depending on the concentration).

4.4.18 All such hazardous material would be transported using specialist vehicles in accordance with the relevant health and safety regulations, governed by a separate process to this Variation Application.

4.4.19 The volume of deliveries is forecast to be less than 2 one-way movements per day and so the likelihood of an incident involving hazardous waste is considered to be insignificant. The effect on hazardous loads along the links considered would therefore be of negligible or minor significance and is consequently not significant in EIA terms.

Pedestrian Delay, Pedestrian Amenity & Severance

4.4.20 The LSEP site is within walking distance of a number of residential areas, including the built-up areas around Lostock Gralam and the outskirts of Northwich. The LSEP site therefore provides opportunity for staff to walk to the facility. Additionally, there are residential areas on both sides of both the A530 and B5082 Middlewich Road, which creates the potential for a number of pedestrian movements along the roads in the vicinity of the LSEP site.

4.4.21 The Proposal will not create new routes that would cause severance effects to the general public and will not affect any Public Rights of Way (PRoW) or footways. However, there is a potential for an increase in severance effects from the increase in HGV movements along the local highway network.

4.4.22 Based on the location of the residential areas, local amenities and bus stops, pedestrian movements in the vicinity of LSEP are likely to be most prevalent on Links 3, 5 and 6. As noted above, the Proposal is deemed to have a minor or negligible effect on each of these links. Furthermore, as previously stated the mitigation agreed as part of the original s.36 consent (and as varied in July 2019) included the installation of a signalised pedestrian crossing on A530 King St north of School Road North and south of Britannia Drive. The proposed signalisation of the A530 / Middlewich Road / Penny's Lane junction will also include signalised pedestrian crossings over both the A530 and Middlewich Road.

4.5 Cumulative Effects

4.5.1 Baseline traffic flows within the study area were obtained from the Northwich Traffic Model Traffic (NTM). The baseline flows for the 2023 and 2028 assessment years were interpolated from NTM outputs for the model base year of 2016 and the forecast year of 2030.

4.5.2 The 2030 model includes background traffic growth assumptions associated with 61 proposed and allocated residential development sites, totalling 4,134 dwellings. It also includes growth associated with 1,707 Ha of allocated employment development sites and 163 Ha of allocated retail development sites. An extract from the Mott Macdonald Baseline Modelling Assessment for the 2030 model is included as **Appendix H** at the end of the TA, which details the full list of committed and allocated development sites that have been accounted for in the NTM.

4.5.3 There are no other consented developments in the vicinity of LSEP that have not already been accounted for in the NTM, and as such no further consideration has been given to cumulative impacts associated with any specific individual developments.

4.6 Mitigation

Operational Mitigation

4.6.1 No further mitigation measures are deemed necessary during the operational phase of the LSEP facility.

4.7 Residual Effects and Conclusions

4.7.1 It is concluded that the Proposal would not result in a significant impact on operational or environmental conditions over the local transport network and there is no requirement for further off-site transport improvement / mitigation works.

4.7.2 The impact of trips generated by the consented LSEP scheme with the Proposal during the operational phase of the facility has been assessed against anticipated future road conditions. Reference has been made to all appropriate guidance, taking into account mitigation measures agreed for the original s.36 consent (and as now varied). It is concluded that in all scenarios the residual effects are considered to be **not significant** in EIA terms.