Lower Thames Crossing

9.54 Comments on LIRs Appendix H – Thurrock Council (Part 2 of 5)

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1 Applicants Responses to Thurrock Council's Local Impact Report (Part 2)

Table 1.1 The Applicant's responses to Thurrock Council's Local Impact Report (LIR) – [REP1-281], dealing with Sections 8–9

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Page 89	**8 Consideration of Alternatives** **8.1 Introduction** 8.1.1 This section considers potential alternatives to the LTC scheme and provides further information to support Principal Issue VI of the Relevant Representation from the Council (PDA-009) and the issues raised in the 'Initial Assessment of Principal Issues' presented in the Rule 6 Letter (PD-013), particularly Item 3 'Consideration of alternatives'. **Table 8.1: Summary of Key Issues** • The 'high' and 'low' traffic forecast scenarios used by NH do not follow DfT's guidance concerning the use of Common Analytical Scenarios and do not reflect the wide range of possible future scenarios for the operation of LTC, impacting the selection of options and ruling out of alternatives. • The traffic forecasts used by NH do not reflect the likely impacts of the delivery of Government policies including decarbonisation, active travel and public transport. • The design of LTC provides limited access to development sites and national port facilities in Thurrock. This would be remedied by the inclusion of Tilbury Link Road and changes to the operation of Orsett Cock junction, as part of the LTC scheme. • The option selection for LTC is based on an initial decision made in 2009. This was reviewed and confirmed by NH in 2017, but despite requests, the underpinning analysis has not been made available to the Council. Since the initial decision there have been many substantial changes to transport patterns and the wider economy which have not been considered as part of the decision-making process. Analysis by the Council shows that there are several potential public transport based options, which would meet NH's objectives for LTC. There are also several alternative options for elements of LTC, e.g. including Tilbury Link Road (TLR), which would better meet the objectives for LTC. The Council considers that these options should be considered by NH. • The provision of facilities to enable public transport services to access LTC is poor leading to circuitous routes and increased journey times. The Council considers that the design of LTC should be refined to enable better facilities to be provided, e.g. at the Tilbury operational and emergency access.

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	• The Council is concerned that NH has not considered how or where electric and hydrogen powered vehicles will be able to charge on the 22 kms new section of the network in the context of the ban on new diesel and petrol vehicles in 2030. • The Council considers that the potential impacts of providing a variable demand management charging regime should be considered to maximise the benefits of providing LTC. • The Council considers that alternative routing strategies should be considered to increase the effective capacity of Dartford Crossing.
Applicant's Response	These issues are covered in detail in the sections below.
Page 89-90	**8.2 Policy Context** 8.2.1 The Council have significant concerns that alternative solutions to LTC were not considered that could greatly reduce the negative impacts of LTC on the residents of Thurrock. LTC uses approximately 10% of the available land in Thurrock and will sever the more heavily populated sites in the south and west from key employment opportunities in the east, such as DP World London Gateway (DPWLG). 8.2.2 The NPSNN (NPS) has specific guidance on how to approach the assessment of alternatives in paragraphs 4.26 and 4.27: *'Applicants should comply with all legal requirements and any policy requirements set out in this* *NPS on the assessment of alternatives. In particular:* • *The EIA Directive requires projects with significant environmental effects to include an outline of the main alternatives studied by the applicant and the main reasons for the applicant's choice, taking into account the environmental effects.* *All projects should be subject to an options appraisal. The appraisal should consider viable modal alternatives and may also consider other options (in light of paragraphs 3.23 to 3.27 of this NPS). Where projects have been subject to full options appraisal in achieving their status within Road or Rail Investment Strategies or other appropriate policies or investment plan, option testing need not be considered by the examining authority or decision maker. For national road and rail schemes proportionate option consideration of alternatives will have been undertaken as part of the investment decision making process. It is not necessary for the Examining Authority and the decision maker to reconsider this process, but they should be satisfied that this assessment has been undertaken.*' 8.2.3 In addition, it should also be noted that paragraphs 4.17 – 4.19 of the draft NPSNN (2023) are also of relevance here. In relation to this, the Council considers that the judgements made on the A303 Stonehenge is helpful in demonstrating that the ExA is obliged to give consideration to such alternatives as are advanced by 'interested

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	parties' to the Examination, such as the Council. Therefore, the Council considers that in order for the ExA to consider and assess the relative merits of alternatives as part of the Examination, it must: • Demonstrate what the alternative proposals are in a clear and choate manner; • Show their merits relative to the scheme as promoted by the applicant; and, • Advance a case to the effect that consideration of the alternatives is justified as an 'exceptional circumstance'. 8.2.4 The Council considers that the alternatives put forward below within Section 8 of this LIR fulfil those three conditions above have been satisfied. 8.2.5 In order to gain consent, it is important that alternative options are fully considered alongside a clear rationale of the reasons for option selection. The Council does not believe that NH has fully considered alternative options that would greatly reduce the negative impacts on Thurrock and better align with the Council's long-term ambitions to support sustainable travel and economic growth. 8.2.6 These concerns have already been raised with NH as outlined in Section 2.1 of the Statement of Common Ground between National Highways and Thurrock Council (APP-130). 8.2.7 It is important to note that the alternatives described in this section are considered significant and they should be assessed fully and effectively during the Examination, regardless of whether such changes would require a new DCO application, for the reasons set out in Section 8.2.3 above. 8.2.8 **SUMMARY: the Council considers that the analysis of alternatives provided by NH does not meet the requirements of the NPSNN and therefore the submitted analysis is not valid and needs updating along with further work.**
Applicant's Response	Both Chapter 5: Project Evolution and Alternatives of the Planning Statement [APP-495] and ES Chapter 3: Assessment of Reasonable Alternatives [APP-141] describe the decision-making process behind the proposed route alignment. Paragraphs 5.2.7 to 5.2.14 of Chapter 5 of the Planning Statement [APP-495] set out how the Project accords with National Policy Statement for National Networks (NPSNN) paragraphs 4.26 and 4.27, with further detail provided in Table 3.1 of ES Chapter 3: Assessment of Reasonable Alternatives [APP-141]. With regard to the draft NPSNN, paragraphs 4.17 to 4.19 are similar in wording to NPSNN paragraphs 4.26 and 4.27, therefore for the same reasons, the Project is considered to accord with the requirements of these paragraphs of the draft NPSNN. The Applicant recognises the need to consider alternatives where there is a legal or policy requirement to do so under paragraph 4.17. The assessment of alternatives presented in ES Chapter 3: Assessment of Reasonable Alternatives [**APP-141**] and Chapter 5 of the Planning Statement [**APP-495**] have demonstrated that the Applicant has considered alternatives that could avoid identified adverse effects. The assessment also concludes that the Project

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	represents the preferred route on balance having regard to the identified adverse effects and likelihood of other adverse effects arising from alternatives that could potentially meet the Scheme Objectives. Where adverse effects have been identified, the Applicant has sought to minimise and mitigate harm.
Page 90-94	**8.3 Alternative Traffic Growth Trajectories** 8.3.1 The appraisal of LTC has relied on a 'core' set of traffic forecasts, which have been used to determine the provision of additional road capacity. As described in Section 7, 'high' and 'low' traffic growth scenarios are presented by NH to test the robustness of LTC to different traffic conditions. 8.3.2 The following analysis shows that the range of the 'high' and 'low' traffic forecasts used by NH is narrower than the range recommended for use by DfT and they do not reflect the expected range of alternative future travel conditions which could be reasonably expected in and around LTC and this means negative impacts on Thurrock will not be accurately represented and that alternative solutions may have been ruled out incorrectly that could otherwise solve the problems that LTC is seeking to address. **High and Low Calculations of Traffic Growth** 8.3.3 The main approach used in the Combined Modelling and Appraisal (ComMA) Report (**APP-518**) to allow for variations in traffic growth is to provide two alternative traffic growth scenarios: 'Low' and 'High' and these are described rather briefly in Section 6.6 of the ComMA (**APP-518**). 8.3.4 These traffic forecasts are generated by a formula of symmetrically increasing or reducing traffic by a notional 'p' factor of 2.5% per year from the 'core' forecasts. This formula includes a 'damping' effect by taking the square root of the number of years between the initial year and the forecast year. The following example helps explain this process. • Suppose there is a base traffic forecast for 100 vehicles per hour for a year, which is 25 years in the future; • The high traffic forecast would be given by 100+(0.25)(√25), i.e. 107.5 vehicles or an increase of 7.5%; • Similarly, the low traffic would be 100-0.25/(√25, i.e. 92.5 vehicles or a decrease of 7.5%; and, • This means the 'high' test would be 16% higher than the low test (107.9/92.5=1.16). 8.3.5 Tables 6.10 and 6.11 in ComMA (**APP-518**) give the low and high tests respectively for the Dartford Crossing with and without LTC. These show that the high and low traffic forecasts for the forecast year of 2040 are on average +/- 7% of the base forecast. 8.3.6 The Council notes that no results are given for how this corresponds with the total traffic mileage in the modelled network as a whole, e.g. no mileage data is provided for sample years over the 60 year appraisal period. These

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results are required to undertake a comparison of the traffic flows and the various measures of benefit used to calculate the BCRs and without this data it is not possible to interpret the results.

8.3.7 Table 7.13 of ComMA (**APP-518)** shows the effect that the high and low growth forecasts, defined in this way, have on the overall value for money. This table is presented below in **Figure 8.1** for ease of reference.

Table 7.13 Total monetised benefits (£million, 2010 prices and values)

Benefit	Low growth	Core growth	High growth
Transport user benefits	1,749.7	1,971.9	2,240.1
Construction and maintenance delays	-140.8	-140.8	-140.8
Indirect tax revenues	50.1	43.5	34.2
Accidents	-67.8	-67.8	-67.8
Environmental impacts	-532.1	-532.1	-532.1
Physical activity	21.2	21.2	21.2
Sub-total	**1,080.2**	**1,295.9**	**1,554.8**
Wider economic impacts	1,470.2	1,516.6	1,529.7
Journey time reliability	487.1	487.1	487.1
Total	**3,037.4**	**3,299.5**	**3,571.5**

Figure 8.1 Extract of Total Monetised Benefits

8.3.8 The stated high and low growth BCRs are roundly +/-11% of the results for the core growth scenario. The high growth benefits are over 40% higher than the low growth benefits and the BCRs are 25% higher, all due to traffic flows which, over the whole appraisal period, are expected to be approximately 14% higher in the high forecast than the low forecast.

8.3.9 This analysis of the BCR results and the other information presented in this table highlights five technical matters of significant concern, as they have material impacts on the case for LTC presented by NH:

- The calculated BCRs are very sensitive to the forecast traffic growth: a small change in the forecast traffic has a larger effect on the BCRs.
- The method of using the square root damping factor does not follow the guidance as suggested by DfT in TAG Unit M4. This document (para 4.2.3) recommends that for highway demand forecast the 'p' factor should be 4% per year - not the 2.5% per year used by NH. It is not clear why NH have decided to use a value of 2.5%. If NH had adopted 4%,

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	the difference between high and low traffic forecasts would be greater and the 'low' growth BCR forecast would have been closer to 1.0 and likely lower than 1.0, even with the full incorporation of the Wider Economic Benefits. • Environmental impacts (including carbon), accidents, 'physical activity', i.e. the amount of walking and cycling, are all assumed to be constant across the whole range of traffic forecasts. This is implausible and inappropriate. • Journey time reliability benefits are also assumed to be constant across the whole range of traffic forecasts. Again, this is implausible. • Wider economic impacts are barely affected by changes in traffic flows (and they are in any case subject to other difficulties discussed in Section 7.5). Again, this is unlikely to be a realistic outcome of LTC. 8.3.10 The Council considers that the use of these assumptions is likely to substantially underestimate the difference in BCR between the different scenarios. **Requirement to use DfT's Common Analytical Scenarios (CAS)** 8.3.11 NH claims that *'The range in the number of trips produced by applying this adjustment factor covers most of the outcome scenarios explicitly modelled in the National Transport Model'* (para 6.6.4, APP-518) 8.3.12 NH claims, in effect, that the Low and High Growth scenarios give a spread corresponding to the DfT's more explicit modelling of alternatives as defined in their Common Analytical Scenarios. These Common Analytical Scenarios include different possible futures of economic growth, population, the consequences of special features like Brexit, Covid, uptake of electric vehicles and financial pressures and their consequences on home working, trip length, etc. 8.3.13 However, analysis of the scenarios used by NH shows that they do not meet DfT's requirements and that the range of scenarios used by NH is narrower than the range suggested using DfT's Common Analytical Scenarios. This is shown in **Figure 8.2** below.

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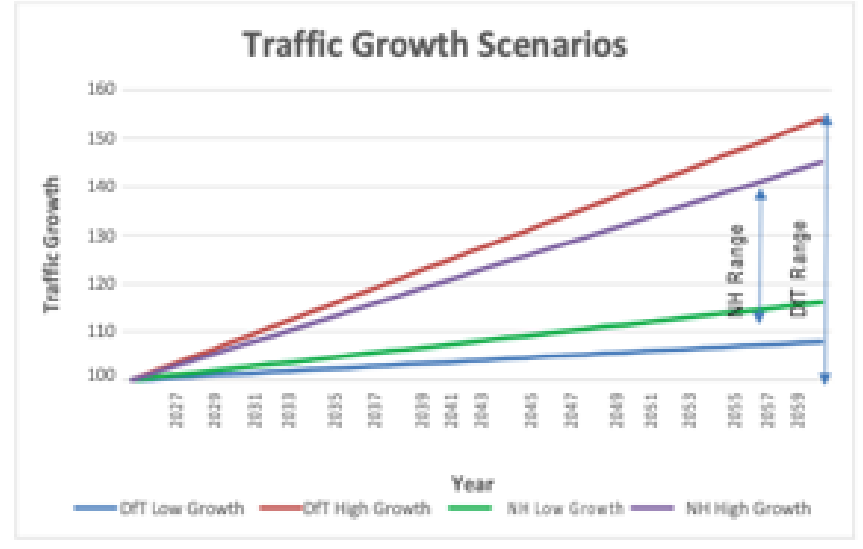

Figure 8.2: Traffic Growth Scenarios

8.3.14 The narrowness of the traffic forecasts used by NH is demonstrated by the traffic flows presented in Table 7.1 of the Transport Assessment (**APP-529**). This data shows that for the southbound direction of A122 (LTC) between the A2 and the A13, the 'core' AM peak forecast is 3,470 pcus per hour and the 'high' forecast is 3,500 pcus per hour, i.e. a difference of only 30 pcus per hour or less than 1%.

8.3.15 This analysis shows that the NH range of traffic forecasts does not reflect DfT forecasts, and the NH forecasts therefore cannot be taken as a measure of the likely range of outcomes. This is a very significant weakness in the assessment of LTC.

8.3.16 The Council notes that neither the DfT Common Analytical Scenarios, nor the NH adjustment with a 2.5% factor, takes into account carbon and climate effects. The CAS do not include estimates of the effects on traffic growth of the successful application of the policies in the DfT Decarbonisation Strategy, which would be consistent with carbon targets and arguably involve reductions in traffic of the order of 10% to 20%.

8.3.17 Nor are the CAS consistent with likely road and traffic conditions if policies to limit global warming fail with consequential disruption of economic geography and social life.

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	8.3.18 Thus, the range of traffic conditions considered in the appraisal does not include either the conditions which would apply in the case of success nor in the failure of climate policies. 8.3.19 The resultant calculations of the impacts of different forecast levels of traffic suffer from assumptions that traffic levels have no effect on carbon and other environmental impacts, accidents, the amount of walking and cycling, journey time reliability, and nearly all elements of Wider Economic Benefits. This means that the impacts of the assumed levels of traffic in the economic appraisal are underestimated. 8.3.20 **SUMMARY: the 'high' and 'low' traffic forecast scenarios used by NH do follow DfT's guidance concerning the use of Common Analytical Scenarios and do not reflect the wide range of possible future scenarios for the operation of LTC, impacting the selection of options and ruling out of alternatives.**
Applicant's Response	The transport modelling for the Project was carried out in Spring 2022 in accordance with DfT's Transport Appraisal Guidance (TAG) at that time. At that time the p values to be used in the creating the high and low growth highway trip matrices was 2.5. The DfT updated this value to 4.0 after submission of the DCO application. The higher p value is now in TAG as the Common Analytical Scenarios have a greater range in their growth factors. Likewise, the traffic growth forecasts for use in modelling the Common Analytical Scenarios were published in draft form in August 2022 and became definitive in November 2022. Until November 2022 DfT TAG had only the NTEM7.2 central case traffic growth factors and the guidance to create high and low growth forecasts using a p value of 2.5. The traffic flows from the high and low growth forecasts are presented in ES Chapter 7 of the Transport Assessment [**APP-529**], Section 8.6 of the Combined Modelling and Appraisal Report (ComMA) Appendix C: Transport Forecasting Package [**APP-522**] and Annexes D and E in ComMA Appendix C: Transport Forecasting Package Annexes [**APP-523**]. The latter document shows the change in the number of trips in the matrices, the change in flows at the Dartford Crossing and the Lower Thames Crossing and the change in flows and journey times on key routes in the modelled area. An increase in the number of trips in the matrix, of even 10%, would not be expected to lead to an increase in flows of 10% on every link in the network as traffic may choose to use different routes as a result of there being more traffic on the network. The impact on journey times is also different for different links and routes. The range of impacts on flows and journey times is shown in Annex D in ComMA Appendix C: Transport Forecasting Package Annexes [**APP-523**].
Page 94	**8.4 Absence of Traffic Modelling for Future Change** 8.4.1 In Section 8.3 above, the Council presented challenges with the NH approach to traffic modelling and how NH deals with future changes by using a broad-brush consideration of higher and lower traffic forecasts to assess scheme outcomes and value for money. 8.4.2 However, in practice future traffic levels could change for all sorts of different reasons, each of which would have a different significance for the appraisal of the project and could lead to LTC being overengineered, taking more

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	land than is necessary within Thurrock or possibly under-engineered and more land-take could be required in the future leading to further negative impacts on residents and the environment. 8.4.3 For example, traffic levels which were lower due to lower economic growth would be connected with a change in both pressures on incomes if people were poorer and pressures on the amount of time availability if people had to work longer hours. This would affect people with higher or lower incomes, and with more or less constrained time, in different ways, both tending to reduce the quality of life. 8.4.4 However, if traffic growth were lower due to the successful implementation of decarbonising strategies involving better local facilities, more walking and cycling, better internet connectivity, reallocation of some road capacity to improvements in the social realm, and a calmer, more leisurely lifestyle, then this could be associated with an improvement in the quality of life. 8.4.5 Another example would be that the interaction of vehicles on a road network, using the relationships and method of traffic science, would be quite different in the context of different traffic management systems, road, and pavement design, signalling and regulation, or different vehicle operating characteristics and degrees of autonomy, which would have different effects on traffic safety, speeds, fuel consumption, and choice of destinations and times of day of travel. 8.4.6 Each of these future scenarios would have different effects on the types, modes, times of day and location of travel, that would not be captured simply by using catch-all 'higher' and 'lower' traffic forecasts. 8.4.7 The range of possible future scenarios under which the LTC could operate means that the Council expects to see a greater range of traffic modelling sensitivity tests, including those using the DfT Common Analytical scenarios. This would allow the Council and NH to better understand the scheme's value for money and its impacts in a wide range of futures and ensure it is fit for purpose. 8.4.8 **SUMMARY: the traffic forecasts used by NH do not reflect the likely impacts of the delivery of Government policies, including decarbonisation, active travel and public transport.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] item 2.1.66, 2.1.69 and 2.1.70, summarised below. The Applicant has recognised that as a result of advancing technology, the Transport Decarbonisation Plan and Net Zero by 2050 targets, new technologies such as Connected and Autonomous Vehicles will emerge. The timescales and exact nature of these interventions is currently unknown as therefore is the policy and legislative framework in which they will sit. In the absence of this, it would not be appropriate for the Applicant, or other highway authorities to make adaptations to either existing or proposed infrastructure. The Applicant is unable to provide further detail or discussion on this element without government policy.

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	The whole Project route will be available for public transport, if operators choose to use it. National Highways is not a public transport operator. However, the Project does provide additional connectivity across the Thames and is fully available for use by public transport operators should they choose to make use of it. To supplement the content in the SoCG and following the publication of Thurrock Council's LIR, it is noted that whilst the A13/A1089/A122 Lower Thames Crossing junction is located away from Tilbury, it is located next to the A1013 corridor, which Thurrock Council's LIR (Appendix B, Annex 1 B.2) identifies as a potential route for the South Essex Rapid Transit (SERT) scheme, that aims to link Lakeside, Grays, Stanford le Hope and Basildon. This creates an opportunity for any future cross-river bus or coach services to connect to SERT in the A1013 corridor. The A13/A1089/A122 Lower Thames Crossing junction would also be relatively well suited in terms of future cross-river bus or coach services serving Stanford-le-Hope and London Gateway. The Applicant considers that Local Authorities are best placed to lead on the development and appraisal of future public transport projects for their networks. They also have strong existing relationships and lines of communication with commercial bus operators as part of Local Transport Authority duties. The Applicant is willing to work with authorities where appropriate. The Applicant has established a Sustainable Transport Working Group (STWG) in parallel with the Project, with its primary purposes to maximise the benefits of the new crossing and develop sustainable travel initiatives that could be eligible for National Highways' designated funds, and to support cases for future investment. Should the Project gain consent, the Applicant will use the STWG up until opening as a forum to engage Local Authorities and operators to build awareness and develop improvements to existing commercial services and potential new services to make best use of the opportunities provided by the new crossing. The Applicant considers that supporting this collaboration between Local Authorities on both sides of the Thames is the most effective and sustainable solution. The consideration of connections with active travel is not necessarily carried out as an assessment of alternatives considered, but rather it forms part of an evolution of the project design of a selected route. Since the selection of the route, the project design has evolved significantly to improve the existing routes for walking, cycling and horse riding. In terms of the proposed route, the relevant design standard DMRB GD 300 (Highways England, 2020) requires that 'Walkers, cyclists, horse-riders and slow-moving vehicles are prohibited' for the design level (Level 3) of the Project, in order to enhance the safety and operational performance of the road. The Applicant proposes to work collaboratively with the Council outside of the scope of the Project to help bring forward the Tilbury Link Road, which would be able to provide additional network connectivity, particularly for local buses. The transport modelling for the Project followed DfT's Transport Appraisal Guidance, and the published DfT traffic growth factors as they were at the time of the DCO submission in October 2022.
Page 94-95	**8.5 Limited Connectivity to Facilitate Sustainable Development** 8.5.1 The proposed design of LTC provides limited opportunities for traffic to access development sites and national port facilities in Thurrock. Previous designs of LTC included provision of and access to Tilbury Link Road.

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	However, this was removed by NH in 2017. This means the only access to development sites in Thurrock is via the Orsett Cock junction, a local Council road. In practice, this junction is expected to be congested in peak periods and this issue is described in more detail in Section 9. 8.5.2 **SUMMARY: the design of LTC provides limited access to development sites and national port facilities in Thurrock. This would be remedied by the inclusion of Tilbury Link Road and changes to the operation of Orsett Cock junction as part of the LTC scheme.**
Applicant's Response	The Applicant has considered the provision of a direct link into Tilbury during the development of the Project. While providing benefits for the local community, the Tilbury link road would not contribute to the Scheme Objectives of relieving the congested Dartford Crossing and approach roads and improve their performance by providing free-flowing north–south capacity. The Applicant recommended to DfT that the Tilbury link road should be developed as an independent project from the Lower Thames Crossing, and in 2020 the DfT provided funding to the Applicant to develop the Tilbury link road through RIS2 (DfT, 2020). During the redesign of the area following the designation of the Thames Freeport in 2021, the Applicant considered carefully the potential future linkage that could be provided by the Tilbury Link Road in the design of the operational and emergency access. This access has been designed following the standards set out in DMRB, in order to facilitate a future connection at this location. Until such time as the nature of a future connection is determined, including the alignment and highway configuration, it is not possible to determine whether modification would be required to the operational and emergency access to allow for any future connection but such modification, if necessary, could be delivered through the consenting process that nay new connection would require. This matter is addressed by SoCG [**APP-130**] items 2.1.88 and 2.1.168, summarised below. The Applicant acknowledges that there are increases in traffic flows on some local roads, resulting from local road users choosing different routes to access the wider road network once the Project is open to traffic. The modelling demonstrates that in some locations journey times will increase, and in others journey times will decrease. The Economic Appraisal Report sets out the aggregated benefits in Thurrock, considering both faster and slower journeys, and demonstrates the overall economic benefit in this area. The Applicant's strategic modelling demonstrates that the Orsett Cock junction will operate acceptably, though it is acknowledged that specific concerns have been raised by the Council that are not addressed by the strategic model. As a result, the Applicant has progressed a local junction model in collaboration with the Council's team to consider these issues. Detailed modelled outputs have been shared with the Council. The Applicant considers that this modelling has demonstrated that the junction operates acceptably. The Applicant is obligated by their licence 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. The Applicant will continue to work with Thurrock Council as they develop their local plan to look at the relationship between the local road network and the

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	strategic road network. In addition, the Applicant is considering the potential to trunk the A13 and A1014, separately to the delivery of the Lower Thames Crossing, as set out in the Road Investment Strategy 2. 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 onto 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 the 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 and remain the shorter and faster route. DP World London Gateway would have free-flow access to and from the Project in both directions. This would mean that they would benefit from a shorter route both to the M25 and destinations in the Midlands and the north, bypassing M25 junction 30. It would also benefit from a shorter more reliable route into Kent via the Project. Recognising the concerns raised about connectivity by Thurrock Council, the Applicant modified the proposed connectivity at the A13 junction, rerouting traffic off the A1013 and onto the A1089, reducing traffic flows along the roads of concern.
Page 95-99	**8.6 Inadequate Provision of Active, Public Transport and Local Road Bridges** 8.6.1 The Council has examined how the design of LTC has evolved and the following comments reflect the issues raised in the Rule 6 letter **(PD-103)**. **Consideration of Planning Timescales, Social and Economic Changes** 8.6.2 As described in detail in **Appendix B, Annex 1 B.1**, options for LTC were originally developed in 1994, with a more extensive assessment exercise carried out in 2009. The scheme was further refined in 2013 with a public consultation undertaken in 2016 and a preferred route announcement in 2017. 8.6.3 Each of these stages of option development and selection built upon previous work with a number of key decisions made in 2009 that ruled out different mode solutions, e.g. the use of public transport. This means that the decision to proceed with LTC has not reflected key infrastructure and social and economic changes to the local area and across the UK which have occurred since 2009. The following important changes have been made locally: • Arrangements at the existing Dartford River Crossing have changed with the removal of toll booths and an increase in toll price; • Kent Fastrack has been successfully extended (showing a latent demand for public transport in the region); and,

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	• DP World/London Gateway has developed into a major employment hub and the Thames Freeport has been announced as one of eight new freeports. 8.6.4 In the surrounding region, new crossings have been delivered towards central London via rail (the Elizabeth line) and road (Silvertown tunnel is under construction with dedicated HGV and bus lanes), while the Thames Estuary Growth Commission has been established with a vision for improved connections within cities, towns and villages across the region. 8.6.5 At a national level, there have been substantial changes to the economy since 2009 with the aftermath of the 2008 Global Financial Crisis, the on-going uncertainty of the impact from UK's withdrawal from the European Union and the Covid-19 Pandemic. The rise of homeworking (particularly following lockdown restrictions) means that working and commuting patterns have changed significantly. 8.6.6 These changes all need to be considered as part of any confirmation that the decision to proceed with LTC as a road in 2009 is still valid in 2023, or in 2024 when a DCO decision can be made, or indeed in 2026 when construction is currently programmed to commence. **Consideration of Alternatives to The Road** 8.6.7 Public transport options were ruled out as a solution to the identified issues in 2009. The Council has concerns over this decision given the scale of impact LTC has on residents, associated land take and negative environmental impacts of the proposed highways solution and does not believe, based on the evidence made available, that NH have met their requirements under the NPSNN (paragraphs 4.26 and 4.27)) to consider alternative modes. A public transport alternative would greatly reduce the negative environmental impacts of LTC on Thurrock and would support the Council's long-term ambitions to support sustainable travel. 8.6.8 The decision to rule out a rail solution was based on low numbers of travellers between stations in north Kent and south Essex. However, this did not consider that these movements require a minimum of one interchange in London (often two) and as such have very long travel times. There are also concerns (raised by Medway in 2009, as shown in in **Appendix B, Annex 1 B.1**) that the ruling out of public transport alternatives did not sufficiently account for key growth sites and planned infrastructure investments to develop a freight route from East Anglia to the West Coast Main Line. 8.6.9 Census journey- to-work data from 2011 shows that over 1,100 residents in Thurrock commuted to Kent daily, while over 2,300 residents of Kent commuted to Thurrock. The majority of these commuters travelled by car (90.7%) with very few using public transport (4.3%). This reflects the very poor public transport connectivity between Thurrock and Kent with just a single bus service (X80) using the Dartford Crossing and rail connections requiring an interchange in London.

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	8.6.10 Where there are better public transport connections more commuters use public transport. For example, Thurrock has excellent public transport connections to London and 40% of commuters use public transport. Connections between Thurrock and the rest of Essex are relatively poor but are significantly better than connections between Thurrock and Kent. This this leads to a 7.2% mode share for public transport, a 67% increase on the public transport mode share between Thurrock and Kent. This shows that residents either side of the River Thames have an appetite for public transport where there are better connections. 8.6.11 NH has stated in Section 6.1 of the Post Consultation Scheme Assessment Report (shown in full in **Appendix B, Annex 1 B.1.56**) that additional analysis in 2017 showed that no public transport options could relieve 75% of the identified problem (defined as congestion at the Dartford Crossing) for the first 15 years, which they stated as being the removal of 34,000 cars and 8,000 HGVs in 2025. This analysis has been requested, but NH has not made it available for review. 8.6.12 Without this analysis it is not possible to determine the robustness of NH's conclusions. However, the Council notes that given Tables 8.50 and 8.52 in the Transport Forecasting Package (**APP-522)** shows that LTC only removes 613 vehicles from Dartford Crossing in the AM peak and 2022 vehicles in the PM peak in 2045, it is hard to see how the scheme itself meets this requirement. If it does, then it is likely that a public transport option could offer equivalent reductions on Dartford Crossing. 8.6.13 The Council has undertaken its own analysis of the potential ability of public transport options to meet LTC's scheme objectives and this is presented in **Appendix B, Annex 1 B.2**. A summary table from **Appendix B, Annex 1 B.2** is shown as **Table 8.2** below, showing how public transport options could meet LTC's stated objectives for the scheme as standalone schemes or as part of LTC. This includes options using the proposed Tilbury Link Road (TLR) discussed later in this section.

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Table 8.2: Assessment of Alternative Schemes

ID	Option	Dartford Crossing congestion relief	Resilience	Safety	Environmental Impacts	Sustainable Growth	Affordability	Value for Money	Total
0	Lower Thames Crossing	3	3	1	3	3	1	2	16
	Bus-Based Options								
1.1	Extend X80 Bus Service	1	1	3	4	3	5	4	21
1.2	Extend Kent Fastrack	1	1	4	4	3	4	4	21
1.4	BRT Tunnel	2	2	4	4	4	1	1	18
1.5a	Bus loop (using Ferry)	2	1	4	4	4	3	5	23
1.5b	Bus loop (using LTC)	4	3	2	4	5	1	4	23
	Ferry Options								
2.1	Uber Boats	1	1	3	4	3	5	3	20
2.2	Enhanced river boat service	1	2	3	4	4	3	3	20
	Multi-Modal Options								
3.1	Ferry/Bus modal integration	1	1	3	4	3	5	4	21
	Rail-Based Options								
4.1	KenEx Tram	3	1	4	4	5	1	2	20
4.2	Light Rail/Tram-train Service	3	1	4	4	4	1	2	19
4.3	Railway station infill	3	1	4	4	2	1	2	17
4.4	Crossrail extension	2	1	3	4	5	1	2	18
	LTC Additional Options								
5.1	Rail/Tram on LTC	4	3	1	4	5	1	1	19
5.2	Bus access on LTC	4	3	1	4	4	1	2	19
5.3	Bus lanes on LTC	2	2	2	4	3	1	1	15
5.4	Additional bus services on LTC	3	3	1	3	2	1	2	15
	Future Technologies								
6.1	DRT/Autonomous vehicles	1	1	3	3	4	2	2	16
	Demand Management								
7.1	Increased Tolls	3	1	4	4	1	3	3	19
	Packages								
8.1	Bus loop (using Ferry) with increased toll	3	1	4	4	4	3	4	23
8.2	Bus loop (using LTC) with increased toll	5	3	2	3	5	1	3	22

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	8.6.14 The analysis presented in **Appendix B, Annex 1 B.2** shows that there is a range of alternative options which would meet the objectives defined for LTC in a more affordable way. **Consideration of Alternative Proposals for The Road** 8.6.15 Based on the information presented at DCO and during previous consultations, the Council considers that the choice of preferred route alignment may well be appropriate. However, the Council has identified a number of issues that are relevant for the appraisal of the current LTC scheme: • Scheme costs in 2013 seem very optimistic, especially for a tunnelled solution with the cost of a tunnel only 6% more than a bridge; • In 2013 Option C (one of the corridors identified in 2009 in which the preferred option sits) scored worst against environmental impacts, however, all options were expected to have negative environmental impacts; and, • In 2013 Option C scored worst against safety, however, all options are expected to have negative safety impacts through the increase in traffic over the River Thames. **Consideration of Alternative Proposals for Broader Infrastructure Design** 8.6.16 The design of LTC includes many of the features of 'Smart' motorways, e.g. lane controls. The Council notes that the delivery of new 'Smart' motorways has been halted by DfT on 15 April 2023 and is concerned that the LTC scheme is being designed to similar 'Smart' motorway principles. The Council would welcome advice from NH to confirm why they consider that LTC is not a 'Smart' motorway and what design changes would be required to convert the scheme to motorway standard. **Consideration of Alternative Mitigation Measures** 8.6.17 As shown in Sections 2.1.66, 2.1.68, 2.1.84 and 2.1.85 of the Statement of Common Ground (**APP-130**), the Council has repeatedly raised concerns that the scheme's design will lead to significant adverse impacts for the residents of Thurrock by increasing delays on the local road network, constraining the development of key sites such as the Thames Freeport, increasing severance, worsening noise and air quality emissions and worsening safety. 8.6.18 The Council considers that alternative local junction arrangements and the provision of the Tilbury Link Road should be integral to LTC's design to alleviate these problems and to optimise the scheme's performance. 8.6.19 At the 2016 Public Consultation a much smaller, less complex junction was shown between LTC, the A13 and the A1089. NH also stated that the Tilbury Link Road (TLR) would be further examined during scheme design refinement. However, by the time of the preferred route announcement in 2017, a much larger, more complex

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	junction had been selected by NH and the TLR and a junction at Tilbury were ruled out as forming part of the scheme design. The Council believes these decisions are not appropriate nor supported by evidence. 8.6.20 NH has stated that '*the Tilbury Link Road would not contribute to the Scheme Objectives of relieving the congested Dartford Crossing and approach roads* ' and therefore the design for the access to LTC at Tilbury is just for emergency and operational service vehicles. However, transport models provided by NH to the Council to test alternative arrangements at this location show that the inclusion of Tilbury Link Road reduces two- way traffic over the existing Dartford Crossing, contradicting NH's assertion. Further details on these model results is provided in **Appendix B.3, Annex 2** below. 8.6.21 NH's operational modelling of the proposed LTC/A13/A1089 junction shows extensive queuing and delays and the Council has proposed alternative junction arrangements that include the provision of the TLR to avoid the need for all movements to be catered for at the A13/A1089/LTC junction. This is considered further in Section 9. 8.6.22 All of the options proposed by the Council show improvements compared with the design proposed by NH in terms of journey times for key strategic routes, together with much improved performance on the local road network (modelling results are presented in full in **Appendix B.3, Annex 2**). 8.6.23 The Council has undertaken an assessment of key alternatives to LTC, including options that include mitigation for local impacts and public transport. A summary is provided in **Table 8.3** below and further details are presented in **Appendix B, Annex 1 B.4**.

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Table 8.3: Assessment of Alternatives to LTC

Objective	LTC	Public Transport Alternative	LTC with Public Transport	LTC with TLR	LTC with TLR and alterations at Orsett Cock	LTC with Public Transport and TLR
To relieve the congested Dartford Crossing and approach roads and improve their performance by providing free-flowing north-south capacity	=	-	+	+	+	+
To improve the resilience of the Thames crossings and the major road network	=	-	=	=	=	=
To improve safety	=	+	+	=	=	+
To minimise adverse impacts on health and the environment	=	+	+	=	=	=
To support sustainable local development and regional economic growth in the medium to long term	=	+	+	+	+	+
To be affordable to government and users	=	+	=	=	=	=
To achieve value for money	=	+	=	+	+	+
= Likely similar performance to proposed LTC - Likely worse performance than proposed LTC + Likely better performance than proposed LTC						

8.6.24 This analysis shows that there are several alternatives to LTC which would improve the performance of the scheme and / or reduce its impacts.

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	8.6.25 **SUMMARY: the option selection for LTC is based on an initial decision made in 2009. This was reviewed and confirmed by NH in 2017, but despite requests, the underpinning analysis has not been made available to the Council. Since the initial decision there have been many substantial changes to transport patterns and the wider economy which have not been considered as part of the decision-making process. Analysis by the Council shows that there are several potential public transport based options which would meet NH's objectives for LTC. There are also several alternative options for LTC, e.g. including TLR, which would better meet the objectives for LTC. The Council considers that these options should be considered by NH**
Applicant's Response	The selection of the preferred route option has been an iterative process which took place over an extended period involving numerous and on-going rounds of consultation, engagement and discussion with key stakeholders including Thurrock Council. The decision-making process is fully explained and justified in the many hundreds of application documents accompanying the application for the Project. **This matter is addressed by SoCG [APP-130] items 2.1.66 and 2.1.67, summarised below.** The Applicant considers that reasonable alternatives and opportunities have been considered and assessed appropriately. This is set out in ES Chapter 3: Assessment of Reasonable Alternatives [**APP-141**], which refers to Department for Transport (DfT) studies in 2009 and 2012, options identification and selection process in 2014, and design evolution through six years of public consultation and engagement. The 2016 public consultation provided robust comparative evidence for alternative route alignments A and C. Extensive transport modelling evidence was presented at the time of the 2016 public consultation in the Scheme Assessment Report – Volume 5 – Traffic and Economics Appraisal to substantiate the strategic choice made. Furthermore, Section 4 (Traffic Impacts) of the Operations Update in the 2021 Community Impacts Consultation presented sufficient transport modelling evidence for future growth scenarios in Thurrock and consideration of impacts on the Local Road Network. In addition, the revised Planning Statement includes a Project Evolution Chapter (Chapter 3) which tells the story of the project, the options, alternatives and how the pre-application process has impacted on the DCO application and project design. The options were reviewed in the round using professional judgement by technical specialists (e.g. traffic benefits, environment impacts, engineering feasibility, costs, etc.) considering all of the Scheme Objectives. This is evidenced in the Appraisal Summary Tables in the Pre-Consultation Scheme Assessment Report Volume 7 Appendices, as well as Tables 3.1 and 4.1 of the Post-Consultation Scheme Assessment Report Volume 7, which are all published as part of the 2016 consultation.

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	See also Chapter 5 of the Planning Statement [**APP-495**] which also addresses the matter of alternatives in terms of modal options, route options, design options and options in relation to the utility and construction elements of the Project. The Tilbury Link Road was not included in the project proposals consulted on at Statutory Consultation because it was not considered necessary to achieve the Transport Scheme Objectives. The Tilbury Link Road has been identified, however, in the pipeline of projects in the National Highways road investment strategies for 2020-2030 (known as RIS2 and RIS3). During the review of the Project, undertaken when the Thames Freeport was designated, the Applicant sought direction and received instruction from DfT and Department of Levelling Up, Housing and Communities (DLUHC), that the Tilbury Link Road should be delivered through a separate consenting process to the Lower Thames Crossing. Notwithstanding that, the Applicant has undertaken some additional traffic modelling of scenarios including the TLR to assist the Council in developing their position on the consideration of alternatives. The TLR, of course, would not be possible without the strategic intervention of the Project. Local growth has been accounted for using the Government projected growth into the traffic model forecasts. It is clear that any future connectivity proposals with local junctions will need to take the latest Project operation into consideration at that particular time of the proposal. As the Project is being designed to the latest standards, the implementation of future connectivity with local junctions will be compatible with our infrastructure and such connection is likely to be significantly simpler than for other areas of the strategic road network. Nevertheless, we have made significant design changes in the Tilbury area to accommodate a future local junction connection. The consideration of connections with active travel is not necessarily carried out as an assessment of alternatives considered, but rather it forms part of an evolution of the project design of a selected route. Since the selection of the route, the Project design has evolved significantly to improve the existing routes for walking, cycling and horse riding. In terms of the proposed route, the relevant design standard GD-300 requires that 'Walkers, cyclists, horse-riders and slow-moving vehicles are prohibited' for the design level (Level 3) of the Project, in order to enhance the safety and operational performance of the road.
Page 99-100	**8.7 Lack of Provision for Public Transport or Priorities Through Tunnel** 8.7.1 As described in SoCG item 2.1.67 of the SoCG (**APP-130**) the Council is concerned that current design for LTC provides poor integration with public transport to the north of the River Thames, limiting the Council's long-term ambitions to support increased sustainable transport and reducing car based travel. 8.7.2 Most of the population of Thurrock is concentrated in Grays and Tilbury, however, public transport wishing to travel south of the river using LTC would be required to use the proposed junction with the A13 and A1089 at Orsett Cock to the north before heading south over LTC. This additional northern leg of the journey adds travel time and makes public transport less appealing.

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	8.7.3 The Council has investigated potential Mass Rapid Transit (MRT) solutions that could integrate with LTC, the proposed South Essex Rapid Transit (SERT) scheme and the existing public transport services south of the River Thames (Kent Fastrack). This work is summarised in **Appendix B, Annex 1 B.2**. 8.7.4 This work has identified a bus-based loop combining the X80 bus service, Kent Fastrack and a new service through Grays, Tilbury and over LTC as a strongly performing option. This public transport option would be further enhanced given the potential integration with SERT to support public transport movements through south Essex. This public transport scheme would support the overall scheme objectives of LTC to reduce congestion and reduce environmental impacts as shown in **Appendix B, Annex 1 B.4**. 8.7.5 With the delivery of the current proposals for LTC, any bus service would need to double back on itself either looping out towards Stanford-le- Hope or heading north from Tilbury to access LTC. This would add to the journey time and limit the commercial and user attractiveness of the service. An improvement to the design of LTC would be to provide access at the Tilbury operational and emergency access for buses, either through widening the proposed turning radii and slip road lengths and providing bus only access or through the provision of a new junction (and potentially TLR). 8.7.6 **SUMMARY: the provision of facilities to enable public transport services to access LTC is poor leading to circuitous routes and increased journey times, impacting on the commercial and user attractiveness of such a service. The Council considers that the design of LTC should be refined to enable better facilities to be provided, e.g. at the Tilbury operational and emergency access.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] items 2.1.66, 2.1.69 and 2.1.99, summarised below. The whole Project route will be available for public transport, if operators choose to use it. National Highways is not a public transport operator. However, the Project does provide additional connectivity across the Thames and is fully available for use by public transport operators should they choose to make use of it. To supplement the content in the SoCG and following the publication of Thurrock Council's LIR, it is noted that whilst the A13/A1089/A122 Lower Thames Crossing junction is located away from Tilbury, it is located next to the A1013 corridor, which Thurrock Council's LIR (Appendix B, Annex 1 B.2) identifies as a potential route for the South Essex Rapid Transit (SERT) scheme, that aims to link Lakeside, Grays, Stanford le Hope and Basildon. This creates an opportunity for any future cross-river bus or coach services to connect to SERT in the A1013 corridor. The A13/A1089/A122 Lower Thames Crossing junction would also be relatively well suited in terms of future cross-river bus or coach services serving Stanford-le-Hope and London Gateway. National Highways consider that Local Authorities are best placed to lead on the development and appraisal of future public transport projects. They also have strong existing relationships and lines of communication with commercial bus operators as part of Local Transport Authority duties. National Highways has established a Sustainable Transport Working Group (STWG) in parallel to the Project, with its primary purposes to maximise the benefits of the new crossing

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	and develop sustainable travel initiatives that could be eligible for National Highways' designated funds, and to support cases for future investment. Should the Project gain consent, National Highways will use the STWG up until opening as a forum to engage Local Authorities and operators to build awareness and develop improvements to existing commercial services and potential new services to make best use of the opportunities provided by the new crossing. The STWG has already proposed several local priorities and opportunities for feasibility studies for future funding applications (as stated in the Sustainable Transport Complementary Measures report of March 2021). The report includes nine Stakeholder Priority Measures including ferry service improvements, feasibility studies for cycling and e-bike initiatives, and a Walking, Cycling and Public Realm Action Plan for Tilbury. National Highways considers that supporting this collaboration between Local Authorities on both sides of the Thames is the most effective and sustainable solution. The operations and emergency access is not a junction open to the public. The Applicant proposes to work collaboratively with the Council and other stakeholders outside of the scope of the Project to help bring forward the Tilbury Link Road, which would likely be able to provide additional network connectivity, particularly for local buses. The operations and emergency access has not been designed specifically for any particular future connection into the local road network, but the configuration of the operational and emergency access would allow access on and off the A122 Lower Thames Crossing by buses, if the connecting road were to be designed and consented to allow such traffic. If the Local Authority or a third-party stakeholder is considering any future development, they would need to liaise with National Highways Spatial Planning to develop their proposals. The issues highlighted by Thurrock Council, including the necessary details around design and capacity would need to be considered by the promoter of the subsequent development proposals, whether National Highways or another party. The suitability of the access to provide connectivity for specific aspects, such as the provision of an East Tilbury link, will have to be considered as those proposals are developed.
Page 100-101	**8.8 No Support for Rapid Vehicle Electrification** 8.8.1 No provision is made for the measures needed to support rapid electrification of the vehicle fleet, such as provision for electrical distribution and charging facilities, as set out as being critical for the decarbonisation of the surface transport sector in Decarbonising Transport (July 2021) and the Carbon Budget Delivery Plan (March 2023), especially with the government commitment to ban sales of new petrol and diesel vehicles in 2030, increasing the need for charging facilities. 8.8.2 The emerging draft NPSNN (2023) makes the following references of relevance to this issue: *'3.14 As we place more demands on the network through increases in the volume of traffic and greater expectations on its performance in underpinning efficient supply chains, our reliance on the technology that supports its smooth operation has increased. The ability of our network to accommodate and support advances in technology is ever more critical.*

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	Delivering the infrastructure needed to support innovation, including facilitating greater digital connectivity and supplying the energy needed to support the evolution of vehicle technologies using the network, is key to ensure our networks remain resilient both now and in the future. The resilience of the technology itself, its maintenance and upgrade, and its continuity of service is essential, particularly as the connected and autonomous vehicles place new demands on real time information.' *'3.15* ***Resilience in networks, therefore, also includes accommodating changes in technology, including the infrastructure needed to support the use of alternative fuels,*** *and digital connectivity will also require our national networks to evolve and adapt in order to utilise the benefits that technology can bring.'* 8.8.3 The emerging draft NPSNN sets the context for LTC. It is relevant as an update to the NPSNN. NH should demonstrate how LTC will deliver the infrastructure needed to support the new electric vehicles using the network. This is vital in ensuring the Strategic Road Network remains resilient. 8.8.4 The Council is concerned that NH has not considered how or where electric and hydrogen powered vehicles will be able to charge on the 22 kms new section of the network, potentially forcing traffic off the SRN into Thurrock seeking charging facilities, further worsening the significant adverse impacts of LTC on the local network. 8.8.5 A service station was originally deemed necessary by NH at East Tilbury, close to the more recently added, 'so-called' emergency and operational access. Access to this service station at Tilbury was originally considered important by NH, but then removed partially due to the request of the Council, who were concerned about the potential impacts of anti-social behaviour. 8.8.6 NH then recently re-provided a junction at Tilbury, but this time for just for emergency and operational access. However, NH has designed this to be in a location where the on/off slips are not possible to be adapted at a later stage to enable the incorporation of a full junction at Tilbury. For example, the northbound exit lane length is restricted due to its proximity to the tunnel portal and would therefore not meet DRMB design standards. 8.8.7 The Council has repeatedly attempted to engage NH on the matter of Electric Vehicles and alternative fuel recharging. NH's LTC team has consistently refused to engage on this matter simply stating that it is outside of their scope. 8.8.8 There is clearly a missed opportunity to bring forward the infrastructure needed to accommodate and support advances in technology. Another NSIP (National Grid's Norwich to Tilbury scheme, previously termed 'East Anglia Green') is highly relevant as it crosses LTC. There is a missed opportunity for the two NSIPs to coordinate to provide the power likely to be needed to support the transformation of the fleet to EV and alternative fuels. The local electric power requirements created by the substantial increase of HGV, van and car miles travelled as a result of LTC will increase markedly. Supplying the electricity to support the evolution of vehicle technologies using the SRN is an essential consideration when delivering the infrastructure needed. NH

LIR Reference	Local Impact Report Extract / Applicant's Response
	has refused to engage with the Council on the local energy requirements necessary. Instead, it is creating a legacy problem for the Council to deal with and absolving itself from complex discussions by simply removing new service station provision from its scheme, despite the Council offering to engage with NH on an alternative site in the north west of the Borough. 8.8.9 Due to the current design, vehicles travelling to/from the services at M2 Medway and A1(M) South Mimms would need to travel circa 90 kilometres between service areas because the Cobham services on the A2 in Kent are earmarked for closure as part of the LTC scheme. Services were originally planned to be 25 kilometres apart, but this regulation was removed in 2013. 8.8.10 The longest combined motorway journey with no service stops is circa 96 kilometres (M40 Warwick to M54 via Telford), so there is precedent, but no data exists to understand whether this creates a greater increase of EV power outages on the network than elsewhere. 8.8.11 To recreate a comparable lengthy combined motorway journey via LTC with no service stops simply on the basis that there is a precedent elsewhere on the network lacks credibility and does not support the notion that the infrastructure is being designed to ensure the network remains resilient now and in the future. There are also the additional challenges associated with vehicles losing power in the tunnel. 8.8.12 **SUMMARY: the Council is concerned that NH has not considered how or where electric and hydrogen powered vehicles will be able to charge on the 22 kms new section of the network in the context of the ban on new diesel and petrol vehicles in 2030.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] items 2.1.95 and 2.1.266, summarised below. Over the last year, there has been regular engagement with Thurrock Council regarding the Project's approach to climate change and carbon reduction. This has included discussion of how these issues will be addressed in the DCO submission, as well as the broader opportunities that the Applicant is working on, primarily for the construction phase of the Project. There are currently no plans to use charge specifically to target carbon and this is a policy matter for government, outside the remit of Project. The Project is aiming to be aligned with the Applicant's net zero plan, which sets ambitious targets for corporate emissions, maintenance and construction emissions, road-user emissions and follows a trajectory towards achieving net zero by 2050.' The provision of rest and service areas, which would include charging provision for EVs and subject to national policy could include hydrogen refuelling, is being considered by National Highways on a regional basis separately to the Project.

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	Decarbonising road traffic in the UK is a national issue, being addressed by the UK Government and the Department for Transport. National action is not being addressed on a project-by-project basis, in this case a new project representing only a proposed 14 mile (23km) section of the 4,500 mile long strategic road network. The Applicant is supporting the decarbonisation of the vehicle fleet in a number of ways, as set out in their 2021 document 'Net zero highways: our 2030 / 2040 / 2050 plan'. As stated in the plan, many of the actions that will deliver the ambition of net zero transport on the road network are outside of the Applicant's direct control.
Page 102	**8.9 No Strategy for Demand Management Charging Regimes** 8.9.1 NH proposes to implement the same charging regime (tolls) at both Dartford Crossing and LTC. 8.9.2 This means there is not a strategy to provide variable charging (i.e. tolls) which would enable demand management and maximise the use of the available capacity provided by the two crossings (Dartford Crossing and LTC). 8.9.3 **SUMMARY: the Council considers that the potential impacts of providing a variable demand management charging regime should be considered to maximise the benefits of providing LTC.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] items 2.1.69, summarised below. The Road User Charging Statement [**APP-517**] sets out the rationale for charging and the powers that are being sought in the draft DCO [**REP1-042**]. Paragraphs 1.4.1 and 1.4.2 of this document state: *'1.4.1 The Lower Thames Crossing would be close to the Dartford Crossing, which already has a road user charging scheme in place for demand management purposes. The Lower Thames Crossing would join the Dartford Crossing in a very heavily utilised part of the SRN. Section 4.2 of National Highway's licence (DfT, 2015a) requires it to ensure the effective operation of the network.* *1.4.2 A charge at the Lower Thames Crossing, in conjunction with the existing charging regime at the Dartford Crossing, would enable the effective operation of both crossings and the wider SRN and local road network. If there was no charge for using Lower Thames Crossing, this would lead to higher overall demand and traffic taking longer routes than would otherwise be necessary.'* Paragraphs 1.4.4 and 1.4.5 of the Road User Charging Statement [**APP-517**] also state: *'1.4.4 Setting the Lower Thames Crossing road user charge to be equal to the one used for the Dartford Crossing would encourage customers to take the most appropriate route based on journey factors rather than being distorted by the level of charge. This would discourage unnecessary vehicle mileage from those seeking to save money from a cheaper crossing, and therefore would reduce the impacts of longer journeys, such as the consequential effect of additional emissions and noise.*

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	1.4.5 To most efficiently use of the SRN and local roads, both in normal operations and incident scenarios, the two crossings would need to operate in an integrated manner. An equal charge would support this by simplifying decision making for the customer, allowing them when necessary to switch between crossings without the concern of different charging regimes.' The Applicant reiterates that the road user charge is not a toll, instead the road user charge is for traffic management purposes, to ensure the effective operation of an integrated river crossing network. The function of the road user charge is a matter for the Secretary of State as the proposed charging authority and not the Applicant.
Page 102	**8.10 No Consideration of Alternative Dangerous Load and Tall Vehicle routing** 8.10.1 The Need for the Project **[APP-494]** states that the routing of Dangerous Goods Vehicles (DGVs) and taller vehicles through the Dartford Crossing impacts the capacity for northbound travel. DGV escorting is estimated to reduce effective capacity by between 8-12%, while taller vehicles are required to use the eastern tunnel and need to straddle both lanes reducing capacity even further while vehicles mistakenly seeking to enter the western tunnel cause disruption as they need to be moved. 8.10.2 The Council is concerned that alternative strategies to allow DGVs and tall vehicles to cross the River Thames were not considered in order to increase capacity at Dartford Crossing rather than implementing LTC to the detriment of local residents and the significant environmental impacts in Thurrock. 8.10.3 **SUMMARY: the Council considers that alternative routing strategies should be considered to increase the effective capacity of Dartford Crossing.**
Applicant's Response	This matter is addressed in detail above in the response to Part 1 of Appendix H against Section 7 of the Thurrock Council LIR. Please refer to the Applicant's response to LIR pages 76-78.
Page 102-103	**8.11 Conclusions** 8.11.1 The Council considers that the analysis of Alternative Scheme Elements and Transport Modes is not adequate, nor has been sufficiently incorporated into the development and definition of LTC. Key issues are: • The Council considers that the analysis of alternatives provided by NH does not meet the requirements of the NPSNN and so the submitted analysis is not valid and needs updating. • The 'high' and 'low' traffic forecast scenarios used by NH do not follow DfT's guidance concerning the use of Common Analytical Scenarios and do not reflect the wide range of possible future scenarios for the operation of LTC. • The traffic forecasts used by NH do not reflect the likely impacts of the delivery of Government policies including decarbonisation, active travel and public transport.

LIR Reference	Local Impact Report Extract / Applicant's Response
	• The design of LTC provides limited access to development sites and national port facilities in Thurrock. This would be remedied by the inclusion of Tilbury Link Road and changes to the operation of Orsett Cock junction as part of the LTC scheme. The option selection for LTC is based on an initial decision made in 2009. This was reviewed and confirmed by NH in 2017, but despite requests, the underpinning analysis has not been made available to the Council. Since the initial decision there have been many substantial changes to transport patterns and the wider economy which have not been considered as part of the decision-making process. Analysis by the Council shows that there are several potential public transport-based options, which would meet NH's objectives for LTC. There are also several alternative options for LTC, e.g. including TLR, which would better meet the objectives for LTC. The Council considers that these options should be considered by NH. • The provision of facilities to enable public transport services to access LTC is poor leading to circuitous routes and increased journey times. The Council considers that the design of LTC should be refined to enable better facilities to be provided, e.g. at the Tilbury emergency and operational access. • The Council is concerned that NH has not considered how or where electric and hydrogen powered vehicles will be able to charge on the 22kms new section of the network. • The Council considers that the potential impacts of providing a variable demand management charging regime should be considered to maximise the benefits of providing LTC. • The Council considers that alternative routing strategies should be considered to increase the effective capacity of Dartford Crossing.
Applicant's Response	These issues are covered in detail in the sections above.
Page 104	**9 Transport** **9.1 Introduction** 9.1.1 As set out in Sections 7 and 8 above of this LIR, the Council's position is that LTC does not meet scheme objectives and generates local impacts on the Borough and its communities, that the disbenefits outweigh the benefits and that reasonable alternatives have not been considered. Notwithstanding this, this Section of the LIR considers the proposed LTC scheme being put forward by NH and examines: • The local impacts of the operational and construction phases of LTC to local transport users and local communities; • The mitigation that is required by the Council to mitigate the local impacts on local transport users and local communities should the scheme go ahead (it should be noted that the draft NPSNN makes many specific references to the importance of mitigation throughout Sections 4 and 5); and,

LIR Reference	Local Impact Report Extract / Applicant's Response
	• Scheme changes required by the Council to mitigate local transport impacts. **Table 9.1: Summary of Key Issues** • The modelling assessment is inadequate and underestimates impacts on the LRN in Thurrock. • The strategic LTAM model is not sufficient to properly assess the local effects of LTC on the LRN and operational modelling should be undertaken to understand the precise nature of impacts and need for mitigation on the LRN. • NH's assessment shows that there are many communities, roads and junctions across Thurrock that are significantly adversely affected by LTC, but no mitigation is proposed by NH for those network impacts. • The Council requires local impacts to be mitigated and secured through the DCO both during the construction and operational phase of LTC. The Council has set out the additional mitigation for local impacts that is required based on the LTAM modelling, but it requires detailed operational modelling to be provided in order to validate the mitigation requirements and determine if any further mitigation is required that must be secured within the DCO. • Scheme changes are required by the Council to reduce the impacts on local traffic. These include changes to the A13/A1089 junction, changes to the operational and emergency access north of the North Portal to accommodate Port of Tilbury traffic in the future, incorporate connections to LTC for cross river bus services and provide passive provision to serve potential growth in Thurrock. • The construction control documents, which include the oTMPfC **(APP-547**), the FCTP (**APP-546**), the oMHP **(APP-338**), the pNRA (**APP-548**), and the CoCP (**APP-336**), do not include sufficient control, commitments and governance for LTC to be constructed within defined DCO parameters and to minimise the environmental impacts of the construction processes with the Borough. • The DCO does not provide any evidence on how LTC will meet its objectives to provide resilience to the crossings of the River Thames, nor does it include an incident management plan setting out how the proposed crossing will be used to alleviate traffic congestion in relation to commonly experienced issues, including high-winds and traffic incidents that block the route.
Applicant's Response	These issues are covered in detail in the sections below.
Page 104-105	**9.2 Assessment of Main Scheme Changes / Development Since Last DCO** 9.2.1 NH has made the following two significant changes to the design of LTC since the first DCO, which would affect the operation of traffic on the local road network (LRN): • Reconfiguration of the westbound links from LTC and A13 westbound to A1089 southbound at LTC/A13 junction and consequential links to LTC and Orsett Cock from A13 westbound; and

LIR Reference	Local Impact Report Extract / Applicant's Response
	• Inclusion of the operational and emergency access at the North Portal, which is not configured to facilitate local connectivity. 9.2.2 The link between the A13 westbound and LTC to A1089 southbound has been reconfigured since the first DCO, such that traffic is now shown accessing A1089 via the LRN Orsett Cock junction. The Council and other stakeholders had previously raised concerns that the previous DCO configuration required traffic from LTC to travel east to the Manorway roundabout to u-turn and retrace its route westbound on the A13 to access the A1089. That routeing was inappropriate and there was concern that traffic would be attracted to local routes, such as A1013/Stanford Road and Brentwood Road to access the Port of Tilbury. The previously proposed routeing further impacted the operation of the Manorway roundabout. 9.2.3 Following concerns raised by the to the Council and Port operators, NH proposed a reconfigured connection to A1089 southbound, which requires LTC traffic to route through the Orsett Cock junction to access A1089 southbound. NH's aspiration to reduce the previously identified impacts at the Manorway has moved impacts to the Orsett Cock junction and the Brentwood Road, including the community around Chadwell St Mary, through which Brentwood Road passes. 9.2.4 The other significant change introduced by NH since the previous DCO is the proposal for an operational and emergency access to the north of the North Portal, as shown in **General Arrangement Drawing, Sheet 20 (APP-016).** 9.2.5 The Council has sought for LTC to improve connectivity to the Port of Tilbury and provide access for public transport across the River Thames. NH promoted the inclusion of the proposed junction at Tilbury as a positive addition to the LTC scheme. Indeed, the DfT stated in correspondence with the Council that the Tilbury junction and link road elements of the *'scheme is being designed so that a future junction and link road, subject to funding and planning permission, can be built in the future as a connection to Tilbury'*. However, the proposed operational and emergency access north of the North Portal does not provide a suitable layout to meet these objectives or provide the ability for the design to be adapted to enable these objectives to be met in the future. Instead, NH has proposed an over-engineered operational and emergency access. The design incorporates an expensive gyratory system intended to enable the junction to provide local connectivity. The location of the junction decided by NH was, however, consequently found to prohibit exit and entrance slips being provided in accordance with DMRB. This led to a change of approach by NH, who subsequently determined that the Tilbury junction would be for operational and emergency access only. 9.2.6 **SUMMARY: NH has proposed two significant changes to LTC, which neither resolve previous identified impacts, nor provide benefit to the current or future LRN within Thurrock.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] items 2.1.88, 2.1.89, 2.1.90, summarised below.

LIR Reference	Local Impact Report Extract / Applicant's Response
	The Applicant acknowledges that there are forecast increases in traffic flows on some local roads, resulting from local road users choosing different routes to access the wider road network once the Project is open to traffic. The modelling demonstrates that in some locations journey times will increase, and in others journey times will decrease. The Combined Modelling and Appraisal Report (ComMA) Appendix D: Economic Appraisal Package: Economic Appraisal Report [**APP-526**] sets out the aggregated benefits in Thurrock, considering both faster and slower journeys, and demonstrates the overall economic benefit in this area. The Applicant's strategic modelling demonstrates that the Orsett Cock junction will operate acceptably, though it is acknowledged that specific concerns have been raised by the Council that are not addressed by the strategic model. As a result, the Applicant has progressed a local junction model in collaboration with the Council's team to consider these issues. Detailed modelled outputs have been shared with the Council. The Applicant considers that this modelling has demonstrated that the junction operates acceptably. The environmental and community impacts associated with the changes in traffic flows are set out in the Environmental Statement, the Community Impact Report and the HEqIA. The reconfiguration of the Orsett Cock junction proposed at the Local Refinement consultation in 2022 was not to "reduce the previously identified impacts at the Manorway", but to reduce impacts on local roads, including from HGV traffic on the A1013. The change reduced the impact of the Project on traffic forecast to use the A1013 and Brentwood Road. The Tilbury Link Road (TLR) has been identified in the RIS2 as part of the RIS3 pipeline of projects. During the review of the Project undertaken when the Thames Freeport was designated, the Applicant sought direction and received instruction from DfT and Department for Levelling up, Housing and Communities (DLUHC) that the TLR should be progressed through a separate consenting process to the Project. It is not possible to bypass the government investment decision process by committing to funding for the consenting and construction of the TLR within the Project's DCO. The revised design at Tilbury Fields provides an operational access, with no access for public traffic on or off the Project at this location. This operations and emergency access has not been designed specifically for any particular future connection into the local road network. If the Local Authority or a third- party stakeholder is considering any future development, they would need to liaise with National Highways Spatial Planning to develop their proposals. Any new road connecting to the Project at this point would have to follow the relevant planning process at the appropriate time. The operational and emergency access has been designed in accordance with DMRB standards, and the exit and entry slips are compliant with known requirements. Until such time that the nature of a future connection is determined, including the alignment, forecast traffic and highway configuration, it is not possible to determine whether modification would be required to the operational and emergency access or not, but such modification, if necessary, could be delivered through the consenting process that any new connection would require. The configuration of the operational and emergency access would allow access on and off the A122 Lower Thames Crossing by buses if the connecting road were to be designed and consented to allow such traffic.

LIR Reference	Local Impact Report Extract / Applicant's Response
	The Applicant is obligated by their licence 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. The Applicant will continue to work with Thurrock Council as they develop their local plan to look at the relationship between the local road network and the strategic road network. In addition, the Applicant is considering the potential to trunk the A13 and A1014, separately to the delivery of the Project, as set out in the Road Investment Strategy 2. With regards to local Wider Network Impacts concerns as set out under SoCG item 2.1.90, the Applicant is continuing to actively engage with the Council with regards to the forecast impacts of the Project on the road network in Thurrock during operation. This includes microsimulation modelling at key junctions to provide additional assurance alongside the cordons of LTAM and GIS shapefiles. The scope of this work was agreed with the authority. Detailed reports have been provided setting out how traffic flows are anticipated to change in the area, providing information that addresses the concerns raised in the traffic survey technical note issued by the Council. The Applicant considers that the information supplied will be beneficial to allow the Council to understand in further detail the impacts of the Project at the relevant junctions. The Applicant acknowledges that Thurrock Council have concerns over the traffic flows at these junctions, and therefore will continue this engagement to ensure that discussions at Examination on these matters can be held on an informed basis. A further discussion on this matter was held on 19 July 2023 and the Council expressed overarching concerns around the operational traffic modelling outputs. The Applicant confirmed that relevant localised traffic modelling reports would be submitted to the ExA at DL-1. However, this is a matter unlikely to be agreed due to both parties' position remaining unchanged. The Council also expressed concerns around the traffic flows through Orsett Village during construction and operation. The Applicant clarified that the effects on all local roads during construction are covered by SoCG items 2.1.120 and 2.1.121 and impacts during operation are covered by 2.1.160.
Page 105-108	**9.3 Policy Compliance and Local Impacts** 9.3.1 This Section summarises how the proposed LTC scheme fails to comply with NPSNN policy with regards to local transport impacts and mitigation. NPSNN is clear within paragraph 3.3 that the scheme promoter should not only mitigate impacts but should *'provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes.'* This Section of the LIR sets out how the DCO has neither mitigated the impacts on the LRN, nor sought reasonable opportunities to deliver transport benefits to local communities within Thurrock. **9.4 Local Transport Impacts of Operational Phase**

Deficiencies in Modelling Approach for Local Impacts

9.4.1 NH has solely relied on the LTAM strategic model to inform the operational impacts of LTC. That strategic model is better suited to informing scheme appraisal but is an inadequate tool to inform and understand the operational impacts of LTC on local junctions, links and local communities during construction and operation. Normally, and on many other projects, NH would adopt an iterative process using the outputs of the operational modelling to adjust the strategic model. For this project, NH has not followed this approach. This means that the design and business case for LTC is predicated on strategic modelling that has not been subject to the appropriate checks. By relying solely on the strategic model, NH has failed to accurately and robustly assess the impacts of the scheme on the Thurrock LRN.

9.4.2 There are several key reasons for this:

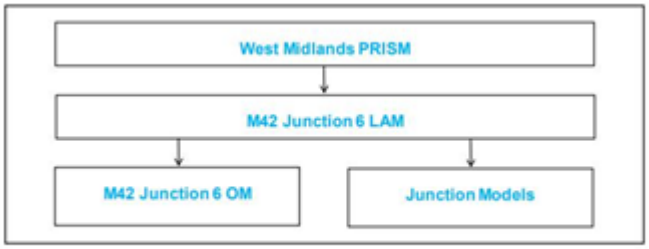
- LTAM is only as good as the data which it is based on. LTAM development involved calibration and validation checks, which attempted to quantify how accurately the model can replicate observed flows. These checks were only completed on a limited number of links within the LRN, and the model was not calibrated and validated against turning counts at key junctions within the LRN. Therefore, it is unknown if the model can accurately replicate junction turning flows within the LRN and other local junction parameters, including saturation flows, queues and delays.
- LTAM works on aggregate average hourly flows and is not precise in the way it replicates traffic behaviour. This makes LTAM particularly inappropriate for examining traffic interactions and potential operational problems at local junctions.
- LTAM may be under-estimating local traffic impacts of LTC on the LRN due to the model representing the AM peak hour on the SRN, which is between 0700 and 0800, whereas the peak hour on the LRN occurs between 0800 and 0900. This serious discrepancy has been discussed with NH on many occasions over the last two years without resolution.

9.4.3 In the Council's experience, NH would not allow a developer to rely solely on a strategic model for a planning application and instead would require the hierarchical approach to modelling to be adopted and presented, i.e., a strategic model feeding into more detailed operational models to assess the detailed local traffic impacts of a scheme and determine if mitigation is required. NH also use this approach on their own DCOs. **Table 9.2** shows a selection of NH DCO schemes and summarises the approach to local operational modelling. The selection of schemes include three Tier 1 (>£500m) schemes, as well as two 'standard' Major Projects schemes.

Table 9.2: Selection of DCO Applications Submitted by NH, which included Detailed Operational Modelling

Scheme	Transport Modelling Approach presented in DCO
A30 Chiverton to Carland Cross DCO: 2018-2020	Detailed operation modelling for the three junctions within the scheme has been presented alongside strategic modelling. The operation modelling was undertaken in ARCADY (Junctions 9) and was informed using the flows for a strategic model (Saturn).

	Scheme cost: £330 million	The '*Memorandum – Junction Analysis'* is a detailed technical note for the three key junctions. The results presented show ratio of flow to capacity, queues and delay at the junctions.
	A303 Amesbury to Berwick Downs (Stonehenge) NH Tier 1 scheme DCO: 2018 – on-going Scheme cost: £1.7 billion	The Combined Modelling and Appraisal Report (ComMA) and its appendices for the A303 Stonehenge scheme detail the microsimulation modelling (VISSIM) undertaken to support the scheme. The model is extensive and covers the A303, local routes north and south of the scheme. The model was supported and calibrated/validated using extensive data collection (including counts, Automatic Number Plate Records and journey time data).
		The ComMA report, which presents results of the scheme assessment undertaken using the 'A303 Stonehenge SWRTM (DCO)' strategic model. The report also references a microsimulation model, which was developed to allow for more detailed assessments of junction layouts and vehicle movements to be undertaken. The ComMA Appendix B Transport Model Package Appendix B of ComMA report, details approach to strategic and microsimulation modelling. Additionally, Appendix C Transport Forecast Package of ComMA report, details forecast operational assessment results.
	A66 Northern Trans-Pennine NH Tier 1 scheme DCO: 2022 – Awaiting decision of The Secretary of State (2023) Scheme cost: £1.3 billion	The Transport Assessment for the A66 outlines the operational modelling undertaken using a strategic model and detailed microsimulation modelling, which has been undertaken for major interchanges: M6 Junction 40 and A1(M) Scotch Corner and like the other schemes, results are extensively reported
	A428 Black Cat to Caxton Gibbet **NH Tier 1 scheme** **DCO: 2021 – 2022** **Scheme cost: £810 to £950 million**	The Traffic Forecasting Report (Appendix C of ComMA report) details the operational assessment undertaken using VISSIM and informed by strategic model data. Average speed plots are provided of the key scheme junctions These are used to show that there is not significant issues at the scheme junctions with traffic speeds being in and around the speed limit of the links . The TA outlines the results for the VISSIM and Junctions 9 modelling. Junction 9 modelling results include RFC, delays and queuing data. Transport Assessment Part 1 provides more detail on the operational modelling in a local context.

LIR Reference	Local Impact Report Extract / Applicant's Response
	M42 Junction 6 **DCO: 2019-2020** **Scheme cost: £285 million** A document was submitted as part of the DCO outlining the hierarchy of the transport modelling which took the following structure:  **Figure 1.1 - Modelling Hierarchy** *Source: 8.50 Transport Modelling Hierarchy and Growth in Future Year Traffic* The scheme involved the use of the following models: • The West Midlands Policy Responsive Integrated Strategy Model (PRISM)) • M42 Junction 6 Local Area Model (LAM) • M42 Junction 6 Operational Model (OM) • Operational models of individual or linked junctions This sets out a clear hierarchy for the modelling with strategic model being used to inform the Operational model which in turn informs the local junction models. This is in line with the approach used on other NH schemes. 9.4.4 The Council's response to the Supplementary Consultation (January to April 2020) set out its concerns about the validation of the LTAM base model of the local highways network in Thurrock, with the model data suggesting that baseline traffic flows were being under-estimated, thus undermining the ability of the model to be used for assessment of local highway impacts and mitigation in the future. 9.4.5 **SUMMARY: the Council has significant concerns about the accuracy of the impact assessment of LTC on the local roads in Thurrock using the LTAM. Adoption of a hierarchical approach to modelling is therefore required, which includes a suite of operational models of the LRN.**
Applicant's Response	The Applicant is of the firm opinion that the LTAM is a suitable tool to assess the impacts of the Project. The scale of the Project requires the use of a strategic transport model. The LTAM base year has been calibrated and validated in line

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	with Transport Analysis Guidance, details of which are provided within the ComMA Appendix B: Transport Model Package [**APP-520**]. Since the LTAM is a strategic transport model and covers a vast area, it is not possible to achieve validation on every road. However, it should be noted that 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. It should also be noted that the Applicant has rebased the 2016 (base) model following the release of traffic count data near Orsett Cock to the Applicant by the local authority. At Deadline 1 the Applicant submitted Localised Traffic Modelling [**REP1-187**] which set out the Applicant's approach to localised traffic models and details of where these had been produced, which within the Thurrock local authority area included the A13 junctions at Orsett Cock, Manorway and Five Bells, the A1089 ASDA roundabout and the East-West model which included a number of local road junctions in Grays and Chadwell St Mary. The Applicant confirmed that the localised traffic modelling reports for the A13 Five Bells junction and A1089 ASDA roundabout would be submitted at Deadline 3. Reports for the other models were submitted as appendices to Localised Traffic Modelling [**REP1-187**]. In addition, the Applicant submitted Localised Traffic Modelling Appendix G: Traffic Operational Appraisal – VISSIM Local Model Validation Report [**REP1-193**] and Localised Traffic Modelling Appendix H: Traffic Operational Appraisal - VISSIM Forecasting Report [**REP1-194**] which provide details of the Project-wide microsimulation model which the Applicant has used localised traffic modelling to develop and test highway designs for various elements of the Project. In response to the other precedents cited, the Applicant considers that its approach to modelling as set out in Localised Traffic Modelling demonstrates that a proportionate approach has been undertaken.
Page 108-111	**Impact on Local Traffic and Local Communities** 9.4.6 The Council's review of the Thurrock cordon LTAM model (presented in the 'Lower Thames Crossing. Review of DCO Cordon Transport Models', **Appendix C, Annex 1, Sub-Annex 1.1**) has identified potential serious adverse impacts on the LRN at the following junctions, which require operational modelling to determine the more precise impacts and potential need for mitigation: • The Orsett Cock junction; • The Manorway roundabout; • Daneholes roundabout; • ASDA Roundabout; • A126 Marshfoot Road Junction; • A13 westbound merge at Five Bells junction; and, • A1012 / Devonshire Road junction

LIR Reference	Local Impact Report Extract / Applicant's Response
	9.4.7 The Council's comparative review of the Thurrock LTAM cordon with emerging operational models provided to the Council by NH has indicated that there are significant differences between the two modelling techniques in the forecasting of impacts. It is a serious issue, therefore, that the operational modelling has not been used to validate and adjust the strategic model upon, which the LTC design and business case is based on. That differential forecast is explored in greater detail at **Appendix C, Annex 1** of this LIR. 9.4.8 NH has agreed to undertake operational modelling for some of the above junctions but not all. In addition, the operational modelling that has been undertaken is not complete nor has an agreed position been reached about the impacts of LTC on the local highway network or any necessary mitigation. That operational modelling has not currently been submitted to the Examination, although it has been requested by the ExA at Issue Specific Hearing 1 (ISH1) and referred to within the Action Points (EV-023a) of ISH1. It is noted at **Appendix C, Annex 1** of this LIR that other NSIPs sponsored by NH have been assessed at the time of Examination by a conjunction of strategic network modelling and local operational models. It is the Council's opinion that that approach is essential for this application. 9.4.9 The junctions identified as being impacted within the LRN are strategically highly important to the operation of Thurrock and the transport network for road traffic, walking and cycling, and public transport. Particularly most form part of the access strategies to the Port of Tilbury and DP World/London Gateway, as well as other important business and community functions. 9.4.10 The hierarchical approach to modelling and the status of each of the local junction operational models is graphically presented in **Figure 9.1** and repeated at **Appendix C, Annex 1, Sub -Annex 1.2 – Summary Modelling Status.** A RAG (Red/ Amber/ Green) approach has been used to present the status of each local model: • Green – completed and approved by the Council • Amber –completed, but not approved • Red – not completed

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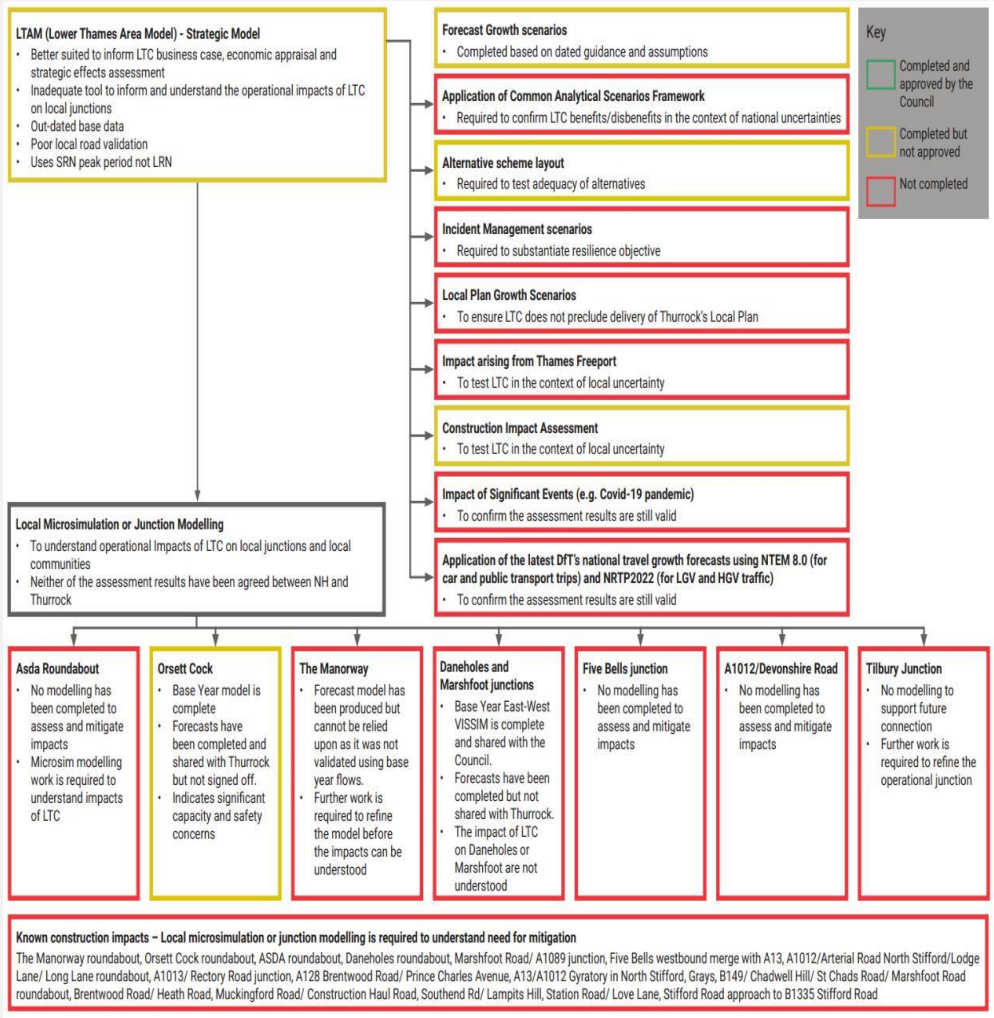

Figure 9.1: Summary of Model Status (Repeated at Appendix C: Annex 1 Sub-Annex 1.2)

9.4.11 **Figure 9.1** clearly shows that none of the junctions identified for operational modelling have been assessed by NH and shared with the Council, with the exception of Orsett Cock for which only the base microsimulation

LIR Reference	Local Impact Report Extract / Applicant's Response
	model has been approved by the Council and forecast microsimulation model provided by NH and audited by the Council but not yet approved. No evidence for the Orsett Cock microsimulation model has been presented in the DCO application. The operational modelling of Orsett Cock has demonstrated that the LTAM significantly underestimated the local impacts at this junction and the queueing and delay presented in the operational model as a result of LTC at Orsett Cock is much more significant than shown in LTAM. The Council is concerned that NH is fully aware of this issue and decided not to submit the operational modelling, because it contradicts the strategic modelling, which the LTC design is based upon. Although it is now understood from NH that operational modelling will now be submitted at Deadline 1, which the Council will need to carefully scrutinise. 9.4.12 The Council's appraisal of the strategic LTAM impact assessment at each of the junctions is set out at **Appendix C, Annex 1**. In the absence of operational modelling undertaken by NH, the Council has undertaken its own operational appraisal of the local junctions impacted by LTC. That appraisal demonstrates that LTC has severe impacts on the local junctions, which require mitigation. 9.4.13 NH's strategic transport model forecasts that LTC will substantially increase traffic on some of the most important and busiest roads in Thurrock including the following: • A1089, which is forecast to see 46% and 41% increases in northbound traffic in the morning and evening peak hours by 2045; and, • A13 east of the Orsett Cock roundabout is forecast to see increases in traffic ranging between 11% and 19% in the morning and evening peak hours by 2045. 9.4.14 LTC is also forecast to increase traffic on unsuitable local roads and through local communities in Thurrock. These concerns are raised by the Council through SoCG Matters 2.1.60 to 2.1.162 and cause severance to those communities, which is identified at paragraphs 3.22 and 5.205 of NPSNN. Through a review of the LTAM cordon model for the DCO, the communities within Thurrock noted to be affected including: • Brentwood Road (south of A13 Orsett Cock junction), between Orsett and Orsett Heath, is forecast to see increases in traffic of 59% and 24% in the morning and evening peak hours respectively by 2045 with rerouted traffic travelling through Chadwell St Mary and Tilbury; • Chadwell Hill in Chadwell St Mary is forecast to see increases in traffic of 11% and 6% in the morning and evening peak hours respectively by 2045 with rerouted traffic travelling through Chadwell St Mary and Tilbury; • Muckingford Road in Linford is forecast to see increases in traffic of 32% in the evening peak hours by 2045 with rerouted traffic travelling through Chadwell St Mary and Tilbury; • The LTAM strategic model forecasts significant worsening of congestion on the A13 westbound merge resulting in traffic re-routeing through communities of Corringham and Stanford-le-Hope; and

LIR Reference	Local Impact Report Extract / Applicant's Response
	• Rectory Road passing through Orsett village is forecast to see increases in traffic of 18% and 20% in the morning and evening peak hours respectively by 2045, with reductions in traffic on Brentwood Road as a result of traffic re-routing through Orsett village and away from Orsett Cock. 9.4.15 It should be noted that the five points raised above demonstrate that the NH position and conclusions appear contradictory and confusing, and, the Council have raised the need for mitigation with NH, but NH consider the matter negligible and that it should be addressed by the Council in future years. Therefore, the Council would like to highlight and summarise these contradictions as follows: • The operational modelling has not been used to validate the LTAM modelling, which is particularly an issue at Orsett Cock, which is within the Order Limits and a key part of LTC scheme; • Operational modelling shows reduction in traffic on Brentwood Road, but the LTAM modelling (upon which the DCO application is based) shows significant increases. NH has therefore submitted two contradictory modelling scenarios; • NH has agreed that the increase in inappropriate traffic through Orsett village is significant. Instead of addressing this through the DCO, NH has identified mitigation for this as necessary via a S106 Agreement; • Once mitigation to remove the displaced traffic through Orsett is taken into account the loading of traffic back on the Brentwood Road will further exacerbate traffic at Orsett Cock. This has not been modelled; • NH did not agree the scope of the operational traffic modelling with the Council and the full extent of the queuing on Brentwood Road is beyond the limits of the modelled area; and, • NH has not applied an iterative approach to use the operational modelling to inform its LTAM modelling, as is normal practice on other NH schemes and would be required by a local authority scheme affecting the SRN. The clear contradictions between the models means that the LTAM model is not a sufficiently sound basis for the scheme design and the business case is predicated on this LTC scheme. 9.4.16 **SUMMARY: NPSNN paragraph 4.6 requires that models of sufficiently accurate detail of the impacts are used for the submission. The Council has evidenced that NH's modelling assessment is inadequate and significantly underestimates impacts on the LRN. The Council considers that the LTAM is not sufficient to properly assess the effects of LTC on the LRN and that operational modelling should be undertaken to understand the precise nature of impacts and need for mitigation on the LRN.** 9.4.17 **Irrespective of the appropriateness of LTAM to assess impacts on the LRN in Thurrock, it forecasts significant reassignment of traffic within the local area, including through local communities and causes congestion and delays at junctions not directly related to LTC.**

LIR Reference	Local Impact Report Extract / Applicant's Response
	These impacts have not been mitigated. Mitigation will, in many instances, require reassigning traffic currently shown in unsuitable residential areas back onto the key traffic corridors, further exacerbating issues already evident from the strategic modelling.
Applicant's Response	The Applicant is of the firm opinion that the LTAM is a suitable tool to assess the impacts of the Project. The scale of the Project requires the use of a strategic transport model. The LTAM base year has been calibrated and validated in line with DMRB guidance, details of which are provided within the ComMA Appendix B: Transport Model Package [**APP-520**]. Since the LTAM is a strategic transport model and covers a vast area, it is not possible nor necessary to achieve validation on every road. Therefore the validation achieved means that the LTAM is a well calibrated and validated model, and it has been determined by specialist staff within National Highways as being suitable for use as a base for forecasting the impact of the Project (as set out at paragraph 1.1.16 of the ComMA Appendix C: Transport Forecasting Package [**APP-522**]. In addition it should be noted that 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 Applicant rebased the base year model following the release of traffic count data near Orsett Cock to the Applicant by Thurrock Council. The Applicant does not accept that the strategic model (LTAM) is contradictory to the microsimulation modelling at Orsett Cock. The microsimulation modelling takes the change in flows forecast by LTAM and applies this to the flows in the base year VISSIM model which ensures compatibility between the two models. The Applicant has actively engaged with the Council and up to September 2022 had regular meetings with regards to the forecast impacts of the Project on the road network in Thurrock during operation. This included microsimulation modelling at key junctions such as Orsett Cock and Manorway to provide additional assurance alongside the cordons of LTAM and GIS shapefiles. The local junction models have been developed in close consultation with Thurrock Council, with the extent of the model, model inputs, model parameters and validation process being agreed at a series of collaborative workshops. The results from the local junction modelling are provided in the Localised Traffic Modelling report [**REP1-187**]. The Applicant does not agree with the Council's assertion in relation to a difference in outputs from the local junction modelling and the LTAM at the Orsett Cock junction. The Applicant has been clear that there would be an increase in traffic and delays at this junction as a result of the Project, which is evident in both the LTAM and the local junction modelling. The impacts at the Orsett Cock junction have been assessed through both the Transport Assessment and the economic appraisal, and it should be noted that the Applicant considers that the junction performs acceptably, and that overall, the benefits on the road network would outweigh the adverse impacts. In terms of the other junctions referenced by Thurrock Council: • Daneholes roundabout – Thurrock Council have been undertaking a review of the latest modelling to understand the impact at this junction. If it is appropriate that the changing levels of traffic warrant further consideration at this

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	location, the Applicant has agreed to fund a study into potential interventions, allowing them to be developed and appraised at SOBC level, as part of the Applicant's duty to collaborate with Local Authorities. • ASDA roundabout – The Applicant has committed to submit reports relating to the localised traffic modelling of this junction at Deadline 3. • A126 Marshfoot Road junction – The Applicant does not consider that any intervention at Marshfoot Road is required. • A13 westbound merge at Five Bells junction – The Applicant has committed in the Localised Traffic Modelling report [**REP1-187**] that it proposes to submit information relating to local junction modelling of Five Bells at Deadline 3. • A1012 / Devonshire Road junction – The Council have not previously asked for junction modelling at this location. Once the Project opens for traffic, there will be changes in how traffic flows across the region. Many parts of the network, including within Thurrock, would experience significant benefits on both journey times and journey reliability, whilst other locations would experience adverse impacts. Overall, the benefits on the road network would outweigh the adverse impacts. This is reflected in the positive economic benefit of the Project as a whole, and within Thurrock. The Applicant has identified the adverse impacts on traffic flows across the local road network, and each of these impacts has been assessed and considered against the requirements set out in the NPSNN (DfT, 2014) in Transport Assessment Appendix F: Wider Network Impacts Management and Monitoring Policy Compliance [**APP-535**]. The Applicant does not believe that the adverse impacts are unacceptable under this policy. The Applicant has produced a Wider Network Impacts Management and Monitoring Plan (WNIMMP) [**APP-545**] which sets outs the approach to monitoring the impacts of the Project, and the monitoring locations. With the exception of Daneholes roundabout, the junctions listed in paragraph 9.4.6 of Thurrock Council's LIR are included as monitoring locations in the WNIMMP. If the monitoring identifies issues or opportunities related to the road network because of traffic growth or new third-party developments, then highways authorities would be able to use this as evidence to support scheme development and case making through existing funding mechanisms and processes. A mechanism allowing for review of the proposed monitoring locations is provided through Requirement 14 in Schedule 2 of the draft DCO [**REP1-042**], which requires the preparation of an operational traffic monitoring plan, which must be approved by the Secretary of State (SoS) following consultation with the relevant highways authorities (including Thurrock Council). Relevant highways authorities will be able to propose locations for inclusion, which will be considered by the Applicant during the development of the operational traffic monitoring plan. The final decision on inclusion will be made by the SoS through the approval process, as set out in Part 2 of Schedule 2 of the draft DCO [**REP1-042**]. The Applicant is obligated 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 (paragraph 5.19 of

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	Highways England: Licence (DfT, 2015)), and the Applicant will continue to deliver against these obligations in its collaborative work with local authorities.
Page 111-112	**9.5 Required Mitigation of Local Transport Impacts** 9.5.1 No physical mitigation for local transport impacts and local communities is currently proposed by NH to mitigate the operational effects of LTC. NPSNN paragraph 3.3 specifically states '*In delivering new schemes, the Government expects applicants to avoid and mitigate environmental and social impacts in line with the principles set out in the NPPF and the Government's planning guidance*'. As set out in **Appendix C, Annex 1**, LTC will result in unmitigated severe transport impacts on the LRN and create substantial community harm within Thurrock and is therefore not compliant with national policy. 9.5.2 It is the Council's opinion that it is not acceptable for the severe transport effects on the LRN not to have mitigation secured through the DCO. The Council has repeatedly raised its objection to the approach adopted by NH to discount the need to mitigate severe impacts on the wider network and these are expressed here and through SoCG Matters 2.1.158, 2.1.159, 2.1.163 and 2.1.164. 9.5.3 The Wider Network Impacts Management and Mitigation Plan (WNIMMP) (APP-545) sets out NH's approach to the monitoring and management of the local impacts that are created by the operation of LTC and the associated WNIMMP Policy Compliance document (APP-535) sets out how that process is claimed by NH to be compliant with policy. 9.5.4 NH does not deny that LTC induces local network congestion and disruption. Furthermore, through traffic re-routeing, LTC causes unmitigated community harm. At paragraphs 1.1.1 and 4.2.10 of the WNIMMP (APP-545), NH states that the strategic traffic modelling as presented through the Transport Assessment (APP-529) demonstrates that there are to be impacts on the local road network. It is NH's opinion that its approach accords with NPSNN and that these local impacts are acceptable when balanced with the greater national good. NH suggests that it has been collaborative, e.g. WNIMMP paragraph 4.3.2 and 4.3.4; and, proposes that through the data collection and analysis process set out in the WNIMMP, the Council should bid for future funding as a separate initiative under such workstreams as RIS and Levelling-up (paragraphs 4.3.3, 5.6.1 and Table 6.1 of the WNIMMP). 9.5.5 **SUMMARY: fundamentally the Council is opposed to the proposal by NH to overlook all induced impacts and to require the Council to apply for future funds to mitigate the effects of LTC on local roads, which may not be successful and would in any case load significant additional financial burden on the local taxpayers, who would need to provide significant funding. Notwithstanding the Council's opposition to the stance taken by NH, the draw on the Council's stretched financial and personnel resources to prepare funding applications and to subsequently oversee the implementation of any mitigation would be untenable.**

LIR Reference	Local Impact Report Extract / Applicant's Response
Applicant's Response	The Applicant recognises that as a result of the Project opening, people will choose to make different journeys. In many places on the network, and within Thurrock, this will lead to beneficial impacts on the network, and in some cases will lead to adverse impacts. Overall, the benefits on the road network outweigh the adverse impacts, and this is reflected in the positive economic benefit of the Project within Thurrock. The Applicant has identified the adverse impacts on traffic flows across the local road network, and this assessment is set out in the Transport Assessment [**APP-529**] and wider Environmental Statement documentation within the DCO submission. The Applicant has assessed the wider network impacts of the Project and has considered these against the requirements set out in the NPSNN (DfT, 2014), and considers that the adverse impacts are acceptable under this policy. The Applicant is proposing to monitor the impacts of the Project on traffic on the local and strategic road networks. If the monitoring identifies issues or opportunities related to 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 funding mechanisms and processes. The approach to monitoring the impacts of the Project and the monitoring locations is set out in the WNIMMP [**APP-545**]. The traffic impact monitoring scheme which would begin one year before the tunnel area opens, is secured by Requirement 14 of Schedule 2 of the draft DCO [**REP1-042**] and would require approval by the Secretary of State, after consultation with relevant local highway authorities. Over time, it will be very difficult to demonstrate that traffic flow changes on the road network were solely as result of the Project and not other factors such as wider demand for travel, nearby new development, or changes in the way the road network was managed. As such the Applicant considers it appropriate that the existing framework for managing the road network, as set out in Transport Assessment Appendix F: Wider Network Impacts Management and Monitoring Policy Compliance [**APP-535**], remains the appropriate way to make decisions about future investment priorities. The Applicant is obligated to work with local 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 (paragraph 5.19 of Highways England: Licence (DfT, 2015)). The Applicant will continue to deliver against this obligation in its collaborative work with local authorities.
Page 112-113	9.5.6 NH's approach omits the 'management' aspect of the WNIMMP and resolves to do nothing to mitigate the impacts and harm of LTC. That stance is not compliant with the NPSNN, which requires applicants to mitigate the local impacts and harm. NPSNN paragraph 5.206 states that the EIA '*should describe those impacts and mitigating commitments*" and paragraph 4.31 states that it is for the applicant to mitigate *"any existing adverse impacts wherever possible; for example, in relation to safety or the environment'*. In accordance with NPSNN, mitigation of scheme impacts should not be left to local authorities to address.

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	9.5.7 Paragraph 5.206 goes on to states that *'if a development is subject to EIA and is likely to have significant environmental impacts arising from impacts on transport networks, the applicant's environmental statement should describe those impacts and mitigating commitments.'* 9.5.8 Paragraph 5.214 states that *'Provided that the applicant is willing to commit to transport planning obligations and, to mitigate transport impacts identified in the WebTAG transport assessment (including environment and social impacts), with attribution of costs calculated in accordance with the Department's guidance, then development consent should not be withheld. Appropriately limited weight should be applied to residual effects on the surrounding transport infrastructure.'* 9.5.9 The Council is seeking the following approach from NH for the mitigation of identified LRN impacts of the operation of LTC and monitoring of potential additional impacts over and above the DCO assessment: • Severe transport impacts on the LRN to be mitigated through the DCO, either via mitigation to be delivered through Order Limit changes or via planning obligations within a Deed of Obligation or S106 Agreement; and, • Monitoring of actual LRN transport impacts of LTC operation to be undertaken through the WNIMMP (NB. Monitoring locations are accepted by the Council) and if further severe impacts arise that are beyond what has been identified and mitigated through the DCO, additional LRN mitigation is funded by NH as part of the WNIMMP, secured through the Deed of Obligation or S106. This mechanism has recently been implemented as part of the Sizewell C Deed of Obligation, which includes a fixed Transport Contingency Fund from which the local highway authority can draw down if ongoing transport monitoring shows additional severe impacts over and above those mitigated through the DCO. 9.5.10 Based on the incomplete modelling exercise undertaken to date by NH, the Council considers that key impacts that require mitigation are: • Capacity mitigation on the local network – Orsett Cock, The Manorway, Five Bells, ASDA roundabout, A1012 / Devonshire Road and the Marshfoot Road junction; • Community/Environmental mitigation – Orsett village, Chadwell St. Mary / Tilbury, Corringham / Stanford-le-Hope and Horndon; • Mitigation for severance and safety concerns at LTC interfaces with walking, cycling and equestrian routes – A1013; Orsett Cock; LTC bridge crossings; and, • Mitigation for public transport – providing connectivity opportunities to LTC for cross river services; providing sufficient width at crossings of LTC and allowing sufficient corridor width on specific LTC crossings for emerging bus corridor improvements connected with growth in Thurrock and within the emerging Transport Vision for Thurrock (as has been discussed with NH for over a year but not agreed by NH).

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	9.5.11 **SUMMARY: NH's assessment shows that there are many communities and junctions across Thurrock that are significantly adversely affected by LTC, either through reassigned traffic or through induced additional traffic. NH has determined that, despite clear policy requirements on mitigating impacts in NPSNN, it is not its duty to mitigate local impacts and instead that the local authorities are responsible for mitigating the effects of LTC on local roads, which may not necessarily be successful.** **This approach is not accepted by the Council.**
Applicant's Response	The Applicant recognises that as a result of the Project opening, people will choose to make different journeys. In many places on the network, and within Thurrock, this will lead to beneficial impacts on the network, and in some cases will lead to adverse impacts. Overall, the benefits on the road network outweigh the adverse impacts, and this is reflected in the positive economic benefit of the project within Thurrock. The Applicant has identified the adverse impacts on traffic flows across the local road network, and this assessment is set out in the Transport Assessment [**APP-529**] and wider Environmental Statement documentation within the DCO submission. The Applicant has assessed the wider network impacts of the Project and has considered these against the requirements set out in the NPSNN (DfT, 2014), and considers that the adverse impacts are acceptable under this policy. The Applicant is proposing to monitor the impacts of the Project on traffic on the local and strategic road networks. If the monitoring identifies issues or opportunities related to 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 funding mechanisms and processes. The approach to monitoring the impacts of the Project and the monitoring locations are set out in the WNIMMP [**APP-545**]. The Applicant notes that all the junctions listed in paragraph 9.5.10 point (a) of Thurrock Council's LIR are included as monitoring locations in the WNIMMP. An updated WNIMMP is included in the application, and the Applicant has also provided a briefing on the changes made to the WNIMMP since a draft version was shared in the July 2021 Community Impacts Consultation. The traffic impact monitoring scheme will be secured in Schedule 2 of the draft DCO [**REP1-042**] and would require approval by the Secretary of State, after consultation with relevant local highway authorities, which would begin one year before the tunnel area opens. Over time, it will be very difficult to demonstrate that traffic flow changes on the road network were solely as a result of the Project and not other factors such as wider demand for travel, nearby new development, or changes in the way the road network was managed. As such the Applicant considers it appropriate that the existing framework for managing the road network, as set out in Transport Assessment Appendix F: Wider Network Impacts Management and Monitoring Policy Compliance [**APP-535**], remains the appropriate way to make decisions about future investment priorities. The Applicant is obligated to work with local 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 (paragraph 5.19 of Highways England:

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	Licence (DfT, 2015)). The Applicant will continue to deliver against this obligation in its collaborative work with local authorities. The Applicant does not consider that its DCO application relies on an incomplete modelling exercise. However, the Applicant submitted Localised Traffic Modelling [**REP1-187**] at Deadline 1. This sets out the Applicant's approach to localised traffic modelling, where this work has been completed and the criteria that the Applicant has used to determine whether localised traffic models should be produced. Appendices B, C, D, E, F, G and H of that document provided reports detailing the localised traffic modelling at the Orsett Cock, Manorway and for a number of local roads within a model known as the Thurrock East-West model. The Applicant has committed to submitting reports relating to the A1089 ASDA roundabout and the A13 Five Bells junction at Deadline 3. The Applicant does not consider that any intervention at the Marshfoot Road junction is required, and the Council have not previously asked for junction modelling at the A1012/Devonshire Road junction. 9.5.10 b The Applicant is not clear on what Thurrock Council are referring to as 'Community/Environmental mitigation' in the context of this statement but assumes that it relates to mitigation from traffic noise. That matter is addressed by SoCG [**APP-130**], item by 2.1.206, summarised below: A further discussion on this matter [the design of acoustic barriers] was held on 11th July and the Council expressed concerns around the process of acoustic barrier appraisal and why they weren't more extensive. National Highways explained the process of choosing the location and dimensions of the barriers and additional considerations such as environmental setting, drainage, buildability and design elements such as cuttings and earthworks. The aim is to ultimately providing a balanced solution which does not increase environmental impacts for other disciplines such as landscape. The Council provided a list of specific locations where the barriers should be considered/extended and queried any specific environmental mitigation for construction traffic (covered in full in 2.1.194). The Applicant is currently reviewing the list which has been provided by Thurrock Council and will respond accordingly. 9.5.10 c Safety on NMUs and provision of safe crossing is addressed by SoCG [**APP-130**], item 2.1.259, summarised below: Any replaced WCH routes will be designed as per relevant design and safety standards. In-line with the requirements of the Planning Act, and national and local policy and guidance, the Project will mitigate its effects in terms of severance, changes in amenity and temporary and permanent changes to the WCH network where a significant effect is identified. This has been primarily secured through embedded mitigation, for example, where National Highways has included new road crossings or diverted or upgraded routes within the scheme. A further discussion on this matter was held on 5th July and National Highways provided some additional signposts to the Design Principles regarding WCH routes (Table 4.1 and PEO.01-PEO.13) for the Council to read and confirm their updated position. This matter remains under discussion.

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	9.5.10 d This matter is addressed by SoCG [**APP-130**], item by 2.1.69 and 2.1.277, summarised below: The opportunity to provide a link for new bus services across the Thames between North Kent and Thurrock/South Essex, could provide a significant change in public transport connectivity across the Thames. The positive impact would extend to the Dartford Crossing which is forecast to see journey time reliability increase, and journey times reduce as a result of the Project. The whole of the Project route is accessible to local and longer distance public transport routes, if operators choose to make use of it. National Highways consider that Local Authorities are best placed to lead on the development and appraisal of future public transport projects. They also have strong existing relationships and lines of communication with commercial bus operators as part of Local Transport Authority duties. National Highways is willing to work with authorities where appropriate. National Highways has established a Sustainable Transport Working Group (STWG) in parallel to the Project, with its primary purposes to maximise the benefits of the new crossing and develop sustainable travel initiatives that could be eligible for National Highways' designated funds and to support cases for future investment. Should the Project gain consent, National Highways will use the STWG up until opening as a forum to engage Local Authorities and operators to build awareness and develop improvements to existing commercial services and potential new services to make best use of the opportunities provided by the new crossing. National Highways considers that supporting this collaboration between Local Authorities on both sides of the Thames is the most effective and sustainable solution. The issue of width crossings is a summary and addressed in the response to Pages 162-164.
Page 113-115	**9.6 Required Amendments to Key Elements of LTC Scheme Design** 9.6.1 This section of the LIR expands on the Council's Relevant Representation Principal Issue IV, which identifies the various concerns with LTC proposed layout and connection. 9.6.2 The Council has raised a series of design and layout amendments that should be made to LTC to mitigate local impacts and further promote sustainable modes of travel. These are reported in detail at **Appendix C, Annex 2, Sub-Annex 2.1** to this LIR and include: • Providing a simple and appropriate scale design for the interchange between LTC / A1089 /A13 and the Orsett Cock junction, which resolves the Council's significant concerns over safety, severance, delay, congestion, land take and traffic reassignment; • Create a robust interchange and connections at Tilbury to provide access to the Port of Tilbury and facilitate future local connection to emerging development growth; • Incorporate connections to LTC for cross river bus services; and, • Safeguard an area around the North Road structure to allow for the future provision of an interchange with LTC to serve future development growth in the vicinity of Ockendon.

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	9.6.3 With regards to road safety paragraph 3.10 of NPSNN requires the applicant to *'take opportunities to improve road safety, including introducing the most modern and effective safety measures where proportionate.'* 9.6.4 Paragraph 4.66 of NPSNN states that consent should not be granted unless *'all reasonable steps have been taken and will be taken to:* • *Minimise the risk of road casualties arising from the scheme; and* • *Contribute to an overall improvement in the safety of the strategic road network.'* 9.6.5 The Council continues to have significant concerns with the interface between LTC and the LRN at the Orsett Cock junction. Road safety issues with the scheme design, which may result in collisions and have consequential impacts on the LRN as a result of the management of these incidents are set out in detail in **Appendix C, Annex 2**. Those points are indicated and summarised below in **Figure 9.2** below.

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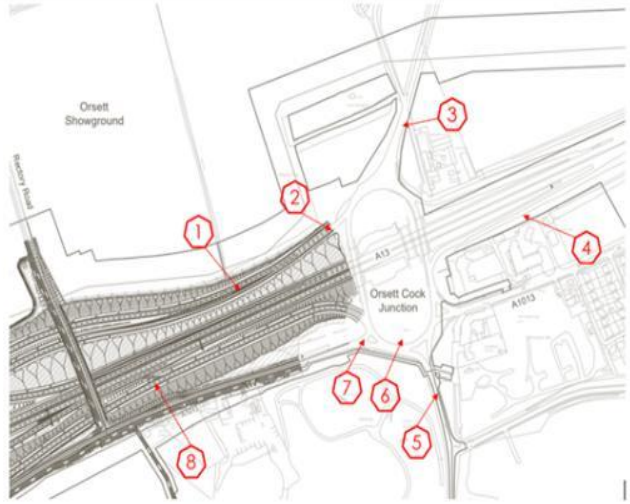

Point 1 & 2: The weaving length on the signal-controlled approach to the Orsett Cock junction This is a serious safety and congestion concern that has not been mitigated.

Points 3, 4 & 5: Microsimulation model shows extensive queues are forecast southbound and northbound on A128 Brentwood Road in both peak period and the westbound off-slip from A13 to Orsett Cock. It is a concern that those queues could impact on safe flow of traffic.

Point 6: Active Travel and public transport connection opportunities through the junction are severely hampered by the increased traffic induced within the junction.

Point 7: The reverse turn from A1013 Stanford Road to the westbound A13 and A1089 link will be reformatted to a narrow two-lane carriageway with narrow edge margins. Long vehicles turning into the link will need to cross lanes within the roundabout causing disruption and safety concerns.

Point 8: An emergency service connector has been introduced to resolve connectivity for emergency services between its depot on A1013 and LTC northbound and southbound. This will put emergency services and general traffic at risk when used.

Figure 9.2: Summary of points of concern at Orsett Cock Junction

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	9.6.6 In addition, the increase in traffic on the LRN as a result of LTC will result in an increase in collisions on local roads and NH forecasts an increase in road collisions as a consequence of LTC in its appraisal of the overall project. It is the Council's opinion that the layout of the LTC/A13/A1089 Orsett Cock interchange is a convoluted and confusing interchange with many short merge, diverge and weaving points, for which a disproportionate increase in collisions would be realised. That would not be reflected by the standard appraisal of impacts and does not adequately represent the impacts on the LRN or towards the national aspiration for Vision Zero to eliminate killed and serious injury collisions on UK's roads. 9.6.7 NH is not clear within its submission as to the layout of the interface between the proposed new LTC infrastructure and the current Orsett Cock junction. Plans submitted by NH in the DCO do not fully align with the current revised junction at Orsett Cock; and, the descriptions of the Authorised Works in dDCO (**AS-038**) do not align with the General Arrangement drawings. This point is set out in more detail at **Appendix C, Annex 2** to this LIR. The Council is not able to provide an informed opinion on the layout of the interconnection and impacts at Orsett Cock without clear and aligned layout details. 9.6.8 Through engagement with NH the Council has sought to review alternative configurations of the connectivity between LTC and the borough. The Council proposes that a connection should be made both to the south and north of A13. Those connections would both provide local connectivity and would allow for rationalisation of the A13 interchange. 9.6.9 To the south a connection in the vicinity of Tilbury / Port of Tilbury had been identified. That interchange would be focused on access to the port and provide access both to the east and west of LTC primarily for public transport and active travel. That connection would allow cross-river connections for public transport with suitable amendments to LTC south of River Thames. 9.6.10 North of A13 the Council has identified that connection to LTC around North and South Ockendon could provide relief to M25 junction 30 and potentially LTC / A13 interchange. That strategy has not been tested through LTAM or other modelling. Furthermore, that connection could form part of a strategy for access to potential development growth around Ockendon. 9.6.11 **SUMMARY: the Council has consistently contested that that strategy for the interchange at LTC/A13/A1089 is flawed and unsafe. The interchange introduces safety concerns, severance to walkers, cyclists, horse-riders and public transport and delay to local traffic using Orsett Cock, which is being utilised as part of the SRN. Information provided by NH on the interface between LTC and the LRN is confused and unclear.**

LIR Reference	Local Impact Report Extract / Applicant's Response
	9.6.12 **LTC furthermore fails to meet its objectives by creating barriers to future growth opportunities and does not facilitate connectivity across the River Thames for public transport or to the growth at the Port of Tilbury, to the east of LTC or in the vicinity of Ockendon.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] item 2.1.63, summarised below: With regards to the Council's point in relation to the lack of public transport provision, please refer to the above where this matter is also addressed in the response to Part 2 of Appendix H against Section 8 of the Thurrock Council LIR. Please refer to the Applicant's response to LIR pages 99-100. On the issues raised in connection with the A13, this matter is addressed by SoCG [**APP-130**] item 2.1.84, summarised below: The Applicant has provided an overview of the design process for the junction of the A13/A1089. The Applicant's approach to the design is in accordance with the standards set out in the Design Manual for Roads and Bridges. The design has sought to strike a balance between forming connections with the wider SRN and local road network. During the development of the A13 junction the Applicant considered the connectivity needed with at the A13 junction by considering the key traffic movements between the A13, the A1089, and the new connectivity provided by the Lower Thames Crossing. A key consideration during the development of the junction was to minimise the impacts to the local area by making better use of the existing infrastructure. During the development, multiple factors were considered, including the land requirements, impacts on local traffic flows and on the environment, as well as cost. This assessment used professional judgment informed by the traffic model, rather than undertaking a sequence of detailed models of all possible alternatives as proposed by the Council. As an all-movements junction would have led to significant additional land requirements and environmental impacts, the number of movements provided were reduced, with priority given to those movements that supported the project objectives of providing relief to the Dartford Crossing and approach roads, and supporting sustainable local development, and regional economic growth, providing regional economic benefit. The junction design was then further developed based on stakeholder feedback, and the design of the A13 junction has since indeed evolved as a result. Following feedback from the Council and others, the A13 junction design has been updated and was consulted on in 2022. The Applicant is also currently in discussions with the Council in relation to the merits of consideration of wider network developments that connect the strategic and local road network, such as the Tilbury Link Road. The Project A1089/A13 junction retains all existing movements to/from the A13. In addition, it provides connections from the A1089 northbound to the Project north and south. Depending on the origin and destination of any journey, these connections provide more direct links to parts of the strategic road network freeing up other sections. Following feedback,

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	the Applicant has made changes to the A13 junction to local road connection to reconnect the Orsett Cock roundabout (A128) to the A1089 southbound. This has resulted in less traffic on local roads.
Page 115	**9.7 Legacy Benefits** 9.7.1 NPSNN paragraph 3.3 states that *'Applicants should also provide evidence that they have considered reasonable opportunities to deliver environmental and social benefits as part of schemes.'* There is no evidence of tangible transport legacy benefits to the borough as a consequence of LTC. 9.7.2 With regards to WCH facilities, NH has reconnected severed routes rather than taking a more strategic approach to WCH provision. NH should have engaged with the Council on a package of meaningful and tangible improvements rather than the rather perfunctory approach that it has adopted. 9.7.3 Rather than designing LTC to achieve environmental and social benefits associated with public transport improvements, LTC has instead precluded public transport opportunities on A1013 through the realignment and reconfiguration of Stanford Road to the west of the Orsett Cock junction. 9.7.4 The Council has requested that a bus priority corridor is provided at the Muckingford Road crossing to facilitate future bus priority improvements within the Borough vital for the emerging Local Plan. This has not been provided in the submitted design of LTC.
Applicant's Response	This matter is addressed by SoCG [**APP-130**] item 2.1.57, summarised below: The need for the Project is set out in the Need for the Project [**APP-494**]. The economic benefits for Thurrock, accounting for the disbenefits, are set out in Combined Modelling and Appraisal Report (ComMA) Appendix D [**APP-524** to **APP-527**] with the Level 2 Wider Economic impacts for Thurrock presented in Table C.11 and Thurrock's Level 1 TUBA impacts are presented in Table A.34. These total £454m and £78m respectively and have been calculated following TAG. The Project's DCO application is accompanied by a series of documents providing detail of the legacy and benefits of the Project for each local authority area (including Thurrock Council), together with estimates of the monetary uplift expected as a result of the Project. The Benefits and Outcomes Document summarises the Project's benefits that are both inherent to the Project and secured through DCO, and signposts out to documents where these are set out more fully. Four categories are presented: • **Transport benefits of the Project** – DfT guidance defines monetised benefits when calculating the Benefit Cost Ratios (BCR) known as Level 1 and 2 impacts, and also when assessing a project's Value for Money know as Level 3 impacts. These are as set out in the ComMA and its Appendix D (Economic Appraisal Report [**APP-526**], Distributional Impact Analysis [**APP-525**], Appraisal Summary Table [**APP-524**] and Level 3 Wider Economics Impact Report [**APP-527**]). As outlined in the ComMA, Thurrock would receive the most monetised benefits of the Project.

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	• **Other benefits of the project** including a range of other planning policy, environmental and sustainability benefits are set out in the Need for the Project, Planning Statement and Sustainability Statement. Examples of upgraded active transport connections include the circa 27km of improved walking, cycling and horse-riding routes as well as the circa 40km of new walking, cycling and horse-riding routes. • **Mitigation and enhancements** are secured through a range of control documents, notably the Code of Construction Practice (CoCP), which includes the Register of Environmental Actions and Commitments (REAC); and the Section 106 (S106) Agreements. The S106 Agreements sets out obligations that will deliver benefits to the local community including targets for skills, education and employment; and a Community Fund to support mental health and wellbeing, local skills and employment, connecting communities and the environment. • **Wider benefits via designated funds** – The Applicant operates several dedicated funds (known as designated funds) to provide environmental, social and economic benefits to the people and businesses who live and work near to the SRN. The money is allocated to four funding streams focused on making improvements that will make the biggest difference and deliver lasting benefits. The four designated funds cover safety and congestion, environment and wellbeing, users and communities and innovation and modernisation. More information on the wider benefits provided to Thurrock Council is set out in Table 5.4.2 in the Benefits and Outcomes Document [**APP-553**] as well as item 2.1.241 of the SoCG [**APP-130**]. The Applicant does not agree with the proposition set out at 9.7.2, and has proposed a comprehensive and strategic WCH network. The Applicant has worked very closely with the Council to work on all the proposals put forward to complete and improve the Public Right of Ways network within Thurrock. The approach taken, and details on the provision, is set out in Project Design Report Part E : Design for Walkers, Cyclists and Horse Riders [**APP-512**], and within Thurrock include the following that were specifically discussed and agreed with the Council: • BR58 has been incorporated within the Tilbury Fields proposals and connected to FP200. • FP200 has been upgraded to a bridleway as requested by the Council. • The indicative route of the link through Ron Evans Memorial Field was presented to the Council, who have indicated that this is considered appropriate and would be supported. Thurrock Council have not shared any concept or detailed proposals related to enhancing public transport provision on Stanford Road. The Applicant note that there is a reduction in overall traffic along the A1013 west from Orsett Cock which will benefit public transport using this road.
Page 115-116	**9.8 Local Transport Impacts of Construction Phase** 9.8.1 This Section expands on the Council's Relevant Representation Principal Issue V relating to the governance, impacts and mitigation required during the construction phases of LTC.

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	Impact on Local Traffic 9.8.2 Notwithstanding the Council's overriding concerns about LTC, if the scheme were consented and constructed, the Council requires that binding, coordinated and robust mechanisms are put in place to protect its local communities and the travel network from the traffic impacts of the construction period (and indeed for its operation too). 9.8.3 The Council has sought to collaborate with NH in assessing the impacts and establishing what mitigation and controls should be implemented and maintained. Some progress towards the construction strategy and control mechanisms has been realised, however, progress is still required in the commitments to be made by NH within the DCO. 9.8.4 The suite of control documents is emerging and would be refined by NH's contractors following appointment. The Council acknowledges that the Code of Construction Practice (**APP-336**); the outline Traffic Management Plan for Construction (oTMPfC) (**APP- 547**); the Framework Construction Travel Plan (FCTP) (**APP-546**); and outline Materials Handling Plan (oMHP) (**APP-338**), inter alia, provide a base for managing the construction phases. It is the Council's opinion, however, that there are many statements, limited clarity and few commitments contained within those documents, which combined, fail to provide the certainty to the Council that the construction will be managed within the construction parameters defined within the DCO assessment. 9.8.5 The construction of LTC is planned to be undertaken over a construction period of six years. The long duration of the construction period and the construction activities inclusive of network changes and construction traffic will have disruptive and intrusive impacts on local communities in Thurrock, leading to day-to-day inconvenience to the travelling public, local residents and businesses. 9.8.6 The Council has sought to understand the assumptions regarding: • The temporary traffic management measures and phases affecting the borough; • The strategy for materials, plant and equipment handling – see SoCG matters 2.1.110 through to 2.1.115; • The process for governing the construction period – see SoCG matters 2.1.7 to 2.1.9, 2.1.36, 2.1.45, 2.1.107, 2.1.117 to 2.1.142, and 2.1.243 to 2.1.255; • The applied construction related traffic and their representation in the LTAM cordon construction models; and, • The forecast impacts on the LRN during the construction phase. 9.8.7 **Appendix C, Annex 3** sets out the Council's position regarding the deficiencies in NH's assessment of the impacts of the construction period on the Borough and how control documents and governance processes

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	proposed by NH fail to mitigate the impacts in the Borough or provide a sufficiently strong set of parameters and controls within which the contractors can construct the scheme. 9.8.8 **SUMMARY: the Council notes the progress made with NH in refining the governance approach, which would be followed during the construction period. It is the Council's opinion, however, that insufficient control is set out in the currently submitted Control Documents from which the contractors are to develop the detailed governance plans. NH should be leading with an extremely strong framework from which the contractors can refine their final proposals, so as to protect the local communities from the effects of the construction period.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] item 2.1.127, summarised below: The Traffic Management Forum committed to in the oTMPfC [**REP1-174**] is designed to bring together Client, Contractor and stakeholders together to discuss proposals, issues and performance of all things traffic related, including monitoring and reporting. The Applicant has set out a range of commitments in a series of control documents and non-compliance would be considered a breach of the DCO. However, enforcement of non-compliance, development of KPIs and provision of incentives for Contractors to exceed targets are a matter of contract between the Applicant and its Contractors and, as such, may contain commercial sensitive and confidential information which will not be shared. Unresolved disputes will be referred to the Joint Operations Forum (JOF) for resolution. The Applicant further notes that in the event of a non-compliance with the DCO (if granted), outside of those specific targets, there would be enforcement powers available to local authorities under Part 8 of the Planning Act 2008. The Applicant additionally notes that the Traffic Management Plan submitted for approval would be the subject of consultation with the council where any residual concerned would be considered by the Applicant, and the Secretary of State. Comprehensive information on matters a. & b. raised by Thurrock Council have been provided in the application. With regards to matter a., this is set out in the oTMPfC [**REP1-174**], and matter b. is addressed in combination by the oTMPfC [**REP1-174**], the oMHP [**APP-338**] and the Transport Assessment [**APP-529**].
Page 116-117	**Impact of Traffic on Local Communities** 9.8.9 The construction period models have indicated significant traffic re-routeing and the movement of construction traffic through local communities, such as Orsett village, Chadwell St. Mary / Tilbury, Corringham / Stanford- le-Hope and Horndon and at junctions including Orsett Cock roundabout, Marshfoot Road, Asda Roundabout, North Stifford interchange and High Road/Stifford Clays Road (Medebridge Road) . NH has taken no steps to mitigate these effects other than to state that the creation of a Traffic Management Forum (TMF) will allow these points to be 'discussed' and that the contractors will put into place route management and delivery period

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	controls. The Council has observed traffic increases through Orsett Village during similar works during the recent reconfiguration of A13 and the Orsett Cock junction. 9.8.10 When combined with vehicle monitoring information that must be shared with the Council, these measures will assist with the management and enforcement of the construction traffic fleet. It will not influence workforce traffic, which will not be controlled in the same way, and it will not mitigate the effects of general traffic re-routeing to avoid delays and disruption. The TMF will not be mandated to resolve matters raised during the construction period and will rely on NH's and the contractors' goodwill to react and resolve matters raised by the Council and other stakeholders, which the Council contends is not acceptable until further detail is committed to within the relevant control documents. 9.8.11 As noted through the review of the construction models, some routes are forecast to experience journey time increases of up to four minutes on average during the modelled period (0700-0800). That forecast is an averaged increase, does not reflect the LRN network peak and allows for re-routeing that has taken place within the software to balance the network. It is therefore fundamental that NH considers mechanisms to manage traffic away from the local communities and to minimise journey time increases and disruption in those communities and at affected junctions. 9.8.12 That mitigation could take the form of temporary road closures to restrict unwanted through traffic or other route restrictions to introduce equivalent delays and retain traffic on its appropriate corridor. These measures need to be considered in collaboration with the Council, so that they can be secured through the DCO. NH has not yet committed to undertaking such work or mitigation. 9.8.13 Complementing the management of traffic during the construction period, NH should also commit to decarbonising the construction fleet to reduce environmental impacts and reducing the need to move to and between compounds. Electric vehicles and plant should be used where viable for the size and form of vehicle or plant, especially where they are involved in shorter and frequent movements within or between compounds and other related facilities. Hydrogen or alternative zero-emission fuelled vehicles should be promoted for larger construction vehicles and plant. Autonomous and Artificial Intelligence options should be continually reviewed and adopted as they emerge into the industry, where they can save the need to travel and can reduce the risks associated with the construction period. This has been raised previously with NH through SoCG Matters 2.1.246 to 2.1.248. 9.8.14 **SUMMARY**: **NH has used the LTAM model to forecast effects of a series of scenario phases.** **NH forecasts impacts on a number of key locations within the LRN but proposes that mitigation would be defined by its contractors' post DCO being consented. Relying heavily on future collaboration and goodwill within the TMF. The governance framework secured through the DCO must test and confirm the level and type of mitigation that must be adopted, including matters such as decarbonisation of the contractors effects on the LRN.**

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Applicant's Response	In response to paragraphs 9.8.9, 9.8.10 and 9.8.12: The Outline Traffic Management Plan for Construction (oTMPfC) [**REP1-174**] sets out measures to minimise disruption to users of the highway network and details the monitoring system that will be implemented by the Main Works Contractors (MWCs) and utilities contractors. This monitoring system will capture real-time data to confirm the effectiveness of traffic and vehicle control measures and ensure the arrival and departure times of vehicles from compounds are controlled. The monitoring system will capture and report information related to construction traffic such as compliance with vehicle routeing, incidents and accidents reporting. The monitoring data will be collected and held by the MWCs and utilities contractors as part of their supplier set up procedures, and the systems will be coordinated across all contracts and utility works to ensure consistency and ease of reporting and appraisal. The data will be used to inform reporting to the Traffic Management Forum (TMF) on a monthly basis, allowing for the analysis of the performance temporary traffic measures, including identification of any non-compliance or complaints, and the impact of construction traffic. The Applicant has not ruled out implementing further measures but has rather established a robust framework, facilitating collaboration among relevant stakeholders to collectively minimise the impacts of construction traffic. The TMF will have the capability to assess both perceived and actual impacts, utilising real-time data to make informed decisions and identify necessary actions to promptly resolve any issues. The TMF has a direct link to the Joint Operations Forum (JOF), in terms of reporting and escalating issues. The National Highways Traffic Manager will report to the JOF on traffic management performance and to escalate issues of concern raised by stakeholders. As stated in paragraph 2.4.9: Information on compliance will be reported to the Traffic Management Forum on a monthly basis to inform analysis of the activity and confirmation of compliance with specifications. That data will be used to guide actions to resolve non-compliance and to address complaints. In the event of non-compliance requiring escalation, the TM will raise the issue at the JOF, involving senior representatives of the project to reach a resolution. In addition, the Applicant is committed to providing a dedicated resource for Thurrock Council to cover the requirements to manage the transport network in response to the impacts of the Project's construction (SoCG Item No. 2.1.173), secured via the S106 Agreements. Regarding workforce management and its relationship to the oTMPfC for mitigating the impact of workforce movement, the Applicant has addressed this matter in Section 15.6.45 of the response. Regarding the use of temporary road closures as a form of mitigation to minimise impacts on the local road networks, such measures would be assessed and reviewed on a case-by-case basis, rather than applying a blanket approach, during the TMF meetings. A further discussion on these matters was held on 13 June 2023 and although the Council was satisfied in principle with the preliminary works TMP, residual concerns were shared around the working, coordination and management of the Traffic Management Forum (TMF) and role of the Traffic Manager. Suitable signposts were provided for where the DCO

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	documentation responds to all these concerns for the Council to read and confirm their updated position. This matter remains under discussion. 9.8.11: The construction scenario that is assessed within the Applicant's transport model enables vehicles to divert via any possible route rather than via a signed diversion route. In practice this reflects reality as not all drivers will follow the signed route. As set out at paragraph 8.1.7 of the Transport Assessment [**APP-529**], the Applicant has made a number of assumptions within the construction scenario presented which the Applicant contends means that the assessment presented is robust. The Applicant has established the TMF and a monitoring system that utilises real-time data as a mechanism to assess and consider appropriate traffic measures on a case-by-case basis. One such measure, as stated by the council (paragraph 9.8.12), the use of temporary road closures, if deemed appropriate could be used. More detailed information regarding the mechanism of the TMF is provided in the response to paragraph 9.8.9. The Applicant has set out a number of controls with the FCTP [**APP-546**] which aims to drive down greenhouse gas emissions associated with worker transport during construction, such as the provision of zero emission shuttle buses. The Applicant proposes to continually innovate to drive down greenhouse gas emissions during construction and will consider all available technologies including innovations in fleet technology. However, focussing on specific emerging technologies such as autonomous vehicles would be premature. The use of autonomous plant is also covered under SoCG Item 2.1.137.
Page 117-119	**Impact on Public Transport** 9.8.15 The Transport Assessment (**APP-529**) Section 8.9 and associated Tables 8.70 to 8.79 set out the assessment of impacts on public transport services in Thurrock. That assessment shows that bus services in Thurrock are noted to be impacted during 10 of the 11 phases of the construction period with an increase in running time of greater than two minutes. During certain phases the forecasts in journey time increases can be greater than five minutes, generally in the PM peak period. Train services are anticipated to be less disrupted with short term possessions. 9.8.16 Bus service 11 is forecast to be impacted through all of the 10 phases, which is currently estimated by NH to be a period of 55 months. Bus services 100, 200, and 370 are predicted to be affected for periods between 25 and 49 months. This represents a substantial long-term impact on bus services but is currently not mitigated. Bus service 100 is a high frequency service (typically 4 buses per hour) and will be impacted for around 33 months and in addition during the connection works between Orsett Cock and the new LTC linkages. Bus service 200 will require diversion during the long-term closures of both Baker Street and Rectory Road. 9.8.17 NH relies on the preparation of more detailed Traffic Management Plans (TMPs) by the contractor and collaboration through the TMF also by the contractors to mitigate the impacts on bus services. NH has given

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	very little leadership and guidance as to what that mitigation should be or how it should be implemented and when. With a headway of 15 minutes on bus service 100 impacts of 5 minutes per journey through the affected section of its route is significant and could require additional buses to maintain headway. The impacts on services have been identified by NH yet no mitigation has been proposed, except to leave that to the contractors. 9.8.18 The Council has expressed its concerns over the impacts on local bus services at SoCG Matters 2.1.131 and 2.1.132. Recognising that there would be impacts on journey times and routeing, the Council expresses that the impact in mobility can have a profound effect on people's ability to access, amongst other things, community and health services. These effects must be given due credence and mitigation. The Council has specifically noted the potential impact on journeys between Thurrock and Basildon (Thurrock University Hospital), which should be recognised and addressed. 9.8.19 The oTMPfC (**APP-547**) within Section 2.4 'Challenges and consideration' and Table 2.3 includes the generic headlines of considerations for contractors to take into their TMPs and when engaging with stakeholders. Those headlines are to: maintain the services as far as possible; provide diversion routes as required and as informed by the Council; and, to engage with rail companies and reduce impacts. Those are valid statements but do not bind the contractors into action. 9.8.20 Against the backdrop of potential legacy improvements, NH should include such measures as: • Specify the mitigation required to be introduced and funded for the affected services following its own engagement with bus operators, such as funding additional buses within services to offset delays; • Propose direct engagement with stated stakeholders, such as colleges, health centre and community centres to publicise the changes and promote service use; • Seek mechanisms to incentivise public transport use, such that a legacy effect might be realised; • Actively manage mobile traffic signals to minimise peak flow delays; • Stipulate the lead in times for contractors to notify stakeholders of changes to bus service and how to keep stakeholders notified; • Require innovation in keeping stakeholders up to date with changes and project over runs; and, • Require contractors to programme and coordinate construction works, so that impacts are targeted at quieter times, such a holiday periods. 9.8.21 The TMF proposed through the oTMPfC (**APP-547**) simply provides a forum for discussion. Its role and independent governance needs to be mandated to resolve problems which might occur during the works, such

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	as the changing and cumulative nature of works on A1013. Funding also needs to be set aside to ensure that mitigation requirements can be adequately funded. 9.8.22 As with many matters, NH has recognised that the construction of LTC will have a long-term impact on local communities during the construction period but does very little to mitigate those impacts. 9.8.23 **SUMMARY**: **NH must confirm the actions that it will require its contractors to take to mitigate the impacts on local public transport services in the form of an appropriate strategy. This strategy should include stakeholder engagement exercises; service and infrastructure modification; and service reliability commitments. That strategy must focus both on the direct effects of adjacent works and the indirect effects on those communities using the public transport services, e.g. education and health journeys.**
Applicant's Response	This matter is addressed by SoCG [**APP-130**] item 2.1.132 and item 2.1.244, summarised below: The forecast impact on bus networks as a result of the construction and operation of the Project was initially set out in the Community Impacts Consultation, and was updated to reflect the DCO application within the Transport Assessment [**APP-529**]. The oTMPfC [**REP1-174**] provides a framework for dealing with such stakeholder considerations. Table 2.3 outlines the relevant stakeholders (i.e. public transport users and operators), their requirements and how subsequent TMPs will take these requirements into account. It also sets out how the Applicant would liaise with bus operators to ensure that impacts on their services, and consequently their customers, are minimised. These TMPs would be developed post consent (if the Project is consented to), and in line with the controls and commitments in the oTMPfC. Thurrock Council will be a consultee when developing this document. The oTMPfC also commits to a Traffic Management Forum, where relevant bus operators could be invited, in relation to the works being planned and progressed at that time. 1. The Applicant has set out impacts on local roads during construction both in the consultation and through the provision of traffic modelling results. The Applicant is continuing to actively engage with Thurrock Council in relation to the impacts of the Project on Thurrock's roads during construction. Information including construction models for review has been provided, and a Transport Assessment is included with the DCO submission. 2. The Applicant notes the comments from the Council with regards to the proposed relocation of these bus stops. Details of the management of these bus stops will be discussed once the Contractor plans are defined. 3. The services and routings that the private coach operators select is a matter for them and their commercial considerations. As with local public transport, the Project is available for use by long distance coaches. 4. Interventions to support public transport will focus on where the construction directly affects facilities, for example, the relocation of bus stops and consideration of appropriate diversionary routes.

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Page 119-121	**Required Mitigation of Construction Impacts** 9.8.24 Notwithstanding the Council's overriding opinion on the absence of a viable transport business case for LTC, as set out throughout this LIR, the following reflects the Council's review of the impacts anticipated to the communities and transport system within the Borough during construction, if LTC were to be built. This section summarises the mitigation that would be required. 9.8.25 During the Examination, the Council requires that NH reviews the submitted control documents and strengthens its commitments contained in those documents to provide clear parameters, secured within the DCO, from which the contractors will prepare their detailed governance and control documents. These include the oTMPfC (**APP-547**), the FCTP (**APP- 546**), the oMHP (**APP-338**), the pNRA (**APP- 548**), and the CoCP (**APP-336**). Those review would then need to be reflected in the dDCO (**AS-038**), the Transport Assessment (**APP-529**) and ES Appendix 4.4 and others (**APP-343**). 9.8.26 That strengthening would be the basis for actual mitigation to support the statements and data collection processes that are provided within the current suite of control documents. The fact that NH has already appointed its contractors for LTC should not prevent the need to renegotiate terms with contractors, as necessary, to reflect the necessary governance arrangements yet to be agreed. 9.8.27 The oMHP should be the base from which to develop a stretching and environmentally sound, in line with industry good practice and reflecting its 'pathfinder' status, approach to managing materials, plant and equipment associated with the entire construction process and that should include the use of marine and rail transport. The oMHP currently presents one commitment to transport 35% of bulk aggregates by river, which is phased such that it is open to interpretation by the contractors. That commitment should be one of a range of robust commitments and should also be more testing and fully governed and secured within the DCO and monitored during the construction phase, with clear consequences for not achieving them. Proposals were jointly presented by the Council and the Port of London Authority (PLA) to NH for improved use of the river for marine transport of plant and materials. This was presented in the Joint Council/PLA Technical Note of October 2022, which is within **Appendix C, Annex 4** and was responded to by NH in February 2023, but with no changes to their original proposal which was not considered acceptable. 9.8.28 NH should commit to requiring its contractors to using a zero-emissions road fleet and construction plant both within the works and for movements to, from and between compounds. Departures from that commitment would need to be substantiated by the contractors through their TMPs (AS-038, dDCO Requirement 10 and APP-547, oTMPfC section 2.3) or its Construction Logistics Plans (APP-336 Section 6.1). NH should further actively facilitate use of zero-emissions vehicle use by workers as part of legally binding Travel Plan obligations.

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	9.8.29 A Detailed Local Operating Agreement (DLOA) or side agreement should be devised and concluded before DCO Grant or secured through a Requirement. That agreement will clearly set out the mechanisms for co- ordination between the authorised works and other works on the LRN both within and outside the Order Limits. Further comments on this matter are set out in Section 15.2 below. 9.8.30 The FCTP has provided analysis of the anticipated travel effects of the workforce and needs to be extended prior to DCO Grant to provide clear and robust targets and initiatives that will be adopted by the contractors. That can include commitments toward decarbonising travel and putting in place mechanisms to help workers travel without their cars. Section 15.6 of this LIR considers the FCTP (APP-546) further. 9.8.31 NH must mandate the TMF, which will be established through the oTMPfC (APP-547) to resolve problems that are identified during the construction period. A clear and robust governance structure must be set out in the oTMPfC showing the control and co-ordination and reporting structure and timeframes for resolving matters raised. Currently the TMF would become a discussion group with no authority or proper controls. 9.8.32 Orsett village will be significantly impacted during the construction phases both directly through the closure of Rectory Road and Baker Street and indirectly through the displacement of traffic into the village network to avoid delays at Orsett Cock and A1013. NH has acknowledged that funds for the provision of traffic management measures in Orsett Village should be secured through the DCO, but has not currently proposed a mechanism. Furthermore, the commitment to monitor the impacts on other communities, as set out in oTMPfC (APP-547) Section 2.4, should be assigned a ringfenced fund in a Deed of Obligation to be used during the construction period to mitigate other problems, which are directly related to the construction period, such as re-routeing traffic that has been forced into communities, such as around Chadwell St Mary, Tilbury and Linford. 9.8.33 The oTMPfC should set out in the document what the consequences are to the contractor of non-compliance with the designated routes which will be monitored during the construction phase through the framework indicated at Plate 2.4 of the oTMPfC (APP-547). Paragraph 2.4.22 of the oTMPfC (APP-547) refers to providing the monthly monitoring at data sites, which must include reviews of variations in background traffic and must include what the consequences would be if monitoring is different to the assessed effect. The contractors should collect daily data of its fleet and that of its subcontractors and hauliers and present this information via digital dashboards that can be interrogated as part of the monthly monitoring reports. 9.8.34 NH has used LTAM to provide a transport modelling assessment of the distribution of construction traffic across the LRN. That assessment does not wholly align with the controls on traffic that are proposed within the oTMPfC, since only earthworks HGVs are assigned in the models to specific routes and other construction traffic is at liberty to assign within the network. The Council notes that there is no mechanism to control HGV movements and is concerned that NH's projections and controls will not be complied with. The Council proposes that caps

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	on HGV movements to and from each compound are set in accordance with the DCO assessment and that those movements are assigned to the prescribed routes as set out within NH's evidence and commitments within the oTMPfC (APP-547). Those caps would be captured in the oTMPfC, such that they should be adopted within the contractors' TMPs. The caps on movement would be in accordance with the assumptions that NH has taken during its assessment and that were applied to its LTAM strategic models, with detailed modelling yet to be undertaken.
	9.8.35 Through the TMF (if improved), the contractors, NH, the Council and other stakeholders can review the observed flows and commitments to remediate effects; defending local communities from traffic which seeks to reroute (e.g. Orsett).
	9.8.36 Currently, there are no controls on the number of HGV movements or workforce movements that could be assigned to each compound. Both NH and the contractors are at liberty to adjust their operations with no consequences to local impacts or understanding of such impacts.
	9.8.37 NH must revisit its proposals for governance and commitments during the construction period set out in the control documents. This must include a more robust approach to using marine and rail transportation to minimise the need to use road transport for the movement of materials, plant and equipment.
	9.8.38 The construction period will bring in excess of 1,000 workers to the Borough at peak construction, who will not currently live in the Borough. Those people will need effective and environmentally sound means to travel to the compounds. At present NH has not provided sufficient evidence as to how it will facilitate those journeys by anything other than the private car. This is not acceptable to the Council.
	9.8.39 **SUMMARY**: **alongside a strengthening of the construction period governance processes, to set a robust framework for secondary mitigation, and the need to define primary mitigation at locations identified to be impacted by construction traffic and rerouted traffic, NH should extend its commitments to tertiary mitigation by minimising the use and transportation of materials, plant and equipment especially by road. The oMHP (APP-338) must be revisited by NH prior to any DCO being consented, such that it sets a clear and stretching basis from which the contractors can develop their proposals.**
	9.8.40 **OVERALL SUMMARY: NH has used the LTAM to assess the likely impacts of the construction period for LTC. LTAM does not provide sufficient accuracy or detail to properly assess the impacts of construction on the LRN and local communities. This exercise must be completed using the operational models, so that impacts are properly understood and mitigation can therefore be considered in relation to construction impacts.**
	9.8.41 **Notwithstanding this, the LTAM has shown impacts at many locations and NH proposes a suite of control documents as a basis for governance during the construction period. Those documents provide**

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	the start of a system of governance, but do not include sufficient control, guidance and commitments to lead NH's contractors to minimise the impacts of construction on the local community and network and operate within parameters assessed through the DCO.
Applicant's Response	9.8.24- 9.8.26 – The Applicant notes this comment. 9.8.27 – This matter is a summary and addressed in detail in the response to Pages 237-238. The matter of non-compliance and consequences is covered by 2.1.127 of the SoCG [**APP-130**], summarised below: The Traffic Management Forum committed to in the oTMPfC [**REP1-174**] is designed to bring together Client, contractor and stakeholders together to discuss proposals, issues and performance of all things traffic related, including monitoring and reporting. National Highways have set out a range of commitments in a series of control documents and non-compliance would be considered a breach of the DCO. However, enforcement of non-compliance, development of KPIs and provision of incentives for contractors to exceed targets are a matter of contract between National Highways and its contractors and as such may contain commercial sensitive and confidential information which will not be shared. Unresolved disputes will be referred to the Joint Operations Forum (JOF) for resolution. 9.8.28 – To reduce emissions from construction plant and workforce transport the Contractors would be required to meet some challenging minimum requirements through the carbon commitment presented in Table E.1 of the Carbon and Energy Management Plan [**APP-552**] and Table 15.13 of ES Chapter 15: Climate [**APP-153**]: • *'The Applicant will require Contractors to procure renewable electricity throughout construction, to meet any demand that is not met through onsite renewables and will provide Renewable Energy Guarantee of Origin (REGO) certificates covering the total amount of electricity consumed*' (CBN07). • *'The Applicant will require Contractors to provide and maintain electric vehicle charging facilities, using zero carbon electricity, for 30% of parking capacity in each compound, increasing this as necessary to satisfy demand*' (CBN08). • *'The Applicant will require Contractors to use zero tailpipe emission vehicles for all staff movements within the working areas of compounds and to and from public transport hubs*' (CBN09). • *'The Applicant will require Contractors to promote the use of active transport for personnel to and from the compounds and to provide managed electric charging facilities for e-bikes at each compound, in covered cycle parking areas, to satisfy demand*' (CBN10). Further reductions are to be achieved through CBN11 *'The Applicant will provide commercial incentives for Contractors to reduce emissions below their carbon limit'.*

LIR Reference	Local Impact Report Extract / Applicant's Response
	The Project is committed to providing sustainable worker transport arrangements and can confirm that the shuttle buses that will provide inter compound connectivity will use zero emission vehicles, as committed to in paragraph 8.2.5 of the FCTP [**APP-546**] 9.8.29 - This matter is a summary and addressed in detail in the response to Pages 222-225 and 234-237. 9.8.30 - This matter is a summary and addressed in detail in the response to Pages 231-234. 9.8.31 - This matter is a summary and addressed in detail in the response to Pages 234-237. 9.8.32 – The Applicant has discussed traffic impacts in Orsett village during the construction period, and set out how the oTMPfC [**REP1-174**] will function to provide controls over these impacts. Thurrock Council have been asked to advise on what interventions they consider would be appropriate. 9.8.33 - This matter is a summary and addressed in detail in the response to Pages 234-236 9.8.34 – The Lower Thames Area Model, the Applicant's transport model is considered fit for purpose and the most appropriate tool to assess the forecast impacts of the Project on the highway network. The Applicant's approach to construction modelling is as set out at paragraph 3.2.2 of Localised Traffic Modelling [**REP1-187**]. The rest of this matter is a summary and addressed in detail in the response to Pages 234-236 9.8.35 – This matter is a summary and addressed in detail in the response to Pages 234-236 9.8.36 – This matter is a summary and addressed in detail in the response Pages 234-237 (Regarding HGV caps) and Pages 231-234 (for worker travel) 9.8.37 – This matter is a summary and addressed in detail in the response to Pages 237-239 9.8.38 – The Applicant has submitted the FCTP [**APP-546**] which sets out the framework with regard to the implementation of travel planning for the movement of personnel to and from the construction worksites and compounds (including Utility Logistic Hubs) during the construction phase of the Project. The aim of this is to minimise adverse local impacts on the highway network from worker and visitor travel to the worksites and compounds. In particular the FCTP [**APP-546**] commits the Applicant's Contractors to the production of Site-Specific Travel Plans (SSTPs) which would set targets to reduce single occupancy car trips and increase the proportion of workers using public transport. In addition, the FCTP [**APP-546**] commits the Applicant (see Section 6.4) to the provision of shuttle buses from a number of transport hubs – to the north of the Thames these are proposed at Grays, Pitsea and Upminster. These shuttle buses would provide transport to the compounds and Utility Logistic Hubs, as well as compound interconnectivity. These would be for the Project's workforce only and as set out at paragraph 6.4.3 the Contractors would refine the details of the services as part of the production of the SSTPs. 9.8.39 – 9.8.41 This matter is a summary and addressed in detail in the response to sections above.

LIR Reference	Local Impact Report Extract / Applicant's Response
Page 121-122	**9.9 Incident Management** 9.9.1 NH has stated that an objective of the scheme is to increase resilience in the SRN and for the crossing of the River Thames. This is specifically referenced in the Transport Assessment section 7.9 (**APP-529**), where it is stated that LTC would provide an alternative route to the Dartford Crossing under normal operation, but also during network incidents. 9.9.2 The Council has sought to understand the implications of LTC being used during network incidents and conversely the effects on the LRN of the redistribution of traffic in the event of incidents on LTC. Following many months of the Council raising its concerns, NH finally met with the Council on 18 October 2022 to discuss the implications of incidents on the LRN and SRN in Thurrock and how those incidents would be managed. At the meeting NH described current operations for management of incidents at the Dartford Crossing. The Council encouraged NH to collaborate further on understanding the likelihood impacts on Thurrock and the governance of those incidents. NH has not taken up that offer and has not prepared an incident management assessment and plan, which we understand has also been requested by the emergency services. 9.9.3 In the absence of any alternative method, the mechanism for investigating these effects would seem to be through iterations of the LTAM model. The Council has requested iterations of the LTAM model and provided a series of incident scenarios that could be assessed. This assessment has not been provided and so the Council cannot judge the likely effects of incidents on its network. 9.9.4 The road network in Thurrock has suffered frequently from the effects of southbound incidents at the Dartford Crossing. With the introduction of LTC the effects will change, however, that change could include new disruption to the LRN during northbound incidents at the Dartford Crossing as well as increased local demand during southbound incidents and closures. An added complexity would also come from incidents on LTC where drivers are not given adequate notice to reroute before arriving at an incident on LTC and either becoming trapped within LTC or seeking to reroute via the Orsett Cock interchange and onto other local roads. 9.9.5 Currently, the Council is not in a position to form an informed judgement on these effects in the absence of wider LTAM testing and an incident management plan. The Thurrock LTAM 'cordon' traffic model does not allow the Council to run its own tests in the wider area. 9.9.6 Irrespective of the absence of provision of scenario testing of incidents and maintenance events on the surrounding network, the evidence submitted within the DCO does not include any information on an incident management plan. The Council does not agree that the network should be left to find a balance rather than operating under a planned and potentially proactive management plan being put in place which should be regularly reviewed, refined and updated. The Council is aware that this opinion is supported by the emergency services.

LIR Reference	Local Impact Report Extract / Applicant's Response
	9.9.7 **SUMMARY: a stated objective of LTC is to bring resilience to the crossings of River Thames. The Council has not been provided with evidence that LTC will succeed in that objective and has sought to work with NH to understand the strategy to manage incidents on the proposed convoluted network. NH has not provided any evidence or collaborated with the Council on this strategy.**
Applicant's Response	Currently at the Dartford Crossing when incidents do occur, the fact that the Crossing is congested means that it has little resilience and users experience further flow breakdown, resulting in greater delays and even poorer levels of service. Traffic flows are forecast to reduce at the Dartford crossing by an average of 19% in the peak hours as a result of the Project (as set out in Traffic Forecasts Non-Technical Summary [**APP-528**]) which would reduce the likelihood of incidents at Dartford and make the crossing more resilient. A test of the complete closure of either the Dartford Crossing or the Project has not been carried out. The LTAM is not designed as a modelling tool to make forecasts in those circumstances and the behaviour responses of drivers for such limited duration events is not part of the variable demand model elasticities incorporated in the model. This is because assumptions would have to be made on the number of drivers who would not make their trip that day or would change their destination. What is certain is that the normal level of demand for an average weekday that is contained in the LTAM would be affected by such a significant change in the availability of road capacity across the River Thames. The Applicant's design also reduces the risk of incidents occurring. The Dartford Crossing has restrictions on vehicle dimensions in the northbound tunnels and on vehicles carrying hazardous loads. Normal traffic is held approximately every 15 minutes as hazardous load vehicles are escorted through the northbound tunnels, causing traffic to build up on the approach to the northbound crossings. In contrast: 1) The tunnel for the Project has been designed as a Category A tunnel which can be used by vehicles carrying hazardous loads. 2) The tunnel would have dual three-lanes which would enable it to accommodate higher and wider vehicles. 3) The Project has been designed as a free flow addition to the road network and does not have closely spaced junctions (as set out in ComMA Appendix D: Economic Appraisal Package - Economic Appraisal Report [**APP-526**]). This matter is addressed by SoCG [**APP-130**] item 2.1.129, summarised below. The Detailed Local Operating Agreements (DLOA) or a Local Operating Agreement (LOA), required under the oTMPfC [**REP1-174**], outlines procedures for incident management. During the operation phase, incident management will be in accordance with the operation incident management procedures used on the SRN by the Regional Operations Centre (ROC) and traffic officers. The use of VMS and media outlets will be utilised where necessary to communicate alternative routes.

LIR Reference	Local Impact Report Extract / Applicant's Response
	In the event of an incident happening, where appropriate, the ROC will liaise with the various emergency services, traffic officers, the Applicant's network maintainers and other highway authorities to ensure that the resolution of the incident is as quick as possible, and any diversions are managed appropriately. The Applicant is open to discussing existing contingency plans and potential changes required during the Project's construction phase. A further discussion on this matter was held on 13th June 2023. The Applicant requested the Council to respond to the latest information shared on this topic and particularise potential additional commitments over and above the existing commitments in Section 3.2.2 of oTMPfC [**REP1-174**] related to DLOA, for further consideration. This matter remains under discussion.

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