

Lower Thames Crossing

9.84 Post-event submissions, including written submission of oral comments, for ISH4

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1 Introduction

Please note: this document contains the Applicant’s oral summary of evidence and post-hearing comments on submissions made by others at Issue Specific Hearing 4 held on 6 September 2023.

Where the comment is a post-hearing comment submitted by National Highways, this is indicated. This document uses the headings for each item in the agenda published for Issue Specific Hearing 4 [[EV-042](#)] by the Examining Authority on 18 August 2023.

1.1 Welcome, introductions, arrangements for the Hearing

1.1.1 National Highways (the Applicant), which is promoting the A122 Lower Thames Crossing (the Project), was represented at Issue Specific Hearing 4 (ISH4) by Andrew Tait KC, Counsel for the Applicant (AT).

1.1.2 The following persons were also introduced to the Examining Authority (ExA):

- a. Mustafa Latif-Aramesh, BDB Pitmans, Partner and Parliamentary Agent (MLA)
- b. Dr Tim Wright, Lower Thames Crossing, Head of Consents (TW)
- c. Professor Helen Bowkett, Lower Thames Crossing, Transport Modelling and Economic Appraisal Lead (HB)
- d. Graham Stevenson, Lower Thames Crossing, Transport Planning Lead (GS)
- e. Isabella Tafur, Counsel for the Applicant (IT)
- f. Mohammed Halli, Lower Thames Crossing, Construction Roads Lead (MH)

2 Purpose of the Issue Specific Hearing

2.1.1 The Applicant did not make any submissions under this Agenda Item.

3 ExA Questions on: Traffic Modelling

3.1 Item 3(a) Traffic Modelling

Item 3(a)(i)

Item 3(a)(i) Explanation and discussion of the Applicant’s and DP World London Gateway’s (DPWLG’s) transport work submitted at Deadline 1 [REP1-187 & REP1-333] followed by a discussion about the potential impacts on Orsett Cock and Manorway junctions in light of the traffic reports and the Applicant’s Response (see – Annex A Comments on WRs Appendix E – Ports [REP2-050]):

- 3.1.1 In response to a submission made by DP World during Issue Specific Hearing 3, regarding the provision of traffic flow numbers making certain movements at Orsett Cock junction, TW noted that the Applicant’s suggested approach would be to provide updated data to stakeholders directly and give them time to consider and respond accordingly.
- 3.1.2 In respect of information provided to date, TW noted that the Applicant had set out a summary of junction modelling submitted at Deadlines 1 and 3 in Table 5.1 of Localised Traffic Modelling [REP3-126]. The Applicant provided operational junction modelling reports for Orsett Cock, Manorway, Asda roundabout (also in construction), Five Bells and Pitsea Hall, a number of junctions in Thurrock in an east–west model, and the Havering (Transport for London (TfL)) area.
- 3.1.3 In relation to information submitted by the Applicant, the Applicant noted that there was a question regarding the information submitted at Deadline 1 in comparison to that which was shared with stakeholders prior to application submission. TW confirmed that there were some minor differences in the flow data taken from the Lower Thames Area Model (LTAM) model runs, and that the model run used prior to submission was based on model run CS67 which was used in the early preparation of application materials. Minor modifications were made to that model to create CS72, which was included in the Transport Assessment [REP3-112 to REP3-116] and the Combined Modelling and Appraisal Report [APP-518]. TW explained that in order to avoid confusion, the Applicant updated the localised modelling that had been issued prior to application submission to ensure that it aligned fully with modelling submitted as part of the application. TW confirmed that the actual impact on flows was minor.
- 3.1.4 TW explained that in terms of outstanding requests, Thurrock Council (TC) have requested some information set out in a submission made at Deadline 3 [REP3-211] which sets out actions agreed between TC and the Applicant, although the Applicant notes that it has a different perspective on some of these. TW confirmed that the Applicant is in the process of providing available information to TC, although noting that some of TC’s requests relate to model elements that do not exist and models developed earlier in the design stage which in some cases have been superseded because those interventions were not pursued or the models were integrated into the main modelling.
- 3.1.5 TW provided the example of Table 14.1, under the section titled ‘General’, sixth bullet point: TC asked the Applicant to share an M25 Corridor Model

[[REP3-211](#)]. The Applicant does not have this, as only a model of part of one link on the M25 exists, which was built during design development to investigate a value engineering option, but this was not taken forward. TW also provided an example of a request from TC for the A13 corridor model. TW explained that the Applicant has confirmed to TC that there is no full model of the A13, only a small part of it which was used in model development to calibrate driver behaviour and then subsumed into the Orsett Cock VISSIM model. TW also noted that TC included in its Summary Review of National Highways' Localised Traffic Modelling Report – Appendix E [[REP3-207](#)] some requests for additional construction scenario assessments at a number of local junctions. TW proposed responding to this request under Agenda Item 5.

- 3.1.6 TW also noted the Port of Tilbury London Limited's (PoTLL) request in their Deadline 3 submission [[REP3-196](#)], in which PoTLL requested the Applicant undertake a construction assessment on the private road network within the Port of Tilbury. TW advised that the Applicant considered that the movement of traffic on the private road network should be addressed through the agreement it is currently negotiating with PoTLL.
- 3.1.7 TW further noted DP World's request in its Deadline 2 submission in relation to re-running the LTAM model with the delays from VISSIM at Orsett Cock coded into the model [[REP3-154](#)]. TW explained that the Applicant does not consider this to be appropriate, nor is it standard practice in modelling. The Applicant's approach has been to use a SATURN model to forecast flows across the area, allowing the model to account for drivers' behavioural responses to changes in network conditions, for example, travelling at a different time or re-routing. TW noted that a variable demand approach is important and that the Applicant's approach to traffic modelling is set out in Section 3.2 of Localised Traffic Modelling [[REP3-126](#)].
- 3.1.8 In addition to the strategic model, TW explained that there are various micro-simulation tools such as VISSIM, which are appropriate for assessing small networks. The limitation is that VISSIM does not deal with driver response and cannot handle route choice over a wider area. The Applicant has used VISSIM models in the design development to look further at the performance and safety of individual junctions. The Applicant identified concerns regarding certain junctions and changed the highway design accordingly, which has happened a number of times throughout the development of the Project. TW explained that the revised highways design is then remodelled using the strategic SATURN model to deliver the final assessment of the proposals.
- 3.1.9 In response to the ExA's query, TW explained that due to the nature of discussions with TC in relation to Orsett Cock, there are some questions regarding the peak hour of traffic flow. TW explained that LTAM has an AM peak hour and a PM peak hour model but TC's concern was that particularly with respect to the morning peak, this was not aligned with the peak in traffic flows they had observed on the local road network. The Applicant therefore made some modifications to the LTAM AM peak hour flows extracted from LTAM for use in the VISSIM modelling in order to allow for an alternative set of peak hour flows in the AM, as requested by TC, for use in VISSIM modelling at Orsett Cock. HB continued to explain that the Applicant developed a VISSIM model of Orsett Cock alongside TC during a series of workshops. HB explained

that in relation to Orsett Cock, this modelling work was taking place during COVID-19, and the Applicant used the available turning movement traffic counts. The Applicant worked collaboratively with TC to develop a matrix for the VISSIM model based on these one-day turning counts. HB noted that the Applicant originally submitted its forecasting report and the VISSIM model to TC in August 2022, who provided their comments for consideration in their submission in August 2023.

- 3.1.10 TW acknowledged the request from DP World for the Applicant to take delays from the VISSIM results and input them back into SATURN. TW explained that while this is possible, where longer delays are shown on VISSIM and put through SATURN again, the flows are likely to reduce in the SATURN model because that is able to reflect driver behaviour and route choices. The Applicant's concern is that if it were to take the VISSIM results from a single junction and feed them back into SATURN, this would unbalance the SATURN model, as this would result in altering the data at a single location and not making similar changes at other junctions on alternative routes to which vehicles may switch to or from. There would have to be an iterative process in which the VISSIM outputs were put into the SATURN model and the SATURN outputs then put back into the VISSIM model and vice versa, which would be an extremely long and disproportionate process.
- 3.1.11 In response to the ExA's query, HB confirmed that it is not common practice to input VISSIM outputs into the SATURN model, and SATURN outputs back into the VISSIM model and vice versa, as there would be an issue in respect of balance across the wider area. HB remarked that different modelling tools produce different forecasts and are based on different flow sets and that HB has witnessed only one exceptional case where this method has been followed. **[Post-hearing note: the Applicant has provided more information in Section A.3 of the ISH4 post-hearing Annex].**
- 3.1.12 TW submitted that the Applicant has discussed with DP World that it would carry out one iteration to demonstrate the initial effect of taking VISSIM outputs into the SATURN model, but that the Applicant does not consider such a proposal and process to be within accepted modelling protocols. The Applicant is satisfied that the SATURN model is a robust tool for the assessment of this scheme. TW noted that the VISSIM model helps explore the performance of a junction in detail which is why it has been shared, but the Applicant's position remains that SATURN is the appropriate model for assessing the Project.
- 3.1.13 In response to the ExA's query relating to other Nationally Significant Infrastructure Projects, HB noted that the Applicant's approach is consistent with modelling for other schemes developed by the Applicant and that this is a well-developed model. HB noted that it is important to build a model which covers a large area around the Project, as the LTAM does. HB commented that the modelling had been an intense and comprehensive exercise, in particular with the VISSIM modelling being used in the design process. HB confirmed that it is normal industry practice to use this tool, in combination with others.
- 3.1.14 TW acknowledged DP World's submission and that the Applicant's response was yet to be submitted. TW noted that DP World had raised concerns about vehicles wanting to access the A1089 continuing along the A13 eastbound and undertaking a U-turn at Manorway before returning to Orsett Cock. This relates

to traffic travelling north or south from the A122 Lower Thames Crossing, which would come off at Orsett Cock but could be put off by the queue length onto the roundabout circulatory lanes and would rather travel on the A13 mainline to Manorway and then return on the A13 to access the A1089. The Applicant understands that DP World's concern relates to the increase in traffic on Manorway. The Applicant does not believe that there are vehicles doing that U-turn movement described by DP-World, rather that the only vehicles U-turning at Manorway are those vehicles who are using the A128 Brentwood Road at Orsett Cock junction and who are wishing to use the A122 Lower Thames Crossing, and that the numbers making this movement are set out in Table A.1 of Comments on Written Appendix E: Ports [REP2-050]. The Applicant recognises that there will be queues at the slip from the A122 Lower Thames Crossing to the Orsett Cock roundabout but does not consider the U-turn movement to be an attractive alternative, as set out in paragraph A.1.19 of Comments on Written Representations Appendix E: Ports [REP2-050]. TW explained that the route using the Project, then the A13, U-turning at the Manorway junction, Orsett Cock junction and the exit from the Orsett Cock junction for the A1089 is 6.6km longer and would take an additional 7.9 minutes in 2030 in the AM peak modelled hour and over 10 minutes in 2045. TW further noted that the Applicant's VISSIM modelling is for two separate junctions, so the outputs do not show U-turning movements. TW commented that DP World produced a LINSIG model that also does not show U-turn movements, and shows Manorway junction functioning satisfactorily. TW then set out the Applicant's understanding, that DP World, as explained at paragraph 3.1.3 of Lower Thames Crossing Deadline 3 Update on Technical Matters Relating to Traffic Impact on Behalf of DPWLG [REP3-154], added an additional 200 vehicles onto Manorway junction to reflect a scenario which does not represent how Manorway junction would ordinarily operate. The Applicant does not consider this scenario to be representative of the performance of Manorway junction, except in some unusual conditions.

- 3.1.15 AT noted that the points raised by TC in relation to the 2016 base year would be addressed in a later Agenda Item, which the ExA confirmed. In response to TC, AT remarked that there is adequate and sufficient information to allow a decision to be determined, having regard to compliance with Transport Analysis Guidance (TAG) and the approach accepted by the Secretary of State (SoS) in relation to National Highways schemes. AT noted that reference had been made to paragraph 4.6 of the National Policy Statement for National Networks (NPSNN), and further highlighted that this paragraph also states that modelling should be proportionate to the scale of scheme.
- 3.1.16 In response to TC's submission, HB confirmed that if the Applicant were to undertake the large exercise of seeking convergence between the two models across the whole of the LTAM model, this would take many years. HB added that it is a considerable task to collect data, build the VISSIM models over the area that generally could be affected by re-routing traffic, and to carry out the iterations required to reach convergence between the models.
- 3.1.17 In response to TC's submission relating to the Orsett Cock junction localised model, HB clarified that the Applicant had been working well with TC during workshops. The Applicant supplied the forecast model in August 2022 but then did not receive TC's comments by way of response until August 2023. HB noted

that the Applicant intends to address the comments received promptly but that there had been a significant period of time during which the Applicant had awaited comments.

- 3.1.18 TW clarified that despite the movements at Orsett Cock being characterised by Interested Parties (IPs) as U-turns, these movements are not in fact U-turns, rather these movements constitute the normal use of a junction approaching at one exit and leaving at another. TW also acknowledged the points raised by IPs in relation to traffic leaving Orsett Cock and moving onto local road links, and noted that this occurs as part of the usual flow of traffic. TW explained that such traffic and local people using the area, benefits local businesses and can be considered a sign that the crossing provides economic benefits to the region and to communities in the area.
- 3.1.19 HB confirmed that in the Orsett Cock VISSIM forecasting model that the Applicant submitted, there were three short links in the model: Rectory Road and the A128 north and south, where there is latent demand occurring. In response to this, the Applicant has lengthened the links in order to remove the latent demand, which TC requested was sent to them once their comments had been considered. The Applicant's position is that the latent demand issue has not affected the queuing from the A122 Lower Thames Crossing onto the Orsett Cock junction. In respect of Manorway and the VISSIM model being based on modelled base data and not on observed turning counts, HB confirmed that this was the approach agreed with TC in workshops, due to turning count data not being available at the time and could not be usefully collected because of the COVID-19 pandemic.
- 3.1.20 In relation to pathways to resolution, TW noted that the Applicant considers that there are two. TW set out that the Applicant will: 1) continue to work with stakeholders to discuss the modelling, whilst noting that the Applicant considers that SATURN is robust and that VISSIM modelling is useful to explore the nature of the SATURN outputs, but that the application is contingent on the SATURN model; and 2) further the use of the VISSIM model to inform the process of the detailed design stage, which will continue to evolve through the development of the Project.
- 3.1.21 TW highlighted that the Applicant has a licence obligation to continue to collaborate with local authorities, which the Applicant will continue to do through the delivery of the Project and operation of the strategic road network.
- 3.1.22 In respect of the ExA's query relating to mitigation security at Orsett Cock, the Applicant proposes responding to this in the appropriate format at Deadline 4.

Item 3(b)(ii)

Item 3(b)(ii) Applicant to explain its approach to modelling uncertainties and whether any additional work is necessary in light of the recent publication of the 'TAG Unit M4 – Forecasting and Uncertainty':

- 3.1.23 HB noted that as reported in the Transport Forecasting Package [[APP-522](#)], the Applicant has set out how the traffic modelling has been carried out in accordance with TAG. HB highlighted that in relation to the uncertainty log, there are different categories of certainty about any particular development that may be included in the modelling and that an element of judgment is required

when categorising the degree of certainty as to whether a particular development will be built. Judgment is required with regard to whether a proposal is robust enough to put into the traffic model. HB explained that the traffic model has two parts: demand, e.g. new development and how many trips would be associated with that; and the supply/network side. Therefore, the Applicant has to ensure that there are sufficiently robust highway interventions, or public transport interventions associated with new developments which are proposed to accommodate the trips that are associated with a proposed development. An example of this is the Hoo Peninsula local planning development, which, although requested by Medway Council to be included, the Applicant did not include in the modelling as the local plan development and its associated transport interventions did not have sufficient certainty. The funding for the new road scheme and railway station for the Hoo Peninsula has now indeed been withdrawn. HB noted that the Applicant published in the uncertainty log that there were two developments not included in the modelling even though they were “more than likely” under the terms of TAG: Highsted Park and Medway One, as in the Applicant’s judgment, these developments did not have appropriate highway interventions to support them.

- 3.1.24 GS noted the ExA’s opening remarks about the Freeport. GS confirmed that the freeport covers a number of different sites, some of which are already included within the model, such as the development of DP World. GS noted that not all elements of the freeport are in the public domain at this point in time, and as such, details around the freeport are currently unknown. GS confirmed that the Applicant has been in ongoing engagement with PoTLL and that the Applicant was provided in 2021 with some details of potential land uses and accompanying trip generation for freeport development at the Port of Tilbury and that the Applicant had recently shared outputs from the modelling of this with PoTLL.
- 3.1.25 TW noted that the Applicant was provided with the masterplan development by PoTLL that allowed the Applicant to consider the traffic generated, but that it was not provided with any changes or interventions that might be made to the highway network. The Applicant expressed concern at the time that without that, the model would not be representative of the nature of flows that would occur on the network, which is why it had not been shared until fairly recently. The Applicant remains of the position that the Freeport, without the interventions to the road network that would be required to accompany it, is not appropriate for inclusion. TW noted that in the Applicant’s view, it is not the Applicant’s responsibility to put forward likely interventions, nor enter into the public domain new information that is not currently being shared by the site developer.
- 3.1.26 HB stated that, as reported in the Transport Forecasting Package [[APP-522](#)], the overall level of traffic growth in the model comes from the DfT’s NTEM 7.2 (TEMPro 7.2) traffic growth forecast, which was current at the time of modelling. HB confirmed that the Applicant had run a sensitivity test using TEMPro 8 (NTEM 8) and the 2032 opening year [[REP3-145](#)], which was submitted at Deadline 3. HB explained that NTEM 8 was released in November 2022 and the related goods vehicle factors needed to do the modelling were released in December 2022. The Applicant has carried out modelling and compared the traffic forecast using TEMPro 7.2 and TEMPro 8, as well as forecasting for all the Common Analytical Scenarios published in November 2022.

- 3.1.27 HB confirmed that the Applicant is able to provide this comparison, and that the figures are provided in the NTEM 8 and Common Analytical Scenarios document [REP3-145]. The results show a very slight change in forecast flows at the Dartford Crossing. In relation to the uncertainty toolkit, HB explained that the Department for Transport (DfT) published the traffic growth forecast to enable traffic modellers to implement the Common Analytical Scenarios in their traffic models in November 2022, after the Development Consent Order (DCO) application was submitted. The Applicant has undertaken all seven of them and published the results in NTEM 8 and Common Analytical Scenarios [REP3-145]. HB confirmed that there is not a big change in traffic numbers at the Dartford Crossing, with the Project, with the biggest changes being the for the behavioural change scenario in 2047 during the average inter-peak hour , with a reduction in traffic of around 9%, and the highest increase is 8.1% in the 2047 average interpeak hour in the high economy scenario. HB explained that this is because this is a busy network, so a high growth scenario with more trips will still mean there are only a certain number of trips that can move around on the network and access the Dartford Crossing and other roads in the area. HB stated that in scenarios with fewer trips, the variable demand model has more people making trips they want to make across the river, so there is a smaller decrease in flows than may have been expected with the publication of the Common Analytical Scenarios. It is for this reason that the Applicant felt it would be useful to carry out the modelling work and publish the figures.
- 3.1.28 In response to the submissions made in relation to the age of the data used by the Applicant, HB explained that the LTAM is based on the number and pattern of trips in 2016, which is a robust representation of travel patterns in the area. HB explained that the Applicant then factored the number of trips from 2016 to 2030 using TEMPro 7.2 traffic growth forecasts. HB noted that it states in TAG that when considering the age of data being used in the base year model, the suitability of that data for that purpose must be considered. The Applicant's position is that the traffic numbers and travel patterns are similar now as before COVID-19 and therefore the base year model is suitable for use as a base for forecasting. In relation to the pattern of trips, the Applicant has procured datasets from TomTom for 2019 and 2023 of observed data from vehicles fitted with GPS units to track their movements. This took data from trips using the Dartford Crossing for an area up to around 15km from the Dartford Crossing. Using that data, the Applicant has checked that the pattern of trips using the Dartford Crossing is similar to the pattern shown in 2016 base data. HB confirmed in response to the ExA's question that no data used was from the period of COVID-19 for either the LTAM model or the VISSIM model.

- 3.1.29 **Post-hearing written submissions:** These are contained within Annex A and include:
- a. Section A.2– Orsett Cock LTC peak hour traffic flows (ISH4 Action Point 1)
 - b. Section A.3 – Precedents on VISSIM not being re-used in SATURN
 - c. Section A.4 – Responding to Thurrock Council comments on the length of time to undertake VISSIM-SATURN Modelling to achieve convergence
 - d. Section A.5 – Differences between VISSIM and SATURN and their outputs
 - e. Section A.6 – Response to comments made by Professor Phil Goodwin (ISH4 Action Point 5)
 - f. Section A.7 – Response to comments made by Thurrock Council
 - g. Section A.8 – Response to comments made by DP World London Gateway
 - h. Section A.9 – Response to comments made by the Port of Tilbury London Limited
 - i. Section A.10 – Response to comments made by Thames Crossing Action Group
 - j. Section A.11 – Response to comments made by Mr Elliot
 - k. Section A.12 – Response to comments made by Essex County Council
 - l. Section A.13 – Response to comments made by the London Borough of Havering
 - m. Section A.14 – Response to comments made by Kent County Council
 - n. Section A.15 – Response to comments made by Gravesham Borough Council
 - o. Section A.16 – Response to comments made by Essex Area Ramblers (Mr Reeve)

4 ExA Questions on: Wider Network Impacts Management and Monitoring

4.1 Item 4(a) Applicant's Approach to Mitigation

Item 4(a)(i)

Item 4(a)(i) NPSNN policy position in terms of wider mitigation of highway impacts:

- 4.1.1 AT suggested and the ExA agreed that the Applicant could address Agenda Items 4(a)(i) and (ii) together. AT noted that the Applicant's position in relation to policy compliance is set out in Appendix F of the Transport Assessment [APP-535] and in Appendix A of the Planning Statement [APP-496]. AT highlighted the specific section in the NPSNN on impacts on transport networks at paragraphs 5.201 to 5.218, which clearly governs consideration of wider network impacts. As noted at paragraph 5.215, the approach to mitigation needs to be proportionate and reasonable. AT noted that there is no specific requirement in the NPSNN to propose interventions where there may be increased congestion.
- 4.1.2 TW explained that the Applicant's position is that the Project, as set out in the Need for the Project [APP-494] and the Economic Appraisal Package [APP-524 to APP-527], takes account of the impacts of the Project and concludes that it provides both an overall benefit and a benefit to each local authority area. The adverse impacts have been quantified and accounted for in the determination of the benefit. Therefore, by delivering against the need, in alignment with Section 2 of the NPSNN, and complying with the relevant tests in the NPSNN for consideration of the impacts arising from changing traffic flows away from the Project boundary, the Project is compliant.
- 4.1.3 TW addressed the three tests identified in the NPSNN relating to impacts arising from changing traffic flows away from the Project boundary. The first test relates to severance and accessibility (as set out in paragraphs 5.206, 5.216, and 3.19 to 3.22). The Applicant has assessed compliance and identified locations where there is a concern of severance. This includes ensuring access is available for varied communities including people with disabilities. TW confirmed that the Applicant has provided a severance assessment in the Health and Equalities Impact Assessment [REP3-118] and proposed mitigation is included in the Section 106 Agreements – Heads of Terms [APP-505] in respect of the three locations that were identified as those with potential severance issues. The second test relates to environmental impacts, which the Applicant has considered and addressed in the Environmental Statement [APP-138 to APP-486], particularly in relation to air, noise and landscape impacts in sensitive areas. The third test relates to safety and covers potential issues associated with changes in traffic flows. In accordance with the NPSNN, the Applicant is required to demonstrate that it has taken steps that are reasonably required to minimise the risk of death and injury, and to contribute to an overall reduction in road casualties and unplanned incidents. TW confirmed that the Applicant has set out in its application documents how, on a per kilometre travel basis, the proposals lead to a reduction in the total number of

casualties across the Project. The Applicant is also required to demonstrate consideration of safety implications of the Project from the outset and that it is putting in place rigorous processes for monitoring and evaluating safety. TW explained that these requirements under the NPSNN are addressed by the Applicant's standard approach of delivering a post-opening project evaluation.

- 4.1.4 TW noted that there is no specific requirement in the NPSNN to propose interventions in response to increased congestion. Instead, the NPSNN requires mitigation measures to be proportionate and reasonable. The Applicant's position is that the benefits of the Project significantly outweigh the impacts, and that providing additional interventions across the regional highways network would be disproportionate and unreasonable.
- 4.1.5 TW submitted that the DfT licence under which National Highways operates sets out statutory directions and guidance that have informed the approach the Applicant has taken to the ongoing management of the highway network, considering the changes in traffic flows resulting from the Project. Through the licence, the Applicant is directed to work with others to align national and local plans and investments, balance national and local needs and support better end-to-end journeys for road users. Impacts on the highways network resulting from the changes in traffic flows following opening of the Lower Thames Crossing will be considered by the Applicant as part of its exercise of this duty.
- 4.1.6 The Applicant notes that the principles set out in the licence are confirmed in Road Investment Strategy (RIS) 2, which states that the purpose of the Project is to tie the nation closer together, linking Essex to Kent and the south to the north. RIS 2 also sets out that it is not possible to outbuild congestion across the whole road network. TW further noted that RIS 2 is a five-year plan and can only be considered part of the story of phased investment in the network. National Highways was established to enhance the strategic road network with a remit to operate, maintain, renew and enhance its motorways and main A roads to the benefit of road users, people who live next to or depend on the network, and the natural, built and historic environment. Investments in the network are considered on their merits through the RIS process. TW also noted that RIS 2 sets out that the Project is a key component of the investment pipeline. RIS2 recognised that there may be a need for consequent and related planned investment and explains that it is expected that linked improvements on the A2 into Kent, for example, will be investigated as part of the pipeline of work for the next RIS.
- 4.1.7 TW made reference to the Route Strategy Initial Overview Reports published in May 2023 as evidence of the RIS process in action. The Route Strategy Reports are published as work in progress in the interests of transparency and engagement and network needs are not intended to be resolved by a single investment. TW clarified that there is no suggestion in the RIS or the Route Strategies that the Project cannot go ahead without other investments and that the Project is nationally important and transformational. TW explained that the DfT has in place clear mechanisms for dealing with further investment and allowing for the prioritisation of issues strategically and nationally as well as locally.
- 4.1.8 TW highlighted that RIS 2 sets out the process for investing further into the future, for example, the Tilbury Link Road is listed as a pipeline project for RIS

4. TW stated that the road networks of Essex, Kent and Thurrock will be considered through the RIS process in relation to the strategic road network and similar funding regimes when on the local road network. The DCO does not need to replicate or undermine that process. The road funding process should be objective and fair. TW noted the competing claims for scarce government resource to tackle substandard highways and the Applicant's position is that it would be unfair to the case for investment in those projects if local projects were committed to under the DCO, bypassing existing processes. TW noted that it is possible, as a consequence, that some road investments which are considered meritorious, and some that are seen as essential, may fail to secure government funding, however, this would be a decision exercised by government in full knowledge of its own policy and the need to manage resources strategically.

- 4.1.9 If the Applicant were required to address all the identified areas of adverse impact, the scope of the Project would expand beyond that intended by the government in their decision to include the Project in the RIS programme. A more forensic approach is required to identify those impacts which meet the policy tests for mitigation. For wider impacts and longer term investment, a strategic, planned approach is clearly preferable. For example, as the existing flows across the network are already constrained, addressing the identified impacts would likely lead to the creation of further impacts, essentially resulting in the Applicant being held accountable for each junction that is currently at or near to capacity across the region. This would be disproportionate and counter to the intention of both the terms and intention of policy and to the government's deliberate, strategic investment strategy.
- 4.1.10 In response to the ExA's query regarding the Applicant's position on provision of a commitment to mitigate at Orsett Cock, or any other location for that matter, if it were found that there was going to be a 'severe impact'. TW noted that this question had already been put to the Applicant in writing and confirmed that the Applicant is in the process of preparing a response to this. TW noted that commitments would be contingent on the nature of the flows that resulted in any severe impact. TW added that the network is subject to change daily and there are incidents on the network, with regular queuing. The Applicant is confident that its localised traffic modelling demonstrates that severe impacts would not occur. TW noted that this was identified as important for the modelling at an earlier stage of the Project, in relation to traffic leaving the A122 Lower Thames Crossing and coming onto Orsett Cock roundabout, and that VISSIM modelling informed a decision to increase the nature of the slip road and produce extra capacity.
- 4.1.11 In response to the ExA's query on the Applicant's view on the status of RIS 2, TW explained that RIS 2 is not the same as the NPSNN which has statutory precedence under the Planning Act 2008, but that the Applicant considers it to be a policy document which is important and relevant, which needs to be considered appropriately. It represents the expression of government policy in action.
- 4.1.12 Following submissions made by IPs, AT clarified a number of issues. Firstly, AT noted that when he introduced the NPSNN, the purpose was to draw a distinction between the specific requirements of safety and environmental assessment, accessibility and severance, in contrast to what it does not require

in relation to wider network impacts. AT clarified that it was not accurate for IPs to assert that the Applicant had taken an in-principle approach and that the application had not considered the impacts of the Project. Extensive consideration had been given by the Applicant in relation to local and wider operational impacts, both in the Transport Assessment [[REP3-112 to REP3-116](#)] and in Appendix F of the Transport Assessment [[APP-535](#)]. AT noted that the Wider Network Impacts Management and Monitoring Plan [[APP-545](#)] identifies a number of monitoring locations which have been informed by the assessments of the wider transport effects. The Applicant is confident that the application has understood and reported on the impacts and fully taken them into account.

- 4.1.13 Secondly, AT noted that the National Planning Policy Framework does have text relating to approaching impacts on the road network in the context of safety and cumulative impacts as set out in Appendix I of the Transport Assessment [[APP-538](#)] and consistent with that approach, cumulative impacts are assessed and concluded as acceptable.
- 4.1.14 Thirdly, AT referred to the draft National Policy Statement (NPS) and noted that even if this is adopted in its final form, it would not displace the application of the NPS in relation to this Project. The draft NPS also refers to ‘acceptable’ levels as the relevant test. The Applicant’s position is that the draft NPS does not reflect a substantive change from that which is currently embodied in policy.
- 4.1.15 Fourthly, in respect of paragraph 431 of the NPS relating to design and the decision of the SoS on the A47 Wansford to Sutton DCO, the decision makes clear that one should not conflate that with the wider impact tests.
- 4.1.16 Fifthly, AT noted that the scale of the Project must mean that any impact which does not meet the tests for mitigation, needs to be considered on a national or regional basis against other candidates for that investment, rather than a project-by-project basis. TW added that, as noted in Appendix F of the Transport Assessment [[APP-535](#)], the nature of a highways scheme is different to other schemes referenced by IPs, for example Sizewell C DCO. The Project leads to the movement and redistribution of existing journeys across the network, people making different decisions about where to go and which route to take, rather than the nature of impacts brought about by projects which create a new, centralised point for travel.
- 4.1.17 Finally, AT noted that the issue relating to precedents would be addressed, as agreed, at ISH7. In relation to the Silvertown Tunnel DCO, TW noted that the nature of funding for Transport for London is different and their operation under devolved powers is different in comparison to the Applicant’s position. TW further submitted that the position in relation to engagement for TfL and for the Applicant differs. The Applicant has a licence which obliges it to work with local authorities and industry bodies, to look at the performance of the road network. TW referenced the route strategies in development, the early reports of which were published in May 2023, in which it can be seen that the Applicant works with local highway authorities and different groups to understand the performance and the challenges that the road network provides, looking at intersections between the strategic growth network and the local highways network. The Applicant’s position is therefore that the licence obligations mean that the working groups are already in existence and operation. The process does not need to be recreated in the DCO.

- 4.1.18 In response to submissions made by Kent County Council (KCC), TW clarified that the C route variant was considered at an early stage in the Project development and was not taken forward because it offered limited relief at Dartford. The Applicant's focus is to deliver the Scheme Objectives. The Applicant agreed with the ExA that it will respond fully in writing in respect of Blue Bell Hill.

Item 4(a)(ii)

Item (4)(a)(ii) Applicant will be asked to justify the approach in the WNIMMP specifically around the issue of mitigation:

- 4.1.19 The Applicant made submissions in relation to this Agenda Item at Agenda Item 4(a)(i).

Item 4(a)(iii)

Item 4(a)(iii) Precedents for and against the Applicant's approach:

- 4.1.20 **[Post-hearing note: this matter was raised at ISH7, and the Applicant refers to its comments in it's post-hearing submission note for ISH7.]**

Item 4(a)(iv)

Item 4(a)(iv) The effect of the LTC scheme routes between the M20 and M2 motorways, in particular the A229 Bluebell Hill:

- 4.1.21 The Applicant made submissions in relation to this Agenda Item at Agenda Item 4(a)(i).

Item 4(a)(v)

Item 4(a)(v) The Silvertown Tunnel Approach. Whether there is an alternative approach to wider impacts mitigation, for example, the approach taken in the made Silvertown Tunnel DCO?:

- 4.1.22 **[Post-hearing note: this matter was raised at ISH7, and the Applicant refers to its comments in it's post-hearing submission note for ISH7.]**

- 4.1.23 Post-hearing written submissions: These are contained within Annex B and include:

- a. Section B.2 – Optimisation works at Orsett Cock
- b. Section B.3 – Response to comments made by Kent County Council
- c. Section B.4 – Response to comments made by Thurrock Council
- d. Section B.5 – Response to comments made by Gravesham Borough Council
- e. Section B.6 – Response to comments made by the London Borough of Havering
- f. Section B.7 – Response to comments made by Transport for London

- g. Section B.8 – Response to comments made by the Port of Tilbury
London Limited
- h. Section B.9 – Response to comments made by Higham Parish Council
- i. Section B.10 – Response to comments made by Mr Elliot
- j. Section B.11 – Response to comments made by DP World
London Gateway

5 ExA Questions on: Construction Traffic Management

5.1 Item 5(c) Construction Traffic Management

Item 5(c)(i)

Item 5(c)(i) Adverse impacts arising from specific construction routes and/or road closures:

- 5.1.1 The Applicant noted and acknowledged the ExA's preference not to address the specifics of the road closures, nor for the Applicant to set out its approach in respect of the same.

Item 5(c)(ii)

Item 5(c)(ii) Applicant asked to set out how the Traffic Management Plan would work in practice:

- 5.1.2 In response to the ExA's query relating to the outline Traffic Management Plan, IT confirmed that this approach is commonplace and has not resulted in any problems or difficulties at implementation stage previously. The Applicant has a well-established mechanism for engagement with local highway authorities, and local authorities and stakeholders more generally, which has worked well in practice and which the Applicant anticipates will be the same in this case.

Item 5(c)(iii)

Item 5(c)(iii) Mitigation, monitoring and compensation during construction phase:

- 5.1.3 In particular, IT noted that the Applicant wished to present a broad overview of its position in relation to construction traffic modelling, which IT noted would be submitted in writing.
- 5.1.4 In response to the submissions made by KCC and Gravesham Borough Council (GBC) in relation to wear and tear, IT referred to Section 3.2 of the outline Traffic Management Plan for Construction [REP3-120] which creates a requirement on the Contractor, where there is an interface between the strategic and the local road network, to seek to agree a detailed local operating agreement with the local highway authority, setting out roles and responsibilities of the parties, including routine maintenance and repair. In the event that these cannot be agreed, the outline plan has a provision for that to be referred to and approved by the SoS, which the Applicant believes is sufficient.
- 5.1.5 In respect of the structure and escalation issues in the event of disagreement amongst members of the Traffic Management Forum, IT noted that there is provision made in the outline Traffic Management Plan for Construction [REP3-120] for an escalation process (Plate 3.3), whereby the Traffic Manager, who will be appointed by the Applicant, can escalate the issue to a joint operating forum and if this escalation process does not resolve the dispute, then there are obligations in the DCO requirements themselves [REP3-077] and in the outline Traffic Management Plan for Construction [REP3-120] for those representations to be submitted to the SoS, along with an explanation from the

Applicant, with the ultimate arbiter being the SoS. The Applicant's position is that this plan goes a lot further than many others, in that it does include a raft of illustrative traffic management measures. IT noted that the plan is illustrative because of the stage of detailed design and the absence of Contractors for many of the works. In summary, the Applicant's view is that this is an appropriate, well-precedented governance strategy. IT further remarked that the example given by TfL in its submission was a good example of this system working well, as a contractor came on board with a suggestion that stakeholders did not agree with, and appropriate changes were made.

- 5.1.6 In response to KCC's submission relating to monitoring positions, IT noted that these were north of the river because discussions had been carried out with a number of local authorities and it was only TC who provided monitoring locations, with subsequent discussions carried out with KCC in respect of their preferred monitoring locations. IT noted that the inclusion of monitoring locations will form part of the Traffic Management Plan, which is a requirement in the outline Traffic Management Plan for Construction [REP3-120] and that monitoring locations will be informed by discussions in the forum. IT confirmed that it was not an error, as alluded to by KCC, but rather an illustrative example of discussions informing processes. IT confirmed that monitoring locations will be included in these discussions and all relevant parties will have input.
- 5.1.7 In response to the suggestion relating to a requirement to minimise disruption, IT confirmed that this is already contained in the outline Traffic Management Plan for Construction at paragraph 2.4.23 [REP3-120]. IT further quoted paragraphs 4.4.1 and 4.4.2 which state '*To reduce the impact on local road users, the length of traffic management measures would be kept to a minimum and left in situ for the shortest duration as far as is reasonably practicable. Where it is intended for roadworks to be left in place for defined periods without any construction works being undertaken, e.g. a weekend, the Contractors shall assess whether it is reasonably practicable and safe to remove the traffic management equipment during this period.*' IT noted that although outline controls at this stage, these controls have been considered and will be further evolved through the forum itself.
- 5.1.8 In relation to the Asda roundabout, IT noted that the information provided in the appendices was intended to be factual and that there is some commentary in Appendix A of the Localised Traffic Modelling [REP3-126]. IT submitted that when the Applicant submits its written summary of the modelling approach, it should be clear that the Applicant understands both from the VISSIM model and the strategic model, that there are certain inevitable impacts from the construction traffic on a number of junctions. The Applicant notes that at an early stage in the design process, it is not possible to go further than that and that the control documents are the way in which to address those impacts, which will be robust and will not eliminate impacts. IT noted that the Applicant proposes to minimise and manage the impacts appropriately.

- 5.1.9 In response to TC’s comment in relation to performance targets, live data and monitoring, IT confirmed that these are all contained within the control document and that there is extensive provision for monitoring, which includes live data, cameras recording trips and in-vehicle systems to monitor this. IT noted that there are also performance indicators indicative at this stage in Appendix D to the outline plan [\[REP3-120\]](#).
- 5.1.10 TW confirmed that the Applicant is in active engagement with the Port of Tilbury in relation to construction traffic management protocols which would operate to allow for optimised use of the Asda roundabout, considering both the Project but also the functioning of the port.
- 5.1.11 In relation to the Applicant’s contracting model, TW noted that the Project is clearly high profile and so the Applicant is aware that Contractors need to be seen to do the right thing by local communities. The Applicant has taken a collaborative approach to its contracting framework, reflected through the Applicant’s reference to its Contractors as ‘Delivery Partners’.
- 5.1.12 In relation to the query on Brewers Road raised by some of the IPs, MH noted that the design alignment is constrained by High Speed 1 (HS1), meaning that the green bridge cannot be constructed parallel to Brewers Road and in order to build the bridge safely, closure of Brewers Road is required.
- 5.1.13 **Post-hearing written submissions:** These are contained within Annex C and include:
- a. Section C.2 – Localised construction traffic modelling overview (ISH4 Action Point 9)
 - b. Section C.3 – Response to comments made by Thurrock Council
 - c. Section C.4 – Response to comments made by the Port of Tilbury London Limited
 - d. Section C.5 – Response to comments made by the London Borough of Havering
 - e. Section C.6 – Response to comments made by Mr Elliot
 - f. Section C.7 – Response to comments made by Higham Parish Council
 - g. Section C.8 – Response to comments made by Shorne Parish Council

6 Next steps and closing

6.1.1 The Applicant did not make any submissions in relation to this Agenda Item.

Glossary

Term	Abbreviation	Explanation
A122 Lower Thames Crossing	Project	A proposed new crossing of the Thames Estuary linking the county of Kent with the county of Essex, at or east of the existing Dartford Crossing.
A2	A2	A major road in south-east England, connecting London with the English Channel port of Dover in Kent.
Application Document	Application document	In the context of the Project, a document submitted to the Planning Inspectorate as part of the application for development consent.
Construction	Construction	Activity on and/or offsite required to implement the Project. The construction phase is considered to commence with the first activity on site (e.g. creation of site access), and ends with demobilisation.
Development Consent Order	DCO	Means of obtaining permission for developments categorised as Nationally Significant Infrastructure Projects (NSIP) under the Planning Act 2008.
Development Consent Order application	DCO application	The Project Application Documents, collectively known as the 'DCO application'.
M25 junction 29	M25 Junction 29	Improvement works to M25 junction 29 and to the M25 north of junction 29. The M25 through junction 29 will be widened from three lanes to four in both directions with hard shoulders.
National Highways	NH	A UK government-owned company with responsibility for managing the motorways and major roads in England. Formerly known as Highways England.
National Planning Policy Framework	NPPF	A framework published in March 2012 by the UK's Department of Communities and Local Government, consolidating previously issued documents called Planning Policy Statements (PPS) and Planning Practice Guidance Notes (PPG) for use in England. The NPPF was updated in February 2019 and again in July 2021 by the Ministry of Housing, Communities and Local Government.
National Policy Statement	NPS	Set out UK government policy on different types of national infrastructure development, including energy, transport, water and waste. There are 12 NPS, providing the framework within which Examining Authorities make their recommendations to the Secretary of State.
National Policy Statement for National Networks	NPSNN	Sets out the need for, and Government's policies to deliver, development of Nationally Significant Infrastructure Projects (NSIPs) on the national road and rail networks in England. It provides planning guidance for promoters of NSIPs on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State.
Nationally Significant Infrastructure Project	NSIP	Major infrastructure developments in England and Wales, such as proposals for power plants, large renewable energy projects, new airports and airport extensions, major road projects etc that require a development consent under the Planning Act 2008.
Operation	Operation	Describes the operational phase of a completed development and is considered to commence at the end of the construction phase, after demobilisation.

Term	Abbreviation	Explanation
Planning Act 2008	Planning Act 2008	The primary legislation that establishes the legal framework for applying for, examining and determining Development Consent Order applications for Nationally Significant Infrastructure Projects.
The tunnel	The tunnel	Proposed 4.25km (2.5 miles) road tunnel beneath the River Thames, comprising two bores, one for northbound traffic and one for southbound traffic. Cross-passages connecting each bore would be provided for emergency incident response and tunnel user evacuation. Tunnel portal structures would accommodate service buildings for control operations, mechanical and electrical equipment, drainage and maintenance operations. Emergency access and vehicle turn-around facilities would also be provided at the tunnel portals.

Annexes

Annex A Post-event submissions on Agenda Item 3: Traffic Modelling

A.1 Introduction

A.1.1 This section provides the post-hearing submission for agenda item 3 Traffic Modelling, from Issue Specific Hearing 4 (ISH4) on 6 September 2023 for the A122 Lower Thames Crossing (the Project).

A.2 Orsett Cock LTC peak hour traffic flows

A.2.1 This is in response to ISH4 Action Point 1.

A.2.2 The Applicant has provided the flows that are forecast to enter the Orsett Cock from the A128 approach in both the Do Minimum (without the Project) and Do Something (with the Project) scenarios for each of the forecast years in the Project’s transport model. These are shown in Table A.1.

A.2.3 The table shows that with the Project there is decrease in the number of trips entering the Orsett Cock junction from the A128 Brentwood Rd (North) as a result of re-routing with the availability of access to the Lower Thames Crossing at Junction 29, reached by the A127, and in response to the additional time taken to enter the circulatory at Orsett Cock. In both the Do Minimum (without the Project) and the Do Something (with the Project) there is a substantial growth in the number of vehicles using the A128 Brentwood Rd (North) approach to Orsett Cock. Between 2030 and 2045, in the Do Minimum (without the Project) there is an increase in traffic flows of 15% in the AM peak hour, 11% in the average interpeak hour and 7% in the PM peak hour. With the Project the increase in traffic flows is also 15% in the AM peak hour but is slightly higher than in the case without the Project, with a 17% increase in the average interpeak hour and 9% in the PM peak hour. In absolute terms the increase in flows is higher in AM peak hour (124 PCU in the AM peak hour without the Project and 107 PCU with the Project). The absolute change in flows is similar in the average interpeak hour, 70 and 72 PCU respectively and slightly lower in the PM peak hour (77 PCU and 70 PCU respectively).

Table A.1 Flows approaching the Orsett Cock junction from the A128, PCUs

	Do Minimum			Do Something		
	AM	IP	PM	AM	IP	PM
2030	833	634	1,027	726	419	779
2037	917	657	1,053	781	460	803
2045	957	704	1,104	833	491	849
2051	982	757	1,135	879	523	889

- A.2.4 Whilst the Applicant has provided the information requested by the ExA in Table A.1, the Applicant considers that the ExA were also seeking the Applicant to submit the information requested by DP World London Gateway in ISH3, and discussed briefly at the start of ISH4. This is provided in Table A.2 and Table A.3. These show traffic movements on the exits from the Orsett Cock junction in the Do-Minimum (DM) and Do-Something (DS) scenarios.
- A.2.5 It should be noted that the flows for the A1089 southbound (SB) on-slip are from the A13 westbound (WB) in the DM and directly from the Orsett Cock junction in the DS.
- A.2.6 The tables also show the exits taken by the traffic that is leaving the A122 Lower Thames Crossing and using the Orsett Cock junction. In the 2030 morning peak hour 21% of these trips join the A1089 at the Orsett Cock junction and 75% of the trips are going to local destinations in the area using the A128, Brentwood Road and the A1013. In the evening peak hour 18% of the trips from the Lower Thames Crossing that use Orsett Cock are going to the A1089 and 80% are going to local destinations.

Table A.2 Traffic flows on exits at Orsett Cock Junction, 2030

	AM peak				PM peak			
	DM	DS	DS – originating on the Project	DS- DM	DM	DS	DS – originating on the Project	DS- DM
A128 NB from Orsett Cock	1,235	913	185	-322	807	674	97	-133
A13EB on- slip from Orsett Cock	994	773	0	-221	1,013	805	0	-208
A1013 EB from Orsett Cock	409	620	291	211	729	1,170	582	441
A128 SB from Orsett Cock	228	383	244	156	658	896	489	238
A1013 WB from Orsett Cock	1,019	832	150	-187	929	920	183	-9
A13 WB on-slip from Orsett Cock	913	1,056	63	143	672	711	28	39
A1089 SB on-slip	483	695	245	212	253	538	309	285
Total	5,281	5,272	1172	-8	5,062	5,713	1,688	652

Table A.3 Traffic flows on exits at Orsett Cock Junction, 2045

	AM peak				PM peak			
	DM	DS	DS – originating on the Project	DS-DM	DM	DS	DS – originating on the Project	DS-DM
A128 NB from Orsett Cock	1,225	1,095	271	-130	852	675	140	-177
A13EB on-slip from Orsett Cock	999	731	0	-267	1,090	777	0	-313
A1013 EB from Orsett Cock	460	715	314	256	727	1,252	645	525
A128 SB from Orsett Cock	236	432	281	196	745	971	534	226
A1013 WB from Orsett Cock	1,091	895	176	-195	1,075	982	223	-93
A13 WB on-slip from Orsett Cock	1,119	1,233	89	113	662	840	62	178
A1089 SB on-slip	490	761	327	271	297	666	433	369
Total	5,620	5,863	1,458	243	5,448	6,163	2,037	716

A.3 Precedents on VISSIM not being re-used in SATURN

A.3.1 Standard industry practice is to take traffic flows from a strategic model, such as a SATURN model and pass these to a microsimulation model, such as a VISSIM model. The VISSIM model is used to test the design of a junction or small group of junctions. If a consideration of the VISSIM model outputs results in a change to the design of the junction then the changed network is coded into the SATURN model. The SATURN model produces a new set of traffic flows which are then passed back into the VISSIM model. This is how the Applicant has used the SATURN and VISSIM modelling during the design development. This is set out in more detail in section 2.4 of the 9.15 Localised Traffic Modelling Appendix G - Traffic Operational Appraisal - VISSIM Local Model Validation Report [REP1-193] and section 3.2 of 9.15 Localised Traffic Modelling Appendix H - Traffic Operational Appraisal - VISSIM Forecasting Report [REP1-194].

A.3.2 The Transport for London Traffic Modelling Guidelines version 4, 2021 contain a figure that illustrates the passing of data between models.

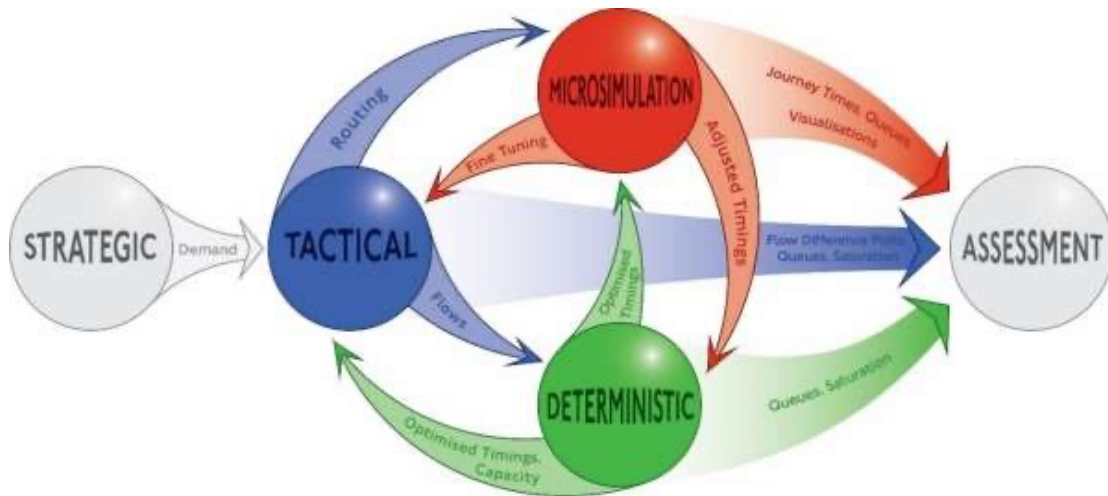


Figure 4: Interactions between different types of modelling

A.3.3 LTAM is a strategic model, which models variable demand responses and re-routing. A tactical model is a model developed by TfL, sometimes using SATURN software, that does not include variable demand modelling. Section 3.4.3 of the TfL Traffic Modelling Guidelines states that ‘Tactical models consider how vehicles will use the available road network in a relatively short time horizon, predicting up to 5 years ahead. ‘They are used to model the re-routing of traffic. Tactical models provide the traffic flows that are passed into a microsimulation model and fine-tuning changes to the junction design may then be passed back to the tactical model to see if re-routing would occur. Nowhere in the TfL modelling guidelines or in practise do TfL pass modelled delays from microsimulation models back into either a tactical or strategic model.

A.3.4 In the above diagram a deterministic model is a model such as Arcady or Linsig. These are also used to test the design of an individual junction and to optimise traffic signal settings before they are passed into a microsimulation model or into a tactical model (for assessing whether re-routing would occur as a result of the change in design or signal settings).

A.4 Responding to Thurrock Council comments on the length of time to undertake VISSIM-SATURN Modelling to achieve convergence

A.4.1 National Highways and Transport for London do not as standard practice pass the delays from a VISSIM model back into a strategic model. The Applicant has engaged with the National Highways at senior levels, and can confirm this is not standard practice. In a strategic model delays are an output from the model, not

an input. If a delay is hard coded into a junction it would result in a change in flows at that junction, which is modelled by the variable demand and re-routing responses within the strategic model. If the revised traffic flows are passed back into the microsimulation model, then the microsimulation model would forecast a different set of delays, which would then have to manually coded back into the strategic model. This iteration would have to carried out until there was convergence on flows and delays between the microsimulation and strategic model. The strategic model covers a wide area and, in order not to imbalance the model, a similar level of detail would be required at the junctions along which the traffic may re-route in the strategic model. This would require collecting turning count data at many junctions, for example along the A13 and alternative routes such as the A127, building microsimulation models and running them all in this iterative manner until convergence is reached at all these junctions between the individual models and the strategic model. This work would take many years given the state of current computing technology.

A.5 Differences between VISSIM and SATURN and their outputs

- A.5.1 There are a variety of approaches to transport modelling and a variety of different tools available. These are described in section of 9.15 Localised Traffic Modelling_v2.0 [REP3-126] submitted at deadline 3. LTAM is a strategic model, based on demand data that covers average weekday travel patterns and volumes, using traffic counts taken over a two-week period which are then standardised to the model month. The LTAM model's responses to changes in the network such as changes in mode choice, destination choice, time of day of travel and route choice. A microsimulation model considers the behaviour of individual vehicles as they pass through a junction. It is usually based on one day turning counts unless it takes traffic flows directly from a strategic model. It also incorporates stochastic processes, using random seeds, to generate a range of numbers in the outputs produced. At Orsett Cock the traffic flows used in the VISSIM model are based on a survey of traffic flows and turning movements at the junction from a single day in 2016, which was before the opening of the A13 widening scheme and the re-building of the Orsett Cock junction. The differences between the LTAM forecasts for 2016 and the one day turning counts are carried through into changes made to the forecast traffic flows taken from LTAM before they are input into the Orsett Cock VISSIM model. The combination of different input numbers and a different modelling methodology results in a difference in the forecast delays and queue lengths between LTAM and the Orsett Cock VISSIM model.
- A.5.2 The Applicant considers that the modelling approach accords with the requirements of the NPSNN, and that the LTAM model outputs provide a robust basis for the determination of the project transport impacts and relevant

environmental impacts, as well as the economic appraisal, and as such to inform the planning decision. The NPSNN (DfT, 2014) at paragraphs 4.6 and 4.7 gives direction as to the contents of a transport model, indicating that the modelling should include “*national level factors around the key drivers of transport demand such as economic growth, demographic change, travel costs and labour market participation, as well as local factors*”. TAG Unit M1.1 (DfT, 2013) provides in Figure 1 the standard model structure, providing more detail but fundamentally aligning with the requirements of the NPSNN. The LTAM model, as set out in the Combined Modelling and Appraisal Report [[APP-518](#)] addresses each of these requirements, while a VISSIM model does not have the capability to do this.

A.5.3 Microsimulation models such as VISSIM are further described in TAG Unit M1.1 as follows:

4.6.1 Models as described in sections 4.2 to 4.5 will generally assume that demand is aggregated into the total number of trips in each matrix cell, which may not be an integer. Microsimulation differs from this by simulating the behaviour of individuals, with individual’s choices being based on the probability of each choice being made and determined using random numbers.

4.6.2 The use of random seeds in microsimulation models means that each run will differ as a result and hence microsimulations do not have a unique solution. This can be an advantage as a range of results may be prepared; however, it means that equilibrium cannot be based on a single run of the model. Many analysts attempt to overcome this problem by taking the average results from many model runs, which should converge to a stable solution.

A.5.4 As described, the fundamental nature of models developed using VISSIM is different to models created using SATURN (such as the LTAM), and therefore it is expected that there would be divergence in the model findings. The Applicant considers that the divergence described above is within the expected range of divergence between these types of model, and indicates that the LTAM model results are representative of the overall performance of the highways network, and that the resultant transport, economic and environmental assessments are robust and appropriate to inform the planning decision.

A.6 Response to comments made by Professor Phil Goodwin

A.6.1 This is in response to ISH4 Action Point 5.

A.6.2 In relation to Uncertainty, the Applicant’s traffic modelling followed Department for Transport’s (DfT) Transport Analysis Guidance (TAG) and used the DfT NTEM Traffic Growth Forecasts that were current at the time of the DCO submission. These were TEMPro7.2 for cars, National Road Traffic Forecasts

2018 for goods vehicles and the use of a high and low growth scenario, using a p value of 2.5 for highway schemes. This is set out in Section 6.2 of Combined Modelling and Appraisal Report (ComMA) [[APP-518](#)].

- A.6.3 Since the submission of the DCO application the DfT has published TEMPro version 8 for growth in car trips and National Road Traffic Projections 2022 for growth in goods vehicles. The DfT also published growth factors for the modelling of the Common Analytical Scenarios (CAS) described in TAG Unit M4. At the national level these show a wider range in future growth forecasts than previously seen in the low and high growth forecasts using a p value of 2.5 so, the DfT also updated the p value for High and Low growth for highway schemes in December 2022 to 4 and this can be used for appraisals where it is not proportionate to run the full range of CAS.
- A.6.4 The Applicant has run all of the CAS, and a high and low growth scenario using the p = 4 value, in order to view whether the changes would affect the need for the Project. The forecasts were run for the revised opening year of 2032 and a design year of 2047. The results for the core scenario and the CAS were presented in NTEM 8 and Common Analytical Scenarios [[REP3-145](#)] which was submitted at Deadline 3. The results of the p = 4 test are reported in the answer to written question EXQ1 4.1.3 provided at Deadline 4.
- A.6.5 Comparing the LTAM traffic forecasts prepared using NTEM 7.2 vs NTEM 8, which also includes consideration of the opening year being 2032 there is only a small change in the forecast traffic flows at the Dartford Crossing and the Lower Thames Crossing. In all modelled years and time periods the Lower Thames Crossing carries a substantial volume of traffic and would still provide relief to the Dartford Crossing.
- A.6.6 The comparisons of the CAS presented in [[REP3-145](#)] show that the variation from the core scenario presented within the DCO application would also be small. The percentage change in traffic flows at the Lower Thames Crossing with each of the CAS compared to the TEMPro 8 core scenario is less than 9% for all but three modelled hours in two scenarios. The three largest impacts are for the behavioural change scenario in the 2047 average inter-peak hour where flows reduce by 12.6% and the mode-balanced decarbonisation scenario reduces by 9%. In the high economy scenario in the 2047 average inter-peak hour when traffic flows increase by 10.2%. In each of those scenarios, relief is provided at the Dartford Crossing. It is the Applicant's firm view that the analysis presented clearly shows that the case for the scheme remains robust.
- A.6.7 Overall therefore, it is considered that the need for the Project (as set out in Need for the Project [[APP-494](#)]) remains valid as the Project would provide relief to the Dartford Crossing in every scenario.

- A.6.8 Noting the small differences highlighted above, the Applicant does not consider it proportionate to carry out a full social, environment and economic appraisal of the CAS tests (as per paragraph 4.6 of the NN NPS). The Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [APP-526] reports the appraisal of the Project using TAG guidance and traffic growth factors at the time of the DCO submission.
- A.6.9 In relation to sensitivities arising from local plans, the Applicant’s traffic modelling has followed TAG guidance. In line with TAG, growth and infrastructure proposals contained within local plans do not carry a sufficient level of certainty to be included in the core scenario. The criteria that the Applicant has used for the inclusion of sites and infrastructure within the core scenario are set out within Chapter 4 of Combined Modelling and Appraisal Report Appendix C: Transport Forecasting Package [APP-522].
- A.6.10 The Applicant made offered to all local authorities that it was willing to test their emerging local plans in the LTAM in order to assist them in their development. Thurrock Council was the only authority to accept this offer and the Applicant ran five alternative Local Plan scenarios for Thurrock in 2022.
- A.6.11 In relation to Orsett Cock the Applicant is committed to continuing the workshops with Thurrock and other interested parties and will report back to the Examining Authority by Deadline 5.
- A.6.12 In relation to the business case for the Project, the Applicant has provided an economic appraisal within Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [APP-526]. This sets out a TAG compliant appraisal which results in the Project being considered to deliver value for money.
- A.6.13 There are a number of factors that will affect the full business case (FBC) for the Project, including changes in traffic growth forecasts, changes in costs and changes in the valuation that DfT place on the items that are quantified and given a monetary value in the appraisal. For example, DfT are currently reviewing the value of time for freight vehicles, as the studies both in the UK and overseas have showed that the current methodology used for the valuation of these benefits in the UK are underestimating the value to the industry of journey time savings. As is usual practice the FBC will be produced for the Government if the DCO is granted consent. This business case will contain all five dimensions, including the strategic and economic dimensions alongside the commercial, financial, and management dimensions. A final decision on funding would be based on a review of all five dimensions.
- A.6.14 With regards to variable demand, and its application to heavy and light goods vehicles, TAG Unit M2.1 Variable Demand Modelling paragraph 1.5 states that ‘Any response in the demand for transport of freight is not considered here,

since it is often sufficient to assume that total freight traffic is fixed, but susceptible to re-routing. See Section 4.3 of TAG unit M1.1 for further details.

A.6.15 TAG Unit M1.1 Principles of Modelling and Forecasting Section 4.3 paragraph 4.3.14 provides the reason for not considering variable demand modelling for goods vehicles. It states: *‘For some trip movements it is more difficult to use choice models. Freight movements, in particular, are often part of a complex logistic chain, which means that it is often not appropriate to assume that each trip can be modelled individually. Simple factoring methods are therefore often used for freight movements.’*

A.6.16 TAG Unit M2.1 provides guidance on the methodology of variable demand modelling for car and public transport trips and provides parameters for use in variable demand models only for car vehicles and public transport trips, for example in table 5.1 of Unit M2.1 which is reproduced below. This table provides the parameters for the destination choice model, which in LTAM is the part of the variable demand model which has the greatest impact on the trip matrices during the running of the variable demand model.

Table 5.1 Illustrative Destination Choice Parameters				
TRIP PURPOSE AND MODE	MINIMUM	MEDIAN	MAXIMUM	SAMPLE
CAR				
Home-based work	0.054	0.065	0.113	7
Home-based employers business	0.038	0.067	0.106	5
Home-based other	0.074	0.090	0.160	4
Non-home-based employers business	0.069	0.081	0.107	3
Non-home-based other	0.073	0.077	0.105	3
PUBLIC TRANSPORT				
Home-based work	0.023	0.033	0.043	7
Home-based employers business	0.030	0.036	0.044	4
Home-based other	0.033	0.036	0.062	4
Non-home-based employers business	0.038	0.042	0.045	2
Non-home-based other	0.032	0.033	0.035	3

A.6.17 The Need for the Project [[APP-494](#)] does contain comments from local business about the Project. If the reactions of local businesses were to result in additional goods vehicles wishing to cross the river then the Applicant considers this only reinforces the need for the provision of additional highway capacity over the river as provided by the Lower Thames Crossing.

A.6.18 In relation to decarbonisation, the Applicant has undertaken growth tests using DfT’s mode balanced and vehicle led decarbonisation scenarios, as reported in NTEM 8 and Common Analytical Scenarios [[REP3-145](#)] which was submitted at Deadline 3.

A.6.19 In relation to differing carbon values, the Applicant has responded on this matter in ExQ1 2.1.1, 2.1.2, 2.13 and 2.1.4. This includes a sensitivity test using a high value of carbon.

- A.6.20 In relation to climate change, the Applicant is unclear as to what Professor Goodwin considers the implications of climate change to be and how this would affect the transport modelling and appraisal of the Project. The Applicant has tested the two decarbonisation scenarios in the CAS and these are reported in NTEM 8 and Common Analytical Scenarios [REP3-145] which was submitted at Deadline 3. If Professor Goodwin believes that the road network will not be able to continue to physically operate due to climate change, then this has not formed part of the appraisal by the Applicant.
- A.6.21 The Adjusted Benefit Cost Ratio of the Project presented in the Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [APP-526] is based on Level 1 and Level 2 benefits alone as described in paragraph 1.3.5.
- A.6.22 It uses valuations of the benefits and disbenefits of the Project. This is explained in paragraph 7.1.8 of the Combined Modelling and Appraisal Report (ComMA) [APP-518] *‘Some impacts are seen as positive and these are called ‘benefits’. Other impacts are negative and these are called ‘disbenefits’ in the appraisal process’*. It is standard terminology in the presentation of the results of the economic appraisal to use the term ‘benefits’ to mean the net position of benefits and disbenefits.
- A.6.23 In relation to the Applicant providing relevant input/output files and parameter files, as set out in the ComMA [APP-518] paragraph 7.2.2 the Applicant used the DfT software, ‘Wider Impacts Transport Appraisal (WITA) version 2.2 to estimate wider economic impacts. This software, owned by the DfT, implements the DfT’s guidance on valuing wider economic impacts as set out in TAG Units 2.1 to 2.4. Full details of the WITA results are presented in Annex C Level 2 Wider Economic Impacts within the Economic Appraisal Report [APP-526]. The Applicant used the standard parameters and data sets contained within the WITA software which is available for any interested party to purchase from DfT. Running WITA for the Lower Thames Crossing requires the use of all the trip matrices within the LTAM. National Highways has a policy of not releasing the whole of a scheme specific transport model while the scheme is progressing through the consenting process. National Highways regional transport models are available on request by interested parties.
- A.6.24 The Applicant carried out extensive quality assurance checks of its results using the WITA software which included the writing of equivalent software using python, known as PyWITA. Calculating the wider economic impacts using both DfT’s WITA software and the Applicants PyWITA software, both of which implement the DfT’s guidance on the valuation of wider economic impacts gave very similar results.

- A.6.25 In relation to whether the Applicant has double counting in the treatment of value of time savings, The Applicant followed the DfT methodologies for calculating the value of time savings and reliability benefits using TUBA and MyRIAD software respectively. There is no double counting.
- A.6.26 MyRIAD software is produced by National Highways and is used in their scheme appraisals and DCO applications. The traffic data used in MyRIAD is available to Thurrock Council in the GIS shapefiles issued to Thurrock Council. Running MyRIAD is a time consuming process taking many weeks. The Applicant does not consider it to be an appropriate use of public funds to pay for others to repeat appraisals which have been run by the Applicant and passed through the Applicant's checking and approval processes.
- A.6.27 In relation to whether the Project is necessary and whether it will fail to deliver lasting journey times, the Need for the Project [[APP-494](#)] sets out how the Project meets the scheme objectives (Chapter 4) and a range of benefits that the Project would bring (Chapter 5), which includes journey time benefits. The Applicant has provided a range of journey times within the Transport Assessment and Combined Modelling and Appraisal Report - Appendix C - Transport Forecasting Package [[APP-522](#)], which demonstrate that many of the journey time savings last well into the future. The Applicant also provided further information relating to journey times within Annex A.2 of Post-event submissions, including written submission of oral comments, for ISH1 [[REP1-183](#)].
- A.6.28 In relation as to whether further modelling, appraisal and sensitivity testing are required, the Applicant considers that the modelling and appraisal contained within the DCO application has followed TAG, is robust and sufficient for decision making.

A.7 Response to comments made by Thurrock Council

- A.7.1 TAG does not provide a maximum age for the data that is used in a base year model. Rather it advises in TAG Unit M4 para B2.1. that '*Analysts are advised to assess the validity of the trip matrices developed in the past against present day observations*'.
- A.7.2 LTAM is based on the number and pattern of trips from 2016. It is a robust representation of travel patterns in the area. In LTAM the number of trips in 2016 are factored up to 2032 using TEMPro 7.2 traffic growth forecasts. As to the pattern of trips, the Applicant has procured datasets from TomTom for 2019 and 2023 of observed data from vehicles fitted with GPS units to track their movements. The data records the movements of vehicles that used the Dartford Crossing and follows then for between 10 – 15 km on both sides of the Crossing. This data shows that the pattern of trips using Dartford Crossing in March 2019 and March 2023 is similar to the pattern shown in the 2016 base

data. The Applicant does not agree that the age of the baseline data would reduce the reliability of the model (and indeed, there is no such requirement or statement in TAG). The Applicant notes that the last “pre-COVID” year is 2019, which is only three years after the LTAM base year. Traffic levels have returned after COVID, and the pattern of travel on the highway network in the area remains similar to that observed in 2016.

- A.7.3 LTAM is a scheme specific model developed from the 2016 National Highways South Eastern Regional Transport Model (SERTM) as described in paragraph 3.3.5 and Chapters 5 and 6 of Appendix B: Transport Modelling Package [APP-520]. SERTM is one of the five National regional transport models. Highways have recently completed a periodic update of their regional transport models including SERTM. The Applicant is currently using the 2019 edition of SERTM to update LTAM. It is being undertaken in order to provide an updated business case to the DfT in 2024 if required.

Thurrock approval of models

- A.7.4 The Applicant does not consider that it requires the ‘approval’ or sign off from Thurrock before it is able to use the transport models it has built. The VISSIM models have been built in collaboration with Thurrock but the Applicant cannot have its work delayed by Thurrock Council in providing comments. For example the Orsett Cock VISSIM forecasting model was provided to Thurrock in August 2022 and the comments received back in August 2023.

Five Bells – ARCADY v VISSIM

- A.7.5 The Applicant considers that Arcady is a suitable software package for a detailed assessment of the performance of the Five Bells and Pitsea Hall junctions. It is common industry practice to use either deterministic junction modelling software such as Arcady or Linsig or stochastic microsimulation modelling such as VISSIM when modelling individual junctions.
- A.7.6 In relation to Thurrock’s comments on the Orsett Cock model, the Applicant has acknowledged that the length of the links for the A128 Brentwood Road north of the junction, Brentwood Road south of the junction and Rectory Road meant that there was latent demand on these links. A test has been carried out and lengthening these links removes the latent demand but does mean that the queue lengths and delays are longer than reported in Localised Modelling Report REP3-126]. The Applicant is working through the comments recently received from Thurrock and will promptly update the results reported in the Local Modelling Report for these links.
- A.7.7 The Applicant confirmed that the version of the Orsett Cock model reported in 9.15 Localised Traffic Modelling Appendix B - Orsett Cock VISSIM LMVR [REP1-188] was based on the CM49/ CS72 model runs which were very similar

to the flows used in the previous version of the Orsett Cock model supplied to Thurrock, which was based on flows from model runs CM45/CS67. The Applicant has agreed to run a sensitivity test in the VISSIM model with a manual re-assignment of trips from Rectory Road onto the A128 Brentwood Road.

- A.7.8 The Applicants response to Thurrock’s suggestion of that the Applicant undertakes modelling with an iterative approach between LTAM and VISSIM, and their assertion that this is mandated in the TfL Traffic Modelling Guidelines is covered in our response to section A.3.
- A.7.9 In accordance with paragraph 4.6 of the NPSNN, the Applicant considers its approach outlined above to be in accordance with the national methodology and its approach is proportionate.

A.8 Response to comments made by DP World London Gateway

Movements from LTC at Orsett Cock

- A.8.1 The Applicant does not agree with the assumptions made by DP World on the number of vehicles travelling from the Lower Thames Crossing to the A1089 via the Orsett Cock junction. The forecast flows at Orsett Cock have been provided to DP World.
- A.8.2 DP World have raised concerns about U-turning movements using Manorway to access the A1089. This relates to traffic travelling north or south from LTC, coming off at Orsett Cock and being put off by the queue length onto the roundabout circulatory lanes. DP World feel that traffic will instead decide to carry on travelling further east to Manorway roundabout, to U-turn, and come back to Orsett Cock to access the A1089.
- A.8.3 The Applicant does not agree that vehicles seeking to leave the A122 Lower Thames Crossing and reach the A1089 would travel up to Manorway and U turn. In [\[REP2-050\]](#), para A.1.19 (Comments on Written Reps from Ports) we have set out our position which is that we don’t consider that movement to provide an attractive alternative. That is because the route using the Project, the A13, U-turning at the Manorway junction, Orsett Cock junction and the exit from the Orsett Cock junction for the A1089 is 6.6km longer and would take an additional 7.9 minutes in 2030 in the AM peak modelled hour and over 10 minutes in 2045. The additional journey times for vehicles if they were to U-turn at the Manorway junction rather than solely use the Orsett Cock junction is shown in Table 5 of that document. This is based on LTAM.
- A.8.4 Even if the delays in the VISSIM model at Orsett Cock are taken into consideration this diversion is unattractive. In 2045 PM peak for example, the VISSIM model shows that on the LTC/A13 approach to Orsett Cock, there

would be a delay of 289 seconds. If vehicles wished to avoid that delay, by travelling to Manorway on the A13 to U-turn, that would be an additional roundtrip of 6.6km. When they returned, travelling westbound to access the A1089, in the 2045 PM peak, there would be a delay of 188 seconds to enter the Orsett Cock junction which is necessary to reach the A1089. So these vehicles would have travelled an additional 6.6km to save 100 seconds of queueing at the Orsett Cock junction. No vehicle could legally travel to Manorway and back to Orsett Cock in 100 seconds.

- A.8.5 In [[REP2-050](#)], Table A.1, p.16 (Comments on Written Report for Ports), LTAM shows the total number of vehicles using Manorway to U-turn to get on to LTC. There is not direct access to the LTC from the Orsett Cock junction, rather access is by direct free flow slip from the A13 mainline. Vehicles from A128 Brentwood Rd who wish to use LTC use Orsett Cock to reach the A13 then travel to Manorway junction and return on the A13 to use the free flow slips onto the LTC. They are not vehicles wishing to come off LTC onto the A1089. Table A.1 on p.16 shows the total vehicles U-turning at Manorway: in the 2030 AM peak, 40 PCUs (a HGV is 2.5 PCUs) would make that movement; 13 in the inter peak and 29 in the PM peak. In 2045, the figures would be 0 in the AM peak, 16 in the inter-peak and 0 in the PM peak. The total vehicles coming off the LTC and U-turning at Manorway is 0 in 2030 and 2045 in AM, inter and PM peak in the LTAM.

A.9 Response to comments made by the Port of Tilbury London Limited

- A.9.1 In relation to comments made about the forecast operation of the Orsett Cock junction, the Applicant will continue to engage with Thurrock Council, as well as other Interested Parties with the aim of reaching resolution between the parties (as per the Action Point relating to a workshop on Orsett Cock Junction).
- A.9.2 The Applicant has set out its position on the Tilbury Link Road at Section 5.5 of Chapter 5 of the Planning Statement [[APP-495](#)] and the Interrelationship with other Nationally Significant Infrastructure Projects and Major Development Schemes [[APP-550](#)].
- A.9.3 There is currently no determined preferred route for a link road connecting to the Project Road in the Tilbury area, with different geometrical alignments between the A122 Lower Thames Crossing and the A1089 being discussed. Furthermore, there is no determined carriageway profile, and no conclusion on how a link road might provide connections onto the local road network. These uncertainties relating to the form of any future connection mean that a firm commitment to any further integration such as providing any additional 'stub' as suggested by Port of Tilbury London Limited at ISH7, would be premature. As a result, there is no defined engineering configuration or traffic demand that would

allow for a commitment to passive provision to be determined with sufficient specificity that it would not be hostage to the differing interests of Interested Parties. As the Tilbury Link Road is not required for delivery of the A122 Lower Thames Crossing, and is subject to its own planning and investment process, it is therefore not appropriate to secure a commitment in such an uncertain environment.

- A.9.4 However, the operational access has been designed in accordance with DMRB, and this standard would continue to be used at detailed design stage. The design includes compliant slip roads on and off the A122 Lower Thames Crossing, and a bridge across the Project road. If this location was determined to be the appropriate site for a future link road, then this infrastructure could be utilised to provide access, subject to a check of the suitability in consideration of the forecast traffic flows, and other requirements for such connections to the Strategic Road Network. The Applicant considers this to be the only proportionate and reasonable accommodation of a link road at this stage in this location. On that basis, there is no impediment to utilising the operational access for the purposes of a link road. The Applicant does not therefore agree with PoTLL that the Project frustrates this.
- A.9.5 The Applicant notes that as well as the ongoing consideration of the Tilbury Link Road by National Highways, there are other planning frameworks that could be used by third parties to bring forward proposals for connecting into the strategic road network. Any future proposal could include a connection into the proposed A122 Lower Thames Crossing, benefitting from the proposed A122 Lower Thames Crossing infrastructure, provided that it satisfied the prevailing DMRB standards and was acceptable to National Highways in all other respects. With regards to the comments made about the Thames Freeport, the Applicant has provided outputs from an alternative scenario where the Freeport traffic demand relating to growth at the Port of Tilbury, as provided to the Applicant by the Port of Tilbury London Limited. Whilst this modelling was undertaken in a scenario with the Project, the severe traffic congestion that the Freeport traffic creates at the A1089 Asda roundabout and at the A13/A1089 junction would not be removed by assessing this element of the Thames Freeport.
- A.9.6 Notwithstanding this, the Applicant has agreed with PoTLL that it will undertake a run of this element of the Thames Freeport in a scenario without the A122 Lower Thames Crossing, and present the outputs to PoTLL.
- A.9.7 The Applicant would like to clarify that it has not, as part of any of the assessments undertaken, made assumptions about when this element of the Thames Freeport would begin to operate, nor its relationship to the Project.

A.10 Response to comments made by Thames Crossing Action Group

- A.10.1 The Applicant notes the comments made by the Thames Crossing Action Group (TCAG) in relation to residents of Thurrock being required to travel to the A13 Manorway junction in order to access the Project.
- A.10.2 Table A.1 of Comments on WRs Appendix E – Ports [[REP2-050](#)], sets out the vehicles performing this movement at the Manorway junction. The highest number forecast is 40 PCUs in the AM peak hour in 2030. As confirmed by the Applicant at Issue Specific Hearing 4, these vehicles are those travelling on the A128 north of the Orsett Cock junction and wishing to access the A122. The figures in Table A.1 are those forecast by the Applicant’s transport model. Other trips wishing to cross the River (via either the Dartford Crossing or the Lower Thames Crossing) are forecast to do so via other routes.
- A.10.3 In relation to “not taking account of incidents”, the Applicant has set out the approach it took to check the quality of existing data to it could be used as part of the model calibration and validation in Section 7.3 of Combined Modelling and Appraisal Report Appendix A: Transport Data Package [[APP-519](#)]. This process does not mean that the Applicant’s transport model does not reflect the congestion experienced in many areas of the network, including the Dartford Crossing.
- A.10.4 With regards to the ongoing work between the Applicant and Thurrock Council in particular the localised traffic modelling, the Applicant will continue to engage with Thurrock Council, as well as other Interested Parties with the aim of reaching resolution between the parties.

A.11 Response to comments made by Mr Elliot

- A.11.1 In relation to comments made about latent demand, the Applicant’s transport model contains a variable demand component, which is detailed in Section 3.4 of Combined Modelling and Appraisal Report Appendix C: Transport Forecasting Package [[APP-522](#)]. As set out at paragraph 3.4.1 the purpose of the variable demand model is to “establish the extent of travel suppression in the ‘Without Scheme’ case and the extra traffic that is expected to be induced in the ‘With Scheme’ case.
- A.11.2 Whilst the Applicant’s transport model does forecast an increase in the number of trips across the River Thames once the Project opens, the vast majority of these would not be new trips. The Applicant provided a response to this matter in Annex A.3 of Post-event submissions, including written submission of oral comments, for ISH1 [[REP1-183](#)].

- A.11.3 In relation to delays, the Applicant's response is set out at Paragraph A.11.4 above.
- A.11.4 In relation to comments about the reliance on models, the Applicant considers that the strategic transport model represents a robust tool by which the impacts of the Project on the road network can be forecast. The model has been built in compliance with the Department for Transport's Transport Analysis Guidance and enables consideration of the Project's impacts (both positive and negative) on a basis that is comparable with other schemes.
- A.11.5 In relation to comments on traffic flows along the A2, the changes in traffic along the A are set out in the Transport Assessment [REP3-112 to REP3-114], specifically in Plates 7.10, 7.12 and 7.14 showing substantial relief on the A2 west of the A122 Lower Thames Crossing.
- A.11.6 The Applicant has set out its proposed approach to wider network impacts in Wider Network Impacts Management and Monitoring Plan [[APP-545](#)] and how this complies with policy within Transport Assessment Appendix F: Wider Network Impacts Management and Monitoring Policy Compliance [[APP-535](#)]
- A.11.7 The Applicant's economic appraisal of the Project, including the benefit cost ratio (BCR) is set out in Combined Modelling and Appraisal Report Appendix D: Economic Appraisal Package – Economic Appraisal Report [[APP-526](#)]. The Applicant's economic appraisal has been conducted in line with Department for Transport's Transport Analysis Guidance (TAG) and the central case BCR of 1.22 represents value for money.
- A.11.8 In relation to accidents, the applicant has conducted an accident appraisal in line with TAG which is set out in section 9.3 of the Transport Assessment [[REP3-116](#)]. This shows that over the study area as a whole there is predicted to be a decrease in the number of accidents per vehicle kilometre driven, but due to the increase in the total number of vehicle kilometres driven as a result of the Project there is predicted to be an overall increase in the number of accidents.
- A.11.9 In response to comments made about existing congestion on other areas of the road network, it is widely acknowledged that congestion does exist in a number of locations across the Lower Thames area and further afield. Congestion at the Dartford Crossing is a particular issue and providing relief to the Dartford Crossing is one of the Scheme Objectives (see Section 1.4 of the Need for the Project [[APP-494](#)]).

A.12 Response to comments made by Essex County Council

- A.12.1 In relation to comments made about the forecast operation of the Orsett Cock junction, the Applicant will continue to engage with Thurrock Council, as well as other Interested Parties with the aim of reaching resolution between the parties.

A.13 Response to comments made by the London Borough of Havering

- A.13.1 With regards to comments that the Project's transport model – the Lower Thames Area Model (LTAM) is out of date – the Applicant considers that it is a robust representation of travel patterns in the area. Whilst the model is based on the number and pattern of trips in 2016, the Applicant has, as is set out in Chapter 4 of Combined Modelling and Appraisal Report Appendix C: Transport Forecasting Package [APP-522], applied growth to 2030 in line with NTEM 7.2 traffic growth forecasts, adjusted spatially in line with the Uncertainty Log.
- A.13.2 With regards to comments that there is uncertainty as to when the Project is going to become operational in light of the Written Ministerial Statement, the Applicant provided a response to this on 30 March 2023 [AS-086]. The Applicant has been clear that the statement by the Secretary of State means that the Project would open in 2032, instead of 2030.
- A.13.3 The Applicant has undertaken assessment of a number of junctions within the London Borough of Havering, following a request from the authority. The assessments undertaken are detailed within Localised Traffic Modelling Appx L – Havering & TfL Junctions Forecasting Report [REP3-131].
- A.13.4 The Applicant is aware that the authority has undertaken its own assessment of these junctions, as detailed within their Local Impact Report [REP1-247]. The Applicant notes that the locations identified within the authority's assessment are the same as those identified by the Applicant.
- A.13.5 The Applicant notes the query made by the authority with regards to the version of the Project's transport model. The Applicant can confirm that version CM49 and CS72 was used within the Applicant's transport assessments.
- A.13.6 The Applicant can confirm that they have since shared the data related with these runs to each local authority that had previously been provided with earlier versions.

A.14 Response to comments made by Kent County Council

- A.14.1 In relation to comments in relation to uncertainty, the Applicant accepts, as set out in various places within the application that such uncertainty is inherent within all submitted applications for development consent. The Applicant has undertaken assessment in a range of future scenarios within the application (core, low and high) and also has had regard to the Common Analytical Scenarios as set out in NTEM 8 and Common Analytical Scenarios [[REP3-145](#)]

A.15 Response to comments made by Gravesham Borough Council

- A.15.1 With regards as to whether NTEM forecasts reflect an appropriate level of growth, the Applicant notes that these forecasts, produced by the Department for Transport (DfT), are based on Office for National Statistics population projections and their use is supported by DfT's Transport Analysis Guidance.
- A.15.2 As such, the Applicant considers that these form an appropriate and robust basis for forecasting growth within the area. This position accords with paragraph 4.6 of the NN NPS. The Applicant has, in line with the version of TAG Unit M4 that was current at the time of submission, undertaken both low and high growth scenarios, the results of which are reported within Annex D of Combined Modelling and Appraisal Report Appendix C: Transport Forecasting Package Annexes [[APP-523](#)] and the Transport Assessment [[REP3-112](#), [REP3-114](#) and [REP3-116](#)].
- A.15.3 The Applicant does recognise however, that local authorities may be seeking to deliver levels of growth that are divergent from those set out within NTEM. Whilst the Applicant maintains that the application of NTEM is appropriate and robust, it has offered to undertake sensitivity tests for local authorities, particularly to help examine the implications of their emergent local plans as part of its duties under its licences relating to cooperation.
- A.15.4 The Applicant remains willing to undertake this assessment for Gravesham Borough Council (and other local authorities) if this would be useful.

A.16 Response to comments made by Essex Area Ramblers (Mr Reeve)

- A.16.1 In relation to comments made about the impacts of Covid-19 on the traffic forecasts used by the Applicant, the Applicant notes that the version of TAG Unit M4 referenced was published after the application for development consent was made.
- A.16.2 Notwithstanding this, it is the Applicant's consideration that the Lower Thames Area Model represents a robust representation of travel patterns in the area.

- A.16.3 The Applicant has provided a full answer in relation to this matter in response to ExQ1 Q4.1.2.
- A.16.4 The Applicant has procured datasets from TomTom for both 2019 and 2023 of observed data from vehicles fitted with GPS units to track their movements. Using that data, the Applicant has checked that the pattern of trips using the Dartford Crossing is similar to the pattern shown in the 2016 base data. The Applicant is satisfied that it is, as it showed traffic patterns were the same in 2023 as in 2019, and in 2019 they were the same as in the 2016 base model.
- A.16.5 The Applicant does not consider that there is a basis for a re-baselining of the Project's transport model as a result of Covid. In addition, as demonstrated in NTEM 8 and Common Analytical Scenarios [\[REP3-145\]](#), the updates to TAG Unit M4 and DfT traffic forecasts since the submission of the application would not have a significant effect on the traffic forecasts as contained within the DCO documentation.

Annex B Post-event submissions on Agenda Item 4: Wider Network Impacts Management and Monitoring

B.1 Introduction

B.1.1 This section provides the post-hearing submission for agenda item 3 Wider Network Impacts Management and Monitoring, from Issue Specific Hearing 4 (ISH4) on 6 September 2023 for the A122 Lower Thames Crossing (the Project).

B.2 Optimisation works at Orsett Cock

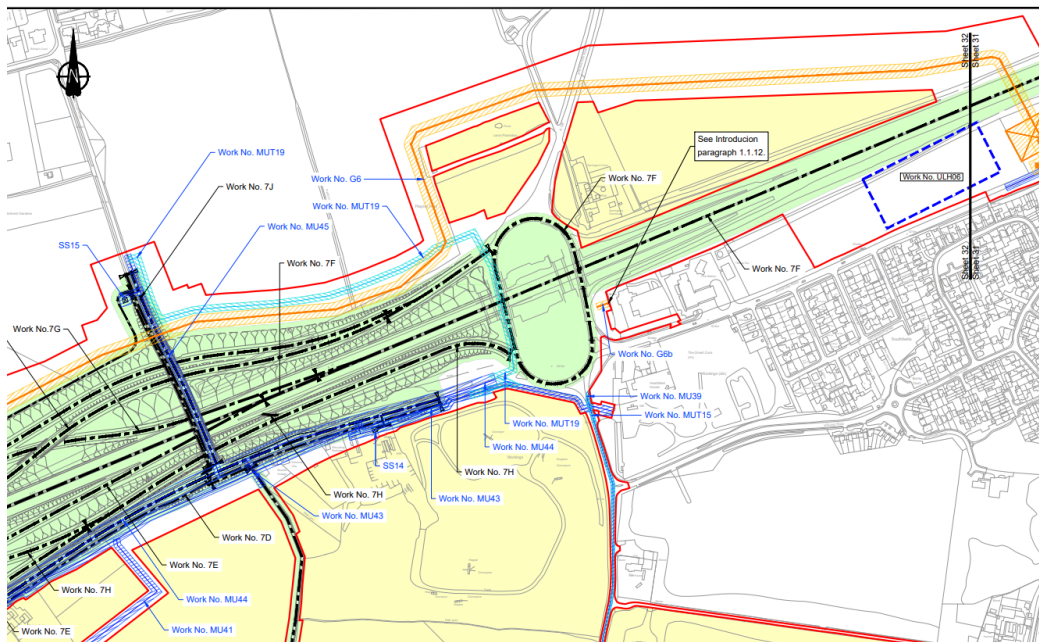
B.2.1 The Orsett Cock junction improvements works are secured under Schedule 1 of the draft Development Consent Order [[REP3-077](#)], as this is Work No. 7F (iii), as shown on sheet 32 of 2.6 Works Plans [[REP3.039](#)].

B.2.2 As stated in Schedule 1:

Work No. 7F – as shown on sheets 29, 31, 32 and 33 of the works plans and being the construction of an improved section of the A13, to include:

- (i) the improvement of the existing dual carriageway A13 for approximately 4,300 metres in length, as shown on sheets 29 and 32 of the rights of way and access plans (reference points 29/3 to 29/4 and 29/2 to 29/1);*
- (ii) the construction of a new bridge to carry the existing A13 over the link road between the northbound carriageway of the improved A1089 and the northbound carriageway of the new A122 Lower Thames Crossing (Work No. 7Z) and the link road between the westbound carriageway of the improved A13 and the northbound carriageway of the new A122 Lower Thames Crossing (Work No. 7E);*
- (iii) the improvement of the existing Orsett Cock roundabout, as shown on sheet 32 of the rights of way and access plans (reference points 29/6 and 30/2); and*
- (iv) the construction of a new public right of way from Long Lane to south of the A13 road, as shown on sheets 29 and 33 of the rights of way and access plans (reference points 28/6 and 28/7).*

Plate B.1 Extract from Works Plans



B.2.3 These powers are also supported by the permanently acquisition of land, as shown on sheet 32 of 2.2 Land Plans [REP3-013] in specific for Work no. 7F. The Protective Provisions for Local Highway Authorities will require design input from TC in relation to the Orsett Cock roundabout at the implementation stage, and the Applicant will be required to incorporate any reasonable adjustments required. Engagement on the detailed design, and further optimisation, is therefore also secured under the terms of the DCO. The Applicant notes that there Action Point 6 requires the port authorities, and the Applicant to hold a workshop to establish whether any further information or common ground can be reached on these impacts. The Applicant will provide a joint note following that meeting to address the ExA's position on any 'without prejudice' concessions.

B.3 Response to comments made by Kent County Council

- B.3.1 In relation to the comments made about only considering Wider Network Impacts with regards to the environment, severance and accessibility, and safety, the Applicant would like to clarify that the wider operational impacts on the transport network have been considered extensively. The adverse impacts identified in the Transport Assessment are assessed against the requirements set out in the National Policy Statement for National Networks in Appendix F of the Transport Assessment [APP-535], with the conclusion that these impacts are acceptable under these requirements.
- B.3.2 With regards to the Draft National Policy Statement for National Networks (draft NPSNN), the transitional arrangements detailed in paragraphs 1.16 and 1.17 of the draft NPSNN published for consultation in March 2023 clearly state that

applications accepted for examination before the draft NPSNN is designated (which includes the Project) should be considered in accordance with the terms of the 2014 designated NPSNN. There is no requirement to provide mitigation in response to congestion. The draft NPSNN continues to recognise that mitigation measures for schemes should be “proportionate and reasonable” (paragraph 5.272). There is no policy requirement to mitigate all impacts or congestion and all parties recognise that a judgement is necessary. That judgement should be informed by a proper understanding of what scale or nature / severity of impacts are actually required to be mitigated by the relevant policy tests, particularly where the impact relates to congestion, which there is no policy requirement to mitigate. This is the exercise undertaken by the Applicant and reported in Appendix F of the Transport Assessment [[APP-535](#)]. The exercise has not been undertaken by others. Requirements must meet the test of necessity. If interventions are not secured, that does not mean the adverse impacts have not been taken into account. The Applicant’s assessment – which identifies those instances of congestion as disbenefits – concludes that the benefits outweigh the impacts and that assessment remains valid.

- B.3.3 With regards to comment that there is no legal or policy exemption for National Highways when it comes to mitigating the effects of its schemes, the Applicant would like to assure the Examining Authority and Interested Parties that the Applicant does not believe it is exempt from the terms of the NPS or from mitigating the effects of its schemes, where the relevant tests requiring mitigation are met. It is nevertheless highly material in judging the overall acceptability of the application – and in considering whether further mitigation is necessary – that there is in place a comprehensive process to monitor the network, to engage with the relevant authorities and to develop and invest in strategies for network enhancement where that is desirable. By definition, that process operates in accordance with government policy and can be relied upon.
- B.3.4 The Applicant acknowledges that the Project will result in changes in travel patterns across the network, and that whilst there are substantial benefits in some areas, there will be adverse impacts in other areas. The Applicant will consider the change in traffic flows resulting from the Project as part of its license obligations work with local highway authorities and others to align national and local plans and investments, balance national and local needs and support better end-to-end journeys for road users.
- B.3.5 In relation to the comments made about the A229 Bluebell Hill, the Applicant recognises the case for developing a scheme to improve the operations of Bluebell Hill and is continuing to support KCC as they bring forward their improvement scheme. However, it should be noted that the Project does not require the emerging improvements at Bluebell Hill to deliver the benefits set out in the Project application. Similarly, the case for this scheme is not dependent on the opening of the Project or vice versa. It is clearly material that the Bluebell Hill scheme is already being considered within the MRN

programme. It is not the purpose of this DCO to prejudge or undermine the outcome of that process.

- B.3.6 With regards to KCC’s comments in support of a monitoring and mitigation approach similar to that adopted in the Silvertown Tunnel DCO, the Applicant has provided information on its position regarding this at ISH7.
- B.3.7 ISH4 Action point 3 (part 2) [EV-042f] - Consider how the DCO/WNIMMP could be amended to secure mitigation at the A229 Bluebell Hill where a significant adverse impact is forecasted in the Transport Assessment. The Applicant notes that Action Point 7 of ISH7 requires the Applicant to undertake a workshop relating to the impacts on the A229. The Applicant therefore proposes to set out its position as part of its joint note as part of that action. The Applicant’s position is that the impacts arising on the A229 as a result of the Project do not constitute a reason for withholding development consent. The A229 is the subject of an improvement scheme which is being progressed outside of the DCO by KCC subject to funding being agreed with the DfT.

B.4 Response to comments made by Thurrock Council

- B.4.1 With regards to the comments around the extant NPSNN clearly stating mitigation should be delivered, the Applicant would like to highlight that paragraph 5.2.15 states that “*Mitigation measures for schemes should be proportionate and reasonable, focused on promoting sustainable development*”. It is the Applicant’s position that it would be disproportionate and unreasonable for the Project to be held liable for further investment to address all and any adverse impacts, without considering the scale of the benefits provided by the Project. If the Applicant were required to address the identified areas of adverse impact, the scope of the Project would expand beyond that intended by the government in their decision to include the Project in the RIS programme. Furthermore, as the existing flows across the network are already constrained, addressing the identified impacts would likely lead to the creation of further impacts, essentially resulting in the Applicant being held accountable for each junction that is currently at or near to capacity across the region. This is considered disproportionate, and counter to the intention of both the policy and the government’s investment strategy. Paragraph 2.24 of the NPSNN is clear that “*Individual schemes will be brought forward to tackle specific issues, including those of safety, rather than to meet unconstrained traffic growth*”.
- B.4.2 In relation to the comments on Sizewell C, the Applicant would like to note that the nature of Sizewell C was very different to the nature of the Project. The Project is a highway scheme which will lead to changes in travel patterns across the region, whilst Sizewell C is a trip generator. This means the Project has substantial network benefits, which it is relevant to take into account. Unlike the Project, Sizewell C (and EDF) is not able to rely on wider and existing arrangements to ensure the wider operation of the network.

B.4.3 In response to comments made about the Orsett Cock junction, the Applicant acknowledges that traffic flows through the junction will be significantly altered by the Project and will continue working with Thurrock Council and others to develop a solution. As detailed in 9.15 Localised Traffic Modelling Appendix C – Orsett Cock Forecasting Report [REP1-189], changes were made to the roundabout design in the Orsett Cock VISSIM model to improve the performance of the junction. These changes and any further improvements arising from the detailed design stage can be accommodated using the flexibility available within the draft DCO. A number of additional actions are also being undertaken within the examination to address concerns in relation to Orsett Cock roundabout, including specifically Action Points 5 and 6, from ISH7 [EV-046e].

B.5 Response to comments made by Gravesham Borough Council

B.5.1 With regards to the concerns that the lack of mitigation on local roads might have consequences on Gravesham’s Local Plan growth, the Applicant would like to stress that one of the Project objectives as set out in the Need for the Project [APP-494] is to “*support sustainable local development and regional economic growth in the medium to long term*”. The Applicant recognises that changes in travel patterns due to the Project will result in adverse impacts in some areas, but the benefits of the Project will outweigh the impacts both overall and within Gravesham. The Applicant will consider the change in traffic flows resulting from the Project as part of its license obligations work with local highway authorities and others to align national and local plans and investments, balance national and local needs and support better end-to-end journeys for road users.

B.6 Response to comments made by the London Borough of Havering

B.6.1 With regards to comments about compliance with the NPSNN, the Applicant has complied with the relevant tests in the NPSNN for consideration of the impacts arising from changing traffic flows away from the project boundary. This includes the tests for severance and accessibility (as set out in paragraphs 5.206, 5.216, 3.20 and 3.22), environmental impacts (as set out in paragraph 5.207) and safety (as set out in paragraphs 4.64 and 4.65). The adverse impacts have been assessed against these requirements in Appendix F of the Transport Assessment [APP-535], with the conclusion that these impacts are acceptable under these requirements.

B.6.2 In relation to comments about the London Borough of Havering and other London boroughs not having the opportunity to bid for a number of the funding

pots made available by the Government, there are alternative funding opportunities available for the London boroughs. For example, in March 2023 nearly £39m was allocated to outer London boroughs as part of TfL's Local Implementation Plan (LIP) funding. The London Borough of Havering will be able to use the assessments presented in 9.15 Localised Traffic Modelling Appendix L – Havering & TfL Junctions Forecasting Report [[REP3-131](#)] to make further bids to TfL in the future, who in turn can bid for additional funding from central Government. The Applicant would like to note that the funding regime and how it operates regionally and nationally is a function of government policy. It is not something to be changed or undermined through this DCO.

B.7 Response to comments made by Transport for London

- B.7.1 In response the comments regarding policy T4 of the London Plan, which states that “*Where appropriate, mitigation, either through direct provision of public transport, walking and cycling facilities and highways improvements or through financial contributions, will be required to address adverse transport impacts that are identified*”, as discussed in section B.4 above is the Applicant's position that it would be disproportionate and unreasonable for the Project to be held accountable for further investment to address adverse impacts, without considering the scale of the benefits provided by the Project. The recognition that mitigation should be provided where it is “appropriate” is not in itself determinative. It calls for an understanding of what tests to apply. This is a matter which requires further assessment against clear policy tests – and those tests are principally informed by the terms of national policy and, particularly, by the NPS.
- B.7.2 The Applicant has undertaken junction assessments at twelve junctions in London Borough of Havering as set out in 9.15 Localised Traffic Modelling Appendix L –Havering & TfL Junctions Forecasting Report [[REP3-131](#)]. The modelling results demonstrate that a number of these junctions are either at capacity or over capacity in the Do Minimum scenario without the Project, and therefore have a case for intervention without the Project. The Applicant's position is that it is inappropriate for the Applicant to be held responsible for performance issues at these junctions, when the modelling demonstrates these issues exist without the Project.
- B.7.3 With regards to comments about the certainty around the impacts, the Applicant is confident that the modelling carried out for the Project is a robust evidence base upon which to assess the impacts of the Project. The adverse impacts have been considered against the requirements set out in the National Policy Statement for National Networks in Appendix F of the Transport Assessment [[APP-535](#)], with the conclusion that these impacts are acceptable and do not trigger specific mitigation requirements . The impact of the Project on traffic flows will be monitored and evaluated as set out in the WNIMMP [[APP-545](#)].

B.8 Response to comments made by the Port of Tilbury London Limited

- B.8.1 In relation to comments about considering local impacts which affect the ports as national impacts, the Applicant acknowledges the importance of the ports in the national economy and will consider the change in traffic flows resulting from the Project as part of its license obligations work with local highway authorities and others to align national and local plans and investments, balance national and local needs and support better end-to-end journeys for road users. Strategically, of course, the Project brings enhanced accessibility, choice, reliability and resilience to the channel ports and to ports in the Thames Gateway.
- B.8.2 In accordance with the National Policy Statement for Ports (DfT, 2012), a Transport Assessment [[REP3-112](#), [REP3-114](#) and [REP3-116](#)] has been prepared which sets out the transport implications for the wider network, and the WNIMMP [[APP-545](#)] details how these impacts will be monitored and evaluated. A Framework Construction Travel Plan (FCTP) [[APP-546](#)] has also been developed to mitigate the transport impacts. The FCTP sets out a framework regarding the implementation of travel planning for the movement of personnel to and from the construction worksites and compounds during the construction phase of all works related to the Project.
- B.8.3 Considering specifically the impact on the connectivity to the ports, the Lower Thames Crossing would enhance the resilience of the strategic network and provide better connections between local ports and the wider strategic road network. Specifically:
- a. The DP World London Gateway port would benefit from the provision of a new direct free-flowing route connecting the A13 east of the Lower Thames Crossing to the M25 south of junction 29 and the A2 / M2 corridor. This would reduce journey times for vehicles using these routes. While there are moderate adverse impacts identified on the A13 close to the connection with the A1014 that connects to the port, traffic passing through this section is anticipated to largely be heading further west into London on the A13, or north onto the M25, and so would have either marginal increases of less than one minute, or more substantial improvements in their overall journey times.
 - b. the Port of Tilbury would benefit from the provision of direct new free-flowing connections from the A1089 northbound onto the Lower Thames
- B.8.4 Considering specifically the impact on the connectivity to the ports, the Lower Thames Crossing would enhance the resilience of the strategic network and provide better connections between local ports and the wider strategic road network. Specifically:

- a. the DP World London Gateway port would benefit from the provision of a new direct free-flowing route connecting the A13 east of the Lower Thames Crossing to the M25 south of junction 29 and the A2 / M2 corridor. This would reduce journey times for vehicles using these routes. While there are moderate adverse impacts identified on the A13 close to the connection with the A1014 that connects to the port, traffic passing through this section is anticipated to largely be heading further west into London on the A13, or north onto the M25, and so would have either marginal increases of less than one minute, or more substantial improvements in their overall journey times.
- b. the Port of Tilbury would benefit from the provision of direct new free-flowing connections from the A1089 northbound onto the Lower Thames Crossing, from where traffic can travel on to the M25 at junction 29 and the A2 / M2 corridor. This would reduce journey times for traffic using these routes. While no new direct and free-flowing connectivity is provided for traffic heading from the M25 southbound towards to Port of Tilbury, the relief to the M25 at junction 30 and the reduction of traffic on the A13 to the west of the Lower Thames Crossing means that journey times along this route would also decrease.

B.8.5 In light of these impacts, there is considered to be no conflict with the Ports NPS.

B.9 Response to comments made by Higham Parish Council

B.9.1 With regards to comments about the impact on the A229 Bluebell Hill, the Applicant's response is detailed in section B.3.5 above.

B.9.2 In relation to concerns about whether the traffic model takes account of traffic flows on minor roads, care has been taken to reflect the traffic conditions in the areas where the Project would interface with the existing road network as closely as possible. The Transport Assessment [[REP3-112](#), [REP3-114](#) and [REP3-116](#)] details the impact of the Project on 28 journey times through the area, including the A226 (route 7). The Lower Thames Assignment Model (LTAM) shows a general decrease in the operational journey times along the A226 in both directions, most noticeably in the eastbound direction in the PM peak when there is a decrease of 1.2 minutes.

B.9.3 The Transport Assessment also details the journey time changes along the A226 during each construction phase. The largest increase in journey times occurs in the eastbound direction in the PM peak of construction phases 6 and 7, when there is an increase of two minutes. The journey times also increase between 1 and 2 minutes in construction phases 2, 3, 8, and 9. The journey

times in the remaining construction phases (1, 4, 5, 10 and 11) are less than a minute or less than 10% change in both directions.

- B.9.4 Details on how the construction traffic has been calculated are provided in section C.7 of this document.

B.10 Response to comments made by Mr Elliot

- B.10.1 In relation to comments about increased congestion and potential mitigation on the A2 corridor, the Wider Network Impacts Management and Monitoring Plan (WNIMMP) [APP-535] proposes monitoring at various locations along the A2 including the Tollgate and Marling Cross junctions. If the monitoring identifies opportunities to further optimise the road network as a result of traffic growth or new third-party developments, then local authorities would be able to use this as evidence to support scheme development and case making through existing and future funding mechanisms and processes.
- B.10.2 In terms of the concerns regarding the economic benefits in North Kent, the impacts of the project and the benefits delivered are weighed in the planning balance as reported in Section 8.7 in Chapter 8 of the Planning Statement [APP-495], which concludes that there is ‘a clear, overriding and compelling case in the public interest for the project’. The operational assessment of the Project, which is detailed in the Transport Assessment [REP3-112, REP3-114 and REP3-116], shows that the Project would be well used, especially by vehicles travelling from Kent and Medway to Essex along the A13 and for vehicles wishing to travel north along the M25. The Project would provide considerable relief to the current levels of congestion at the Dartford Crossing, while allowing for a substantial increase in the number of vehicles able to cross the River Thames using either the Dartford Crossing or the Project, which would significantly improve connectivity in North Kent. This is reflected in the positive economic benefit of the Project overall and within Medway, as set out in Table A.34 of the Economic Appraisal Package Appendix D of the Transport Assessment [APP-526].
- B.10.3 With regards to concerns about an increase in casualties, the Transport Assessment [REP3-112 to REP3-116] sets out how, on a per kilometre travel basis, the Project leads to a reduction in the total number of casualties across the scheme. The preliminary design has been subject to a stage 1 road safety audit (RSA) carried out by an independent road safety audit team in May/ June 2020 in accordance with the DMRB, with further audits scheduled to take place upon completion of the final design (stage 2 RSA), at completion of construction (stage 3 RSA) and 12 months post-opening of the scheme (stage 4 RSA). A rigorous process for monitoring and evaluating safety will be put in place in accordance with National Highways’ standard approach of delivering a post-opening project evaluation.

- B.10.4 With regards to the final point about congestion on the M25 and linking the country together, the Applicant would like to stress that RIS2 is a (second) 5-year plan as part of a vision to 2050, and can only ever be part of the story. The Applicant will continue to work with local highway authorities and others to align national and local plans and investments, balance national and local needs and support better end-to-end journeys for road users. RIS2 is a function and an expression of government policy. It explains that the Lower Thames Crossing is supported specifically to enhance the very connections of concern to Mr Elliot.

B.11 Response to comments made by DP World London Gateway

- B.11.1 the Applicant has set out its position in relation to Orsett Cock in Section B.2.
- B.11.2 With regards to comments that the mitigation measures are too nebulous as a means of securing the necessary mitigation, and the lack of detail relating to the timing and mechanisms of delivery, The Applicant does not agree for the reasons set out in section B.2. The concern from DP World amounts to a criticism of the process put in place by government to safeguard and invest in the strategic road network. It is not a reason for not consenting this project. The Applicant's submissions relating to wider network impacts is provided in post-hearing submissions for ISH7.

Annex C Post-event submissions on agenda item 5: Construction Traffic Management

C.1 Introduction

C.1.1 This section provides the post-hearing submission for agenda item 5 Construction Traffic Management, from Issue Specific Hearing 4 (ISH4) on 6 September 2023 for the A122 Lower Thames Crossing (the Project).

C.2 Localised construction traffic modelling overview

C.2.1 This is in response to ISH4 Action Point 9.

C.2.2 At Deadline 1, the Applicant submitted Localised Traffic Modelling [[REP1-187](#)], in which at Section 3.2, the Applicant set out its approach to undertaking traffic modelling, including during the construction phase of the Project. It is the Applicant's consideration that the Project's transport model, the Lower Thames Area Model (LTAM) was the most appropriate tool to enable consideration of the construction impacts.

C.2.3 Notwithstanding this, the Applicant stated (at paragraph 5.1.3 of the same document) that following a discussion at Issue Specific Hearing 1, it would submit a microsimulation model of A1089 Asda roundabout during the critical construction traffic modelling phases at Deadline 3.

C.2.4 Localised Traffic Modelling Appx M - ASDA roundabout VISSIM Construction Assessment Report [[REP3-132](#)] together with an updated version of Localised Traffic Modelling [[REP3-127](#)] were submitted at Deadline 3.

C.2.5 Localised Traffic Modelling Appx M - ASDA roundabout VISSIM Construction Assessment Report provided details of assessment undertaken in VISSIM for construction traffic modelling phases 1 and 6, for two hours in the AM peak (07:00-08:00 and 08:00-09:00) and the PM peak (17:00-18:00). For each modelled hour and for each arm of the junction, the flow, average delay per vehicle and the mean maximum queue is presented for each arm, in the do-minimum, phase 1 and 6 scenarios. A series of journey time routes and relative delay plots are also presented.

C.2.6 The results of modelling show that construction traffic phase 6 is forecast to have no significant impact in the operation of the ASDA roundabout.

C.2.7 However, as reported in Chapter 5 of the report, overall delays and queueing are forecast to increase at the junction during construction traffic modelling phase 1. Particularly, queues on the A126 Dock Road approach to the ASDA roundabout are predicted to increase by approximately 900m in the 08:00–09:00 hour.

- C.2.8 As set out in Chapter 2 of the report, the construction traffic assessment as presented in Chapter 8 of the Transport Assessment [[REP3-112](#), [REP3-114](#) and [REP3-116](#)] reflects a reasonable worst case and provides a proportionate assessment of the selected construction scenario.
- C.2.9 In particular, paragraph 8.1.7 of the Transport Assessment sets out a number of assumptions that were made to ensure that the construction programme is not under-represented. The Applicant would note the following:
- a. A 20% uplift has been made to the earthworks movement volumes presented within the outline Materials Handling Plan [[APP-338](#)] to account for uncertainty associated with this stage of design development.
 - b. Selected shift times have been moved to align to the AM and PM model peak hours, whereas the proposed shift times, as set out in the Code of Construction Practice [[REP3-104](#)] which would mean that this element of the staff trips would fall outside the modelled peak hours
 - c. External supplier trips forecast to arrive between 08:00 – 09:00 have been assumed to arrive in the LTAM AM peak (07:00-08:00)
 - d. No account for the impact of Site Specific Travel Plans which would seek to reduce staff trips by private car (through active travel, public transport, workforce shuttle buses and car sharing)
 - e. Worksites are assumed to be active for the whole of each construction traffic management phase, whereas in reality they would operate for parts of phases
- C.2.10 The Applicant has set out how it intends to manage the impacts during construction in Chapter 10 of the Transport Assessment. This provides details of the Outline Traffic Management Plan for Construction [[REP3-120](#)] and the Framework Construction Travel Plan [[APP-546](#)].
- C.2.11 Both of these documents are secured via Requirement 10 of the draft DCO [[REP3-077](#)] and require the Contractors to develop Site Specific Travel Plans and Traffic Management Plans which would provide specific details around seeking to minimise the impact of the construction phase and of construction worker traffic, respectively.
- C.2.12 The Applicant considers that these control documents provide the flexibility and control for all relevant parties and would provide suitable mechanisms for the Applicant to manage the impacts of the construction phase across the road network, including at the ASDA roundabout.

- C.2.13 Importantly, the Outline Traffic Management Plan for Construction and Framework Construction Travel Plan commits the Applicant to undertaking real time monitoring during the construction phase and the Applicant considers, in light of the reasonable worst case assessment presented in the Transport Assessment, that it is reasonable.
- C.2.14 The Applicant notes that if control is required at the ASDA roundabout (or any other location) during the construction phase, the measures that the Applicant could reasonably employ may not be physical (such as re-timing of particular trips to avoid sensitive times), changes to planned works (such as re-phasing, or completing faster), or temporary traffic management measures (traffic signals, contraflows etc). It is also important to note that these changes may be undertaken at a location some distance away from where an impact is identified, as a result of re-routing traffic.

C.3 Response to comments made by Thurrock Council

- C.3.1 In response to the general concerns raised by Thurrock Council on the traffic management forum, the Applicant is scheduled to conduct meetings with Thurrock Council. The purpose of these meetings is to gain a deeper understanding of the specific concerns and develop solutions that are both reasonable and proportionate at this stage of the project.
- C.3.2 In relation to the comments whether the Traffic Management Plan (TMP) would be one or multiple plans the Applicant has provided clarification in the oTMPfC [\[REP3-121\]](#), paragraph 2.3.1: A TMP may relate to part of the Project, so for example, there may be separate TMPs for different stages or areas of the Project.
- C.3.3 In relation to comments raised on the co-ordination of forums that facilitate the management of the construction works, the Applicant states the following:
- C.3.4 The oTMPfC forms part of a suite of control documents known as the control plan, which is the framework for mitigating, monitoring, and controlling effects of the Project during design, construction and operation.
- C.3.5 Whilst each control document and associated forums have specific functions their outputs and interfaces would be co-ordinated internally within the Project to manage this interface efficiently and increase opportunities for reducing the overall impact on the surrounding communities and environment. To facilitate these interfaces the Applicant would establish and chair the JOF (Joint Operations Forum).

- C.3.6 The chairs of each forum will attend the JOF and serve as liaisons to relay any relevant outcomes that might affect the topics under discussion in their respective forums. In the case of the Outline Traffic Management Plan for Construction [REP3-121] this would be the Traffic Manager who is the chair of the TMF. Further detail of the JOF is set out in Section 4.3 of the CoCP [REP-156].
- C.3.7 In addition, whilst the Applicant has committed to establishing appropriate forums to facilitate coordination among the various parties involved in the project, National Highways, with its extensive experience in successfully delivering major construction projects, will ensure that work plans are integrated, promoting a unified approach to project delivery.
- C.3.8 In response to concerns raised regarding the management and governance of construction traffic flows to and from compounds, the Applicant is confident that approach set out in the oMHP and oTMPfC provides a robust position in the control of construction traffic flows.
- C.3.9 Access routes to compounds and utility logistic hubs are comprehensively outlined in Sections 4.1 and 4.2 of the oTMPfC. These access routes will be integrated into the Traffic Management Plan (TMP) and developed collaboratively with relevant stakeholders, as specified in paragraph 4.2.10-11 of the oTMPfC.
- C.3.10 To enhance governance of construction traffic flow, the Applicant has committed to implementing a real-time data monitoring system. This system will capture crucial data and will be presented at the Traffic Management Forum (TMF) meetings, ensuring adherence to access routes and informing future delivery planning. This is set out in para 2.4.8 -24 of the oTMPfC.
- C.3.11 Furthermore, a set of control measures for managing construction deliveries to and from compounds is detailed in Section 3.5 of the oMHP. This includes the implementation of a delivery booking system, enabling proactive coordination of delivery vehicle movements, management of deviations from delivery slots, and the prompt resolution of demand peaks.
- C.3.12 Regarding the concerns raised about the perceived lack of coordination between the oMHP and oTMPfC in the management of materials, the Applicant provides the following clarification:
- C.3.13 The oTMPfC and oMHP forms part of the control plan, serving as the overarching framework for mitigating, monitoring, and controlling the Project's effects.

- C.3.14 Regarding the management of construction traffic, both of these control documents offer a coordinated approach to the implementation of control measures. The oMHP, where appropriate, makes references to the oTMPfC in the delivery of control measures. The following are some examples of how the measures within the oMHP coordinate with the oTMPfC:
- a. Para 8.4.8: The Project would require the Contractors to consult with the highway authority/authorities and adhere to freight and construction traffic routes. This would include a clear understanding of those routes which are not permitted, including any considerations around traffic-sensitive routes/roads and receptors. The oTMPfC contains the principles and mechanism which would be applied and reflected in the TMP.
 - b. Para 8.4.3 The final mile strategy would be implemented by the Contractors in conjunction with the oTMPfC, making full consideration of required mileage and mileage reduction, peak traffic hours conflicts and associated impacts.
 - c. Section 3.5 Managing construction delivery movements.
 - d. Para 4.3.15: The Traffic Management Forum detailed in the OTMPfC will be used to facilitate the management of interfaces that relate to construction logistics and temporary traffic management. Refer to the OTMPfC for further detail on the TMF.
- C.3.15 In relation to perceived flaws in the Framework Construction Travel Plan [APP-546], the Applicant is aware of the concerns raised by Thurrock Council and has met with them on a number of occasions to discuss, with the Applicants comments set out within the SoCG between (1) National Highways and (2) Thurrock Council v2.0 [REP3-092]. Overall, the applicant considers that the FCTP provides a robust set of principles and processes that would be used by the Contractors to seek to minimise the impact of staff journeys on the road network and to promote sustainable travel.
- C.3.16 –In relation to how the Applicant has assessed the movement of the construction workforce, the approach the Applicant has taken is set out in Section 8.6 of the Transport Assessment [REP3-112, REP3-114, REP3-116]. To provide clarity, staff vehicles were not assigned to set routes within the LTAM, and as such staff traffic is assigned to the fastest route for their journey.
- C.3.17 The Applicant does not consider that it is proportionate or practicable to place network restrictions on the movement of its construction workforce, although it is acknowledged that specific Traffic Management Plans and/or Site Specific Travel Plans may seek to control staff movements in particular locations.

C.4 Response to comments made by the Port of Tilbury London Limited (PoTLL)

- C.4.1 The Applicant notes that PoTLL raised during ISH4 in relation to the construction assessment submitted by the Applicant at Deadline 3 in Localised Traffic Modelling Appx M - ASDA roundabout VISSIM Construction Assessment Report [[REP3-132](#)].
- C.4.2 The Applicant is liaising with PoTLL on these matters as part of its ongoing engagement, with the aim of agreeing the technical matters as they relate to the assessment that has been undertaken.
- C.4.3 In response to comments concerning the management of construction traffic and workforce routes to the Northern Tunnel Entrance Compound, the Applicant is in the process of preparing a Framework Agreement that outlines the protocol for the coordination of construction traffic interfacing with port operations. The Applicant is actively maintaining an ongoing dialogue with the PoTLL to reach the finalisation of this side agreement.

C.5 Response to comments made by the London Borough of Havering

- C.5.1 In response to comments that further detail should be provided within the oTMPfC, the Applicant considers this approach and level of detail is proportionate to this stage of the project. The oTMPfC provides a robust mechanism, specifically the Traffic Management Forum (TMF), a framework designed to further develop and deliver where necessary measures during the construction phase. This iterative process is supported by real-time monitoring data, ensuring an adaptive and responsive mechanism.
- C.5.2 The detail and control measures committed to within the oTMPfC is more than what would be expected at this stage, by contrast to other projects of similar scale and complexity. The Applicant has taken successful practices from other projects such as the inclusion of a TMF which has proved to be a successful mechanism in minimising the impacts of construction traffic.
- C.5.3 It is also important to retain the provision for adaptability and change as opportunities arise as further certainty is gained from the development of detailed designs and associated construction methodologies developed by the contractor. This need for flexibility was emphasised during the hearing, where insights from experiences at J28 project, as raised by TfL and Essex County Council.
- C.5.4 With regard to comments regarding the suitability of access routes, the Applicant has explained its approach in Section 4.1 & 4.2 of the oTMPfC. A fundamental principle guiding the identification of access routes is the

avoidance or reduction, as far as reasonably practicable, of the reliance on the local road network for construction traffic accessing compounds. Notably, among the four compounds situated within the London Borough of Havering, three are primarily accessed via the strategic road network, once a connection of strategic road network is established.

- C.5.5 Concerns raised by the London Borough of Havering regarding the temporary access road from the M25, with a timeline of the initial 12-24 months for constructing and operating temporary access roads, have been addressed by the Applicant in the LIR document: Comments on LIRs - Appendix F - London Borough of Havering under the matter item “Paragraph 7.2.4 to 7.2.11” [\[REP2-060\]](#).

C.6 Response to comments made by Mr Elliot

- C.6.1 In response to Mr. Elliot's comments regarding the development of appropriate diversion routes, the Applicant has presented proposed diversion routes. These routes have been designed with the consideration of limiting the forecasted increase in journey time, as outlined in Table 4.5 of the oTMPfC. These proposed diversion routes serve as a starting point for future dialogues between the contractor and the local highways authority. The exact diversion route will form part of the TMP and take into consideration certain variables, such as external project-related works affecting the road network, which is currently unknown.
- C.6.2 When developing and monitoring diversion routes, careful consideration will be given to their impact on road users. This evaluation will be conducted utilising the Customer Impact Assessment Tool, as well as the Dynamic Roadworks Benchmarking Template, both of which are found in Appendix C and Appendix D, respectively, of the oTMPfC [\[REP3-121\]](#).

C.7 Response to comments made by Higham Parish Council

- C.7.1 With regards to what roads are included within the Project's transport model, the Applicant's approach is set out in section 5.2 of Combined Modelling and Appraisal report - Appendix B - Transport Model Package [\[APP-520\]](#). Given the spatial extent of the model, local or 'c' roads are only included in the fully modelled area (see Plate 5.6 of the Transport Model Package) to enable the realistic routing of local traffic. Within Higham Parish, whilst not every road is included, the main north-south and east-west routes are included in the Project's transport model.
- C.7.2 With regards to how the figures for construction traffic have been developed, construction related vehicular traffic has been represented in five ways as set

out below. This data has been fed into the Project's transport model (refer to Section 8.6 of the Transport Assessment, [[REP3-112](#), [REP3-114](#), [REP3-116](#)] for more detail).

C.7.3 The five ways are:

- a. Compound to compound earthwork movements – HGV movements between different compounds which utilise the road network
- b. Compound to external earthwork movements – Excess or unsuitable material which needs to be transported to external locations not within the Project site by HGVs
- c. Deliveries to/from external suppliers – This is made up of any deliveries required to facilitate the works e.g. materials, goods, equipment etc by HGV
- d. Light Goods Vehicle (LGV) movements – Consisting of specialist contractors and deliveries whereby HGV's are not required e.g. contractors carrying equipment, smaller deliveries etc via LGV
- e. Staff movements – staff going to and coming from site via car

C.7.4 The number of vehicles have been calculated based on estimated material quantities required for each element of the scheme including earthworks, materials for construction, equipment and other general deliveries. This information has been fed into the traffic model to give an indication of the change in flow, measured in PCUs (where cars/LGVs = 1 PCU and HGVs = 2.5 PCUs) for each construction traffic modelling phase. Section 8.8 of the Transport Assessment, [[REP3-112](#), [REP3-114](#), [REP3-116](#)], illustrates the impact on the highway network, including showing the forecast change in PCUs for roads across the Lower Thames area, including the A226 (both eastbound and westbound carriageways).

C.7.5 Having the information in PCUs gives a better indication of the increase/decrease in the level of traffic on a given road. As the plates within Section 8.8 of the Transport Assessment show, the figure for the A226 is predicted to change throughout the construction period.

C.7.6 With regards to the lorry movements quoted by Cllr Wright, the Applicant has, over the last several years, shared construction related information including via the consultation events. As a result of working closely with stakeholders, the forecast number of construction related vehicles has reduced since Statutory Consultation (2018). This was a result of a number of changes including, design refinements, further landscaping proposals and further control measures. The estimated construction related numbers have changed over time as a result of feedback and improvement to the scheme. The highest daily number of forecast HGV movements along the A226 reflected in the Transport Assessment is 48

vehicles per day in both directions combined i.e. westbound and eastbound flow added together. This occurs in Phase 1 of the construction modelling phases. The monthly weighted average number of HGVs is 22 a day, again in both directions combined. During the construction phase, the contractor will collaborate with relevant stakeholders to develop construction access routes, which will be incorporated into the Traffic Management Plans as per the requirements of the oTMPfC [REP3-121]. The Applicant approach to managing construction traffic is designed to minimise its impact on the local road network, in accordance with the measures outlined in Section 3.5 of the Outline Materials Handling Plan [APP-338]. Specific measures, as detailed in Table 2.3 of the oTMPfC, include the implementation of a right-turn-only restriction for HGV's when exiting the southern entrance compound, preventing construction HGVs from travelling into Gravesend along the A226. Additionally, the Applicant has committed to establishing a monitoring system for real-time data collection, which will evaluate the road network's impacts and ensure compliance with vehicle routing. Further information on this can be found in Chapter 2 of the oTMPfC.

C.8 Response to comments made by Shorne Parish Council

- C.8.1 In regard to comments on the appropriateness of the diversion route for the closure of Brewers Road, the Applicant has developed a proposed diversion route as presented in Plate 4.10 & 4.11 of oTMPfC. The exact diversion route would be subject to engagement with the relevant authorities during the development of the Traffic Management Plan, working to mitigate the potential for the vehicles to use unofficial diversion routes and minimise disruption to road users and communities affected by the diversion.

References

Department for Transport (2014). National Policy Statement for National Networks.

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