The London Resort Development Consent Order

BC080001

Environmental Statement
Volume 1: Main Statement

Chapter 9 – Land transport

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Revision: 3.02

~~December 2020~~ March 2022

Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
Regulation 5(2)(a)
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017
Regulation 12(1)

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Chapter Nine ◆ Land transport

INTRODUCTION

9.1. This chapter has been prepared by WSP, a company competent and experienced in undertaking ES chapters relating to transport. Given the scale and importance of the proposals, it is considered that the Proposed Development without mitigation could affect the existing transport networks and its users.

9.2. The purpose of this chapter of the ES is to assess the likely significant environmental effects of the Proposed Development on land transport, including road and rail traffic, during both the construction and operational phases.

9.3. This chapter provides descriptions and details of:

- the methodology of the assessment and details of the criteria used to determine the resulting significance, as guided by the EIA scoping process and pre-application consultations;
- relevant legislation and transport policy context;
- the baseline conditions in the local area surrounding the Project Site;
- the future baseline transport conditions in the local area surrounding the Project Site;
- the changes in transport conditions resulting from the Proposed Development together with an assessment of the potential effects of the London Resort;
- any mitigation or control measures required to avoid, reduce or offset any adverse effects identified and/or enhance likely beneficial effects; and
- any post-mitigation residual and in combination effects.

9.4. This chapter is not intended to be read as a standalone assessment but as part of the overall ES, and in conjunction with several other documents supporting the application. These supporting documents are provided in Appendix 9.1: *Transport Assessment* (document reference 6.2.9.1) of this ES. The Transport Assessment (TA) includes several supporting documents:

- LDP Supporting Information (document reference 6.2.9.1, Appendix TA-A);
- MR-ProFun Management Group Inc (ProFun) Supporting Information (document

reference 6.2.9.1, Appendix TA-B);

- Volterra Supporting Information (document reference 6.2.9.1, Appendix TA-C);
- Highways England Consultation Responses (document reference 6.2.9.1, Appendix TA-D);
- Kent County Council Consultation Responses (document reference 6.2.9.1, Appendix TA-E);
- Active Travel Modes Site Audit Technical Note (document reference 6.2.9.1, Appendix TA-F);
- Personal Injury Accident Analysis (document reference 6.2.9.1, Appendix TA-G);
- Stakeholder Advisory Technical Document (SATD) (document reference 6.2.9.1, Appendix TA-H);
- People Mover Options Appraisal (document reference 6.2.9.1, Appendix TA-I);
- Access Note (document reference 6.2.9.1, Appendix TA-J);
- Highway Works – General Arrangement Drawings (document reference 6.2.9.1, Appendix TA-K);
- Parking Proposals (document reference 6.2.9.1, Appendix TA-L);
- Technical Note 1 (TN1) – Trip Generation (document reference 6.2.9.1, Appendix TA-M);
- Technical Note 2 (TN2) – Trip Distribution (document reference 6.2.9.1, Appendix TA-N);
- Technical Note 3 (TN3) – Mode Share (document reference 6.2.9.1, Appendix TA-O);
- Technical Note 4 (TN4) – Future Mobility (document reference 6.2.9.1, Appendix TA-P);
- Total Vehicle Trip Distribution (document reference 6.2.9.1, Appendix TA-Q);
- London Resort Traffic Flow Diagrams (document reference 6.2.9.1, Appendix TA-R);

- Spreadsheet Modelling Methodology Note (document reference 6.2.9.1, Appendix TA-S);
- Walking and Cycling Strategy (document reference 6.2.9.1, Appendix TA-T);
- Rail Strategy Plan (document reference 6.2.9.1, AppendixTA-U);
- Bus Strategy Plan (document reference 6.2.9.1, AppendixTA-V);
- Uber Boats by Thames Clipper Operation Proposal (document reference 6.2.9.1, Appendix TA-W);
- Car Parking Accumulation (document reference 6.2.9.1, Appendix TA-X);
- Off-Site Parking Plan (document reference 6.2.9.1, Appendix TA-Y);
- Microsimulation Impact (document reference 6.2.9.1, Appendix TA-Z);
- Junction Assessments (document reference 6.2.9.1, Appendix TA-AA);
- Merge/Diverge Assessments (document reference 6.2.9.1, Appendix TA-AB);
- Travel Demand Management Plan (document reference 6.2.9.1, AppendixTA-AC);
- Construction Traffic Management Plan (document reference 6.2.9.1, Appendix TA-AD);
- Delivery and Servicing Plan (document reference 6.2.9.1, Appendix TA-AE).

9.5. Since submission of the Planning application, the applicant has continued to undertake additional assessment work to support the Transport Assessment in response to relevant representations from stakeholders. For completion, this additional work has been provided within Appendix 9.7: *Technical Note 14 – Transport Assessment Update Note* (document reference 6.2.9.7). It should be noted that the additional work undertaken and contained in the above Appendix 9.7 do not impact upon the assessment contained within this land transport chapter, however provide more clarity and information around potential sensitivity testing.

9.6. Furthermore, since the submission of the DCO, the applicant has continued consulting National Highways regarding the traffic modelling. This has resulted in updates to both strategic and microsimulation modelling taking on board comments received. The strategic modelling updates did not affect the traffic flows contained within the DCO submission and therefore have not impacted upon the conclusions of the land transport chapter. The updated data from the microsimulation modelling is provided in Appendix 9.8: Updated Microsimulation Data (document reference 6.2.9.8) and is reflected in the relevant sections of this ES Transport Chapter.

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9.5.9.7. A description of the Project Site and its surroundings is provided in Chapter Two: Site description of this ES, including the recent designation of the Swanscombe Peninsula as a Site of Special Scientific Interest (SSSI). The Project Site consists of two main parcels. The primary site parcel (Kent Project Site) is situated on the Swanscombe Peninsula in Kent providing land for London Resort itself and dedicated road access from the A2(T) to the south.

9.8. The second site parcel (Essex Project Site), is located to the north of the River Thames, at Tilbury in Thurrock. The Essex Project Site provides land for car and coach parking as well as a connection to a passenger ferry to the Proposed Development. It also includes a discrete parcel of land covering the Asda Roundabout and its immediate vicinity, which is situated on the A1089 to the north-west of the Essex Project site.

9.8.9.9. A detailed description of the Proposed Development considering connections amongst various elements and aspects is discussed in Chapter 3: Project description (document reference 6.1.3) of this ES. This includes the provision of a new four lane vehicular access road from an improved A2 Ebbsfleet junction to the Resort.

9.9.9.10. The rationale behind the selection of the Project Site, as well as master-planning and design options, are set out in Chapter 4: *Project development and alternatives* (document reference 6.1.4) of this ES.

9.10.9.11. Cumulative, in-combination and transboundary effects of the Proposed Development considering other relevant developments in the locality of the Project Site are also discussed. From a transport perspective, they are presented later in this chapter. An overall assessment of cumulative, in-combination, and transboundary effects is presented in Chapter 21: *Cumulative, in-combination and transboundary effects* (document reference 6.1.21) of this ES.

METHODOLOGY AND DATA SOURCES

Introduction

9.11.9.12. This section of the land transport chapter provides details of the following:

- approach to the assessment, which discusses the appropriate guidance and its application;
- environmental effects considered in this land transport chapter;
- description of the data sources and their application in the traffic model as well as planned/committed development, scenarios, traffic flows and extent of the study area;

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- summary of the consultation and scoping process;
- discussion and rationale behind the extent of the assessment including identification of highway links to be assessed in detail; and
- sensitivity, the magnitude of change and significance criteria applied in the assessment.

Approach to the assessment

9.12.9.13. The approach to the assessment and subsequently, the methodology (as outlined in the ES Scoping Report submitted to relevant stakeholders in June 2020) considered, *inter alia*, the guidance contained in Design Manual for Roads and Bridges (DMRB) developed over the past 20 years by Highways England (for projects in England) and their counterpart in the other nations forming the UK (for projects in their respective governance). The methodology proposed to combine the guidance contained in various DMRB documents with the guidance provided in Guidelines for the Environmental Assessment of Road Traffic published by Institute of Environmental Assessment (IEA, 1993), now Institute of Environmental Management and Assessment (IEMA).

9.13.9.14. The June 2020 ES Scoping Report acknowledged that DMRB Volume 11 historically provided guidance regarding techniques for assessing the environmental effects of schemes on various aspects of the environment including pedestrians, cyclists, equestrians and community effects, and vehicle travellers. However, the guidance contained in DMRB has been recently updated with several documents consolidated into more concise guidelines. This is also the case of DMRB Volume 11 with Section 3, Part 8 Pedestrians, Cyclists, Equestrians and Community Effects (Highways England *et al*., 1993) and Volume 11, Section 3, Part 9 Vehicle Travellers (Highways England *et al*., 1993) replaced by DMRB Sustainability & Environment Appraisal LA 112 – Population and human health (Highways England *et al*., 2020).

9.14.9.15. It should be highlighted that DMRB LA 112 (Highways England *et al*., 2020) does not consider some of the effects usually assessed as part of the transport-related ES chapters, such as the impacts on driver delay. More importantly, DMRB LA 112 (Highways England et al., 2020) *'…provides a framework for assessing, mitigating and reporting the effects of* ***motorway*** *and* ***all-purpose trunk road*** *projects on population andhealth.'*

9.15.9.16. As a result of the withdrawal of the transport-specific DMRB guidance documents in combination with the new DMRB document specifically aimed at the assessment of effects of motorway and all-purpose trunk road projects, it became evident that the use of the methodology, as set out in the June 2020 ES Scoping Report, is unlikely to be appropriate for the assessment of the Proposed Development.

9.16.9.17. Given the above, and in combination with comments raised as part of the Scoping Response subsequent to the June 2020 ES Scoping Report (discussed later in this section) regarding the suitability of the proposed methodology, the methodological approach was reviewed. As a result of this review, a new methodology predominantly based on the guidance contained in Guidelines for the Environmental Assessment of Road Traffic (IEA, 1993) (hereafter referred to as IEMA Guidelines) was developed and applied in this assessment.

9.17.9.18. IEMA Guidelines provide advice specifically aimed at the environmental effects of transport and traffic. The Guidelines define the effects that should be regarded as a material consideration and then consider the weight to which those effects should be defined. The guidelines set out, *inter alia*, a list of environmental effects that could be considered as potentially material or significant whenever a new development is likely to give rise to changes in traffic flows.

9.18.9.19. It is also acknowledged that the IEMA Guidelines are mainly focused on impacts resultingfrom vehicular movements rather than considering a broader multi-modal view ofpotential effects. Therefore, in the absence of any specific guidance related to the assessment of public transport (bus and rail), this is undertaken based on professional judgement and experience.

9.19.9.20. Similar to public transport, due consideration, based on professional judgement and experience, is also given to parking within the vicinity of the Proposed Development and in respect of its walking and cycling accessibility.

Vehicular traffic effects

9.20.9.21. In accordance with the IEMA Guidelines (part B Analysis, section 2 Environmental Issues), this land transport chapter considers the Proposed Development's effects on severance (i.e. perceived division resulting from the changes in traffic volumes/conditions), driver delay, pedestrian delay, pedestrian and cyclist amenity, fear and intimidation and accidents and safety.

9.21.9.22. The IEMA Guidelines also suggest considering dangerous or hazardous loads (i.e. pure chemicals, mixtures of substances, manufactured products or articles which can pose a risk to people, animals or the environment if not properly handled in use or transport). The Proposed Development is unlikely to contain any land uses that are considered to pose a risk of there being hazardous or dangerous loads on the highway network. Therefore, it is deemed appropriate to exclude dangerous or hazardous loads from the assessment.

9.22.9.23. Also excluded from the assessment are effects of dust and dirt as these are unlikely to occur at distances greater than 50m from a construction site and depend predominantlyon the management practices during construction. Practices to minimise these effects are considered in detail in the Construction Traffic Management Plan (CTMP) (document reference 6.2.9.1, Appendix TA-AD) also accompanying the

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application.

9.23.9.24. In addition to the above, The IEMA Guidelines discuss the assessment of noise and vibration, visual effects, air pollution, ecology and heritage. Although these effects may be related to transport, they are considered in their respective chapters of the ES.

Public transport effects

9.24.9.25. In terms of public transport services, consideration is given to:

- bus Passenger Delay and capacity; and
- rail Passenger Delay and capacity.

Bus

9.25.9.26. Bus passenger delay considers the impact of delays on bus passengers. This effect is difficult to assess quantitatively due to several variables involved, such as overall bus route distances, bus journey times, as well as journey times/distances to the bus stops for individual users.

9.27.

9.26.9.28. For the purposes of this assessment, it is assumed that bus passenger delay may be affected either by the diversion of a route as a result of the Proposed Development (primarily associated with construction) or by bus routes being affected by additional traffic in the locality of the Proposed Development. Delays are anticipated to be greatest at locations where junctions are operating at or near capacity as a result of the additional traffic associated with the Proposed Development.

9.29.

9.27.9.30. Bus capacity is also considered. Generally, changes in demand resulting from any development may have an effect on the capacity in buses and on bus stops. However, the Proposed Development is supported by a comprehensive Bus Strategy (document reference 6.2.9.1, Appendix TA-V). The Bus Strategy aims to deliver high-quality public transport services to cater for the Proposed Development as well as for the needs of the local communities.

9.31.

9.28.9.32. The Bus Strategy (document reference 6.2.9.1, Appendix TA-V) provides a detailed analysis of the demand and assessment of the existing services, including their capacity. The analysis demonstrates that on a typical weekday in 2025, around 660 visitor trips will be made using a bus as the primary mode, and this will increase to 913 on a peak day. In 2029, it is forecast that up to 868 will be made by bus and 1,189 on a peak day. In 2038, around 1,310 bus trips are expected to be made by visitors on a typical day and around 1,789 bus trips on a peak day.

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9.29.9.33. On a typical weekday in 2025, it is forecast that around 3,655 staff trips will be made using the bus as the primary mode, and this will increase to 4,600 on a peak day. In 2029, it is forecast that up to 5,200 staff trips will be made by bus and 6500 on a peak day. In 2038, around 5,500 bus trips are expected to be made by staff on a typical day and around 6,800 bus trips on a peak day.

9.30.9.34. The Bus Strategy (document reference 6.2.9.1, Appendix TA-V) proposes a range of improvements and/or new bus services to fulfil its aims of delivering high-quality bus services. These improvements are outlined in the *Proposed Mitigation* section of this land transport chapter and discussed in detail in the Bus Strategy Plan (document reference 6.2.9.1, Appendix TA-V). Therefore, it is considered appropriate to exclude the bus capacity from the assessment in this chapter and only consider matters relating to vehicle delay.

Rail

9.31.9.35. Passenger delay in rail is primarily related to station and train capacities. Changes in demand resulting from the Proposed Development are likely to have an effect on the existing services and stations in the locality. A separate Rail Strategy Plan (document reference 6.2.9.1, Appendix TA-U) has been developed to identify potential constraints and any improvement that may be necessary.

9.32.9.36. The Rail Strategy Plan (document reference 6.2.9.1, Appendix TA-U) is centred around the High Speed 1 (HS1) route with Ebbsfleet International station being the primary rail access point to the Proposed Development. The strategy ensures that there is sufficientcapacity from an on-train and station concourse perspective, whilst using demandmanagement interventions to push/incentivise/manage demand to this access point andaway from the North Kent Line stations.

9.33.9.37. The detailed analysis of the demand and assessment of the existing services, including their capacity, is provided in the Rail Strategy Plan (document reference 6.2.9.1, Appendix TA-U). It is forecast that the total demand (both staff and visitors) on an average day (as explained in the TA (document reference 6.2.9.1, section 8)) in 2029 (i.e. both Gate One and Gate Two operational) would be approximately 16,500 visitors on the HS1, 8,600 using the North Kent Line (NKL - Greenhithe, Swanscombe and Northfleet stations) and 1,000 on the London, Tilbury and Southend Railway (LTSR – Tilbury Town station)

9.34.9.38. Given that the Rail Strategy Plan (document reference 6.2.9.1, Appendix TA-U) addressesany potential effects affecting the capacity and delay for the rail passengers, including a suite of potential improvement measures, it is considered appropriate to exclude it fromthe assessment in this chapter. The potential improvements are outlined in the *ProposedMitigation* section of this land transport chapter and discussed in detail in the Rail Strategy Plan (document reference 6.2.9.1, Appendix TA-U).

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The applicants are still continuing to engage with the rail stakeholders around the appropriate mitigation which has seen HS1 undertake their own studies to inform the correct approach. Some of this work is ongoing and is set out within Appendix 9.7.

Effects on parking

9.35.9.40. It is acknowledged that the Proposed Development may give rise to parking demand within a reasonable walking distance from The Site. A review of the existing parking arrangements in the locality of the Proposed Development has been undertaken, followed by a comprehensive Off-Site Parking Plan (document reference 6.2.9.1, Appendix TA-Y).

9.36.9.41. The Off-Site Car Parking Plan (document reference 6.2.9.1, Appendix TA-Y) considers the locality of the Project Site by splitting it into five zones depending on the walking distance to/from the Proposed Development. The strategy aims to ensure that the visitors and staff of the Proposed Development utilise only the designated parking areas provided within The Site and that the parking outside these areas is allowed for local residents/permit holders only. As the Off-Site Parking Plan (document reference 6.2.9.1, Appendix TA-Y) addresses any potential issues related to the potential for off-site parking to take place, including any appropriate remedial measures (also outlined in the *Proposed Mitigation* section of this land transport chapter), it is considered appropriate to exclude it from the assessment in this chapter.

Effects on pedestrian/cyclist connectivity

9.37.9.42. Due consideration has also been given to pedestrian/cyclist connectivity that relates to changes in routes as a result of the Proposed Development. This could mean a diversion and/or extension of journeys as a result of barriers to movement, particularly during construction, or improvements as a result of new connections or improved permeability through the Proposed Development.

9.38.9.43. A route audit followed by a qualitative assessment of pedestrian/cyclist connectivity has been undertaken, and it is provided as part of the Walking and Cycling Strategy contained in the TA (document reference 6.2.9.1, section 10 – Walking and Cycling Strategy). The strategy identifies a range of improvements that will be delivered as part of the Proposed Development to improve its accessibility. These improvement measures are also outlined in the *Proposed Mitigation* section of this land transport chapter for ease of reference.

9.39.9.44. Given the above, it is considered appropriate to exclude the pedestrian and cyclist connectivity from the assessment in this chapter and just include amenity and pedestrian delay.

Assessed effects

~~9.40.~~9.45. As outlined above, the likely environmental effects of the Proposed Development are assessed using either the industry-standard guidelines (i.e. Guidelines for the Environmental Assessment of Road Traffic (IEA, 1993)) or, where the formal guidance is absent, on the basis of professional judgement and experience.

~~9.41.~~9.46. Based on the justification discussed above, the following environmental effects are assessed as part of this chapter:

- severance;
- driver delay;
- pedestrian delay;
- pedestrian and cyclist amenity;
- fear and intimidation;
- accidents and safety; and
- bus passenger delay

~~9.42.~~9.47. All effects on the environmental effects identified above are considered during both theconstruction and operational phases of the Proposed Development.

Data sources: Traffic model

~~9.43.~~9.48. The assessment of transport-related effects resulting from the Proposed Development isbased on the changes in traffic volumes on the local and wider highway network.

~~9.44.~~9.49. Given the strategic nature of the proposals and the fact that the majority of the traffic associated with the construction and operation of the Proposed Development is forecast to utilise the Strategic Road Network (SRN)[1] and Primary Road Network (PRN)[2], it is considered appropriate to base the assessment on a strategic transport model to determine the traffic volumes in the area.

~~9.45.~~9.50. The modelling of the traffic impacts of the Proposed Development has evolved through three phases since 2014. The Proposed Development has also been refined following modelling output which has informed the current design which provides inherent mitigation for the impacts of the Resort and has resulted in minimal significant adverse effects being identified. The phases of modelling are set out as follows:

Phase 1: 2014-2016

~~9.46.~~9.51. During the period 2014 to 2016 period when the DCO pre-application assessment was being progressed, traffic modelling of the impacts on traffic by the development proposed at that time was based on Highways England's Lower Thames Crossing Model (LTCM) as the most up to date model available at that time. The LTCM was cordoned and amended and validated to a base year of 2014 with a comprehensive series of traffic surveys undertaken in 2014 to update the traffic data in the model and the network coding. The model base year was 2014 with the forecast year being 2028 and includes pre peak, peak and post peak models for six time periods which were:

- AM Peak (07:00-10:00);
- Inter Peak (11:00-14:00);
- PM Peak (16:00-19:00);
- Off Peak (20:00-23:00);
- Bank Holiday Arrival Peak (10:00-13:00); and

[1] Nationally significant roads used for the distribution of goods and services, and a network for the travelling public. In legal terms, it can be defined as those roads which are the responsibility of the Secretary of State for Transport. It is managed by the Highways England. Any road on the SRN is known as a trunk road.

[2] Roads used for transport on a regional or county level, or for feeding into the SRN for longer journeys. Defined as roads that provide the most satisfactory route between places of traffic importance. The PRN includes the entirety of the strategic road network. No roads classified lower than an A road should be included in the PRN.

- Bank Holiday Departure Peak (20:00-23:00).

~~9.47.~~9.52. The impact of the proposed development was assessed for each of the above peak hours.It was evident that the weekday PM peak hour represented the worst case for traffic impact.

Phase 2: 2017-2018

~~9.48.~~9.53. In 2017 Highways England agreed that WSP could use the M20 Strategic Transport Model(Junction 3 to Junction 5) to form the basis of the evidence base into the impact of the development proposals. The model was locally calibrated and validated for a 2015 base year using 2014 data/June 2015 data for the following peakperiods:

- AM Peak Average Hour: 07:00 – 09:00;
- Inter Peak Average Hour: 09:00 – 15:00;
- PM Peak Average Hour: 16:00 – 18:00; and
- Average Bank Holiday: 10:00 – 13:00.

~~9.49.~~9.54. The 2015 base year model had additional local network added along with a dis-aggregation of the transport model zones within the local area to better reflect how local traffic accesses the existing highway network. The forecast year networks included a number of proposed network improvements including the Highways England A2 Bean and Ebbsfleet improvements and the Lower Thames Crossing proposals. The model was used to assess the impact of the Resort for a range of assessment years e.g. 2028 and time periods, and it was on the basis of that modelling that the weekday PM peak period was again determined as the worst case in terms of traffic impact. The mitigation identified at that time was essentially the new Resort access road linking the Resort to an improved A2 Ebbsfleet junction and improvements to the merge and diverge slip roads on the A2. This was largely due to the volume of PM peak hour traffic on the network from the Resort and all committed development in the area.

Phase 3: 2019-2020

~~9.50.~~9.55. During the intervening period from 2018 the content and supporting business plan for the Resort has been re-evaluated, along with a revised access strategy that now includesuse of the Port of Tilbury as a northern access point for visitors and staff to access the Resort. This has resulted in a reduction of overall visitor numbers and car parking provision (reduced from a total of 15,000 spaces to 10,000 spaces) and a further reduction of approximately 25% in Resort traffic south of the river Thames due to the incorporation of the Port of Tilbury.

~~9.51.~~9.56. At the same time Highways England have progressed their improvement proposals for the A2 Bean and Ebbsfleet junctions and the Lower Thames Crossing, which has includedthe production of an updated strategic traffic model – the Lower Thames Area Model (LTAM). This strategic model has been used by Highways England to assess the A2 Bean and Ebbsfleet junction improvements and the Lower Thames Crossing proposal, supported with localised VISSIM modelling.[3]

~~9.52.~~9.57. As explained above, the original traffic modelling prepared to support the DCO application for the London Resort (London Paramount Entertainment Resort as it was then called) in 2014/16 was based on a cordon of the Lower Thames Crossing Model (LTCM). In 2017, as directed by the Highways Authorities, Highways England's M20 Junction 3 to Junction 5 strategic SATURN[4] model was used as the starting point for the assessment of the proposed development. At all times during the process as is standard practice for transport assessments the latest transport model was then sought to ensure the most up to date information was included in the assessment , particularly given that the A2 Bean to Ebbsfleet strategic transport model output was accepted at the Public Inquiry into the scheme in 2019 with subsequent notification from the Secretary of State for Transport, in June 2020, that the A2 Bean and Ebbsfleet junction improvements scheme can proceed to construction.

~~9.53.~~9.58. Following the development by Highways England of new strategic SATURN models to support their DCO applications (at that time) for both the A2 Bean and Ebbsfleet junction improvements (the A2BE model) and the Lower Thames Crossing (the LTC model) during 2017/18, it was agreed with Highways England that the traffic modelling to support the London Resort DCO application should be updated using the LTC model as that model covered a wider area than the A2BE model and was considerably more up to date than the M20 Junction 3 to Junction 5 model.

~~9.54.~~9.59. LRCH and WSP continued to liaise with Highways England regarding the use of the LTC model. In order to progress agreement on traffic modelling, LRCH wrote to Highways England on 9 March 2020 formally requesting Highways England either provide LRCH with a copy of the LTC model or undertake to do the modelling on LRCH's behalf.

~~9.55.~~9.60. Highways England responded on 26 March 2020 explaining they were unable to provide a copy of the LTC model and that unfortunately they did not have the resource to undertake the modelling on LRCH's behalf.

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[3] *A traffic model allowing for modelling of the movements of individual vehicles travelling around road networks by using car following, lane changing and gap acceptance rules.*

[4] *Strategic transport modelling software which enables the analysis of large-scale transport networks, but also incorporates the simulation of performance at individual junctions.*

~~9.56.~~9.61. LRCH, WSP and Highways England continued to liaise and on 19 May 2020 Highways England confirmed they would provide traffic data output from both the A2BE traffic model and the LTC model to facilitate LRCH and WSP to undertake their own modelling to support the DCO application for the London Resort. It was on this basis that WSP prepared and submitted on 5 June 2020 a traffic modelling methodology brief to Highways England setting out how the A2BE and LTC data would be used to build a spreadsheet traffic model[5] to support the London Resort DCO application.

~~9.57.~~*9.62.* Highways England responded to the modelling methodology brief on 15 June 2020 stating: *"We are content that the overall approach in principle is acceptable".*

~~9.58.~~9.63. The spreadsheet modelling undertaken to date has used information from the A2BE transport model which confirms the results of the previous transport modelling.

~~9.59.~~9.64. Over the 6-year period during which the various transport models have been developedand assessments undertaken, regular Transport Workshops have been held with key transport stakeholders to keep them informed, including Highways England, Kent CountyCouncil, Dartford Borough Council, Gravesham Borough Council and Ebbsfleet Development Corporation.

~~9.60.~~9.65. The full extent of the spreadsheet-based model is illustrated in Figure 9.1: *Traffic ModelExtent* (document reference 6.3.9.1), with the detailed description of the rationale behind the development of the model, set out in the Strategic Modelling Methodology (document reference 6.2.9.1, Appendix TA-S) provided as part of the suite of documents included in the TA provided in Appendix 9.1: Transport Assessment.

Base year model

~~9.61.~~9.66. Highways England provided data, in GIS format, from the A2B&E transport model for a 2016 base year and forecast year models (2023, 2026, 2031 and 2038). This covers the area south of the River Thames, as shown in Figure 9.2: *A2B&E Model Extent* (documentreference 6.3.9.2).

~~9.62.~~9.67. For the spreadsheet-based transport model area to the north of the River Thames, observed traffic flows from the Thurrock area were used as input to the base year model.

[5] *Excel spreadsheet using mathematical formulas and calculations to forecast the traffic volumes based on the data extracted from other models, traffic counts and surveys.*

Forecast year model

~~9.63.~~9.68. The forecast year model includes development information in slightly different ways, given the information that was available at the time of development of the model. For the area south of the River Thames, the A2B&E transport model includes committed development and infrastructure for specific sites within the forecast year information supplied by Highways England.

~~9.64.~~9.69. For all links that were not covered by the A2B&E transport model, i.e. mainly north of the River Thames, National Trip End Model (NTEM) growth accessed via the TEMPRO program was used to identify traffic increases. NTEM/TEMPRO includes the expected future growth in housing/jobs uses these forecasts to calculate percentage increases across an area (e.g. Thurrock). The growth rate representing the traffic increases was applied on a link by link basis to take the housing and jobs increase into account.

The London Resort traffic

~~9.65.~~9.70. The quantum and distribution of traffic associated with the Proposed Development was calculated for the following years:

- 2024 (Gate One opening year, includes 2025 forecasts as that is the first full year of operation);
- 2029 (Gate Two opening year); and
- 2038 (maturity of the Proposed Development)

~~9.66.~~9.71. The traffic associated with the London Resort was applied on a link by link basis with the distribution of that traffic set out in a series of technical notes:

- Technical Note 1 (TN1) Trip Generation (document reference 6.2.9.1, Appendix TA-M) presenting the methodology to determine the likely multi-modal trip generation for visitors and staff, and the travel demand expected based upon the forecast annual and daily visitor figures calculated by MR ProFun Management Group Inc (ProFun) and Leisure Development Partners (LDP);
- TN2 Trip Distribution (document reference 6.2.9.1, Appendix TA-N) forecasting the trip distribution from the Proposed Development based on the distribution from existing developments of a similar nature. The TN2 (document reference 6.2.9.1, Appendix TA-N) presents a breakdown of the origin of all visitors against the time of travel to the London Resort.

~~9.67.~~9.72. A destination such as the Proposed Development is likely to see differing travel characteristics at different times of the year as a result of the operational profile and peak/low seasons, which is discussed in detail in TN1 (document reference 6.2.9.1, Appendix TA-M). Given the seasonal variability of visitors of the Proposed Development, the assessment of forecast travel demand is based upon the 85th percentile day for each assessment year set out above (i.e. 2024/2025, 2029 and 2038).

~~9.68.~~9.73. The Proposed Development will operate seasonally with the peak occurring during the traditional summer months. The Proposed Development will reach maturity in 2038 when its annual number of visits is forecast to exceed 18m. The 85th percentile day is assessed in this land transport chapter, as it provides peak weekday highway traffic values as well as those occurring during the operation peak period (i.e. July).

~~9.69.~~9.74. The assessment of the 85th percentile park attendance, being on a weekday, is deemedappropriate as it balances the traffic peaks on the existing highway network during the peak hours with the highest resort attendance during July. It was identified that the 85thpercentile day falls on the 310th day in the list of unique attendance by day for each assessment year. Where the 85th percentile day was a weekend or within the school holidays, WSP have has chosen the closest neutral weekday (i.e. outside of the school holidays and typically not a Friday). Daily attendance numbers were provided by MR ProFun. It was identified for the purposes of the assessment of the effects of the Proposed Development that the 85th percentile day falls on 14 July in 2025, 9 July 2029 and 5 July 2038.

~~9.70.~~9.75. Notwithstanding the above, it should be emphasised that the traffic model developed for the purposes of the assessment of the impacts of the Proposed Development complies with the requirements of TAG. The TAG requires the model to be based on thedata collected during the neutral months of April, May, June, September and October, where the volume of background traffic is higher than in other months (e.g. July). As such, the assessment presented in this land transport chapter is considered to be robust.

~~9.71.~~9.76. In 2025 the visitor demand on the 85th ~~Percentile day~~Percentile Day is forecast to be 27,880 visits, which is to increase to 36,030 in 2029 following the opening of Gate Two. Once the Proposed Development has reached maturity in 2038, the Proposed Development is expected to accommodate 52,966 visitors on the 85th percentile day.

~~9.72.~~9.77. The staff demand is based on forecasts provided by ProFun, and it is based on the operation of the Proposed Development, with peak staffing naturally occurring during the same time as peak operation. The peak weekday staff levels are used in this assessment, in combination with the 85th percentile visitor numbers. The Proposed Development is to provide related housing for 500 dwellings allocated to staff on-site, that can accommodate up to 2,000 of the staff working at the Resort at any one time. In the interests of a robust assessment, it is assumed that only 90% of this occupancy is taken up by workers being housed on-site.

~~9.73.~~9.78. The total vehicle demand for the two assessment periods (AM and PM peak) was calculated after taking account of the occupancy factor for visitors and staff together with the modal split. The mode shares used in this assessment are outlined in greater detail in the TA (documents reference 9.1.A, section 8) and in full in TN3 (document reference 6.2.9.1, Appendix TA-O). The highest two-way vehicle flow during the commuter peak from the Proposed Development is 876 vehicles in 2025, 1,181 vehicles in 2029 and 1,639 vehicles in 2038 in the PM peak on the 85th percentile day.

~~9.74.~~9.79. The distribution of visitors, recognising the nature and scale of the Proposed Development, is forecast to generate a large proportion of visitors with home origins outside the UK. In 2025 approximately 15% from Europe and 8% from the rest of the world. Domestic (UK) visitors are expected to represent just over three quarters (77%) of overall visitors.

~~9.75.~~9.80. Compared to other international resorts of this scale, the forecast distribution and assumed reliance on overnight accommodation represent a significant factor in the distance and distribution of trips to the development.

~~9.76.~~9.81. As discussed in the TA (document reference 6.2.9.1, section 7) and greater detail in TN2 (document reference 6.2.9.1, Appendix TA-N), it is assumed that all visitors travelling especially to the Resort from a home origin outside of the UK would be overnight guests. Domestic tourists are equally likely to be day visitors and stay overnight. A small proportion of secondary residents would also decide to stay overnight due to the unique offering at Proposed Development. It is therefore expected that in 2025 approximately 34% of all visitors will stay overnight either on-site, within a 60-minute radius in one of the neighbouring local authorities or London.

~~9.77.~~9.82. By combining the day visitors and overnight guests travelling from nearby accommodation, it is possible to determine a final day of travel trip distribution, which is considered to represent a robust assessment of the effects of these trips on the local transport networks.

~~9.78.~~9.83. Trip distribution of trip origins/destinations on the day of travel, therefore, contemplates the proposition of visitors that are likely to stay in the region either before, after or before and after their visit to Proposed Development. With overnight stays considered, a 'day of travel' trip distribution is considered. It forecasts that over 79% of visitors wouldbegin or end their trip in nearby locations (76% in 2029), up to 60 minutes' drive from the Proposed Development, with approximately 42% travelling from the London Boroughs (40% in 2029). The effect on the UK and local tourism will be considered as part of the DCO application where the travel distribution forecasts may be reviewed as part of a sensitivity test if necessary.

~~9.79.~~9.84. In a separate analysis, the staff trip distribution was assessed. The analysis of the census Journey to Work (JTW) data to Swanscombe resulted in mainly local trip origins for staff. Comparisons with trip distributions for UK sites, which exhibit some similarities suggest that staff may travel from slightly further afield to work at Proposed Development.

~~9.80.~~9.85. The Swanscombe staff trip attraction was adjusted based on average distance travelled to comparable UK sites and populations within the region using UK census statistics. As a result, the expected distance to be travelled by staff is likely to increase compared to the existing journeys to work shown by the Swanscombe JTW census data. The resultant staff trip distribution suggests that 52% of the staff to the Proposed Development will reside within 10km from the Resort, including up to 2,500 to be accommodated on site.

Existing/committed development

~~9.81.~~9.86. The A2B&E model includes information on developments that have already been constructed and are operational. Therefore, any effects resulting from the assessments based on the modelled values are cumulative[6].

~~9.82.~~9.87. Consideration was also given to significant planned and/or committed schemes in the wider locality of the Project Site in order to determine their potential in-combination effects[7]. The committed schemes included within the approved A2B&E model have been considered as a starting point. A comprehensive review of the planning applications in the area, as well as Local Plan(s) allocations, was undertaken to identify those schemes potentially having the in-combination effects.

~~9.83.~~9.88. As outlined above, the spreadsheet-based model considered all significant planned and or committed development in the Project Site area. Where the detailed information of the specific development is known, this was included in the model directly. The other developments are included under the NTEM/TEMPRO assumptions embedded in the model during its development. As a result, any effects resulting from the assessments based on the modelled values are also in-combination.

~~9.84.~~9.89. The cumulative/committed development sites included in the assessment are set out inTable 9.1 below.

[6] Cumulative effects are multiple effects on the same habitat or site that arise from the proposed development together with those from all developments that have been built and are operational.

[7] In combination effects are those effects that may arise from the proposed development in combination with other plans and projects proposed/consented but not yet built and operational (i.e. those developments that are separate from the baseline)

Table 9.1: Cumulative/committed development sites

Applicant for 'other development' and a brief description	Comments
Tilbury2 Port Expansion by Port of Tilbury (London) Limited. DCO application for a new port facility acting alongside the existing Port of Tilbury. Determined by: NSIP/Planning Inspectorate	Development is included and considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model (circa 500 jobs).
Thurrock Flexible Generation Plant, by Thurrock Plant Ltd. Determined by: NSIP/ Planning Inspectorate	Development is included and considered in the NTEM accessedvia TEMPRO growth within the spreadsheet-based transportmodel. The Environmental Statement states that only a limitedfull-time workforce would be utilised.
Lower Thames Crossing, by Highways England Determined by: NSIP/Planning Inspectorate	Infrastructure is included within the spreadsheet-based transport model.
Tilbury Energy Centre, by RWE Generation UK plc Determined by: NSIP/Planning Inspectorate	Development is included and considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model. The project is currently on hold.
Eastern Quarry, Swanscombe by Barton Wilmore for Land Securities now being promoted by Henley Camland A mixed-use development of up to 6250 dwellings plus up to 231,000 square metres of built floor space (in total), including Use classes A1-5, B1, D1, D2, and C1. Development also includes open space provision, highways and public transport facilities, and mooring facilities, launching and landing watercraft.	The development has been included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model. This includes 360,000m^2 of B1, 6,250 of C3, 33,000m^2 of C1, 222,000m^2 of D2 and 78,000m^2 of A1.

Determined by: Dartford Borough Council	
A2 Bean and Ebbsfleet Junction Improvements by Highways England. Construction of 5 new slip roads and 1 modified roundabout to connect the A2 Trunk Road to the B255 Bean North and Bean South Roundabouts and Ebbsfleet East Roundabout. Determined by: Secretary of State for Transport.	The development has been included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Bluewater Shopping Centre by Kent County Council Blueco Full planning application for a new tunnel (the Bean Road Tunnel) and associated road works to include bus, cycling and pedestrian access to the east of Bluewater Shopping Centre to link to the Eastern Quarry Development. Determined by: Kent County Council	Development (A1 retail - 30,0000m^2) has been included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Stone Pit 1, London Road by Graham Simpkin Planning Erection of one and two-storey buildings to provide a Neighbourhood Centre comprising of a mix of A1, A2, A3, B1a and D1 uses with associated infrastructure and provision, a Sports Club to comprise of football/ sports pitches with clubhouse, the new internal access road from London Road and provision of recreational open space. Determined by: Dartford Borough Council	Not a committed development as yet, therefore, would not have been included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Stone Lodge Complex by BAM Construction.	Development (C3 – 200 dwellings) has been included within the

Outline application for the erection of a secondary school, up to 140 residential dwellings in total across 2 sites and provision of 19ha of public open space. Determined by: Dartford Borough Council	Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Stone Pit II, by Barton Wilmore Planning Development of up to 870 dwellings nad up to 1,200sq metres of built floor space for B1(a), (b), and (c), D1 and D2, and A1-A5 uses. Determined by: Dartford Borough Council	The development has been included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model. Development called St James Lane Pit in Highways England forecasting (850 dwellings)
Land to the west of Bluewater Parkway, by Blueco and Bluewater Outer Area Limited Site clearance, building operations and other operational works to the existing cliffs to enable the erection of an adventure centre Determined by: Dartford Borough Council	As planning permission was granted in August 2019, it may not have been included explicitly within the A2B&E transport model as the development of the forecast year models was undertaken in 2018. It may have been taken account of within general background growth.
The Pier, by Crest Nicholson (c/o Barton Wilmore) Mixed-use development including 151 residential, 832.19 sqm floorspace (use class A3/A4), 187.5 sqm (use class D1), riverside walk, boat trailer park development platform and slipway, permanent diversion of Public Right of Way DS1 and associated works. Determined by: Dartford Borough Council	As planning permission was granted in August 2019, it may not have been included explicitly within the A2B&E transport model as the development of the forecast year models was undertaken in 2018. It may have been taken account of within general background growth.

Land West of Springhead Road, by Countryside Properties (UK) Ltd Outline application for a mixed-use development of up to 789,550 sqm floorspace comprising employment, residential, hotel and leisure uses and supporting retail and community facilities Determined by: Ebbsfleet Development Corporation (Consulting with Gravesham Borough Council)	Development assumed to be included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Land West of Springhead Road, by Countryside Properties (UK) Ltd Reserved matters application pursuant to application 20150155 | EDC relating to the erection of 172 residential dwellings in Phase 3 of Springhead Quarter. Determined by: Ebbsfleet Development Corporation (Consulting with Gravesham Borough Council)	Permission was granted in June 2018, so the development is assumed to be included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Northfleet Embankment, by Keepmoat Homes Ltd. Hybrid planning application comprising: (1) full planning application for the erection of 598 residential dwellings, retail floor space, amendments to existing highway accesses, provision of open spaces and parking provision, and (2) outline planning application for a two-form entry primary school and the refurbishment and change of use (for use classes A1/A2/A3/B1(a)/C3/D1) of the WT Henley Building. Determined by: Ebbsfleet Development Corporation (Consulting with Gravesham Borough Council)	As planning permission was granted in March 2019, it may not have been included explicitly within the A2B&E transport model as the development of the forecast year models was undertaken in 2018. It may have been taken account of within general background growth.

Land at Coldharbour Road, Northfleet, by Bovis Homes Ltd & Persimmon Homes An outline planning application for the development of up to 400 new homes and associated infrastructure including provision of open space, with access off Coldharbour Road. Determined by: Gravesham Borough Council.	Planning permission was granted in January 2018, so the development is assumed to be included within the Highways England A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Chadfields, Tilbury, by Apex Platinum Investments Ltd (c/o GL Hearn) Hybrid Planning Application for the demolition and site clearance of the existing Tilbury FC Stadium (Chadfields) and the erection of a new stadium full planning permission) and the erection of up to 112 new dwellings on the site of the old stadium (outline). Determined by: Thurrock Council	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model (112 dwellings).
Land West of Lytton Road, by Greatview Properties Ltd Outline application with all matters reserved (except for access) for up to 140 dwellings Determined by: Thurrock Council	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model (140 dwellings)
Land adjacent Wood View and Chadwell Road, by Third Dimension Arch. Design Ltd. An outline planning application (all matters reserved) for 75 residential units consisting of 57 houses and 18 apartments	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model (75 dwellings)

Determined by: Thurrock Council	
Star Industrial Estate, by Apex Properties Ltd. Outline development for up to 203 dwellings (all matters reserved apart from principle and access) Determined by: Thurrock Council	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model (203 dwellings)
Land Part of Little Thurrock Marshes, by Nordor Holdings Ltd Outline application for 161 new dwellings and 7,650sqm of employment floorspace (B1c/B2/B8) and associated infrastructure. Determined by: Thurrock Council	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model (161 dwellings)
Application for outline planning permission for mixed-use redevelopment involving the demolition of existing buildings and other structures, site preparation works. The development of up to 2,850 dwelling houses (Use Class C3), up to 11,000 sq.m (f/s) of business uses (Use Class B1), up to 8,880 sq.m (f/s) of shops (Use Class A1), up to 5,220 sq.m (f/s) of restaurants and cafes (Use Class A3), up to 900 sq.m (f/s) drinking establishments (Use Class A4), up to 20,000 sq.m (f/s) of hotel accommodation (Use Class C1), up to 18,300 sq.m (f/s) of non-residential institutions uses, comprising a primary school, secondary school and sixth form, medical and community uses (Use Class D1), up to 6,200 sq.m (f/s) of assembly and leisure uses (Use Class D2), up to 135,000 sq.m (f/s together with external backlot production space) film and television production space.	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model.

Determined by: Thurrock Council	
Full planning permission for the demolition of existing buildings and structures and the erection of new buildings, structures and port infrastructure (including road, railways, tracks, gantries and surfacing). Determined by: Thurrock Council	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model.
Outline planning permission for the demolition, phased remediation and redevelopment of 167 hectares of former Coryton Oil Refinery to provide up to 480,000 sq. m of commercial development Determined by: Thurrock Council	Development considered by background traffic growth assumptions considered in the NTEM accessed via TEMPRO growth within the spreadsheet-based transport model.
Outline application for mixed development and comprising up to 532 Homes, up to 46,000 sq. m Employment Floorspace and a mixed-use Neighbourhood Centre Determined by: Ebbsfleet Development Corporation	This development is outside the extent of the A2B&E transport model, but is considered by background traffic growth assumptions provided in the NTEM accessed via TEMPRO growth.
Outline application for the development of brownfield land to provide up to 21,500 sqm (231,000 sqft) of employment floorspace, comprising use classes B1, B2, B8 and A3, A4, A5 and associated site vehicular access. Determined by: Ebbsfleet Development Corporation	This development is outside the extent of the A2B&E transport model, but is considered by background traffic growth assumptions provided in the NTEM accessed via TEMPRO growth.
Hybrid planning application comprising 598 residential dwellings, a two-form entry primary school and for the refurbishment, change of use (for Use Classes A1/A2/A3/B1(a)/C3/D1) and demolition of the	This development is outside the extent of the A2B&E transport model, but is considered by background traffic growth assumptions provided in the NTEM accessed via TEMPRO growth.

boundary wall and rear portion of the WT Henley Building. Determined by: Ebbsfleet Development Corporation	
An outline planning application for residential development of up to 220 dwellings including new vehicular access to Tiltman Avenue, creation of a development platform and associated works. Determined by: Ebbsfleet Development Corporation	Planning permission was granted in December 2018, so the development is assumed to be included within the Highways A2B&E transport model forecast years with GIS layers of traffic flows/traffic speeds/%HGV supplied to WSP by Highways England for use within the spreadsheet-based transport model.
Bulk aggregates import terminal handling up to 3 Mt per annum and associated infrastructure including reinstated rail access. KCC GRANTED PERMISSION 21.2.2011 (CONDITIONS) Determined by: Gravesham Borough Council	If planning permission was granted in October 2010, and the development subsequently built, then it has been taken into account within the base year of the model. However, the current status (at the time of writing is unclear).

Assessment scenarios

~~9.85.~~9.90. In considering the effects of the Proposed Development on the transport networks, several scenarios were assessed. The IEMA Guidelines suggest that the effect on each impact should be determined as the predicted deviation from the baseline conditions during both construction and operation phases. Therefore, these scenarios include both do-minimum (baseline) and do-something (with development) scenarios as well as the expected peak of construction works, which is forecast to be 2023.

~~9.86.~~9.91. As outlined in Chapter 3: *Project description* (document reference 6.1.3) of this ES, the Proposed Development will consist of two theme parks (Gate One and Gate Two) and a range of associated facilities. The delivery of the Proposed Development will be phased. As such, it is considered appropriate to assess the following years/scenarios:

- 2018 – Base
- 2023 – Future Baseline
- 2023 – Peak of Gate One construction
- 2024 – Future Baseline
- 2024 – Gate One opening year (includes 2025 forecasts as that is the first full year of operation)
- 2024 – Gate One + Peak of Gate Two construction
- 2029 – Future Baseline without Lower Thames Crossing (LTC)
- 2029 – Future Baseline with LTC
- 2029 – Gate Two opening year (full development) without LTC
- 2029 – Gate Two opening year (full development) with LTC
- 2038 – Future Baseline without LTC
- 2038 – Future Baseline with LTC
- 2038 – Maturity of the Proposed Development without LTC

- 2038 – Maturity of the Proposed Development with LTC

9.92. The above scenarios allow for the flexibility tat may occur over the construction time period, noting that opening will now be 2025 and not 2024. It is still considered that the scenarios above are appropriate and robust.

Traffic flows

~~9.87.~~9.93. The spreadsheet model developed for the assessment of the Proposed Development predicts flows during the weekday AM typical highway network peak hour (0800 – 0900)and typical highway network PM peak hour (1700 – 1800), as well as over the 24-hour period. The traffic flows as modelled are provided for all scenarios in Appendix 9.2: *Traffic flows* (document reference 6.2.9.2).

~~9.88.~~9.94. The assessment of the effects discussed later in this land transport chapter requires traffic flows in the form of Average Annual Daily Traffic (AADT), which is a measure of daily traffic volume equivalent to the total annual traffic volume divided by 365. Also utilised is Average Annual Weekday Traffic (AAWT), which is calculated similarly as the AADT values but only including Monday to Friday data. The rationale behind the derivation of the AADT and AAWT values from the peak hour flows subsequently used in this assessment is provided in the Strategic Modelling Methodology (document reference 6.2.9.1, Appendix TA-S) provided as part of the suite of documents included in Appendix 9.1: *Transport Assessment* (document reference 6.2.9.1).

Study area

~~9.89.~~9.95. As outlined above, a spreadsheet-based model was developed to inform the assessmentof the Proposed Development. The model includes highway networks in the vicinity of both Kent and Essex Project Sites.

9.96. The study area covers the whole extent of the model. The extent of the modelled area is illustrated in Figure 9.1: *Traffic Model Extent* (document reference 6.3.9.1).

~~9.90.~~9.97. The study area is complimented by the work undertaken within Appendix 9.7 Annex 3 and 6 which show the limited impacts on links and junctions outside of the study area.

Scoping and consultation process

2014 Scoping opinion

~~9.91.~~9.98. The Applicant sought and received a scoping opinion from the Secretary of State in 2014,accompanied by responses from several stakeholders.

~~9.92.~~ The 2014 EIA Scoping Report was submitted to the Planning Inspectorate (PINS) as well as the local planning and highway authorities affected by the scheme, attracting responses from numerous other consultees including the Port of London Authority (PLA). Scoping responses were provided from most of the planning authorities or highway

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authorities, including the following organisations:

- The Highways Agency (now Highways England)
- Kent County Council (KCC)
- Transport for London (TfL)
- London Borough of Bexley
- Sevenoaks District Council
- Tonbridge and Malling District Council
- Gravesham Borough Council (GBC)
- Dartford Borough Council (DBC)
- Medway Council
- Thurrock Council (ThC)
- Surrey County Council
- East Sussex County Council
- London Borough of Bromley
- Essex County Council

~~9.93.~~9.100. The subsequent EIA Scoping Opinion from PINS set out several representations in regard to the Scoping Report, which was reviewed and incorporated into the assessmentmethod where appropriate.

~~9.94.~~9.101. Table 9.2 below sets out the key transport comments received in 2015 from PINS.

Table 9.2: PINS scoping comments (transport-related) 2015

Scoping comments	Response/commentary
The Secretary of State notes that non-car-based transport opportunities for staff will be considered in the development travel plan for the development. The Secretary of State would expect the ES and the travel plan to consider how visitors would access the site by other modes of transport than by car and by coach. Potential access by the regional train line is recognised in the Scoping Report, and potential use of landing points on the River Thames is also mentioned. The travel plan should provide more detail and the project description in the ES should clearly lay out how the options for travel and access have been included within the assessment. The applicant's attention is drawn to the response from High Speed 1 Ltd. (HS1) in this regard.	Since 2015, WSP have revised the method of managing visitors to the Resort, by way of a Demand Management Plan. This will cover all visitors and staff and will look to support public transport as the preferred method of travel. This can be seen within the TA (document reference 6.2.9.1, Appendix TA-AC). This TDM sets out the ways in which rail, river and bus can be used to access the site.
The Scoping Report states that it is not intended to include air and sea-based water traffic in the Transport and Access chapter of the ES. No justification behind this refinement of the scope is provided in the Scoping Report. Decisions to scope out impacts should be explained in the ES. At this stage, the Secretary of State considers that insufficient information on the transport options during construction, and in particular operation, has been provided at this stage to justify such an approach.	The TA (document reference 6.2.9.1) sets out in detail the proportion of all international visitors to the Proposed Development, which is expected to be approximately 30% of all visitors. However, this is likely to fluctuate throughout the year. Additional analysis of the evidence from Disneyland Paris[8] suggests that around half of total international visits could relate to new trips that would not happen without the Resort. Therefore, it is argued that the remaining international visitors are not sole purpose travellers and have a primary purpose elsewhere within France and would have already been tourists in the host country without the Proposed Development in place. Additional analysis related to international visitors modal split

[8] *http://corporate.disneylandparis.com/CORP/EN/Neutral/Images/uk-2012-03-14-press-kit-economic-and-social-impact-study.pdf*

	suggests that approximately 79% of overseas visits would travel by air to visit the UK. Considering these estimates, on average less than 5,000 air passengers (including return) per day would be generated by the Resort. This represents less than 1% of existing (2018 data) all international air passengers in London airports. As the thresholds of significance for air quality are generally 5%, the change can, at most, be considered as 'negligible'. As the capacity of London airports is already being considered at a national level, and there is no certainty over the distribution of these air movements, no further quantitative assessment is planned. With regards to sea travel, short sea traffic into the UK is approximately 22 million passengers, and it is forecast to increase even without the Proposed Development. When considering the above, at most we could see river transport accommodating circa 21% of international visitors (assuming no rail access to the site), which would be circa 1,000 visitors per day. Depending on the cruise liner interest and location of berths operated, it is likely that the Proposed Development would contribute to less than 1% increase in cruise trips to/from the UK. While the bias towards the Port of Southampton would indicate an imperceptible change for Southampton, it is possible that the proximity of Port of Tilbury could give rise to a negligible increase in sailings and associated activity there as well. Without the Proposed Development, modest rises in demand can be anticipated, although it is unlikely that these will reach 1990s levels. The Proposed Development is therefore likely to increase passenger demands across all UK ports by less than 1% including short sea and cruise travel.

	Given that the Port of Dover is the most used (around two-thirds of short-sea travel), it is estimated that this is equivalent to circa 13 passengers per ferry service via Dover, as a result of the Proposed Development. As all ports and the majority of services operate with some spare capacity, any changes could likely be classified as negligible or slight.
In addition, the Scoping Report includes an intention to apply rules on the limit and extent of the assessment set by the IEMA Guidelines for the Environmental Assessment of Road Traffic (IEMA, 1993) which will 'scope out' certain locations. As this is part of the methodology laid out in the Scoping Report, the Secretary of State agrees that, provided full justification is provided in the ES, that this approach appears appropriate at this stage. Nevertheless, the Secretary of State expects to see full consultation with the local highway authorities and the Highways Agency as appropriate on the scope of the transportation assessment.	The required scoping and application of guidelines has been updated since the 2015 ES scoping opinion. These are set out in detail in this chapter (para 9.10 onwards)
The Secretary of State welcomes the development of the assessment of transport impacts in association with KCC and the Highways Agency (HA) and advises that the EIA should reflect how the outcomes of these discussions have been incorporated, as well as those will other local authorities.	The comments here from 2015 show the significant consultation undertaken with KCC and HE on the London Resort. Although the scheme has changed since 2015 the impacts are expected to be similar. Since 2015, LRCH have continued to engage with both KCC and Highways England, as set out further in para 9.93.

The assessment of cumulative transport impacts will need to be well-defined; taking into account planned and committed projects which could combine with the effects of the proposals. The Secretary of State notes the improvements to the trunk road network identified in Paragraph 9.6 of the Scoping Report, and would add that the major developments identified in Paragraph 4.13 will also have implications for the Transport and Access Assessment. The Secretary of State expects that the scope of the cumulative transportation assessment will be agreed with local highway authorities and the HA, and directs the applicant to the consultation responses contained at Appendix 2 in this respect.	At the time of the 2015 consultation, LRCH were engaged with the authorities over the required cumulative transport impacts and had agreed to the relevant cumulative schemes. As set out within the 2020 scoping and consultation, this has not progressed, in part due to Highways England progressing with both the A2B&E scheme and the Lower Thames Crossing scheme. The revised cumulative schemes are contained within Table 9.1 of this chapter
The Secretary of State draws the applicant's attention to concerns from KCC, GBC, and DBC (Appendix 2) regarding the information to be applied in the assessment; specifically the 2014 baseline, the anticipated peak visitor numbers and time periods (including duration of assumed peak periods) , the split between visitor, employment and servicing trips, and the types of transport used. The potential need for improvements elsewhere in the highway network to accommodate traffic generated by the development should also be addressed.	Since 2015 the method of assessing the London Resort has changed, with the introduction of the Highways England models at both the A2B&E and LTC. Regarding the A2B&E model, this was approved earlier in 2020 and therefore considered to still represent an appropriate baseline. In addition, the London Resort visitor and staff profiles have changed. The updated figures have been provided to the statutory Stakeholders through the submission of Technical Notes 1-4 in June 2020. These are contained within the TA (document reference 6.2.9.1, Appendix TA-M to Appendix TA-P).
The design and layout of the proposed dual carriageway and junction improvements which form part of the project is not provided in the Scoping Report, and it is understood that this is yet to be determined. It will be important to refine these elements as far as possible in order to inform the assessment, and it may be appropriate to consider a number of defined options in order to ensure that the likely 'worst case' scenario is assessed. The Secretary of State refers the applicant to comments from the HA in Appendix 2 regarding planned improvements at these junctions. The Secretary of State also notes that some of these highway works are likely to	The proposed access arrangement has progressed since 2015, partly due to the Highways England scheme at the A2B&E being approved in 2020. The revised access arrangement will see a minor amendment to the Highways England scheme reducing the impacts previously proposed. The proposed access scheme is contained within the DCO Plans and within the TA (document reference 6.2.9.1, Appendix TA-K).

be located in Green Belt and draws attention to the National Planning Policy Framework in this respect.	
The assessment should encompass all likely transport modes and not solely road transport. The presence of the HS1 high speed railway, and the local rail network, should be taken into account within the assessment including potential impacts on these and incorporating information on existing capacity. Opportunities should be sought as part of the proposals to optimise the use of sustainable modes of transport, in line with the NPPF. The Secretary of State refers the applicant to comments from KCC, GBC, DBC, and HS1 regarding the need for the assessment scope and the transport modelling used to take into account travel by walking/cycling and travel by public transport, including rail travel, and notes the information provided by DBC on local bus services in the area (see Appendix 2).	This is noted and has been addressed as part of this land transport chapter. In doing so, a separate Chapter 10: *River Transport* (document reference, 6.1.10) has been produced to undertake the required assessment on river navigation.
The Transport Plan should describe where improvements to local public transport networks may be required and where opportunities for enhancements to walking/cycling routes have been sought, and these elements will also inform the EIA. The applicant's attention is drawn to DBC's comments on mitigation in Appendix 2. It will be essential for any mitigation works proposed to take the presence of existing infrastructure into account within its design, including HS1 and the applicant is referred to concerns from HS1 regarding access (Appendix 2)	The mitigation proposed to enable the London Resort to be delivered considers all existing and proposed infrastructure (including LTC). The Transport Assessment has also set out the level of improvements that would be required on the rail and bus network alongside the improvements to walking and cycling. Please refer to the TA (document reference 6.2.9.1, Section 10 for the Walk and Cycle Strategy, Appendix TA-U for Rail Strategy and Appendix TA-V for Bus Strategy).

The Secretary of State recommends that the ES should take account of the location of footpaths and any public rights of way (PROW) including bridleways and byways. The ES should clearly set out impacts on them including within the wider area. It is important to minimise hindrance to them where possible, taking into account the construction phase, and the operational phase, including any implications of site security features. The applicant's attention is drawn to NE comments on access in Appendix 2. A clear indication should be given as to how the proposed development will affect the existing and future facilities along the estuary and what mitigation would be appropriate in the short, medium and long term.	The DCO submission considered the PRoW network in detail, with all routes that are located within the order limits identified and where amendments required are identified. Further to that, the TA (document reference 6.2.9.1 Section 10) sets out in further detail the existing and proposed routes into and out of the London Resort.
The Secretary of State recommends that the assessment should cover potential impacts on estuarine and marine traffic (both for the construction and operation phases of the development) and refers the applicant to comments received from the MMO, and from the Maritime and Coastguard Agency (MCA) and the PLA with respect to safety, navigation, and access (all responses are provided in Appendix 2 of this Opinion).	The 2020 ES now includes Chapter 10: *River Transport* (document reference, 6.1.10), which considers both the operation and construction phases of the development.
Air Quality: The inter-relationships with the assessment of impacts on traffic generation should be considered and the ES should cross refer to other relevant parts of the ES (e.g. noise, vibration). Such information should also be used to inform the ecological assessments.	The traffic flows generated to undertake the traffic assessment have been used to assess the separate chapters including, Chapter 15: *Noise and vibration* (document reference 6.1.15) and Chapter 16: *Air quality* (document reference 6.1.16).
It is essential that the assessment accounts for materials to be removed from the site and to identify where potential traffic movements would be routed. Such details should also be reflected in relevant supporting documents (e.g. the SWMP).	The TA (document reference 6.2.9.1, Appendix TA-AD) sets out the construction implications of the London Resort.

~~9.95.~~9.102. Further to the points raised by the SoS, a number of other key points were raised:

- Need to engage with communities and other bodies considering the Statement of Community Consultation published with DCO application;
  How it is addressed: Consultation events held during summer 2020 with communities and key stakeholders. The full consultation is to be included within the Statement of Community Consultation

- Balance of views and concerns, for example, transport workshops seek to exploit the potential of River Thames access whilst ecology seek to minimise disruption to estuary;
  How is it addressed: Inclusion of a river connection to Tilbury, providing access north of the river for visitors, staff, construction materials and operational.

- Exploit public transport (including river);
  How is it addressed: Consultation has been undertaken with key operators in the area looking to enhance bus services, provide new river connections into London and north into Essex, and identify connections to the rail network in the vicinity of the site.

- Identify measures to deal with emergencies and other travel time uncertainties, particularly on Queen Elizabeth II (QEII) bridge;
  How is it addressed: Since 2014, the Lower Thames Crossing has moved closer to delivery and is now considered suitable mitigation for the traffic that currently routes over the Queen Elizabeth Bridge. This is considered to be a significant benefit to the area.

- Minimise traffic on local roads, particularly London Road;
  How is this addressed: No direct access is being proposed onto London Road for Resort visitors. There will be some limited access for local deliveries and publictransport.

- Further clarification regarding assessment scenarios and base dataused;
  How is this addressed: The scenarios and base data has moved forward since 2014 and has been updated.

- Ensure parking is sufficient and identify options for management for off-site demand.
  How is this addressed: The parking provision has been delivered based upon other leisure developments in the UK and Europe. This has then been considered against the likely attraction of vehicular traffic to determine its acceptability. This is covered in considerable detail in section 12 of the TA (document reference6.2.9.1).

2014/2015 Statutory and non-statutory Consultation feedback

~~9.96.~~9.103. In 2014/15, the London Resort team carried out several stages of public consultation. These consultations provided general information on the scheme, as well as a series of targeted workshop events, during which the general public was invited to comment and discuss the Proposed Development. The consultation included events explicitly related to transport effects.

~~9.97.~~9.104. Furthermore, further consultation has been undertaken with the following stakeholders:

- Highways Agency (HA)/Highways England
- Kent County Council (KCC)
- Dartford Borough Council (DBC)
- Ebbsfleet Development Corporation (EDC)
- Gravesham Borough Council (GBC)
- Thurrock Council
- High Speed 1 (HS1)
- Port of Tilbury London Limited (PoTL)
- Uber Boat by Thames Clippers (TC)

~~9.98.~~9.105. Several meetings were held over time with the above stakeholders. These meetings are listed below:

- meeting with the HA, 22 July 2014;
- meeting with HA (presentation to Hyder/Halcrow), 24 July 2014;
- meeting with KCC Thameside Strategic Transport, 31 July 2014;
- meeting with the HA, 29 August 2014;
- meeting with KCC and DBC, 15 September 2014;
- meeting with KCC and DBC, 23 October 2014;
- meeting with HA/Hyder/Halcrow, 31, October 2014;

- meeting with KCC (Fastrack), 18 November 2014;
- masterplanning workshop with KCC/DBC/GBC, 3 December 2014;
- meeting with the HA, 4 December 2014;
- meeting with HS1, 8 December 2014;
- meeting with the HA and KCC, 12 January 2015;
- PINS meeting at Savills, 14 January 2015;
- meeting with TC, 15 January 2015;
- meeting with Treasury, 19 January 2015;
- air quality meeting with KCC/DBC/GBC, 23 January 2015;
- transport and master planning workshop, 29 January 2015;
- traffic modelling meeting with KCC, 05 February 2015;
- access design and car parking meeting with KCC/DBC/GBC,12 February 2015;
- meeting with KCC (public transport), 18th February 2015;
- Swanscombe and Greenhithe Town council Presentation, 23 February 2015;
- archaeology meeting with KCC/DBC/GBC and English Heritage, 27 February 2015;
- meeting with Department for Transport, 2 March 2015;
- KCC Major Projects Meeting, 3 March 2015;
- Meeting with Eurostar, 4 March 2015;
- meeting with Port of Tilbury, 9 March 2015;
- meeting with HA/KCC/DBC/GBC, 10 March 2015;
- access Construction Logistics Meeting with Skanska, 12 March 2015;
- meeting with Arriva (buses), 13 March 2015;

- meeting with Wessex Archaeology, KCC (Archaeology) Heritage England, 17 March 2015;
- presentation to HS1, 24 March 2015;
- Environmental Agency (EA) Access Road meeting, 26 March 2015;
- EA Access Road meeting, 26 March 2015;
- meeting with HA/KCC/DBC/GBC, 31 March2015;

~~9.99.~~9.106. The outcomes of the above meetings have informed subsequent approaches to masterplanning and overall concept design iterations that has culminated in the scheme that LRCH have presented in 2019/2020. However, the 2020 scoping opinion and consultation is considered to be more reflective of the position with stakeholders and is considered in further detail below.

Subsequent consultation

~~9.100.~~9.107. Discussions have continued with HE, KCC, ThC and other local highway authorities potentially affected by the proposals during 2019 and 2020 in advance of the formal scoping opinion being submitted. The consultation process consisted of the submission of technical work and associated feedback from the authorities. The key feedback from these submissions related to:

- the need for robust supporting evidence for the visitor forecastsused;
- further consideration of how the development can support high public transport mode shares;
- a suitable parking management scheme to reduce reliance upon private vehicles; and
- support for the use of river and rail-based travel modes.

~~9.101.~~9.108. A series of meetings have taken place to discuss the proposals with the local authoritiesaffected, Highways England and relevant stakeholders. As the assessment of the Proposed Development progresses, these discussions are still ongoing. A list of meetingsheld to date is provided below:

- meeting with Port of Tilbury, 06 November 2019;

- meeting with TC, 26 November 2019;
- meeting with Thames Gateway Trams, 05 February 2020;
- meeting with Port of Tilbury, 14 February 2020;
- meeting with Highways England, 02 March 2020;
- Transport Vision Workshop, 30 March 2020;
- meeting with High Speed 1, 19 May 2020;
- meeting with Highways England, 03 June 2020;
- meeting with Port of London Authority, 19 June 2020;
- meeting with Network Road, 30 June 2020;
- meeting with TC, 8 July 2020;
- meeting with Thurrock BC, 8 July 2020;
- meeting with the EDC, 21 July 2020;
- meeting with DBC, 26 August 2020;
- meeting with EDC, 8 September 2020;
- meeting with Thurrock BC, 15 September 2020;
- meeting with KCC, 18 September 2020;
- meeting with Thames Gateway Tram, 18 September 2020;
- meeting with EDC, 24 September 2020;
- meeting with Port of Tilbury, 28 September 2020;
- meeting with KCC, 7 October 2020;

- meeting with EDC, 7 October 2020;
- meeting with Highways England, 16 October 2020; and
- meeting with KCC, 27 October 2020.

~~9.102.~~9.109. Following the earlier consultations and the additional technical work, there has been a fundamental shift in the approach to the accessibility of the Proposed Development, withthe introduction of facilities at the PoTL. The PoTL has agreed to accommodate a new car park (plus ancillary visitor services) north of the River Thames and to allow access to the river for a new ferry service connecting the Proposed Development to the PoTL. Furthermore, PoTL would also be the hub for the majority of construction material and operational servicing for the Proposed Development.

~~9.103.~~9.110. An agreement (in principle) has also been reached with TC about the provision of new river-based passenger services to the Proposed Development from the PoTL and centralLondon, Westminster, Blackfriars (for Thameslink), Greenwich and Woolwich (for Elizabeth Line (Crossrail)).

~~9.104.~~9.111. As part of the ongoing consultation with stakeholders in 2020, a series of TNs were submitted to the key stakeholders for review in June 2020. These notes included the TN1: Trip Generation, TN2: Trip Distribution, TN3: Mode Share and TN4: Future Mobility(which were earlier drafts of the TA (document reference 6.2.9.1) Appendices TA-M, TA-N, TA-O and TA-P).

~~9.105.~~9.112. The TNs form a suite of documents, which inform the modelling strategy, and therefore the modelling outputs used in the assessments of the Proposed Development. Comments received from stakeholders on these documents were addressed and incorporated into the TNs and supporting analysis.

2020 EIA scoping

~~9.106.~~9.113. The introduction of the facilities north of the River Thames, as well as changes in other aspects of the Proposed Development, resulted in the need for an updated EIA.

~~9.107.~~9.114. As part of the scoping exercise for the London Resort, an EIA Scoping Report was produced and submitted to the Planning Inspectorate (PINS) as well as to the local authorities in mid-June 2020. The Scoping Report proposed the methods for assessing the environmental effects of the London Resort, which included, *inter alia*, the assessment of effects associated with transport, that is subject to this land transport chapter.

~~9.108.~~9.115. The EIA Scoping Report attracted responses from numerous authorities and interest groups. Consideration has been given to all received comments and opinions. The key transport-related comments received from PINS are summarised in Table 9.3 below. The full scoping opinion received from PINS is provided in Appendix 1.4: *EIA Scoping Opinion – SoS July 2020* (document reference 6.2.1.4).

Table 9.3: PINS scoping comments (transport-related)

Topic	Scoping comments	Response/commentary
Air Transport	Agree air transport scoped out	Noted.
Effects on rail transport	The Scoping Report suggests that the impacts on rail transport will be less than significant since the existing rail network will be utilised. The Scoping Report does not provide any information regarding the anticipated number of additional rail passengers and the pressure this would place on existing services. Accordingly, the ES should include an assessment of the impacts on rail transport, where significant effects are likely to occur. The Applicant should make an effort to agree on the approach to the assessment with relevant consultation bodies.	The TA (document reference 6.2.9.1) includes a rail strategy identifying the proposals being put forward to support the London Resort, including the likely numbers of visitors, times of day and stations that will be used. The resultant mitigation, which will still be subject to ongoing consultation with Southeastern, High Speed 1, Network Road and the Department for Transport, seeks to maintain capacity for the additional patronage associated with the London Resort and ensure appropriate connections are available between railway stations and the Proposed Development. The land transport chapter sets out this strategy in more detail *Approach to the assessment* section.
Effect on sea-related travel	The Scoping Report states that the proposals are expected to have negligible effects on current sea lines. However, other sections of the Scoping Report refer to the potential for increasing the use of the Port of Tilbury by cruise ships, so it is not clear what the basis is for scoping this matter out. Accordingly, the Inspectorate does not agree to scope this matter out. The ES should include an assessment of the impacts on sea-related travel where significant effects are likely to occur. The Applicant should make an effort to	The London Resort is not promoting any upgrades or increase in cruise terminal facilities to support any increase in sea liners to the Resort. Notwithstanding this, it is acknowledged that some cruise visitors who stop at Tilbury may want to access the London Resort. This land transport chapter (paragraph 9.78) sets out in more detail the reasons for not including sea-related travel within the assessment.

	agree on the approach to the assessment with relevant consultation bodies.	
Transport modelling	It is noted that the modelling will focus on the strategic road network with a micro-simulation model which coversa smaller area and would include many of the key local roads within Ebbsfleet. However, it is not clear how the Applicant intends to ensure that the full range of significant effects on the local road network will be assessed. The ES should explain why the area covered by the micro-simulation model (or any other modelling used) captures those effects. The same point applies to the coverage of the strategic network; the ES must explain how the extent of the study area used in the assessment reflects the zone of influence of the Proposed Development.	The TA (document reference 6.2.9.1) and the Strategic Modelling Methodology (document reference 6.2.9.1, Appendix TA-S) set out in detail the study area contained in the traffic modelling. Overview of the model, as well as the study area, is also provided in the *Data sources: Traffic model* section of this land transport chapter. The model includes the assignment of traffic associated with the London Resort and therefore provides information on route choice and the likely locations that would be impacted by the London Resort. The traffic is shown to predominantly use the Strategic Road Network (SRN) (minimal use of local roads). The level of impact upon the SRN is minimal. Once off the SRN, the traffic is dispersed sufficiently not to require any further assessment (this is evidenced in the assessment contained in Appendix 9.3: *Percentage Changes* (document reference 6.2.9.3).
Transport modelling	The Scoping Report proposes to use the A2 Bean and Ebbsfleet and the Lower Thames Crossing traffic models. The Scoping Report refers to various other projects which could affect the transport network in the area of the Proposed Development. The Scoping Report does not explain the extent to which the transport modelling takes into account the anticipated growth associated with other plans or projects. The ES should assess these impacts where significant effects are likely to occur. The Applicant should make efforts to agree on the likely transport growth factors for the assessment with relevant consultation bodies.	It is correct that the A2 Bean & Ebbsfleet traffic model has been used as the basis for traffic modelling. The TA (document reference 6.2.9.1) and the Strategic Modelling Methodology (document reference 6.2.9.1, Appendix TA-S) set out in detail the cumulative schemes included in the modelling. This is also set out in detail in the *Existing/committed development* section and the associated Table 9.1 of this land transport chapter.

Identification of affected road links	The ES should include figures identifying the extent of the study area and the links within that area which have been identified as being affected.	The required figures are provided as part of this land transport chapter. For clarity, please refer to Figure 9.1: *Traffic Model Extent* (document reference 6.3.9.1) and Figure 9.4: *Assessed Links* (document reference 6.3.9.4).
Identification of receptors	Paragraph 9.42 lists the receptor/areas that will be affected by the Proposed Development, which are schools, health facilities, community facilities and areas with significant pedestrian movements. Paragraphs 9.56 – 9.59 refers to other receptors, including private property and housing and Non-Motorised Users. The Scoping Report refers to the FastTrack bus service but does not make any reference to any other bus services. The ES should assess impacts on other relevant public transport routes where significant effects are likely to occur. The Applicant should make an effort to agree on the list of receptors with relevant consultation bodies.	The impacts on public transport have been assessed as part of the Public Transport Strategy provided in the TA (document reference 6.2.9.1., section 11). A summary of this is set out in the *Approach to the assessment* section of this land transport chapter. The majority of public transport proposals occur on the Project Site, between Ebbsfleet International Station, the London Resort and the new pier, which will be served by electrified services and have limited impact upon local people. The proposals on the external network are negligible, with some enhancements on a few services. These are set out in detail within the Bus Strategy (document reference 6.2.9.1, Appendix TA-V) and are not expected to have any significant impacts upon transport-related assessments.
Impacts to be considered in the assessment	The Scoping Report does not explain whether the impacts associated with increased driver delay will be assessed. The Inspectorate considers that impacts resulting from increased driver delay should be assessed in the ES where significant effects are likely to occur. The methodology proposed in the Scoping Report is a combination of both Institute of Environmental Management and Assessment (IEMA) guidance and the Design Manual for Roads and Bridges (DMRB). The approach lacks clarity and concerns have been raised by a number of consultation bodies. The	This concern has been noted. As such, driver delay has been added and assessed in this land transport chapter. The assessment methodology has been refined accordingly with the resultant impacts contained in the *Approach to the assessment* section of this land transport chapter.

	Applicant should make an effort to agree on the methodology with relevant consultation bodies.	
Additional environmental measures	The Scoping Report refers to measures in plans which would mitigate the effects of the Proposed Development and which would be taken into account in the assessment. Where these measures relied upon in the assessment, the ES should clearly explain how they are secured.	This is noted, and it is explained in the land transport chapter. This is primarily regarding the delivery of the Lower Thames Crossing. That being said, the assessments undertaken in the TA (document reference 6.2.9.1) and therefore, this land transport chapter assumes both with and without the Lower Thames Crossing.
Basis of assessment	The Scoping Report states that it would be impractical to assess all variations of likely visitor numbers so that the assessment will be based on an 85-percentile day. Where uncertainty exists, the ES should be based on a worst-case assessment. The Applicant should make an effort to agree on the approach to defining the worst case with relevant consultation bodies.	The applicants have been in consultation with the statutory highway authority to set out the approach being undertaken and the reason for the 85%ile day. It should be noted that the latest worst-case assessment assumed full car park occupancy and therefore would be the same on a peak day assessment. It was agreed that the primary assessments should concentrate upon the weekday peak hour assessments, generally considered to be the worst-case on the highway network. The detail of these discussions can be seen in the TA (document reference 6.2.9.1, Appendix TA-D)
Impact on receptors	The initial list of impacts appears to only refer to navigation risks and does not include any other potential impacts on receptors. There is no reference in the Scoping Report to the baseline data that would be used in the assessment of effects. The response from consultees, particularly the response from the Port of London (see Appendix 2 of this report) highlights other potential impacts associated with the use of river transport such as increases in vehicle emissions during construction and operation and impacts on existing river users. The ES must present a comprehensive assessment of LSE associated with the	The impact upon the river navigation is contained in chapter Ten: *River transport*. This considers the impact of both the construction and operational phases. With regards to other receptors and impacts, these are assessed in the separate chapters including, among others, Chapter 12: *Terrestrial and freshwater ecology and biodiversity* (document reference 6.1.12), Chapter 13: *Marine ecology and biodiversity* (document reference 6.1.13), Chapter 15: *Noise and vibration* (document reference 6.1.15)and Chapter 16: *Air quality* (document reference 6.1.13).

	Proposed Development's use of river transport and the works required to facilitate this. It should also include a clear justification for the receptors and impacts that have been scoped out.	
Impacts during the operational period	It is noted that the ES will contain a separate chapter on river transport. The Scoping Report only considers the potential impacts during the construction period but makes no reference to any impacts resulting from the operational period. There is no explanation as to why the operational period has not been considered. The ES must either present an assessment of the impacts during operation or evidence demonstrating agreement with the relevant consultation bodies and the absence of an LSE.	At the time of writing the PEIR, the full operational elements of the scheme were still unknown. The impact upon the river navigation associated with the operation of the London Resort is contained in Chapter 10: *River transport* (document reference 6.1.10).
Potential impacts on navigation safety	The responses from consultees (see Appendix 2 of this report) raise a number of concerns about the potential effects of the Proposed Development on navigation safety. Potential effects identified include impacts on navigational equipment, the need to maintain access to the Port of London's radar and data communications facility, issues with lighting from the resort affecting navigation, the need to maintain radar and pilot sightlines. It does not appear from the Scoping Report that these impacts have yet been considered for inclusion in the assessment. The ES must ensure that the full range of safety impacts are included in the assessment; the Applicant is advised to agree on the full range of impacts and any necessary mitigation with the relevant consultees.	The impact upon the river navigation associated with the operation of the London Resort is contained in Chapter 10: *River transport* (document reference 6.1.10). This includes a Navigation Risk Assessment that has been prepared in consultation with the relevant consultees.

Statutory EIA Consultation 2020

~~9.109.~~9.116. Several comments from various stakeholders were received during the 2020 consultation period. Many of the comments reiterated and/or duplicated the comments received on the Scoping Report. Although consideration is given equally to all comments, only those that differ from the comments received during the scoping are discussed here in more detail.

~~9.110.~~9.117. The key themes are summarised in Table 9.4 below.

Table 9.4: Key consultation comments

Consultee	Summary of comment	Response/commentary
Thames Crossing Action Group (TCAG)	Concerned that the development impact assessment does not take into account the impact of the Dartford Crossingand the Lower Thames Crossing.	The TA (document reference 6.2.9.1) sets out in detail the assessments that are being undertaken to assess the impacts of the London Resort. This includes both the Lower Thames Crossing and the Dartford Crossing.
KCC	Concerned about the various trip generators within London Resort and how these are considered.	There has been ongoing consultation with KCC over the various trip generators, with additional information being requested to support the numbers being used. Since the consultation stage, LRCH have provided additional information to KCC from the key resort experts, namely LDP, setting out how the forecasts were generated. These reports are also contained within the TA (document reference 6.2.9.1, Appendix TA-A).
KCC	It is assumed that details of the PRoW to be temporarily and permanently stopped-up will be provided as the plans for The Resort are refined.	The details of the Public Rights of Way to be temporarily or permanently stopped up detailed within the DCO plan package prepared by APT
Highways England	Further work will be required in a large number of areas identified above in order to provide a robust Environmental Statement and Transport Assessment which can be then used to determine whether the environmental impacts of the London Resort can be mitigated against sufficiently to ensure that there is no significant detriment to the surrounding area or obtain a clear view of the impacts of the proposed development on the SRN (the tests set out in MHCLG NPPF2019 Para 108-11 & DfT Circ. 02/13 Para 8 -11.).	The TA (document reference 6.2.9.1) produced alongside this land transport chapter has looked to address and provide clarity on the range of points raised by HE during the consultation. This includes updates to trip generation, distribution and mode shares and the resulting assessment scenarios covering 2025, 2029 and 2038 for different time periods.

Highways England	The impact upon the M20 would need to be considered in respect of Traffic Management of freight flows will be via the Kent Resilience Forum's Operation Fennel and Operation Brock on the M20.	The TA (document reference 6.2.9.1) considered in detail the level of traffic associated with the London Resort will have upon the M20 corridor. It is noted that several measures are being considered. Without knowledge of the agreements around Brexit and the longer-term effects, it is a difficult assessment for LRCH to undertake at this time. However, should more clarity be made on the proposals and subject to ongoing consultation with the HE post December 2020, further sensitivity tests could be undertaken.
Highways England	LRCH will need to demonstrate that it has taken full account of all committed development and non-committed sites within Local Plan allocations in the vicinity of the site.	Noted. The traffic modelling undertaken has utilised HE's strategic model for the local area, approved in 2020. This has, however, been reviewed with a breakdown of committed development schemes set out in detail in Table 9.1 in this land transport chapter.
Highways England	Concern about insufficient mitigation being considered for SRN.	Since the submission of the PEIR, LRCH have undertaken additional traffic modelling and junction capacity assessments which are contained within the TA document reference 6.2.9.1, section 13). Also, a Travel Demand Management Strategy (document reference 6.2.9.1, Appendix TA-AC) has been prepared, which sets out how visitors will be encouraged to use sustainable modes of transport.
GBC	Concern about the cumulative impact of the proposed development in relation to the capacity of the local labour market and labour being drawn from further afield.	In order to make the assumptions on the labour market for the assessments, Volterra have produced several key documents which include London Resort: Staff Distribution Note included within the DCO submission.

		This identifies the labour available in the local area and where additional labour may be required. This has been used to support the distribution of staff trips within the local area.

Extent of the assessment

Assessment extent screening

~~9.111.~~9.118. As suggested by the IEMA Guidelines (section Geographical Boundaries of Assessment, para 3.15), *'…a screening process to delimit the scale and extent of the assessment'* was undertaken.

~~9.112.~~9.119. An analysis of the model data was carried out to identify the relevant highway links to be included in the transport assessment. The IEMA Guidelines (section Geographical Boundaries of Assessment, para 3.15) suggest the application of the following rules to identify the highway links that would form part of the assessment:

- ***Rule 1:*** include highway links where traffic flows will increase by more than 30% due to the Proposed Development (or the number of heavy goods vehicles will increase by more than 30%).

- ***Rule 2:*** include any other specifically sensitive areas where traffic flows will increase by 10% or more.

~~9.113.~~9.120. The IEMA Guidelines (section Rule 1, para 3.16 to 3.19 and section Rule 2, para 3.20) provide the rationale behind the thresholds specified above. It should be emphasised that these are relevant only to the assessment of environmental impacts as higher accuracies (i.e. changes <10%) are within daily variations of traffic on the road and create indiscernible environmental impact.

~~9.114.~~9.121. It should also be highlighted that non-highway links are considered in other documents accompanying the application such as the TA (document reference 6.2.9.1, section 10), Rail Strategy (document reference 6.2.9.1, Appendix TA-U), Bus Strategy (document reference 6.2.9.1, Appendix TA-V).

~~9.115.~~9.122. Finally, it is important to note that the TA (document reference 6.2.9.1), as well as otherassociated documents, consider the modelled highway links differently, and any assessment contained within them is not based upon the thresholds identified above (these are only applicable to the assessment in this ES chapter). The TA (document reference 6.2.9.1, section 13) is mainly concerned about the capacity of links and junctions, and the capacity impacts resulting from the changes in traffic volumes. The capacity assessments follow different industry-standard methodologies with their thresholds not directly comparable to those required for the EIA. As such, these assessments consider impacts on several links and junctions that may not be part of the assessment in this land transport Chapter.

Sensitive areas/receptors

~~9.116.~~9.123. As outlined above, the two rules are applied to all links within the study area. To informthe decision whether to apply Rule 1 or Rule 2 outlined above, an assessment of sensitiveareas/receptors was undertaken.

~~9.117.~~9.124. The IEMA Guidelines (chapter 2 Environmental Issues) suggest that the majority of impacts are indirect impacts on the level of human amenity (typically as transport network users) at locations where the development impacts may change travel patterns.

~~9.118.~~9.125. Locations, which are considered to be sensitive receptors/areas include:

- schools (primary/secondary/college/university);
- health facilities (GP/health centres/hospitals);
- community facilities (leisure/culture/recreation/religion); and
- areas with significant pedestrian and/or cyclist movements (town centre/high street).

9.126. Based on the above description of sensitive receptors, locations within the locality of the Proposed Development, which fall into one of the categories set out above were identified. These locations are shown in Figure 9.3: *Sensitive Receptors* (document reference 6.3.9.3). It should also be highlighted that some of the links within the area may serve more than one sensitive receptor.

9.127. Consideration has also been given to the recently designated SSSI on the Swanscombe Peninsula and the potential impacts resulting from the traffic associated with the Proposed Development. Although the SSSI may be considered as a sensitive receptor, the transport effects considered in this assessment are not affected by the Project Site's (Kent) designation as an SSSI.

9.128. Notwithstanding the above, the traffic flows employed in this assessment also informed other assessments, such as noise and vibration, visual effects, air pollution, ecology and heritage. Although these effects may be related to transport, they are considered in their respective chapters of the ES.

~~9.119.~~

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Links identified for assessment

~~9.120.~~9.129. The application of the above rules to the modelled links is included for each scenario in full in Appendix 9.3: *Percentage Changes* (document reference 6.2.9.3).

9.121.9.130. As a result of the analysis set out in Appendix 9.3: *Percentage Changes* (document reference 6.2.9.3), the following highway links were identified for the detailed assessment in this land transport chapter:

- a section of the A2260 between the two A2260/A2 roundabouts (referred to as Link 130 or A2260 between A2260/A2 roundabouts);

- the A2 westbound on-slip from the A2260/Ackers Drive roundabout to the A2 (referred to as Link 134 or A2 westbound on-slip); and

- the A226 Thames Way between A2260 Ebbsfleet Gateway and Springhead Road (referred to as Link 140 or A226 Thames Way).

~~9.122.~~9.131. The above links identified for the detailed assessment are graphically represented in Figure 9.4: *Assessed Links* (document reference 6.3.9.4).

~~9.123.~~9.132. It should also be highlighted that the links listed above do not exceed the thresholds setout by the two screening rules in all of the assessed scenarios. Therefore, only the links identified as exceeding the threshold(s) in any given scenario are assessed in detail. Thescenarios where some or all of the identified links are assessed in detailare:

- 2024/2025 – Gate One opening year/first full year of operation (Link 134);
- 2029 – Gate Two opening year (full development) without LTC (Links 130 and134);
- 2038 – Maturity of the Proposed Development without LTC (Links 130, 134 and 140); and
- 2038 – Maturity of the Proposed Development with LTC (Links 130 and 134).

~~9.124.~~9.133. The summary of the traffic volume changes is provided for the identified links and their respective scenarios in Table 9.5 below for ease of reference.

Table 9.5: Percentage change (identified links/scenarios)

Link	% Change		% Change (AADT)	% Change HGV (AADT)	% Change (AAWT)	% Change HGV (AAWT)	Comment
	AM	PM					
2024 Do Minimum - 2024 (2025) Do Something (first full year of operation)							
134 (A2 westbound on-slip)	2.0%	**35.7%**	**12.0%**	0.0%	**12.0%**	0.0%	A2 Westbound on-slip from the A2260. No sensitive receptors present. **Rule 1 applies. To be assessed in detail.**
2029 Do Minimum No LTC - 2029 Do Something (full development) No LTC							
130 (A2260 between A2260/A2 roundabouts)	7.0%	**35.4%**	**17.0%**	0.9%	**17.0%**	0.9%	Section of the A2260 between two roundabouts. No sensitive receptor present. **Rule 1 applies. To be assessed in detail.**
134 (A2 westbound on-slip)	2.1%	**47.1%**	**15.7%**	0.0%	**15.7%**	0.0%	A2 Westbound on-slip from the A2260. No sensitive receptor present. **Rule 1 applies. To be assessed in detail.**
2038 Do Minimum no LTC - 2038 Do Something (full development) no LTC							
130 (A2260 between A2260/A2 roundabouts)	8.0%	**46.1%**	**20.8%**	1.2%	**20.8%**	1.2%	Section of the A2260 between two roundabouts. No sensitive receptors present. **Rule 1 applies. To be assessed in detail.**
134 (A2 westbound on-slip)	4.1%	**63.0%**	**19.6%**	0.0%	**19.6%**	0.0%	A2 Westbound on-slip from the A2260. No sensitive receptors present. **Rule 1 applies. To be assessed in detail.**

140 (A226 Thames Way)	3.3%	**12.1%**	4.0%	0.0%	4.0%	0.0%	A226 Thames W between A2260 Ebbsfleet Gateway and Springhead Rd. The link provides access from west to Northfleet Urban Country Park located immediately east of the roundabout with Springhead Rd. **Rule 2 applies. To be assessed in detail.**
2038 Do Minimum + LTC - 2038 Do Something (full development) + LTC							
130 (A2260 between A2260/A2 roundabouts)	6.4%	**33.6%**	**15.9%**	-0.8%	**15.9%**	-0.8%	Section of the A2260 between two roundabouts. No sensitive receptors present. **Rule 1 applies. To be assessed in detail.**
134 (A2 westbound on-slip)	3.2%	**35.0%**	**12.9%**	0.0%	**12.9%**	0.0%	A2 Westbound on-slip from the A2260. No sensitive receptors present. **Rule 1 applies. To be assessed in detail.**

Environmental value

~~9.125.~~9.134. Each of the links identified for a detailed assessment using the rules outlined above was assigned an environmental value (sensitivity). The sensitivity of a link is dependent on the scale/importance of a receptor, which in transport terms refers to users of the givenlink. Depending on the type of environmental impact, the receptors can be either motorised or non-motorised users.

~~9.126.~~9.135. As the IEMA Guidelines do not provide any specific guidance on what environmental value should be assigned to each type of receptor, it is considered appropriate for the purposes of this assessment to use a four-point scale based on the assessor's professional judgement.

~~9.127.~~9.136. In terms of Driver Delay and Bus Passenger Delay, the impacts of the London Resort are assessed at a junction/link level as suggested by the IEMA Guidelines. The sensitivity of a receptor (i.e. motorised users/passengers) is expressed in terms of Level of Service of the assessed links and their associated junctions.

~~9.128.~~9.137. Level of Service (LoS) is defined as a quantitative stratification of a performance measure or performance measures that represent the quality of service. Quality of service describes how well a transportation facility or service operates from a traveller's perspective. Typically, six levels of service are defined, and each is assigned a letter designation from A to F, with LoS A representing the best-operating conditions, and LOS F the worst. The LoS is defined as follows:

- LoS F – a link /junction operates in over 100% of its theoretical capacity;
- LoS E – a link /junction operates in approximately 90-100% of itstheoretical capacity;
- LoS D – a link /junction operates in approximately 80-90% of its theoreticalcapacity;
- LoS C – a link /junction operates in approximately 70-80% of its theoreticalcapacity;
- LoS B – a link/junction operates in approximately 60-70% of its theoreticalcapacity;
- LoS A – a link/junction operates up to approximately 60% ofits theoretical capacity.

~~9.129.~~9.138. It is generally accepted that a link/junction approaches its theoretical capacity between 90-100% (i.e. LoS E) and overcapacity with values over 100% (i.e. LoS F). Los D and lower suggests that the link/junction operates satisfactorily with spare capacity.

~~9.130.~~9.139. The peak hour (AM/PM whichever is greater) LoS values (as calculated by the microsimulation model complementing the spreadsheet-based model) are used to determine the level of sensitivity as follows:

- Very high – LoS F resulting in the highest level of driver frustration and excessive delays;
- High – LoS E resulting in a high level of driver frustration and high level of delay;
- Medium – LoS C – D resulting in an acceptable level of driver comfort/some driver frustration and some/moderate delay; and
- Low – LoS A – B resulting in high driver comfort and little or no delay.

~~9.131.~~9.140. In terms of Severance, Pedestrian Delay, Pedestrian/Cyclist Amenity and Fear and Intimidation, which are all related to non-motorised users, the sensitivity assigned to each link is based on a qualitative assessment considering importance and attractiveness of the routes and the destinations served. The sensitivity criteria are based on professional judgement and experience, and are defined as:

- Very high – Route in town centre setting;
- High – Main vehicular route in a built-up area with pedestrian/cycle facilities provided;
- Medium – Strategic/important vehicular route in a rural setting with pedestrian/cycle facilities provided; and
- Low – Rural road with no pedestrian and/or cyclist infrastructure.

~~9.132.~~9.141. In terms of Accidents and Safety, the IEMA Guidelines do not set out the specific sensitivity criteria. Therefore, based on professional judgement and experience, the environmental value of each link is determined based on the actual annual accident numbers in comparison to the typical annual number of accidents. Where the actual number of accidents is lower than the typical, sensitivity is classed as low. Where the values are approximately equal, sensitivity is classed as medium, and where the actual number is higher than the typical, sensitivity is classed as high.

Magnitude of impact

~~9.133.~~9.142. Following the assignment of sensitivity to the selected links, a magnitude of impact or change (either adverse or beneficial) is assigned, based on advice contained in the IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts). It should be noted that the guidelines do not provide specific thresholds for some of the effects. Where this is the case, the effects are considered qualitatively. The magnitude of the impact is defined for the purposes of this assessmentas:

- Major – deterioration/improvement in local conditions or circumstances;
- Moderate – apparent change in conditions;
- Minor – perceptible change in conditions or circumstances; and
- Negligible – no discernible change in conditions.

Severance

~~9.134.~~9.143. Severance is defined in the IEMA guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Severance, para 4.27) as *'…perceived division that can occur within a community when it becomes separated by a major trafficartery. The term is used to describe a complex series of factors that separate people fromplaces or other people. Severance may result from the difficulty of crossing a heavily traffickedroad or a physical barrier created by the road itself. It can also relate to quite minor traffic flows if they impede pedestrian access to essential facilities.'*

~~9.135.~~9.144. The IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Severance, para 4.31) suggest that *'Changes in traffic flow of 30%, 60% and 90% are regarded as producing "slight", "moderate" and "substantial" changes in severance respectively.'*

~~9.136.~~9.145. Interpreting the above thresholds to the magnitude of impact scale set out above, the following thresholds are applied to the peak hour/AADT flows and used in this assessment:

- Major – A change in total traffic or HGV flows greater than 90% compared to the forecast baseline traffic flows;
- Moderate – A change in total traffic or HGV flows of between 60% and 90% compared to the forecast baseline traffic flows;

- Minor – A change in total traffic or HGV flows of between 30% and 60% compared to the forecast baseline traffic flows; and

- Negligible – A change in total traffic or HGV flows of less than 30% compared to the forecast baseline traffic flows.

Driver Delay

~~9.137.~~9.146. The IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Driver Delay, para 4.32 to 4.34) suggest that the traffic delays generally occur at or near junctions and can therefore be determined through the analysis of junction capacity assessment results.

9.147. It should be noted that some of the links and their associated junctions have not been assessed in detail (i.e. using the industry-standard modelling package such as Junctions 9 or Linsig software). However, all links identified for the detailed assessment in this land transport chapter are included in the microsimulation model supplementing the spreadsheet-based model, as discussed earlier in this land transport chapter.

~~9.138.~~9.148. The microsimulation model outputs provide, *inter alia*, the information on LoS and delayper vehicle (in seconds). Driver Delay is measured in terms of change in delay per vehicle(in seconds) from the baseline situation. These delays are only significant (in EIA terms) when the traffic on the network is already at, or close to, the capacity of the system (i.e.LoS E or F).

~~9.139.~~9.149. In the absence of specific thresholds provided by the guidelines, it is considered appropriate to base the assessment on changes in delay per vehicle (in seconds) from the baseline situation. As these delays are related to LoS at each link/junction, it is considered, based on the professional judgement, that only changes in the delay of 15% or more on a link with LoS E or F are significant in the EIAterms.

Pedestrian delay

~~9.140.~~9.150. Pedestrian delay is considered to be affected by the changes in volume, composition and/or speed of vehicular traffic, in terms of their respective impacts on the ability of people to cross a road.

~~9.141.~~9.151. The IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Pedestrian Delay, para 4.37) state that *'Given the range of local factors and conditions which can influence pedestrian delay, it is not considered wise to set down any thresholds but instead it is recommended that assessors use their judgement to determine whether pedestrian delay is a significant impact.*' In general, increases in traffic levels and/or traffic speeds are likely to lead to more significant increases in pedestrian delay.

~~9.142.~~9.152. It is also apparent from the definition of severance provided above that pedestrian delayis closely related to severance. It is therefore considered appropriate, in the absence of any specific thresholds for the pedestrian delay, to apply the same criteria as for severance:

- Major – A change in total traffic or HGV flows greater than 90% compared to the forecast baseline traffic flows;
- Moderate – A change in total traffic or HGV flows of between 60 and 90% compared to the forecast baseline traffic flows;
- Minor – A change in total traffic or HGV flows of between 30 and 60% compared to the forecast baseline traffic flows; and
- Negligible – A change in total traffic or HGV flows of less than 30% compared to the forecast baseline traffic flows.

Pedestrian and cyclist amenity

~~*9.143.*~~*9.153.* Pedestrian and cyclist amenity is broadly defined in the IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Pedestrian Amenity, para 4.39) as *'…the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic'.*

~~9.144.~~9.154. The IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Pedestrian Amenity, para 4.39) advise that *'…a tentative threshold for judging the significance of changes in pedestrian and cycle amenity would be where the traffic flow is halved or doubled.'* However, for consistency with criteria used for other effects, the same thresholds as for severance and pedestrian delay are adopted, as follows:

- Major – A change in total traffic or HGV flows greater than 90% compared to the forecast baseline traffic flows;
- Moderate – A change in total traffic or HGV flows of between 60 and 90% compared to the forecast baseline traffic flows;
- Minor – A change in total traffic or HGV flows of between 30 and 60% compared to the forecast baseline traffic flows; and
- Negligible – A change in total traffic or HGV flows of less than 30% compared to the forecast baseline traffic flows.

Fear and intimidation

~~9.145.~~9.155. According to the IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Fear and Intimidation, para 4.40), Fear and Intimidation is *'…dependent on the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by such factors as narrow pavement widths'.*

~~9.146.~~9.156. The IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Fear and Intimidation) advise that an average hourly vehicle flow over an 18-hour period of 600-1,200 vehicles has a moderate magnitude of impact upon fear and intimidation, 1,200-1,800 vehicles a great magnitude of impact and above 1,800 vehicles an extreme magnitude of impact. Consideration is also given to HGV volumes, and as suggested by the IEMA Guidelines, the magnitude of impact wherethe total HGV flow over an 18-hour period is between 1,000 and 2,000 HGV would be moderate, great between 2,000 and 3,000 HGV, and extreme above 3,000 HGV.

~~9.147.~~9.157. The above was adapted for the purposes of this assessment to reflect the four-point scaleset out before.

- Major – Average hourly traffic flow over 18-hour period above 1,800 vehicles or total HGV flow above 3,000;
- Moderate – Average hourly traffic flow over 18-hour period between 1,200 and 1,800 vehicles or total HGV flow between 2,000 and 3,000;
- Minor – Average hourly traffic flow over 18-hour period between 600 and 1,200 vehicles or total HGV flow 1,000 and 2,000; and

- Negligible – Average hourly traffic flow over 18-hour period between below600 vehicles or total HGV flow below 1,000.

Accidents and safety

~~9.148.~~9.158. The IEMA Guidelines provide only limited advice on the assessment of Accidents and Safety, suggesting the use of existing accident rates for each link obtained from the highway authorities.

~~9.149.~~9.159. Accident data were obtained for the latest available five-year period for the study area, and typical accident rates were calculated from the data based on the length of a link, itstype and traffic volume as suggested by the Department for Transport's (DfT) web-basedTransport Analysis Guidance (TAG)[9].

~~9.150.~~9.160. The TAG guidance indicates that a change in accidents of less than 30% has a slight impact, while a change greater than 30% has a significant impact. For the purposes of this assessment, the change in traffic flow will be considered as a proxy for changes in accidents. The magnitude of the impact is defined as:

- Major – A change in traffic flow above 30% on a link;
- Moderate – A change in traffic flow between 20 and 30% on a link;
- Minor – A change in traffic flow between 5 and 20% on a link; and
- Negligible – A change in traffic flow below 5% on a link.

[9] *https://www.gov.uk/guidance/transport-analysis-guidance-tag*

Bus passenger delay

~~9.151.~~9.161. As outlined above, delays for bus passengers are anticipated to be greatest at locations where junctions are operating near or at their capacity as a result of the additional trafficassociated with the Proposed Development. As the IEMA Guidelines (chapter 4 Determining the Magnitude and Significance of Environmental Impacts, section Driver Delay, para 4.32 to 4.34) suggest that the traffic delays are generally witnessed at or nearjunctions, these delays can therefore be determined through the analysis of junction capacity assessment results. Therefore, the approach to the Bus passenger delay is identical to that set out for Driver delay above.

Significance of effects

~~9.152.~~9.162. Finally, the significance of effects is assigned using a significance matrix as provided in Table 9.6 below.

Table 9.6: Table informing the significance of effects based on receptor value and magnitude of impact

		Magnitude of Impact (Degree of Change)			
		Negligible	**Minor**	**Moderate**	**Major**
Environmental Value (Sensitivity)	**Very High**	Slight	Moderate or Large	Large or Very Large	Very Large
	High	Slight	Slight or Moderate	Moderate or Large	Large or Very Large
	Medium	Neutral or Slight	Slight	Moderate	Moderate or Large
	Low	Neutral or Slight	Neutral or Slight	Slight	Slight or Moderate

~~9.153.~~9.163. The resulting significance of an effect is then reported considering its duration (long or short term), permanence (permanent or temporary) and the type of the impact (beneficial or adverse).

~~9.154.~~9.164. For the purposes of this assessment, any effects with a significance level of slight or neutral are considered to be not significant in EIA terms.

RELEVANT LAW, POLICY AND GUIDANCE

Introduction

~~9.155.~~9.165. The assessment of the transport effects of the Proposed Development is based on policy and current best practice exemplified in several policy documents at the national and locallevel.

~~9.156.~~9.166. A review of the relevant law and policies that inform the EIA process is provided in chapterFive: *Relevant law and policy* of the ES; with a comprehensive review of transport policy relevant to the Proposed Development provided in section 3 of the TA (document reference 6.2.9.1). However, this land transport chapter of the ES provides a review of legislation and policies relevant only to the assessment of the potential effects on the environment generated by the transport aspects of the Proposed Development.

~~9.157.~~9.167. In accordance with the above, it should be noted that some national strategies such as Transport Investment Strategy (DfT, 2017) or Single Departmental Plan (DfT, 2019) have been excluded from this review. This is due to these plans representing a commitment towards investing in infrastructure or to reverting traditional travel patterns towards moresustainable modes of transport. However, they do not consider or include a reference to the potential effects that transport aspects of developments may have on the environment. Therefore, they are not considered relevant for the purpose of this land transport chapter.

~~9.158.~~9.168. All legislation, policy and guidance documents relevant to the transport chapter of this ESare detailed below.

National Policy

National Policy Statements (UK Government)

~~9.159.~~9.169. National Policy Statements (NPS) are documents produced by Government which set out the need for Government's policies in order to deliver Nationally Significant InfrastructureProjects (NSIPs) in England. Chapter 5: *Relevant Law and Policy* (document reference 6.1.5) of this ES explains that there is no NPS for business and commercial NSIPs such as the London Resort. However, to the extent that the London Resort proposals include transport, highways and port infrastructure, regard is given in this chapter of the ES to theNPS for National Networks (DfT, 2014) and the NPS for Ports (DfT, 2012).

~~9.160.~~9.170. The Proposed Development contains improvements to the Strategic Road Network (SRN),which are required to provide access to the London Resort. The NPS for National Networks(DfT, 2014) recognises in paragraph 2.6 that *'There is also a need for development on the national networks to support national and local economic growth and regeneration, particularly in the most disadvantaged areas. Improvements on new transport links can facilitate economic growth by bringing businesses closer to their workers, their markets and each other. This can help rebalance the economy'.*

~~9.161.~~9.171. Part of the Proposed Development includes improvements to the PoTL and its associated facilities to allow for access to the Project Site via waterborne services. The NPS for Ports (DfT, 2012) sets out the fundamentals for port development in general. However, more specifically, it requires the developments to meet the Government's objectives for transport, including the need to (paragraph 4.1.1):

- *'promote economic growth through improving networks and links for passengers and freight, as well as ensuring an efficient and competitive transport sector both nationally and internationally;*
- *create a cleaner and greener transport system through improving the environmental performance of ports and associated developments, including transport, as well as to help changing to support infrastructure needed for green technologies; and*
- *strengthen the safety and security of transport.'*

~~9.162.~~9.172. In accordance with the above, it is considered that the Proposed Development aligns with DfT's justification on the need for transport improvements to facilitate economic growth.

~~9.163.~~9.173. The following policy sections demonstrate in turn that the need for economic growth is not the only consideration that has been included when designing the transport strategyof London Resort, but that all environmental aspects which the transport strategy could impact have been assessed as required.

National Planning Policy Framework (Ministry of Housing, Communities & Local Government (MHCLG), February 2019)

~~9.164.~~9.174. The National Planning Policy Framework (NPPF) (MHCLG, 2019) sets out the Government'splanning policies for non NSIPs in England and how these are expected to be applied. It emphasises the importance of transport policy in facilitating sustainable development. It should be noted, however, that the NPPF does not set policy for testing the acceptability of NSIPs (as stated in paragraph 5).

~~9.165.~~9.175. The NPPF was originally published in March 2012 and replaced all Planning Policy Guidance(PPG) and Planning Policy Statements (PPS) related to transport. The NPPF was then updated in July 2018 and again in February 2019.

~~9.166.~~9.176. The NPPF retains its overarching presumption in favour of sustainable development and requires all plans and decisions to apply it. The requirement is set out in paragraph 10 of the document.

~~9.167.~~9.177. Section 9 of the NPPF focuses on promoting sustainable transport (paragraphs 102 to 111).The main objectives relative to transport are to consider the issues at early stages of plan-making and development proposals, so that:

- *'opportunities to promote walking, cycling and public transport use are identified and pursued'* (Paragraph 102 c); and
- *'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'* (Paragraph 102d).

~~9.168.~~9.178. Other objectives supporting the above main objectives are to:

- *'…actively manage patterns of growth in support of these objectives'*, with a focus on *'…locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes'* (Paragraph 103);
- *'support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities'* (Paragraph 104 a); and
- *'provide for high quality walking and cycling networks and supporting facilities such as cycle parking (drawing on Local Cycling and Walking Infrastructure Plans)*' (Paragraph 104 d).

~~*9.169.*~~*9.179.* Paragraph 108 then outlines the requirements for a development that should be considered during the assessment of the proposals stating: *'It should be ensured that:*

- *appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *safe and suitable access to the site can be achieved for all users; and*
- *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.'*

~~*9.170.*~~*9.180.* Importantly, the NPPF states in paragraph 109 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.'*

~~9.171.~~9.181. Paragraph 110 (a) considers that development applications should *'… give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, withlayouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use.'*

~~9.172.~~9.182. Paragraph 111 requires that *'…All developments that will generate significant amounts ofmovement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.'*

~~9.173.~~9.183. The NPPF is consistent with the National Planning Practice Guidance (NPPG) in so far as both seek to exploit the potential for sustainable transport and reducing cartravel.

~~9.174.~~9.184. This transport chapter of the ES alongside the additional transport documents submitted in support of the Proposed Development demonstrate that transport proposals align withNPPF principles.

Circular 02/2013 - Strategic road network and the delivery of sustainable development (DfT, 2013)

~~9.175.~~9.185. The Circular 02/2013 - Strategic road network and the delivery of sustainable development (DfT, 2013) outlines the core objective of providing *'safe roads, reliable journeys, informed travellers'*. It accepts that the Government is only able to provide funding certainty for a short period (usually five years) thus the length of review period remains at the discretionof the Secretary of State (SoS) for transport where there is a broader political andeconomic imperative.

~~9.176.~~9.186. DfT Circular 02/2013 states that *'…developers must ensure that all environmental implications associated with their proposals are adequately assessed and reported so as to ensure that the mitigation of any impact is compliant with the prevailing policies and standards.'* It goes on to state that *'This requirement applies in respect of the environmental impacts arising from the temporary construction works and the permanent transport solution associated with the development, as well as the environmental impact of the existing trunk road upon the development itself.'*

~~9.177.~~9.187. Where the Proposed Development is likely to have a *'negative impact'*, the Circular requires that the *'environmental impact [has] been appropriately considered'* and *'measures have been included within the proposals'* to mitigate the development *'…as fully as reasonably possible, and to enable residual impacts to be taken into account in the development consent process.'*

~~9.178.~~9.188. The Circular explores how capacity enhancements are to be considered relative to new development and, in support of the NPPF, which requires developers to exploit sustainabletransport options, the Circular suggests that '*Only after travel plan and demand management measures have been fully explored and applied will capacity enhancements measures be considered.'* While the Circular may not contemplate NSIP development, it goes on to clarify that '*The improvements will normally be delivered by means of funding agreement with the Secretary of State for Transport.'*

~~9.179.~~9.189. The DfT Circular also recognises that *'Where development will be brought forward in phases, any mitigation needs will be based on the opening of the final phase. However, it may be necessary to implement some mitigation measures in line with the opening of certain phases of development according to the impacts that they generate.'* In developing a *'heads of terms'* package of mitigation measures, it may be sufficient to understand whatimprovements might be necessary to accommodate specific phases of development. This would include the development not just associated with the DCO application but other developments in the sub-region, but to avoid the risk of induced traffic demand conflicting with steps to deliver sustainable travel choices, phased improvements may beappropriate.

Inclusive Transport Strategy (DfT, 2018)

~~9.180.~~9.190. Chapter 4 of the national Inclusive Transport Strategy (DfT, 2018) reviews current rights and future improvements regarding vulnerable users of the transport network.

~~9.181.~~9.191. In particular, paragraph 4.28 of the strategy states that *'this strategy should ensure that disabled people are able to move around freely through the pedestrian environment and use it to access other modes of transport. If using a cycle, whether as a mobility aid or not,they will be able to use inclusive cycle infrastructure to support their journey'.*

~~9.182.~~9.192. This strategy also considers the maritime side of transport, stating in paragraph 4.29 that
'ports and vessels must be fully accessible'.

~~9.183.~~9.193. The impact that the Proposed Development may have on the environment for vulnerable users has been considered when designing both the land and waterborne transport strategies.

White Paper: Creating Growth, Cutting Carbon (DfT, 2011)

The White Paper was published by DfT in January 2011 as evidence to *take 'a significant step forward towards meeting two key government objectives: to help create growth in the economy, and to tackle climate change by cutting our carbon emissions'*.

~~9.184.~~9.194. Paragraph 9 of the Executive Summary of the White Paper recognises that *'The Government believes that it is at the local level that most can be done to enable people to make more sustainable transport choices and to offer a wider range of genuinely sustainable transport modes – environmentally sustainable as well as fiscally, economically and socially sustainable'.*

~~9.185.~~9.195. Health impacts of transport recognised within this White Paper include road safety, air quality, noise and wider environmental benefits such as optimising land uses. There are also accessibility matters considered in a similar way to the Inclusive Transport Strategy (DfT, 2018) previously explained.

~~9.186.~~9.196. All these aspects of the environment have been considered when developing the transport strategy for the Proposed Development.

Regional Policy

Kent and Medway Growth and Infrastructure Framework (2018)

~~9.187.~~9.197. The Kent and Medway Growth and Infrastructure Framework (Kent and Medway GIF) wasdeveloped by (KCC. KCC collaborated closely with Medway Council, districts and boroughs, and key strategic partners in the preparation of this framework.

~~9.188.~~9.198. The purpose of the Kent and Medway Growth GIF is to provide a strategic framework for the county. The Kent and Medway GIF is intended to support identifying and prioritising investment across a range of infrastructure, for planned growth up to 2031. It draws together information and data from a range of sources, including district Local Plans, Infrastructure Delivery Plans and infrastructure and service providers. The framework alsoprovides robust evidence to attract investment and engagement, including public fundingbids and major private sector projects.

9.1 In the period from 2011 to 2031, the Kent and Medway GIF identified a requirement of 178,600 new homes and 170,300 new jobs in order to support the growth in the area.

9.2 The Proposed Development aims to provide significant employment opportunity for the area as well as ancillary employment opportunities resulting from a world-class theme park.

Greater Essex Growth and Infrastructure Framework (2017)

~~9.189.~~9.199. The Greater Essex Growth and Infrastructure Framework (Greater Essex GIF) was developed by Essex County Council (ECC). ECC collaborated closely with unitary authorities of Thurrock and Southend, districts and boroughs, and key strategic partners in the preparation of this framework.

~~9.190.~~9.200. The Greater Essex GIF overs all forms of infrastructure supporting the economic, environmental and social needs of the Greater Essex area from 2016 to 2036. It draws together information and data from a range of sources, including district Local Plans, Infrastructure Delivery Plans and infrastructure and service providers. The framework also provides robust evidence to attract investment and engagement, including public funding bids and major private sector projects.

~~9.191.~~9.201. For the period from 2016 to 2036, the Greater Essex GIF identified a requirement of 179,660 new homes and 79,000 new jobs in order to support the growth in thearea.

~~9.192.~~9.202. The Proposed Development aims to provide significant employment opportunity for the area as well as ancillary employment opportunities resulting from a world-class theme park.

Local policy

(Kent) Local Transport Plan 4: Delivering Growth without Gridlock 2016-2031 (KCC, 2016)

~~9.193.~~9.203. Local Transport Plan 4 (LTP4) (KCC, 2016) sets out KCC's policies to deliver strategic outcomes for transport, and it is accompanied by implementation plans. It details the keytransport priorities and longer-term transport objectives.

~~9.194.~~9.204. The aims of the LTP4 include:

- *'the delivery of resilient transport infrastructure that reduces congestion and improves journey time reliability;*
- *promotion of affordable, accessible and connected transport to enable access to all, education, health and other services;*
- *to provide a safer road, footway and cycleway network to reduce the likelihood of casualties;*
- *to deliver schemes that reduce the environmental footprint of transport and enhance the historic and natural environment; and*
- *to provide and promote active travel choices for all members of the community to encourage good health and wellbeing and implement measures to improve local air quality.'*

~~9.195.~~9.205. The LTP4 also emphasise the importance of Public Rights of Way and highlights the opportunities and benefits they provide to residents and visitors.

~~9.196.~~9.206. The LTP4 is also concerned about the housing and commercial growth in the Thames Estuary. It acknowledges that unlocking its potential depends on the bringing forward of significant new infrastructure, given the existing levels of congestion and lack of resilience.

~~9.197.~~9.207. As a result of the above, the plan emphasises that priority should be given to the transportimprovements that are required to deliver the major commercial and residential developments, one of which is the Proposed Development.

Freight Action Plan for Kent (KCC, 2016)

~~9.198.~~9.208. The Freight Action Plan (FAP) (KCC, 2016) is a supporting policy document complementingthe LTP4 and aims to:

- tackle the overnight lorry parking in Kent (as a result of Kent's linkages to continental Europe);
- find a long-term solution to Operation Stack (as a result of disrupted services at the Eurotunnel and Port of Dover);
- effectively manage the routeing of HGV traffic so that it remains on the SRN as much as possible;
- impose restrictions for HGV traffic travelling on the local road network; and
- ensure effective use of planning and development control powers to reduce the impact of freight traffic.

~~9.199.~~9.209. The document ties the above aims to strategic transport priorities which include Lower Thames Crossing, the bifurcation of port traffic (i.e. dividing it between the A2(T)/M2 andA20/M20) and port expansion amongst others.

~~9.200.~~9.210. The FAP acknowledges that up to 41% of all vehicles on the SRN within the county is HGVtraffic on M2/A2(T) and M20/A20 corridors. KCC fully supports the modal shift from road to rail as well as continuing use of the River Thames and Estuary to transport waste, construction materials and containerised goods. This modal shift would reduce HGV movements throughout the county and significantly reduce carbon dioxideemissions.

Gravesham Local Plan Core Strategy adopted version (Gravesham Borough Council (GBC), 2014)

~~9.201.~~9.211. The eastern part of the Kent Project Site is in the area of Gravesham District. Gravesham Local Plan Core Strategy (GBC, 2014) enables the transformation of previously developedland, strengthens the vitality and vibrancy of Gravesend to create modern, integrated, accessible and sustainable communities.

~~9.202.~~9.212. The Core Strategy sets out the Gravesham Borough Council's long-term spatial vision for the borough. It covers the period from 1 April 2011 to 31 March 2028 and outlines the strategic objectives for the borough, based on the characteristics of the area and the key issues to be addressed.

~~9.203.~~9.213. It identifies the areas where significant changes are likely to take place and allocates key sites for development, which are considered essential in achieving the Core Strategy. While it is an adopted planning strategy, it does not include the potential of the EbbsfleetGarden City.

~~9.204.~~9.214. The pertinent Strategic Objectives and Core Strategy Policies from the Local Plan Core Strategy that are relevant to the Proposed Development are:

- Strategic Objective - SO1: Make the most efficient use of land by concentrating development on underused, derelict and previously developed land in the urban area of Gravesend and Northfleet, in particular former industrial sites along the Thames Riverside and Gravesend town centre, and at Ebbsfleet.
- Strategic Objective - SO3: Ensure that the right amount, size and type of employment sites are available in Gravesend and Northfleet to diversify and strengthen the local economy and reduce out commuting.
- Strategic Objective - SO7: Enhance the Borough's public transport network to serve existing and new neighbourhoods and communities in Gravesend, Northfleet and Ebbsfleet.
- Strategic Objective - SO11: Seek to retain and improve the provision of existing services and facilities and ensure that sufficient facilities are provided to meet the needs arising from new development.
- Policy CS03: Northfleet Embankment and Swanscombe Peninsula East Opportunity Area
- Policy CS07: Economy, Employment and Skills
- Policy CS11: Transport

~~9.205.~~9.215. The Core Strategy recognises the development potential of the Swanscombe Peninsula and Ebbsfleet, which would enable the regeneration process to continue beyond the planperiod. Paragraph 4.4.4 of the Core Strategy states:

'*The Council considers that there is development potential at Swanscombe Peninsula. However, the constraints and the absence of any definitive proposals showing how they could be overcome suggest that any development in this area is only likely to be deliverable in the longer term. As a result, any development should come forward using a comprehensive masterplan approach that has regard to proposals for the Dartford part of the peninsula, development phasing and the possible need for a new highway link to relieve the existing A226 and improve accessibility to the peninsula. The presumption is that any development in this sub-area is most likely to comprise industrial/commercial uses together with greenspace to protect the biodiversity of the area. Residential development is not ruled out as part of a mixed use development of the site but would need to overcome the constraints and provide a sustainable form of development that integrates well with the adjoining urban areas*'

~~9.206.~~9.216. In principle, the Local Plan Core Strategy supports the transformation and revitalisation ofpreviously developed land. It is considered that there are no policies or strategies relatingto transport which would be contrary to the Proposed Development.

Dartford Core Strategy (Dartford Borough Council (DBC), 2011)

~~9.207.~~9.217. The western and majority part of the Kent Project Site lies in the area of Dartford Borough Council. Following public examination, DBC adopted its Core Strategy and accompanying Proposals Map in September 2011, with the document setting out DBC's long-term spatialstrategy for the borough to 2026. It acts as an implementation tool for those elements ofthe Sustainable Community Strategy, which can be delivered through spatial planning.

~~*9.208.*~~*9.218.* The Core Strategy document lists ten strategic objectives that would support the planningpolicies in the area. Strategic Objective 5 outlines that a key goal is *'…to provide an accessible and enticing Thames Waterfront with a high quality built and natural environment, offering a range of leisure and recreational activities.'*

~~9.209.~~9.219. The Dartford Core Strategy acknowledges the development opportunities available at theSwanscombe Peninsula while recognising that the area lies within both Dartford and Gravesham Boroughs. The Core Strategy suggests that joint working between the two boroughs will be required to maximise the potential of the area. Any development will need to relate well to existing and proposed communities and other development while addressing constraints as well as the opportunities offered by the riverside location and natural environment.

~~*9.210.*~~*9.220.* In particular to the Proposed Development area, Policy CS6 outlines that the *'…Council will promote the creation of a vibrant mixed-use riverfront, incorporating sustainable communities, new employment opportunities, leisure use of the river/riverside and use of the river for sustainable transport.'*

~~9.211.~~9.221. Policy CS6 conjoins a series of policy objectives to exploit the potential of the Thames waterfront. Part H of the Policy CS6 goes on to say that Proposals *'…which maximise the tourism potential of Ebbsfleet and provide fast and convenient public transport links to Ebbsfleet station as part of the scheme will be particularly encouraged.'*

~~9.212.~~9.222. The Core Strategy identifies the Swanscombe Peninsula as a key priority site. In principle,the Dartford Core Strategy supports mixed-use development that encourages economic activity and sustainable transport in the area. In accordance with Policy CS6, a mixed-use development, such as the Proposed Development, could exploit the value of the riverfront and enhance sustainable transport access to the area through enhanced infrastructure linking Ebbsfleet with Bells Wharf and possible water-ferry connections intoLondon.

Thurrock Transport Strategy 2013 – 2026 (ThC, 2013)

~~9.213.~~9.223. The Essex Project Site is located in the area of Thurrock Council. The Thurrock Transport Strategy (TTS) core elements include delivering accessibility, tackling congestion, improving air quality and making Thurrock's road safer, which are all supporting *'…economic growth and help to facilitate regeneration throughout the borough for years to come.'*

~~9.214.~~9.224. The TTS sets out several policies aimed at the strategy core elements. The transport- related aims of the TTS are translated into the following policies:

- Policy TTS1: Delivering sustainable growth
  'Thurrock Council will prioritise accessibility improvements by sustainable transport in areas accommodating significant new housing and jobs growth.'

- Policy TTS2: Improving access by sustainable transport to key services and facilities
  'There will be an emphasis on delivering accessibility improvements by sustainable transport modes…'

- Policy TTS3: Integrating with other service providers
  'Thurrock Council will provide accessibility planning expertise to other service providers to enable them to more accurately consider accessibility when making decisions such as where to locate or how to deliver new services.'

- Policy TTS4: Walking and Cycling
  'Priority will be given to providing high quality walking and cycling infrastructure…

- Policy TTS7: Transport Interchange
  'Improved capacity and connections between modes of transport will be delivered at key transport interchanges, such as rail and bus stations, on the network of interurban public transport routes.'

- Policy TTS10: Smarter Choices
  '…measures to encourage a modal shift to public transport, walking and cycling will be prioritised.

- Policy TTS17: Public Transport
  'Thurrock Council will develop a high quality network of public transport linking Thurrock with other Regional Transport Nodes, and linking the urban areas within Thurrock. Routes will connect town centres, key strategic economic hubs, further education, and hospitals.'

Thurrock Local Development Framework: Core Strategy and Policies for Management of Development (ThC, 2015)

~~9.215.~~9.225. The Thurrock Local Development Framework: Core Strategy and Policies for Management of Development (referred to as Core Strategy) *'is a strategic document providing broad guidance on the scale and the provision of supporting infrastructure.'* The document sets out the vision, objectives, strategies and policies for Thurrock to 2026 and beyond.

~~*9.216.*~~*9.226.* The Core strategy acknowledges Tilbury as a key location for employment in the boroughproviding employment in logistics, port and riverside industries. It also highlights the importance of infrastructure and transport links to increase the connectivity and accessibility in the area stating that *'the connectivity of the transport system as a whole in Thurrock is therefore critical in enabling people to get to work and the freight sector to deliver goods.'*

~~9.217.~~9.227. The aims (transport-related) of the Core Strategy are related to the policies contained in the Thurrock Transport Strategy set out above.

Best practice guidance (National)

~~9.218.~~9.228. The methodology developed for the assessment of traffic and transport effects, as outlined in the preceding section, is based on the followingdocuments:

- Institute of Environmental Management and Assessment (IEMA), 2004; Guidelines for Environmental Impact Assessment;

- Institute of Environmental Assessment (now IEMA), 1993; Guidelines for the Environmental Assessment of Road Traffic;

- Design Manual for Roads and Bridges (DMRB)[10];
- Web-based Transport Analysis Guidance (TAG)[11]; and
- PINS Advice Note 9: Rochdale Envelope[12]

IEMA Guidelines for Environmental Impact Assessment (IEMA,2004)

~~9.219.~~9.229. The Guidelines for Environmental Impact Assessment (IEMA, 2004) provide an umbrella for guidelines focused on the assessment of specific types of impacts (e.g. road traffic).

~~*9.220.*~~*9.230.* The guidance contained in the document is of a general character, and it is aimed at EIA practice by setting out the requirements and the expectations related to good practice. These guidelines are *'…designed to complement other guidelines that focus on the assessment of specific impacts or particular aspects of the EIA process, whether produced by the IEMA or other organisations.'*

IEMA Guidelines for the Environmental Assessment of Road Traffic (IEA, 1993)

~~9.221.~~9.231. The Institute of Environmental Management and Assessment's (IEMA) 'Guidelines for theEnvironmental Assessment of Road Traffic' (referred to as the IEMA Guidelines) was published in 1993. These IEMA Guidelines are still valid and form part of the suite of specific documents overarched by the 2004 Guidelines for Environmental Impact Assessment mentioned above.

~~9.222.~~9.232. The IEMA guidelines set out an assessment methodology, so it is possible to identify likelyeffects which could be considered as potentially significant. This approach informs how changes in travel demand (particularly traffic) affect the environment and suggests ways to remove, reduce or mitigate these effects. These guidelines identify requirements to consider the effects on pedestrians, cyclists and other road users, including amenity, delays and severance. It also requires an assessment of effects on drivers and ultimately, road safety.

[10] *https://www.standardsforhighways.co.uk/dmrb/search?discipline=SUSTAINABILITY_AND_ENVIRONMENT*

[11] *https://www.gov.uk/guidance/transport-analysis-guidance-webtag*

[12]*https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2013/05/Advice-note-9.-Rochdale-envelope-web.pdf*

Design Manual for Roads and Bridges (Sustainability & Environment) (Highways England et al., 2019 and 2020)

~~9.223.~~9.233. Design Manual for Roads and Bridges (DMRB) - Sustainability & Environment Appraisal provides guidance regarding the aims and objectives of environmental impact assessment,including EIA scoping, the assessment and management of environmental effects and thereporting of environmental assessments.

~~9.224.~~9.234. The DMRB guidance related to transport users, and therefore, considered in this land transport chapter is contained in the following documents:

- LA 104: Environmental assessment and monitoring (July 2019); and
- LA 112: Population and human health (January 2020).

Transport Analysis Guidance (DfT, 2020)

~~9.225.~~9.235. Transport Analysis Guidance (TAG) (DfT, 2020) databook, last updated by the Departmentfor Transport in July 2020, provides information and values associated with transport modelling and appraisal. The TAG is primarily aimed at the economic appraisal of transport interventions. However, the databook provides useful information, such as typical accident rates and forecasting methods

The Planning Inspectorate Advice Note 9: Rochdale Envelope (PINS, 2018)

~~9.226.~~9.236. When considering development and infrastructure commitments, in line with TAG, consideration is to be given to the Rochdale Envelope. The Rochdale Envelope identifies a series of objectives and having established that a development is likely to have significant effects, to enable a competent authority to assess these effects, one could interpret that any EIA should:

- consider if the development should be assessed individually or jointly with other developments (which might include infrastructure);
- where reasonably practicable, consider proposals as an integral part of the 'whole' or cumulative development (consistent with the NPPF);
- having regard to the cumulative effects of other development (which again might include infrastructure), should there be sufficient information to consider the development in the area as a whole (including the Proposed Development) and the potential successful delivery of mitigation measures; and

- having concluded what the *'whole development'* might entail, it is necessary to '*make [an] informed judgement'* based on information available, any gaps and uncertainties that may exist and the likelihood of significant effects arising from these.

~~9.227.~~9.237. On these matters, the courts have concluded that *'everything depends upon the circumstances of the individual case'*. The reasoning suggests that the cumulative effects of development should be considered at a subsequent point in time if the mitigation measures cannot be judged at the current time. The schemes in the area such as Lower Thames Crossing (LTC) and emerging Ebbsfleet Garden City would need to consider a similar or possibly larger study area as the Proposed Development. It is, therefore, reasonable to conclude that the cumulative effects of all developments (in transport terms) would be reviewed again in the coming years.

BASELINE CONDITIONS

Introduction

~~9.228.~~9.238. This section of the land transport chapter provides the following:

- description of the location of the Project Site in the local context;
- review of the existing highway network, public transport, walking and cycling options available in the vicinity of the Project Site;
- details of the active travel audit and review of the existing walking and cycling provision;
- overview of the highway safety in the Project Site locality;
- a detailed description of the existing conditions along the selected links; and
- a high-level overview of the future baseline conditions.

~~9.229.~~9.239. The Kent Project Site is located on the Swanscombe Peninsula, and it is highly accessible to the SRN, including the A2(T), M2, M25 and the Dartford Crossing. The road network provides the ability for local visitors and staff, as well as those from further afield, to accessthe Proposed Development by car, bus or coach.

~~9.230.~~9.240. To support the delivery of the Proposed Development, the Essex Project Site was identifiedfor its proximity to several ports, including Tilbury. The proximity of the PoTL emphasises the potential ability to exploit links to existing cruise liners, further enabling the ProposedDevelopment to offer the highest level of accessibility by this mode.

~~9.231.~~9.241. The location of the Project Site enables the Proposed Development to capitalise on the proximity of public transport networks by providing effortless and efficient access from the local rail, bus and coach stations. Both Kent and Essex Project site locations are discussed in detail in this section with information on the current accessibility levels via active, sustainable and private modes of transport presented.

Site location

~~9.232.~~9.242. The location of the Proposed Development was chosen based on its relative location and accessibility to European cities, transport and service infrastructure. The accessibility of the Project Site provides a unique opportunity for the development of this type.

~~9.233.~~9.243. The Kent Project Site lies approximately 30 km east-south-east of central London on the south bank of the River Thames, in the county of Kent. It occupies most of the Swanscombe Peninsula and includes a corridor for transport connections generally extending southwards to the A2(T). The Kent Project Site is to be home to the leisure core, and it is proposed to incorporate (but not limitedto):

- Gate One and Gate Two – two unique themeparks;
- a range of events space, theme rides and attraction, entertainment venues, theatres and cinemas;
- Entrance plazas to Gate One and Gate Two which offer ancillary retail, dining and entertainment (RD&E);
- a range of hotels providing 3,550 rooms and suites with an associatedwaterpark;
- a ‘conference centre’; and
- a linked building for hosting a range of eSports, video and computer gamingevents.

~~9.234.~~9.244. The Kent Project Site is also proposed to include 75% of visitor car and coach parking, all on-site hotel parking and all staff parking. The development proposals, in addition to the access arrangements for highway, public transport and sustainable modes, are discussed in detail in section 5 of the TA (document reference 6.2.9.1), including full-sized plans appended to the document.

~~9.235.~~9.245. The Essex Project Site is located approximately 35km east-south-east of central London onthe north bank of the River Thames, directly to the south of Tilbury, within the administrative area of ThC. This Essex Project Site is proposed to provide 25% of visitor car and coach parking, allowing visitors travelling from north of the River Thames to park in Tilbury and use a ferry service to access the leisure core situated on the Swanscombe Peninsula.

~~9.236.~~9.246. The Kent Project Site is bisected by the HS1 and North Kent railway lines, which operate from nearby Ebbsfleet International, Greenhithe, Swanscombe and Northfleet stations. The rail accessibility of the Project Site is discussed in detail in the TA (document reference6.2.9.1, section 4.4).

~~9.237.~~9.247. The Proposed Development is highly accessible, and its proximity to the SRN allows for connections to all London airports within 120-minute driving times. Existing rail links fromlocal railway stations to central London also provide connections between the Proposed Development and London airports via public transport.

~~9.238.~~9.248. The development also benefits from being located adjacent to the River Thames, providinga waterborne network not only for commercial and construction traffic arriving via the PoTL but also for visitors and employees via water taxis from both London and Tilbury.

Existing highway conditions

Strategic Road Network

~~9.239.~~9.249. Figure 9.5: *Strategic Road Network* (document reference 6.3.9.5) shows the SRN in the vicinity of the Project Site. The strategic routes in the vicinity of the Kent Project Site include the A2(T) connecting to the M25 at Junction 2 to the west with Junction 1 of the M2 to the southeast of Gravesend. Other key routes include the A282 which provides a link between Junctions 2 and 31 of the M25, where it essentially forms part of the M25 motorway.

M25

~~9.240.~~9.250. The M25 (including the A282 section) is a dual three to six-lane road that is subject to motorway regulations. The motorway circumscribes London and provides direct access toit as well as other major roads and motorways serving the South East, the East and the other UK regions. The M25, as a motorway-standard road, is not provided with cycle or pedestrian facilities along its length, but in many cases, these are available on parallel routes.

~~9.241.~~9.251. The M25 Junction 30 is a four-arm signal-controlled three-lane circulatory carriageway roundabout junction that allows connections between the M25 and A13, which in turn connects to the A1089 trunk road to Tilbury. It is subject to 50mph speed limit with no stopping regulations.

A282

~~9.242.~~9.252. The section of the A282 between Junction 1a and 2 of the M25 follows a north-south alignment. To the north of the A282 Junction 1a, the A282 deviates slightly to the east while approaching the River Thames. The A282 crosses the Thames from Dartford to Thurrock via Dartford Tunnel, with traffic in the opposite direction (i.e. Thurrock to Dartford) utilising the Queen Elizabeth II Bridge. Both the tunnel and the bridge, commonly known as the Dartford Crossing, form a crucial gateway carrying up to 160,000vehicles a day.

A13

~~9.243.~~9.253. The Essex Project Site in Tilbury can be accessed from the M25 Junction 30 to the north ofthe River Thames, via the A13 and then the A1089.

~~9.244.~~9.254. The A13 is a dual three to four-lane road subject to 50mph speed limit between the M25 Junction 30 to the A1202 where the speed increases to 70mph until it connects to the A1089. The M25 Junction 30 provides access to the A13 and in an east-west alignment to the A1089 running towards the Essex Project Site. Subject to motorway regulations, this road does not provide pedestrian or cycle facilities along its length. It provides connections west towards Basildon and east to Dagenham.

A1089 Dock Road approach/ Dock Road/ St Andrew's Road/ Ferry Road

~~9.245.~~9.255. The A1089 serves as the primary access for the Essex Project Site, the Tilbury car park situated adjacent to the PoTL. The A1089 is an approximately 6 km long dual carriagewaythat follows a north-south alignment and provides a connection to the north with the A13and PoTL to the south. The road is accessed from the A13 to the north using the A13/A1089 junction consisting of the priority two-lane off-slip/on-slip alignment.

~~9.246.~~9.256. The A1089 Dock Road/Dock Approach Road between the Asda Roundabout and the A13 is a dual carriageway road subject to national speed limits along its length. A footway on the western side of the carriageway is provided between the Asda Roundabout and the Marshfoot Interchange off -slip where the footway facilities then link with Old Dock Approach.

~~9.247.~~9.257. The A1089 St Andrew's Road between the Asda Roundabout and PoTL is a dual carriageway road subject to 40mph speed limit with a footway on the western side of the carriageway. After PoTL, the A1089 continues as a single carriageway two-way road with a speed limit of 40mph, with a shared cycle and pedestrian pathway along both sides of the road before reaching the Ferry Road roundabout.

A2

~~9.248.~~9.258. The A2(T) is a dual four-lane road that runs approximately 2km to the south of the Kent Project Site and parallel to the A226 (details of which are provided in the next subsection)in an east-west alignment. It provides a connection to the west, to locations such as Dartford and east London, and the east to locations such as Gravesend and Chatham fromwhere it then operates as the M2 to Faversham. From Faversham, the M2 then reverts tothe A2 as far as Dover.

~~9.249.~~9.259. The main access point to the Kent Project Site is obtained from the A2/A2260 (Ebbsfleet) junction; a dual-lane off slip/on slip alignment met by a double priority roundabout arrangement. Traffic egressing from the A2 east use the southern off slip before travellingnorth to the A2260/Ackers Drive four-arm priority-controlled roundabout with a pedestrian crossing on the A2 and A2260 eastern arm. Traffic from the A2 west use the eastern A2260 roundabout; a three-arm priority-controlled junction.

~~9.250.~~9.260. In addition to the key routes outlined above, from the regional perspective, the wider SRNalso comprises the M2, M20, M26, A249, A299, A12, M11, A1(M), M1 and M23.

Local Highway Network

~~9.251.~~9.261. The local highway network review has been compiled using information from the 2017 and 2020 site visit observations and a comprehensive desktop study. The review provides information on the local highway network in the vicinity of the Project Site. The local highway network, in relation to the Project Site, is illustrated in Figure 9.6: *Local Highway Network* (document reference 6.3.9.6).

A226

~~9.252.~~9.262. The A226 London Road/Thames Way is one of the principal local roads running in the east- west direction separating the Swanscombe Peninsula and the local centre of Swanscombe.It is a single carriageway road with a speed limit of 30mph. Short sections of on-road cyclelanes and parking bays are provided along some parts of the route, and a mix of land uses are present along its length, including schools, commercial activity and residentialareas.

A206

~~9.253.~~9.263. The A206 Crossways Boulevard is a local road that joins the A226 London Road and links to Dartford through to the M25/A282 via the Littlebrook Interchange (M25 Junction 1a). The road is a suburban dual carriageway with two lanes operating in each direction, and itis subject to a 40mph speed limit. Off-road shared pedestrian/cycle facilities are providedto both sides of the road.

B255

~~9.254.~~9.264. The B255 St. Clements Way/High Street/The Avenue is also a principal local road that continues from the A206 southwards to the A2(T) at the Bean Lane roundabout. It is a dualcarriageway with a 40mph speed limit from the A226 to the Bluewater roundabout, wherethe speed limit increases to 50mph until the B255 reaches the A2(T). The road has a continuous, good quality off-road shared pedestrian/cycle lane along its east side.

B259

~~9.255.~~9.265. The B259 Stanhope Road/Southfleet Road is situated directly to the south of the Kent Project Site running in a north-south alignment linking the A226 London Road to the A2(T)at a double roundabout arrangement. The road is a narrow single carriageway, with one lane in each direction and it is subject to a 30mph speed limit. Some sections of the road are designated 20mph zones, coupled with other traffic management measures, such as kerb buildouts for single-vehicle widths. Parking bays, parking spaces marked on-road anda mix of footways at one or both sides of the carriageway are seen along this, mainly residential, road.

B2175

~~9.256.~~9.266. The B2175 Stonebridge Road/High Street/A226 London Road is approximately 2.5km longsection of road to the east of the Kent Project Site, bounded by residential properties andlocal shops. The B2175 is a single carriageway road with one lane in each direction. Footways are provided to both sides of the road, and intermittent on-road and shared off-road pedestrian/cycle facilities are also provided. Furthermore, sheltered bus stops and signalled crossings are located along the road. A 30mph speed limit applies to most of the road. However, there is a 40mph section between Rosherville Way, that crosses under the B2175, and its junction with Springhead Road.

B262

~~9.257.~~9.267. The B262 Springhead Road is approximately 2km long section of road that extends from the B2175 London Road to the A2(T). It is a 30mph two-way single carriageway road, linking through a residential area to the north of the railway line and a mix of land uses including the industrial, cemetery, colleges and community services to the south ofThames Way.

International Way

~~9.258.~~9.268. International Way is 30mph two-way single carriageway road, providing access to Ebbsfleet International station and car parks from access points on the A2260 Ebbsfleet Gateway and the B259 Southfleet Road.

Fort Road

~~9.259.~~9.269. The Essex Project Site in Tilbury is separated from the existing settlement by the railway line serving both the docks as well as Tilbury Town railway station. The railway line createsa physical barrier between the PoTL and residential parts of Tilbury. The area is accessiblepredominantly by the A1089, with only limited connections to the local highway network.

~~9.260.~~9.270. Fort Road runs parallel to the existing railway line and meets the A1089 at a priority- controlled junction approximately 800m east of Tilbury Town railway station. At the junction, the A1089 forms the minor arm, with Fort Road forming the major arm and mainthrough route from the A1089 north.

Sustainable Transport Modes

~~9.261.~~9.271. One of the significant advantages of the Project Site, setting it apart from any other majorresort of its type, is the wide availability of public transport options. The ProposedDevelopment's proximity to rail services, location adjacent to the River Thames and nearby Fastrack bus services provides a unique opportunity for the accessibility of the Proposed Development.

Rail

~~9.262.~~9.272. The Project Site benefits from proximity to a vast rail transport network and efficient connections to the Greater London area. The Proposed Development will be accessible from High-Speed Rail (HS1) at Ebbsfleet International Station, connecting London St. Pancras to European destinations via the Channel Tunnel. Journey times from Ebbsfleet International to London St Pancras average 17 minutes. In addition, the North

Kent Line

(NKL) provides frequent train services to/from central London as well as eastwards to key destinations in Kent and can be accessed via several local stations. Journey times from Swanscombe to London Bridge average 47 minutes. Rail services to the Essex Project Site are provided by c2c, which provide train services to the nearby Grays and Tilbury Town railway stations. Journey times from London Fenchurch Street to Tilbury Town average 41 minutes.

~~9.263.~~9.273. It should be highlighted that the operation of public transport is currently (at the time of writing of this land transport chapter) disrupted by the Covid-19 global pandemic. As a result, detailed timetable information, including service frequencies, are accurate as of the time of writing but are expected to resume to the pre-Covid level of service before theopening of The London Resort.

~~9.264.~~9.274. There are four railway stations in proximity of the Kent Project Site and one station servingthe Essex Project Site, which all form the basis of the assessment. The review of these stations is provided in the TA (document reference 6.2.9.1, section 4.4) as well as reiterated below. The stations, and the lines that serve them, are illustrated in Figure 9.7: *Existing Rail Provision* (document reference 6.3.9.7). These railway stations are:

- Ebbsfleet International (Kent Project Site);
- Greenhithe (Kent Project Site);
- Swanscombe (Kent Project Site);
- Northfleet (Kent Project Site); and
- Tilbury Town (Essex Project Site).

Ebbsfleet International Station

~~9.265.~~9.275. Ebbsfleet International railway station is situated on HS1 which provides connections to St Pancras International Station, in the heart of London, within a journey time of approximately 17 minutes. The domestic services at Ebbsfleet operate at a high frequencythroughout the typical day; the standard hourly frequencies (at the time of writing) of various domestic routes via Ebbsfleet are summarised in Table 9.7 below, alongside the key calling points, or destinations, of the service.

Table 9.7: Domestic routes serving Ebbsfleet International (per day)

Route	Frequency	Last Train Time	Destinations
London St Pancras International to Faversham via Ebbsfleet and Chatham	2 trains per hour (from London St Pancreas) 1 train per hour (direct towards London St Pancreas)	23:55 (Ebbsfleet to Faversham) 22:47 (Ebbsfleet to London St Pancreas)	Stratford International, Ebbsfleet International, Gravesend, Strood, Rochester, Chatham, Gillingham (Kent), Rainham (Kent) and Sittingbourne
London St Pancras International to Dover Priory via Ebbsfleet, Ashford and Folkestone and return via Margate and Faversham	1 train per hour (in each direction)	23:55 (Ebbsfleet to Dover Priory) 23:35 (Ebbsfleet to London St Pancreas)	Stratford International, Ebbsfleet International, Ashford International, Folkestone West and Folkestone Central
London St Pancras International to Margate via Ebbsfleet, Ashford and Canterbury West	1 train per hour (in each direction)	23:30 (Ebbsfleet to Margate) 23:02 (Ebbsfleet to London St Pancreas)	Stratford International, Ebbsfleet International, Ashford International, Canterbury West, Ramsgate and Broadstairs

**Train frequencies are the same on weekdays and weekend.*

~~9.266.~~9.276. It should be noted that international Eurostar services previously operated from Ebbsfleetstation throughout the year. However due to the impacts of the Covid-19 global pandemic, the international Eurostar services are not expected to stop at Ebbsfleet International until 2022 at the earliest. Before the Covid-19 global pandemic, Eurostar offered daily direct services to Brussels, Paris, Disneyland Paris and Amsterdam with 2-4 hours journey times respectively. The typical daily number of Eurostar services to/from various destinations is provided in Table 9.8.

Table 9.8: International routes serving Ebbsfleet International (per day)

Route	Weekday	Saturday	Sunday	Duration
To Paris	4	3	3	2h 05m
From Paris	6	5	6	
To Brussels	3	2	2	1h 53m
From Brussels	3	3	2	
To Disneyland Paris*	1	0	1	2h 35m
From Disneyland Paris*	1	0	1	
To Amsterdam	3	2	2	3h 55m
From Amsterdam	2	1	1	

Source: Eurostar (accessed 29 June 2020) and port freight statistics (August 2019)
**seasonal service; operates with varying frequency throughout the year*

~~9.267.~~9.277. Whilst the Eurostar trains do not currently stop at Ebbsfleet International, it is anticipatedthat services will resume prior to the opening of the Proposed Development (partly due to its existence) and the delivery of the Proposed Development would support the re- introduction of the stopping service. The transport impact assessment, detailed in the TA(document reference 6.2.9.1, section 13), has therefore accounted for this service within the calculation of forecast trip generation and a similar timetable to that outlined in Table
9.8 above has been allowed for.

9.278. Cycle parking for approximately 100 bikes is available at Ebbsfleet station (September 2020) dispersed between two of the station's car parks and the main stationitself.

Greenhithe station

9.279. Greenhithe railway station is located approximately 2km south-west of the Swanscombe peninsula and the Kent Project Site. The previously small village railway station was upgraded in 2008 to improve accessibility and support growth in the area with the opening of Bluewater Shopping Centre. Train services calling at Greenhithe are operated by Southeastern and Thameslink, served by the NKL between London and Kent. The current routes, and their frequencies, are summarised in Table 9.9 below.

Table 9.9: Greenhithe railway station services

Route	Frequency	Last Train Time	Destinations
London Charing Cross via Swanscombe, Dartford and Lewisham	2 trains per hour (in each direction)	21:57 (Greenhithe to London Charing Cross) 23:50 (London Charing Cross to Greenhithe)	Swanscombe, Greenhithe, Stone Crossing, Dartford, Lewisham, Waterloo East and London Charing Cross. (typical journey time approx. 55 – 60 minutes)
London St Pancras via Swanscombe and Dartford	2 trains per hour (in each direction; changing at London Bridge)	22:38 (Greenhithe to London Charing Cross) 23:00 (London Charing Cross to Greenhithe)	Swanscombe, Greenhithe, Stone Crossing, Dartford, Slade Green, Abbey Wood, Plumstead, Woolwich Arsenal, Charlton, Westcombe Park, Maze Hill, Greenwich, Deptford, London Bridge, London Blackfriars, City Thameslink, Farringdon (typical journey time approx. 1 hour 10 minutes)
Rainham	2 trains per hour (in each direction)	23:04 (Greenhithe to Rainham) 23:30 (Rainham to Greenhithe)	Gravesend, Higham, Strood, Rochester, Chatham, Gillingham (typical journey time approx. 32 minutes)

**Train frequencies are the same on weekends and weekdays*

9.280. During the September 2020 site visit and audit, it was noted that station facilities at Greenhithe include sheltered cycle stands with approximately 10 spaces and a ticket office at the entrance to Platform 1. Wayfinding information and timetables for both directions and onward travel (such as local bus connections) are displayed on information boards outside the main entrance. Approximately seven local bus services serve Greenhithe railway station, including Fastrack A and B. The station provides four dedicated sheltered bus stops outside the main entrance. Several of these services operate along the A226 London Road, within 50 metres of the Proposed Development.

Northfleet station

9.281. Northfleet railway station is located approximately 400 metres north-east of Ebbsfleet International station, and it is served by the NKL between London and Kent, on the same line as Greenhithe. The station offers services to destinations identical tothose summarised in Table 9.9 above for Greenhithe station.

9.282. Platform 1 and platform 2 at Northfleet station are accessed via Station Road, where a

supervised ticket office is open during the weekday AM peak period. Self-service ticket machines, wayfinding information and onward travel guidance are provided outside the main entrance. Cycle parking facilities are not provided at the station. Clear route signage outside the station directs walkers and cyclists to Ebbsfleet Internationalstation.

9.283. The nearest bus stop to Northfleet Station is on B2175 High Street, approximately 100m east of the station, which is served by three different bus routes offering connections along London Road and to destinations such as Dartford, Gravesend Town Centre and Greenhithe.

Swanscombe station

9.284. Swanscombe station is located approximately 650m south of the Kent Project Site, and it is the closest station (as the crow flies) to the Proposed Development. Swanscombe station is situated between Greenhithe and Northfleet railway stations, and it is also served by the NKL. The typical off-peak services offered at the station are identical to thosesummarised in Table 9.9 above for Greenhithe station.

9.285. The station is situated on the High Street, approximately 110 metres south of the signalised junction with London Road. The pedestrian access to the platforms is via a rampeither side of the railway bridge, for eastbound and westbound services respectively. There is no pedestrian footway on the eastern side of the carriageway of the High Street and across the railway bridge. A zebra crossing is provided opposite the Platform 2 entrance/exit, north of the railway bridge, but not to the south (Platform 1) making the southern station entrance less accessible. A small ticket office is provided at the entranceto Platform 1. Parking for six bicycles is available at the station.

9.286. Swanscombe station is served by several Arriva bus services, connecting the railway to nearby residential areas as well as Bluewater Shopping Centre and Ebbsfleet International Station.

Tilbury Town Rail Station

9.287. Tilbury Town railway station is located to the north of the River Thames in Thurrock, Essex. The station is the closest station to the Essex Project Site. The station sits on the Coast to Coast (C2C) railway line and provides access to services towards London and Southend-on-Sea. The current routes offered from the station are summarised in Table 9.10 below. On Saturdays and Sundays, the services run with a frequency of approximately every 30 minutes in both directions.

Table 9.10: Tilbury Town railway station services

Route	Frequency	Last Train Time	Destinations
London Fenchurch Street via Purfleet and Barking	2 trains per hour (in each direction)	23:44 (Tilbury Town to London Fenchurch) 23:41 (London Fenchurch to Tilbury Town)	Grays, Purfleet, Rainham, Dagenham Dock, Barking, West Ham, Limehouse (typical journey time approx. 40 minutes)
Southend Central via Pitsea and Chalkwell	2 trains per hour (in each direction)	23:50 (Tilbury Town to Southend Central) 23:12 (Southend Central to Tilbury Town)	East Tilbury, Stanford-le-Hope, Pitsea, Benfleet, Leigh-on-Sea, Chalkwell, Westcliff (typical journey time approx. 35 minutes)

9.288. The railway station is situated to the west of Tilbury town centre, between the A1089 St Andrew's Road and Dock Road. Tilbury Town station is located approximately 800m to the northeast of the Essex Project Site and approximately 1.3 km from the proposed ferry terminal. An existing bus link, Ensign bus route 99, operates between the Tilbury Town station, from the bus stop outside Platform 1 on A1089 St Andrew's Road, and the PoTL, where Jetstream Tours run a ferry service between Tilbury and Gravesend.

9.289. Approximately 38 bicycle parking spaces in the form of racks are available at Tilbury Town station. These are located outside the station entrance to platforms 1 and 2. On-street vehicle parking is available along the northbound carriageway on Dock Road, to the east of the station. Ensign bus serve also serve bus stops outside Tilbury Town station on Dock Road, offering connections to Grays and residential areas of Tilbury.

Coach

9.290. Several UK-based coach operators serve both Kent and Essex. Although primarily aimed at long-distance travel, National Express services are also available for local travel within Kent. The only National Express service currently available serving the Kent Project Site is service 022 at Bluewater Shopping Centre. The service provides connections in both directions between London Victoria via Bluewater Shopping Centre, Canterbury,Ramsgate and Margate.

Bus

9.291. A comprehensive network of bus routes is available in the locality of the Project Site (both Kent and Essex Project Sites). The bus routes in the area offer a range of local and interurban services and are shown in Figure 9.8: *Existing Bus Routes* (document reference 6.3.9.8).

9.292. The Kent Project Site is situated to the north of the A226 London Road, which is the principal route between Dartford and Gravesham town centres, via Greenhithe and Northfleet. As such, it is well placed relative to the existing bus network, which offers frequent services in the locality, including connections to key destinations such as Bluewater Shopping Centre and Darent Valley Hospital via Fastrack. Bus stops are mainly sheltered except for those to the east of the HS1 railway line.

9.293. The bus services operating in the immediate vicinity of the Kent Project Site are presented in Table 9.11 below. It should be highlighted that the operation of public transport is currently disrupted by the Covid-19 global pandemic. As a result, detailed timetable information, including service frequencies, are accurate as of the time of writing but are expected to resume to the pre-Covid level of service before the opening of The London Resort. The services are all provided on a commercial basis by Arriva KentThameside.

Table 9.11: Bus services (Kent Project Site)

Route	Principal locations served	Days of operation	Monday to Friday daytime frequency	Weekend Frequency / Notes
Fastrack B	Gravesend - Ebbsfleet International - Swanscombe - Ingress Park - Greenhithe - Bluewater - Darent Valley Hospital - Dartford - Temple Hill	Monday to Sunday	10 to 12 minutes	Sat: 10 to 12 min Sun: 20 min
306	Bluewater - Swanscombe - Northfleet - Gravesend - Istead Rise - Meopham - Vigo - Wrotham - Borough Green	Monday to Saturday	5 return journeys from 19:00	
480/490 Saphire	Valley Drive - Denton - Gravesend - Northfleet - Swanscombe - Greenhithe - Bluewater (490) - Horns Cross - Dartford (480 daytime; 490 evenings/Sundays)	Monday to Sunday	Combined 12 minutes	Combined 10 min on Sat Combined 15 min on Sun
481	Riverview Park – Gravesend – Northfleet – Swanscombe – Bluewater	Monday to Sunday	20 minutes	Sat: 20 min Sun: 60 min
483	Kings Farm – Gravesend – Bluewater	Monday to Sunday	20 Minutes	Sat: 30 Min Sun: 30 min
484	Ebbsfleet Station –Castle Hill – Swanscombe – Greenhithe – Bluewater	Monday to Saturday	Hourly	9:00 to 17:00 weekday, extended to

				19:00 on Saturday
485/A	A Castle Hill – Ebbsfleet Station – Castle Hill	Monday to Saturday	Hourly peaks and evening only	

9.294. The Essex Project Site is directly accessible by bus route 99 running between the Tilbury Ferry Terminal and Tilbury Town railway station at an approximate 30-minute frequency to coincide with the ferry arrivals and departures. Despite this being the only direct bus link to/from the Essex Project Site, there are other bus services available at Tilbury Town railway station. The services of interest in relation to the Essex Project Site are summarised in Table 9.12 below.

Table 9.12: Bus services (Essex Project Site)

Routes	**Principal locations served**	**Days of operation**	**Monday to Friday daytime frequency**	**Weekend Frequency / Notes**
66/ 66A	Lakeside – Grays – Tilbury – Chadwell – St MaryS1	Monday to Sunday	20 minutes +1 extra in AM peak	Sun: Hourly
73/73A	Lakeside – Grays – Chadwell – St Mary	Monday to Sunday	12 minutes in peaks Every 20 minutes	
Z1	Aveley – South Ockenden – Lakeside – Grays – Socketts Heath – Chadwell – Tilbury	Monday to Sunday	Additional peak and off-peak Journeys on route 73/A alignment	Omits Chadwell area
99	Tilbury Ferry Terminal and Tilbury Town railway station	Monday to Saturday	30 min to coincide with ferry arrival/departure	

9.295. The services are all provided on a commercial basis by Ensign Buses. These services also connect with other local services in and around Tilbury providing connections to the wider area.

9.296. Similar to the Kent Project Site, the operation of public transport is currently disrupted by the Covid-19 pandemic. As a result, detailed timetable information, including service frequencies, for the services listed above are not provided at this stage.

Fastrack

9.297. Fastrack is part of a longer-term strategy for the regeneration of Kent Thameside, which aims to support new housing and jobs. As a reliable and high-quality transport mode to encourage sustainable travel habits, Fastrack has been developed as a Bus Rapid Transit (BRT) service, with branded, reliable and frequent bus services that operate with high frequency on dedicated busways, bus lanes and using other junction priority measures such as 'green-wave' technology.

9.298. The Fastrack network has been planned and funded by both public sector and private sector developer contributions, and once fully developed it is expected that it will include four routes, extending over 40km and offering bus priority for around 75% of the routes. To date, Fastrack has achieved a high profile both locally and nationally and has won many awards. However, more importantly, it has achieved higher patronage in the first few years than initially forecast.

9.299. The Fastrack network is due to be retendered in 2022, intending to make optionalprovision for up to 30% more capacity during the contract length. The expansion of the Fastrack network is discussed in detail in the TA (document reference 6.2.9.1, section 11).

River

9.300. The PoTL is London's major port and the largest multi-modal port in the South East. As part of a review of the existing travel conditions in the vicinity of Project Sit, WSP have undertaken a high-level review of the current river movements at the PoTL.

9.301. As the only deep-sea terminal within proximity to London, the PoTL is home to an International Cruise Terminal that, under normal conditions, see approximately 100,000 passengers travel through it each year. There are two regular cruise liners from Tilbury, which operate all year round around the British Isles and Northern Europe. In the summer months, up to five additional operators depart from Tilbury to destinations as far as the Caribbean, Canaries and Central and South America.

9.302. The PoTL is also one of the UK's major ports for cargo and freight vessels, connecting London to Europe and the rest of the world. Daily movements at the PoTL are tracked and monitored within a vessel schedule and vary between 1-5 arrivals and departures per day[13].

9.303. Jetstream Tours currently operate a passenger foot and bicycle ferry service, on behalf of KCC and ThC, between Tilbury and Gravesend. The service operates six days a week (Monday – Saturday) all year round and provides a two-way service approximately twice an hour between 5 am and 7 pm.

[13] *As per https://www.londoncontainerterminal.com/full-schedule/ in November 2020.*

Active modes

9.304. An active travel audit is a qualitative analysis of the walking and cycling provision surrounding the Project Site. In 2017, an initial site audit was undertaken to determine the existing conditions of the highway network and to analyse the safety and comfort levels for pedestrians and cyclists using the local walking and cycling network.

9.305. In September 2020, a supplementary site visit and active travel audit were undertaken to review the observations noted in 2017 and to incorporate Essex Project Site into the walking and cycling audit. The active travel audit route is shown in Figure 9.9: *Active Travel Audit Route* (document reference 6.3.9.9).

9.306. In addition to observing the access arrangements and operation at nearby sustainable transport interchanges (such as Ebbsfleet International, Tilbury Town railway stations) and local bus stops, the project team travelled along the existing cycle routes to determine the accessibility between towns and onward travel.

9.307. The existing walking and cycling provision is shown in Figure 9.10: *Pedestrian and Cycle Provision* (document reference 6.3.9.10) and demonstrates the existing pedestrian and cycling facilities within the vicinity of the Proposed Development. The Proposed Development aims to provide a network of pedestrian and cycle routes that combine and connect to existing routes in the vicinity of the Project Site. The Proposed Development would connect to the adjacent residential areas of Greenhithe, Swanscombe and Northfleet. This would improve connectivity through existing neighbourhoods and create linkages with the network of green spaces in the area to the Proposed Development.

9.308. However, it is first necessary to consider the existing context in terms of the availability of routes for active modes of travel. Given that the Proposed Development consists of two strategic locations, each has been considered on their merits in terms of the existing opportunities to travel by active modes, together with the quality of the network available.

9.309. The walking and cycling audits were carried out at locations expected to have a high demand for cycling and walking trips related to the travel to and from the Proposed Development. The audits reflect on the existing provision. It is discussed in detail in the TA (document reference 6.2.9.1, section 10) highlighting the existing barriers to active travel and how the cycling and walking environment could be improved with measures such as:

- Lighting and surfacing;
- Reallocation of road space for cyclists;
- Wider footways;
- Dropped kerb crossings and safe crossing points; and

- Reduction of traffic speeds to make a safer environment for people travelling by active modes.

Walking

Kent Project Site

9.310. A combination of Public Right of Ways (PRoWs), local footpaths and shared or segregated footways are available in the vicinity of the Kent Project Site. PRoWs around the area and through the Proposed Development (Kent Project Site) area are comprised mainly of footpaths (DS1, DS2, DS3 and DS12) and three byways (DR129, NU20 and NU8) as shown in Figure 9.10: *Pedestrian and Cycle Provision* (document reference 6.3.9.10).

9.311. Pedestrian isochrones demonstrating the walking accessibility of the existing Kent Project Site are presented in Figure 9.11: *Kent Project Site Walking Accessibility* (document reference 6.3.9.11). The assessment assumes a walking speed of approximately 4.8km per hour, based on TfL Connectivity assessment[14]. It shows that residential areas of Ingress Park, Knockhall and Swanscombe, including Swanscombe railway station, are within a 30-minutes walking time of the peninsula, using existing walking infrastructure and provision, including footpaths, parks and roads. A 30-minute walking time was chosen for the assessment as it is believed that if the journey would take longer people are likely to use a different means of transport.

9.312. The area surrounding the Kent Project Site benefits from a wide range of pedestrian facilities as detailed below. The A226 London Road offers standard continuous footways mostly of 1.5m to 2m with some narrower sections on the southern side of the road. Footways along the A226 London Road bridge over the HS1 are provided to the northern side of the carriageway only. The A226 London Road is the main local road along the southern border of the Kent Project Site and connects Greenhithe, Swanscombe, Ebbsfleet International and Northfleet stations to the site, with suitable zebra and signalled crossings provided at different points along the road.

9.313. Footways along the B259/High Street/Stanhope Road are of standard quality, generally around 1.7 metres wide with some narrow sections and absence of footways on the eastern side of the road adjacent to Swanscombe railway station. There are two suitable zebra crossings provided on the High Street to enable crossing onto the western side of the road in the absence of the eastern footway.

[14] *Based on: http://content.tfl.gov.uk/connectivity-assessment-guide.pdf*

9.314. The A206 Crossways Boulevard provides footways on both sides of the carriageway along its section between the junctions with Anchor Boulevard and the Fastrack bus lane. A shared-use footway/cycleway is provided along both sides of the carriageway from that point to the junction with Quadrant Court where the cyclist facilities re-join the carriageway in the form of a mandatory cycle lane. The on-road cycle lane terminates at the roundabout with the B255 Station Road, where new off-road facilities are provided for connections to the A226 Knockhall Chase towards Swanscombe, Ebbsfleet Station with the route terminating at Chatham Riverside.

9.315. The B255 has a continuous, good quality off-road shared pedestrian/cycle lane along its east side between the McDonalds Roundabout and Bluewater ShoppingCentre.

9.316. B2175 Stonebridge Road/High Street/The Hill Northfleet/London Road offers footways on both sides of the carriageway and shared off-road pedestrian/cycle facilities. The B2175 Stonebridge Road footways are generally 1.7 m in width, with localised reductions due to obstructions. The B2175 The Hill, Northfleet and High Street do not have tactile paving at any of the pedestrian crossing points except for those at a zebra crossing adjacent to the Lawn Primary & Nursery School. Footways along the B2175 London Road towards Thames Way, although mostly over 1.8m in width, have poor surface quality with unevenpaving.

9.317. In general, the local area benefits from a relatively well-connected non-motorised user (NMU) network with the various PRoWs allowing further direct segregated access to local communities and neighbourhoods. PRoW DS17 provides good access segregated from traffic between Ebbsfleet International railway station and the main street in Swanscombe (B2175). Further north, DS1, DS2, DS3 and DS12 provide access to the riverside.

9.318. There are several bridges and underpasses over the railway line(s) in the area providing crossing opportunities for active travel trips. The crossing points further enhance the accessibility in the local area.

Essex Project Site

9.319. Given the industrial nature of the area adjacent to the Essex Project Site, the NMU routes are limited to Public Footpaths around the Tilbury Fort (FP144, FP146 and FP193) complemented by Public Byway BWY98 and Thames Estuary Path running from the Tilbury Town railway station along the A1089 towards the riverside and Tilbury Ferry Crossing. The path then continues further to the east along the river.

9.320. Pedestrian isochrones demonstrating the walking accessibility of the existing Essex Project Site are presented in Figure 9.12: *Essex Project Site Walking Accessibility* (document reference 6.3.9.12). The assessment assumes a walking speed of approximately 4.8km per hour. Unlike the isochrones produced for the Kent Project Site, isochrones for the Essex Project Site have been produced for up to 15-minutes walking time only. The average wait time for a 'Ride and Glide' ferry crossing, discussed in detail within the TA (document (reference 9.1A. section 11), is expected to be 6-8 minutes and the crossing time is expected to be approximately 5-7 minutes. Therefore, walking accessibility from the PoTL has been assessed up to 15-minutes to allow for a further 15-minutes to utilise the ferry services across the River Thames to Proposed Development.

9.321. The walking accessibility isochrones, presented in Figure 9.12: *Essex Project Site Walking Accessibility* (document reference 6.3.9.12) demonstrate that the Fort can be reached within 5-minutes walking time and access to the shared pathway facilities and footbridge over the railway line towards Tilbury Town can be obtained within 15 minutes of walking. There is limited access to Tilbury town and residential streets. However, the bus service 99 operates between Tilbury Ferry Terminal and Tilbury Town railway station approximately every 30 minutes, connecting the port to the town centre.

Cycling

Kent Project Site

9.322. In addition to the existing facilities for pedestrians as set out above, both the Kent and Essex Project Sites are accessible to several cycle routes forming part of the National Cycle Network (NCN). These are shown in Figure 9.10: *Pedestrian and Cycle Provision* (document reference 6.3.9.10).

9.323. Cycling isochrones demonstrating the cycling accessibility in the vicinity of the Kent Project Site are shown in Figure 9.13: *Kent Project Site Cycling Accessibility* (document reference 6.3.9.13). The assessment assumes a cycling speed of approximately 16km per hour for up to 30-minutes cycling time. The isochrones show that using existing cycle infrastructure, Swanscombe and Northfleet railway stations can be reached within 10- minutes cycle time. Ebbsfleet International and Greenhithe stations are within the 10-15 minutes cycle time radius. Residential areas of Gravesend and Dartford are accessible within a 30-minutes cycle time.

9.324. There are sections of the NCN Route 1 immediately to the south and west of the Kent Project Site, which in combination with NCN Link Routes and the local cyclist facilities available provide connections to either the main NCN Route 1 or NCN Route 177.

9.325. The NCN Route 1 is a long-distance route connecting Dover and the Shetland Islands. The NCN Route 1 connects Dartford town centre (with a connection to the NCN Route 125) with Gravesend and beyond. In the vicinity of the Kent Project Site, NCN Route 1 then runs from Dartford in the eastern direction towards the A282, which it crosses north of M25 Junction 2 at the A225 Princes Road interchange using a footbridge to cross the A282before continuing parallel to the A296 Princes Road and A2(T) towards the A2260 to the south of Ebbsfleet. From there it deviates to the north/northeast and follows the A2260 and subsequently, the A226 Thames Way to Gravesend. At present, there are no dedicatedcycle facilities are present along the A226 London Road / Galley Hill Roadcorridor.

9.326. The NCN Route 177 connects with NCN Route 1 at the junction of the A2(T) and the A2260 and broadly follows the A2(T) towards the southeast. Both NCN routes provide a combination of traffic-free and on-road sections along their routes with toucan crossing facilities and provide connections to the major towns and cities along thecoast.

9.327. B2175 Stonebridge Road/High Street/The Hill Northfleet/London Road has intermittent on-road (mandatory cycle lane) and shared off-road pedestrian/cycle facilities.

Essex Project Site

9.328. The Essex Project Site is also accessible via the NCN in combination with the local cycle routes along the A1089 and other local roads. The Thames Estuary Path forms part of the NCN Route 13, which, when fully completed, will provide a connection between Tower Bridge in London and Fakenham in Norfolk. Further to the north, NCN Route 137 can be utilised for trips between Little Thurrock (just to the north of Tilbury) and NCN Route 13 in Purfleet. Alternatively, NCN Route 13 can be accessed from NCN Route 1 via a ferry across the River Thames and vice versa.

9.329. The Essex Project Site in Tilbury is separated from the existing settlement by the railway line serving both the docks as well as Tilbury Town station. The railway line creates a physical barrier between the PoTL and residential parts of Tilbury. The port itself is served by National Cycle Route 13 accommodating trips from Tilbury town centre and consist of an off-road route in the form of a shared-use path.

9.330. Cycling isochrones demonstrating the cycling accessibility within the vicinity of the Essex Project Site are shown in Figure 9.14: *Essex Project Site Cycling Accessibility* (document reference 6.3.9.14). The assessment assumes a cycling speed of approximately 16km per hour and similar to the walking accessibility assessment, isochrones in Tilbury extend to a 15-minutes cycling time to allow for a further 15-minutes to utilise the ferry services across to the Proposed Development. The isochrones show that using existing cycle infrastructure, Tilbury Town railway station is within a 5-10 minutes cycle and most residential areas of Tilbury town can be reached within the same time.

9.331. The TA (document reference 6.2.9.1, section 10) picks up on any identified existing barriers to active travel in the vicinity of the Project Site and uses observations from the active travel audit to develop a Walking and Cycling Strategy forming part of the TA (document reference 6.2.9.1, section 10).

Personal Injury Accidents

9.332. Personal Injury Accident (PIA) data has been obtained from KCC, ECC and TfL for the most recent 5-year period available. KCC and TfL provided data between January 2015 to December 2019, and ECC between July 2015 to June 2020. A full accident report detailing these accidents can be made available upon request.

9.333. For the purposes of assessing the Proposed Development, WSP have considered accidents on key transport corridors that are likely to see increases in vehicular volumes as a result of the Proposed Development. WSP devised a detailed study area to assess the PIA impacts along key transport corridors routes such as, but not limited to the A2, A13, London Road and Thames Way. These were deemed the critical roads for assessment as they are the roads likely used when accessing Proposed Development. The study area considered and assessed is illustrated in Figure 9.15*: PIA Analysis for Study Area* (document reference 6.3.9.15).

9.334. PIA on the M25 to the north of the Junction 30 and south of the Junction 2 have been analysed in detail. The accidents on the M25 between these two junctions, including the Dartford Crossing, have been omitted from the detailed technical review. The provision of 25% visitor car and coach parking at Tilbury significantly reduces the need for any vehicles to use the Dartford Crossing, as vehicles travelling clockwise around the M25 anticipated to park in Essex Project Site, with vehicles travelling anticlockwise around the M25 parking at the Kent Project Site.

9.335. The analysis conducted on key links and junctions within the study area used data provided by KCC, ECC and TfL. The total of 1,155 PIAs were recorded during the respective five-year study period for each council. Twelve were classified as fatal, 160 as serious and 1078 as slight.

9.336. A more detailed summary of the PIAs and their locations (junctions followed by highway links) is provided in Table 9.13 below. There were 139 PIAs involving vulnerable road users, 98 of the PIAs involved a motorcyclist, 17 involved a pedal cycle and 24 involved pedestrians.

Table 9.13: Summary of Personal Injury Accidents

Junction/ Link		Severity			Vulnerable Road Users (P/C = pedal cycle, M/C = motorcycle)		
		Slight	Serious	Fatal	Peds	P/C	M/C
Junctions	Darenth Interchange: M25 J2/ A2 (RBT)	15	2	2	0	0	3
	Bean Lane: A2/B255 (Rbt Gyratory)	29	8	0	0	0	5
	A2/A2260 (Off slip/ On slip)	6	2	0	0	0	1
	A2260 Double Roundabout	7	3	0	0	1	3
	A2260 Ebbsfleet Gateway/ B259 Roundabout	1	1	0	0	0	1
	A2/B262 (Off slip Rbt)	9	0	0	0	0	0
	A2/ A227 Wrotham Rd (Offslip/Onslip)	17	2	0	0	1	1
	A206/ A226 London Rd Rbt	7	1	0	2	0	1
	The Avenue/ Knockhall Chase/ London Rd (Staggered priority junction)	10	0	1	1	1	1
	Ingress Park Avenue (Signal Controlled)	2	1	0	0	0	0
	Knockhall Rd/ London Rd (Priority junction)	2	0	0	0	0	0
	Craylands Lane/ London Road/ Manor Rd (Signal controlled junction)	3	1	0	2	0	0
	London Rd/ High Street (signal-controlled junction)	6	2	0	3	0	0
	Thamesway/ Stonebridge Rd Rbt	4	0	0	0	2	0
	Thamesway/ B261/ Rosherville Rd	4	0	0	0	1	0
	Thames Way/ Vale Rd Priority controlled junction	4	2	1	5	0	0
	Thames Way/ Springhead Rd (roundabout)	3	1	0	0	1	1
	Thames Way / Gateway Priority controlled junction	3	1	0	1	1	1
	Thames Way Rbt (north of A2260)	1	0	0	1	0	0

Junction/ Link		Severity			Vulnerable Road Users (P/C = pedal cycle, M/C = motorcycle)		
		Slight	Serious	Fatal	Peds	P/C	M/C
	Mar Dyke interchange: M25 J30/ A13 Roundabout	68	9	0	0	0	0
	A1012/ A13 Roundabout	38	10	0	0	0	5
	A13/ Dock Road Approach interchange	10	2	1	0	0	1
	Asda Road/ Dock Road Approach Rbt	12	3	0	1	1	0
	Dock Road/ Marshfoot Road/ Old Dock Road Rbt/ Interchange	8	2	0	0	0	0
	Dock Road/ Calcutta Road (mini roundabout)	3	1	0	1	0	2
	Dock Road/ Church Rd (mini roundabout)	1	0	0	0	0	0
Links	A2: Between Old Bexley Lane and M25 J2, Darenth Interchange	88	13	1	0	0	15
	A2: Between M25 J2, Darenth Interchange and B260	10	3	0	0	0	3
	A2: Between B260 and B255 Bean Lane	83	17	0	1	0	8
	A2: Between Bean Lane and A2260	34	8	1	2	0	7
	A2: Between A2260 and B262 Hall Rd/Station Rd	18	2	0	0	0	2
	A2: Between B262 Hall Road/ Station Rd and Wrotham Rd	62	9	0	0	0	5
	A2: Between Wrotham Rd and East A2	13	0	0	0	0	2
	M25: M25 J3 and M25 J2, Darenth Interchange	114	12	1	0	0	8
	M25: M25 J30, Mar Dyke and M25 J29/ A127	91	3	0	0	0	1
	A13: Between M25 J30 and A1202	19	1	1	0	0	3
	A13: Between A1202 and A1089	29	3	0	0	0	3
	A13: Wennington and M25 J30, Mar Dyke Interchange	31	6	0	0	0	2

Junction/ Link		Severity			Vulnerable Road Users (P/C = pedal cycle, M/C = motorcycle)		
		Slight	Serious	Fatal	Peds	P/C	M/C
	A1089: Between Asda Rbt and Marshfoot Rd Rbt	6	3	1	0	0	0
	A1089: Between Marshfoot Rd Rbt and A13	4	1	1	0	0	0
	A226 London Road: Between B255 and Mounts Road	4	0	0	1	1	1
	A226 London Road: Mounts Rd to The Avenue	1	1	0	0	0	0
	A226 London Rd: Between The Avenue and Craylands Lane	4	1	0	0	1	0
	A226 London Rd/ Galley Hill Road: Between Craylands Lane and Northfleet Station	13	6	0	2	5	4
	Swanscombe High Street	7	1	0	0	0	1
	Thames Way Road	14	2	0	1	1	0
	Dock Road	3	1	0	0	0	0

9.337. Detailed analysis of the recorded PIAs is included in the TA (v, Appendix TA-G). A high- level summary of the trends identified on key roads within the study area is summarised below.

Junction and link PIA analysis

A2: Old Bexley Lane to M25 J2, Darenth Interchange

9.338. There were one fatal and thirteen serious accidents reported along the A2 between Old Bexley Lane and the M25 roundabout; seven involved a motorcyclist as a result of losing control of their vehicle or filtering between slow-moving traffic. One incident was reported to have occurred due to the driver being intoxicated.

A2: M25 J2, Darenth Interchange to Wrotham Road

9.339. There were 260 PIAs reported along the A2 between Darenth Interchange and Wrotham Road over the five-year study period, one was reported as fatal, 39 were serious, and the rest were slight. The fatal accident was reported when the passengers of a broken-down car began to push the vehicle in lane 3 or 4 of the A2, when a car travelling behind struck the passengers, causing two fatalities.

9.340. A further 39 serious accidents were reported, of which 28 involved motorcyclists and occurred when surrounding vehicles misjudged the path of travel resulting in a collision. Overall it is evident that accidents on the A2 between Darenth interchange and Wrotham Road have occurred primarily due to driver error.

M25: M25 J3 and M25 J2, Darenth Interchange

9.341. The accidents reported on the M25 between the M20 and A2 were primarily due to driver error. Of those recorded, six were collisions with the rear of the vehicle in front due to lack of stopping distance.

M25: M25 J30, Mar Dyke Interchange to M25 J29, A127

9.342. There were 94 PIA accidents reported along the M25 between the A127 and the Darenth interchange, three of which were recorded as serious. One serious PIA was recorded due to the driver being intoxicated, one was due to a car entering the path of an HGV, and the final one occurred for unknown reasons.

A13: M25 J30, Mar Dyke Interchange to A1089

9.343. There were 53 PIAs reported on the A13 between M25 J30 and the A1089, one of which recorded as fatal and four as serious. The fatal accident reported on the A13 occurred when a driver reported having illicit substances in their system collided with the rear of a car. The four serious accidents reported were due to loss of control of thevehicle.

A13: Wennington to M25 J30, Mar Dyke Interchange

9.344. There were 37 PIAs reported on the A13 between Wennington and the Mar Dyke interchange, there were six serious incidents noted, with the overarching cause driver error in failing to judge the speed or path of anothervehicle.

A1089 Dock Approach Road

9.345. There totalled sixteen accidents along the A1089 between the Asda Roundabout and the A13, two of which were fatal accidents. One fatal accident occurred after the driver of a car lost control after clipping a kerb before their car caught fire. The second fatal accident occurred when an LGV collided with a stationary car, upon impact the passenger of the stationary car died. Four serious accidents were also reported; two were due to driver error; two involved entering the path of another vehicle, one was as a result of the driver being intoxicated, and the last accident occurred for unknown reasons.

9.346. The PIA reported on the A1089 were attributed by the driving behaviours rather than the conditions of the road.

A226 London Road

9.347. London Road documented twelve incidents involving pedal cyclists caused by when motorists overtaking did not leave adequate clearing space and collided with the cyclist. This is evidenced as a recurrent issue with cyclists using this road.

Dock Road

9.348. Four PIA were recorded on Dock Road over the five-year study period, two of which were recorded as serious. One serious incident happened when a vehicle entered the path of an oncoming car, the second occurred when two cars collided after the car behind failed to leave adequate stopping distance. There was one slight incident on this road recorded when a pedestrian failed to look properly when crossing the road. There was no trend evident in the cause of accidents on Dock Road as all were due to human error.

PIA summary

9.349. Several accidents were recorded on London Road, twelve of which involve pedal cyclists colliding with a car however these are predominantly accredited to poor driver behaviour, not allowing enough space between the vehicle and the cyclist whenovertaking.

9.350. There were two fatal accidents and two serious accidents that occurred at the Darenth Interchange, when a collision with the Armco barrier occurred, however, it was driver error as a cause of these accidents rather than the road conditions.

9.351. New junction design schemes and a dedicated access road that is to be implemented prior to the opening of the Proposed Development, will reduce the impact that the development may have on the highway network and the potential for accidents to occur. The Walking and Cycling Strategy set out in the TA (document reference 6.2.9.1, section 10) seeks to propose improvements in the vicinity of the Project Site to provide a safer, more cohesive walking and cycling network that is accessible for all road users. The Public Transport Strategy set out in the TA (document reference 6.2.9.1, section 11), in combination with the Travel Demand Management Strategy (document reference 6.2.9.1, Appendix TA-AC), is aimed to incentivise visitors and staff to travel by active and sustainable modes. Subsequently, this would lead to a reduction of impacts on the highway network and the potential for increased accidents as much as realistically possible.

Current baseline conditions (identified links)

A2260 between the two A2260/A2 roundabouts (Link ID 130)

9.352. The link is formed by a section of the A2260 between the two A2260/A2 roundabouts, and it is subject to a 60mph speed limit. The link is a strategic single-carriageway road situated in a semi-urban setting.

9.353. A shared footway/cycleway runs along the northern edge of the carriageway from the eastern roundabout for approximately 100m where it terminates with a toucan crossing. The shared facility continues towards the western roundabout along the southern edge of the carriageway. A section of a footway runs along the southern side between the eastern roundabout and the toucan crossing. Streetlights are provided along the link's length as well as at the junctions at each end.

9.354. The existing (2018 as modelled) volume of the traffic on the link is in a region of 9,500 AADT. HGV traffic forms approximately 7.3% of all vehicles.

9.355. The PIA record obtained from KCC for the latest available five-year period (1 January 2015 to 31 December 2019) indicate that a single PIA related to the link itself (Link ID 130) was recorded during that time. The PIA, classified as serious, involved two cars, oneof which attempted to leave the roundabout onto the link (Link ID 130). However, the driver changed his/her mind and tried to rejoin the circulatory carriageway. This manoeuvre resulted in a collision with the second car travelling around the roundabout.The PIA took place in darkness and dry weather conditions. From the description of the PIA recorded by the police, it is evident that the collision was the result of poor manoeuvre rather than road conditions.

A2 Westbound on-slip from the A2260/Ackers Drive roundabout (Link ID 134)

9.356. The link forms the A2 Westbound on-slip from the A2260/Ackers Drive roundabout to the A2. The link is a two-lane (single direction) strategic road link situated in a semi- urban setting merging into a single lane as it merges with the A2. It is subject to a 70mphspeed limit.

9.357. A toucan crossing is located on the link approximately 40m south of the roundabout. A shared footway/cycleway runs along the link for approximately 400m and then follows Park Corner Road. Streetlights are provided along the link's whole length.

9.358. The existing (2018 as modelled) volume of the traffic on the link is in a region of 6,000 AADT. HGV traffic forms approximately 6.2% of all vehicles.

9.359. The PIA record obtained from KCC for the latest available five-year period (1 January 2015 to 31 December 2019) indicates that a single PIA was recorded along the link (Link ID 134) during that time. The PIA, classified as slight, involved a single vehicle travelling at speed along the link. The driver lost control of the vehicle while overtaking another vehicle, hit the kerb and collided with an electricity cabinet. The PIA took place in daylightand dry weather conditions. From the description of the PIA recorded by the police, it isevident that the collision was the result of speed and poor handling rather than road conditions.

A226 Thames Way between A2260 Ebbsfleet Gateway and Springhead Road (Link ID 140)

9.360. The link forms part of the A226 Thames Way between its junctions with the A2260 Ebbsfleet Gateway and Springhead Road. The link is a single-carriageway road subject to a 40mph speed limit.

9.361. The link provides access from west to Northfleet Urban Country Park (Sensitive Receptor) located immediately east of the roundabout with Springhead Road.

9.362. A shared footway/cycleway runs along the eastern edge of the carriageway. The southern edge of the carriageway is delineated by a footway providing access to a bus stop situated approximately 150m to the west of the junction with Springhead Road. The footway terminates at the bus stop. An informal crossing point is available at the Springhead Road roundabout, with a toucan crossing provided at the junction with the A2260 Ebbsfleet Gateway. Streetlights are provided along the link's length as well as at the junctions at each end.

9.363. The existing (2018 as modelled) volume of the traffic on the link is in a region of 8,100 AADT. HGV traffic forms approximately 2.8% of all vehicles.

9.364. The PIA record obtained from KCC for the latest available five-year period (1 January 2015 to 31 December 2019) indicate that a single PIA related to the link itself (Link ID 140) was recorded during that time. The PIA, classified as serious, involved a motorcyclistleaving the roundabout with Springhead Road onto the A226 Thames Way (Link ID 140). The motorcycle clipped the kerb during the manoeuvre, and the rider was thrown into the island. The PIA took place in darkness with streetlights lit and dry weather conditions. From the description of the PIA recorded by the police, it is not evident whatcaused the accident.

Future baseline

9.365. 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 in an assessment.

9.366. The future baseline conditions are a result of likely changes in the transport trends as well as committed/planned developments (other than the Proposed Development) in the Project Site locality. As outlined in preceding sections, several committed/planned developments were embedded in the traffic model developed for the purposes of the assessment of the impacts associated with the Proposed Development.

9.367. The future year (2023, 2024/2025, 2029 and 2038) modelled traffic volumes are provided in full in Appendix 9.2 *Traffic Flows*.

9.368. Alongside the principal and associated development at the Project Site, WSP acknowledge that significant infrastructure changes and local development are planned/committed in the locality of the Project Site. The full list of the schemes considered as significant relative to the Proposed Development is provided earlier in this land transport chapter.

9.369. It should be noted that the baseline conditions described earlier in this land transport chapter represent the current observed conditions and does not account for changes resulting from planned/committed schemes. However, the planned/committed schemes as outlined above were embedded in the traffic model, which forms the basis for the assessment discussed later in this land transport chapter.

9.370. Details of schemes considered to be of high significance for the Proposed Development are provided below.

Lower Thames Crossing

9.371. The Lower Thames Crossing (LTC) is also an NSIP, which is seeking to obtain consent through a DCO application. Whilst the application was submitted by Highways England on October 23rd, 2020, it is understood that at the time of writing, the LTC DCO has been withdrawn, albeit that the intention is to resubmit as soon as possible. If consented, the LTC would be the longest road tunnel in the UK, stretching 26 miles and would include the implementation of 14.3 miles of a new highway connecting the M2 / A2, A13 and M25.

9.372. Whilst the baseline conditions discussed in this land transport chapter provide a review of the current provision and accessibility of the Project Site by active travel, sustainable modes and the highway network, the LTC is an important strategic consideration when developing the transport strategy for the Proposed Development.

9.373. If the LTC proposals gain consent, the scheme would result in significant re-distribution of vehicles on the existing highway network within Kent, Thurrock and ultimately seek to reduce traffic levels as well as congestion at the Dartford Crossing. As such, its potential implementation by 2029 has been considered in the transport modelling, forming the basis of this assessment. The indicative route of the LTC is indicatively shown in Figure 9.16: *Lower Thames Crossing Indicative Route* (document reference 6.3.9.16).

9.374. In the light of the above, the assessment in this land transport chapter considers both with and without LTC scenarios.

Tilbury 2

9.375. Tilbury 2 refers to the proposals by the PoTL to build a new port terminal and associated facilities on the land at the former Tilbury Power Station. The DCO application to extend the operations at the existing port allowing for the growth was submitted in October 2017 and in February 2019, received development consent from the Secretary of State for Transport.

9.376. The proposals include building a terminal for importing and exporting containers and trailers, warehouse floor space, a construction materials and aggregates terminal and storage facilities for bulk goods or vehicles – similar to the uses seen at the existing port. Construction at the site since 2019 has involved the building and construction of the new infrastructure corridor, including the Fort Road Bridge and new link road (Ford Road), which was formally opened to traffic and pedestrians on 4 July 2020.

9.377. During the September 2020 site visit and travel audit, highway conditions and driver behaviour were observed at the recently opened junction and road.

9.378. Furthermore, as outlined in the Tilbury 2 DCO Transport Assessment, mitigation improvements to the ASDA Roundabout (A1089 St Andrews Road, Dock Road, Thurrock Park Way) were submitted. Tilbury 2 acknowledge that their development proposals would result in an increase in traffic through this junction which, in the PM peak hour, is likely to have an impact upon its operation.

9.379. The mitigation improvements to the junction set out in the Tilbury 2 DCO Transport Assessment and shown in the associated drawing no. ITL11323-SK-034 were considered to provide operational benefits to the existing port operations and would mitigate the limited predicted operational impact from Tilbury 2. The Tilbury 2 mitigation proposals at the ASDA roundabout seek to achieve the following:

- Reduce traffic speeds on St Andrews Road – through reduction of the entry path radius;
- Increase traffic capacity on St Andrews Road – by providing separate approach lanes;
- Improve safety on St Andrews Road – by removing pedestrian-vehicle conflict with the alternative route now available beneath St Andrews Road enhancing the safety;
- Improved lane utilisation – the separate approach lanes enabling both lanes to be better utilised with reduced interaction at the entry to theroundabout;
- Improved capacity and safety on Thurrock Park Way – the reduced speed of vehicles from St Andrews Road, the secondary impacts are to increase the gaps between vehicles on the circulatory carriageway past Thurrock Park Way.

Ebbsfleet Garden City

9.380. Ebbsfleet Garden City is the first in a generation of new sustainable developments which embrace neighbouring communities and towns to create a community offering a diverse range of opportunities to live, work and play. The delivery of Ebbsfleet Garden City seeks to provide homes and neighbourhoods, an enterprising economy, connecting people and places, healthy environment, civic communities and integrated utilities and services. The corporate plan outlines the ambition to have completed at least 5,100 new homes between April 2016 and March 2023 across four key development areas. Part of the planning proposals includes the development of an urban centre in Ebbsfleet that provides jobs, homes, community and cultural facilities. EDC have prepared a development framework, with a masterplanning process underway. It is understood that EDC to submit a planning application varying their consent during the course of 2021.

Crossrail

9.381. The Proposed Development is not expected to have any impact or prejudice the Crossrail extension safeguarding route from Abbey Wood to Hoo Junction.

Mobility as a Service

9.382. Reducing reliance away from a private vehicle, improving travel options for residents and improving public health and wellbeing by reducing air pollution and improving air quality are all key drivers for KCC in the introduction of Mobility as a Service (MaaS) in Ebbsfleet.

9.383. The multi-modal transport integration proposed by KCC seeks to include train travel (to/from London and Kent), Fastrack electric bus services, local Arriva bus services, bike and e-bike hire as well as electric car club hire. If the Ebbsfleet trial is successful, MaaS will be rolled across Kent between 2023 and 2025 allowing residents of Ebbsfleet Garden City, and the wider areas, to live without the need for a privatecar.

9.384. KCC intend to work with MaaS technology to develop an app and website, which would deliver integrated journey planning, ticketing and payments. It would support origin to destination travel for a wide range of transport modes and offer a multimodal subscription as well as Pay as You Go (PAYG) options.

9.385. If implemented in line with KCC's project milestones, MaaS technology would go live in Summer 2022. With Fastrack, Bus Rapid Transit (BRT) and the local rail provision at the heart of the strategy, MaaS would help to encourage active and sustainable travel in the vicinity of the Kent Project Site. The service offering residents access to bus links, last-mile solutions and reduce reliance on private vehicles. The project aims to be a KCC facilitated, sustainable multi-modal MaaS framework to ensure that transport is fully integrated, providing seamless travel options and connections.

SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE PROPOSALS

Introduction

9.386. The assessment of the effects resulting from the Proposed Development is considered in the following sections:

- Construction phase – consideration is given to impacts resulting from the construction of both Gate OneOne and Gate Two; and
- Operational phase – consideration is given to impacts resulting from the operation of the Proposed Development at different stages of its lifecycle.

Construction phase

9.387. The location of the Project Site presents a unique opportunity for the construction phase of the Proposed Development. It is forecast that the total volume of material required for Proposed Development is circa three to four million tonnes. As the Proposed Development is located on the River Thames, a large proportion of the total volume of material will be taken to and from Project Site via barge boats. During the construction process, it is expected that up to 80% of all material (arriving and departing) would be delivered via the river. In highway terms, therefore, it is assumed that the remaining 20% of the materials would be delivered by HGVs via the roadnetwork.

9.388. The traffic associated with the construction phase(s) would include heavy plant and lifting machinery, as well as material deliveries by HGVs and light vehicles transporting the construction workforce. The number of construction vehicles would fluctuate on a daily basis and would depend on the stage of the construction process.

9.389. During the construction period, traffic movements are likely to be associated with the following sources:

- the delivery and/or collection of plant/machinery;
- the delivery of construction materials and/or removal of waste materials; and
- the construction workforce.

9.390. The Proposed Development will replace existing commercial land uses of an industrial nature. This will provide benefit in that it will reduce HGV volumes associated with the existing uses. Details of the forecast level of potential traffic generation associated with current site uses are set out in section 15 of Appendix 9.1: *Transport Assessment* (document reference 6.2.9.1) of this ES.

9.391. The assessment presented in this land transport chapter is only concerned about the traffic using land-based modes of transport (i.e. HGV and light vehicles) with the waterborne traffic during the construction of the Proposed Development discussed in Chapter 10: *River Transport* (document reference 6.1.10).

9.392. Construction traffic results in a temporary traffic impact as it usually ceases upon the completion of the construction works. The construction traffic is generally significantly lower in volume than the traffic associated with the operation of development (of this type). Thus, the effects tend to be temporary and less significant. The volume of traffic will also depend heavily on the rate of delivery and the triggers for delivering parts of the infrastructure. As the preferred main contractor has not been identified yet, appropriate assumptions have been made for construction traffic.

9.393. Given the scale of the Proposed Development, the delivery is to be phased with the peak of construction of the first phase (i.e. Gate One) planned in 2023. The construction activity of the second phase consisting of the construction of Gate Two is expected to peak in 2025 with the Gate One fully operational.

9.394. The forecast construction traffic movements (both HGV and light vehicles) were included in the traffic model with the modelled traffic volumes provided in full in Appendix 9.4 *Construction traffic* (document reference 6.2.9.4).

9.395. The construction routeing will require all vehicles to utilise the A2 junction towards Ebbsfleet International to access the Proposed Development from the SRN and avoid the AM and PM peaks. There will be three main accesses to the Kent Project Site. One via the existing access from London Road and once completed, the temporary haul road from Ebbsfleet International and the Resort Road from the A2 interchange. The details of the routeing and accessibility of the Proposed Development for construction traffic is discussed in the TA (document reference 6.2.9.1, section 15) and the CTMP (document reference 6.2.9.1, Appendix TA-AD).

2023 – Peak of construction Gate One

9.396. The detailed calculation and rationale behind the assumptions underpinning the traffic forecasts during the construction phase are provided in the TA (document reference 6.2.9.1, section 15) and the CTMP (document reference 6.2.9.1, Appendix TA-AD).

9.397. From the worker job creation perspective, work undertaken by Volterra has identified that between 3,500 – 5,500 roles, with a maximum of 6,000 roles will be required during the peak construction period. For assessment purposes, a maximum figure of 6,000 workers has been assumed. It is planned that 25% of the construction workers would live on-site during week, the remaining 75% would be daily commuter construction workers.

9.398. During the peak construction period of Gate One, it is forecast that the Kent Project Site would generate 1,008 movements a day (equates to 2,016 two-way trips). These will be split across the day between 06:00-19:00 with no trips arriving or departing in the AM or PM peaks.

9.399. The Essex Project Site is likely to generate 206 movements a day (equates to 412 two-way trips), with these split over the arrival (06:00-08:00) and departure (18:00-19:00) periods for the construction workers.

9.400. The forecast construction traffic volumes are provided in Appendix 9.5: *Peak of Construction Gate One* (document reference 6.2.9.5) with the baseline traffic flows and differences highlighted.

9.401. As outlined in Appendix 9.5: *Peak of Construction Gate One* (document reference 6.2.9.5), the construction activity associated with the delivery of Gate One is planned to peak in 2023. From the data, it is evident that the greatest change in the traffic volume resulting from the Gate One construction on a link is forecast to be 8.9% (Link 134). This modest increase falls within the daily variation of the traffic (approximately +/- 10%) and would be of a temporary and local nature.

9.402. The changes in the traffic/HGV volume resulting from the construction activity do not exceed Rule 1 and Rule 2 thresholds on none of the modelled links. As such, none of the links is required to be assessed in detail.

9.403. Given the above, the changes in vehicle movements resulting from the construction activity are **negligible** and would be viewed as being of **Neutral or Slight** significance. Therefore, it is concluded that the effects of the construction traffic associated with the delivery of Gate One would be **short term, temporary, adverse** and **'not significant'** in EIA terms. As such, no specific mitigation measures are required to reduce theeffects.

2025 – Peak of construction Gate Two

9.404. The detailed calculation and rationale behind the assumptions are provided in the TA (document reference 6.2.9.1, section 15) and the CTMP (document reference 6.2.9.1, Appendix TA-AD).

9.405. The construction of Gate Two would not commence until Gate One is completed and fully operational. Given that the scale of Gate Two is smaller than Gate One, and that the majority of the associated infrastructure would be delivered during the first phase, the volume of traffic generated by the construction activities associated with Gate Two is expected to be lower than that associated with Gate One.

9.406. It is forecast that the number of construction workers would drop by 50% to approximately 3,000 per day during the construction period. Similar to the construction of Gate One, 25% of the total construction staff would be residing on-site.

9.407. During the peak construction period of Gate Two, it is forecast that the Kent Project Site would generate 439 movements a day (equates to 878 two-way trips). These will be split across the day between 0600-1900 with no trips arriving or departing in the AM or PM peaks.

9.408. The Essex Project Site is likely to generate 81 movements a day (equates to 162 two-way trips), with these split over the arrival (0600-0800) and departure (1800-1900) periods for the construction workers.

9.409. It should also be highlighted that the construction of Gate Two is dependent on the delivery of Gate One, and it would only take place once Gate One is complete and operational. It is necessary to consider the cumulative effect of construction of Gate Two taking place whilst Gate One is operational. Therefore, the changes in the traffic resulting from the construction activity associated with the delivery of Gate Two are considered based on 2024/2025 – Gate One opening year/first full year of operation scenario. As a result, the assessment takes into consideration the traffic generated by the operation of Gate One and adds the Gate Two construction traffic, which is deemed robust.

9.410. The forecast construction traffic volumes are provided in Appendix 9.6: *Construction Traffic Gate Two* (document reference 6.2.9.6) with the baseline traffic flows and differences highlighted.

9.411. Based on the assumptions and the data in Appendix 9.6: *Construction Traffic Gate Two* (document reference 6.2.9.6), the increase in the traffic volume compared to 2024/2025 – Gate One opening year/first full year of operation scenario would be approximately 3.9% (Link 134). Similar to Gate One construction, this modest increase falls within the daily variation of the traffic (approximately +/- 10%) and would be of a temporary and local nature.

9.412. The changes in the traffic/HGV volume resulting from this activity do not exceed Rule 1 and Rule 2 thresholds on none of the modelled links. As such, none of the links is required to be assessed in detail

9.413. Given the above, the changes in vehicle movements resulting from the construction activity (Gate Two) are **negligible** and would be viewed as being of **Neutral or Slight** significance. Therefore, it is concluded that the effects of the construction traffic associated with the delivery of Gate Two would be **short term, temporary, adverse** and **'not significant'** in EIA terms. As such, no specific mitigation measures are required to reduce the effects.

Sensitivity assessment: Construction traffic

9.414. Whilst it is anticipated that 80% of the construction traffic will be river-based, a sensitivity test has been undertaken to determine the likely effects if there was a proportional shift to vehicular traffic.

9.415. It is considered that materials would be brought to the Port of Tilbury by road and then transported to the Project Site via the river.

9.416. For the purposes of the sensitivity assessment, it has been considered that of the 80% of pure river-based construction traffic, 60% (48% of the total construction traffic) might initially travel via road to the Port of Tilbury. To ensure a heavily robust assessment, 70% (56% of the total construction traffic) has been considered. This equates to 300 two-way AADT HGV movements. If these were to arise, it would only be expected to occur during the second stage of construction, this being during fit-out. Whilst there may be opportunities to bring materials to Tilbury by modes such as rail (via the Rail Head within the PoTL), boat and by way of light goods vehicles, for robustness, it has been assumed that all deliveries would be made by way of HGVs.

9.417. The likely assignment of these trips would be 50% (150 two-way) of the movements via the A13 west and 50% (150 two-way) of the movements via the A13 to the east. All of the movements would route to the Port of Tilbury via the A1089.

9.418. Given that the A1089 would see, as a result of the above, the greatest increase in HGV movements, the links associated with the A1089 have been subjected to further analysis as detailed below.

9.419. The links forming the A1089 are:

- section of the A1089 between Ferry Road and the Marshfoot Interchange formed by St. Andrew's Road and the southern part of Dock Road/Dock Approach Road (Link ID 248); and

- section of the A1089 between the Marshfoot Interchange and the junction with the A13 formed by the northern part of Dock Approach Road (Link ID 63).

9.420. The A1089 is a dual carriageway that is approximately 6 km long that follows a north-south alignment, providing a connection to the north with the A13 and PoTL to the south. The road is accessed from the A13 to the north using the A13/A1089 junction consisting of the priority two-lane off-slip/on-slip alignment.

9.421. The A1089 Dock Road/Dock Approach Road between the Asda Roundabout and the A13 is a dual carriageway road subject to national speed limits along its length.

9.422. The A1089 St Andrew's Road between the Asda Roundabout and PoTL is a dual carriageway road subject to 40mph speed limit. After PoTL, the A1089 continues as a single carriageway two-way road with a speed limit of 40mph before reaching the Ferry Road roundabout.

9.423. The nature of the A1089 is commensurate to the purposes it is serving, which is to carry vehicular traffic, including HGVs. The A1089 forms part of the SRN and given its strategic function, it forms only two junctions with local roads. These are the ASDA Roundabout and Marshfoot Interchange. No other junctions are formed along its length. Given its status, the A1089 does not provide direct access to any residential areas, nor does it haveany development frontage along its length.

9.424. The route of the A1089 is offset from the existing settlements, and it is considered that, in transport terms, no sensitive receptors/areas are affected by the traffic along the road.

9.425. The forecast construction traffic volumes (sensitivity test) for the two identified links during the construction period are provided in Table 9.14 for the peak of construction of Gate One (2023) and the peak of construction of Gate Two (2025) in Table 9.15 below, along with the baseline traffic flows and differences highlighted.

Table 9.14: Construction traffic (Gate One) – Sensitivity test

Link ID	Two-way AADT (24hr)							
	2023 Future Baseline		2023 Peak of Gate One Construction (sensitivity test)		Total Change	HGV Change	% Change (Total)	% Change (HGV)
	Total Vehicles	HGV	Total Vehicles	HGV				
63	26,842	2,680	27,271	2,993	429	313	1.6%	11.7%
248	30,070	3,003	30,770	3,343	700	340	2.3%	11.3%

Table 9.15: Construction traffic (Gate Two) – Sensitivity test

Link ID	Two-way AADT (24hr)							
	2024/2025 Future Baseline		2024/5 Peak of Gate Two Construction (sensitivity test)		Total Change	HGV Change	% Change (Total)	% Change (HGV)
	Total Vehicles	HGV	Total Vehicles	HGV				
63	28,200	2,691	28,562	2,995	362	304	1.3%	11.3%
248	31,527	3,014	32,020	3,327	493	313	1.6%	10.4%

9.426. Based on the assumptions and the data in Table 9.14 and 9.15 above, the increases in the total traffic volume compared to the baseline scenarios would be in the region of 2% during the construction of both Gate One and Gate Two. The increases in the HGV traffic are not forecast to exceed 12% in either of the scenarios.

9.427. As reiterated in Table 9.14 and 9.15 above, the changes in the traffic/HGV volume resulting from the construction activity do not exceed Rule 1 and Rule 2 thresholds on either of the considered links. As such, none of the links is required to be assessed in detail.

9.428. Given the above, the changes in vehicle movements resulting from the construction activity (sensitivity test) remain **negligible** and would be viewed as being of **Neutral or Slight** significance. Therefore, it is concluded that the effects of the construction traffic associated with the delivery of both Gate One and Gate Two would be **short term, temporary, adverse** and **'not significant'** in EIA terms. As such, no specific mitigation measures are required to reduce the effects.

Operational phase

9.429. The assessment presented in this land transport chapter is concerned only about the links (and scenarios) where the forecast traffic volumes exceed the rules (i.e. Rule 1 and Rule 2), as set out earlier. The scenarios where some or all the identified links are assessed in this section are:

- 2024/2025 – Gate One opening year/first full year of operation (Link 134);
- 2029 – Gate Two opening year (full development) without LTC (Link 130 and 134);
- 2038 – Maturity of the Proposed Development without LTC (Link 130, 134 and 140); and
- 2038 – Maturity of the Proposed Development with LTC (Links 130 and 134).

9.430. The above links identified for the detailed assessment are graphically represented in Figure 9.4: *Assessed Links* (document reference 6.3.9.4).

9.431. Consideration is only given to the operation of any junctions directly related to the links/scenarios identified above. Other than that, no other off-site junctions are discussed in this land transport chapter with any potential operational/capacity issues identified, discussed and addressed in the TA (document reference 6.2.9.1, section 13).

9.432. Once the Proposed Development becomes operational (either Gate One only or both Gate One and Gate Two), there is likely to be traffic associatedwith:

- visitors to the Proposed Development;
- employees; and
- servicing of the Proposed Development.

9.433. The generation, distribution and assignment of the trips generated by the Proposed Development are discussed in detail in the TA (document reference 6.2.9.1, section 6, section 7 and section 8), TN1 (document reference 6.2.9.1, Appendix TA-M) and TN2 respectively (document reference 6.2.9.1, Appendix TA-N).

9.434. The outcomes of the above documents were incorporated into the model developed for the purposes of the assessment of the Proposed Development. The model is briefly discussed earlier in this land transport chapter with detailed descriptions of the modelling approach and methodology provided in the Strategic Modelling Methodology report (document reference 6.2.9.1, Appendix TA-A).

9.435. The effects of the Proposed Development on the operation of the surrounding highway network are assessed using the outputs from the aforementioned model. The likely effects of the traffic associated with the operational phase of the Proposed Development are considered for all links identified earlier in this land transport chapter and for the relevant scenarios. It should be reiterated that the scenarios where no links satisfy Rule 1 or Rule 2 are not further discussed in this land transport chapter.

9.436. The likely effects of the traffic associated with the operational phase (i.e. 'with development' scenarios) are assessed against the Future Baseline scenarios. The sensitivity and the magnitude of change were assigned to a link based on the criteria set out in the methodology section of this land transport chapter. Subsequently, the significance of the effect was determined using the matrix provided in Table 9.6 above.

Severance

9.437. The summary of the assessment of severance is provided for each of the identified links/scenarios in Table 9.16 below.

Table 9.16: Assessment of severance

Link	Sensitivity		Magnitude of change		Significance
	Link type	Assigned sensitivity	Change in traffic volume	Assigned magnitude	
2024/2025 – Gate One opening year/first full year of operation					
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.7% (PM peak)	Minor	Slight
2029 – Gate Two opening year (full development) without LTC					
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi urban setting with pedestrian/cycle facilities provided	Medium	+35.4% (PM peak)	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi- urban settingwith pedestrian/cycle facilities provided	Medium	+47.1% (PM peak)	Minor	Slight
2038 – Maturity of the Proposed Development without LTC					
130 (A2260 between A2260/A2	Strategic/important vehicular route in a semi urban setting with pedestrian/cycle	Medium	+46.1% (PM peak)	Minor	Slight

roundabouts)	facilities provided				
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+63.0% (PM peak)	Moderate	Moderate
140 (A226 Thames Way)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+12.1% (PM peak)	Negligible	Neutral or Slight
2038 – Maturity of the Proposed Development with LTC					
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+33.6% (PM peak)	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.0% (PM peak)	Minor	Slight

2024/2025 – Gate One opening year/first full year of operation

9.438. As outlined in Table 9.16 above, the significance of effect on Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2029 – Gate Two opening year (full development) without LTC

9.439. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.16 above, the significance of effect on both Link 130 and Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development no LTC

9.440. Three links (Link 130, Link 134 and Link 140) exceeded the thresholds set out by Rule 1 and Rule 2 in this scenario. As outlined in Table 9.16 above, the significance of effect on both Link 130 and Link 140 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

9.441. The significance of severance on Link 134 is calculated to be **moderate**, with the effects expected to be **long term**, **permanent** and **adverse**. As such, the impact of the Proposed Development on severance is considered to be **'significant'** in EIA terms. This result indicates that mitigation would typically be required to reduce the significance of the effect.

2038 – Maturity of the Proposed Development with LTC

9.442. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.16 above, the significance of effect on both Link 130 and Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

Driver/bus passenger delay

9.443. The summary of the assessment of driver/bus passenger delay is provided for each of the identified links/scenarios in Table 9.17 below. The values in Table 9.17 below reflect the changes associated with the updates of the microsimulation modelling, as set out in *Introduction* section of this land transport chapter and contained within Appendix 9.8.

Table 9.17: Assessment of driver/bus passenger delay

Link	Sensitivity		Magnitude of change*		Significance
	Level of Service (LoS)	Assigned sensitivity	Change in delay	Assigned magnitude	
2024/2025 – Gate One opening year/first full year of operation					
134 (A2 westbound on-slip)	A	Low	n/a	n/a	Neutral or Slight
2029 – Gate Two opening year (full development) without LTC					
130 (A2260 between A2260/A2 roundabouts)	~~B~~A	Low	n/a	n/a	Neutral or Slight
134 (A2 westbound on-slip)	A	Low	n/a	n/a	Neutral or Slight
2038 – Maturity of the Proposed Development without LTC					
130 (A2260 between A2260/A2 roundabouts)	~~C~~D	Medium	n/a	n/a	Slight
134 (A2 westbound on-slip)	A	Low	n/a	n/a	Neutral or Slight
140 (A226 Thames Way)	~~A~~C	~~Low~~Medium	n/a	n/a	Neutral or Slight
2038 – Maturity of the Proposed Development with LTC					
130 (A2260 between A2260/A2 roundabouts)	B	Low	n/a	n/a	Neutral or Slight
134	A	Low	n/a	n/a	Neutral or Slight

(A2 westbound on-slip)					

** Magnitude of change based on the percentage change in the delay is only applicable on links which are approaching or are over their theoretical capacity (i.e. links with LoS E and F). LoS A - D indicates that there is a spare capacity and the links/junctions operate satisfactorily without significant delays.*

2024/2025 – Gate One opening year/first full year of operation

9.444. As outlined in Table 9.17 above, the significance of effect on Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2029 – Gate Two opening year (full development) without LTC

9.445. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.17 above, the significance of effect on both Link 130 and Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development no LTC

9.446. Three links (Link 130, Link 134 and Link 140) exceeded the thresholds set out by Rule 1 and Rule 2 in this scenario. As outlined in Table 9.17 above, the significance of effect on all three assessed links (i.e. Link 130 and Link 140) in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development with LTC

9.447. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.17 above, the significance of effect on both Link 130 and Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

Pedestrian delay

9.448. The summary of the assessment of pedestrian delay is provided for each of the identified links/scenarios in Table 9.18 below.

Table 9.18: Assessment of pedestrian delay

Link	Sensitivity		Magnitude of change		Significance
	Link type	Assigned sensitivity	Change in traffic volume	Assigned magnitude	
2024/2025 – Gate One opening year/first full year of operation					
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.7% (PM peak)	Minor	Slight
2029 – Gate Two opening year (full development) without LTC					
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.4% (PM peak)	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+47.1% (PM peak)	Minor	Slight
2038 – Maturity of the Proposed Development without LTC					
130 (A2260 between A2260/A2	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle	Medium	+46.1% (PM peak)	Minor	Slight

roundabouts)	facilities provided				
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+63.0% (PM peak)	Moderate	Moderate
140 (A226 Thames Way)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+12.1% (PM peak)	Negligible	Neutral or Slight
2038 – Maturity of the Proposed Development with LTC					
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+33.6% (PM peak)	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.0% (PM peak)	Minor	Slight

2024/2025 – Gate One opening year/first full year of operation

9.449. As outlined in Table 9.18 above, the significance of effect on Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIAterms.

2029 – Gate Two opening year (full development) without LTC

9.450. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.18 above, the significance of effect on both Link 130 and Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development no LTC

9.451. Three links (Link 130, Link 134 and Link 140) exceeded the thresholds set out by Rule 1 and Rule 2 in this scenario. As outlined in Table 9.18 above, the significance of effect on both Link 130 and Link 140 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

9.452. The significance of pedestrian delay on Link 134 is calculated to be **moderate**, with the effects expected to be **long term**, **permanent** and **adverse**. As such, the impact of the Proposed Development on pedestrian delay is considered to be **'significant'** in EIA terms. This result indicates that mitigation would typically be required to reduce the significance of the effect.

2038 – Maturity of the Proposed Development with LTC

9.453. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.18 above, the significance of effect on both Link 130 and Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

Pedestrian and cycle amenity

9.454. The summary of the assessment of pedestrian and cycle amenity is provided for each of the identified links/scenarios in Table 9.19 below.

Table 9.19: Assessment of pedestrian and cycle amenity

Link	Sensitivity		Magnitude of change		Significance
	Link type	Assigned sensitivity	Change in traffic volume	Assigned magnitude	
2024/2025 – Gate One opening year/first full year of operation					
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.7% (PM peak)	Minor	Slight
2029 – Gate Two opening year (full development) without LTC					
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.4% (PM peak)	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+47.1% (PM peak)	Minor	Slight
2038 – Maturity of the Proposed Development without LTC					
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+46.1% (PM peak)	Minor	Slight

134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+63.0% (PM peak)	Moderate	Moderate
140 (A226 Thames Way)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+12.1% (PM peak)	Negligible	Neutral or Slight
2038 – Maturity of the Proposed Development with LTC					
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+33.6% (PM peak)	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	+35.0% (PM peak)	Minor	Slight

2024/2025 – Gate One opening year/first full year of operation

9.455. As outlined in Table 9.19 above, the significance of effect on Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIAterms.

2029 – Gate Two opening year (full development) without LTC

9.456. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.19 above, the significance of effect on both Link 130 and Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development no LTC

9.457. Three links (Link 130, Link 134 and Link 140) exceeded the thresholds set out by Rule 1 and Rule 2 in this scenario. As outlined in Table 9.19 above, the significance of effect on both Link 130 and Link 140 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

9.458. The significance of pedestrian and cyclist amenity on Link 134 is calculated to be **moderate**, with the effects expected to be **long term**, **permanent** and **adverse**. As such, the impact of the Proposed Development on pedestrian and cyclist amenity is considered to be **'significant'** in EIA terms. This result indicates that mitigation would typically be required to reduce the significance of the effect.

2038 – Maturity of the Proposed Development with LTC

9.459. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.19 above, the significance of effect on both Link 130 and Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

Fear and intimidation

9.460. The summary of the assessment of fear and intimidation is provided for each of the identified links/scenarios in Table 9.20 below.

Table 9.20: Assessment of fear and intimidation

Link	Sensitivity		Magnitude of change			Significance
	Link type	Assigned sensitivity	Avg hourly flow over 18-hour period	Total HGV flow (18-hour period)	Assigned magnitude	
2024/2025 – Gate One opening year/first full year of operation						
134 (A2 westbound on-slip	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	548	291	Negligible	Neutral or Slight
2029 – Gate Two opening year (full development) without LTC						
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	812	365	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	592	297	Negligible	Neutral or Slight
2038 – Maturity of the Proposed Development without LTC						
130 (A2260 between	Strategic/important vehicular route in a semi-urban setting with	Medium	898	409	Minor	Slight

A2260/A2 roundabouts)	pedestrian/cycle facilities provided					
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	655	331	Minor	Slight
140 (A226 Thames Way)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	528	222	Negligible	Neutral or Slight
2038 – Maturity of the Proposed Development with LTC						
130 (A2260 between A2260/A2 roundabouts)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	1145	356	Minor	Slight
134 (A2 westbound on-slip)	Strategic/important vehicular route in a semi-urban setting with pedestrian/cycle facilities provided	Medium	941	268	Minor	Slight

2024/2025 – Gate One opening year/first full year of operation

9.461. As outlined in Table 9.20 above, the significance of effect on Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2029 – Gate Two opening year (full development) without LTC

9.462. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.20 above, the significance of effect on both Link 130 and Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development no LTC

9.463. Three links (Link 130, Link 134 and Link 140) exceeded the thresholds set out by Rule 1 and Rule 2 in this scenario. As outlined in Table 9.20 above, the significance of effect on all three links in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development with LTC

9.464. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.20 above, the significance of effect on both Link 130 and Link 134 in this scenario is **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

Accidents and safety

9.465. The summary of the assessment of accidents and safety is provided for each of the identified links/scenarios in Table 9.21 below.

Table 9.21: Assessment of accidents and safety

Link	Sensitivity		Magnitude of change			Significance
	No of accidents – 2018 base (Actual/Typical)	Assigned sensitivity	Number of accidents (5-year period)	Change in Traffic Flow (AADT)	Assigned magnitude	
2024/2025 – Gate One opening year/first full year of operation						
134 (A2 westbound on-slip)	0/1	Low	2	+12.0%	Minor	Neutral or Slight
2029 – Gate Two opening year (full development) without LTC						
130 (A2260 between A2260/A2 roundabouts)	0/1	Low	1	+17.0%	Minor	Neutral or Slight
134 (A2 westbound on-slip)	0/1	Low	2	+15.7%	Minor	Neutral or Slight
2038 – Maturity of the Proposed Development without LTC						
130 (A2260 between A2260/A2 roundabouts)	0/1	Low	1	+20.8%	Moderate	Slight
134 (A2 westbound on-slip)	0/1	Low	2	+19.6%	Minor	Neutral or Slight
130 (A2260 between A2260/A2 roundabouts)	1/2	Low	3	+4.0%	Minor	Neutral or Slight
2038 – Maturity of the Proposed Development with LTC						
130	0/1	Low	1	+15.9%	Minor	Neutral or

(A2260 between A2260/A2 roundabouts)						Slight
134 (A2 westbound on-slip)	0/1	Low	2	+12.9%	Minor	Neutral or Slight

2024/2025 – Gate One opening year/first full year of operation

9.466. As outlined in Table 9.21 above, the significance of effect on Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2029 – Gate Two opening year (full development) without LTC

9.467. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.21 above, the significance of effect on both Link 130 and Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development no LTC

9.468. Three links (Link 130, Link 134 and Link 140) exceeded the thresholds set out by Rule 1 and Rule 2 in this scenario. As outlined in Table 9.21 above, the significance of effect on all three links in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

2038 – Maturity of the Proposed Development with LTC

9.469. In this scenario, Link 130 and Link 134 exceed the thresholds set out by Rule 1 and Rule 2. As outlined in Table 9.21 above, the significance of effect on both Link 130 and Link 134 in this scenario is **neutral** or **slight**, with the effects expected to be **long term**, **permanent** and **adverse**. The effects of the Proposed Development are considered to be **'not significant'** in EIA terms.

PROPOSED MITIGATION

Construction phase

9.470. Construction traffic is transitional, and any environmental effects are temporary. However, this does not obviate the need to identify suitable management practices and to ensure the programme limits the effects, where practicable.

9.471. Other than embedded mitigation, such as the CTMP (document reference 6.2.9.1, Appendix TA-AD), which seeks to reduce the impact of construction traffic on the highway network and transport network users, no other specific mitigation is proposed as the likely effects are 'not significant' in EIA terms.

9.472. The above applies to both Gate One and Gate Two construction.

9.473. The CTMP (document reference 6.2.9.1, Appendix TA-AD) provides a framework for the requirements for the management of transport effects associated with the construction phases of the Proposed Development. It is part of a suite of documents, which address the transport effects of the Proposed Development and identify where mitigation measures may be required.

9.474. The document provides details on the requirements for the management of transport effects associated with the construction phases of the Proposed Development. Once the principal contractor has been appointed, there will be an opportunity for them to review and adjust the CTMP (document reference 6.2.9.1, Appendix TA-AD) in agreement with the local authorities.

9.475. The CTMP (document reference 6.2.9.1, Appendix TA-AD) provides detailed information regarding the construction traffic, including:

- construction vehicle routeing;
- proposed programme and duration;
- number of construction personnel including travel arrangements and mitigation;
- number of construction and delivery vehicles using the public highway; and
- traffic management.

9.476. The aims of the CTMP (document reference 6.2.9.1, Appendix TA-AD) are to set out the measures minimising any potential effects of the traffic associated with the construction of the Proposed Development. The CTMP (document reference 6.2.9.1, Appendix TA- AD) has the primary objective of minimising impact and disruption to existing users of the public highway network and the surrounding community, forming the framework within which all contractors are expected to work. This will be achieved by:

- adhering to the Demand Management Plan (i.e. a Travel Plan for construction staff);

- minimising the number of vehicular trips required for the movement of material and people;
- ensuring construction traffic trips and routes used are planned to be safe, efficient and timely;
- encouraging greater use of sustainable freight modes, such as riverbarge;
- ensuring the impact to nearby residents, local sensitive receptors and the travelling public are minimised; and
- encouraging the most efficient use of construction freight vehicles.

Operational phase

9.477. As demonstrated in the *Significant environmental effects of the proposals* section of this land transport chapter, the effects of the Proposed Development during its operational phase are not significant in EIA terms in all assessed scenarios except for the *2038 – Maturity of the Proposed Development no LTC* scenario.

9.478. In this scenario, the significance of severance, pedestrian delay and pedestrian and cyclist amenity on Link 134 (as shown in Figure 9.4: *Assessed Links*, document reference6.3.9.4) has been calculated to be moderate. As such, the effects of the Proposed Development are considered to be ***'significant'*** in EIA terms. This result indicates that mitigation would typically be required to reduce the significance of theeffect.

Severance

9.479. As set out earlier in this land transport chapter, severance is only likely to occur on highly trafficked roads and results from the perceived division the road and traffic create between communities on either side.

9.480. Notwithstanding the above, it should be reiterated that the Link 134 forms the A2 Westbound on-slip from the A2260/Ackers Drive roundabout to the A2. The link is a two-lane (single direction) strategic road link situated in a semi-urban setting merging into a single lane as it merges with the A2. It is subject to a 70mph speed limit.

9.481. The A2 to which the Link 134 connects forms an existing boundary between the settlement to the north and the open, predominantly agricultural land to the south. Therefore, the Link 134 does not create a division between the communities on either side, as there is none (or very sparse) to the south of the A2.

9.482. It is acknowledged that the increase in traffic volumes resulting from the Proposed Development triggers a higher level of significance of the effect. However, given the nature and setting of the link, it is not considered necessary to mitigate the effects on severance.

9.483. It should also be highlighted that the 'moderate' significance of severance is only triggered in the 2038 scenario without LTC. Should the LTC be delivered as expected (i.e. in or around 2029), the LTC would result in the redistribution of the traffic in the area and subsequently to the reduction of traffic volumes on the Link 134.

Pedestrian delay

9.484. As set out earlier in this land transport chapter, highly trafficked roads and changes to the volume or speed of traffic may affect the ability of people to cross aroad.

9.485. Notwithstanding the above, it should be reiterated that the Link 134 forms the A2 Westbound on-slip from the A2260/Ackers Drive roundabout to the A2. The link is a two-lane (single direction) strategic road link situated in a semi-urban setting merging into a single lane as it merges with the A2. It is subject to a 70mph speedlimit.

9.486. A toucan crossing is located on the link approximately 40m south of the A2260/Ackers Drive roundabout. The crossing allows for journeys across the Link 134 from the southern parts of Northfleet further to the east to southern parts of Ebbsfleet and further to the west along the A2.

9.487. As described above for severance, the setting and nature of the Link 134 does not result in a division between communities on either side, which would be expected to generate non-car modes of travel. The existing toucan crossing immediately to the south of the A2260/Ackers Drive roundabout is considered sufficient to accommodate the journeys of the non-motorised users, as well as provide optimal management of any potential delay for pedestrians.

9.488. It is acknowledged that the increase in traffic volumes resulting from the Proposed Development triggers a higher level of significance of the effect. However, given the nature and setting of the link in combination with the existing crossing facility, it is not considered necessary to mitigate the effects on pedestrian delay.

9.489. It should also be highlighted that the 'moderate' significance of pedestrian delay is only triggered in the 2038 scenario without LTC. Should the LTC is delivered as expected (i.e. in or around 2029), the LTC would result in the redistribution of the traffic in the area and subsequently to the reduction of traffic volumes on the Link 134. The delivery of LTC would effectively act as a mitigation measure.

Pedestrian and cycle amenity

9.490. The term pedestrian/cyclist amenity can be 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.

9.491. In addition to the toucan crossing discussed above, shared footway/cycleway runs along the Link 134 for approximately 400m and then follows Park Corner Road. Streetlights are provided along the link's whole length. The shared facility is segregated from the carriageway by a hardstrip.

9.492. There are no pedestrian/cycle facilities past the junction with Park Corner Road for the remainder of the length of the link before it joins with the A2. However, as previously discussed for severance, the setting and nature of the link in combination with the minimal number of destinations immediately to the south of the A2, it is considered that the existing provision is appropriate.

9.493. Given the relative high-quality of the existing shared-use facility segregated from the traffic, the scope for mitigation is relatively limited. It is considered that the improvements consisting of ensuring regular maintenance of the facility surface and regular seasonal vegetation cut-back would be required to maintain the quality of the route. Additionally, improved signposting and wayfinding could be provided to enhance further the pleasantness of the journeys on foot and by cycle.

9.494. It should also be highlighted that the 'moderate' significance of pedestrian delay is only triggered in the 2038 scenario without LTC. Should the LTC be delivered as expected (i.e. in or around 2029), the LTC would result in the redistribution of the traffic in the area and subsequently the reduction of traffic volumes on the Link 134. The delivery of LTC would effectively act as a mitigation measure.

Other embedded mitigation

9.495. As set out earlier in this land transport chapter, the Proposed Development is accompanied by several supporting documents and strategies all prepared in accordance with the latest guidance.

9.496. The benefits of these supporting strategies and plans are not accounted for in traffic modelling and subsequent assessments. Therefore, they are considered mitigation against the effects of the Proposed Development in general.

Transport assessment

9.497. The TA (document reference 6.2.9.1, section 13) considers the highway impact of the Proposed Development on the strategic and local highway network. The assessment is based on the outputs of the spreadsheet-based and microsimulation modelling and includes a review of queue lengths, journey times, junction capacity, and the SRN merge/diverge analysis.

9.498. As a result of the analysis, the TA (document reference 6.2.9.1, section 13) proposes a range of mitigation measures, including:

- Additional junction capacity provided at the A2 Ebbsfleet Junction including the provision of a dual carriageway vehicular access providing access to the Proposed Development;
- A226 London Road/High Street/Pilgrims Road; provision of pedestrian/cycle improvements leading to the removal of one arm of the junction, providing downstream capacity improvements; and
- Provision of signals-controlled arrangement at ASDA Roundabout consisting of signalising the approaches from the A1089 in both directions, providing a third lane on the northbound approach, a three-lane exit on the A1089 Dock Road which tapers down to two lanes and a two-lane exit on Thurrock Park Way which tapers down to a single lane within 50m. Reduction of Thurrock Park Way a single lane approach. The proposals also include upgrading the existing un-signalised crossings on the A1089 Dock Road to signal-controlled and relocating the signalised crossing on Thurrock Park Way approximately 25 metres further west.

Bus strategy

9.499. The Bus Strategy Plan (document reference 6.2.9.1, Appendix TA-V) proposes a range of improvements and/or new bus services to fulfil the aim of delivering high-quality bus services. These improvements will enhance, support and promote the active use of public transport for visitors and staff of the Proposed Development and are set out below.

South of the Thames

- Fastrack B diversion;
- Fastrack B capacity increased;
- partial Introduction of Fastrack C between Greenhithe and the Resort;
- increased frequency on routes 480/490;
- potential extension or restructure of Route 484 or a DRT2 to serve Perry Street (area 2) and improve service in area 3.
- potential extension of routes 480 or 490 in East Dartford or introduction of Demand Responsive Transport (DRT) service;
- potential Diversion of routes 480 or 490 to service Northfleet Station Road
- potential provision of Shuttle Bus services to connect to key employee locations; and
- introduction of a People Mover network of three routes linking Ebbsfleet International station the London Resort ferry terminal and Greenhithe to the Resort Interchange Plaza. The capacity delivered by the People Mover to be reconsidered in2029 in the light of progress with any major work at Swanscombe Station to facilitate a fully accessible approach to the Resort.

North of the Thames

- Extension of route 73 or 66 to Tilbury Ferry terminal; and
- Introduction of a new dedicated shuttle service between Tilbury Town Station and Tilbury Ferry Terminal ONLY operating to meet train arrivals.

Implementation

- a Transport Demand Management Steering Group will be set up to monitor and overview the adoption and implementation of the Bus Strategy in a flexible manner. The Working Group will be composed of representatives of the London Resort, relevant councils and local bus operators;

- the London Resort will take the responsibility to implement and operate the People Mover network as well as the Tilbury Terminal Shuttle;

- it is predicted that the fares generated by the additional demand on the local bus services, including Fastrack, will cover the cost of capacity increases required. Should this not be the case, The Resort would be prepared to pump-prime the services. The potential shortfall will be monitored by the PT Working Group;

- provide financial contributions towards DRT services within Kent that will serve the Proposed Development;

- peak days additional capacity requirements will be specified and tendered as and when required by the Steering Group; and

- infrastructure will be implemented in partnership and following the relevant Authorities' processes.

9.500. Through the provision of the Bus Strategy Plan (document reference 6.2.9.11, Appendix TA-V) and the measures proposed, it is considered that there would be a beneficial effect on bus travel.

Rail strategy

9.501. Rail is a core component of the public transport strategy and, due to the Proposed Development's proximity to the High Speed One (HS1) railway line, it represents the fastest way to get to the Proposed Development from central London among other key destinations in the South East. The strategy uses rail as much as possible as both an attractive and sustainable access mode and builds upon the existing capacity in order to meet forecast visitor demand.

9.502. The Rail Strategy Plan (document reference 6.2.9.1, appendix TA-U) is centred around the High Speed 1 (HS1) route, with Ebbsfleet International being the primary rail access point to the Proposed Development. The strategy ensures that there is sufficient capacity from an on-train and station concourse perspective, whilst using demandmanagement interventions to push/incentivise/manage demand to this access point andaway from the North Kent Line stations.

9.503. The strategy considers limited access to and from the North Kent Line stations at Greenhithe, with an onward transfer by bus to the Proposed Development, and Northfleet, with onward transfer to Ebbsfleet International Station. It is acknowledged that additional station infrastructure capacity along with new rolling stock investments will be required to meet demand and WSP have been working closely with the stakeholder group to ascertain the scale of the problem and the necessary interventions.

9.504. Through ongoing consultation with the stakeholders and responses to statutory consultation, a potential upgrade to Swanscombe has now been identified as a potential rail access solution on the North Kent Line. As and when this is delivered, it will provide added resilience and capacity for growth in line with the Gate Two of the Proposed Development.

9.505. A series of investments will be necessary to ensure the rail network has sufficient capacity to meet forecast visitor and staff demand. The structure of organisational relationships and commercial nature of the data involved in all interactions with the UK rail industry means that a comprehensive stakeholder engagement process has been embarked upon. This stakeholder group contains HS1 Limited, Network Rail and Southeastern.

9.506. The mitigation strategy follows the process of:

- avoiding impact on non-high-speed metro rail lines (North Kent and Tilbury) and demand-managing visitor and staff demand to high speed; and
- increasing station and line capacity on the high-speed route to minimise residual impact to rail users at HS1 stations and onboard of HS1 trains.

9.507. While the detail of exact mitigations is still being discussed with the stakeholder group, and a third-party independent capacity study is being commissioned to assess this, the interventions are centred around the HS1 route with Ebbsfleet International station being the primary rail access point to the Resort, ensuring there is sufficient capacity from an on-train and station concourse perspective and using demand management interventions to push/incentivise/manage demand to this access point. This core strategy includes limited access to and from the North Kent Line stations at Greenhithe, with an onward transfer by bus, and to Northfleet, with onward transfer to Ebbsfleet International. Additional station infrastructure capacity will be required along with new rolling stock investments to meet demand. The core strategy includes a rail access point at Tilbury Town on the north side of the River Thames with an onward transfer by bus and ferry. However, the forecast visitor demand here is low and would not necessitate any major infrastructure interventions.

9.508. Through ongoing consultation with the stakeholders and responses to our consultation, a potential upgrade to Swanscombe station has now been identified as a potential rail access solution on the North Kent Line. This forms part of the phased strategy, which will provide added resilience and capacity for growth in advance of the opening of the Gate Two. This process is separate to the London resort DCO.

9.509. The residual impact of the above will be designed to drive the reduction of crowding (concourse, platform and onboard), reduction of wait time, improvement in platform access and egress, safeguarding vertical and horizontal circulation, increasing wayfinding and signage. The capacity study is intended to identify the scale of mitigation required to enable funding sources to be identified.

9.510. Through the provision of the Rail Strategy Plan (document reference 6.2.9.1, Appendix TA-U) and the measures proposed, it is considered that there would be a beneficial effect on rail travel.

Off-site Parking Plan

9.511. The Off-Site Car Parking Plan (document reference 6.2.9.1, Appendix TA-Y) considers the locality of the Project Site by splitting it into five zones depending on the walking distance to/from the Proposed Development.

9.512. A monitoring process involves creating a working group with key stakeholders, provides means of contact with LRCH for local residents, incentives for visitors to park at the Proposed Development and provide pre-warning to visitors.

9.513. The last resort is to provide a phased Controlled Parking Zone (CPZ), which would be funded through the Section 106 obligation and enforcement and delivery would be given to the local councils in order to prevent visitors and staff from parking on streets.

9.514. With the provision of the Off-Site Parking Plan, (document 6.2.9.1, Appendix TA-Y) and the measures proposed, it is considered that there would be a negligible effect on off-site parking.

Walking and cycling strategy

9.515. Walking and cycling strategy (document reference 6.2.9.1, section 10) identifies a range of improvements that should be delivered as part of the Proposed Development to improve its accessibility. The Proposed Development will provide a direct pedestrian/cycle route linking Ebbsfleet International to The Resort Plaza. This route continues through The Resort linking to the Resort Pier to thenorth.

9.516. To deal with the east-west desire line for pedestrians and cyclists adjacent to the A226 London Road / Galley Hill Road, a route provided within the Site will connect to Tiltman Avenue. Direct access from the area of worker accommodation to the south of A226 London Road will be provided, by way of a tunnel beneath this route.

9.517. The strategy proposes improvements to the existing PRoW between Greenhithe and the London Resort jetty, upgraded crossing facilities at London Road, Swanscombe, removal of unnecessary street furniture, wayfinding and improvements to street lighting. An upgrade to the existing toucan crossing at Thames Way/A2206 will be provided, replacing the staggered crossing with a direct crossing point.

9.518. With the provision of the Walking and Cycling strategy (document 6.2.9.1, section 10) and the measures proposed, it is considered that there would be a negligible effect on connectivity.

Travel Demand Management Plan

9.519. Collectively, visitor and employee trips will represent much of the total travel demand associated with the Proposed Development. Managing this demand and positively influencing travel behaviour in favour of sustainable transport options is vital for the management of effects on transport networks and support of wider low carbon objectives of the Proposed Development.

9.520. The purpose of the Travel Demand Management Plan (document reference 6.2.9.1, appendix TA-AC) is to determine specific measures and techniques that can be applied at a scale to help optimise the people-moving capacity of travel and transport networks.This has the benefit of helping reduce peak period travel demand that may otherwise present acute capacity issues on highway networks or transport services, leading to unacceptable congestion and journey time delays. The Travel Demand Management Plan (TDMP) (document reference 6.2.9.1, Appendix TA-AC) also has the benefit of proactively promoting sustainable, low carbon forms of transport to reduce emissions from transport and support wider local and national net-zero carbonobjectives.

9.521. The plan considers a range of interventions based on their, *inter alia*, suitability, deliverability, scalability, potential for broader application outside the Proposed Development, cost-effectiveness and impact. Overseeing the implementation of the TDMP will be a Resort Travel Coordinator who will sit within a Transport Demand Steering Group, to be comprised of various bodies made up of local stakeholders together with London Resort. The measures specific to both the visitors and staff of the Proposed Development include:

- journey planning;
- marketing communications;
- resort ticketing and operations; and
- managing car-based mobility.

Delivery and Servicing Plan

9.522. The purpose of the Delivery and Servicing Plan (document reference 6.2.9.1, Appendix TA-AE) is to ensure that freight vehicle activity to and from Proposed Development works effectively and efficiently. It aims to specifically manage the timing of deliveries and consolidate deliveries wherever possible and select delivery companies that operate under the Freight Operation Recognition Scheme (FORS).

9.523. The plan sets out several measures and initiatives in accordance with the best practice guidance that will minimise the impact on the highway network. These measures and initiatives include:

- Design – outlines the primary vehicular and river access, how the Project Site accommodates special deliveries, the location of the servicing yard and the security measures;

- Operation Efficiency – presents the delivery restrictions, promotes the usage of a freight information portal, a servicing booking system to control the number of vehicles on-site, deliveries will be encouraged to arrive and depart out of hours and a consolidation centre will be located in the Port of Tilbury Ltd to improve reliability and efficiency;

- Road Trip Reduction – outlines how the resort will benefit from delivery and servicing via river from the consolidation site at the PoTL. Hotel outlets will be encouraged to use the same delivery companies for deliveries;

- Waste Management – the Proposed Development will provide sufficient facilities, storage and collection of segregated waste and the Resort will promote waste collection outside of the peak hours; and

- Complaints and Investigation Strategy – outlines the procedure for dealing with formal complaints relating to the delivery and servicing movements.

RESIDUAL ENVIRONMENTAL EFFECTS

Construction phase

9.524. As set out in the *Significant environmental effects of the proposals* section above, it is expected that the effects associated with the construction phase (both Gate One and Gate Two) of the Proposed Development would be temporary, and no long-term environmental effects are expected. There are no significant effects on the highway network from construction traffic. Therefore, the residual effects would benegligible.

Operational phase

9.525. As discussed in the *Significant environmental effects of the proposals* section above, the effects of the Proposed Development are considered significant only in the *2038 – Maturity of the Proposed Development no LTC* scenario on the Link 134 for severance, pedestrian delay and pedestrian and cycle amenity.

9.526. As explained, the nature and setting of the link do not warrant the need for mitigation measures to be implemented for severance, pedestrian delay. In terms of pedestrian and cycle amenity, only limited measures are proposed due to minimal scope for improvement of an already high-quality facility provided along the link which will not see an increase in use by pedestrians or cyclists.

9.527. The above suggests that the residual effects, strictly based on the change in traffic volumes, would remain of 'moderate' significance (except for the pedestrian and cycle amenity, which could reduce to 'slight' significance, and would no longer be 'significant' in EIA terms).

9.528. However, the embedded mitigation measures, as outlined in the *Proposed Mitigation* section above, would lead to a reduction in the overall vehicular traffic generated by the Proposed Development. This would lessen the residual adverse environmental effects of the Proposed Development resulting from the increases in traffic volumes.

9.529. The embedded mitigation measures seek to promote sustainable travel choices toreduce the proportion of private car trips. Targets and measures to increase walking, cycling and public transport trips are proposed on the basis that a remedial strategy would be put in place if targets are not met.

9.530. Although the Proposed Development is not reliant on the delivery of the LTC, in order to make it acceptable, it should be noted that should the LTC be delivered, the resultant redistribution of traffic in the area would lead to a reduction of the traffic volume on the assessed links in general.

9.531. The revised vehicular access strategy utilising Tilbury will reduce the need for traffic travelling from the north from having to utilise the Dartford Tunnel and the Queen Elizabeth II crossing. This access strategy therefore minimises the impact on the crossing and improves upon the original basis of the Proposed development considered in the 2014 Consultation.

9.532. As a result, none of the effects considered above would be significant after the implementation of the measures outlined in the *Proposed Mitigation* section.

CUMULATIVE, IN-COMBINATION AND TRANSBOUNDARYEFFECTS

Cumulative effects

9.533. As outlined earlier in this land transport chapter, the assessment is based on the traffic volumes extracted from the spreadsheet-based traffic model. The model includes information on developments that have already been constructed and are operational. Therefore, any effects resulting from the assessments based on the modelled values are cumulative. Table 9.1 above provide a list of the schemes included in the traffic model.

In-combination effects

9.534. Consideration was also given to significant planned and/or committed schemes in the wider locality of the Project Site in order to determine their potential in-combination effects. A comprehensive review of the planning applications in the area, as well as Local Plan(s) allocations, was undertaken to identify those schemes potentially having the in-combination effects. Table 9.1 *above* provides a list of the schemes included in the traffic model.

9.535. As outlined above, the spreadsheet-based model considered all significant planned and/or committed development in the Project Site area. Where the detailed information of the specific development is known, this was included in the model directly. The other developments are included under the NTEM/TEMPRO assumptions embedded in the model during its development. As a result, any effects resulting from the assessments based on the modelled values are also in-combinationeffects.

Transboundary effects

9.536. The transboundary effects are the effects of the Proposed Development on countries outside of the UK and in the EEA (European Economic Area). In transport terms, this would be the residual impact of the additional traffic associated with the Proposed Development upon other countries.

9.537. It is anticipated that the vast majority of visitors from overseas would be extending existing trips to the UK or would combine a trip to the Resort with other attractions within the UK.

9.538. It is acknowledged that there would be some additional vehicle movements associated with travel to the Proposed Development through the EEA and this has formed part of the assessment of the environmental effects of the Proposed Development on the highway network serving the Site. Previous assessments undertaken in 2017 identified that two thirds of existing international guests to the UK were via air travel, with a significant proportion of the remaining third of guests via river and rail.

9.539. The number of visitors to the Proposed Development, in context, would be a small proportion of total inbound movements to the UK. As part of the Proposed Development, there are no proposals to increase the frequency of any international air,rail or water-based transport services. It is anticipated that vehicular movements would form a minority of traffic movements into the UK, and again, they would be subject to the availability of existing services on both rail and water-based transport to enter the UK. Consequently, there would be no adverse transboundary transport effects.

CONCLUSIONS

9.540. In accordance with the IEMA guidelines the following effects have been assessed for a total of three road links around the Development:

- severance;
- driver delay;
- pedestrian delay;
- pedestrian and cyclist amenity;
- fear and intimidation;
- accidents and safety; and
- bus passenger delay

9.541. Hazardous and dangerous loads have been deemed likely to be insignificant effects due to the nature and type of development and have not been assessedfurther.

9.542. A spreadsheet-based model was developed to inform the assessment of the Proposed Development. The model includes highway networks in the vicinity of both Kent and Essex Project Sites.

9.543. The assessment identified that three links were required to be considered on the criteria of AADT increasing by more than 10% (links with sensitive receptors) or 30%. These links are

- a section of the A2260 between the two A2260/A2 roundabouts (referred to as Link 130 or A2260 between A2260/A2 roundabouts);
- the A2 westbound on-slip from the A2260/Ackers Drive roundabout to the A2 (referred to as Link 134 or A2 westbound on-slip); and
- the A226 Thames Way between A2260 Ebbsfleet Gateway and Springhead Road (referred to as Link 140 or A226 Thames Way).

9.544. The assessment of the likely significant effects of the Proposed Development presented in this land transport chapter demonstrates that the delivery of the Proposed Development would not result in any transport-related significant environmental effects.

9.545. The summary of the effects of the Proposed Development is provided in Table 9.22 below.

Table 9.22: Summary

Effect	Link	Significance	Adverse/ beneficial	Duration	Permanence	Mitigation	Residual effect significance
2023 – Peak of construction Gate One							
Severance	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Driver delay	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Bus passenger delay	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Pedestrian delay	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Pedestrian and cyclist amenity	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Fear and intimidation	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Accidents and safety	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
2025 – Peak of construction Gate Two							
Severance	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Driver delay	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Bus passenger delay	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Pedestrian	All	Neutral or	Adverse	Short term	Temporary	None required/CTMP	Neutral or

delay		Slight					Slight
Pedestrian and cyclist amenity	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Fear and intimidation	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
Accidents and safety	All	Neutral or Slight	Adverse	Short term	Temporary	None required/CTMP	Neutral or Slight
2024/2025 – Gate One opening year/first full year of operation							
Severance	134	Slight	Adverse	Long term	Permanent	None required	Slight
Driver delay	134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Bus passenger delay	134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Pedestrian delay	134	Slight	Adverse	Long term	Permanent	None required	Slight
Pedestrian and cyclist amenity	134	Slight	Adverse	Long term	Permanent	None required	Slight
Fear and intimidation	134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Accidents and safety	134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
2029 – Gate Two opening year (full development) without LTC							
Severance	130 134	Slight	Adverse	Long term	Permanent	None required	Slight
Driver delay	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Bus passenger delay	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight

Pedestrian delay	130 134	Slight	Adverse	Long term	Permanent	None required	Slight
Pedestrian and cyclist amenity	130 134	Slight	Adverse	Long term	Permanent	None required	Slight
Fear and intimidation	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Accidents and safety	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight

	2038 – Maturity of the Proposed Development without LTC						
Severance	130 140	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
	134	Moderate				Embedded mitigation strategies/plans	Slight
Driver delay	130 134 140	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Bus passenger delay	130 134 140	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Pedestrian delay	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
	140	Moderate				Embedded mitigation strategies/plans	Slight
Pedestrian and cyclist amenity	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
	140	Moderate				Regular maintenance and enhanced wayfinding. Embedded mitigation strategies/plans	Slight
Fear and intimidation	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight

	140						
Accidents and safety	130 134 140	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight

	2038 – Maturity of the Proposed Development with LTC						
Severance	130 134	Slight	Adverse	Long term	Permanent	None required	Slight
Driver delay	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Bus passenger delay	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight
Pedestrian delay	130 134	Slight	Adverse	Long term	Permanent	None required	Slight
Pedestrian and cyclist amenity	130 134	Slight	Adverse	Long term	Permanent	None required	Slight
Fear and intimidation	130 134	Slight	Adverse	Long term	Permanent	None required	Slight
Accidents and safety	130 134	Neutral or Slight	Adverse	Long term	Permanent	None required	Neutral or Slight